

GDCM

2.6.3

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Contents

1	GDCM Documentation	1
2	Todo List	3
3	Deprecated List	5
4	Bug List	7
5	Namespace Index	9
5.1	Namespace List	9
6	Hierarchical Index	11
6.1	Class Hierarchy	11
7	Class Index	21
7.1	Class List	21
8	File Index	37
8.1	File List	37

9 Namespace Documentation	45
9.1 gdcm Namespace Reference	45
9.1.1 Detailed Description	60
9.1.2 Typedef Documentation	61
9.1.2.1 AECComp	61
9.1.2.2 ASComp	61
9.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER	61
9.1.2.4 CSCComp	61
9.1.2.5 DComp	61
9.1.2.6 DTComp	61
9.1.2.7 FileList	61
9.1.2.8 IconImage	61
9.1.2.9 LOComp	61
9.1.2.10 LTComp	61
9.1.2.11 MacroEntry	61
9.1.2.12 NestedMacroEntries	61
9.1.2.13 PNComp	61
9.1.2.14 SHComp	61
9.1.2.15 STComp	61
9.1.2.16 TMComp	61
9.1.2.17 UIComp	61
9.1.2.18 UTComp	61
9.1.3 Enumeration Type Documentation	61
9.1.3.1 CompOperators	61
9.1.3.2 ECharSet	62
9.1.3.3 ENQueryType	62
9.1.3.4 EQueryLevel	62
9.1.3.5 EQueryType	63

9.1.3.6	ERootType	63
9.1.3.7	LodModeType	63
9.1.4	Function Documentation	63
9.1.4.1	backslash("\\')	63
9.1.4.2	GetVRFromTag(Tag const &tag)	63
9.1.4.3	operator"!=(const CodeString &ref, const CodeString &cs)	63
9.1.4.4	operator"!=(const DataElement &lhs, const DataElement &rhs)	63
9.1.4.5	operator<<(std::ostream &os, const Version &v)	63
9.1.4.6	operator<<(std::ostream &_os, const NestedModuleEntries &_val)	64
9.1.4.7	operator<<(std::ostream &os, const SwapCode &sc)	64
9.1.4.8	operator<<(std::ostream &os, const FileSet &f)	64
9.1.4.9	operator<<(std::ostream &os, const Region &r)	64
9.1.4.10	operator<<(std::ostream &os, Event &e)	64
9.1.4.11	operator<<(std::ostream &os, const PDBelement &val)	64
9.1.4.12	operator<<(std::ostream &os, const CommandDataSet &val)	64
9.1.4.13	operator<<(std::ostream &os, const Orientation &o)	64
9.1.4.14	operator<<(std::ostream &_os, const IODs &_val)	64
9.1.4.15	operator<<(std::ostream &_os, const Macros &_val)	64
9.1.4.16	operator<<(std::ostream &_os, const Modules &_val)	64
9.1.4.17	operator<<(std::ostream &_os, const Type &val)	64
9.1.4.18	operator<<(std::ostream &_os, const ModuleEntry &_val)	65
9.1.4.19	operator<<(std::ostream &_os, const GroupDict &_val)	65
9.1.4.20	operator<<(std::ostream &os, const PrivateTag &val)	65
9.1.4.21	operator<<(std::ostream &_os, const IOD &_val)	65
9.1.4.22	operator<<(std::ostream &os, const File &val)	65
9.1.4.23	operator<<(std::ostream &_os, const Usage &val)	65
9.1.4.24	operator<<(std::ostream &os, const Sorter &s)	65
9.1.4.25	operator<<(std::ostream &os, const CSAHeaderDictEntry &val)	65

9.1.4.26	<code>operator<<(std::ostream &os, const Preamble &val)</code>	65
9.1.4.27	<code>operator<<(std::ostream &_os, const IODEntry &_val)</code>	65
9.1.4.28	<code>operator<<(std::ostream &_os, const Macro &_val)</code>	65
9.1.4.29	<code>operator<<(std::ostream &os, const CSAHeaderDict &val)</code>	65
9.1.4.30	<code>operator<<(std::ostream &os, const Dicts &d)</code>	65
9.1.4.31	<code>operator<<(std::ostream &os, const PDBHeader &d)</code>	65
9.1.4.32	<code>operator<<(std::ostream &os, const CodeString &str)</code>	66
9.1.4.33	<code>operator<<(std::ostream &os, const Directory &d)</code>	66
9.1.4.34	<code>operator<<(std::ostream &_os, const Module &_val)</code>	66
9.1.4.35	<code>operator<<(std::ostream &os, const PhotometricInterpretation &val)</code>	66
9.1.4.36	<code>operator<<(std::ostream &os, const Global &g)</code>	66
9.1.4.37	<code>operator<<(std::ostream &os, const Object &obj)</code>	66
9.1.4.38	<code>operator<<(std::ostream &os, const BasicOffsetTable &val)</code>	66
9.1.4.39	<code>operator<<(std::ostream &os, const DictEntry &val)</code>	66
9.1.4.40	<code>operator<<(std::ostream &os, const VL &val)</code>	66
9.1.4.41	<code>operator<<(std::ostream &os, const CSAElement &val)</code>	66
9.1.4.42	<code>operator<<(std::ostream &os, const CSAHeader &d)</code>	67
9.1.4.43	<code>operator<<(std::ostream &os, const FileMetaInformation &val)</code>	67
9.1.4.44	<code>operator<<(std::ostream &_os, const TransferSyntax &ts)</code>	67
9.1.4.45	<code>operator<<(std::ostream &_os, const VM &_val)</code>	67
9.1.4.46	<code>operator<<(std::ostream &os, const StrictScanner &s)</code>	67
9.1.4.47	<code>operator<<(std::ostream &os, const Scanner &s)</code>	67
9.1.4.48	<code>operator<<(std::ostream &os, const Dict &val)</code>	67
9.1.4.49	<code>operator<<(std::ostream &_os, const MediaStorage &ms)</code>	67
9.1.4.50	<code>operator<<(std::ostream &_os, const VR &val)</code>	67
9.1.4.51	<code>operator<<(std::ostream &os, const Fragment &val)</code>	67
9.1.4.52	<code>operator<<(std::ostream &os, const PixelFormat &pf)</code>	68
9.1.4.53	<code>operator<<(std::ostream &_os, const UI &_val)</code>	68

9.1.4.54	<code>operator<<(std::ostream &os, const DataElement &val)</code>	68
9.1.4.55	<code>operator<<(std::ostream &_os, const Tag &_val)</code>	68
9.1.4.56	<code>operator<<(std::ostream &os, const Item &val)</code>	68
9.1.4.57	<code>operator<<(std::ostream &os, const DataSet &val)</code>	68
9.1.4.58	<code>operator<<(std::ostream &os, const PrivateDict &val)</code>	68
9.1.4.59	<code>operator<<(std::ostream &_os, const UIDs &uid)</code>	68
9.1.4.60	<code>operator==(const CodeString &ref, const CodeString &cs)</code>	68
9.1.4.61	<code>operator>>(std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)</code>	69
9.1.4.62	<code>operator>>(std::istream &in, ignore_char const &ic)</code>	69
9.1.4.63	<code>operator>>(std::istream &_is, Tag &_val)</code>	69
9.1.4.64	<code>to_string(Float data)</code>	69
9.1.4.65	<code>TYPETOENCODING(SQ, VRBINARY, unsigned char) TYPETOENCODING(UN</code>	69
9.1.5	Variable Documentation	69
9.1.5.1	GlobalInstance	69
9.1.5.2	VRBINARY	69
9.2	gdcm::network Namespace Reference	69
9.2.1	Enumeration Type Documentation	74
9.2.1.1	EEventID	74
9.2.1.2	EStateID	75
9.2.2	Function Documentation	75
9.2.2.1	GetStateIndex(EStateID inState)	75
9.2.3	Variable Documentation	75
9.2.3.1	cMaxEventID	75
9.2.3.2	cMaxStateID	75
9.3	gdcm::SegmentHelper Namespace Reference	76
9.4	gdcm::terminal Namespace Reference	76
9.4.1	Detailed Description	76
9.4.2	Enumeration Type Documentation	77
9.4.2.1	Attribute	77
9.4.2.2	Color	77
9.4.2.3	Mode	77
9.4.3	Function Documentation	77
9.4.3.1	setAttribute(Attribute att)	77
9.4.3.2	setbgcolor(Color c)	77
9.4.3.3	setfgcolor(Color c)	77
9.4.3.4	setmode(Mode m)	77

10 Class Documentation	79
10.1 gdcn::network::AAbortPDU Class Reference	79
10.1.1 Detailed Description	80
10.1.2 Constructor & Destructor Documentation	80
10.1.2.1 AAbortPDU()	80
10.1.3 Member Function Documentation	80
10.1.3.1 IsLastFragment() const	80
10.1.3.2 Print(std::ostream &os) const	80
10.1.3.3 Read(std::istream &is)	80
10.1.3.4 SetReason(const uint8_t r)	80
10.1.3.5 SetSource(const uint8_t s)	80
10.1.3.6 Size() const	80
10.1.3.7 Write(std::ostream &os) const	81
10.2 gdcn::network::AAssociateACPDU Class Reference	81
10.2.1 Detailed Description	82
10.2.2 Member Typedef Documentation	82
10.2.2.1 SizeType	82
10.2.3 Constructor & Destructor Documentation	82
10.2.3.1 AAssociateACPDU()	82
10.2.4 Member Function Documentation	82
10.2.4.1 AddPresentationContextAC(PresentationContextAC const &pcac)	82
10.2.4.2 GetNumberOfPresentationContextAC() const	82
10.2.4.3 GetPresentationContextAC(SizeType i)	82
10.2.4.4 GetUserInfo() const	82
10.2.4.5 InitFromRQ(AAssociateRQPDU const &rqpdu)	83
10.2.4.6 IsLastFragment() const	83
10.2.4.7 Print(std::ostream &os) const	83
10.2.4.8 Read(std::istream &is)	83

10.2.4.9	SetCalledAETitle(const char calledaetitle[16])	83
10.2.4.10	SetCallingAETitle(const char callingaetitle[16])	83
10.2.4.11	Size() const	83
10.2.4.12	Write(std::ostream &os) const	83
10.2.5	Friends And Related Function Documentation	83
10.2.5.1	AAssociateRQPDU	83
10.3	gdcm::network::AAssociateRJPDU Class Reference	84
10.3.1	Detailed Description	85
10.3.2	Constructor & Destructor Documentation	85
10.3.2.1	AAssociateRJPDU()	85
10.3.3	Member Function Documentation	85
10.3.3.1	IsLastFragment() const	85
10.3.3.2	Print(std::ostream &os) const	85
10.3.3.3	Read(std::istream &is)	85
10.3.3.4	Size() const	85
10.3.3.5	Write(std::ostream &os) const	85
10.4	gdcm::network::AAssociateRQPDU Class Reference	86
10.4.1	Detailed Description	87
10.4.2	Member Typedef Documentation	88
10.4.2.1	PresentationContextArrayType	88
10.4.2.2	SizeType	88
10.4.3	Constructor & Destructor Documentation	88
10.4.3.1	AAssociateRQPDU()	88
10.4.3.2	AAssociateRQPDU(const AAssociateRQPDU &pdu)	88
10.4.4	Member Function Documentation	88
10.4.4.1	AddPresentationContext(PresentationContextRQ const &pc)	88
10.4.4.2	GetCalledAETitle() const	88
10.4.4.3	GetCallingAETitle() const	88

10.4.4.4	GetNumberOfPresentationContext() const	88
10.4.4.5	GetPresentationContext(SizeType i) const	88
10.4.4.6	GetPresentationContextByAbstractSyntax(AbstractSyntax const &absyn) const	88
10.4.4.7	GetPresentationContextByID(uint8_t i) const	88
10.4.4.8	GetPresentationContexts()	89
10.4.4.9	GetReserved43_74() const	89
10.4.4.10	GetUserInformation() const	89
10.4.4.11	IsAETitleValid(const char title[16])	89
10.4.4.12	IsLastFragment() const	89
10.4.4.13	Print(std::ostream &os) const	89
10.4.4.14	Read(std::istream &is)	89
10.4.4.15	SetCalledAETitle(const char calledaetitle[16])	89
10.4.4.16	SetCallingAETitle(const char callingaetitle[16])	90
10.4.4.17	SetUserInformation(UserInformation const &ui)	90
10.4.4.18	Size() const	90
10.4.4.19	Write(std::ostream &os) const	90
10.4.5	Friends And Related Function Documentation	90
10.4.5.1	AAssociateACPDU	90
10.5	gdcm::AbortEvent Class Reference	90
10.6	gdcm::network::AbstractSyntax Class Reference	91
10.6.1	Detailed Description	92
10.6.2	Constructor & Destructor Documentation	92
10.6.2.1	AbstractSyntax()	92
10.6.3	Member Function Documentation	92
10.6.3.1	GetAsDataElement() const	92
10.6.3.2	GetName() const	92
10.6.3.3	operator==(const AbstractSyntax &as) const	92
10.6.3.4	Print(std::ostream &os) const	92

10.6.3.5	Read(std::istream &is)	92
10.6.3.6	SetName(const char *name)	92
10.6.3.7	SetNameFromUID(UIDs::TSName tsname)	92
10.6.3.8	Size() const	92
10.6.3.9	Write(std::ostream &os) const	93
10.7	gdcm::AnonymizeEvent Class Reference	93
10.7.1	Detailed Description	94
10.7.2	Member Typedef Documentation	94
10.7.2.1	Self	94
10.7.2.2	Superclass	94
10.7.3	Constructor & Destructor Documentation	94
10.7.3.1	AnonymizeEvent(Tag const &tag=0)	94
10.7.3.2	~AnonymizeEvent()	94
10.7.3.3	AnonymizeEvent(const Self &s)	94
10.7.4	Member Function Documentation	94
10.7.4.1	CheckEvent(const ::gdcm::Event *e) const	94
10.7.4.2	GetEventName() const	94
10.7.4.3	GetTag() const	95
10.7.4.4	MakeObject() const	95
10.7.4.5	SetTag(const Tag &t)	95
10.8	gdcm::Anonymizer Class Reference	95
10.8.1	Detailed Description	97
10.8.2	Constructor & Destructor Documentation	98
10.8.2.1	Anonymizer()	98
10.8.2.2	~Anonymizer()	98
10.8.3	Member Function Documentation	98
10.8.3.1	BALCPPProtect(DataSet &ds, Tag const &tag, const IOD &iod)	98
10.8.3.2	BasicApplicationLevelConfidentialityProfile(bool deidentify=true)	98

10.8.3.3 CanEmptyTag(Tag const &tag, const IOD &iod) const	98
10.8.3.4 ClearInternalUIDs()	98
10.8.3.5 Empty(Tag const &t)	98
10.8.3.6 GetBasicApplicationLevelConfidentialityProfileAttributes()	99
10.8.3.7 GetCryptographicMessageSyntax() const	99
10.8.3.8 GetFile()	99
10.8.3.9 New()	99
10.8.3.10 RecurseDataSet(DataSet &ds)	99
10.8.3.11 Remove(Tag const &t)	99
10.8.3.12 RemoveGroupLength()	99
10.8.3.13 RemovePrivateTags()	99
10.8.3.14 RemoveRetired()	99
10.8.3.15 Replace(Tag const &t, const char *value)	100
10.8.3.16 Replace(Tag const &t, const char *value, VL const &vl)	100
10.8.3.17 SetCryptographicMessageSyntax(CryptographicMessageSyntax *cms)	100
10.8.3.18 SetFile(const File &f)	100
10.9 gdcm::AnyEvent Class Reference	100
10.10gdcm::network::ApplicationContext Class Reference	102
10.10.1 Detailed Description	102
10.10.2 Constructor & Destructor Documentation	103
10.10.2.1 ApplicationContext()	103
10.10.3 Member Function Documentation	103
10.10.3.1 GetName() const	103
10.10.3.2 Print(std::ostream &os) const	103
10.10.3.3 Read(std::istream &is)	103
10.10.3.4 SetName(const char *name)	103
10.10.3.5 Size() const	103
10.10.3.6 Write(std::ostream &os) const	103

10.11gdcmm::ApplicationEntity Class Reference	104
10.11.1 Detailed Description	105
10.11.2 Member Function Documentation	105
10.11.2.1 IsValid() const	105
10.11.2.2 Print(std::ostream &os) const	105
10.11.2.3 SetBlob(const std::vector< char > &v)	105
10.11.2.4 Squeeze()	105
10.11.3 Member Data Documentation	105
10.11.3.1 Internal	105
10.11.3.2 MaxLength	105
10.11.3.3 MaxNumberOfComponents	105
10.11.3.4 Padding	105
10.11.3.5 Separator	105
10.12gdcmm::network::AReleaseRPPDU Class Reference	106
10.12.1 Detailed Description	107
10.12.2 Constructor & Destructor Documentation	107
10.12.2.1 AReleaseRPPDU()	107
10.12.3 Member Function Documentation	107
10.12.3.1 IsLastFragment() const	107
10.12.3.2 Print(std::ostream &os) const	107
10.12.3.3 Read(std::istream &is)	107
10.12.3.4 Size() const	107
10.12.3.5 Write(std::ostream &os) const	107
10.13gdcmm::network::AReleaseRQPDU Class Reference	108
10.13.1 Detailed Description	109
10.13.2 Constructor & Destructor Documentation	109
10.13.2.1 AReleaseRQPDU()	109
10.13.3 Member Function Documentation	109

10.13.3.1 IsLastFragment() const	109
10.13.3.2 Print(std::ostream &os) const	109
10.13.3.3 Read(std::istream &is)	109
10.13.3.4 Size() const	109
10.13.3.5 Write(std::ostream &os) const	109
10.14gdcm::network::ARTIMTimer Class Reference	109
10.14.1 Detailed Description	110
10.14.2 Constructor & Destructor Documentation	110
10.14.2.1 ARTIMTimer()	110
10.14.3 Member Function Documentation	110
10.14.3.1 GetElapsedTime() const	110
10.14.3.2 GetHasExpired() const	110
10.14.3.3 GetTimeout() const	110
10.14.3.4 SetTimeout(double inTimeout)	110
10.14.3.5 Start()	110
10.14.3.6 Stop()	110
10.15gdcm::ASN1 Class Reference	111
10.15.1 Detailed Description	111
10.15.2 Constructor & Destructor Documentation	111
10.15.2.1 ASN1()	111
10.15.2.2 ~ASN1()	111
10.15.3 Member Function Documentation	111
10.15.3.1 ParseDump(const char *array, size_t length)	111
10.15.3.2 ParseDumpFile(const char *filename)	111
10.15.3.3 TestPBKDF2()	111
10.16gdcm::network::AsynchronousOperationsWindowSub Class Reference	112
10.16.1 Detailed Description	112
10.16.2 Constructor & Destructor Documentation	112

10.16.2.1 AsynchronousOperationsWindowSub()	112
10.16.3 Member Function Documentation	112
10.16.3.1 Print(std::ostream &os) const	112
10.16.3.2 Read(std::istream &is)	112
10.16.3.3 Size() const	112
10.16.3.4 Write(std::ostream &os) const	112
10.17 gdcmm::Attribute< Group, Element, TVR, TVM > Class Template Reference	113
10.17.1 Detailed Description	114
10.17.2 Member Typedef Documentation	115
10.17.2.1 ArrayType	115
10.17.3 Member Enumeration Documentation	115
10.17.3.1 anonymous enum	115
10.17.4 Member Function Documentation	115
10.17.4.1 GDCM_STATIC_ASSERT(((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))	115
10.17.4.2 GDCM_STATIC_ASSERT(((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)))	115
10.17.4.3 GDCM_STATIC_ASSERT((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) TVM==VM::VM1))" | " | "!(VR::VRType) TVR &VR::VR_VM1))	115
10.17.4.4 GetAsDataElement() const	115
10.17.4.5 GetDictVM()	115
10.17.4.6 GetDictVR()	115
10.17.4.7 GetNumberOfValues() const	115
10.17.4.8 GetTag()	116
10.17.4.9 GetValue(unsigned int idx=0)	116
10.17.4.10 GetValue(unsigned int idx=0) const	116
10.17.4.11 GetValues() const	116
10.17.4.12 GetVM()	116
10.17.4.13 GetVR()	116

10.17.4.14	<code>operator!=(const Attribute &att) const</code>	116
10.17.4.15	<code>operator<(const Attribute &att) const</code>	116
10.17.4.16	<code>operator==(const Attribute &att) const</code>	116
10.17.4.17	<code>operator[](unsigned int idx)</code>	117
10.17.4.18	<code>operator[](unsigned int idx) const</code>	117
10.17.4.19	<code>Print(std::ostream &os) const</code>	117
10.17.4.20	<code>Set(DataSet const &ds)</code>	117
10.17.4.21	<code>SetByteValue(const ByteValue *bv)</code>	117
10.17.4.22	<code>SetByteValueNoSwap(const ByteValue *bv)</code>	117
10.17.4.23	<code>SetFromDataElement(DataElement const &de)</code>	117
10.17.4.24	<code>SetFromDataSet(DataSet const &ds)</code>	117
10.17.4.25	<code>SetValue(ArrayType v, unsigned int idx=0)</code>	118
10.17.4.26	<code>SetValues(const ArrayType *array, unsigned int numel=VMType)</code>	118
10.17.5	Member Data Documentation	118
10.17.5.1	Internal	118
10.18	<code>gdcm::Attribute< Group, Element, TVR, VM::VM1 ></code> Class Template Reference	118
10.18.1	Member Typedef Documentation	120
10.18.1.1	ArrayType	120
10.18.2	Member Enumeration Documentation	120
10.18.2.1	anonymous enum	120
10.18.3	Member Function Documentation	120
10.18.3.1	<code>GDCM_STATIC_ASSERT(VMToLength< VM::VM1 >::Length==1)</code>	120
10.18.3.2	<code>GDCM_STATIC_ASSERT(((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))</code>	120
10.18.3.3	<code>GDCM_STATIC_ASSERT(((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)))</code>	120
10.18.3.4	<code>GDCM_STATIC_ASSERT((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) VM::VM1==VM::VM1))" | " | "!(VR::VRType) TVR &VR::VR_VM1)))</code>	120
10.18.3.5	<code>GetAsDataElement() const</code>	120

10.18.3.6 GetDictVM()	120
10.18.3.7 GetDictVR()	120
10.18.3.8 GetNumberOfValues() const	120
10.18.3.9 GetTag()	121
10.18.3.10 GetValue()	121
10.18.3.11 GetValue() const	121
10.18.3.12 GetValues() const	121
10.18.3.13 GetVM()	121
10.18.3.14 GetVR()	121
10.18.3.15 operator!=(const Attribute &att) const	121
10.18.3.16 operator<(const Attribute &att) const	121
10.18.3.17 operator==(const Attribute &att) const	121
10.18.3.18 Print(std::ostream &os) const	121
10.18.3.19 Set(DataSet const &ds)	121
10.18.3.20 SetByteValue(const ByteValue *bv)	122
10.18.3.21 SetByteValueNoSwap(const ByteValue *bv)	122
10.18.3.22 SetFromDataElement(DataElement const &de)	122
10.18.3.23 SetFromDataSet(DataSet const &ds)	122
10.18.3.24 SetValue(ArrayType v)	122
10.18.4 Member Data Documentation	122
10.18.4.1 Internal	122
10.19 gdcmm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference	123
10.19.1 Member Function Documentation	124
10.19.1.1 GetVM() const	124
10.20 gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference	124
10.20.1 Member Function Documentation	125
10.20.1.1 GetVM() const	125
10.21 gdcmm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference	125

10.21.1 Member Typedef Documentation	126
10.21.1.1 ArrayType	126
10.21.2 Constructor & Destructor Documentation	126
10.21.2.1 Attribute()	126
10.21.2.2 ~Attribute()	127
10.21.3 Member Function Documentation	127
10.21.3.1 GDCM_STATIC_ASSERT(((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))	127
10.21.3.2 GDCM_STATIC_ASSERT((VM::VM1_n &(VM::VMType)(TagToType< Group, Ele- ment >::VMType)))	127
10.21.3.3 GDCM_STATIC_ASSERT((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))" | " |"!(VR::VRType) TVR &VR::VR_VM1)))	127
10.21.3.4 GetAsDataElement() const	127
10.21.3.5 GetDictVM()	127
10.21.3.6 GetDictVR()	127
10.21.3.7 GetNumberOfValues() const	127
10.21.3.8 GetTag()	127
10.21.3.9 GetValue(unsigned int idx=0)	127
10.21.3.10 GetValue(unsigned int idx=0) const	127
10.21.3.11 GetValues() const	127
10.21.3.12 GetVM()	127
10.21.3.13 GetVR()	128
10.21.3.14 operator[](unsigned int idx)	128
10.21.3.15 operator[](unsigned int idx) const	128
10.21.3.16 Print(std::ostream &os) const	128
10.21.3.17 Set(DataSet const &ds)	128
10.21.3.18 SetByteValue(const ByteValue *bv)	128
10.21.3.19 SetFromDataElement(DataElement const &de)	128
10.21.3.20 SetFromDataSet(DataSet const &ds)	128

10.21.3.21SetNumberOfValues(unsigned int numel)	128
10.21.3.22SetValue(unsigned int idx, ArrayType v)	128
10.21.3.23SetValue(ArrayType v)	128
10.21.3.24SetValues(const ArrayType *array, unsigned int numel, bool own=false)	129
10.22gdcmm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference	129
10.22.1 Member Function Documentation	130
10.22.1.1 GetVM()	130
10.23gdcmm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference	130
10.23.1 Member Function Documentation	132
10.23.1.1 GetVM() const	132
10.24gdcmm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference	132
10.24.1 Member Function Documentation	133
10.24.1.1 GetVM()	133
10.25gdcmm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference	134
10.25.1 Member Function Documentation	135
10.25.1.1 GetVM()	135
10.26gdcmm::AudioCodec Class Reference	135
10.26.1 Detailed Description	136
10.26.2 Constructor & Destructor Documentation	136
10.26.2.1 AudioCodec()	136
10.26.2.2 ~AudioCodec()	136
10.26.3 Member Function Documentation	136
10.26.3.1 CanCode(TransferSyntax const &) const	136
10.26.3.2 CanDecode(TransferSyntax const &) const	137
10.26.3.3 Decode(DataElement const &is, DataElement &os)	137
10.27gdcmm::Base64 Class Reference	137
10.27.1 Detailed Description	137
10.27.2 Member Function Documentation	137

10.27.2.1 Decode(char *dst, size_t dlen, const char *src, size_t slen)	137
10.27.2.2 Encode(char *dst, size_t dlen, const char *src, size_t slen)	138
10.27.2.3 GetDecodeLength(const char *src, size_t len)	138
10.27.2.4 GetEncodeLength(const char *src, size_t srclen)	138
10.28gdcm::network::BaseCompositeMessage Class Reference	139
10.28.1 Detailed Description	139
10.28.2 Constructor & Destructor Documentation	140
10.28.2.1 ~BaseCompositeMessage()	140
10.28.3 Member Function Documentation	140
10.28.3.1 ConstructPDV(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0	140
10.29gdcm::network::BaseNormalizedMessage Class Reference	140
10.29.1 Detailed Description	141
10.29.2 Constructor & Destructor Documentation	142
10.29.2.1 ~BaseNormalizedMessage()	142
10.29.3 Member Function Documentation	142
10.29.3.1 ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)=0	142
10.30gdcm::network::BasePDU Class Reference	143
10.30.1 Detailed Description	143
10.30.2 Constructor & Destructor Documentation	144
10.30.2.1 ~BasePDU()	144
10.30.3 Member Function Documentation	144
10.30.3.1 IsLastFragment() const =0	144
10.30.3.2 Print(std::ostream &os) const =0	144
10.30.3.3 Read(std::istream &is)=0	144
10.30.3.4 Size() const =0	145
10.30.3.5 Write(std::ostream &os) const =0	145
10.31gdcm::BaseQuery Class Reference	145

10.31.1 Detailed Description	147
10.31.2 Constructor & Destructor Documentation	147
10.31.2.1 BaseQuery()	147
10.31.2.2 ~BaseQuery()	147
10.31.3 Member Function Documentation	147
10.31.3.1 AddQueryDataSet(const DataSet &ds)	147
10.31.3.2 GetAbstractSyntaxUID() const =0	147
10.31.3.3 GetQueryDataSet() const	147
10.31.3.4 GetQueryDataSet()	147
10.31.3.5 GetSOPInstanceUID() const	147
10.31.3.6 Print(std::ostream &os) const	147
10.31.3.7 SetSearchParameter(const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)	148
10.31.3.8 SetSearchParameter(const Tag &inTag, const std::string &inValue)	148
10.31.3.9 SetSearchParameter(const std::string &inKeyword, const std::string &inValue)	148
10.31.3.10 SetSOPInstanceUID(const std::string &iSopInstanceUID)	148
10.31.3.11 ValidateQuery(bool inStrict=true) const =0	148
10.31.3.12 ValidDataSet(const DataSet &dataSetToValid, const DataSet &dataSetReference) const	148
10.31.3.13 WriteHelpFile(std::ostream &os)	148
10.31.3.14 WriteQuery(const std::string &inFileName)	148
10.31.4 Friends And Related Function Documentation	148
10.31.4.1 QueryFactory	148
10.31.5 Member Data Documentation	148
10.31.5.1 mDataSet	148
10.31.5.2 mHelpDescription	148
10.31.5.3 mSopInstanceUID	148
10.32 gdcmm::BaseRootQuery Class Reference	149
10.32.1 Detailed Description	150

10.32.2 Constructor & Destructor Documentation	150
10.32.2.1 BaseRootQuery()	150
10.32.2.2 ~BaseRootQuery()	150
10.32.3 Member Function Documentation	150
10.32.3.1 Construct(ERootType inRootType, EQueryLevel ql)	150
10.32.3.2 GetQueryLevelFromQueryRoot(ERootType roottype)	150
10.32.3.3 GetQueryLevelFromString(const char *str)	150
10.32.3.4 GetQueryLevelString(EQueryLevel ql)	150
10.32.3.5 GetTagListByLevel(const EQueryLevel &inQueryLevel)=0	150
10.32.3.6 InitializeDataSet(const EQueryLevel &inQueryLevel)=0	151
10.32.3.7 ValidateQuery(bool inStrict=true) const =0	151
10.32.4 Friends And Related Function Documentation	151
10.32.4.1 QueryFactory	151
10.32.5 Member Data Documentation	151
10.32.5.1 mHelpDescription	151
10.32.5.2 mImage	151
10.32.5.3 mPatient	151
10.32.5.4 mRootType	151
10.32.5.5 mSeries	151
10.32.5.6 mStudy	151
10.33gdcmm::SegmentHelper::BasicCodedEntry Struct Reference	152
10.33.1 Detailed Description	153
10.33.2 Constructor & Destructor Documentation	153
10.33.2.1 BasicCodedEntry()	153
10.33.2.2 BasicCodedEntry(const char *a_CV, const char *a_CSD, const char *a_CM)	153
10.33.2.3 BasicCodedEntry(const char *a_CV, const char *a_CSD, const char *a_CSV, const char *a_CM)	153
10.33.3 Member Function Documentation	153

10.33.3.1 IsEmpty(const bool checkOptionalAttributes=false) const	153
10.33.4 Member Data Documentation	153
10.33.4.1 CM	154
10.33.4.2 CSD	154
10.33.4.3 CSV	154
10.33.4.4 CV	154
10.34gdcm::BasicOffsetTable Class Reference	154
10.34.1 Detailed Description	155
10.34.2 Constructor & Destructor Documentation	155
10.34.2.1 BasicOffsetTable()	155
10.34.3 Member Function Documentation	156
10.34.3.1 Read(std::istream &is)	156
10.34.4 Friends And Related Function Documentation	156
10.34.4.1 operator<<	156
10.35gdcm::Bitmap Class Reference	156
10.35.1 Detailed Description	159
10.35.2 Member Typedef Documentation	159
10.35.2.1 LUTPtr	159
10.35.3 Constructor & Destructor Documentation	159
10.35.3.1 Bitmap()	159
10.35.3.2 ~Bitmap()	159
10.35.4 Member Function Documentation	159
10.35.4.1 AreOverlaysInPixelData() const	159
10.35.4.2 Clear()	159
10.35.4.3 ComputeLossyFlag()	159
10.35.4.4 GetBuffer(char *buffer) const	159
10.35.4.5 GetBuffer2(std::ostream &os) const	160
10.35.4.6 GetBufferLength() const	160

10.35.4.7 GetColumns() const	160
10.35.4.8 GetDataElement() const	160
10.35.4.9 GetDataElement()	160
10.35.4.10 GetDimension(unsigned int idx) const	160
10.35.4.11 GetDimensions() const	160
10.35.4.12 GetLUT() const	160
10.35.4.13 GetLUT()	161
10.35.4.14 GetNeedByteSwap() const	161
10.35.4.15 GetNumberOfDimensions() const	161
10.35.4.16 GetPhotometricInterpretation() const	161
10.35.4.17 GetPixelFormat() const	161
10.35.4.18 GetPixelFormat()	161
10.35.4.19 GetPlanarConfiguration() const	161
10.35.4.20 GetRows() const	161
10.35.4.21 GetTransferSyntax() const	161
10.35.4.22 IsEmpty() const	162
10.35.4.23 IsLossy() const	162
10.35.4.24 IsTransferSyntaxCompatible(TransferSyntax const &ts) const	162
10.35.4.25 Print(std::ostream &) const	162
10.35.4.26 SetColumns(unsigned int col)	162
10.35.4.27 SetDataElement(DataElement const &de)	162
10.35.4.28 SetDimension(unsigned int idx, unsigned int dim)	162
10.35.4.29 SetDimensions(const unsigned int dims[3])	162
10.35.4.30 SetLossyFlag(bool f)	162
10.35.4.31 SetLUT(LookupTable const &lut)	163
10.35.4.32 SetNeedByteSwap(bool b)	163
10.35.4.33 SetNumberOfDimensions(unsigned int dim)	163
10.35.4.34 SetPhotometricInterpretation(PhotometricInterpretation const &pi)	163

10.35.4.35	SetPixelFormat(PixelFormat const &pf)	163
10.35.4.36	SetPlanarConfiguration(unsigned int pc)	163
10.35.4.37	SetRows(unsigned int rows)	163
10.35.4.38	SetTransferSyntax(TransferSyntax const &ts)	163
10.35.4.39	TryJPEG2000Codec(char *buffer, bool &lossyflag) const	164
10.35.4.40	TryJPEG2000Codec2(std::ostream &os) const	164
10.35.4.41	TryJPEGCodec(char *buffer, bool &lossyflag) const	164
10.35.4.42	TryJPEGCodec2(std::ostream &os) const	164
10.35.4.43	TryJPEGLSCodec(char *buffer, bool &lossyflag) const	164
10.35.4.44	TryKAKADUCodec(char *buffer, bool &lossyflag) const	164
10.35.4.45	TryPVRGCodec(char *buffer, bool &lossyflag) const	164
10.35.4.46	TryRAWCodec(char *buffer, bool &lossyflag) const	164
10.35.4.47	TryRLECodec(char *buffer, bool &lossyflag) const	164
10.35.5	Friends And Related Function Documentation	164
10.35.5.1	ImageChangeTransferSyntax	164
10.35.5.2	PixmapReader	164
10.35.6	Member Data Documentation	164
10.35.6.1	Dimensions	164
10.35.6.2	LossyFlag	164
10.35.6.3	LUT	164
10.35.6.4	NeedByteSwap	164
10.35.6.5	NumberOfDimensions	164
10.35.6.6	PF	164
10.35.6.7	PI	164
10.35.6.8	PixelData	164
10.35.6.9	PlanarConfiguration	164
10.35.6.10	TS	164
10.36	gdcm::BitmapToBitmapFilter Class Reference	165

10.36.1 Detailed Description	166
10.36.2 Constructor & Destructor Documentation	166
10.36.2.1 BitmapToBitmapFilter()	166
10.36.2.2 ~BitmapToBitmapFilter()	166
10.36.3 Member Function Documentation	166
10.36.3.1 GetOutput() const	166
10.36.3.2 GetOutputAsBitmap() const	166
10.36.3.3 SetInput(const Bitmap &image)	166
10.36.4 Member Data Documentation	166
10.36.4.1 Input	166
10.36.4.2 Output	166
10.37gdcmm::BoxRegion Class Reference	167
10.37.1 Detailed Description	168
10.37.2 Constructor & Destructor Documentation	168
10.37.2.1 BoxRegion()	168
10.37.2.2 ~BoxRegion()	168
10.37.2.3 BoxRegion(const BoxRegion &)	168
10.37.3 Member Function Documentation	169
10.37.3.1 Area() const	169
10.37.3.2 BoundingBox(BoxRegion const &b1, BoxRegion const &b2)	169
10.37.3.3 Clone() const	169
10.37.3.4 ComputeBoundingBox()	169
10.37.3.5 Empty() const	169
10.37.3.6 GetXMax() const	169
10.37.3.7 GetXMin() const	169
10.37.3.8 GetYMax() const	170
10.37.3.9 GetYMin() const	170
10.37.3.10GetZMax() const	170

10.37.3.11	<code>GetZMin() const</code>	170
10.37.3.12	<code>IsValid() const</code>	170
10.37.3.13	<code>operator=(const BoxRegion &)</code>	170
10.37.3.14	<code>Print(std::ostream &os=std::cout) const</code>	170
10.37.3.15	<code>SetDomain(unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)</code>	170
10.38	<code>gdcm::ByteBuffer</code> Class Reference	170
10.38.1	Detailed Description	171
10.38.2	Constructor & Destructor Documentation	171
10.38.2.1	<code>ByteBuffer()</code>	171
10.38.3	Member Function Documentation	171
10.38.3.1	<code>Get(int len)</code>	171
10.38.3.2	<code>GetStart() const</code>	171
10.38.3.3	<code>ShiftEnd(int len)</code>	171
10.38.3.4	<code>UpdatePosition()</code>	171
10.39	<code>gdcm::ByteSwap< T ></code> Class Template Reference	171
10.39.1	Detailed Description	172
10.39.2	Member Function Documentation	172
10.39.2.1	<code>Swap(T &p)</code>	172
10.39.2.2	<code>SwapFromSwapCodeIntoSystem(T &p, SwapCode const &sc)</code>	172
10.39.2.3	<code>SwapRange(T *p, unsigned int num)</code>	172
10.39.2.4	<code>SwapRangeFromSwapCodeIntoSystem(T *p, SwapCode const &sc, std::streamoff num)</code>	172
10.39.2.5	<code>SystemIsBigEndian()</code>	172
10.39.2.6	<code>SystemIsLittleEndian()</code>	172
10.40	<code>gdcm::ByteSwapFilter</code> Class Reference	173
10.40.1	Detailed Description	173
10.40.2	Constructor & Destructor Documentation	173
10.40.2.1	<code>ByteSwapFilter(DataSet &ds)</code>	173

10.40.2.2 ~ByteSwapFilter()	173
10.40.3 Member Function Documentation	173
10.40.3.1 ByteSwap()	173
10.40.3.2 SetByteSwapTag(bool b)	173
10.41gdcm::ByteValue Class Reference	174
10.41.1 Detailed Description	175
10.41.2 Constructor & Destructor Documentation	176
10.41.2.1 ByteValue(const char *array=0, VL const &vl=0)	176
10.41.2.2 ByteValue(std::vector< char > &v)	176
10.41.2.3 ~ByteValue()	176
10.41.3 Member Function Documentation	176
10.41.3.1 Append(ByteValue const &bv)	176
10.41.3.2 Clear()	176
10.41.3.3 ComputeLength() const	176
10.41.3.4 Fill(char c)	176
10.41.3.5 GetBuffer(char *buffer, unsigned long length) const	176
10.41.3.6 GetLength() const	177
10.41.3.7 GetPointer() const	177
10.41.3.8 IsEmpty() const	177
10.41.3.9 IsPrintable(VL length) const	177
10.41.3.10operator const std::vector< char > &() const	177
10.41.3.11operator=(const ByteValue &val)	177
10.41.3.12operator==(const ByteValue &val) const	177
10.41.3.13operator==(const Value &val) const	177
10.41.3.14Print(std::ostream &os) const	178
10.41.3.15PrintASCII(std::ostream &os, VL maxlength) const	178
10.41.3.16PrintASCIIXML(std::ostream &os) const	178
10.41.3.17PrintGroupLength(std::ostream &os)	178

10.41.3.18	PrintHex(std::ostream &os, VL maxlength) const	178
10.41.3.19	PrintHexXML(std::ostream &os) const	178
10.41.3.20	PrintPNXML(std::ostream &os) const	178
10.41.3.21	Read(std::istream &is, bool readvalues=true)	178
10.41.3.22	Read(std::istream &is)	178
10.41.3.23	SetLength(VL vl)	178
10.41.3.24	SetLengthOnly(VL vl)	178
10.41.3.25	Write(std::ostream &os) const	178
10.41.3.26	Write(std::ostream &os) const	178
10.41.3.27	WriteBuffer(std::ostream &os) const	178
10.42	gdcm::CAPICryptoFactory Class Reference	179
10.42.1	Constructor & Destructor Documentation	179
10.42.1.1	CAPICryptoFactory(CryptoLib id)	179
10.42.2	Member Function Documentation	180
10.42.2.1	CreateCMSProvider()	180
10.43	gdcm::CAPICryptographicMessageSyntax Class Reference	180
10.43.1	Constructor & Destructor Documentation	181
10.43.1.1	CAPICryptographicMessageSyntax()	181
10.43.1.2	~CAPICryptographicMessageSyntax()	181
10.43.2	Member Function Documentation	181
10.43.2.1	Decrypt(char *output, size_t &outlen, const char *array, size_t len) const	181
10.43.2.2	Encrypt(char *output, size_t &outlen, const char *array, size_t len) const	181
10.43.2.3	GetCipherType() const	181
10.43.2.4	GetInitialized() const	182
10.43.2.5	ParseCertificateFile(const char *filename)	182
10.43.2.6	ParseKeyFile(const char *filename)	182
10.43.2.7	SetCipherType(CipherTypes type)	182
10.43.2.8	SetPassword(const char *pass, size_t passLen)	182

10.44gdcmm::network::CEchoRQ Class Reference	182
10.44.1 Detailed Description	183
10.44.2 Member Function Documentation	183
10.44.2.1 ConstructPDV(const ULConnection &inConnection, const BaseRootQuery *inRoot← Query)	183
10.44.3 Member Data Documentation	183
10.44.3.1 AffectedSOPClassUID	183
10.44.3.2 MessageID	183
10.45gdcmm::network::CEchoRSP Class Reference	184
10.45.1 Detailed Description	184
10.45.2 Member Function Documentation	185
10.45.2.1 ConstructPDVByDataSet(const DataSet *inDataSet)	185
10.46gdcmm::network::CFind Class Reference	185
10.46.1 Detailed Description	185
10.47gdcmm::network::CFindCancelRQ Class Reference	185
10.47.1 Detailed Description	186
10.47.2 Member Function Documentation	186
10.47.2.1 ConstructPDVByDataSet(const DataSet *inDataSet)	186
10.48gdcmm::network::CFindRQ Class Reference	186
10.48.1 Detailed Description	187
10.48.2 Member Function Documentation	188
10.48.2.1 ConstructPDV(const ULConnection &inConnection, const BaseRootQuery *inRoot← Query)	188
10.49gdcmm::network::CFindRSP Class Reference	188
10.49.1 Detailed Description	189
10.49.2 Member Function Documentation	189
10.49.2.1 ConstructPDVByDataSet(const DataSet *inDataSet)	189
10.50gdcmm::network::CMoveCancelRq Class Reference	189
10.50.1 Member Function Documentation	190

10.50.1.1 ConstructPDVByDataSet(const DataSet *inDataSet)	190
10.51gdcmm::network::CMoveRQ Class Reference	190
10.51.1 Detailed Description	191
10.51.2 Member Function Documentation	191
10.51.2.1 ConstructPDV(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)	191
10.52gdcmm::network::CMoveRSP Class Reference	192
10.52.1 Detailed Description	192
10.52.2 Member Function Documentation	193
10.52.2.1 ConstructPDVByDataSet(const DataSet *inDataSet)	193
10.53gdcmm::Codec Class Reference	193
10.53.1 Detailed Description	194
10.54gdcmm::Coder Class Reference	194
10.54.1 Detailed Description	195
10.54.2 Constructor & Destructor Documentation	195
10.54.2.1 ~Coder()	195
10.54.3 Member Function Documentation	195
10.54.3.1 CanCode(TransferSyntax const &) const =0	195
10.54.3.2 Code(DataElement const &in_, DataElement &out_)	195
10.54.3.3 InternalCode(const char *bv, unsigned long len, std::ostream &os)	195
10.55gdcmm::CodeString Class Reference	195
10.55.1 Detailed Description	196
10.55.2 Member Typedef Documentation	197
10.55.2.1 const_iterator	197
10.55.2.2 const_reference	197
10.55.2.3 const_reverse_iterator	197
10.55.2.4 difference_type	197
10.55.2.5 iterator	197

10.55.2.6 pointer	197
10.55.2.7 reference	197
10.55.2.8 reverse_iterator	197
10.55.2.9 size_type	197
10.55.2.10value_type	197
10.55.3 Constructor & Destructor Documentation	197
10.55.3.1 CodeString()	197
10.55.3.2 CodeString(const value_type *s)	197
10.55.3.3 CodeString(const value_type *s, size_type n)	197
10.55.3.4 CodeString(const InternalClass &s, size_type pos=0, size_type n=InternalClass::npos)	197
10.55.4 Member Function Documentation	197
10.55.4.1 GetAsString() const	197
10.55.4.2 IsValid() const	198
10.55.4.3 Size() const	198
10.55.4.4 TrimInternal() const	198
10.55.5 Friends And Related Function Documentation	198
10.55.5.1 operator"!="	198
10.55.5.2 operator<<	198
10.55.5.3 operator==	198
10.56gdcmm::Command Class Reference	198
10.56.1 Detailed Description	199
10.56.2 Constructor & Destructor Documentation	199
10.56.2.1 Command()	199
10.56.2.2 ~Command()	199
10.56.3 Member Function Documentation	199
10.56.3.1 Execute(Subject *caller, const Event &event)=0	199
10.56.3.2 Execute(const Subject *caller, const Event &event)=0	200
10.57gdcmm::CommandDataSet Class Reference	200

10.57.1 Detailed Description	201
10.57.2 Constructor & Destructor Documentation	201
10.57.2.1 CommandDataSet()	201
10.57.2.2 ~CommandDataSet()	201
10.57.3 Member Function Documentation	201
10.57.3.1 Insert(const DataElement &de)	201
10.57.3.2 Read(std::istream &is)	201
10.57.3.3 Replace(const DataElement &de)	202
10.57.3.4 Write(std::ostream &os) const	202
10.57.4 Friends And Related Function Documentation	202
10.57.4.1 operator<<	202
10.58gdcm::network::CompositeMessageFactory Class Reference	202
10.58.1 Detailed Description	202
10.58.2 Member Function Documentation	203
10.58.2.1 ConstructCEchoRQ(const ULConnection &inConnection)	203
10.58.2.2 ConstructCFindRQ(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)	203
10.58.2.3 ConstructCMoveRQ(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)	203
10.58.2.4 ConstructCStoreRQ(const ULConnection &inConnection, const File &file, bool writeDataSet=true)	203
10.58.2.5 ConstructCStoreRSP(const DataSet *inDataSet, const BasePDU *inPC)	203
10.59gdcm::CompositeNetworkFunctions Class Reference	203
10.59.1 Detailed Description	204
10.59.2 Member Typedef Documentation	204
10.59.2.1 KeyValuePairArrayType	204
10.59.2.2 KeyValuePairType	204
10.59.3 Member Function Documentation	204
10.59.3.1 CEcho(const char *remote, uint16_t portno, const char *aetitle=NULL, const char *call=NULL)	204

10.59.3.2 CFind(const char *remote, uint16_t portno, const BaseRootQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle=NULL, const char *call=NULL)	205
10.59.3.3 CMove(const char *remote, uint16_t portno, const BaseRootQuery *query, uint16_t portscp, const char *aetitle=NULL, const char *call=NULL, const char *outputdir=NULL)	205
10.59.3.4 ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel, const DataSet &queryds, EQueryType queryType=eFind)	205
10.59.3.5 ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)	206
10.59.3.6 CStore(const char *remote, uint16_t portno, const Directory::FileNamesType &filenames, const char *aetitle=NULL, const char *call=NULL)	206
10.60gdcm::ConstCharWrapper Class Reference	206
10.60.1 Detailed Description	207
10.60.2 Constructor & Destructor Documentation	207
10.60.2.1 ConstCharWrapper(const char *i=0)	207
10.60.3 Member Function Documentation	207
10.60.3.1 operator const char *() const	207
10.61gdcm::CP246ExplicitDataElement Class Reference	207
10.61.1 Detailed Description	208
10.61.2 Member Function Documentation	209
10.61.2.1 GetLength() const	209
10.61.2.2 Read(std::istream &is)	209
10.61.2.3 ReadPreValue(std::istream &is)	209
10.61.2.4 ReadValue(std::istream &is, bool readvalues=true)	209
10.61.2.5 ReadWithLength(std::istream &is, VL &length)	209
10.62gdcm::CryptoFactory Class Reference	209
10.62.1 Detailed Description	210
10.62.2 Member Enumeration Documentation	210
10.62.2.1 CryptoLib	210
10.62.3 Constructor & Destructor Documentation	210

10.62.3.1 CryptoFactory(CryptoLib id)	210
10.62.3.2 CryptoFactory()	211
10.62.3.3 ~CryptoFactory()	211
10.62.4 Member Function Documentation	211
10.62.4.1 CreateCMSProvider()=0	211
10.62.4.2 GetFactoryInstance(CryptoLib id=DEFAULT)	211
10.63gdcmm::CryptographicMessageSyntax Class Reference	211
10.63.1 Member Enumeration Documentation	212
10.63.1.1 CipherTypes	212
10.63.2 Constructor & Destructor Documentation	212
10.63.2.1 CryptographicMessageSyntax()	212
10.63.2.2 ~CryptographicMessageSyntax()	212
10.63.3 Member Function Documentation	212
10.63.3.1 Decrypt(char *output, size_t &outlen, const char *array, size_t len) const =0	212
10.63.3.2 Encrypt(char *output, size_t &outlen, const char *array, size_t len) const =0	212
10.63.3.3 GetCipherType() const =0	213
10.63.3.4 ParseCertificateFile(const char *filename)=0	213
10.63.3.5 ParseKeyFile(const char *filename)=0	213
10.63.3.6 SetCipherType(CipherTypes type)=0	213
10.63.3.7 SetPassword(const char *pass, size_t passLen)=0	213
10.64gdcmm::CSAElement Class Reference	213
10.64.1 Detailed Description	215
10.64.2 Member Typedef Documentation	215
10.64.2.1 DataPtr	215
10.64.3 Constructor & Destructor Documentation	215
10.64.3.1 CSAElement(unsigned int kf=0)	215
10.64.3.2 CSAElement(const CSAElement &_val)	215
10.64.4 Member Function Documentation	215

10.64.4.1 GetByteValue() const	215
10.64.4.2 GetKey() const	216
10.64.4.3 GetName() const	216
10.64.4.4 GetNoOfItems() const	216
10.64.4.5 GetSyngoDT() const	216
10.64.4.6 GetValue() const	216
10.64.4.7 GetValue()	216
10.64.4.8 GetVM() const	216
10.64.4.9 GetVR() const	216
10.64.4.10 IsEmpty() const	217
10.64.4.11 operator<(const CSAElement &de) const	217
10.64.4.12 operator=(const CSAElement &de)	217
10.64.4.13 operator==(const CSAElement &de) const	217
10.64.4.14 SetByteValue(const char *array, VL length)	217
10.64.4.15 SetKey(unsigned int key)	217
10.64.4.16 SetName(const char *name)	217
10.64.4.17 SetNoOfItems(unsigned int items)	217
10.64.4.18 SetSyngoDT(unsigned int syngodt)	217
10.64.4.19 SetValue(Value const &vl)	217
10.64.4.20 SetVM(const VM &vm)	217
10.64.4.21 SetVR(VR const &vr)	217
10.64.5 Friends And Related Function Documentation	217
10.64.5.1 operator<<	217
10.64.6 Member Data Documentation	217
10.64.6.1 DataField	217
10.64.6.2 KeyField	218
10.64.6.3 NameField	218
10.64.6.4 NoOfItemsField	218

10.64.6.5 SyngoDTField	218
10.64.6.6 ValueMultiplicityField	218
10.64.6.7 VRField	218
10.65gdcM::CSAHeader Class Reference	218
10.65.1 Detailed Description	219
10.65.2 Member Enumeration Documentation	220
10.65.2.1 CSAHeaderType	220
10.65.3 Constructor & Destructor Documentation	220
10.65.3.1 CSAHeader()	220
10.65.3.2 ~CSAHeader()	220
10.65.4 Member Function Documentation	220
10.65.4.1 FindCSAElementByName(const char *name)	220
10.65.4.2 GetCSADDataInfo()	221
10.65.4.3 GetCSAEEnd() const	221
10.65.4.4 GetCSAElementByName(const char *name)	221
10.65.4.5 GetCSAImageHeaderInfoTag()	221
10.65.4.6 GetCSASeriesHeaderInfoTag()	221
10.65.4.7 GetDataSet() const	221
10.65.4.8 GetFormat() const	222
10.65.4.9 GetInterfile() const	222
10.65.4.10 LoadFromDataElement(DataElement const &de)	222
10.65.4.11 Print(std::ostream &os) const	222
10.65.4.12 Read(std::istream &is)	222
10.65.4.13 Write(std::ostream &os) const	222
10.65.5 Friends And Related Function Documentation	222
10.65.5.1 operator<<	222
10.66gdcM::CSAHeaderDict Class Reference	223
10.66.1 Detailed Description	223

10.66.2 Member Typedef Documentation	224
10.66.2.1 ConstIterator	224
10.66.2.2 Iterator	224
10.66.2.3 MapCSAHeaderDictEntry	224
10.66.3 Constructor & Destructor Documentation	224
10.66.3.1 CSAHeaderDict()	224
10.66.4 Member Function Documentation	224
10.66.4.1 AddCSAHeaderDictEntry(const CSAHeaderDictEntry &de)	224
10.66.4.2 Begin() const	224
10.66.4.3 End() const	224
10.66.4.4 GetCSAHeaderDictEntry(const char *name) const	224
10.66.4.5 IsEmpty() const	224
10.66.4.6 LoadDefault()	224
10.66.5 Friends And Related Function Documentation	224
10.66.5.1 Dicts	224
10.66.5.2 operator<<	224
10.67gdcmm::CSAHeaderDictEntry Class Reference	225
10.67.1 Detailed Description	225
10.67.2 Constructor & Destructor Documentation	226
10.67.2.1 CSAHeaderDictEntry(const char *name="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, const char *desc="")	226
10.67.3 Member Function Documentation	226
10.67.3.1 GetDescription() const	226
10.67.3.2 GetName() const	226
10.67.3.3 GetVM() const	226
10.67.3.4 GetVR() const	226
10.67.3.5 operator<(const CSAHeaderDictEntry &entry) const	226
10.67.3.6 SetDescription(const char *desc)	226

10.67.3.7 SetName(const char *name)	226
10.67.3.8 SetVM(VM const &vm)	226
10.67.3.9 SetVR(const VR &vr)	226
10.67.4 Friends And Related Function Documentation	226
10.67.4.1 operator<<	226
10.68gdcm::CSAHeaderDictException Class Reference	227
10.69gdcm::network::CStoreRQ Class Reference	227
10.69.1 Detailed Description	228
10.69.2 Member Function Documentation	228
10.69.2.1 ConstructPDV(const ULConnection &inConnection, const File &file, bool writeData← Set=true)	228
10.70gdcm::network::CStoreRSP Class Reference	229
10.70.1 Detailed Description	229
10.70.2 Member Function Documentation	230
10.70.2.1 ConstructPDV(const DataSet *inDataSet, const BasePDU *inPC)	230
10.71gdcm::Curve Class Reference	230
10.71.1 Detailed Description	231
10.71.2 Constructor & Destructor Documentation	232
10.71.2.1 Curve()	232
10.71.2.2 ~Curve()	232
10.71.2.3 Curve(Curve const &ov)	232
10.71.3 Member Function Documentation	232
10.71.3.1 Decode(std::istream &is, std::ostream &os)	232
10.71.3.2 GetAsPoints(float *array) const	232
10.71.3.3 GetCurveDataDescriptor() const	232
10.71.3.4 GetDataValueRepresentation() const	232
10.71.3.5 GetDimensions() const	232
10.71.3.6 GetGroup() const	232

10.71.3.7 GetNumberOfCurves(DataSet const &ds)	232
10.71.3.8 GetNumberOfPoints() const	232
10.71.3.9 GetTypeOfData() const	232
10.71.3.10 GetTypeOfDataDescription() const	232
10.71.3.11 IsEmpty() const	232
10.71.3.12 Print(std::ostream &) const	232
10.71.3.13 SetCoordinateStartValue(unsigned short v)	233
10.71.3.14 SetCoordinateStepValue(unsigned short v)	233
10.71.3.15 SetCurve(const char *array, unsigned int length)	233
10.71.3.16 SetCurveDataDescriptor(const uint16_t *values, size_t num)	233
10.71.3.17 SetCurveDescription(const char *curvedescription)	233
10.71.3.18 SetDataValueRepresentation(unsigned short datavaluerepresentation)	233
10.71.3.19 SetDimensions(unsigned short dimensions)	233
10.71.3.20 SetGroup(unsigned short group)	233
10.71.3.21 SetNumberOfPoints(unsigned short numberofpoints)	233
10.71.3.22 SetTypeOfData(const char *typeofdata)	233
10.71.3.23 Update(const DataElement &de)	233
10.72 gdcmm::DataElement Class Reference	233
10.72.1 Detailed Description	236
10.72.2 Member Typedef Documentation	237
10.72.2.1 ValuePtr	237
10.72.3 Constructor & Destructor Documentation	237
10.72.3.1 DataElement(const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)	237
10.72.3.2 DataElement(const DataElement &_val)	237
10.72.4 Member Function Documentation	237
10.72.4.1 Clear()	237
10.72.4.2 Empty()	237
10.72.4.3 GetByteValue() const	237

10.72.4.4	GetLength() const	238
10.72.4.5	GetSequenceOfFragments() const	238
10.72.4.6	GetSequenceOfFragments()	238
10.72.4.7	GetTag() const	238
10.72.4.8	GetTag()	238
10.72.4.9	GetValue() const	238
10.72.4.10	GetValue()	239
10.72.4.11	GetValueAsSQ() const	239
10.72.4.12	GetVL() const	239
10.72.4.13	GetVL()	239
10.72.4.14	GetVR() const	239
10.72.4.15	IsEmpty() const	240
10.72.4.16	IsUndefinedLength() const	240
10.72.4.17	operator<(const DataElement &de) const	240
10.72.4.18	operator=(const DataElement &de)	240
10.72.4.19	operator==(const DataElement &de) const	240
10.72.4.20	Read(std::istream &is)	240
10.72.4.21	ReadOrSkip(std::istream &is, std::set< Tag > const &skiptags)	240
10.72.4.22	ReadPreValue(std::istream &is, std::set< Tag > const &skiptags)	240
10.72.4.23	ReadValue(std::istream &is, std::set< Tag > const &skiptags)	240
10.72.4.24	ReadValueWithLength(std::istream &is, VL &length, std::set< Tag > const &skiptags)	240
10.72.4.25	ReadWithLength(std::istream &is, VL &length)	240
10.72.4.26	SetByteValue(const char *array, VL length)	240
10.72.4.27	SetTag(const Tag &t)	241
10.72.4.28	SetValue(Value const &vl)	241
10.72.4.29	SetValueFieldLength(VL vl, bool readvalues)	241
10.72.4.30	SetVL(const VL &vl)	241
10.72.4.31	SetVLToUndefined()	242

10.72.4.32SetVR(VR const &vr)	242
10.72.4.33Write(std::ostream &os) const	242
10.72.5 Friends And Related Function Documentation	242
10.72.5.1 operator<<	242
10.72.6 Member Data Documentation	242
10.72.6.1 TagField	242
10.72.6.2 ValueField	242
10.72.6.3 ValueLengthField	243
10.72.6.4 VRField	243
10.73gdcm::DataElementException Class Reference	243
10.74gdcm::DataEvent Class Reference	244
10.74.1 Detailed Description	245
10.74.2 Member Typedef Documentation	245
10.74.2.1 Self	245
10.74.2.2 Superclass	245
10.74.3 Constructor & Destructor Documentation	245
10.74.3.1 DataEvent(const char *bytes=0, size_t len=0)	245
10.74.3.2 ~DataEvent()	245
10.74.3.3 DataEvent(const Self &s)	245
10.74.4 Member Function Documentation	245
10.74.4.1 CheckEvent(const ::gdcm::Event *e) const	245
10.74.4.2 GetData() const	245
10.74.4.3 GetDataLength() const	245
10.74.4.4 GetEventName() const	245
10.74.4.5 MakeObject() const	246
10.74.4.6 SetData(const char *bytes, size_t len)	246
10.75gdcm::DataSet Class Reference	246
10.75.1 Detailed Description	248

10.75.2 Member Typedef Documentation	249
10.75.2.1 ConstIterator	249
10.75.2.2 DataElementSet	249
10.75.2.3 Iterator	249
10.75.2.4 SizeType	249
10.75.3 Member Function Documentation	249
10.75.3.1 Begin() const	249
10.75.3.2 Begin()	249
10.75.3.3 Clear()	249
10.75.3.4 ComputeDataElement(const PrivateTag &t) const	249
10.75.3.5 ComputeGroupLength(Tag const &tag) const	249
10.75.3.6 End() const	249
10.75.3.7 End()	250
10.75.3.8 FindDataElement(const PrivateTag &t) const	250
10.75.3.9 FindDataElement(const Tag &t) const	250
10.75.3.10 FindNextDataElement(const Tag &t) const	250
10.75.3.11 GetDataElement(const Tag &t) const	250
10.75.3.12 GetDataElement(const PrivateTag &t) const	251
10.75.3.13 GetDEEnd() const	251
10.75.3.14 GetDES() const	251
10.75.3.15 GetDES()	251
10.75.3.16 GetLength() const	251
10.75.3.17 GetMediaStorage() const	251
10.75.3.18 GetPrivateCreator(const Tag &t) const	251
10.75.3.19 Insert(const DataElement &de)	251
10.75.3.20 InsertDataElement(const DataElement &de)	252
10.75.3.21 IsEmpty() const	252
10.75.3.22 operator()(uint16_t group, uint16_t element) const	252

10.75.3.23	<code>operator=(DataSet const &val)</code>	252
10.75.3.24	<code>operator[](const Tag &t) const</code>	252
10.75.3.25	<code>Print(std::ostream &os, std::string const &indent="") const</code>	252
10.75.3.26	<code>Read(std::istream &is)</code>	252
10.75.3.27	<code>ReadNested(std::istream &is)</code>	252
10.75.3.28	<code>ReadSelectedPrivateTags(std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)</code>	252
10.75.3.29	<code>ReadSelectedPrivateTagsWithLength(std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)</code>	252
10.75.3.30	<code>ReadSelectedTags(std::istream &is, const std::set< Tag > &tags, bool readvalues=true)</code>	252
10.75.3.31	<code>ReadSelectedTagsWithLength(std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)</code>	252
10.75.3.32	<code>ReadUpToTag(std::istream &is, const Tag &t, std::set< Tag > const &skiptags)</code>	252
10.75.3.33	<code>ReadUpToTagWithLength(std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)</code>	252
10.75.3.34	<code>ReadWithLength(std::istream &is, VL &length)</code>	252
10.75.3.35	<code>Remove(const Tag &tag)</code>	252
10.75.3.36	<code>Replace(const DataElement &de)</code>	253
10.75.3.37	<code>ReplaceEmpty(const DataElement &de)</code>	253
10.75.3.38	<code>Size() const</code>	253
10.75.3.39	<code>Write(std::ostream &os) const</code>	253
10.75.4	Friends And Related Function Documentation	253
10.75.4.1	CSAHeader	253
10.75.4.2	<code>operator<<</code>	253
10.76	<code>gdcmm::DataSetEvent</code> Class Reference	254
10.76.1	Detailed Description	255
10.76.2	Member Typedef Documentation	255
10.76.2.1	Self	255
10.76.2.2	Superclass	255
10.76.3	Constructor & Destructor Documentation	255

10.76.3.1 DataSetEvent(DataSet const *ds=NULL)	255
10.76.3.2 ~DataSetEvent()	255
10.76.3.3 DataSetEvent(const Self &s)	255
10.76.4 Member Function Documentation	255
10.76.4.1 CheckEvent(const ::gdcmm::Event *e) const	255
10.76.4.2 GetDataSet() const	255
10.76.4.3 GetEventName() const	255
10.76.4.4 MakeObject() const	256
10.77gdcmm::DataSetHelper Class Reference	256
10.77.1 Detailed Description	256
10.77.2 Member Function Documentation	256
10.77.2.1 ComputeVR(File const &file, DataSet const &ds, const Tag &>tag)	256
10.78gdcmm::Decoder Class Reference	257
10.78.1 Detailed Description	257
10.78.2 Constructor & Destructor Documentation	258
10.78.2.1 ~Decoder()	258
10.78.3 Member Function Documentation	258
10.78.3.1 CanDecode(TransferSyntax const &) const =0	258
10.78.3.2 Decode(DataElement const &, DataElement &)	258
10.78.3.3 DecodeByStreams(std::istream &, std::ostream &)	258
10.79gdcmm::DefinedTerms Class Reference	258
10.79.1 Detailed Description	259
10.79.2 Constructor & Destructor Documentation	259
10.79.2.1 DefinedTerms()	259
10.80gdcmm::Defs Class Reference	259
10.80.1 Detailed Description	260
10.80.2 Constructor & Destructor Documentation	260
10.80.2.1 Defs()	260

10.80.2.2 ~Defs()	260
10.80.3 Member Function Documentation	260
10.80.3.1 GetIODFromFile(const File &file) const	260
10.80.3.2 GetIODNameFromMediaStorage(MediaStorage const &ms)	260
10.80.3.3 GetIODs() const	261
10.80.3.4 GetIODs()	261
10.80.3.5 GetMacros() const	261
10.80.3.6 GetMacros()	261
10.80.3.7 GetModules() const	261
10.80.3.8 GetModules()	261
10.80.3.9 GetTypeFromTag(const File &file, const Tag &tag) const	261
10.80.3.10 isEmpty() const	261
10.80.3.11 LoadDefaults()	261
10.80.3.12 LoadFromFile(const char *filename)	261
10.80.3.13 Verify(const File &file) const	261
10.80.3.14 Verify(const DataSet &ds) const	261
10.80.4 Friends And Related Function Documentation	261
10.80.4.1 Global	261
10.81 gdcM::DeltaEncodingCodec Class Reference	262
10.81.1 Detailed Description	263
10.81.2 Constructor & Destructor Documentation	263
10.81.2.1 DeltaEncodingCodec()	263
10.81.2.2 ~DeltaEncodingCodec()	263
10.81.3 Member Function Documentation	263
10.81.3.1 CanDecode(TransferSyntax const &ts)	263
10.81.3.2 Decode(DataElement const &is, DataElement &os)	263
10.81.3.3 Decode(std::istream &is, std::ostream &os)	263
10.82 gdcM::DICOMDIR Class Reference	263

10.82.1 Detailed Description	264
10.82.2 Constructor & Destructor Documentation	264
10.82.2.1 DICOMDIR()	264
10.82.2.2 DICOMDIR(const FileSet &fs)	264
10.83gdcmm::DICOMDIRGenerator Class Reference	264
10.83.1 Detailed Description	265
10.83.2 Member Typedef Documentation	265
10.83.2.1 FilenamesType	265
10.83.2.2 FilenameType	265
10.83.3 Constructor & Destructor Documentation	265
10.83.3.1 DICOMDIRGenerator()	265
10.83.3.2 ~DICOMDIRGenerator()	265
10.83.4 Member Function Documentation	265
10.83.4.1 AddImageDirectoryRecord()	266
10.83.4.2 AddPatientDirectoryRecord()	266
10.83.4.3 AddSeriesDirectoryRecord()	266
10.83.4.4 AddStudyDirectoryRecord()	266
10.83.4.5 Generate()	266
10.83.4.6 GetFile()	266
10.83.4.7 GetScanner()	266
10.83.4.8 SetDescriptor(const char *d)	266
10.83.4.9 SetFile(const File &f)	266
10.83.4.10SetFilenames(FilenamesType const &fns)	266
10.83.4.11SetRootDirectory(FilenameType const &root)	266
10.84gdcmm::Dict Class Reference	267
10.84.1 Detailed Description	267
10.84.2 Member Typedef Documentation	268
10.84.2.1 ConstIterator	268

10.84.2.2 Iterator	268
10.84.2.3 MapDictEntry	268
10.84.3 Constructor & Destructor Documentation	268
10.84.3.1 Dict()	268
10.84.4 Member Function Documentation	268
10.84.4.1 AddDictEntry(const Tag &tag, const DictEntry &de)	268
10.84.4.2 Begin() const	268
10.84.4.3 End() const	268
10.84.4.4 GetDictEntry(const Tag &tag) const	268
10.84.4.5 GetDictEntryByKeyword(const char *keyword, Tag &tag) const	268
10.84.4.6 GetDictEntryByName(const char *name, Tag &tag) const	269
10.84.4.7 GetKeywordFromTag(Tag const &tag) const	269
10.84.4.8 IsEmpty() const	269
10.84.4.9 LoadDefault()	269
10.84.5 Friends And Related Function Documentation	269
10.84.5.1 Dicts	269
10.84.5.2 operator<<	269
10.85gdcmm::DictConverter Class Reference	269
10.85.1 Detailed Description	270
10.85.2 Member Enumeration Documentation	270
10.85.2.1 OutputTypes	270
10.85.3 Constructor & Destructor Documentation	271
10.85.3.1 DictConverter()	271
10.85.3.2 ~DictConverter()	271
10.85.4 Member Function Documentation	271
10.85.4.1 AddGroupLength()	271
10.85.4.2 Convert()	271
10.85.4.3 ConvertToCXX(const char *raw, std::string &cxx)	271

10.85.4.4 ConvertToXML(const char *raw, std::string &cxx)	271
10.85.4.5 GetDictName() const	271
10.85.4.6 GetInputFilename() const	271
10.85.4.7 GetOutputFilename() const	271
10.85.4.8 GetOutputType() const	271
10.85.4.9 Readuint16(const char *raw, uint16_t &ov)	271
10.85.4.10 ReadVM(const char *raw, VM::VMType &type)	271
10.85.4.11 ReadVR(const char *raw, VR::VRType &type)	271
10.85.4.12 SetDictName(const char *name)	271
10.85.4.13 SetInputFileName(const char *filename)	271
10.85.4.14 SetOutputFileName(const char *filename)	271
10.85.4.15 SetOutputType(int type)	271
10.85.4.16 WriteFooter()	271
10.85.4.17 WriteHeader()	271
10.86 gdcmm::DictEntry Class Reference	272
10.86.1 Detailed Description	272
10.86.2 Constructor & Destructor Documentation	273
10.86.2.1 DictEntry(const char *name="", const char *keyword="", VR const &vr=VR::INV↵ ALID, VM const &vm=VM::VM0, bool ret=false)	273
10.86.3 Member Function Documentation	273
10.86.3.1 GetKeyword() const	273
10.86.3.2 GetName() const	273
10.86.3.3 GetRetired() const	273
10.86.3.4 GetVM() const	273
10.86.3.5 GetVR() const	273
10.86.3.6 IsUnique() const	274
10.86.3.7 SetElementXX(bool v)	274
10.86.3.8 SetGroupXX(bool v)	274

10.86.3.9 SetKeyword(const char *keyword)	274
10.86.3.10SetName(const char *name)	274
10.86.3.11SetRetired(bool retired)	274
10.86.3.12SetVM(VM const &vm)	274
10.86.3.13SetVR(const VR &vr)	274
10.86.4 Friends And Related Function Documentation	274
10.86.4.1 Dict	274
10.86.4.2 operator<<	274
10.87gdcmm::DictPrinter Class Reference	275
10.87.1 Detailed Description	276
10.87.2 Constructor & Destructor Documentation	276
10.87.2.1 DictPrinter()	276
10.87.2.2 ~DictPrinter()	276
10.87.3 Member Function Documentation	276
10.87.3.1 Print(std::ostream &os)	276
10.87.3.2 PrintDataElement2(std::ostream &os, const DataSet &ds, const DataElement &ide)	276
10.87.3.3 PrintDataSet2(std::ostream &os, const DataSet &ds)	276
10.88gdcmm::Dicts Class Reference	276
10.88.1 Detailed Description	277
10.88.2 Member Enumeration Documentation	278
10.88.2.1 ConstructorType	278
10.88.3 Constructor & Destructor Documentation	278
10.88.3.1 Dicts()	278
10.88.3.2 ~Dicts()	278
10.88.4 Member Function Documentation	278
10.88.4.1 GetConstructorString(ConstructorType type)	278
10.88.4.2 GetCSAHeaderDict() const	278
10.88.4.3 GetDictEntry(const Tag &tag, const char *owner=NULL) const	278

10.88.4.4 GetDictEntry(const PrivateTag &tag) const	279
10.88.4.5 GetPrivateDict() const	279
10.88.4.6 GetPrivateDict()	279
10.88.4.7 GetPublicDict() const	279
10.88.4.8 IsEmpty() const	279
10.88.4.9 LoadDefaults()	279
10.88.5 Friends And Related Function Documentation	279
10.88.5.1 Global	279
10.88.5.2 operator<<	279
10.89gdcm::network::DIMSE Class Reference	279
10.89.1 Detailed Description	280
10.89.2 Member Enumeration Documentation	280
10.89.2.1 CommandTypes	280
10.90gdcm::DirectionCosines Class Reference	281
10.90.1 Detailed Description	282
10.90.2 Constructor & Destructor Documentation	282
10.90.2.1 DirectionCosines()	282
10.90.2.2 DirectionCosines(const double dircos[6])	282
10.90.2.3 ~DirectionCosines()	282
10.90.3 Member Function Documentation	282
10.90.3.1 ComputeDistAlongNormal(const double ipp[3]) const	282
10.90.3.2 Cross(double z[3]) const	282
10.90.3.3 CrossDot(DirectionCosines const &dc) const	282
10.90.3.4 Dot() const	282
10.90.3.5 IsValid() const	282
10.90.3.6 Normalize()	283
10.90.3.7 operator const double *() const	283
10.90.3.8 Print(std::ostream &) const	283

10.90.3.9 SetFromString(const char *str)	283
10.91gdcmm::Directory Class Reference	283
10.91.1 Detailed Description	284
10.91.2 Member Typedef Documentation	284
10.91.2.1 FilenamesType	284
10.91.2.2 FilenameType	285
10.91.3 Constructor & Destructor Documentation	285
10.91.3.1 Directory()	285
10.91.3.2 ~Directory()	285
10.91.4 Member Function Documentation	285
10.91.4.1 Explore(FilenameType const &name, bool recursive)	285
10.91.4.2 GetDirectories() const	285
10.91.4.3 GetFilenames() const	285
10.91.4.4 GetToplevel() const	285
10.91.4.5 Load(FilenameType const &name, bool recursive=false)	285
10.91.4.6 Print(std::ostream &os=std::cout) const	286
10.91.5 Friends And Related Function Documentation	286
10.91.5.1 operator<<	286
10.92gdcmm::DirectoryHelper Class Reference	286
10.92.1 Detailed Description	287
10.92.2 Member Function Documentation	287
10.92.2.1 GetCTImageSeriesUIDs(const std::string &inDirectory)	287
10.92.2.2 GetFilenamesFromSeriesUIDs(const std::string &inDirectory, const std::string &inSeriesUID)	287
10.92.2.3 GetFrameOfReference(const std::vector< DataSet > &inDS)	287
10.92.2.4 GetMRImageSeriesUIDs(const std::string &inDirectory)	287
10.92.2.5 GetRTStructSeriesUIDs(const std::string &inDirectory)	287
10.92.2.6 GetSeriesUIDsBySOPClassUID(const std::string &inDirectory, const std::string &inSOPClassUID)	287

10.92.2.7 GetSOPClassUID(const std::vector< DataSet > &inDS)	287
10.92.2.8 GetStringValueFromTag(const Tag &t, const DataSet &ds)	287
10.92.2.9 LoadImageFromFiles(const std::string &inDirectory, const std::string &inSeriesUID)	287
10.92.2.10 RetrieveSOPInstanceUIDFromIndex(int inIndex, const std::vector< DataSet > &inDS)	287
10.92.2.11 RetrieveSOPInstanceUIDFromZPosition(double inZPos, const std::vector< DataSet > &inDS)	287
10.93gdcm::DummyValueGenerator Class Reference	288
10.93.1 Detailed Description	288
10.93.2 Member Function Documentation	288
10.93.2.1 Generate(const char *input)	288
10.94gdcm::Dumper Class Reference	288
10.94.1 Detailed Description	290
10.94.2 Constructor & Destructor Documentation	290
10.94.2.1 Dumper()	290
10.94.2.2 ~Dumper()	290
10.95gdcm::Element< TVR, TVM > Class Template Reference	290
10.95.1 Detailed Description	292
10.95.2 Member Typedef Documentation	292
10.95.2.1 Type	292
10.95.3 Member Function Documentation	292
10.95.3.1 GetAsDataElement() const	292
10.95.3.2 GetLength() const	292
10.95.3.3 GetValue(unsigned int idx=0) const	292
10.95.3.4 GetValue(unsigned int idx=0)	292
10.95.3.5 GetValues() const	292
10.95.3.6 GetVM()	293
10.95.3.7 GetVR()	293
10.95.3.8 operator[](unsigned int idx) const	293

10.95.3.9 Print(std::ostream &_os) const	293
10.95.3.10Read(std::istream &_is)	293
10.95.3.11Set(Value const &v)	293
10.95.3.12SetFromDataElement(DataElement const &de)	293
10.95.3.13SetNoSwap(Value const &v)	293
10.95.3.14SetValue(typename VRToType< TVR >::Type v, unsigned int idx=0)	293
10.95.3.15Write(std::ostream &_os) const	293
10.95.4 Member Data Documentation	293
10.95.4.1 Internal	293
10.96gdcmm::Element< TVR, VM::VM1_2 > Class Template Reference	294
10.96.1 Member Typedef Documentation	295
10.96.1.1 Parent	295
10.96.2 Member Function Documentation	295
10.96.2.1 SetLength(int len)	295
10.97gdcmm::Element< TVR, VM::VM1_n > Class Template Reference	295
10.97.1 Member Typedef Documentation	296
10.97.1.1 Type	296
10.97.2 Constructor & Destructor Documentation	296
10.97.2.1 Element()	296
10.97.2.2 ~Element()	296
10.97.2.3 Element(const Element &_val)	296
10.97.3 Member Function Documentation	296
10.97.3.1 GetAsDataElement() const	296
10.97.3.2 GetLength() const	297
10.97.3.3 GetValue(unsigned int idx=0) const	297
10.97.3.4 GetValue(unsigned int idx=0)	297
10.97.3.5 GetVM()	297
10.97.3.6 GetVR()	297

10.97.3.7 operator=(const Element &_val)	297
10.97.3.8 operator[](unsigned int idx) const	297
10.97.3.9 Print(std::ostream &_os) const	297
10.97.3.10 Read(std::istream &_is)	297
10.97.3.11 Set(Value const &v)	297
10.97.3.12 SetArray(const Type *array, unsigned long len, bool save=false)	297
10.97.3.13 SetFromDataElement(DataElement const &de)	297
10.97.3.14 SetLength(unsigned long len)	297
10.97.3.15 SetNoSwap(Value const &v)	297
10.97.3.16 SetValue(typename VRToType< TVR >::Type v, unsigned int idx=0)	298
10.97.3.17 Write(std::ostream &_os) const	298
10.97.3.18 WriteASCII(std::ostream &os) const	298
10.98gdcm::Element< TVR, VM::VM2_2n > Class Template Reference	298
10.98.1 Member Typedef Documentation	299
10.98.1.1 Parent	299
10.98.2 Member Function Documentation	299
10.98.2.1 SetLength(int len)	299
10.99gdcm::Element< TVR, VM::VM2_n > Class Template Reference	300
10.99.1 Member Typedef Documentation	301
10.99.1.1 Parent	301
10.99.2 Member Function Documentation	301
10.99.2.1 SetLength(int len)	301
10.100gdcm::Element< TVR, VM::VM3_3n > Class Template Reference	301
10.100.1 Member Typedef Documentation	302
10.100.1.1 Parent	302
10.100.2 Member Function Documentation	302
10.100.2.1 SetLength(int len)	302
10.101gdcm::Element< TVR, VM::VM3_n > Class Template Reference	303

10.101.1	Member Typedef Documentation	304
10.101.1.1	Parent	304
10.101.2	Member Function Documentation	304
10.101.2.1	SetLength(int len)	304
10.102	dcm::Element< VR::AS, VM::VM5 > Class Template Reference	304
10.102.1	Member Function Documentation	304
10.102.1.1	GetLength() const	304
10.102.1.2	Print(std::ostream &_os) const	304
10.102.2	Member Data Documentation	304
10.102.2.1	Internal	304
10.103	dcm::Element< VR::OB, VM::VM1 > Class Template Reference	305
10.104	dcm::Element< VR::OW, VM::VM1 > Class Template Reference	306
10.105	dcm::ElementDisableCombinations< TVR, TVM > Class Template Reference	308
10.105.1	Detailed Description	309
10.106	dcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Template Reference	309
10.107	dcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Template Reference	309
10.108	dcm::EncapsulatedDocument Class Reference	309
10.108.1	Detailed Description	310
10.108.2	Constructor & Destructor Documentation	310
10.108.2.1	EncapsulatedDocument()	310
10.109	dcm::EncodingImplementation< T > Class Template Reference	310
10.109.1	Detailed Description	310
10.110	dcm::EncodingImplementation< VR::VRASCII > Class Template Reference	310
10.110.1	Member Function Documentation	311
10.110.1.1	Read(T *data, unsigned long length, std::istream &_is)	311
10.110.1.2	ReadComputeLength(T *data, unsigned int &length, std::istream &_is)	311
10.110.1.3	ReadNoSwap(T *data, unsigned long length, std::istream &_is)	311
10.110.1.4	Write(const T *data, unsigned long length, std::ostream &_os)	311

10.110.1.5	Write(const float *data, unsigned long length, std::ostream &_os)	311
10.110.1.6	Write(const double *data, unsigned long length, std::ostream &_os)	311
10.111	dcm::EncodingImplementation< VR::VRBINARY > Class Template Reference	312
10.111.1	Member Function Documentation	312
10.111.1.1	Read(T *data, unsigned long length, std::istream &_is)	312
10.111.1.2	ReadComputeLength(T *data, unsigned int &length, std::istream &_is)	312
10.111.1.3	ReadNoSwap(T *data, unsigned long length, std::istream &_is)	312
10.111.1.4	Write(const T *data, unsigned long length, std::ostream &_os)	312
10.112	dcm::EndEvent Class Reference	312
10.113	dcm::EnumeratedValues Class Reference	314
10.113.1	Detailed Description	314
10.113.2	Constructor & Destructor Documentation	314
10.113.2.1	EnumeratedValues()	314
10.114	dcm::Event Class Reference	314
10.114.1	Detailed Description	316
10.114.2	Constructor & Destructor Documentation	316
10.114.2.1	Event()	316
10.114.2.2	Event(const Event &)	316
10.114.2.3	~Event()	316
10.114.3	Member Function Documentation	316
10.114.3.1	CheckEvent(const Event *) const =0	316
10.114.3.2	GetEventName(void) const =0	316
10.114.3.3	MakeObject() const =0	316
10.114.3.4	Print(std::ostream &os) const	317
10.115	dcm::Exception Class Reference	317
10.115.1	Detailed Description	318
10.115.2	Constructor & Destructor Documentation	318

10.115.2.1Exception(const char *desc=""None"", const char *file=__FILE__, unsigned int line← Number=__LINE__, const char *func=""")	318
10.115.2.2~Exception()	318
10.115.3Member Function Documentation	318
10.115.3.1GetDescription() const	318
10.115.3.2what() const	319
10.116dcm::ExitEvent Class Reference	319
10.117dcm::ExplicitDataElement Class Reference	320
10.117.1Detailed Description	321
10.117.2Member Function Documentation	322
10.117.2.1GetLength() const	322
10.117.2.2Read(std::istream &is)	322
10.117.2.3ReadPreValue(std::istream &is)	322
10.117.2.4ReadValue(std::istream &is, bool readvalues=true)	322
10.117.2.5ReadWithLength(std::istream &is, VL &length)	322
10.117.2.6Write(std::ostream &os) const	322
10.118dcm::ExplicitImplicitDataElement Class Reference	322
10.118.1Detailed Description	323
10.118.2Member Function Documentation	324
10.118.2.1GetLength() const	324
10.118.2.2Read(std::istream &is)	324
10.118.2.3ReadPreValue(std::istream &is)	324
10.118.2.4ReadValue(std::istream &is, bool readvalues=true)	324
10.118.2.5ReadWithLength(std::istream &is, VL &length)	324
10.119dcm::Fiducials Class Reference	324
10.119.1Detailed Description	324
10.119.2Constructor & Destructor Documentation	324
10.119.2.1Fiducials()	324

10.120	dcm::File Class Reference	325
10.120.1	Detailed Description	326
10.120.2	Constructor & Destructor Documentation	327
10.120.2.1	File()	327
10.120.2.2	~File()	327
10.120.3	Member Function Documentation	327
10.120.3.1	GetDataSet() const	327
10.120.3.2	GetDataSet()	327
10.120.3.3	GetHeader() const	327
10.120.3.4	GetHeader()	327
10.120.3.5	Read(std::istream &is)	328
10.120.3.6	SetDataSet(const DataSet &ds)	328
10.120.3.7	SetHeader(const FileMetaInformation &fmi)	328
10.120.3.8	Write(std::ostream &os) const	328
10.120.4	Friends And Related Function Documentation	328
10.120.4.1	operator<<	328
10.121	dcm::FileAnonymizer Class Reference	328
10.121.1	Detailed Description	329
10.121.2	Constructor & Destructor Documentation	330
10.121.2.1	FileAnonymizer()	330
10.121.2.2	~FileAnonymizer()	330
10.121.3	Member Function Documentation	330
10.121.3.1	Empty(Tag const &t)	330
10.121.3.2	Remove(Tag const &t)	330
10.121.3.3	Replace(Tag const &t, const char *value_str)	330
10.121.3.4	Replace(Tag const &t, const char *value_data, VL const &vl)	331
10.121.3.5	SetInputFileName(const char *filename_native)	331
10.121.3.6	SetOutputFileName(const char *filename_native)	331

10.121.3.7Write()	331
10.122dcm::FileChangeTransferSyntax Class Reference	332
10.122.1Detailed Description	333
10.122.2Constructor & Destructor Documentation	333
10.122.2.1FileChangeTransferSyntax()	333
10.122.2.2~FileChangeTransferSyntax()	333
10.122.3Member Function Documentation	333
10.122.3.1Change()	333
10.122.3.2GetCodec()	334
10.122.3.3New()	334
10.122.3.4SetInputFileName(const char *filename_native)	334
10.122.3.5SetOutputFileName(const char *filename_native)	334
10.122.3.6SetTransferSyntax(TransferSyntax const &ts)	334
10.123dcm::FileDecompressLookupTable Class Reference	334
10.123.1Detailed Description	336
10.123.2Constructor & Destructor Documentation	336
10.123.2.1FileDecompressLookupTable()	336
10.123.2.2~FileDecompressLookupTable()	336
10.123.3Member Function Documentation	336
10.123.3.1Change()	336
10.123.3.2GetFile()	336
10.123.3.3GetPixmap() const	336
10.123.3.4GetPixmap()	336
10.123.3.5SetFile(const File &f)	336
10.123.3.6SetPixmap(Pixmap const &img)	336
10.124dcm::FileDerivation Class Reference	337
10.124.1Detailed Description	337
10.124.2Constructor & Destructor Documentation	338

10.124.2.1FileDerivation()	338
10.124.2.2~FileDerivation()	338
10.124.3Member Function Documentation	338
10.124.3.1AddDerivationDescription()	338
10.124.3.2AddPurposeOfReferenceCodeSequence(DataSet &ds)	338
10.124.3.3AddReference(const char *referencedsopclassuid, const char *referencedsopinstanceuid)	338
10.124.3.4AddSourceImageSequence()	338
10.124.3.5Derive()	338
10.124.3.6GetFile()	338
10.124.3.7GetFile() const	339
10.124.3.8SetDerivationCodeSequenceCodeValue(unsigned int codevalue)	339
10.124.3.9SetDerivationDescription(const char *dd)	339
10.124.3.10SetFile(const File &f)	339
10.124.3.11SetPurposeOfReferenceCodeSequenceCodeValue(unsigned int codevalue)	339
10.125dcm::FileExplicitFilter Class Reference	339
10.125.1Detailed Description	340
10.125.2Constructor & Destructor Documentation	341
10.125.2.1FileExplicitFilter()	341
10.125.2.2~FileExplicitFilter()	341
10.125.3Member Function Documentation	341
10.125.3.1Change()	341
10.125.3.2ChangeFMI()	341
10.125.3.3GetFile()	341
10.125.3.4ProcessDataSet(DataSet &ds, Dicts const &dicts)	341
10.125.3.5SetChangePrivateTags(bool b)	341
10.125.3.6SetFile(const File &f)	341
10.125.3.7SetRecomputeItemLength(bool b)	341
10.125.3.8SetRecomputeSequenceLength(bool b)	342

10.125.3.9SetUseVRUN(bool b)	342
10.126.0dcm::FileMetaInformation Class Reference	342
10.126.1Detailed Description	344
10.126.2Constructor & Destructor Documentation	344
10.126.2.1FileMetaInformation()	344
10.126.2.2~FileMetaInformation()	344
10.126.2.3FileMetaInformation(FileMetaInformation const &fmi)	344
10.126.3Member Function Documentation	345
10.126.3.1AppendImplementationClassUID(const char *imp)	345
10.126.3.2ComputeDataSetMediaStorageSOPClass()	345
10.126.3.3ComputeDataSetTransferSyntax()	345
10.126.3.4Default()	345
10.126.3.5FillFromDataSet(DataSet const &ds)	345
10.126.3.6GetDataSetTransferSyntax() const	345
10.126.3.7GetFileMetaInformationVersion()	345
10.126.3.8GetFullLength() const	345
10.126.3.9GetGDCMImplementationClassUID()	345
10.126.3.10GetGDCMImplementationVersionName()	345
10.126.3.11GetGDCMSourceApplicationEntityTitle()	345
10.126.3.12GetImplementationClassUID()	345
10.126.3.13GetImplementationVersionName()	345
10.126.3.14GetMediaStorage() const	345
10.126.3.15GetMediaStorageAsString() const	345
10.126.3.16GetMetaInformationTS() const	345
10.126.3.17GetPreamble() const	345
10.126.3.18GetPreamble()	346
10.126.3.19GetSourceApplicationEntityTitle()	346
10.126.3.20Insert(const DataElement &de)	346

10.126.3.21	IsValid() const	346
10.126.3.22	Read(std::istream &is)	346
10.126.3.23	ReadCompat(std::istream &is)	346
10.126.3.24	ReadCompatInternal(std::istream &is)	346
10.126.3.25	Replace(const DataElement &de)	346
10.126.3.26	SetDataSetTransferSyntax(const TransferSyntax &ts)	346
10.126.3.27	SetImplementationClassUID(const char *imp)	346
10.126.3.28	SetImplementationVersionName(const char *version)	347
10.126.3.29	SetPreamble(const Preamble &p)	347
10.126.3.30	SetSourceApplicationEntityTitle(const char *title)	347
10.126.3.31	Write(std::ostream &os) const	347
10.126.4	Friends And Related Function Documentation	347
10.126.4.1	operator<<	347
10.126.5	Member Data Documentation	347
10.126.5.1	DataSetMS	347
10.126.5.2	DataSetTS	347
10.126.5.3	MetaInformationTS	347
10.127	dcm::Filename Class Reference	347
10.127.1	Detailed Description	348
10.127.2	Constructor & Destructor Documentation	348
10.127.2.1	Filename(const char *filename="")	348
10.127.3	Member Function Documentation	348
10.127.3.1	EndWith(const char ending[]) const	348
10.127.3.2	GetExtension()	349
10.127.3.3	GetFileName() const	349
10.127.3.4	GetName()	349
10.127.3.5	GetPath()	349
10.127.3.6	IsEmpty() const	349

10.127.3.7	IsIdentical(Filename const &fn) const	349
10.127.3.8	Join(const char *path, const char *filename)	349
10.127.3.9	operator const char *() const	349
10.127.3.10	ToUnixSlashes()	350
10.127.3.11	ToWindowsSlashes()	350
10.128	gdcmm::FileNameEvent Class Reference	350
10.128.1	Detailed Description	351
10.128.2	Member Typedef Documentation	352
10.128.2.1	Self	352
10.128.2.2	Superclass	352
10.128.3	Constructor & Destructor Documentation	352
10.128.3.1	FileNameEvent(const char *s="")	352
10.128.3.2	~FileNameEvent()	352
10.128.3.3	FileNameEvent(const Self &s)	352
10.128.4	Member Function Documentation	352
10.128.4.1	CheckEvent(const ::gdcmm::Event *e) const	352
10.128.4.2	GetEventName() const	352
10.128.4.3	GetFileName() const	352
10.128.4.4	MakeObject() const	352
10.128.4.5	SetFileName(const char *f)	352
10.129	gdcmm::FilenameGenerator Class Reference	353
10.129.1	Detailed Description	353
10.129.2	Member Typedef Documentation	354
10.129.2.1	FileNamesType	354
10.129.2.2	FilenameType	354
10.129.2.3	SizeType	354
10.129.3	Constructor & Destructor Documentation	354
10.129.3.1	FilenameGenerator()	354

10.129.3.2~FilenameGenerator()	354
10.129.4Member Function Documentation	354
10.129.4.1Generate()	354
10.129.4.2GetFilename(SizeType n) const	354
10.129.4.3GetFileNames() const	354
10.129.4.4GetNumberOfFileNames() const	354
10.129.4.5GetPattern() const	355
10.129.4.6GetPrefix() const	355
10.129.4.7SetNumberOfFileNames(SizeType nfiles)	355
10.129.4.8SetPattern(const char *pattern)	355
10.129.4.9SetPrefix(const char *prefix)	355
10.130dcm::FileSet Class Reference	355
10.130.1Detailed Description	356
10.130.2Member Typedef Documentation	356
10.130.2.1FileType	356
10.130.2.2FileType	356
10.130.3Constructor & Destructor Documentation	356
10.130.3.1FileSet()	356
10.130.4Member Function Documentation	356
10.130.4.1AddFile(File const &)	356
10.130.4.2AddFile(const char *filename)	356
10.130.4.3GetFiles() const	357
10.130.4.4SetFiles(FileType const &files)	357
10.130.5Friends And Related Function Documentation	357
10.130.5.1operator<<	357
10.131dcm::FileStreamer Class Reference	357
10.131.1Detailed Description	359
10.131.2Constructor & Destructor Documentation	359

10.131.2.1FileStreamer()	359
10.131.2.2~FileStreamer()	359
10.131.3Member Function Documentation	359
10.131.3.1AppendToDataElement(const Tag &t, const char *array, size_t len)	359
10.131.3.2AppendToGroupDataElement(const PrivateTag &pt, const char *array, size_t len)	359
10.131.3.3CheckDataElement(const Tag &t)	359
10.131.3.4CheckTemplateFileName(bool check)	360
10.131.3.5New()	360
10.131.3.6ReserveDataElement(size_t len)	360
10.131.3.7ReserveGroupDataElement(unsigned short ndataelement)	360
10.131.3.8SetOutputFileName(const char *filename_native)	360
10.131.3.9SetTemplateFileName(const char *filename_native)	360
10.131.3.10StartDataElement(const Tag &t)	360
10.131.3.11StartGroupDataElement(const PrivateTag &pt, size_t maxsize=0, uint8_t startoffset=0)	360
10.131.3.12StopDataElement(const Tag &t)	361
10.131.3.13StopGroupDataElement(const PrivateTag &pt)	361
10.132dcm::FileWithName Class Reference	361
10.132.1Detailed Description	362
10.132.2Constructor & Destructor Documentation	362
10.132.2.1FileWithName(File &f)	362
10.132.3Member Data Documentation	362
10.132.3.1filename	362
10.133dcm::FindPatientRootQuery Class Reference	363
10.133.1Detailed Description	364
10.133.2Constructor & Destructor Documentation	364
10.133.2.1FindPatientRootQuery()	364
10.133.3Member Function Documentation	364

10.133.3.1	GetAbstractSyntaxUID() const	364
10.133.3.2	GetTagListByLevel(const EQueryLevel &inQueryLevel)	364
10.133.3.3	InitializeDataSet(const EQueryLevel &inQueryLevel)	364
10.133.3.4	ValidateQuery(bool inStrict=true) const	364
10.133.4	Friends And Related Function Documentation	365
10.133.4.1	QueryFactory	365
10.134	dcm::FindStudyRootQuery Class Reference	365
10.134.1	Detailed Description	366
10.134.2	Constructor & Destructor Documentation	366
10.134.2.1	FindStudyRootQuery()	366
10.134.3	Member Function Documentation	366
10.134.3.1	GetAbstractSyntaxUID() const	366
10.134.3.2	GetTagListByLevel(const EQueryLevel &inQueryLevel)	367
10.134.3.3	InitializeDataSet(const EQueryLevel &inQueryLevel)	367
10.134.3.4	ValidateQuery(bool inStrict=true) const	367
10.134.4	Friends And Related Function Documentation	367
10.134.4.1	QueryFactory	367
10.135	dcm::Fragment Class Reference	367
10.135.1	Detailed Description	369
10.135.2	Constructor & Destructor Documentation	369
10.135.2.1	Fragment()	369
10.135.3	Member Function Documentation	369
10.135.3.1	ComputeLength() const	369
10.135.3.2	GetLength() const	369
10.135.3.3	Read(std::istream &is)	369
10.135.3.4	ReadBacktrack(std::istream &is)	369
10.135.3.5	ReadPreValue(std::istream &is)	370
10.135.3.6	ReadValue(std::istream &is)	370

10.135.3.7Write(std::ostream &os) const	370
10.135.4Friends And Related Function Documentation	370
10.135.4.1operator<<	370
10.136dcm::Global Class Reference	370
10.136.1Detailed Description	371
10.136.2Constructor & Destructor Documentation	371
10.136.2.1Global()	371
10.136.2.2~Global()	371
10.136.3Member Function Documentation	371
10.136.3.1Append(const char *path)	371
10.136.3.2GetDefs() const	371
10.136.3.3GetDicts() const	372
10.136.3.4GetDicts()	372
10.136.3.5GetInstance()	372
10.136.3.6LoadResourcesFiles()	372
10.136.3.7Locate(const char *resfile) const	372
10.136.3.8Prepend(const char *path)	372
10.136.4Friends And Related Function Documentation	373
10.136.4.1operator<<	373
10.137dcm::GroupDict Class Reference	373
10.137.1Detailed Description	373
10.137.2Member Typedef Documentation	374
10.137.2.1GroupStringVector	374
10.137.3Constructor & Destructor Documentation	374
10.137.3.1GroupDict()	374
10.137.3.2~GroupDict()	374
10.137.4Member Function Documentation	374
10.137.4.1Add(std::string const &abbreviation, std::string const &name)	374

10.137.4.2	GetAbbreviation(uint16_t num) const	374
10.137.4.3	GetName(uint16_t num) const	374
10.137.4.4	Insert(uint16_t num, std::string const &abbreviation, std::string const &name)	374
10.137.4.5	Size() const	374
10.137.5	Friends And Related Function Documentation	374
10.137.5.1	operator<<	374
10.138	dcm::IconImageFilter Class Reference	375
10.138.1	Detailed Description	375
10.138.2	Constructor & Destructor Documentation	376
10.138.2.1	IconImageFilter()	376
10.138.2.2	~IconImageFilter()	376
10.138.3	Member Function Documentation	376
10.138.3.1	Extract()	376
10.138.3.2	ExtractIconImages()	376
10.138.3.3	ExtractVeprolIconImages()	376
10.138.3.4	GetFile()	376
10.138.3.5	GetFile() const	376
10.138.3.6	GetIconImage(unsigned int i) const	376
10.138.3.7	GetNumberOfIconImages() const	377
10.138.3.8	SetFile(const File &f)	377
10.139	dcm::IconImageGenerator Class Reference	377
10.139.1	Detailed Description	378
10.139.2	Constructor & Destructor Documentation	378
10.139.2.1	IconImageGenerator()	378
10.139.2.2	~IconImageGenerator()	378
10.139.3	Member Function Documentation	378
10.139.3.1	AutoPixelMinMax(bool b)	378
10.139.3.2	ConvertRGBToPaletteColor(bool b)	378

10.139.3.3Generate()	379
10.139.3.4GetIconImage() const	379
10.139.3.5GetPixmap()	379
10.139.3.6GetPixmap() const	379
10.139.3.7SetOutputDimensions(const unsigned int dims[2])	379
10.139.3.8SetOutsideValuePixel(double v)	379
10.139.3.9SetPixelMinMax(double min, double max)	379
10.139.3.10SetPixmap(const Pixmap &p)	380
10.140dcm::ignore_char Struct Reference	380
10.140.1Constructor & Destructor Documentation	380
10.140.1.1ignore_char(char c)	380
10.140.2Member Data Documentation	380
10.140.2.1m_char	380
10.141dcm::Image Class Reference	381
10.141.1Detailed Description	382
10.141.2Constructor & Destructor Documentation	383
10.141.2.1Image()	383
10.141.2.2~Image()	383
10.141.3Member Function Documentation	383
10.141.3.1GetDirectionCosines() const	383
10.141.3.2GetDirectionCosines(unsigned int idx) const	383
10.141.3.3GetIntercept() const	383
10.141.3.4GetOrigin() const	383
10.141.3.5GetOrigin(unsigned int idx) const	383
10.141.3.6GetSlope() const	383
10.141.3.7GetSpacing() const	383
10.141.3.8GetSpacing(unsigned int idx) const	384
10.141.3.9Print(std::ostream &os) const	384

10.141.3.1	Set DirectionCosines(const float *dircos)	384
10.141.3.1	Set DirectionCosines(const double *dircos)	384
10.141.3.1	Set DirectionCosines(unsigned int idx, double dircos)	384
10.141.3.1	Set Intercept(double intercept)	384
10.141.3.1	Set Origin(const float *ori)	384
10.141.3.1	Set Origin(const double *ori)	384
10.141.3.1	Set Origin(unsigned int idx, double ori)	384
10.141.3.1	Set Slope(double slope)	384
10.141.3.1	Set Spacing(const double *spacing)	384
10.141.3.1	Set Spacing(unsigned int idx, double spacing)	384
10.142	cdm::ImageApplyLookupTable Class Reference	385
10.142.1	Detailed Description	386
10.142.2	Constructor & Destructor Documentation	387
10.142.2.1	ImageApplyLookupTable ()	387
10.142.2.2	~ImageApplyLookupTable ()	387
10.142.3	Member Function Documentation	387
10.142.3.1	Apply ()	387
10.143	cdm::ImageChangePhotometricInterpretation Class Reference	387
10.143.1	Detailed Description	389
10.143.2	Constructor & Destructor Documentation	389
10.143.2.1	ImageChangePhotometricInterpretation ()	389
10.143.2.2	~ImageChangePhotometricInterpretation ()	389
10.143.3	Member Function Documentation	389
10.143.3.1	Change ()	389
10.143.3.2	ChangeMonochrome ()	389
10.143.3.3	GetPhotometricInterpretation () const	389
10.143.3.4	RGB2YBR (T ybr[3], const T rgb[3])	389
10.143.3.5	SetPhotometricInterpretation (PhotometricInterpretation const &pi)	390

10.143.3.6YBR2RGB(T rgb[3], const T ybr[3])	390
10.144dcm::ImageChangePlanarConfiguration Class Reference	390
10.144.1Detailed Description	392
10.144.2Constructor & Destructor Documentation	392
10.144.2.1ImageChangePlanarConfiguration()	392
10.144.2.2~ImageChangePlanarConfiguration()	392
10.144.3Member Function Documentation	392
10.144.3.1Change()	392
10.144.3.2GetPlanarConfiguration() const	392
10.144.3.3RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T *rgb, size_t s)	392
10.144.3.4RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b, size_t s)	392
10.144.3.5SetPlanarConfiguration(unsigned int pc)	393
10.145dcm::ImageChangeTransferSyntax Class Reference	393
10.145.1Detailed Description	395
10.145.2Constructor & Destructor Documentation	395
10.145.2.1ImageChangeTransferSyntax()	395
10.145.2.2~ImageChangeTransferSyntax()	395
10.145.3Member Function Documentation	395
10.145.3.1Change()	395
10.145.3.2GetTransferSyntax() const	396
10.145.3.3SetCompressIconImage(bool b)	396
10.145.3.4SetForce(bool f)	396
10.145.3.5SetTransferSyntax(const TransferSyntax &ts)	396
10.145.3.6SetUserCodec(ImageCodec *ic)	396
10.145.3.7TryJPEG2000Codec(const DataElement &pixelde, Bitmap const &input, Bitmap &out-put)	396
10.145.3.8TryJPEGCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output)	396
10.145.3.9TryJPEGLSCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output)	396

10.145.3.1TryRAWCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output)	396
10.145.3.1TryRLECodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output)	396
10.146.dcm::ImageCodec Class Reference	397
10.146.1Detailed Description	399
10.146.2Member Typedef Documentation	399
10.146.2.1LUTPtr	399
10.146.3Constructor & Destructor Documentation	399
10.146.3.1ImageCodec()	399
10.146.3.2~ImageCodec()	399
10.146.4Member Function Documentation	399
10.146.4.1AppendFrameEncode(std::ostream &out, const char *data, size_t datalen)	399
10.146.4.2AppendRowEncode(std::ostream &out, const char *data, size_t datalen)	400
10.146.4.3CanCode(TransferSyntax const &) const	400
10.146.4.4CanDecode(TransferSyntax const &) const	400
10.146.4.5Clone() const =0	400
10.146.4.6Decode(DataElement const &is_, DataElement &os)	400
10.146.4.7DecodeByStreams(std::istream &is_, std::ostream &os)	400
10.146.4.8DoByteSwap(std::istream &is_, std::ostream &os)	401
10.146.4.9DoInvertMonochrome(std::istream &is_, std::ostream &os)	401
10.146.4.10DoOverlayCleanup(std::istream &is_, std::ostream &os)	401
10.146.4.11DoPaddedCompositePixelCode(std::istream &is_, std::ostream &os)	401
10.146.4.12DoPlanarConfiguration(std::istream &is_, std::ostream &os)	401
10.146.4.13DoSimpleCopy(std::istream &is_, std::ostream &os)	401
10.146.4.14DoYBR(std::istream &is_, std::ostream &os)	401
10.146.4.15GetDimensions() const	401
10.146.4.16GetHeaderInfo(std::istream &is_, TransferSyntax &ts)	401
10.146.4.17GetLossyFlag() const	401
10.146.4.18GetLUT() const	401

10.146.4.10	GetNeedByteSwap() const	401
10.146.4.20	GetNumberOfDimensions() const	401
10.146.4.20	GetPhotometricInterpretation() const	401
10.146.4.20	GetPixelFormat()	401
10.146.4.23	GetPixelFormat() const	402
10.146.4.23	GetPlanarConfiguration() const	402
10.146.4.25	FrameEncoder()	402
10.146.4.26	Lossy() const	402
10.146.4.27	RowEncoder()	402
10.146.4.28	Valid(PhotometricInterpretation const &pi)	402
10.146.4.29	SetDimensions(const unsigned int d[3])	402
10.146.4.30	SetDimensions(const std::vector< unsigned int > &d)	402
10.146.4.33	SetLossyFlag(bool l)	402
10.146.4.33	SetLUT(LookupTable const &lut)	402
10.146.4.33	SetNeedByteSwap(bool b)	402
10.146.4.33	SetNeedOverlayCleanup(bool b)	402
10.146.4.35	SetNumberOfDimensions(unsigned int dim)	402
10.146.4.36	SetPhotometricInterpretation(PhotometricInterpretation const &pi)	402
10.146.4.37	SetPixelFormat(PixelFormat const &pf)	403
10.146.4.38	SetPlanarConfiguration(unsigned int pc)	403
10.146.4.39	StartEncode(std::ostream &os)	403
10.146.4.40	StopEncode(std::ostream &os)	403
10.146.5	Friends And Related Function Documentation	403
10.146.5.1	FileChangeTransferSyntax	403
10.146.5.2	ImageChangePhotometricInterpretation	403
10.146.6	Member Data Documentation	403
10.146.6.1	Dimensions	403
10.146.6.2	LossyFlag	403

10.146.6.3LUT	403
10.146.6.4NeedByteSwap	403
10.146.6.5NeedOverlayCleanup	404
10.146.6.6NumberOfDimensions	404
10.146.6.7PF	404
10.146.6.8PI	404
10.146.6.9PlanarConfiguration	404
10.146.6.10RequestPaddedCompositePixelCode	404
10.146.6.11RequestPlanarConfiguration	404
10.147dcm::ImageConverter Class Reference	404
10.147.1Detailed Description	404
10.147.2Constructor & Destructor Documentation	405
10.147.2.1ImageConverter()	405
10.147.2.2~ImageConverter()	405
10.147.3Member Function Documentation	405
10.147.3.1Convert()	405
10.147.3.2GetOutput() const	405
10.147.3.3SetInput(Image const &input)	405
10.148dcm::ImageFragmentSplitter Class Reference	405
10.148.1Detailed Description	407
10.148.2Constructor & Destructor Documentation	407
10.148.2.1ImageFragmentSplitter()	407
10.148.2.2~ImageFragmentSplitter()	407
10.148.3Member Function Documentation	407
10.148.3.1GetFragmentSizeMax() const	407
10.148.3.2SetForce(bool f)	407
10.148.3.3SetFragmentSizeMax(unsigned int fragsize)	407
10.148.3.4Split()	407

10.149.0	dcmm::ImageHelper Class Reference	407
10.149.1	Detailed Description	408
10.149.2	Member Function Documentation	409
10.149.2.1	ComputeMediaStorageFromModality(const char *modality, unsigned int dimension=2, PixelFormat const &pf=PixelFormat(), PhotometricInterpretation const &pi=PhotometricInterpretation(), double rescaleintercept=0, double rescaleslope=1)	409
10.149.2.2	ComputeSpacingFromImagePositionPatient(const std::vector< double > &imageposition, std::vector< double > &spacing)	409
10.149.2.3	GetDimensionsValue(const File &f)	409
10.149.2.4	GetDirectionCosinesFromDataSet(DataSet const &ds, std::vector< double > &dircos)	409
10.149.2.5	GetDirectionCosinesValue(File const &f)	409
10.149.2.6	GetForcePixelSpacing()	409
10.149.2.7	GetForceRescaleInterceptSlope()	409
10.149.2.8	GetLUT(File const &f)	409
10.149.2.9	GetOriginValue(File const &f)	409
10.149.2.10	GetPhotometricInterpretationValue(File const &f)	410
10.149.2.11	GetPixelFormatValue(const File &f)	410
10.149.2.12	GetPlanarConfigurationValue(const File &f)	410
10.149.2.13	GetPMSRescaleInterceptSlope()	410
10.149.2.14	GetPointerFromElement(Tag const &tag, File const &f)	410
10.149.2.15	GetRealWorldValueMappingContent(File const &f, RealWorldValueMappingContent &rwvmc)	410
10.149.2.16	GetRescaleInterceptSlopeValue(File const &f)	410
10.149.2.17	GetSpacingTagFromMediaStorage(MediaStorage const &ms)	410
10.149.2.18	GetSpacingValue(File const &f)	410
10.149.2.19	GetZSpacingTagFromMediaStorage(MediaStorage const &ms)	410
10.149.2.20	SetDimensionsValue(File &f, const Pixmap &img)	410
10.149.2.21	SetDirectionCosinesValue(DataSet &ds, const std::vector< double > &dircos)	410
10.149.2.22	SetForcePixelSpacing(bool)	411
10.149.2.23	SetForceRescaleInterceptSlope(bool)	411

10.149.2.23	SetOriginValue(DataSet &ds, const Image &img)	. . . . .	411
10.149.2.24	SetPMSRescaleInterceptSlope(bool)	. . . . .	411
10.149.2.25	SetRescaleInterceptSlopeValue(File &f, const Image &img)	. . . . .	411
10.149.2.26	SetSpacingValue(DataSet &ds, const std::vector< double > &spacing)	. . . . .	411
10.150	dcm::ImageReader Class Reference	. . . . .	411
10.150.1	Detailed Description	. . . . .	414
10.150.2	Constructor & Destructor Documentation	. . . . .	414
10.150.2.1	ImageReader()	. . . . .	414
10.150.2.2	~ImageReader()	. . . . .	414
10.150.3	Member Function Documentation	. . . . .	414
10.150.3.1	GetImage() const	. . . . .	414
10.150.3.2	GetImage()	. . . . .	415
10.150.3.3	Read()	. . . . .	415
10.150.3.4	ReadACRNEMAImage()	. . . . .	415
10.150.3.5	ReadImage(MediaStorage const &ms)	. . . . .	415
10.151	dcm::ImageRegionReader Class Reference	. . . . .	416
10.151.1	Detailed Description	. . . . .	418
10.151.2	Constructor & Destructor Documentation	. . . . .	418
10.151.2.1	ImageRegionReader()	. . . . .	418
10.151.2.2	~ImageRegionReader()	. . . . .	418
10.151.3	Member Function Documentation	. . . . .	418
10.151.3.1	ComputeBufferLength() const	. . . . .	418
10.151.3.2	GetRegion() const	. . . . .	418
10.151.3.3	Read()	. . . . .	418
10.151.3.4	ReadInformation()	. . . . .	419
10.151.3.5	ReadIntoBuffer(char *inreadbuffer, size_t buflen)	. . . . .	419
10.151.3.6	SetRegion(Region const ®ion)	419
10.152	dcm::ImageToImageFilter Class Reference	. . . . .	419

10.152.1	Detailed Description	420
10.152.2	Constructor & Destructor Documentation	421
10.152.2.1	ImageToImageFilter()	421
10.152.2.2	~ImageToImageFilter()	421
10.152.3	Member Function Documentation	421
10.152.3.1	GetInput()	421
10.152.3.2	GetOutput() const	421
10.153	dcm::ImageWriter Class Reference	421
10.153.1	Detailed Description	423
10.153.2	Constructor & Destructor Documentation	423
10.153.2.1	ImageWriter()	423
10.153.2.2	~ImageWriter()	423
10.153.3	Member Function Documentation	423
10.153.3.1	ComputeTargetMediaStorage()	423
10.153.3.2	GetImage() const	423
10.153.3.3	GetImage()	423
10.153.3.4	Write()	424
10.154	dcm::network::ImplementationClassUIDSub Class Reference	424
10.154.1	Detailed Description	424
10.154.2	Constructor & Destructor Documentation	424
10.154.2.1	ImplementationClassUIDSub()	424
10.154.3	Member Function Documentation	424
10.154.3.1	Print(std::ostream &os) const	424
10.154.3.2	Read(std::istream &is)	424
10.154.3.3	Size() const	424
10.154.3.4	Write(std::ostream &os) const	424
10.155	dcm::network::ImplementationUIDSub Class Reference	425
10.155.1	Detailed Description	425

10.155.2	Constructor & Destructor Documentation	425
10.155.2.1	ImplementationUIDSub()	425
10.155.3	Member Function Documentation	425
10.155.3.1	Write(std::ostream &os) const	425
10.156	dcm::network::ImplementationVersionNameSub Class Reference	425
10.156.1	Detailed Description	426
10.156.2	Constructor & Destructor Documentation	426
10.156.2.1	ImplementationVersionNameSub()	426
10.156.3	Member Function Documentation	426
10.156.3.1	Print(std::ostream &os) const	426
10.156.3.2	Read(std::istream &is)	426
10.156.3.3	Size() const	426
10.156.3.4	Write(std::ostream &os) const	426
10.157	dcm::ImplicitDataElement Class Reference	426
10.157.1	Detailed Description	427
10.157.2	Member Function Documentation	428
10.157.2.1	GetLength() const	428
10.157.2.2	Read(std::istream &is)	428
10.157.2.3	ReadPreValue(std::istream &is)	428
10.157.2.4	ReadValue(std::istream &is, bool readvalues=true)	428
10.157.2.5	ReadValueWithLength(std::istream &is, VL &length, bool readvalues=true)	428
10.157.2.6	ReadWithLength(std::istream &is, VL &length, bool readvalues=true)	428
10.157.2.7	Write(std::ostream &os) const	428
10.158	dcm::InitializeEvent Class Reference	428
10.159	dcm::IOD Class Reference	429
10.159.1	Detailed Description	430
10.159.2	Member Typedef Documentation	430
10.159.2.1	MapIODEntry	430

10.159.2.2	SizeType	430
10.159.3	Constructor & Destructor Documentation	430
10.159.3.1	IOD()	430
10.159.4	Member Function Documentation	430
10.159.4.1	AddIODEntry(const IODEntry &iode)	430
10.159.4.2	Clear()	430
10.159.4.3	GetIODEntry(SizeType idx) const	430
10.159.4.4	GetNumberOfIODs() const	431
10.159.4.5	GetTypeFromTag(const Defs &defs, const Tag &>tag) const	431
10.159.5	Friends And Related Function Documentation	431
10.159.5.1	operator<<	431
10.160	dcm::IODEntry Class Reference	431
10.160.1	Detailed Description	432
10.160.2	Constructor & Destructor Documentation	432
10.160.2.1	IODEntry(const char *name="", const char *ref="", const char *usag="")	432
10.160.3	Member Function Documentation	432
10.160.3.1	GetIE() const	432
10.160.3.2	GetName() const	432
10.160.3.3	GetRef() const	432
10.160.3.4	GetUsage() const	433
10.160.3.5	GetUsageType() const	433
10.160.3.6	SetIE(const char *ie)	433
10.160.3.7	SetName(const char *name)	433
10.160.3.8	SetRef(const char *ref)	433
10.160.3.9	SetUsage(const char *usag)	433
10.160.4	Friends And Related Function Documentation	433
10.160.4.1	operator<<	433
10.161	dcm::IODs Class Reference	433

10.161.1	Detailed Description	434
10.161.2	Member Typedef Documentation	434
10.161.2.1	IODMapType	434
10.161.2.2	IODMapTypeConstIterator	434
10.161.2.3	IODName	434
10.161.3	Constructor & Destructor Documentation	434
10.161.3.1	IODs()	434
10.161.4	Member Function Documentation	434
10.161.4.1	AddIOD(const char *name, const IOD &module)	434
10.161.4.2	Begin() const	434
10.161.4.3	Clear()	435
10.161.4.4	End() const	435
10.161.4.5	GetIOD(const char *name) const	435
10.161.5	Friends And Related Function Documentation	435
10.161.5.1	operator<<	435
10.162	dcm::IPPSorter Class Reference	435
10.162.1	Detailed Description	436
10.162.2	Constructor & Destructor Documentation	437
10.162.2.1	IPPSorter()	437
10.162.3	Member Function Documentation	437
10.162.3.1	GetDirectionCosinesTolerance() const	437
10.162.3.2	GetZSpacing() const	437
10.162.3.3	GetZSpacingTolerance() const	438
10.162.3.4	SetComputeZSpacing(bool b)	438
10.162.3.5	SetDirectionCosinesTolerance(double tol)	438
10.162.3.6	SetDropDuplicatePositions(bool b)	438
10.162.3.7	SetZSpacingTolerance(double tol)	438
10.162.3.8	Sort(std::vector< std::string > const &filenames)	438

10.162.4	Member Data Documentation	439
10.162.4.1	ComputeZSpacing	439
10.162.4.2	DirCosTolerance	439
10.162.4.3	DropDuplicatePositions	439
10.162.4.4	ZSpacing	439
10.162.4.5	ZTolerance	439
10.163	dcm::Item Class Reference	439
10.163.1	Detailed Description	441
10.163.2	Constructor & Destructor Documentation	441
10.163.2.1	Item()	441
10.163.2.2	Item(Item const &val)	441
10.163.3	Member Function Documentation	441
10.163.3.1	Clear()	441
10.163.3.2	FindDataElement(const Tag &t) const	441
10.163.3.3	GetDataElement(const Tag &t) const	442
10.163.3.4	GetLength() const	442
10.163.3.5	GetNestedDataSet() const	442
10.163.3.6	GetNestedDataSet()	442
10.163.3.7	InsertDataElement(const DataElement &de)	442
10.163.3.8	Read(std::istream &is)	442
10.163.3.9	SetNestedDataSet(const DataSet &nested)	442
10.163.3.10	Write(std::ostream &os) const	442
10.163.4	Friends And Related Function Documentation	442
10.163.4.1	operator<<	442
10.164	dcm::IterationEvent Class Reference	443
10.165	dcm::JPEG12Codec Class Reference	444
10.165.1	Detailed Description	445
10.165.2	Constructor & Destructor Documentation	445

10.165.2.1JPEG12Codec()	445
10.165.2.2~JPEG12Codec()	445
10.165.3Member Function Documentation	445
10.165.3.1DecodeByStreams(std::istream &is, std::ostream &os)	445
10.165.3.2EncodeBuffer(std::ostream &os, const char *data, size_t datalen)	445
10.165.3.3GetHeaderInfo(std::istream &is, TransferSyntax &ts)	445
10.165.3.4InternalCode(const char *input, unsigned long len, std::ostream &os)	446
10.165.3.5sStateSuspension() const	446
10.166dcm::JPEG16Codec Class Reference	446
10.166.1Detailed Description	447
10.166.2Constructor & Destructor Documentation	447
10.166.2.1JPEG16Codec()	447
10.166.2.2~JPEG16Codec()	447
10.166.3Member Function Documentation	447
10.166.3.1DecodeByStreams(std::istream &is, std::ostream &os)	447
10.166.3.2EncodeBuffer(std::ostream &os, const char *data, size_t datalen)	448
10.166.3.3GetHeaderInfo(std::istream &is, TransferSyntax &ts)	448
10.166.3.4InternalCode(const char *input, unsigned long len, std::ostream &os)	448
10.166.3.5sStateSuspension() const	448
10.167dcm::JPEG2000Codec Class Reference	448
10.167.1Detailed Description	450
10.167.2Constructor & Destructor Documentation	450
10.167.2.1JPEG2000Codec()	450
10.167.2.2~JPEG2000Codec()	450
10.167.3Member Function Documentation	450
10.167.3.1AppendFrameEncode(std::ostream &out, const char *data, size_t datalen)	450
10.167.3.2AppendRowEncode(std::ostream &out, const char *data, size_t datalen)	450
10.167.3.3CanCode(TransferSyntax const &ts) const	450

10.167.3.4	CanDecode(TransferSyntax const &ts) const	451
10.167.3.5	Clone() const	451
10.167.3.6	Code(DataElement const &in, DataElement &out)	451
10.167.3.7	Decode(DataElement const &is, DataElement &os)	451
10.167.3.8	DecodeByStreams(std::istream &is, std::ostream &os)	451
10.167.3.9	DecodeExtent(char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)	451
10.167.3.10	GetHeaderInfo(std::istream &is, TransferSyntax &ts)	451
10.167.3.11	GetQuality(unsigned int idx=0) const	451
10.167.3.12	GetRate(unsigned int idx=0) const	451
10.167.3.13	FrameEncoder()	451
10.167.3.14	RowEncoder()	452
10.167.3.15	SetNumberOfResolutions(unsigned int nres)	452
10.167.3.16	SetQuality(unsigned int idx, double q)	452
10.167.3.17	SetRate(unsigned int idx, double rate)	452
10.167.3.18	SetReversible(bool res)	452
10.167.3.19	SetTileSize(unsigned int tx, unsigned int ty)	452
10.167.3.20	StartEncode(std::ostream &)	452
10.167.3.21	StopEncode(std::ostream &)	452
10.167.4	Friends And Related Function Documentation	452
10.167.4.1	Bitmap	452
10.167.4.2	ImageRegionReader	452
10.168	dcm::JPEG8Codec Class Reference	453
10.168.1	Detailed Description	454
10.168.2	Constructor & Destructor Documentation	454
10.168.2.1	JPEG8Codec()	454
10.168.2.2	~JPEG8Codec()	454
10.168.3	Member Function Documentation	454

10.168.3.1	DecodeByStreams(std::istream &is, std::ostream &os)	454
10.168.3.2	EncodeBuffer(std::ostream &os, const char *data, size_t datalen)	454
10.168.3.3	GetHeaderInfo(std::istream &is, TransferSyntax &ts)	454
10.168.3.4	InternalCode(const char *input, unsigned long len, std::ostream &os)	455
10.168.3.5	IsStateSuspension() const	455
10.169	dcgm::JPEGCodec Class Reference	455
10.169.1	Detailed Description	457
10.169.2	Constructor & Destructor Documentation	457
10.169.2.1	JPEGCodec()	457
10.169.2.2	~JPEGCodec()	457
10.169.3	Member Function Documentation	457
10.169.3.1	AppendFrameEncode(std::ostream &out, const char *data, size_t datalen)	457
10.169.3.2	AppendRowEncode(std::ostream &out, const char *data, size_t datalen)	458
10.169.3.3	CanCode(TransferSyntax const &ts) const	458
10.169.3.4	CanDecode(TransferSyntax const &ts) const	458
10.169.3.5	Clone() const	458
10.169.3.6	Code(DataElement const &in, DataElement &out)	458
10.169.3.7	ComputeOffsetTable(bool b)	458
10.169.3.8	Decode(DataElement const &is, DataElement &os)	458
10.169.3.9	DecodeByStreams(std::istream &is, std::ostream &os)	458
10.169.3.10	DecodeExtent(char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)	459
10.169.3.11	EncodeBuffer(std::ostream &out, const char *inbuffer, size_t inlen)	459
10.169.3.12	GetHeaderInfo(std::istream &is, TransferSyntax &ts)	459
10.169.3.13	GetLossless() const	459
10.169.3.14	GetQuality() const	459
10.169.3.15	FrameEncoder()	459
10.169.3.16	RowEncoder()	459

10.169.3.1	StateSuspension() const	459
10.169.3.1	Valid(PhotometricInterpretation const &pi)	459
10.169.3.1	SetBitSample(int bit)	460
10.169.3.2	SetLossless(bool l)	460
10.169.3.2	SetPixelFormat(PixelFormat const &pf)	460
10.169.3.2	SetQuality(double q)	460
10.169.3.2	StartEncode(std::ostream &)	460
10.169.3.2	StopEncode(std::ostream &)	460
10.169.4	Friends And Related Function Documentation	460
10.169.4.1	ImageRegionReader	460
10.169.5	Member Data Documentation	460
10.169.5.1	BitSample	460
10.169.5.2	Quality	460
10.170	dcm::JPEGLSCodec Class Reference	461
10.170.1	Detailed Description	462
10.170.2	Constructor & Destructor Documentation	463
10.170.2.1	JPEGLSCodec()	463
10.170.2.2	~JPEGLSCodec()	463
10.170.3	Member Function Documentation	463
10.170.3.1	AppendFrameEncode(std::ostream &out, const char *data, size_t datalen)	463
10.170.3.2	AppendRowEncode(std::ostream &out, const char *data, size_t datalen)	463
10.170.3.3	CanCode(TransferSyntax const &ts) const	463
10.170.3.4	CanDecode(TransferSyntax const &ts) const	463
10.170.3.5	Clone() const	463
10.170.3.6	Code(DataElement const &in, DataElement &out)	463
10.170.3.7	Decode(DataElement const &is, DataElement &os)	464
10.170.3.8	Decode(DataElement const &in, char *outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)	464

10.170.3.9	DecodeExtent(char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)	464
10.170.3.10	GetBufferLength() const	464
10.170.3.11	GetHeaderInfo(std::istream &is, TransferSyntax &ts)	464
10.170.3.12	GetLossless() const	464
10.170.3.13	FrameEncoder()	464
10.170.3.14	RowEncoder()	464
10.170.3.15	SetBufferLength(unsigned long l)	464
10.170.3.16	SetLossless(bool l)	464
10.170.3.17	SetLossyError(int error)	464
10.170.3.18	StartEncode(std::ostream &)	464
10.170.3.19	StopEncode(std::ostream &)	465
10.170.4	Friends And Related Function Documentation	465
10.170.4.1	ImageRegionReader	465
10.171	dcm::JSON Class Reference	465
10.171.1	Detailed Description	465
10.171.2	Constructor & Destructor Documentation	465
10.171.2.1	JSON()	465
10.171.2.2	~JSON()	465
10.171.3	Member Function Documentation	465
10.171.3.1	Code(DataSet const &in, std::ostream &os)	465
10.171.3.2	Decode(std::istream &is, DataSet &out)	466
10.171.3.3	GetPrettyPrint() const	466
10.171.3.4	PrettyPrintOff()	466
10.171.3.5	PrettyPrintOn()	466
10.171.3.6	SetPrettyPrint(bool onoff)	466
10.172	dcm::KAKADUCodec Class Reference	466
10.172.1	Detailed Description	467

10.172.2	Constructor & Destructor Documentation	467
10.172.2.1	KAKADUCodec()	467
10.172.2.2	~KAKADUCodec()	467
10.172.3	Member Function Documentation	467
10.172.3.1	CanCode(TransferSyntax const &ts) const	467
10.172.3.2	CanDecode(TransferSyntax const &ts) const	468
10.172.3.3	Clone() const	468
10.172.3.4	Code(DataElement const &in, DataElement &out)	468
10.172.3.5	Decode(DataElement const &is, DataElement &os)	468
10.173	dcm::LO Class Reference	468
10.173.1	Detailed Description	469
10.173.2	Member Typedef Documentation	470
10.173.2.1	const_iterator	470
10.173.2.2	const_reference	470
10.173.2.3	const_reverse_iterator	470
10.173.2.4	difference_type	470
10.173.2.5	iterator	470
10.173.2.6	pointer	470
10.173.2.7	reference	470
10.173.2.8	reverse_iterator	470
10.173.2.9	size_type	470
10.173.2.10	Superclass	470
10.173.2.11	value_type	470
10.173.3	Constructor & Destructor Documentation	470
10.173.3.1	LO()	470
10.173.3.2	LO(const value_type *s)	470
10.173.3.3	LO(const value_type *s, size_type n)	470
10.173.3.4	LO(const Superclass &s, size_type pos=0, size_type n=npos)	470

10.173.4	Member Function Documentation	470
10.173.4.1	IsValid() const	470
10.174	dcm::LookupTable Class Reference	471
10.174.1	Detailed Description	472
10.174.2	Member Enumeration Documentation	473
10.174.2.1	LookupTableType	473
10.174.3	Constructor & Destructor Documentation	473
10.174.3.1	LookupTable()	473
10.174.3.2	~LookupTable()	473
10.174.3.3	LookupTable(LookupTable const &lut)	473
10.174.4	Member Function Documentation	473
10.174.4.1	Allocate(unsigned short bitsample=8)	473
10.174.4.2	Clear()	473
10.174.4.3	Decode(std::istream &is, std::ostream &os) const	473
10.174.4.4	Decode(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const	473
10.174.4.5	GetBitSample() const	473
10.174.4.6	GetBufferAsRGBA(unsigned char *rgba) const	474
10.174.4.7	GetLUT(LookupTableType type, unsigned char *array, unsigned int &length) const	474
10.174.4.8	GetLUTDescriptor(LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const	474
10.174.4.9	GetLUTLength(LookupTableType type) const	474
10.174.4.10	GetPointer() const	474
10.174.4.11	InitializeBlueLUT(unsigned short length, unsigned short subscript, unsigned short bitsize)	474
10.174.4.12	Initialized() const	474
10.174.4.13	InitializeGreenLUT(unsigned short length, unsigned short subscript, unsigned short bitsize)	474
10.174.4.14	InitializeLUT(LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)	474

10.174.4.15InitializeRedLUT(unsigned short length, unsigned short subscript, unsigned short bit-size)	474
10.174.4.16Print(std::ostream &) const	475
10.174.4.17SetBlueLUT(const unsigned char *blue, unsigned int length)	475
10.174.4.18SetGreenLUT(const unsigned char *green, unsigned int length)	475
10.174.4.19SetLUT(LookupTableType type, const unsigned char *array, unsigned int length)	475
10.174.4.20SetRedLUT(const unsigned char *red, unsigned int length)	475
10.174.4.21WriteBufferAsRGBA(const unsigned char *rgba)	475
10.174.5Member Data Documentation	475
10.174.5.1BitSample	475
10.174.5.2IncompleteLUT	475
10.174.5.3Internal	475
10.175dcm::Scanner::Itstr Struct Reference	475
10.175.1Member Function Documentation	476
10.175.1.1operator()(const char *s1, const char *s2) const	476
10.176dcm::StrictScanner::Itstr Struct Reference	476
10.176.1Member Function Documentation	476
10.176.1.1operator()(const char *s1, const char *s2) const	476
10.177dcm::Macro Class Reference	476
10.177.1Detailed Description	477
10.177.2Member Typedef Documentation	477
10.177.2.1ArrayIncludeMacrosType	477
10.177.2.2MapModuleEntry	477
10.177.3Constructor & Destructor Documentation	477
10.177.3.1Macro()	477
10.177.4Member Function Documentation	478
10.177.4.1AddMacroEntry(const Tag &tag, const MacroEntry &module)	478
10.177.4.2Clear()	478

10.177.4.3FindMacroEntry(const Tag &tag) const	478
10.177.4.4GetMacroEntry(const Tag &tag) const	478
10.177.4.5GetName() const	478
10.177.4.6SetName(const char *name)	478
10.177.4.7Verify(const DataSet &ds, Usage const &usage) const	478
10.177.5Friends And Related Function Documentation	478
10.177.5.1operator<<	478
10.178dcm::Macros Class Reference	478
10.178.1Detailed Description	479
10.178.2Member Typedef Documentation	479
10.178.2.1ModuleMapType	479
10.178.3Constructor & Destructor Documentation	479
10.178.3.1Macros()	479
10.178.4Member Function Documentation	480
10.178.4.1AddMacro(const char *ref, const Macro &module)	480
10.178.4.2Clear()	480
10.178.4.3GetMacro(const char *name) const	480
10.178.4.4IsEmpty() const	480
10.178.5Friends And Related Function Documentation	480
10.178.5.1operator<<	480
10.179dcm::network::MaximumLengthSub Class Reference	480
10.179.1Detailed Description	480
10.179.2Constructor & Destructor Documentation	481
10.179.2.1MaximumLengthSub()	481
10.179.3Member Function Documentation	481
10.179.3.1GetMaximumLength() const	481
10.179.3.2Print(std::ostream &os) const	481
10.179.3.3Read(std::istream &is)	481

10.179.3.4	SetMaximumLength(uint32_t maximumlength)	481
10.179.3.5	Size() const	481
10.179.3.6	Write(std::ostream &os) const	481
10.180	dcm::MD5 Class Reference	481
10.180.1	Detailed Description	482
10.180.2	Constructor & Destructor Documentation	482
10.180.2.1	MD5()	482
10.180.2.2	~MD5()	482
10.180.3	Member Function Documentation	482
10.180.3.1	Compute(const char *buffer, unsigned long buf_len, char digest_str[33])	482
10.180.3.2	ComputeFile(const char *filename, char digest_str[33])	482
10.181	dcm::MediaStorage Class Reference	482
10.181.1	Detailed Description	486
10.181.2	Member Enumeration Documentation	486
10.181.2.1	MSType	486
10.181.2.2	ObjectType	488
10.181.3	Constructor & Destructor Documentation	489
10.181.3.1	MediaStorage(MSType type=MS_END)	489
10.181.4	Member Function Documentation	489
10.181.4.1	GetModality() const	489
10.181.4.2	GetModalityDimension() const	489
10.181.4.3	GetMSString(MSType ts)	489
10.181.4.4	GetMSType(const char *str)	489
10.181.4.5	GetNumberOfModality()	489
10.181.4.6	GetNumberOfMSString()	489
10.181.4.7	GetNumberOfMSType()	489
10.181.4.8	GetString() const	489
10.181.4.9	GuessFromModality(const char *modality, unsigned int dimension=2)	490

10.181.4.10	Image(MSType ts)	490
10.181.4.11	Undefined() const	490
10.181.4.12	operator MSType() const	490
10.181.4.13	SetFromDataSet(DataSet const &ds)	490
10.181.4.14	SetFromFile(File const &file)	490
10.181.4.15	SetFromHeader(FileMetaInformation const &fmi)	491
10.181.4.16	SetFromModality(DataSet const &ds)	491
10.181.4.17	SetFromSourceImageSequence(DataSet const &ds)	491
10.181.5	Friends And Related Function Documentation	491
10.181.5.1	operator<<	491
10.182	dcm::MemberCommand< T > Class Template Reference	491
10.182.1	Detailed Description	493
10.182.2	Member Typedef Documentation	493
10.182.2.1	Self	493
10.182.2.2	TConstMemberFunctionPointer	493
10.182.2.3	TMemberFunctionPointer	493
10.182.3	Constructor & Destructor Documentation	493
10.182.3.1	MemberCommand()	493
10.182.3.2	~MemberCommand()	493
10.182.4	Member Function Documentation	493
10.182.4.1	Execute(Subject *caller, const Event &event)	493
10.182.4.2	Execute(const Subject *caller, const Event &event)	494
10.182.4.3	New()	494
10.182.4.4	SetCallbackFunction(T *object, TMemberFunctionPointer memberFunction)	494
10.182.4.5	SetCallbackFunction(T *object, TConstMemberFunctionPointer memberFunction)	494
10.182.5	Member Data Documentation	494
10.182.5.1	m_ConstMemberFunction	494
10.182.5.2	m_MemberFunction	494

10.182.5.3m_This	494
10.183.0dcm::MeshPrimitive Class Reference	495
10.183.1Detailed Description	496
10.183.2Member Typedef Documentation	497
10.183.2.1PrimitivesData	497
10.183.3Member Enumeration Documentation	497
10.183.3.1MPTType	497
10.183.4Constructor & Destructor Documentation	497
10.183.4.1MeshPrimitive()	497
10.183.4.2~MeshPrimitive()	497
10.183.5Member Function Documentation	497
10.183.5.1AddPrimitiveData(DataElement const &de)	497
10.183.5.2GetMPTType(const char *type)	497
10.183.5.3GetMPTTypeString(const MPTType type)	497
10.183.5.4GetNumberOfPrimitivesData() const	497
10.183.5.5GetPrimitiveData() const	497
10.183.5.6GetPrimitiveData()	498
10.183.5.7GetPrimitiveData(const unsigned int idx) const	498
10.183.5.8GetPrimitiveData(const unsigned int idx)	498
10.183.5.9GetPrimitivesData() const	498
10.183.5.10GetPrimitivesData()	498
10.183.5.11GetPrimitiveType() const	498
10.183.5.12SetPrimitiveData(DataElement const &de)	498
10.183.5.13SetPrimitiveData(const unsigned int idx, DataElement const &de)	498
10.183.5.14SetPrimitivesData(PrimitivesData const &DEs)	498
10.183.5.15SetPrimitiveType(const MPTType type)	498
10.183.6Member Data Documentation	498
10.183.6.1PrimitiveData	498

10.183.6.2	PrimitiveType	498
10.184	dcm::ModalityPerformedProcedureStepCreateQuery Class Reference	499
10.184.1	Detailed Description	500
10.184.2	Constructor & Destructor Documentation	501
10.184.2.1	ModalityPerformedProcedureStepCreateQuery(const std::string &iSopInstanceUID)	501
10.184.3	Member Function Documentation	501
10.184.3.1	GetAbstractSyntaxUID() const	501
10.184.3.2	GetRequiredDataSet() const	501
10.184.3.3	ValidateQuery(bool inStrict=true) const	501
10.184.4	Friends And Related Function Documentation	501
10.184.4.1	QueryFactory	501
10.185	dcm::ModalityPerformedProcedureStepSetQuery Class Reference	501
10.185.1	Detailed Description	503
10.185.2	Constructor & Destructor Documentation	503
10.185.2.1	ModalityPerformedProcedureStepSetQuery(const std::string &iSopInstanceUID)	503
10.185.3	Member Function Documentation	503
10.185.3.1	GetAbstractSyntaxUID() const	503
10.185.3.2	GetRequiredDataSet() const	503
10.185.3.3	ValidateQuery(bool inStrict=true) const	503
10.185.4	Friends And Related Function Documentation	503
10.185.4.1	QueryFactory	503
10.186	dcm::ModifiedEvent Class Reference	504
10.187	dcm::Module Class Reference	505
10.187.1	Detailed Description	505
10.187.2	Member Typedef Documentation	506
10.187.2.1	ArrayIncludeMacrosType	506
10.187.2.2	MapModuleEntry	506
10.187.3	Constructor & Destructor Documentation	506

10.187.3.1Module()	506
10.187.4Member Function Documentation	506
10.187.4.1AddMacro(const char *include)	506
10.187.4.2AddModuleEntry(const Tag &tag, const ModuleEntry &module)	506
10.187.4.3Clear()	506
10.187.4.4FindModuleEntryInMacros(Macros const ¯os, const Tag &tag) const	506
10.187.4.5GetModuleEntryInMacros(Macros const ¯os, const Tag &tag) const	506
10.187.4.6GetName() const	507
10.187.4.7SetName(const char *name)	507
10.187.4.8Verify(const DataSet &ds, Usage const &usage) const	507
10.187.5Friends And Related Function Documentation	507
10.187.5.1operator<<	507
10.188dcm::ModuleEntry Class Reference	507
10.188.1Detailed Description	509
10.188.2Member Typedef Documentation	509
10.188.2.1Description	509
10.188.3Constructor & Destructor Documentation	509
10.188.3.1ModuleEntry(const char *name="", const char *type="", const char *description="")	509
10.188.3.2~ModuleEntry()	509
10.188.4Member Function Documentation	509
10.188.4.1GetDescription() const	509
10.188.4.2GetName() const	509
10.188.4.3GetType() const	509
10.188.4.4SetDescription(const char *d)	510
10.188.4.5SetName(const char *name)	510
10.188.4.6SetType(const Type &type)	510
10.188.5Friends And Related Function Documentation	510
10.188.5.1operator<<	510

10.188.6	Member Data Documentation	. 510
10.188.6.1	DataElementType	. 510
10.188.6.2	DescriptionField	. 510
10.188.6.3	Name	. 510
10.189	dcm::Modules Class Reference	. 510
10.189.1	Detailed Description	. 511
10.189.2	Member Typedef Documentation	. 511
10.189.2.1	ModuleMapType	. 511
10.189.3	Constructor & Destructor Documentation	. 511
10.189.3.1	Modules()	. 511
10.189.4	Member Function Documentation	. 511
10.189.4.1	AddModule(const char *ref, const Module &module)	. 511
10.189.4.2	Clear()	. 511
10.189.4.3	GetModule(const char *name) const	. 511
10.189.4.4	IsEmpty() const	. 512
10.189.5	Friends And Related Function Documentation	. 512
10.189.5.1	operator<<	. 512
10.190	dcm::MovePatientRootQuery Class Reference	. 512
10.190.1	Detailed Description	. 513
10.190.2	Constructor & Destructor Documentation	. 513
10.190.2.1	MovePatientRootQuery()	. 513
10.190.3	Member Function Documentation	. 513
10.190.3.1	GetAbstractSyntaxUID() const	. 513
10.190.3.2	GetTagListByLevel(const EQueryLevel &inQueryLevel)	. 514
10.190.3.3	InitializeDataSet(const EQueryLevel &inQueryLevel)	. 514
10.190.3.4	ValidateQuery(bool inStrict=true) const	. 514
10.190.4	Friends And Related Function Documentation	. 514
10.190.4.1	QueryFactory	. 514

10.190	dcm::MoveStudyRootQuery Class Reference	515
10.191.1	Detailed Description	516
10.191.2	Constructor & Destructor Documentation	516
10.191.2.1	MoveStudyRootQuery()	516
10.191.3	Member Function Documentation	516
10.191.3.1	GetAbstractSyntaxUID() const	516
10.191.3.2	GetTagListByLevel(const EQueryLevel &inQueryLevel)	516
10.191.3.3	InitializeDataSet(const EQueryLevel &inQueryLevel)	516
10.191.3.4	ValidateQuery(bool inStrict=true) const	516
10.191.4	Friends And Related Function Documentation	517
10.191.4.1	QueryFactory	517
10.192	dcm::network::NActionRQ Class Reference	517
10.192.1	Detailed Description	518
10.192.2	Member Function Documentation	518
10.192.2.1	ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	518
10.193	dcm::network::NActionRSP Class Reference	518
10.193.1	Detailed Description	519
10.193.2	Member Function Documentation	519
10.193.2.1	ConstructPDVByDataSet(const DataSet *inDataSet)	519
10.194	dcm::network::NCreateRQ Class Reference	519
10.194.1	Detailed Description	520
10.194.2	Member Function Documentation	521
10.194.2.1	ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	521
10.195	dcm::network::NCreateRSP Class Reference	521
10.195.1	Detailed Description	522
10.195.2	Member Function Documentation	522
10.195.2.1	ConstructPDVByDataSet(const DataSet *inDataSet)	522
10.196	dcm::network::NDeleteRQ Class Reference	522

10.196.1Detailed Description	523
10.196.2Member Function Documentation	523
10.196.2.1ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	523
10.197dcm::network::NDeleteRSP Class Reference	524
10.197.1Detailed Description	524
10.197.2Member Function Documentation	525
10.197.2.1ConstructPDVByDataSet(const DataSet *inDataSet)	525
10.198dcm::NestedModuleEntries Class Reference	525
10.198.1Detailed Description	527
10.198.2Member Typedef Documentation	527
10.198.2.1SizeType	527
10.198.3Constructor & Destructor Documentation	527
10.198.3.1NestedModuleEntries(const char *name="", const char *type="", const char *description="")	527
10.198.4Member Function Documentation	527
10.198.4.1AddModuleEntry(const ModuleEntry &me)	527
10.198.4.2GetModuleEntry(SizeType idx) const	527
10.198.4.3GetModuleEntry(SizeType idx)	527
10.198.4.4GetNumberOfModuleEntries()	527
10.198.5Friends And Related Function Documentation	527
10.198.5.1operator<<	527
10.199dcm::network::NEventReportRQ Class Reference	528
10.199.1Detailed Description	528
10.199.2Member Function Documentation	529
10.199.2.1ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	529
10.200dcm::network::NEventReportRSP Class Reference	529
10.200.1Detailed Description	530
10.200.2Member Function Documentation	530

10.200.2.1ConstructPDVByDataSet(const DataSet *inDataSet)	530
10.201dcm::network::NGetRQ Class Reference	530
10.201.1Detailed Description	531
10.201.2Member Function Documentation	531
10.201.2.1ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	531
10.202dcm::network::NGetRSP Class Reference	532
10.202.1Detailed Description	532
10.202.2Member Function Documentation	533
10.202.2.1ConstructPDVByDataSet(const DataSet *inDataSet)	533
10.203dcm::NoEvent Class Reference	533
10.203.1Detailed Description	534
10.204dcm::network::NormalizedMessageFactory Class Reference	534
10.204.1Member Function Documentation	534
10.204.1.1ConstructNAction(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.204.1.2ConstructNCreate(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.204.1.3ConstructNDelete(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.204.1.4ConstructNEventReport(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.204.1.5ConstructNGet(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.204.1.6ConstructNSet(const ULConnection &inConnection, const BaseQuery *inQuery)	534
10.205dcm::NormalizedNetworkFunctions Class Reference	535
10.205.1Detailed Description	535
10.205.2Member Function Documentation	536
10.205.2.1ConstructQuery(const std::string &sopInstanceUID, const DataSet &queryds, ENUM_SOP_CLASS_INSTANCE queryType=eCreateMMPS)	536
10.205.2.2NAction(const char *remote, uint16_t portno, const BaseQuery *query, std::vector<DataSet> &retDataSets, const char *aetitle, const char *call)	536
10.205.2.3NCreate(const char *remote, uint16_t portno, BaseQuery *query, std::vector<DataSet> &retDataSets, const char *aetitle, const char *call)	536

10.205.2.4NDelete(const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)	536
10.205.2.5NEventReport(const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)	536
10.205.2.6NGet(const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)	536
10.205.2.7NSet(const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)	536
10.206dcm::network::NSetRQ Class Reference	536
10.206.1Detailed Description	537
10.206.2Member Function Documentation	537
10.206.2.1ConstructPDV(const ULConnection &inConnection, const BaseQuery *inQuery)	537
10.207dcm::network::NSetRSP Class Reference	538
10.207.1Detailed Description	538
10.207.2Member Function Documentation	539
10.207.2.1ConstructPDVByDataSet(const DataSet *inDataSet)	539
10.208dcm::Object Class Reference	539
10.208.1Detailed Description	540
10.208.2Constructor & Destructor Documentation	540
10.208.2.1Object()	540
10.208.2.2~Object()	540
10.208.2.3Object(const Object &)	540
10.208.3Member Function Documentation	541
10.208.3.1operator=(const Object &)	541
10.208.3.2Print(std::ostream &) const	541
10.208.3.3Register()	541
10.208.3.4UnRegister()	541
10.208.4Friends And Related Function Documentation	541
10.208.4.1operator<<	541
10.208.4.2SmartPointer	541

10.209.0	dcmm::OpenSSLCryptoFactory Class Reference	541
10.209.1	Constructor & Destructor Documentation	542
10.209.1.1	OpenSSLCryptoFactory(CryptoLib id)	542
10.209.2	Member Function Documentation	542
10.209.2.1	CreateCMSProvider()	542
10.209.2.2	InitOpenSSL()	542
10.210.0	dcmm::OpenSSLCryptographicMessageSyntax Class Reference	543
10.210.1	Constructor & Destructor Documentation	544
10.210.1.1	OpenSSLCryptographicMessageSyntax()	544
10.210.1.2	~OpenSSLCryptographicMessageSyntax()	544
10.210.2	Member Function Documentation	544
10.210.2.1	Decrypt(char *output, size_t &outlen, const char *array, size_t len) const	544
10.210.2.2	Encrypt(char *output, size_t &outlen, const char *array, size_t len) const	544
10.210.2.3	GetCipherType() const	544
10.210.2.4	ParseCertificateFile(const char *filename)	544
10.210.2.5	ParseKeyFile(const char *filename)	544
10.210.2.6	SetCipherType(CipherTypes type)	545
10.210.2.7	SetPassword(const char *pass, size_t passLen)	545
10.211.0	dcmm::OpenSSLP7CryptoFactory Class Reference	545
10.211.1	Constructor & Destructor Documentation	546
10.211.1.1	OpenSSLP7CryptoFactory(CryptoLib id)	546
10.211.2	Member Function Documentation	546
10.211.2.1	CreateCMSProvider()	546
10.212.0	dcmm::OpenSSLP7CryptographicMessageSyntax Class Reference	546
10.212.1	Detailed Description	547
10.212.2	Constructor & Destructor Documentation	548
10.212.2.1	OpenSSLP7CryptographicMessageSyntax()	548
10.212.2.2	~OpenSSLP7CryptographicMessageSyntax()	548

10.212.3	Member Function Documentation	548
10.212.3.1	Decrypt(char *output, size_t &outlen, const char *array, size_t len) const	548
10.212.3.2	Encrypt(char *output, size_t &outlen, const char *array, size_t len) const	548
10.212.3.3	GetCipherType() const	548
10.212.3.4	ParseCertificateFile(const char *filename)	548
10.212.3.5	ParseKeyFile(const char *filename)	548
10.212.3.6	SetCipherType(CipherTypes type)	548
10.212.3.7	SetPassword(const char *, size_t)	549
10.213	dcm::Orientation Class Reference	549
10.213.1	Detailed Description	550
10.213.2	Member Enumeration Documentation	550
10.213.2.1	OrientationType	550
10.213.3	Constructor & Destructor Documentation	550
10.213.3.1	Orientation()	550
10.213.3.2	~Orientation()	550
10.213.4	Member Function Documentation	550
10.213.4.1	GetLabel(OrientationType type)	550
10.213.4.2	GetMajorAxisFromPatientRelativeDirectionCosine(double x, double y, double z)	550
10.213.4.3	GetObliquityThresholdCosineValue()	550
10.213.4.4	GetType(const double dircos[6])	550
10.213.4.5	Print(std::ostream &) const	551
10.213.4.6	SetObliquityThresholdCosineValue(double val)	551
10.213.5	Friends And Related Function Documentation	551
10.213.5.1	operator<<	551
10.214	dcm::Overlay Class Reference	551
10.214.1	Detailed Description	554
10.214.2	Member Enumeration Documentation	554
10.214.2.1	OverlayType	554

10.214.3	Constructor & Destructor Documentation	554
10.214.3.1	Overlay()	554
10.214.3.2	~Overlay()	554
10.214.3.3	Overlay(Overlay const &ov)	554
10.214.4	Member Function Documentation	554
10.214.4.1	Decompress(std::ostream &os) const	554
10.214.4.2	GetBitPosition() const	554
10.214.4.3	GetBitsAllocated() const	555
10.214.4.4	GetColumns() const	555
10.214.4.5	GetDescription() const	555
10.214.4.6	GetGroup() const	555
10.214.4.7	GetOrigin() const	555
10.214.4.8	GetOverlayData() const	555
10.214.4.9	GetOverlayTypeAsString(OverlayType ot)	555
10.214.4.10	GetOverlayTypeFromString(const char *)	555
10.214.4.11	GetRows() const	555
10.214.4.12	GetType() const	555
10.214.4.13	GetTypeAsEnum() const	556
10.214.4.14	GetUnpackBuffer(char *buffer, size_t len) const	556
10.214.4.15	GetUnpackBufferLength() const	556
10.214.4.16	GrabOverlayFromPixelData(DataSet const &ds)	556
10.214.4.17	IsEmpty() const	556
10.214.4.18	InPixelData() const	556
10.214.4.19	InPixelData(bool b)	556
10.214.4.20	Zero() const	556
10.214.4.21	operator=(Overlay const &ov)	556
10.214.4.22	Print(std::ostream &) const	556
10.214.4.23	SetBitPosition(unsigned short bitposition)	556

10.214.4.28	SetBitsAllocated(unsigned short bitsallocated)	557
10.214.4.29	SetColumns(unsigned short columns)	557
10.214.4.30	SetDescription(const char *description)	557
10.214.4.31	SetFrameOrigin(unsigned short frameorigin)	557
10.214.4.32	SetGroup(unsigned short group)	557
10.214.4.33	SetNumberOfFrames(unsigned int numerofframes)	557
10.214.4.34	SetOrigin(const signed short origin[2])	557
10.214.4.35	SetOverlay(const char *array, size_t length)	557
10.214.4.36	SetRows(unsigned short rows)	557
10.214.4.37	SetType(const char *type)	557
10.214.4.38	Update(const DataElement &de)	558
10.215	dcm::ParseException Class Reference	558
10.215.1	Detailed Description	559
10.215.2	Constructor & Destructor Documentation	559
10.215.2.1	ParseException()	559
10.215.2.2	~ParseException()	559
10.215.3	Member Function Documentation	559
10.215.3.1	GetLastElement() const	559
10.215.3.2	operator=(const ParseException &orig)	559
10.215.3.3	SetLastElement(DataElement &de)	560
10.216	dcm::Parser Class Reference	560
10.216.1	Detailed Description	561
10.216.2	Member Typedef Documentation	561
10.216.2.1	EndElementHandler	561
10.216.2.2	StartElementHandler	561
10.216.3	Member Enumeration Documentation	561
10.216.3.1	ErrorType	561
10.216.4	Constructor & Destructor Documentation	562

10.216.4.1Parser()	562
10.216.4.2~Parser()	562
10.216.5Member Function Documentation	562
10.216.5.1GetBuffer(int len)	562
10.216.5.2GetCurrentByteIndex() const	562
10.216.5.3GetErrorCode() const	562
10.216.5.4GetErrorString(ErrorType const &err)	562
10.216.5.5GetUserData() const	562
10.216.5.6Parse(const char *s, int len, bool isFinal)	562
10.216.5.7ParseBuffer(int len, bool isFinal)	562
10.216.5.8Process()	562
10.216.5.9SetElementHandler(StartElementHandler start, EndElementHandler end)	562
10.216.5.10SetUserData(void *userData)	562
10.217dcm::Patient Class Reference	562
10.217.1Detailed Description	563
10.217.2Constructor & Destructor Documentation	563
10.217.2.1Patient()	563
10.218dcm::network::PDataTFPDU Class Reference	563
10.218.1Detailed Description	564
10.218.2Member Typedef Documentation	564
10.218.2.1SizeType	564
10.218.3Constructor & Destructor Documentation	564
10.218.3.1PDataTFPDU()	564
10.218.4Member Function Documentation	564
10.218.4.1AddPresentationDataValue(PresentationDataValue const &pdv)	564
10.218.4.2GetNumberOfPresentationDataValues() const	564
10.218.4.3GetPresentationDataValue(SizeType i) const	564
10.218.4.4IsLastFragment() const	564

10.218.4.5	Print(std::ostream &os) const	565
10.218.4.6	Read(std::istream &is)	565
10.218.4.7	ReadInto(std::istream &is, std::ostream &os)	565
10.218.4.8	Size() const	565
10.218.4.9	Write(std::ostream &os) const	565
10.219	dcm::PDBElement Class Reference	565
10.219.1	Detailed Description	566
10.219.2	Constructor & Destructor Documentation	566
10.219.2.1	PDBElement()	566
10.219.3	Member Function Documentation	566
10.219.3.1	GetName() const	566
10.219.3.2	GetValue() const	566
10.219.3.3	operator==(const PDBElement &de) const	567
10.219.3.4	SetName(const char *name)	567
10.219.3.5	SetValue(const char *value)	567
10.219.4	Friends And Related Function Documentation	567
10.219.4.1	operator<<	567
10.219.5	Member Data Documentation	567
10.219.5.1	NameField	567
10.219.5.2	ValueField	567
10.220	dcm::PDBHeader Class Reference	567
10.220.1	Detailed Description	568
10.220.2	Constructor & Destructor Documentation	568
10.220.2.1	PDBHeader()	568
10.220.2.2	~PDBHeader()	568
10.220.3	Member Function Documentation	568
10.220.3.1	FindPDBElementByName(const char *name)	568
10.220.3.2	GetPDBEEnd() const	569

10.220.3.3	GetPDBElementByName(const char *name)	569
10.220.3.4	GetPDBInfoTag()	569
10.220.3.5	LoadFromDataElement(DataElement const &de)	569
10.220.3.6	Print(std::ostream &os) const	569
10.220.4	Friends And Related Function Documentation	569
10.220.4.1	operator<<	569
10.221	dcm::PDFCodec Class Reference	570
10.221.1	Detailed Description	571
10.221.2	Constructor & Destructor Documentation	571
10.221.2.1	PDFCodec()	571
10.221.2.2	~PDFCodec()	571
10.221.3	Member Function Documentation	571
10.221.3.1	CanCode(TransferSyntax const &) const	571
10.221.3.2	CanDecode(TransferSyntax const &) const	571
10.221.3.3	Decode(DataElement const &is, DataElement &os)	571
10.222	dcm::network::PDUFactory Class Reference	572
10.222.1	Detailed Description	572
10.222.2	Member Function Documentation	573
10.222.2.1	ConstructAbortPDU()	573
10.222.2.2	ConstructPDU(uint8_t itemtype)	573
10.222.2.3	ConstructReleasePDU()	573
10.222.2.4	CreateCEchoPDU(const ULConnection &inConnection)	573
10.222.2.5	CreateCFindPDU(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)	573
10.222.2.6	CreateCMovePDU(const ULConnection &inConnection, const BaseRootQuery *inRootQuery)	573
10.222.2.7	CreateCStoreRQPDU(const ULConnection &inConnection, const File &file, bool writeDataSet=true)	573
10.222.2.8	CreateCStoreRSPPDU(const DataSet *inDataSet, const BasePDU *inPC)	573

10.222.2.9	CreateNActionPDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	CreateNCreatePDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	CreateNDeletePDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	CreateNEventReportPDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	CreateNGetPDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	CreateNSetPDU(const ULConnection &inConnection, const BaseQuery *inQuery)	573
10.222.2.10	DetermineEventByPDU(const BasePDU *inPDU)	573
10.222.2.10	GetPDVs(const std::vector< BasePDU * > &inDataPDUs)	573
10.223.0	dcm::PersonName Class Reference	574
10.223.1	Detailed Description	574
10.223.2	Member Function Documentation	574
10.223.2.1	GetMaxLength() const	574
10.223.2.2	GetNumberOfComponents() const	574
10.223.2.3	Print(std::ostream &os) const	574
10.223.2.4	SetBlob(const std::vector< char > &v)	574
10.223.2.5	SetComponents(const char *comp1="", const char *comp2="", const char *comp3="", const char *comp4="", const char *comp5="")	575
10.223.2.6	SetComponents(const char *components[])	575
10.223.3	Member Data Documentation	575
10.223.3.1	Component	575
10.223.3.2	MaxLength	575
10.223.3.3	MaxNumberOfComponents	575
10.223.3.4	Padding	575
10.223.3.5	Separator	575
10.224.0	dcm::PGXCodec Class Reference	575
10.224.1	Detailed Description	576
10.224.2	Constructor & Destructor Documentation	576
10.224.2.1	PGXCodec()	576

10.224.2.2~PGXCodec()	576
10.224.3Member Function Documentation	576
10.224.3.1CanCode(TransferSyntax const &ts) const	576
10.224.3.2CanDecode(TransferSyntax const &ts) const	577
10.224.3.3Clone() const	577
10.224.3.4GetHeaderInfo(std::istream &is, TransferSyntax &ts)	577
10.224.3.5Read(const char *filename, DataElement &out) const	577
10.224.3.6Write(const char *filename, const DataElement &out) const	577
10.225dcm::PhotometricInterpretation Class Reference	577
10.225.1Detailed Description	578
10.225.2Member Enumeration Documentation	578
10.225.2.1PIType	578
10.225.3Constructor & Destructor Documentation	579
10.225.3.1PhotometricInterpretation(PIType pi=UNKNOWN)	579
10.225.4Member Function Documentation	579
10.225.4.1GetPIString(PIType pi)	579
10.225.4.2GetPIType(const char *pi)	579
10.225.4.3GetSamplesPerPixel() const	579
10.225.4.4GetString() const	579
10.225.4.5GetType() const	579
10.225.4.6IsLossless() const	579
10.225.4.7IsLossy() const	579
10.225.4.8IsRetired(PIType pi)	579
10.225.4.9IsSameColorSpace(PhotometricInterpretation const &pi) const	579
10.225.4.10operator PIType() const	579
10.225.5Friends And Related Function Documentation	579
10.225.5.1operator<<	579
10.226dcm::PixelFormat Class Reference	580

10.226.1Detailed Description	581
10.226.2Member Enumeration Documentation	582
10.226.2.1ScalarType	582
10.226.3Constructor & Destructor Documentation	582
10.226.3.1PixelFormat(unsigned short samplesperpixel=1, unsigned short bitsallocated=8, unsigned short bitsstored=8, unsigned short highbit=7, unsigned short pixelrepresentation=0)	582
10.226.3.2PixelFormat(ScalarType st)	582
10.226.4Member Function Documentation	582
10.226.4.1GetBitsAllocated() const	582
10.226.4.2GetBitsStored() const	583
10.226.4.3GetHighBit() const	583
10.226.4.4GetMax() const	583
10.226.4.5GetMin() const	583
10.226.4.6GetPixelRepresentation() const	583
10.226.4.7GetPixelSize() const	583
10.226.4.8GetSamplesPerPixel() const	584
10.226.4.9GetScalarType() const	584
10.226.4.10GetScalarTypeAsString() const	584
10.226.4.11IsCompatible(const TransferSyntax &ts) const	584
10.226.4.12Valid() const	584
10.226.4.13operator ScalarType() const	584
10.226.4.14operator!=(ScalarType st) const	584
10.226.4.15operator!=(const PixelFormat &pf) const	584
10.226.4.16operator==(ScalarType st) const	584
10.226.4.17operator==(const PixelFormat &pf) const	584
10.226.4.18Print(std::ostream &os) const	584
10.226.4.19SetBitsAllocated(unsigned short ba)	585
10.226.4.20SetBitsStored(unsigned short bs)	585

10.226.4.23	SetHighBit(unsigned short hb)	585
10.226.4.24	SetPixelRepresentation(unsigned short pr)	585
10.226.4.25	SetSamplesPerPixel(unsigned short spp)	585
10.226.4.26	SetScalarType(ScalarType st)	585
10.226.4.27	Validate()	585
10.226.5	Friends And Related Function Documentation	585
10.226.5.1	Bitmap	585
10.226.5.2	operator<<	585
10.227	dcm::Pixmap Class Reference	586
10.227.1	Detailed Description	587
10.227.2	Constructor & Destructor Documentation	588
10.227.2.1	Pixmap()	588
10.227.2.2	~Pixmap()	588
10.227.3	Member Function Documentation	588
10.227.3.1	AreOverlaysInPixelData() const	588
10.227.3.2	GetCurve(size_t i=0)	588
10.227.3.3	GetCurve(size_t i=0) const	588
10.227.3.4	GetIconImage() const	588
10.227.3.5	GetIconImage()	588
10.227.3.6	GetNumberOfCurves() const	588
10.227.3.7	GetNumberOfOverlays() const	588
10.227.3.8	GetOverlay(size_t i=0)	588
10.227.3.9	GetOverlay(size_t i=0) const	588
10.227.3.10	Print(std::ostream &) const	588
10.227.3.11	RemoveOverlay(size_t i)	589
10.227.3.12	SetIconImage(IconImage const &ii)	589
10.227.3.13	SetNumberOfCurves(size_t n)	589
10.227.3.14	SetNumberOfOverlays(size_t n)	589

10.227.4Member Data Documentation	589
10.227.4.1Curves	589
10.227.4.2con	589
10.227.4.3Overlays	589
10.228dcm::PixmapReader Class Reference	589
10.228.1Detailed Description	591
10.228.2Constructor & Destructor Documentation	591
10.228.2.1PixmapReader()	591
10.228.2.2~PixmapReader()	591
10.228.3Member Function Documentation	591
10.228.3.1GetPixmap() const	591
10.228.3.2GetPixmap()	591
10.228.3.3Read()	591
10.228.3.4ReadACRNEMAIImage()	592
10.228.3.5ReadImage(MediaStorage const &ms)	592
10.228.3.6ReadImageInternal(MediaStorage const &ms, bool handlepixeldata=true)	592
10.228.4Member Data Documentation	592
10.228.4.1PixelData	592
10.229dcm::PixmapToPixmapFilter Class Reference	592
10.229.1Detailed Description	593
10.229.2Constructor & Destructor Documentation	594
10.229.2.1PixmapToPixmapFilter()	594
10.229.2.2~PixmapToPixmapFilter()	594
10.229.3Member Function Documentation	594
10.229.3.1GetInput()	594
10.229.3.2GetOutput() const	594
10.229.3.3GetOutputAsPixmap() const	594
10.230dcm::PixmapWriter Class Reference	594

10.230.1Detailed Description	596
10.230.2Constructor & Destructor Documentation	596
10.230.2.1PixmapWriter()	596
10.230.2.2~PixmapWriter()	596
10.230.3Member Function Documentation	596
10.230.3.1DoIcoImage(DataSet &ds, Pixmap const &image)	596
10.230.3.2GetImage() const	596
10.230.3.3GetImage()	596
10.230.3.4GetPixmap() const	597
10.230.3.5GetPixmap()	597
10.230.3.6PrepareWrite()	597
10.230.3.7PrepareWrite(MediaStorage const &refms)	597
10.230.3.8SetImage(Pixmap const &img)	597
10.230.3.9SetPixmap(Pixmap const &img)	597
10.230.3.10Write()	597
10.230.4Member Data Documentation	597
10.230.4.1PixelData	597
10.231dcm::PNMCodec Class Reference	598
10.231.1Detailed Description	599
10.231.2Constructor & Destructor Documentation	599
10.231.2.1PNMCodec()	599
10.231.2.2~PNMCodec()	599
10.231.3Member Function Documentation	599
10.231.3.1CanCode(TransferSyntax const &ts) const	599
10.231.3.2CanDecode(TransferSyntax const &ts) const	599
10.231.3.3Clone() const	600
10.231.3.4GetBufferLength() const	600
10.231.3.5GetHeaderInfo(std::istream &is, TransferSyntax &ts)	600

10.231.3.6	Read(const char *filename, DataElement &out) const	600
10.231.3.7	SetBufferLength(unsigned long l)	600
10.231.3.8	Write(const char *filename, const DataElement &out) const	600
10.232	dcm::Preamble Class Reference	600
10.232.1	Detailed Description	601
10.232.2	Constructor & Destructor Documentation	601
10.232.2.1	Preamble()	601
10.232.2.2	~Preamble()	601
10.232.2.3	Preamble(Preamble const &)	601
10.232.3	Member Function Documentation	601
10.232.3.1	Clear()	601
10.232.3.2	Create()	601
10.232.3.3	GetInternal() const	601
10.232.3.4	GetLength() const	601
10.232.3.5	IsEmpty() const	601
10.232.3.6	IsValid() const	601
10.232.3.7	operator=(Preamble const &)	601
10.232.3.8	Print(std::ostream &os) const	601
10.232.3.9	Read(std::istream &is)	601
10.232.3.10	Remove()	601
10.232.3.11	Valid()	601
10.232.3.12	Write(std::ostream &os) const	601
10.232.4	Friends And Related Function Documentation	601
10.232.4.1	operator<<	601
10.233	dcm::PresentationContext Class Reference	602
10.233.1	Detailed Description	603
10.233.2	Member Typedef Documentation	603
10.233.2.1	SizeType	603

10.233.2.2	TransferSyntaxArrayType	603
10.233.3	Constructor & Destructor Documentation	603
10.233.3.1	PresentationContext()	603
10.233.3.2	PresentationContext(UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)	603
10.233.4	Member Function Documentation	603
10.233.4.1	AddTransferSyntax(const char *tsstr)	603
10.233.4.2	GetAbstractSyntax() const	603
10.233.4.3	GetNumberOfTransferSyntaxes() const	603
10.233.4.4	GetPresentationContextID() const	603
10.233.4.5	GetTransferSyntax(SizeType i) const	603
10.233.4.6	operator==(const PresentationContext &pc) const	603
10.233.4.7	Print(std::ostream &os) const	604
10.233.4.8	SetAbstractSyntax(const char *absyn)	604
10.233.4.9	SetPresentationContextID(uint8_t id)	604
10.233.5	Member Data Documentation	604
10.233.5.1	AbstractSyntax	604
10.233.5.2	ID	604
10.233.5.3	TransferSyntaxes	604
10.234	dcm::network::PresentationContextAC Class Reference	604
10.234.1	Detailed Description	605
10.234.2	Constructor & Destructor Documentation	605
10.234.2.1	PresentationContextAC()	605
10.234.3	Member Function Documentation	605
10.234.3.1	GetPresentationContextID() const	605
10.234.3.2	GetReason() const	605
10.234.3.3	GetTransferSyntax() const	605
10.234.3.4	Print(std::ostream &os) const	605

10.234.3.5	Read(std::istream &is)	605
10.234.3.6	SetPresentationContextID(uint8_t id)	605
10.234.3.7	SetReason(uint8_t r)	605
10.234.3.8	SetTransferSyntax(TransferSyntaxSub const &ts)	605
10.234.3.9	Size() const	605
10.234.3.10	Write(std::ostream &os) const	605
10.235	dcm::PresentationContextGenerator Class Reference	605
10.235.1	Detailed Description	606
10.235.2	Member Typedef Documentation	607
10.235.2.1	PresentationContextArrayType	607
10.235.2.2	SizeType	607
10.235.3	Constructor & Destructor Documentation	607
10.235.3.1	PresentationContextGenerator()	607
10.235.4	Member Function Documentation	607
10.235.4.1	AddFromFile(const File &file)	607
10.235.4.2	AddPresentationContext(const char *absyn, const char *ts)	607
10.235.4.3	GenerateFromFilenames(const Directory::FilenamesType &files)	607
10.235.4.4	GenerateFromUID(UIDs::TSName asname)	607
10.235.4.5	GetDefaultTransferSyntax() const	607
10.235.4.6	GetPresentationContexts()	607
10.235.4.7	SetDefaultTransferSyntax(const TransferSyntax &ts)	608
10.235.4.8	SetMergeModeToAbstractSyntax()	608
10.235.4.9	SetMergeModeToTransferSyntax()	608
10.236	dcm::network::PresentationContextRQ Class Reference	608
10.236.1	Detailed Description	609
10.236.2	Member Typedef Documentation	609
10.236.2.1	SizeType	609
10.236.3	Constructor & Destructor Documentation	609

10.236.3.1PresentationContextRQ()	609
10.236.3.2PresentationContextRQ(UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)	609
10.236.3.3PresentationContextRQ(const PresentationContext &pc)	609
10.236.4Member Function Documentation	609
10.236.4.1AddTransferSyntax(TransferSyntaxSub const &ts)	609
10.236.4.2GetAbstractSyntax() const	609
10.236.4.3GetAbstractSyntax()	609
10.236.4.4GetNumberOfTransferSyntaxes() const	609
10.236.4.5GetPresentationContextID() const	609
10.236.4.6GetTransferSyntax(SizeType i) const	609
10.236.4.7GetTransferSyntax(SizeType i)	609
10.236.4.8GetTransferSyntaxes() const	610
10.236.4.9operator==(const PresentationContextRQ &pc) const	610
10.236.4.10Print(std::ostream &os) const	610
10.236.4.11Read(std::istream &is)	610
10.236.4.12SetAbstractSyntax(AbstractSyntax const &absyn)	610
10.236.4.13SetPresentationContextID(uint8_t id)	610
10.236.4.14Size() const	610
10.236.4.15Write(std::ostream &os) const	610
10.237dcm::network::PresentationDataValue Class Reference	610
10.237.1Detailed Description	611
10.237.2Constructor & Destructor Documentation	611
10.237.2.1PresentationDataValue()	611
10.237.3Member Function Documentation	611
10.237.3.1ConcatenatePDVBlobs(const std::vector< PresentationDataValue > &inPDVs)	611
10.237.3.2ConcatenatePDVBlobsAsExplicit(const std::vector< PresentationDataValue > &inPDVs)	611
10.237.3.3GetBlob() const	611

10.237.3.4	GetIsCommand() const	611
10.237.3.5	GetIsLastFragment() const	611
10.237.3.6	GetMessageHeader() const	611
10.237.3.7	GetPresentationContextID() const	611
10.237.3.8	Print(std::ostream &os) const	611
10.237.3.9	Read(std::istream &is)	611
10.237.3.10	ReadInto(std::istream &is, std::ostream &os)	611
10.237.3.11	SetBlob(const std::string &partialblob)	611
10.237.3.12	SetCommand(bool inCommand)	611
10.237.3.13	SetDataSet(const DataSet &ds)	611
10.237.3.14	SetLastFragment(bool inLast)	612
10.237.3.15	SetMessageHeader(uint8_t messageheader)	612
10.237.3.16	SetPresentationContextID(uint8_t id)	612
10.237.3.17	Size() const	612
10.237.3.18	Write(std::ostream &os) const	612
10.238	dcm::Printer Class Reference	612
10.238.1	Detailed Description	614
10.238.2	Member Enumeration Documentation	614
10.238.2.1	PrintStyles	614
10.238.3	Constructor & Destructor Documentation	614
10.238.3.1	Printer()	614
10.238.3.2	~Printer()	614
10.238.4	Member Function Documentation	614
10.238.4.1	GetPrintStyle() const	614
10.238.4.2	Print(std::ostream &os)	615
10.238.4.3	PrintDataElement(std::ostream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)	615
10.238.4.4	PrintDataSet(const DataSet &ds, std::ostream &os, const std::string &s="")	615

10.238.4.5PrintSQ(const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)	615
10.238.4.6SetColor(bool c)	615
10.238.4.7SetFile(File const &f)	615
10.238.4.8SetStyle(PrintStyles ps)	615
10.238.5Member Data Documentation	616
10.238.5.1F	616
10.238.5.2MaxPrintLength	616
10.238.5.3PrintStyle	616
10.239dcm::PrivateDict Class Reference	616
10.239.1Detailed Description	616
10.239.2Constructor & Destructor Documentation	617
10.239.2.1PrivateDict()	617
10.239.2.2~PrivateDict()	617
10.239.3Member Function Documentation	617
10.239.3.1AddDictEntry(const PrivateTag &tag, const DictEntry &de)	617
10.239.3.2FindDictEntry(const PrivateTag &tag) const	617
10.239.3.3GetDictEntry(const PrivateTag &tag) const	617
10.239.3.4IsEmpty() const	617
10.239.3.5LoadDefault()	617
10.239.3.6PrintXML() const	617
10.239.3.7RemoveDictEntry(const PrivateTag &tag)	617
10.239.4Friends And Related Function Documentation	617
10.239.4.1Dicts	617
10.239.4.2operator<<	617
10.240dcm::PrivateTag Class Reference	618
10.240.1Detailed Description	619
10.240.2Constructor & Destructor Documentation	619
10.240.2.1PrivateTag(uint16_t group=0, uint16_t element=0, const char *owner="")	619

10.240.2.2PrivateTag(Tag const &t, const char *owner="")	619
10.240.3Member Function Documentation	619
10.240.3.1GetAsDataElement() const	619
10.240.3.2GetOwner() const	619
10.240.3.3operator<(const PrivateTag &_val) const	619
10.240.3.4ReadFromCommaSeparatedString(const char *str)	619
10.240.3.5SetOwner(const char *owner)	620
10.240.4Friends And Related Function Documentation	620
10.240.4.1operator<<	620
10.241gdcm::ProgressEvent Class Reference	620
10.241.1Detailed Description	621
10.241.2Member Typedef Documentation	622
10.241.2.1Self	622
10.241.2.2Superclass	622
10.241.3Constructor & Destructor Documentation	622
10.241.3.1ProgressEvent(double p=0)	622
10.241.3.2~ProgressEvent()	622
10.241.3.3ProgressEvent(const Self &s)	622
10.241.4Member Function Documentation	622
10.241.4.1CheckEvent(const ::gdcm::Event *e) const	622
10.241.4.2GetEventName() const	622
10.241.4.3GetProgress() const	622
10.241.4.4MakeObject() const	622
10.241.4.5SetProgress(double p)	622
10.242gdcm::PVRGCodec Class Reference	623
10.242.1Detailed Description	624
10.242.2Constructor & Destructor Documentation	624
10.242.2.1PVRGCodec()	624

10.242.2.2~PVRGCodec()	624
10.242.3 Member Function Documentation	624
10.242.3.1CanCode(TransferSyntax const &ts) const	624
10.242.3.2CanDecode(TransferSyntax const &ts) const	624
10.242.3.3Clone() const	625
10.242.3.4Code(DataElement const &in, DataElement &out)	625
10.242.3.5Decode(DataElement const &is, DataElement &os)	625
10.242.3.6SetLossyFlag(bool l)	625
10.243 dcm::PythonFilter Class Reference	625
10.243.1 Detailed Description	626
10.243.2 Constructor & Destructor Documentation	626
10.243.2.1PythonFilter()	626
10.243.2.2~PythonFilter()	626
10.243.3 Member Function Documentation	626
10.243.3.1GetFile()	626
10.243.3.2GetFile() const	626
10.243.3.3SetDicts(const Dicts &dicts)	626
10.243.3.4SetFile(const File &f)	626
10.243.3.5ToPyObject(const Tag &t) const	626
10.243.3.6UseDictAlways(bool)	626
10.244 dcm::QueryBase Class Reference	626
10.244.1 Detailed Description	627
10.244.2 Constructor & Destructor Documentation	627
10.244.2.1~QueryBase()	627
10.244.3 Member Function Documentation	627
10.244.3.1GetAllRequiredTags(const ERootType &inRootType) const	627
10.244.3.2GetAllTags(const ERootType &inRootType) const	628
10.244.3.3GetHierachicalSearchTags(const ERootType &inRootType) const =0	628

10.244.3.4	GetName() const =0	628
10.244.3.5	GetOptionalTags(const ERootType &inRootType) const =0	628
10.244.3.6	GetQueryLevel() const =0	628
10.244.3.7	GetRequiredTags(const ERootType &inRootType) const =0	628
10.244.3.8	GetUniqueTags(const ERootType &inRootType) const =0	628
10.245	dcm::QueryFactory Class Reference	629
10.245.1	Detailed Description	629
10.245.2	Member Function Documentation	629
10.245.2.1	GetCharacterFromCurrentLocale()	629
10.245.2.2	ListCharSets(std::ostream &os)	629
10.245.2.3	ProduceCharacterSetDataElement(const std::vector< ECharSet > &inCharSetType)	630
10.245.2.4	ProduceQuery(const std::string &sopInstanceUID, ENQueryType inQueryType)	630
10.245.2.5	ProduceQuery(ERootType inRootType, EQueryType inQueryType, EQueryLevel inQueryLevel)	630
10.246	dcm::QueryImage Class Reference	630
10.246.1	Detailed Description	631
10.246.2	Member Function Documentation	631
10.246.2.1	GetHierarchicalSearchTags(const ERootType &inRootType) const	631
10.246.2.2	GetName() const	631
10.246.2.3	GetOptionalTags(const ERootType &inRootType) const	632
10.246.2.4	GetQueryLevel() const	632
10.246.2.5	GetRequiredTags(const ERootType &inRootType) const	632
10.246.2.6	GetUniqueTags(const ERootType &inRootType) const	632
10.247	dcm::QueryPatient Class Reference	632
10.247.1	Detailed Description	633
10.247.2	Member Function Documentation	633
10.247.2.1	GetHierarchicalSearchTags(const ERootType &inRootType) const	633
10.247.2.2	GetName() const	633

10.247.2.3	GetOptionalTags(const ERootType &inRootType) const	634
10.247.2.4	GetQueryLevel() const	634
10.247.2.5	GetRequiredTags(const ERootType &inRootType) const	634
10.247.2.6	GetUniqueTags(const ERootType &inRootType) const	634
10.248	dcm::QuerySeries Class Reference	634
10.248.1	Detailed Description	635
10.248.2	Member Function Documentation	635
10.248.2.1	GetHierachicalSearchTags(const ERootType &inRootType) const	635
10.248.2.2	GetName() const	635
10.248.2.3	GetOptionalTags(const ERootType &inRootType) const	636
10.248.2.4	GetQueryLevel() const	636
10.248.2.5	GetRequiredTags(const ERootType &inRootType) const	636
10.248.2.6	GetUniqueTags(const ERootType &inRootType) const	636
10.249	dcm::QueryStudy Class Reference	636
10.249.1	Detailed Description	637
10.249.2	Member Function Documentation	637
10.249.2.1	GetHierachicalSearchTags(const ERootType &inRootType) const	637
10.249.2.2	GetName() const	637
10.249.2.3	GetOptionalTags(const ERootType &inRootType) const	638
10.249.2.4	GetQueryLevel() const	638
10.249.2.5	GetRequiredTags(const ERootType &inRootType) const	638
10.249.2.6	GetUniqueTags(const ERootType &inRootType) const	638
10.250	dcm::RAWCodec Class Reference	638
10.250.1	Detailed Description	639
10.250.2	Constructor & Destructor Documentation	639
10.250.2.1	RAWCodec()	639
10.250.2.2	~RAWCodec()	639
10.250.3	Member Function Documentation	639

10.250.3.1CanCode(TransferSyntax const &ts) const	639
10.250.3.2CanDecode(TransferSyntax const &ts) const	640
10.250.3.3Clone() const	640
10.250.3.4Code(DataElement const &in, DataElement &out)	640
10.250.3.5Decode(DataElement const &is, DataElement &os)	640
10.250.3.6DecodeByStreams(std::istream &is, std::ostream &os)	640
10.250.3.7DecodeBytes(const char *inBytes, size_t inBufferLength, char *outBytes, size_t inBufferLength, char *outBufferLength)	640
10.250.3.8GetHeaderInfo(std::istream &is, TransferSyntax &ts)	640
10.251.dcm::Reader Class Reference	641
10.251.1Detailed Description	643
10.251.2Constructor & Destructor Documentation	644
10.251.2.1Reader()	644
10.251.2.2~Reader()	644
10.251.3Member Function Documentation	644
10.251.3.1CanRead() const	644
10.251.3.2GetFile() const	644
10.251.3.3GetFile()	644
10.251.3.4GetStreamCurrentPosition() const	644
10.251.3.5GetStreamPtr() const	645
10.251.3.6Read()	645
10.251.3.7ReadDataSet()	645
10.251.3.8ReadMetaInformation()	645
10.251.3.9ReadPreamble()	645
10.251.3.10ReadSelectedPrivateTags(std::set< PrivateTag > const &ptags, bool readvalues=true)	645
10.251.3.11ReadSelectedTags(std::set< Tag > const &tags, bool readvalues=true)	645
10.251.3.12ReadUpToTag(const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())	645
10.251.3.13SetFile(File &file)	646

10.251.3.1	SetFileName(const char *filename_native)	646
10.251.3.1	SetStream(std::istream &input_stream)	646
10.251.4	Friends And Related Function Documentation	646
10.251.4.1	StreamImageReader	646
10.251.5	Member Data Documentation	646
10.251.5.1	F	646
10.252	dcm::RealWorldValueMappingContent Struct Reference	647
10.252.1	Member Data Documentation	647
10.252.1.1	CodeMeaning	647
10.252.1.2	CodeValue	647
10.252.1.3	RealWorldValueIntercept	647
10.252.1.4	RealWorldValueSlope	647
10.253	dcm::Region Class Reference	648
10.253.1	Detailed Description	648
10.253.2	Constructor & Destructor Documentation	649
10.253.2.1	Region()	649
10.253.2.2	~Region()	649
10.253.3	Member Function Documentation	649
10.253.3.1	Area() const =0	649
10.253.3.2	Clone() const =0	649
10.253.3.3	ComputeBoundingBox()=0	649
10.253.3.4	Empty() const =0	649
10.253.3.5	IsValid() const =0	649
10.253.3.6	Print(std::ostream &os=std::cout) const	649
10.254	dcm::Rescaler Class Reference	650
10.254.1	Detailed Description	651
10.254.2	Constructor & Destructor Documentation	651
10.254.2.1	Rescaler()	651

10.254.2.2~Rescaler()	651
10.254.3Member Function Documentation	651
10.254.3.1ComputeInterceptSlopePixelType()	651
10.254.3.2ComputePixelTypeFromMinMax()	652
10.254.3.3GetIntercept() const	652
10.254.3.4GetSlope() const	652
10.254.3.5InverseRescale(char *out, const char *in, size_t n)	652
10.254.3.6InverseRescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n)	652
10.254.3.7Rescale(char *out, const char *in, size_t n)	652
10.254.3.8RescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n)	652
10.254.3.9SetIntercept(double i)	652
10.254.3.10SetMinMaxForPixelType(double min, double max)	652
10.254.3.11SetPixelFormat(PixelFormat const &pf)	652
10.254.3.12SetSlope(double s)	652
10.254.3.13SetTargetPixelType(PixelFormat const &targetst)	653
10.254.3.14SetUseTargetPixelType(bool b)	653
10.255dcm::RLECodec Class Reference	653
10.255.1Detailed Description	655
10.255.2Constructor & Destructor Documentation	655
10.255.2.1RLECodec()	655
10.255.2.2~RLECodec()	655
10.255.3Member Function Documentation	655
10.255.3.1AppendFrameEncode(std::ostream &out, const char *data, size_t datalen)	655
10.255.3.2AppendRowEncode(std::ostream &out, const char *data, size_t datalen)	655
10.255.3.3CanCode(TransferSyntax const &ts) const	655
10.255.3.4CanDecode(TransferSyntax const &ts) const	655
10.255.3.5Clone() const	656
10.255.3.6Code(DataElement const &in, DataElement &out)	656

10.255.3.7	Decode(DataElement const &is, DataElement &os)	656
10.255.3.8	DecodeByStreams(std::istream &is, std::ostream &os)	656
10.255.3.9	DecodeExtent(char *buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream &is)	656
10.255.3.10	GetBufferLength() const	656
10.255.3.11	GetHeaderInfo(std::istream &is, TransferSyntax &ts)	656
10.255.3.12	FrameEncoder()	656
10.255.3.13	RowEncoder()	656
10.255.3.14	SetBufferLength(unsigned long l)	657
10.255.3.15	SetLength(unsigned long l)	657
10.255.3.16	StartEncode(std::ostream &)	657
10.255.3.17	StopEncode(std::ostream &)	657
10.255.4	Friends And Related Function Documentation	657
10.255.4.1	ImageRegionReader	657
10.256	dcm::network::RoleSelectionSub Class Reference	657
10.256.1	Detailed Description	657
10.256.2	Constructor & Destructor Documentation	658
10.256.2.1	RoleSelectionSub()	658
10.256.3	Member Function Documentation	658
10.256.3.1	Print(std::ostream &os) const	658
10.256.3.2	Read(std::istream &is)	658
10.256.3.3	SetTuple(const char *uid, uint8_t scurole, uint8_t scprole)	658
10.256.3.4	Size() const	658
10.256.3.5	Write(std::ostream &os) const	658
10.257	dcm::SerieHelper::Rule Struct Reference	658
10.257.1	Member Data Documentation	659
10.257.1.1	elem	659
10.257.1.2	group	659

10.257.1.3op	659
10.257.1.4value	659
10.258dcm::Scanner Class Reference	659
10.258.1Detailed Description	661
10.258.2Member Typedef Documentation	662
10.258.2.1ConstIterator	662
10.258.2.2MappingType	662
10.258.2.3TagToValue	662
10.258.2.4TagToValueValueType	662
10.258.2.5ValuesType	662
10.258.3Constructor & Destructor Documentation	662
10.258.3.1Scanner()	662
10.258.3.2~Scanner()	662
10.258.4Member Function Documentation	662
10.258.4.1AddPrivateTag(PrivateTag const &t)	662
10.258.4.2AddSkipTag(Tag const &t)	662
10.258.4.3AddTag(Tag const &t)	663
10.258.4.4Begin() const	663
10.258.4.5ClearSkipTags()	663
10.258.4.6ClearTags()	663
10.258.4.7End() const	663
10.258.4.8GetAllFileNamesFromTagToValue(Tag const &t, const char *valueref) const	663
10.258.4.9GetFilenameFromTagToValue(Tag const &t, const char *valueref) const	663
10.258.4.10GetFileNames() const	663
10.258.4.11GetKeys() const	663
10.258.4.12GetMapping(const char *filename) const	663
10.258.4.13GetMappingFromTagToValue(Tag const &t, const char *value) const	664
10.258.4.14GetMappings() const	664

10.258.4.16	GetOrderedValues(Tag const &t) const	664
10.258.4.16	GetValue(const char *filename, Tag const &t) const	664
10.258.4.16	GetValues() const	664
10.258.4.16	GetValues(Tag const &t) const	664
10.258.4.19	Key(const char *filename) const	664
10.258.4.20	New()	665
10.258.4.21	Print(std::ostream &os) const	665
10.258.4.22	ProcessPublicTag(StringFilter &sf, const char *filename)	665
10.258.4.23	Scan(Directory::FilenamesType const &filenames)	665
10.258.5	Friends And Related Function Documentation	665
10.258.5.1	operator<<	665
10.259	dcm::Segment Class Reference	666
10.259.1	Detailed Description	668
10.259.2	Member Typedef Documentation	668
10.259.2.1	SurfaceVector	668
10.259.3	Member Enumeration Documentation	668
10.259.3.1	ALGOType	668
10.259.4	Constructor & Destructor Documentation	668
10.259.4.1	Segment()	668
10.259.4.2	~Segment()	668
10.259.5	Member Function Documentation	668
10.259.5.1	AddSurface(SmartPointer< Surface > surface)	668
10.259.5.2	GetALGOType(const char *type)	668
10.259.5.3	GetALGOTypeString(ALGOType type)	668
10.259.5.4	GetAnatomicRegion() const	668
10.259.5.5	GetAnatomicRegion()	668
10.259.5.6	GetPropertyCategory() const	669
10.259.5.7	GetPropertyCategory()	669

10.259.5.8	GetPropertyType() const	669
10.259.5.9	GetPropertyType()	669
10.259.5.10	GetSegmentAlgorithmName() const	669
10.259.5.10	GetSegmentAlgorithmType() const	669
10.259.5.10	GetSegmentDescription() const	669
10.259.5.10	GetSegmentLabel() const	669
10.259.5.10	GetSegmentNumber() const	669
10.259.5.10	GetSurface(const unsigned int idx=0) const	669
10.259.5.10	GetSurfaceCount()	669
10.259.5.10	GetSurfaces() const	669
10.259.5.10	GetSurfaces()	669
10.259.5.10	SetAnatomicRegion(SegmentHelper::BasicCodedEntry const &BSE)	669
10.259.5.20	GetPropertyCategory(SegmentHelper::BasicCodedEntry const &BSE)	669
10.259.5.20	GetPropertyType(SegmentHelper::BasicCodedEntry const &BSE)	669
10.259.5.20	SetSegmentAlgorithmName(const char *name)	669
10.259.5.20	SetSegmentAlgorithmType(ALGOType type)	669
10.259.5.20	SetSegmentAlgorithmType(const char *typeStr)	669
10.259.5.20	SetSegmentDescription(const char *description)	669
10.259.5.20	SetSegmentLabel(const char *label)	669
10.259.5.20	SetSegmentNumber(const unsigned short num)	670
10.259.5.20	SetSurfaceCount(const unsigned long nb)	670
10.259.6	Member Data Documentation	670
10.259.6.1	AnatomicRegion	670
10.259.6.2	PropertyCategory	670
10.259.6.3	PropertyType	670
10.259.6.4	SegmentAlgorithmName	670
10.259.6.5	SegmentAlgorithmType	670
10.259.6.6	SegmentDescription	670

10.259.6.7SegmentLabel	670
10.259.6.8SegmentNumber	670
10.259.6.9SurfaceCount	670
10.259.6.10Surfaces	670
10.260dcm::SegmentedPaletteColorLookupTable Class Reference	671
10.260.1Detailed Description	672
10.260.2Constructor & Destructor Documentation	672
10.260.2.1SegmentedPaletteColorLookupTable()	672
10.260.2.2~SegmentedPaletteColorLookupTable()	672
10.260.3Member Function Documentation	672
10.260.3.1Print(std::ostream &) const	672
10.260.3.2SetLUT(LookupTableType type, const unsigned char *array, unsigned int length)	672
10.261dcm::SegmentReader Class Reference	673
10.261.1Detailed Description	674
10.261.2Member Typedef Documentation	675
10.261.2.1SegmentMap	675
10.261.2.2SegmentVector	675
10.261.3Constructor & Destructor Documentation	675
10.261.3.1SegmentReader()	675
10.261.3.2~SegmentReader()	675
10.261.4Member Function Documentation	675
10.261.4.1GetSegments() const	675
10.261.4.2GetSegments()	675
10.261.4.3Read()	675
10.261.4.4ReadSegment(const Item &segmentItem, const unsigned int idx)	675
10.261.4.5ReadSegments()	675
10.261.5Member Data Documentation	675
10.261.5.1Segments	675

10.262.0	dcm::SegmentWriter Class Reference	676
10.262.1	Detailed Description	677
10.262.2	Member Typedef Documentation	677
10.262.2.1	SegmentVector	677
10.262.3	Constructor & Destructor Documentation	677
10.262.3.1	SegmentWriter()	677
10.262.3.2	~SegmentWriter()	677
10.262.4	Member Function Documentation	677
10.262.4.1	AddSegment(SmartPointer< Segment > segment)	677
10.262.4.2	GetNumberOfSegments() const	677
10.262.4.3	GetSegment(const unsigned int idx=0) const	677
10.262.4.4	GetSegments() const	677
10.262.4.5	GetSegments()	677
10.262.4.6	PrepareWrite()	677
10.262.4.7	SetNumberOfSegments(const unsigned int size)	677
10.262.4.8	SetSegments(SegmentVector &segments)	677
10.262.4.9	Write()	677
10.262.5	Member Data Documentation	678
10.262.5.1	Segments	678
10.263.0	dcm::SequenceOfFragments Class Reference	678
10.263.1	Detailed Description	680
10.263.2	Member Typedef Documentation	680
10.263.2.1	ConstIterator	680
10.263.2.2	FragmentVector	680
10.263.2.3	Iterator	680
10.263.2.4	SizeType	680
10.263.3	Constructor & Destructor Documentation	680
10.263.3.1	SequenceOfFragments()	680

10.263.4	Member Function Documentation	681
10.263.4.1	AddFragment(Fragment const &item)	681
10.263.4.2	Begin()	681
10.263.4.3	Begin() const	681
10.263.4.4	Clear()	681
10.263.4.5	ComputeByteLength() const	681
10.263.4.6	ComputeLength() const	681
10.263.4.7	End()	681
10.263.4.8	End() const	681
10.263.4.9	GetBuffer(char *buffer, unsigned long length) const	681
10.263.4.10	GetFragBuffer(unsigned int fragNb, char *buffer, unsigned long &length) const	681
10.263.4.11	GetFragment(SizeType num) const	681
10.263.4.12	GetLength() const	681
10.263.4.13	GetNumberOfFragments() const	682
10.263.4.14	GetTable() const	682
10.263.4.15	SetTable()	682
10.263.4.16	New()	682
10.263.4.17	operator==(const Value &val) const	682
10.263.4.18	Print(std::ostream &os) const	682
10.263.4.19	Read(std::istream &is, bool readvalues=true)	682
10.263.4.20	ReadPreValue(std::istream &is)	682
10.263.4.21	ReadValue(std::istream &is, bool)	682
10.263.4.22	SetLength(VL length)	682
10.263.4.23	Write(std::ostream &os) const	683
10.263.4.24	WriteBuffer(std::ostream &os) const	683
10.264	dcm::SequenceOfItems Class Reference	683
10.264.1	Detailed Description	685
10.264.2	Member Typedef Documentation	686

10.264.2.1	ConstIterator	686
10.264.2.2	ItemVector	686
10.264.2.3	Iterator	686
10.264.2.4	SizeType	686
10.264.3	Constructor & Destructor Documentation	686
10.264.3.1	SequenceOfItems()	686
10.264.4	Member Function Documentation	686
10.264.4.1	AddItem(Item const &item)	686
10.264.4.2	AddNewUndefinedLengthItem()	686
10.264.4.3	Begin()	687
10.264.4.4	Begin() const	687
10.264.4.5	Clear()	687
10.264.4.6	ComputeLength() const	687
10.264.4.7	End()	687
10.264.4.8	End() const	687
10.264.4.9	FindDataElement(const Tag &t) const	687
10.264.4.10	GetItem(SizeType position) const	687
10.264.4.11	GetItem(SizeType position)	687
10.264.4.12	GetLength() const	687
10.264.4.13	GetNumberOfItems() const	687
10.264.4.14	UndefinedLength() const	688
10.264.4.15	New()	688
10.264.4.16	operator=(const SequenceOfItems &val)	688
10.264.4.17	operator==(const Value &val) const	688
10.264.4.18	Print(std::ostream &os) const	688
10.264.4.19	Read(std::istream &is, bool readvalues=true)	688
10.264.4.20	RemoveItemByIndex(const SizeType index)	688
10.264.4.21	SetLength(VL length)	689

10.264.4.2	SetLengthToUndefined()	689
10.264.4.2	SetNumberOfItems(SizeType n)	689
10.264.4.2	Write(std::ostream &os) const	689
10.264.5	Member Data Documentation	689
10.264.5.1	Items	689
10.264.5.2	SequenceLengthField	689
10.265	dcm::SerieHelper Class Reference	690
10.265.1	Detailed Description	691
10.265.2	Member Typedef Documentation	691
10.265.2.1	SerieRestrictions	691
10.265.2.2	SingleSerieUIDFileSetmap	691
10.265.3	Constructor & Destructor Documentation	691
10.265.3.1	SerieHelper()	691
10.265.3.2	~SerieHelper()	691
10.265.4	Member Function Documentation	691
10.265.4.1	AddFile(FileWithName &header)	691
10.265.4.2	AddFileName(std::string const &filename)	692
10.265.4.3	AddRestriction(const std::string &tag)	692
10.265.4.4	AddRestriction(uint16_t group, uint16_t elem, std::string const &value, int op)	692
10.265.4.5	AddRestriction(const Tag &tag)	692
10.265.4.6	Clear()	692
10.265.4.7	CreateDefaultUniqueSeriesIdentifier()	692
10.265.4.8	CreateUniqueSeriesIdentifier(File *inFile)	692
10.265.4.9	FileNameOrdering(FileList *fileList)	692
10.265.4.10	GetFirstSingleSerieUIDFileSet()	692
10.265.4.10	GetNextSingleSerieUIDFileSet()	692
10.265.4.11	ImagePositionPatientOrdering(FileList *fileSet)	692
10.265.4.10	OrderFileList(FileList *fileSet)	692

10.265.4.1SetDirectory(std::string const &dir, bool recursive=false)	692
10.265.4.1SetLoadMode(int)	692
10.265.4.1SetUseSeriesDetails(bool useSeriesDetails)	692
10.265.4.1UserOrdering(FileList *fileSet)	692
10.265.5Member Data Documentation	692
10.265.5.1FileSetHt	692
10.265.5.2SingleSeriesUIDFileSetHT	692
10.266dcm::Series Class Reference	693
10.266.1Detailed Description	693
10.266.2Constructor & Destructor Documentation	693
10.266.2.1Series()	693
10.267dcm::network::ServiceClassApplicationInformation Class Reference	693
10.267.1Detailed Description	693
10.267.2Constructor & Destructor Documentation	694
10.267.2.1ServiceClassApplicationInformation()	694
10.267.3Member Function Documentation	694
10.267.3.1Print(std::ostream &os) const	694
10.267.3.2Read(std::istream &is)	694
10.267.3.3SetTuple(uint8_t levelofsupport, uint8_t levelofditalsig, uint8_t elementcoercion)	694
10.267.3.4Size() const	694
10.267.3.5Write(std::ostream &os) const	694
10.268dcm::ServiceClassUser Class Reference	694
10.268.1Detailed Description	696
10.268.2Constructor & Destructor Documentation	696
10.268.2.1ServiceClassUser()	696
10.268.2.2~ServiceClassUser()	697
10.268.3Member Function Documentation	697
10.268.3.1GetAETitle() const	697

10.268.3.2	GetCalledAETitle() const	697
10.268.3.3	GetTimeout() const	697
10.268.3.4	InitializeConnection()	697
10.268.3.5	IsPresentationContextAccepted(const PresentationContext &pc) const	697
10.268.3.6	New()	697
10.268.3.7	SendEcho()	697
10.268.3.8	SendFind(const BaseRootQuery *query, std::vector< DataSet > &retDatasets)	697
10.268.3.9	SendMove(const BaseRootQuery *query, const char *outputdir)	697
10.268.3.10	SendMove(const BaseRootQuery *query, std::vector< DataSet > &retDatasets)	698
10.268.3.11	SendMove(const BaseRootQuery *query, std::vector< File > &retFile)	698
10.268.3.12	SendStore(const char *filename)	698
10.268.3.13	SendStore(File const &file)	698
10.268.3.14	SendStore(DataSet const &ds)	698
10.268.3.15	SetAETitle(const char *aetitle)	698
10.268.3.16	SetCalledAETitle(const char *aetitle)	698
10.268.3.17	SetHostname(const char *hostname)	699
10.268.3.18	SetPort(uint16_t port)	699
10.268.3.19	SetPortSCP(uint16_t portscp)	699
10.268.3.20	SetPresentationContexts(std::vector< PresentationContext > const &pcs)	699
10.268.3.21	SetTimeout(double t)	699
10.268.3.22	StartAssociation()	699
10.268.3.23	StopAssociation()	700
10.269	dcm::SHA1 Class Reference	700
10.269.1	Detailed Description	700
10.269.2	Constructor & Destructor Documentation	701
10.269.2.1	SHA1()	701
10.269.2.2	~SHA1()	701
10.269.3	Member Function Documentation	701

10.269.3.1	Compute(const char *buffer, unsigned long buf_len, char digest_str[20 *2+1])	701
10.269.3.2	ComputeFile(const char *filename, char digest_str[20 *2+1])	701
10.270	dcm::SimpleMemberCommand< T > Class Template Reference	701
10.270.1	Detailed Description	703
10.270.2	Member Typedef Documentation	703
10.270.2.1	Self	703
10.270.2.2	TMemberFunctionPointer	703
10.270.3	Constructor & Destructor Documentation	703
10.270.3.1	SimpleMemberCommand()	703
10.270.3.2	~SimpleMemberCommand()	703
10.270.4	Member Function Documentation	703
10.270.4.1	Execute(Subject *, const Event &)	703
10.270.4.2	Execute(const Subject *, const Event &)	704
10.270.4.3	New()	704
10.270.4.4	SetCallbackFunction(T *object, TMemberFunctionPointer memberFunction)	704
10.270.5	Member Data Documentation	704
10.270.5.1	m_MemberFunction	704
10.270.5.2	m_This	704
10.271	dcm::SimpleSubjectWatcher Class Reference	704
10.271.1	Detailed Description	705
10.271.2	Constructor & Destructor Documentation	705
10.271.2.1	SimpleSubjectWatcher(Subject *s, const char *comment="")	705
10.271.2.2	~SimpleSubjectWatcher()	705
10.271.3	Member Function Documentation	705
10.271.3.1	EndFilter()	705
10.271.3.2	ShowAbort()	705
10.271.3.3	ShowAnonymization(Subject *caller, const Event &evt)	705
10.271.3.4	ShowData(Subject *caller, const Event &evt)	705

10.271.3.5ShowDataSet(Subject *caller, const Event &evt)	705
10.271.3.6ShowFileName(Subject *caller, const Event &evt)	705
10.271.3.7ShowIteration()	706
10.271.3.8ShowProgress(Subject *caller, const Event &evt)	706
10.271.3.9StartFilter()	706
10.271.3.10TestAbortOff()	706
10.271.3.11TestAbortOn()	706
10.272dcm::SmartPointer< ObjectType > Class Template Reference	706
10.272.1Detailed Description	708
10.272.2Constructor & Destructor Documentation	708
10.272.2.1SmartPointer()	708
10.272.2.2SmartPointer(const SmartPointer< ObjectType > &p)	708
10.272.2.3SmartPointer(ObjectType *p)	708
10.272.2.4SmartPointer(ObjectType const &p)	708
10.272.2.5~SmartPointer()	708
10.272.3Member Function Documentation	708
10.272.3.1GetPointer() const	708
10.272.3.2operator ObjectType *() const	709
10.272.3.3operator*() const	709
10.272.3.4operator->() const	709
10.272.3.5operator=(SmartPointer const &r)	709
10.272.3.6operator=(ObjectType *r)	709
10.272.3.7operator=(ObjectType const &r)	709
10.273dcm::network::SOPClassExtendedNegociationSub Class Reference	709
10.273.1Detailed Description	710
10.273.2Constructor & Destructor Documentation	710
10.273.2.1SOPClassExtendedNegociationSub()	710
10.273.3Member Function Documentation	710

10.273.3.1Print(std::ostream &os) const	710
10.273.3.2Read(std::istream &is)	710
10.273.3.3SetTuple(const char *uid, uint8_t levelofsupport=3, uint8_t levelofdigitalsig=0, uint8_t elementcoercion=2)	710
10.273.3.4Size() const	710
10.273.3.5Write(std::ostream &os) const	710
10.274dcm::SOPClassUIDToIOD Class Reference	710
10.274.1Detailed Description	711
10.274.2Member Typedef Documentation	711
10.274.2.1const	711
10.274.3Member Function Documentation	711
10.274.3.1GetIOD(UIDs const &uid)	711
10.274.3.2GetIODFromSOPClassUID(const char *sopclassuid)	711
10.274.3.3GetNumberOfSOPClassToIOD()	711
10.274.3.4GetSOPClassUIDFromIOD(const char *iod)	712
10.274.3.5GetSOPClassUIDToIOD(unsigned int i)	712
10.274.3.6GetSOPClassUIDToIODs()	712
10.275dcm::Sorter Class Reference	712
10.275.1Detailed Description	713
10.275.2Member Typedef Documentation	714
10.275.2.1SelectionMap	714
10.275.2.2SortFunction	714
10.275.3Constructor & Destructor Documentation	714
10.275.3.1Sorter()	714
10.275.3.2~Sorter()	714
10.275.4Member Function Documentation	714
10.275.4.1AddSelect(Tag const &tag, const char *value)	714
10.275.4.2GetFileNames() const	714

10.275.4.3Print(std::ostream &os) const	714
10.275.4.4SetSortFunction(SortFunction f)	714
10.275.4.5Sort(std::vector< std::string > const &filenames)	715
10.275.4.6StableSort(std::vector< std::string > const &filenames)	715
10.275.5Friends And Related Function Documentation	715
10.275.5.1operator<<	715
10.275.6Member Data Documentation	715
10.275.6.1Filenames	715
10.275.6.2Selection	715
10.275.6.3SortFunc	715
10.276dcm::Spacing Class Reference	715
10.276.1Detailed Description	716
10.276.2Member Enumeration Documentation	717
10.276.2.1SpacingType	717
10.276.3Constructor & Destructor Documentation	717
10.276.3.1Spacing()	717
10.276.3.2~Spacing()	717
10.276.4Member Function Documentation	717
10.276.4.1ComputePixelAspectRatioFromPixelSpacing(const Attribute< 0x28, 0x30 > &pixelspacing)	717
10.277dcm::Spectroscopy Class Reference	717
10.277.1Detailed Description	717
10.277.2Constructor & Destructor Documentation	718
10.277.2.1Spectroscopy()	718
10.278dcm::SplitMosaicFilter Class Reference	718
10.278.1Detailed Description	718
10.278.2Constructor & Destructor Documentation	718
10.278.2.1SplitMosaicFilter()	718

10.278.2.2~SplitMosaicFilter()	. 718
10.278.3 Member Function Documentation	. 718
10.278.3.1ComputeMOSAICDimensions(unsigned int dims[3])	. 718
10.278.3.2GetFile()	. 719
10.278.3.3GetFile() const	. 719
10.278.3.4GetImage() const	. 719
10.278.3.5GetImage()	. 719
10.278.3.6SetFile(const File &f)	. 719
10.278.3.7SetImage(const Image &image)	. 719
10.278.3.8Split()	. 719
10.279dcm::StartEvent Class Reference	. 719
10.280dcm::static_assert_test< x > Struct Template Reference	. 720
10.281dcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference	. 720
10.282dcm::STATIC_ASSERTION_FAILURE< true > Struct Template Reference	. 721
10.282.1 Member Enumeration Documentation	. 721
10.282.1.1anonymous enum	. 721
10.283dcm::StreamImageReader Class Reference	. 721
10.283.1 Detailed Description	. 722
10.283.2 Constructor & Destructor Documentation	. 722
10.283.2.1StreamImageReader()	. 722
10.283.2.2~StreamImageReader()	. 722
10.283.3 Member Function Documentation	. 722
10.283.3.1CanReadImage() const	. 722
10.283.3.2DefinePixelExtent(uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)	. 722
10.283.3.3DefineProperBufferLength() const	. 723
10.283.3.4GetDimensionsValueForResolution(unsigned int)	. 723
10.283.3.5GetFile() const	. 723

10.283.3.6	Read(char *inReadBuffer, const std::size_t &inBufferLength)	723
10.283.3.7	ReadImageInformation()	723
10.283.3.8	SetFileName(const char *inFileName)	724
10.283.3.9	SetStream(std::istream &inStream)	724
10.284	dcm::StreamImageWriter Class Reference	724
10.284.1	Detailed Description	726
10.284.2	Constructor & Destructor Documentation	727
10.284.2.1	StreamImageWriter()	727
10.284.2.2	~StreamImageWriter()	727
10.284.3	Member Function Documentation	727
10.284.3.1	CanWriteFile() const	727
10.284.3.2	DefinePixelExtent(uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)	727
10.284.3.3	DefineProperBufferLength()	727
10.284.3.4	SetFile(const File &inFile)	727
10.284.3.5	SetFileName(const char *inFileName)	728
10.284.3.6	SetStream(std::ostream &inStream)	728
10.284.3.7	Write(void *inWriteBuffer, const std::size_t &inBufferLength)	728
10.284.3.8	WriteImageInformation()	728
10.284.3.9	WriteImageSubregionRAW(char *inWriteBuffer, const std::size_t &inBufferLength)	728
10.284.3.10	WriteRawHeader(RAWCodec *inCodec, std::ostream *inStream)	729
10.284.4	Member Data Documentation	729
10.284.4.1	mElementOffsets	729
10.284.4.2	mElementOffsets1	729
10.284.4.3	mFile	729
10.284.4.4	mWriter	729
10.284.4.5	mXMax	729
10.284.4.6	mXMin	729

10.284.4.7mYMax	729
10.284.4.8mYMin	729
10.284.4.9mZMax	729
10.284.4.10mZMin	729
10.285dcm::StrictScanner Class Reference	730
10.285.1Detailed Description	732
10.285.2Member Typedef Documentation	732
10.285.2.1ConstIterator	732
10.285.2.2MappingType	732
10.285.2.3TagToValue	732
10.285.2.4TagToValueValueType	733
10.285.2.5ValuesType	733
10.285.3Constructor & Destructor Documentation	733
10.285.3.1StrictScanner()	733
10.285.3.2~StrictScanner()	733
10.285.4Member Function Documentation	733
10.285.4.1AddPrivateTag(PrivateTag const &t)	733
10.285.4.2AddSkipTag(Tag const &t)	733
10.285.4.3AddTag(Tag const &t)	733
10.285.4.4Begin() const	733
10.285.4.5ClearSkipTags()	733
10.285.4.6ClearTags()	733
10.285.4.7End() const	733
10.285.4.8GetAllFileNamesFromTagToValue(Tag const &t, const char *valueref) const	733
10.285.4.9GetFilenameFromTagToValue(Tag const &t, const char *valueref) const	733
10.285.4.10GetFileNames() const	734
10.285.4.11GetKeys() const	734
10.285.4.12GetMapping(const char *filename) const	734

10.285.4.10	GetMappingFromTagToValue(Tag const &t, const char *value) const	734
10.285.4.10	GetMappings() const	734
10.285.4.10	GetOrderedValues(Tag const &t) const	734
10.285.4.10	GetValue(const char *filename, Tag const &t) const	734
10.285.4.10	GetValues() const	734
10.285.4.10	GetValues(Tag const &t) const	735
10.285.4.10	Key(const char *filename) const	735
10.285.4.20	New()	735
10.285.4.20	Print(std::ostream &os) const	735
10.285.4.20	ProcessPublicTag(StringFilter &sf, const char *filename)	735
10.285.4.20	Scan(Directory::FileNamesType const &filenames)	735
10.285.5	Friends And Related Function Documentation	735
10.285.5.10	operator<<	735
10.286	dcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference	736
10.286.1	Detailed Description	737
10.286.2	Member Typedef Documentation	738
10.286.2.1	const_iterator	738
10.286.2.2	const_reference	738
10.286.2.3	const_reverse_iterator	738
10.286.2.4	difference_type	738
10.286.2.5	iterator	738
10.286.2.6	pointer	738
10.286.2.7	reference	738
10.286.2.8	reverse_iterator	738
10.286.2.9	size_type	738
10.286.2.10	value_type	738
10.286.3	Constructor & Destructor Documentation	738
10.286.3.1	String()	738

10.286.3.2String(const value_type *s)	739
10.286.3.3String(const value_type *s, size_type n)	739
10.286.3.4String(const std::string &s, size_type pos=0, size_type n=npos)	739
10.286.4Member Function Documentation	739
10.286.4.1IsValid() const	739
10.286.4.2operator const char *() const	739
10.286.4.3Trim() const	739
10.286.4.4Trim(const char *input)	739
10.286.4.5Truncate() const	739
10.287dcm::StringFilter Class Reference	740
10.287.1Detailed Description	740
10.287.2Constructor & Destructor Documentation	741
10.287.2.1StringFilter()	741
10.287.2.2~StringFilter()	741
10.287.3Member Function Documentation	741
10.287.3.1ExecuteQuery(std::string const &query, std::string &value) const	741
10.287.3.2ExecuteQuery(std::string const &query, DataSet const &ds, std::string &value) const	741
10.287.3.3FromString(const Tag &t, const char *value, VL const &vl)	741
10.287.3.4FromString(const Tag &t, const char *value, size_t len)	741
10.287.3.5GetFile()	741
10.287.3.6GetFile() const	741
10.287.3.7SetDicts(const Dicts &dicts)	741
10.287.3.8SetFile(const File &f)	741
10.287.3.9ToString(const DataElement &de) const	742
10.287.3.10ToString(const Tag &t) const	742
10.287.3.11ToStringPair(const DataElement &de) const	742
10.287.3.12ToStringPair(const Tag &t) const	742
10.287.3.13ToStringPair(const Tag &t, DataSet const &ds) const	742

10.287.3.1UseDictAlways(bool)	742
10.288dcm::Study Class Reference	742
10.288.1Detailed Description	743
10.288.2Constructor & Destructor Documentation	743
10.288.2.1Study()	743
10.289dcm::Subject Class Reference	743
10.289.1Detailed Description	744
10.289.2Constructor & Destructor Documentation	745
10.289.2.1Subject()	745
10.289.2.2~Subject()	745
10.289.3Member Function Documentation	745
10.289.3.1AddObserver(const Event &event, Command *)	745
10.289.3.2AddObserver(const Event &event, Command *) const	745
10.289.3.3GetCommand(unsigned long tag)	745
10.289.3.4HasObserver(const Event &event) const	745
10.289.3.5InvokeEvent(const Event &)	745
10.289.3.6InvokeEvent(const Event &) const	745
10.289.3.7RemoveAllObservers()	745
10.289.3.8RemoveObserver(unsigned long tag)	746
10.290dcm::Surface Class Reference	746
10.290.1Detailed Description	748
10.290.2Member Enumeration Documentation	749
10.290.2.1STATES	749
10.290.2.2VIEWType	749
10.290.3Constructor & Destructor Documentation	749
10.290.3.1Surface()	749
10.290.3.2~Surface()	749
10.290.4Member Function Documentation	749

10.290.4.1GetAlgorithmFamily() const	749
10.290.4.2GetAlgorithmFamily()	749
10.290.4.3GetAlgorithmName() const	749
10.290.4.4GetAlgorithmVersion() const	749
10.290.4.5GetAxisOfRotation() const	749
10.290.4.6GetCenterOfRotation() const	750
10.290.4.7GetFiniteVolume() const	750
10.290.4.8GetManifold() const	750
10.290.4.9GetMaximumPointDistance() const	750
10.290.4.10GetMeanPointDistance() const	750
10.290.4.10GetMeshPrimitive() const	750
10.290.4.10GetMeshPrimitive()	750
10.290.4.10GetNumberOfSurfacePoints() const	750
10.290.4.10GetNumberOfVectors() const	750
10.290.4.10GetPointCoordinatesData() const	750
10.290.4.10GetPointCoordinatesData()	750
10.290.4.10GetPointPositionAccuracy() const	750
10.290.4.10GetPointsBoundingBoxCoordinates() const	750
10.290.4.10GetProcessingAlgorithm() const	751
10.290.4.20GetProcessingAlgorithm()	751
10.290.4.20GetRecommendedDisplayCIELabValue() const	751
10.290.4.20GetRecommendedDisplayCIELabValue(const unsigned int idx) const	751
10.290.4.20GetRecommendedDisplayGrayscaleValue() const	751
10.290.4.20GetRecommendedPresentationOpacity() const	751
10.290.4.20GetRecommendedPresentationType() const	751
10.290.4.20GetSTATES(const char *state)	751
10.290.4.20GetSTATESString(STATES state)	751
10.290.4.20GetSurfaceComments() const	751

10.290.4.29	GetSurfaceNumber() const	751
10.290.4.30	GetSurfaceProcessing() const	751
10.290.4.31	GetSurfaceProcessingDescription() const	751
10.290.4.32	GetSurfaceProcessingRatio() const	751
10.290.4.33	GetVectorAccuracy() const	751
10.290.4.34	GetVectorCoordinateData() const	751
10.290.4.35	GetVectorCoordinateData()	751
10.290.4.36	GetVectorDimensionality() const	751
10.290.4.37	GetVIEWType(const char *type)	751
10.290.4.38	GetVIEWTypeString(VIEWType type)	751
10.290.4.39	SetAlgorithmFamily(SegmentHelper::BasicCodedEntry const &BSE)	751
10.290.4.40	SetAlgorithmName(const char *str)	752
10.290.4.41	SetAlgorithmVersion(const char *str)	752
10.290.4.42	SetAxisOfRotation(const float *axis)	752
10.290.4.43	SetCenterOfRotation(const float *center)	752
10.290.4.44	SetFiniteVolume(STATES state)	752
10.290.4.45	SetManifold(STATES state)	752
10.290.4.46	SetMaximumPointDistance(float maximum)	752
10.290.4.47	SetMeanPointDistance(float average)	752
10.290.4.48	SetMeshPrimitive(MeshPrimitive &mp)	752
10.290.4.49	SetNumberOfSurfacePoints(const unsigned long nb)	752
10.290.4.50	SetNumberOfVectors(const unsigned long nb)	752
10.290.4.51	SetPointCoordinatesData(DataElement const &de)	752
10.290.4.52	SetPointPositionAccuracy(const float *accuracies)	752
10.290.4.53	SetPointsBoundingBoxCoordinates(const float *coordinates)	752
10.290.4.54	SetProcessingAlgorithm(SegmentHelper::BasicCodedEntry const &BSE)	752
10.290.4.55	SetRecommendedDisplayCIELabValue(const unsigned short vl[3])	752

10.290.4.56	SetRecommendedDisplayCIELabValue(const unsigned short vl, const unsigned int idx=0)	752
10.290.4.57	SetRecommendedDisplayCIELabValue(const std::vector< unsigned short > &vl)	752
10.290.4.58	SetRecommendedDisplayGrayscaleValue(const unsigned short vl)	752
10.290.4.59	SetRecommendedPresentationOpacity(const float opacity)	752
10.290.4.60	SetRecommendedPresentationType(VIEWType type)	752
10.290.4.61	SetSurfaceComments(const char *comment)	753
10.290.4.62	SetSurfaceNumber(const unsigned long nb)	753
10.290.4.63	SetSurfaceProcessing(bool b)	753
10.290.4.64	SetSurfaceProcessingDescription(const char *description)	753
10.290.4.65	SetSurfaceProcessingRatio(const float ratio)	753
10.290.4.66	SetVectorAccuracy(const float *accuracy)	753
10.290.4.67	SetVectorCoordinateData(DataElement const &de)	753
10.290.4.68	SetVectorDimensionality(const unsigned short dim)	753
10.291	dcm::SurfaceHelper Class Reference	753
10.291.1	Detailed Description	754
10.291.2	Member Typedef Documentation	754
10.291.2.1	ColorArray	754
10.291.3	Member Function Documentation	754
10.291.3.1	RecommendedDisplayCIELabToRGB(const ColorArray &CIELab, const U range←Max=255)	754
10.291.3.2	RecommendedDisplayCIELabToRGB(const ColorArray &CIELab, const U range←Max=255)	754
10.291.3.3	RGBToRecommendedDisplayCIELab(const std::vector< T > &RGB, const U range←Max=255)	755
10.291.3.4	RGBToRecommendedDisplayGrayscale(const std::vector< T > &RGB, const U rangeMax=255)	755
10.292	dcm::SurfaceReader Class Reference	756
10.292.1	Detailed Description	757
10.292.2	Constructor & Destructor Documentation	758

10.292.2.1	SurfaceReader()	758
10.292.2.2	~SurfaceReader()	758
10.292.3	Member Function Documentation	758
10.292.3.1	GetNumberOfSurfaces() const	758
10.292.3.2	Read()	758
10.292.3.3	ReadPointMacro(SmartPointer< Surface > surface, const DataSet &surfaceDS)	758
10.292.3.4	ReadSurface(const Item &surfaceItem, const unsigned long idx)	758
10.292.3.5	ReadSurfaces()	758
10.293	dcm::SurfaceWriter Class Reference	758
10.293.1	Detailed Description	759
10.293.2	Constructor & Destructor Documentation	760
10.293.2.1	SurfaceWriter()	760
10.293.2.2	~SurfaceWriter()	760
10.293.3	Member Function Documentation	760
10.293.3.1	ComputeNumberOfSurfaces()	760
10.293.3.2	GetNumberOfSurfaces()	760
10.293.3.3	PrepareWrite()	760
10.293.3.4	PrepareWritePointMacro(SmartPointer< Surface > surface, DataSet &surfaceDS, const TransferSyntax &ts)	760
10.293.3.5	SetNumberOfSurfaces(const unsigned long nb)	760
10.293.3.6	Write()	760
10.293.4	Member Data Documentation	760
10.293.4.1	NumberOfSurfaces	760
10.294	dcm::SwapCode Class Reference	760
10.294.1	Detailed Description	761
10.294.2	Member Enumeration Documentation	761
10.294.2.1	SwapCodeType	761
10.294.3	Constructor & Destructor Documentation	762

10.294.3.1SwapCode(SwapCodeType sc=Unknown)	. 762
10.294.4Member Function Documentation	. 762
10.294.4.1GetIndex(SwapCode const &sc)	. 762
10.294.4.2GetSwapCodeString(SwapCode const &sc)	. 762
10.294.4.3operator SwapCode::SwapCodeType() const	. 762
10.294.5Friends And Related Function Documentation	. 762
10.294.5.1operator<<	. 762
10.295dcm::SwapperDoOp Class Reference	. 762
10.295.1Member Function Documentation	. 763
10.295.1.1Swap(T val)	. 763
10.295.1.2SwapArray(T *array, size_t n)	. 763
10.296dcm::SwapperNoOp Class Reference	. 763
10.296.1Detailed Description	. 763
10.296.2Member Function Documentation	. 763
10.296.2.1Swap(T val)	. 763
10.296.2.2SwapArray(T *, size_t)	. 763
10.297dcm::System Class Reference	. 763
10.297.1Detailed Description	. 765
10.297.2Member Function Documentation	. 765
10.297.2.1DeleteDirectory(const char *source)	. 765
10.297.2.2EncodeBytes(char *out, const unsigned char *data, int size)	. 765
10.297.2.3FileExists(const char *filename)	. 765
10.297.2.4FileIsDirectory(const char *name)	. 765
10.297.2.5FileIsSymlink(const char *name)	. 765
10.297.2.6FileSize(const char *filename)	. 766
10.297.2.7FileTime(const char *filename)	. 766
10.297.2.8FormatDateTime(char date[22], time_t t, long milliseconds=0)	. 766
10.297.2.9GetCurrentDateTime(char date[22])	. 766

10.297.2.10	GetCurrentModuleFileName()	. . . . .	766
10.297.2.10	GetCurrentProcessFileName()	. . . . .	766
10.297.2.10	GetCurrentResourcesDirectory()	. . . . .	766
10.297.2.10	GetCWD()	. . . . .	767
10.297.2.10	GetHostName(char hostname[255])	. . . . .	767
10.297.2.10	GetLastError()	. . . . .	767
10.297.2.10	GetLocaleCharset()	. . . . .	767
10.297.2.10	GetPermissions(const char *file, unsigned short &mode)	. . . . .	767
10.297.2.10	GetTimezoneOffsetFromUTC()	. . . . .	767
10.297.2.10	Mkdir(const char *path)	. . . . .	767
10.297.2.20	ParseDateTime(time_t &timep, const char date[22])	. . . . .	767
10.297.2.20	ParseDateTime(time_t &timep, long &milliseconds, const char date[22])	. . . . .	768
10.297.2.20	RemoveFile(const char *source)	. . . . .	768
10.297.2.20	SetPermissions(const char *file, unsigned short mode)	. . . . .	768
10.297.2.20	StrCaseCmp(const char *s1, const char *s2)	. . . . .	768
10.297.2.20	StrNCaseCmp(const char *s1, const char *s2, size_t n)	. . . . .	768
10.297.2.20	StrSep(char **stringp, const char *delim)	. . . . .	768
10.297.2.20	StrTokR(char *ptr, const char *sep, char **end)	. . . . .	768
10.298.0	cdcm::Table Class Reference	. . . . .	768
10.298.1	Detailed Description	. . . . .	769
10.298.2	Member Typedef Documentation	. . . . .	769
10.298.2.1	MapTableEntry	. . . . .	769
10.298.3	Constructor & Destructor Documentation	. . . . .	769
10.298.3.1	Table()	. . . . .	769
10.298.3.2	~Table()	. . . . .	769
10.298.4	Member Function Documentation	. . . . .	769
10.298.4.1	GetTableEntry(const Tag &tag) const	. . . . .	769
10.298.4.2	InsertEntry(Tag const &tag, TableEntry const &te)	. . . . .	770

10.298.5	Friends And Related Function Documentation	770
10.298.5.1	operator<<	770
10.299	dcm::TableEntry Class Reference	770
10.299.1	Detailed Description	770
10.299.2	Constructor & Destructor Documentation	770
10.299.2.1	TableEntry(const char *attribute=0, Type const &type=Type(), const char *des=0)	770
10.299.2.2	~TableEntry()	770
10.300	dcm::TableReader Class Reference	771
10.300.1	Detailed Description	771
10.300.2	Constructor & Destructor Documentation	772
10.300.2.1	TableReader(Defs &defs)	772
10.300.2.2	~TableReader()	772
10.300.3	Member Function Documentation	772
10.300.3.1	CharacterDataHandler(const char *data, int length)	772
10.300.3.2	EndElement(const char *name)	772
10.300.3.3	GetDefs() const	772
10.300.3.4	GetFilename()	772
10.300.3.5	HandleIOD(const char **atts)	772
10.300.3.6	HandleIODEntry(const char **atts)	772
10.300.3.7	HandleMacro(const char **atts)	772
10.300.3.8	HandleMacroEntry(const char **atts)	772
10.300.3.9	HandleMacroEntryDescription(const char **atts)	772
10.300.3.10	HandleModule(const char **atts)	772
10.300.3.11	HandleModuleEntry(const char **atts)	772
10.300.3.12	HandleModuleEntryDescription(const char **atts)	772
10.300.3.13	HandleModuleInclude(const char **atts)	772
10.300.3.14	Read()	772
10.300.3.15	SetFilename(const char *filename)	772

10.300.3.1	StartElement(const char *name, const char **atts)	. . . . .	772
10.300	dcm::network::TableRow Class Reference	. . . . .	773
10.301	Constructor & Destructor Documentation	. . . . .	773
10.301.1.1	TableRow()	. . . . .	773
10.301.1.2	~TableRow()	. . . . .	773
10.301.2	Member Data Documentation	. . . . .	774
10.301.2.1	transitions	. . . . .	774
10.300	dcm::Tag Class Reference	. . . . .	774
10.302	Detailed Description	. . . . .	776
10.302.2	Constructor & Destructor Documentation	. . . . .	776
10.302.2.1	Tag(uint16_t group, uint16_t element)	. . . . .	776
10.302.2.2	Tag(uint32_t tag=0)	. . . . .	776
10.302.2.3	Tag(const Tag &_val)	. . . . .	776
10.302.3	Member Function Documentation	. . . . .	776
10.302.3.1	GetElement() const	. . . . .	776
10.302.3.2	GetElementTag() const	. . . . .	777
10.302.3.3	GetGroup() const	. . . . .	777
10.302.3.4	GetLength() const	. . . . .	777
10.302.3.5	GetPrivateCreator() const	. . . . .	777
10.302.3.6	IsGroupLength() const	. . . . .	777
10.302.3.7	IsGroupXX(const Tag &t) const	. . . . .	777
10.302.3.8	IsIllegal() const	. . . . .	777
10.302.3.9	IsPrivate() const	. . . . .	778
10.302.3.10	IsPrivateCreator() const	. . . . .	778
10.302.3.11	IsPublic() const	. . . . .	778
10.302.3.12	operator!=(const Tag &_val) const	. . . . .	778
10.302.3.13	operator<(const Tag &_val) const	. . . . .	778
10.302.3.14	operator<=(const Tag &t2) const	. . . . .	778

10.302.3.16	operator=(const Tag &_val)	778
10.302.3.16	operator==(const Tag &_val) const	779
10.302.3.16	operator[](const unsigned int &_id) const	779
10.302.3.16	operator[](const unsigned int &_id)	779
10.302.3.19	PrintAsContinuousString() const	779
10.302.3.20	PrintAsContinuousUpperCaseString() const	779
10.302.3.21	PrintAsPipeSeparatedString() const	779
10.302.3.22	Read(std::istream &is)	779
10.302.3.23	ReadFromCommaSeparatedString(const char *str)	779
10.302.3.24	ReadFromContinuousString(const char *str)	780
10.302.3.25	ReadFromPipeSeparatedString(const char *str)	780
10.302.3.26	SetElement(uint16_t element)	780
10.302.3.27	SetElementTag(uint16_t group, uint16_t element)	780
10.302.3.28	SetElementTag(uint32_t tag)	780
10.302.3.29	SetGroup(uint16_t group)	780
10.302.3.30	SetPrivateCreator(Tag const &t)	781
10.302.3.31	Write(std::ostream &os) const	781
10.302.4	Friends And Related Function Documentation	781
10.302.4.1	operator<<	781
10.302.4.2	operator>>	781
10.302.5	Member Data Documentation	781
10.302.5.1	bytes	781
10.302.5.2	tag	781
10.302.5.3	tags	781
10.303	dcm::TagPath Class Reference	781
10.303.1	Detailed Description	782
10.303.2	Constructor & Destructor Documentation	782
10.303.2.1	TagPath()	782

10.303.2.2~TagPath()	782
10.303.3Member Function Documentation	782
10.303.3.1ConstructFromString(const char *path)	782
10.303.3.2ConstructFromTagList(Tag const *l, unsigned int n)	782
10.303.3.3IsValid(const char *path)	782
10.303.3.4Print(std::ostream &) const	783
10.303.3.5Push(Tag const &t)	783
10.303.3.6Push(unsigned int itemnum)	783
10.304dcm::Testing Class Reference	783
10.304.1Detailed Description	784
10.304.2Member Typedef Documentation	784
10.304.2.1MD5DataImagesType	784
10.304.2.2MediaStorageDataFilesType	784
10.304.3Constructor & Destructor Documentation	785
10.304.3.1Testing()	785
10.304.3.2~Testing()	785
10.304.4Member Function Documentation	785
10.304.4.1ComputeFileMD5(const char *filename, char digest_str[33])	785
10.304.4.2ComputeMD5(const char *buffer, unsigned long buf_len, char digest_str[33])	785
10.304.4.3GetDataExtraRoot()	785
10.304.4.4GetDataRoot()	785
10.304.4.5GetFileName(unsigned int file)	785
10.304.4.6GetFileNames()	786
10.304.4.7GetLossyFlagFromFile(const char *filepath)	786
10.304.4.8GetMD5DataImage(unsigned int file)	786
10.304.4.9GetMD5DataImages()	786
10.304.4.10GetMD5FromBrokenFile(const char *filepath)	786
10.304.4.11GetMD5FromFile(const char *filepath)	786

10.304.4.10	GetMediaStorageDataFile(unsigned int file)	. . . . .	786
10.304.4.10	GetMediaStorageDataFiles()	. . . . .	786
10.304.4.10	GetMediaStorageFromFile(const char *filepath)	. . . . .	786
10.304.4.10	GetNumberOfFileNames()	. . . . .	786
10.304.4.10	GetNumberOfMD5DataImages()	. . . . .	787
10.304.4.10	GetNumberOfMediaStorageDataFiles()	. . . . .	787
10.304.4.10	GetPixelSpacingDataRoot()	. . . . .	787
10.304.4.10	GetSelectedPrivateGroupOffsetFromFile(const char *filepath)	. . . . .	787
10.304.4.20	GetSelectedTagsOffsetFromFile(const char *filepath)	. . . . .	787
10.304.4.20	GetSourceDirectory()	. . . . .	787
10.304.4.20	GetStreamOffsetFromFile(const char *filepath)	. . . . .	787
10.304.4.20	GetTempDirectory(const char *subdir=0)	. . . . .	787
10.304.4.20	GetTempDirectoryW(const wchar_t *subdir=0)	. . . . .	787
10.304.4.20	GetTempFilename(const char *filename, const char *subdir=0)	. . . . .	788
10.304.4.20	GetTempFilenameW(const wchar_t *filename, const wchar_t *subdir=0)	. . . . .	788
10.304.4.27	Print(std::ostream &os=std::cout)	. . . . .	788
10.305	dcm::Trace Class Reference	. . . . .	788
10.305.1	Detailed Description	. . . . .	789
10.305.2	Constructor & Destructor Documentation	. . . . .	790
10.305.2.1	Trace()	. . . . .	790
10.305.2.2	~Trace()	. . . . .	790
10.305.3	Member Function Documentation	. . . . .	790
10.305.3.1	DebugOff()	. . . . .	790
10.305.3.2	DebugOn()	. . . . .	790
10.305.3.3	ErrorOff()	. . . . .	790
10.305.3.4	ErrorOn()	. . . . .	790
10.305.3.5	GetDebugFlag()	. . . . .	790
10.305.3.6	GetDebugStream()	. . . . .	790

10.305.3.7	GetErrorFlag()	. . . . .	790
10.305.3.8	GetErrorStream()	. . . . .	790
10.305.3.9	GetStream()	. . . . .	790
10.305.3.10	GetWarningFlag()	. . . . .	790
10.305.3.10	GetWarningStream()	. . . . .	790
10.305.3.12	SetDebug(bool debug)	. . . . .	790
10.305.3.13	SetDebugStream(std::ostream &os)	. . . . .	791
10.305.3.13	SetError(bool debug)	. . . . .	791
10.305.3.13	SetErrorStream(std::ostream &os)	. . . . .	791
10.305.3.13	SetStream(std::ostream &os)	. . . . .	791
10.305.3.13	SetStreamToFile(const char *filename)	. . . . .	791
10.305.3.13	SetWarning(bool debug)	. . . . .	791
10.305.3.13	SetWarningStream(std::ostream &os)	. . . . .	791
10.305.3.20	WarningOff()	. . . . .	792
10.305.3.20	WarningOn()	. . . . .	792
10.306.0	dcm::TransferSyntax Class Reference	. . . . .	792
10.306.1	Detailed Description	. . . . .	794
10.306.2	Member Enumeration Documentation	. . . . .	794
10.306.2.1	NegotiatedType	. . . . .	794
10.306.2.2	TSType	. . . . .	795
10.306.3	Constructor & Destructor Documentation	. . . . .	795
10.306.3.1	TransferSyntax(TSType type=ImplicitVRLittleEndian)	. . . . .	795
10.306.4	Member Function Documentation	. . . . .	795
10.306.4.1	CanStoreLossy() const	. . . . .	795
10.306.4.2	GetNegotiatedType() const	. . . . .	796
10.306.4.3	GetString() const	. . . . .	796
10.306.4.4	GetSwapCode() const	. . . . .	796
10.306.4.5	GetTSString(TSType ts)	. . . . .	796

10.306.4.6	GetTType(const char *str)	. . . . .	796
10.306.4.7	IsEncapsulated() const	. . . . .	796
10.306.4.8	IsEncoded() const	. . . . .	796
10.306.4.9	IsExplicit() const	. . . . .	796
10.306.4.10	IsImplicit() const	. . . . .	796
10.306.4.11	IsLossless() const	. . . . .	796
10.306.4.12	IsLossy() const	. . . . .	796
10.306.4.13	IsValid() const	. . . . .	797
10.306.4.14	operator TType() const	. . . . .	797
10.306.5	Friends And Related Function Documentation	. . . . .	797
10.306.5.1	operator<<	. . . . .	797
10.307	dcm::network::TransferSyntaxSub Class Reference	. . . . .	797
10.307.1	Detailed Description	. . . . .	797
10.307.2	Constructor & Destructor Documentation	. . . . .	798
10.307.2.1	TransferSyntaxSub()	. . . . .	798
10.307.3	Member Function Documentation	. . . . .	798
10.307.3.1	GetName() const	. . . . .	798
10.307.3.2	operator==(const TransferSyntaxSub &ts) const	. . . . .	798
10.307.3.3	Print(std::ostream &os) const	. . . . .	798
10.307.3.4	Read(std::istream &is)	. . . . .	798
10.307.3.5	SetName(const char *name)	. . . . .	798
10.307.3.6	SetNameFromUID(UIDs::TSName tsname)	. . . . .	798
10.307.3.7	Size() const	. . . . .	798
10.307.3.8	Write(std::ostream &os) const	. . . . .	798
10.308	dcm::network::Transition Struct Reference	. . . . .	799
10.308.1	Constructor & Destructor Documentation	. . . . .	799
10.308.1.1	Transition()	. . . . .	799
10.308.1.2	~Transition()	. . . . .	800

10.308.1.3	Transition(int inEndState, UAction *inAction)	800
10.308.2	Member Function Documentation	800
10.308.2.1	MakeNew(int inEndState, UAction *inAction)	800
10.308.3	Member Data Documentation	800
10.308.3.1	mAction	800
10.308.3.2	mEnd	800
10.309	dcm::Type Class Reference	800
10.309.1	Detailed Description	801
10.309.2	Member Enumeration Documentation	801
10.309.2.1	TypeType	801
10.309.3	Constructor & Destructor Documentation	802
10.309.3.1	Type(TypeType type=UNKNOWN)	802
10.309.4	Member Function Documentation	802
10.309.4.1	GetTypeString(TypeType type)	802
10.309.4.2	GetTypeType(const char *type)	802
10.309.4.3	operator TypeType() const	802
10.309.5	Friends And Related Function Documentation	802
10.309.5.1	operator<<	802
10.310	dcm::UI Struct Reference	802
10.310.1	Friends And Related Function Documentation	803
10.310.1.1	operator<<	803
10.310.2	Member Data Documentation	803
10.310.2.1	Internal	803
10.311	dcm::UIDGenerator Class Reference	803
10.311.1	Detailed Description	804
10.311.2	Constructor & Destructor Documentation	804
10.311.2.1	UIDGenerator()	804
10.311.3	Member Function Documentation	804

10.311.3.1Generate()	804
10.311.3.2GenerateUUID(unsigned char *uuid_data)	804
10.311.3.3GetGDCMUID()	804
10.311.3.4GetRoot()	804
10.311.3.5IsValid(const char *uid)	805
10.311.3.6SetRoot(const char *root)	805
10.312dcm::UIDs Class Reference	805
10.312.1Detailed Description	810
10.312.2Member Typedef Documentation	810
10.312.2.1TransferSyntaxStringsType	810
10.312.3Member Enumeration Documentation	810
10.312.3.1TSName	810
10.312.3.2TSType	817
10.312.4Member Function Documentation	824
10.312.4.1GetName() const	824
10.312.4.2GetNumberOfTransferSyntaxStrings()	824
10.312.4.3GetString() const	824
10.312.4.4GetTransferSyntaxString(unsigned int ts)	824
10.312.4.5GetTransferSyntaxStrings()	824
10.312.4.6GetUIDName(unsigned int ts)	824
10.312.4.7GetUIDString(unsigned int ts)	824
10.312.4.8operator TSType() const	824
10.312.4.9SetFromUID(const char *str)	824
10.313dcm::network::ULAction Class Reference	825
10.313.1Detailed Description	827
10.313.2Constructor & Destructor Documentation	827
10.313.2.1ULAction()	827
10.313.2.2~ULAction()	827

10.313.3	Member Function Documentation	828
10.313.3.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)=0	828
10.314	dcm::network::ULActionAA1 Class Reference	828
10.314.1	Member Function Documentation	829
10.314.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	829
10.315	dcm::network::ULActionAA2 Class Reference	829
10.315.1	Member Function Documentation	830
10.315.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	830
10.316	dcm::network::ULActionAA3 Class Reference	830
10.316.1	Member Function Documentation	831
10.316.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	831
10.317	dcm::network::ULActionAA4 Class Reference	831
10.317.1	Member Function Documentation	832
10.317.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	832
10.318	dcm::network::ULActionAA5 Class Reference	832
10.318.1	Member Function Documentation	833
10.318.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	833
10.319	dcm::network::ULActionAA6 Class Reference	833
10.319.1	Member Function Documentation	834
10.319.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	834
10.320	dcm::network::ULActionAA7 Class Reference	834
10.320.1	Member Function Documentation	835
10.320.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	835
10.321	dcm::network::ULActionAA8 Class Reference	835

10.321.	Member Function Documentation	836
10.321.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	836
10.322.	ULActionAE1 Class Reference	836
10.322.	Member Function Documentation	837
10.322.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	837
10.323.	ULActionAE2 Class Reference	837
10.323.	Member Function Documentation	838
10.323.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	838
10.324.	ULActionAE3 Class Reference	838
10.324.	Member Function Documentation	839
10.324.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	839
10.325.	ULActionAE4 Class Reference	839
10.325.	Member Function Documentation	840
10.325.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	840
10.326.	ULActionAE5 Class Reference	840
10.326.	Member Function Documentation	841
10.326.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	841
10.327.	ULActionAE6 Class Reference	841
10.327.	Member Function Documentation	842
10.327.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	842
10.328.	ULActionAE7 Class Reference	842
10.328.	Member Function Documentation	843
10.328.1.	1.PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	843
10.329.	ULActionAE8 Class Reference	843

10.329.	Member Function Documentation	844
10.329.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	844
10.330.	dcm::network::ULActionAR1 Class Reference	844
10.330.	Member Function Documentation	845
10.330.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	845
10.331.	dcm::network::ULActionAR10 Class Reference	845
10.331.	Member Function Documentation	846
10.331.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	846
10.332.	dcm::network::ULActionAR2 Class Reference	846
10.332.	Member Function Documentation	847
10.332.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	847
10.333.	dcm::network::ULActionAR3 Class Reference	847
10.333.	Member Function Documentation	848
10.333.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	848
10.334.	dcm::network::ULActionAR4 Class Reference	848
10.334.	Member Function Documentation	849
10.334.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	849
10.335.	dcm::network::ULActionAR5 Class Reference	849
10.335.	Member Function Documentation	850
10.335.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	850
10.336.	dcm::network::ULActionAR6 Class Reference	850
10.336.	Member Function Documentation	851
10.336.1.	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	851
10.337.	dcm::network::ULActionAR7 Class Reference	851

10.337.1	Member Function Documentation	852
10.337.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	852
10.338	dcm::network::ULActionAR8 Class Reference	852
10.338.1	Member Function Documentation	853
10.338.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	853
10.339	dcm::network::ULActionAR9 Class Reference	853
10.339.1	Member Function Documentation	854
10.339.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	854
10.340	dcm::network::ULActionDT1 Class Reference	854
10.340.1	Member Function Documentation	855
10.340.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	855
10.341	dcm::network::ULActionDT2 Class Reference	855
10.341.1	Member Function Documentation	856
10.341.1.1	PerformAction(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)	856
10.342	dcm::network::ULBasicCallback Class Reference	856
10.342.1	Detailed Description	857
10.342.2	Constructor & Destructor Documentation	858
10.342.2.1	ULBasicCallback()	858
10.342.2.2	~ULBasicCallback()	858
10.342.3	Member Function Documentation	858
10.342.3.1	GetDataSets() const	858
10.342.3.2	GetResponses() const	858
10.342.3.3	HandleDataSet(const DataSet &inDataSet)	858
10.342.3.4	HandleResponse(const DataSet &inDataSet)	858
10.343	dcm::network::ULConnection Class Reference	858

10.343.1 Detailed Description	859
10.343.2 Constructor & Destructor Documentation	860
10.343.2.1 ULConnection(const ULConnectionInfo &inUserInformation)	860
10.343.2.2 ~ULConnection()	860
10.343.3 Member Function Documentation	860
10.343.3.1 AddAcceptedPresentationContext(const PresentationContextAC &inPC)	860
10.343.3.2 FindContext(const DataElement &de) const	860
10.343.3.3 GetAcceptedPresentationContexts() const	860
10.343.3.4 GetAcceptedPresentationContexts()	860
10.343.3.5 GetConnectionInfo() const	860
10.343.3.6 GetMaxPDUSize() const	860
10.343.3.7 GetPresentationContextACByID(uint8_t id) const	860
10.343.3.8 GetPresentationContextIDFromPresentationContext(PresentationContextRQ const &pc) const	860
10.343.3.9 GetPresentationContextRQByID(uint8_t id) const	860
10.343.3.10 GetPresentationContexts() const	860
10.343.3.11 GetProtocol()	860
10.343.3.12 GetState() const	860
10.343.3.13 GetTimer()	860
10.343.3.14 InitializeConnection()	860
10.343.3.15 InitializeIncomingConnection()	861
10.343.3.16 SetMaxPDUSize(uint32_t inSize)	861
10.343.3.17 SetPresentationContexts(const std::vector< PresentationContextRQ > &inContexts)	861
10.343.3.18 SetPresentationContexts(const std::vector< PresentationContext > &inContexts)	861
10.343.3.19 SetState(const EStateID &inState)	861
10.343.3.20 StopProtocol()	861
10.343.4 Friends And Related Function Documentation	861
10.343.4.1 ULActionAE6	861

10.343.4.2ULConnectionManager	861
10.344dcm::network::ULConnectionCallback Class Reference	861
10.344.1Detailed Description	862
10.344.2Constructor & Destructor Documentation	862
10.344.2.1ULConnectionCallback()	862
10.344.2.2~ULConnectionCallback()	862
10.344.3Member Function Documentation	862
10.344.3.1DataSetHandled()	862
10.344.3.2DataSetHandles() const	862
10.344.3.3HandleDataSet(const DataSet &inDataSet)=0	862
10.344.3.4HandleResponse(const DataSet &inDataSet)=0	863
10.344.3.5ResetHandledDataSet()	863
10.344.3.6SetImplicitFlag(const bool imp)	863
10.344.4Member Data Documentation	863
10.344.4.1Implicit	863
10.345dcm::network::ULConnectionInfo Class Reference	863
10.345.1Detailed Description	863
10.345.2Constructor & Destructor Documentation	864
10.345.2.1ULConnectionInfo()	864
10.345.3Member Function Documentation	864
10.345.3.1GetCalledAETitle() const	864
10.345.3.2GetCalledComputerName() const	864
10.345.3.3GetCalledIPAddress() const	864
10.345.3.4GetCalledIPPort() const	864
10.345.3.5GetCallingAETitle() const	864
10.345.3.6GetMaxPDULength() const	864
10.345.3.7Initialize(UserInformation const &inUserInformation, const char *inCalledAETitle, const char *inCallingAETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)	864

10.345.3.8SetMaxPDULength(unsigned long inMaxPDULength)	864
10.346.0dcm::network::ULConnectionManager Class Reference	864
10.346.1Detailed Description	866
10.346.2Constructor & Destructor Documentation	867
10.346.2.1ULConnectionManager(const ULConnectionManager &inCM)	867
10.346.2.2ULConnectionManager()	867
10.346.2.3~ULConnectionManager()	867
10.346.3Member Function Documentation	867
10.346.3.1BreakConnection(const double &inTimeout)	867
10.346.3.2BreakConnectionNow()	867
10.346.3.3EstablishConnection(const std::string &inAETitle, const std::string &inConnectAE← Title, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< PresentationContext > const &pcVector)	867
10.346.3.4EstablishConnectionMove(const std::string &inAETitle, const std::string &inConnectAE← AETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectAE← Port, double inTimeout, uint16_t inReturnPort, std::vector< PresentationContext > const &pcVector)	867
10.346.3.5RunEventLoop(ULEvent &inEvent, ULConnection *inWhichConnection, UL← ConnectionCallback *inCallback, const bool &startWaiting)	867
10.346.3.6RunMoveEventLoop(ULEvent &inEvent, ULConnectionCallback *inCallback)	867
10.346.3.7SendEcho()	867
10.346.3.8SendFind(const BaseRootQuery *inRootQuery)	867
10.346.3.9SendFind(const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)	867
10.346.3.10SendMove(const BaseRootQuery *inRootQuery)	867
10.346.3.11SendMove(const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)	867
10.346.3.12SendNAction(const BaseQuery *inQuery)	868
10.346.3.13SendNAction(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868
10.346.3.14SendNCreate(const BaseQuery *inQuery)	868
10.346.3.15SendNCreate(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868
10.346.3.16SendNDelete(const BaseQuery *inQuery)	868
10.346.3.17SendNDelete(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868

10.346.3.1	SendNEventReport(const BaseQuery *inQuery)	868
10.346.3.1	SendNEventReport(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868
10.346.3.2	SendNGet(const BaseQuery *inQuery)	868
10.346.3.2	SendNGet(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868
10.346.3.2	SendNSet(const BaseQuery *inQuery)	868
10.346.3.2	SendNSet(const BaseQuery *inQuery, ULConnectionCallback *inCallback)	868
10.346.3.2	SendStore(const File &file, std::istream *pStream=NULL, std::streampos dataSetOffset=0)	868
10.346.3.2	SendStore(const File &file, ULConnectionCallback *inCallback, std::istream *pStream=NULL, std::streampos dataSetOffset=0)	868
10.346.4	Member Data Documentation	868
10.346.4.1	mConnection	868
10.346.4.2	mSecondaryConnection	868
10.346.4.3	mTransitions	868
10.347	dcm::network::ULEvent Class Reference	869
10.347.1	Detailed Description	869
10.347.2	Constructor & Destructor Documentation	869
10.347.2.1	ULEvent(const EEventID &inEventID, std::vector< BasePDU * > inBasePDU, std::istream *iStream=NULL, std::streampos posDataSet=0)	869
10.347.2.2	ULEvent(const EEventID &inEventID, BasePDU *inBasePDU, std::istream *iStream=NULL, std::streampos posDataSet=0)	869
10.347.2.3	~ULEvent()	869
10.347.3	Member Function Documentation	869
10.347.3.1	GetDataSetPos() const	869
10.347.3.2	GetEvent() const	869
10.347.3.3	GetIStream() const	869
10.347.3.4	GetPDUs() const	869
10.347.3.5	SetEvent(const EEventID &inEvent)	869
10.347.3.6	SetPDU(std::vector< BasePDU * > const &inPDU)	869
10.348	dcm::network::ULTransitionTable Class Reference	870

10.348.1	Detailed Description	870
10.348.2	Constructor & Destructor Documentation	870
10.348.2.1	ULTransitionTable()	870
10.348.3	Member Function Documentation	870
10.348.3.1	HandleEvent(Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) const	870
10.348.3.2	PrintTable() const	870
10.349	dcm::network::ULWritingCallback Class Reference	871
10.349.1	Constructor & Destructor Documentation	872
10.349.1.1	ULWritingCallback()	872
10.349.1.2	~ULWritingCallback()	872
10.349.2	Member Function Documentation	872
10.349.2.1	HandleDataSet(const DataSet &inDataSet)	872
10.349.2.2	HandleResponse(const DataSet &inDataSet)	872
10.349.2.3	SetDirectory(const std::string &inDirectoryName)	872
10.350	dcm::UNExplicitDataElement Class Reference	872
10.350.1	Detailed Description	873
10.350.2	Member Function Documentation	874
10.350.2.1	GetLength() const	874
10.350.2.2	Read(std::istream &is)	874
10.350.2.3	ReadPreValue(std::istream &is)	874
10.350.2.4	ReadValue(std::istream &is, bool readvalues=true)	874
10.350.2.5	ReadWithLength(std::istream &is, VL &length)	874
10.351	dcm::UNExplicitImplicitDataElement Class Reference	874
10.351.1	Detailed Description	875
10.351.2	Member Function Documentation	876
10.351.2.1	GetLength() const	876
10.351.2.2	Read(std::istream &is)	876

10.351.2.3	ReadPreValue(std::istream &is)	876
10.351.2.4	ReadValue(std::istream &is)	876
10.352	dcm::Unpacker12Bits Class Reference	876
10.352.1	Detailed Description	876
10.352.2	Member Function Documentation	877
10.352.2.1	Pack(char *out, const char *in, size_t n)	877
10.352.2.2	Unpack(char *out, const char *in, size_t n)	877
10.353	dcm::Usage Class Reference	877
10.353.1	Detailed Description	878
10.353.2	Member Enumeration Documentation	878
10.353.2.1	UsageType	878
10.353.3	Constructor & Destructor Documentation	878
10.353.3.1	Usage(UsageType type=Invalid)	878
10.353.4	Member Function Documentation	878
10.353.4.1	GetUsageString(UsageType type)	878
10.353.4.2	GetUsageType(const char *type)	879
10.353.4.3	operator UsageType() const	879
10.353.5	Friends And Related Function Documentation	879
10.353.5.1	operator<<	879
10.354	dcm::UserEvent Class Reference	879
10.355	dcm::network::UserInformation Class Reference	880
10.355.1	Detailed Description	881
10.355.2	Constructor & Destructor Documentation	881
10.355.2.1	UserInformation()	881
10.355.2.2	~UserInformation()	881
10.355.3	Member Function Documentation	881
10.355.3.1	AddRoleSelectionSub(RoleSelectionSub const &r)	881
10.355.3.2	AddSOPClassExtendedNegociationSub(SOPClassExtendedNegociationSub const &s)	881

10.355.3.3	GetMaximumLengthSub() const	881
10.355.3.4	GetMaximumLengthSub()	881
10.355.3.5	operator=(const UserInformation &)	881
10.355.3.6	Print(std::ostream &os) const	882
10.355.3.7	Read(std::istream &is)	882
10.355.3.8	Size() const	882
10.355.3.9	Write(std::ostream &os) const	882
10.356	dcm::UUIDGenerator Class Reference	882
10.356.1	Detailed Description	882
10.356.2	Member Function Documentation	882
10.356.2.1	Generate()	882
10.356.2.2	IsValid(const char *uid)	883
10.357	dcm::Validate Class Reference	883
10.357.1	Detailed Description	884
10.357.2	Constructor & Destructor Documentation	884
10.357.2.1	Validate()	884
10.357.2.2	~Validate()	884
10.357.3	Member Function Documentation	884
10.357.3.1	GetValidatedFile()	884
10.357.3.2	SetFile(File const &f)	884
10.357.3.3	Validation()	884
10.357.4	Member Data Documentation	884
10.357.4.1	F	884
10.357.4.2	V	884
10.358	dcm::Value Class Reference	884
10.358.1	Detailed Description	885
10.358.2	Constructor & Destructor Documentation	885
10.358.2.1	Value()	885

10.358.2.2~Value()	885
10.358.3Member Function Documentation	886
10.358.3.1Clear()=0	886
10.358.3.2GetLength() const =0	886
10.358.3.3operator==(const Value &val) const =0	886
10.358.3.4SetLength(VL l)=0	886
10.358.3.5SetLengthOnly(VL l)	886
10.358.4Friends And Related Function Documentation	886
10.358.4.1DataElement	886
10.359dcm::ValueIO< TDE, TSwap, TType > Class Template Reference	886
10.359.1Detailed Description	887
10.359.2Member Function Documentation	887
10.359.2.1Read(std::istream &is, Value &v, bool readvalues)	887
10.359.2.2Write(std::ostream &os, const Value &v)	887
10.360dcm::Version Class Reference	887
10.360.1Detailed Description	888
10.360.2Constructor & Destructor Documentation	888
10.360.2.1Version()	888
10.360.2.2~Version()	888
10.360.3Member Function Documentation	888
10.360.3.1GetBuildVersion()	888
10.360.3.2GetMajorVersion()	888
10.360.3.3GetMinorVersion()	888
10.360.3.4GetVersion()	888
10.360.3.5Print(std::ostream &os=std::cout) const	888
10.360.4Friends And Related Function Documentation	888
10.360.4.1operator<<	888
10.361dcm::VL Class Reference	888

10.361.1	Detailed Description	889
10.361.2	Member Typedef Documentation	890
10.361.2.1	Type	890
10.361.3	Constructor & Destructor Documentation	890
10.361.3.1	VL(uint32_t vl=0)	890
10.361.4	Member Function Documentation	890
10.361.4.1	GetLength() const	890
10.361.4.2	GetVL16Max()	890
10.361.4.3	GetVL32Max()	890
10.361.4.4	IsOdd() const	890
10.361.4.5	IsUndefined() const	890
10.361.4.6	operator uint32_t() const	890
10.361.4.7	operator++()	890
10.361.4.8	operator++(int)	890
10.361.4.9	operator+=(VL const &vl)	890
10.361.4.10	Read(std::istream &is)	890
10.361.4.11	Read16(std::istream &is)	890
10.361.4.12	SetToUndefined()	890
10.361.4.13	Write(std::ostream &os) const	890
10.361.4.14	Write16(std::ostream &os) const	891
10.361.5	Friends And Related Function Documentation	891
10.361.5.1	operator<<	891
10.362	dcm::VM Class Reference	891
10.362.1	Detailed Description	893
10.362.2	Member Enumeration Documentation	893
10.362.2.1	VMType	893
10.362.3	Constructor & Destructor Documentation	894
10.362.3.1	VM(VMType type=VM0)	894

10.362.4	Member Function Documentation	894
10.362.4.1	Compatible(VM const &vm) const	894
10.362.4.2	GetIndex(VMType vm)	895
10.362.4.3	GetLength() const	895
10.362.4.4	GetNumberOfElementsFromArray(const char *array, unsigned int length)	895
10.362.4.5	GetVMString(VMType vm)	895
10.362.4.6	GetVMType(const char *vm)	895
10.362.4.7	GetVMTypeFromLength(unsigned int length, unsigned int size)	895
10.362.4.8	IsValid(int vm1, VMType vm2)	895
10.362.4.9	operator VMType() const	895
10.362.5	Friends And Related Function Documentation	895
10.362.5.1	operator<<	895
10.363	dcm::VMToLength< T > Struct Template Reference	895
10.364	dcm::VR Class Reference	896
10.364.1	Detailed Description	897
10.364.2	Member Enumeration Documentation	898
10.364.2.1	VRType	898
10.364.3	Constructor & Destructor Documentation	899
10.364.3.1	VR(VRType vr=INVALID)	899
10.364.4	Member Function Documentation	899
10.364.4.1	CanDisplay(VRType vr)	899
10.364.4.2	Compatible(VR const &vr) const	899
10.364.4.3	GetLength() const	899
10.364.4.4	GetLength(VRType vr)	899
10.364.4.5	GetSize() const	899
10.364.4.6	GetSizeof() const	899
10.364.4.7	GetVRString(VRType vr)	899
10.364.4.8	GetVRStringFromFile(VRType vr)	899

10.364.4.9	GetVRType(const char *vr)	899
10.364.4.10	GetVRTypeFromFile(const char *vr)	899
10.364.4.11	ASCII(VRType vr)	899
10.364.4.12	ASCII2(VRType vr)	899
10.364.4.13	Binary(VRType vr)	899
10.364.4.14	Binary2(VRType vr)	899
10.364.4.15	Dual() const	899
10.364.4.16	Swap(const char *vr)	899
10.364.4.17	Valid(const char *vr)	899
10.364.4.18	Valid(const char *vr1, VRType vr2)	899
10.364.4.19	VRFile() const	899
10.364.4.20	operator VRType() const	900
10.364.4.21	Read(std::istream &is)	900
10.364.4.22	Write(std::ostream &os) const	900
10.364.5	Friends And Related Function Documentation	900
10.364.5.1	operator<<	900
10.365	dcm::VR16ExplicitDataElement Class Reference	900
10.365.1	Detailed Description	901
10.365.2	Member Function Documentation	902
10.365.2.1	GetLength() const	902
10.365.2.2	Read(std::istream &is)	902
10.365.2.3	ReadPreValue(std::istream &is)	902
10.365.2.4	ReadValue(std::istream &is, bool readvalues=true)	902
10.365.2.5	ReadWithLength(std::istream &is, VL &length)	902
10.366	dcm::VRToEncoding< T > Struct Template Reference	902
10.367	dcm::VRToType< T > Struct Template Reference	902
10.367.1	Detailed Description	903
10.368	dcm::VRVLSIZE< T > Class Template Reference	903

10.369	gdcm::VRVLSize< 0 > Class Template Reference	903
10.369.1	Member Function Documentation	903
10.369.1.1	Read(std::istream &_is)	903
10.369.1.2	Write(std::ostream &os)	903
10.370	gdcm::VRVLSize< 1 > Class Template Reference	904
10.370.1	Member Function Documentation	904
10.370.1.1	Read(std::istream &_is)	904
10.370.1.2	Write(std::ostream &os)	904
10.371	vtkGDCMImageReader Class Reference	904
10.371.1	Detailed Description	907
10.371.2	Constructor & Destructor Documentation	907
10.371.2.1	vtkGDCMImageReader()	907
10.371.2.2	~vtkGDCMImageReader()	907
10.371.3	Member Function Documentation	907
10.371.3.1	CanReadFile(const char *fname)	907
10.371.3.2	ExecuteData(vtkDataObject *out)	907
10.371.3.3	ExecuteInformation()	907
10.371.3.4	FillMedicalImageInformation(const gdcm::ImageReader &reader)	907
10.371.3.5	GetDescriptiveName()	907
10.371.3.6	GetFileExtensions()	907
10.371.3.7	GetIconImage()	907
10.371.3.8	GetOverlay(int i)	907
10.371.3.9	LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen)	907
10.371.3.10	New()	907
10.371.3.11	PrintSelf(ostream &os, vtkIndent indent)	908
10.371.3.12	RequestDataCompat()	908
10.371.3.13	RequestInformationCompat()	908
10.371.3.14	SetCurve(vtkPolyData *pd)	908

10.371.3.15	SetFileNames(vtkStringArray *)	908
10.371.3.16	SetFilePattern(const char *)	908
10.371.3.17	SetFilePrefix(const char *)	908
10.371.3.18	SetMedicalImageProperties(vtkMedicalImageProperties *pd)	908
10.371.3.19	BooleanMacro(LoadOverlays, int)	908
10.371.3.20	BooleanMacro(LoadIconImage, int)	908
10.371.3.21	BooleanMacro(LossyFlag, int)	908
10.371.3.22	BooleanMacro(ApplyLookupTable, int)	908
10.371.3.23	BooleanMacro(ApplyYBRToRGB, int)	908
10.371.3.24	GetMacro(LoadOverlays, int)	908
10.371.3.25	GetMacro(LoadIconImage, int)	908
10.371.3.26	GetMacro(LossyFlag, int)	908
10.371.3.27	GetMacro(NumberOfOverlays, int)	908
10.371.3.28	GetMacro(NumberOfIconImages, int)	909
10.371.3.29	GetMacro(ApplyLookupTable, int)	909
10.371.3.30	GetMacro(ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB	909
10.371.3.31	GetMacro(ImageFormat, int)	909
10.371.3.32	GetMacro(PlanarConfiguration, int)	909
10.371.3.33	GetMacro(Shift, double)	909
10.371.3.34	GetMacro(Scale, double)	909
10.371.3.35	GetObjectMacro(DirectionCosines, vtkMatrix4x4)	909
10.371.3.36	GetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties)	909
10.371.3.37	GetObjectMacro(FileNames, vtkStringArray)	909
10.371.3.38	GetObjectMacro(Curve, vtkPolyData)	909
10.371.3.39	GetStringMacro(FilePrefix)	909
10.371.3.40	GetStringMacro(FilePattern)	909
10.371.3.41	GetVector3Macro(ImagePositionPatient, double)	909
10.371.3.42	GetVector6Macro(ImageOrientationPatient, double)	909

10.371.3.40	SetMacro(LoadOverlays, int)	909
10.371.3.41	SetMacro(LoadIconImage, int)	909
10.371.3.42	SetMacro(LossyFlag, int)	909
10.371.3.43	SetMacro(ApplyLookupTable, int)	909
10.371.3.44	SetVector6Macro(ImageOrientationPatient, double)	909
10.371.3.45	TypeMacro(vtkGDCMImageReader, vtkMedicalImageReader2)	909
10.371.4	Member Data Documentation	910
10.371.4.1	ApplyInverseVideo	910
10.371.4.2	ApplyLookupTable	910
10.371.4.3	ApplyPlanarConfiguration	910
10.371.4.4	ApplyShiftScale	910
10.371.4.5	ApplyYBRToRGB	910
10.371.4.6	Curve	910
10.371.4.7	DirectionCosines	910
10.371.4.8	FileNames	910
10.371.4.9	ForceRescale	910
10.371.4.10	ImageDataScalarType	910
10.371.4.11	IconImageDataExtent	910
10.371.4.12	IconNumberOfScalarComponents	910
10.371.4.13	ImageFormat	910
10.371.4.14	ImageOrientationPatient	910
10.371.4.15	ImagePositionPatient	910
10.371.4.16	LoadIconImage	910
10.371.4.17	LoadOverlays	910
10.371.4.18	LossyFlag	910
10.371.4.19	MedicalImageProperties	910
10.371.4.20	NumberOfIconImages	910
10.371.4.21	NumberOfOverlays	910

10.371.4.2PlanarConfiguration	910
10.371.4.2Scale	910
10.371.4.2Shift	910
10.372.vtkGDCMImageReader2 Class Reference	911
10.372.1Detailed Description	913
10.372.2Constructor & Destructor Documentation	913
10.372.2.1vtkGDCMImageReader2()	913
10.372.2.2~vtkGDCMImageReader2()	913
10.372.3Member Function Documentation	913
10.372.3.1CanReadFile(const char *fname)	913
10.372.3.2FillMedicalImageInformation(const gdcm::ImageReader &reader)	913
10.372.3.3GetDescriptiveName()	913
10.372.3.4GetFileExtensions()	914
10.372.3.5GetIconImage()	914
10.372.3.6GetIconImagePort()	914
10.372.3.7GetOverlay(int i)	914
10.372.3.8GetOverlayPort(int index)	914
10.372.3.9LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen)	914
10.372.3.10New()	914
10.372.3.11PrintSelf(ostream &os, vtkIndent indent)	914
10.372.3.12ProcessRequest(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	914
10.372.3.13RequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	914
10.372.3.14RequestDataCompat()	914
10.372.3.15RequestInformation(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	914
10.372.3.16RequestInformationCompat()	914
10.372.3.17SetCurve(vtkPolyData *pd)	914

10.372.3.18	SetFilePattern(const char *)	. . . . .	914
10.372.3.19	SetFilePrefix(const char *)	. . . . .	914
10.372.3.20	SetMedicalImageProperties(vtkMedicalImageProperties *pd)	. . . . .	914
10.372.3.21	BooleanMacro(LoadOverlays, int)	. . . . .	914
10.372.3.22	BooleanMacro(LoadIconImage, int)	. . . . .	915
10.372.3.23	BooleanMacro(LossyFlag, int)	. . . . .	915
10.372.3.24	BooleanMacro(ApplyLookupTable, int)	. . . . .	915
10.372.3.25	BooleanMacro(ApplyYBRToRGB, int)	. . . . .	915
10.372.3.26	GetMacro(LoadOverlays, int)	. . . . .	915
10.372.3.27	GetMacro(LoadIconImage, int)	. . . . .	915
10.372.3.28	GetMacro(LossyFlag, int)	. . . . .	915
10.372.3.29	GetMacro(NumberOfOverlays, int)	. . . . .	915
10.372.3.30	GetMacro(NumberOfIconImages, int)	. . . . .	915
10.372.3.31	GetMacro(ApplyLookupTable, int)	. . . . .	915
10.372.3.32	GetMacro(ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB	. . . . .	915
10.372.3.33	GetMacro(ImageFormat, int)	. . . . .	915
10.372.3.34	GetMacro(PlanarConfiguration, int)	. . . . .	915
10.372.3.35	GetMacro(Shift, double)	. . . . .	915
10.372.3.36	GetMacro(Scale, double)	. . . . .	915
10.372.3.37	GetObjectMacro(DirectionCosines, vtkMatrix4x4)	. . . . .	915
10.372.3.38	GetObjectMacro(Curve, vtkPolyData)	. . . . .	915
10.372.3.39	GetStringMacro(FilePrefix)	. . . . .	915
10.372.3.40	GetStringMacro(FilePattern)	. . . . .	915
10.372.3.41	GetVector3Macro(ImagePositionPatient, double)	. . . . .	915
10.372.3.42	GetVector6Macro(ImageOrientationPatient, double)	. . . . .	915
10.372.3.43	SetMacro(LoadOverlays, int)	. . . . .	916
10.372.3.44	SetMacro(LoadIconImage, int)	. . . . .	916
10.372.3.45	SetMacro(LossyFlag, int)	. . . . .	916

10.372.3.46	SetMacro(ApplyLookupTable, int)	916
10.372.3.47	SetVector6Macro(ImageOrientationPatient, double)	916
10.372.3.48	TypeMacro(vtkGDCMImageReader2, vtkMedicalImageReader2)	916
10.372.4	Member Data Documentation	916
10.372.4.1	ApplyInverseVideo	916
10.372.4.2	ApplyLookupTable	916
10.372.4.3	ApplyPlanarConfiguration	916
10.372.4.4	ApplyShiftScale	916
10.372.4.5	ApplyYBRToRGB	916
10.372.4.6	Curve	916
10.372.4.7	DirectionCosines	916
10.372.4.8	ForceRescale	916
10.372.4.9	IconDataScalarType	916
10.372.4.10	IconImageDataExtent	916
10.372.4.11	IconNumberOfScalarComponents	916
10.372.4.12	ImageFormat	916
10.372.4.13	ImageOrientationPatient	916
10.372.4.14	ImagePositionPatient	916
10.372.4.15	LoadIconImage	917
10.372.4.16	LoadOverlays	917
10.372.4.17	LossyFlag	917
10.372.4.18	NumberOfIconImages	917
10.372.4.19	NumberOfOverlays	917
10.372.4.20	PlanarConfiguration	917
10.372.4.21	Scale	917
10.372.4.22	Shift	917
10.372.4	vtkGDCMImageWriter Class Reference	917
10.373	Detailed Description	919

10.373.2 Member Enumeration Documentation	919
10.373.2.1 CompressionTypes	919
10.373.3 Constructor & Destructor Documentation	920
10.373.3.1 vtkGDCMImageWriter()	920
10.373.3.2 ~vtkGDCMImageWriter()	920
10.373.4 Member Function Documentation	920
10.373.4.1 GetDescriptiveName()	920
10.373.4.2 GetFileExtensions()	920
10.373.4.3 GetFileName()	920
10.373.4.4 New()	920
10.373.4.5 PrintSelf(ostream &os, vtkIndent indent)	920
10.373.4.6 SetDirectionCosines(vtkMatrix4x4 *matrix)	920
10.373.4.7 SetDirectionCosinesFromImageOrientationPatient(const double dircos[6])	920
10.373.4.8 SetFileNames(vtkStringArray *)	920
10.373.4.9 SetMedicalImageProperties(vtkMedicalImageProperties *)	921
10.373.4.10 SetBooleanMacro(LossyFlag, int)	921
10.373.4.11 SetBooleanMacro(FileLowerLeft, int)	921
10.373.4.12 GetMacro(LossyFlag, int)	921
10.373.4.13 GetMacro(Shift, double)	921
10.373.4.14 GetMacro(Scale, double)	921
10.373.4.15 GetMacro(ImageFormat, int)	921
10.373.4.16 GetMacro(FileLowerLeft, int)	921
10.373.4.17 GetMacro(PlanarConfiguration, int)	921
10.373.4.18 GetMacro(CompressionType, int)	921
10.373.4.19 GetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties)	921
10.373.4.20 GetObjectMacro(FileNames, vtkStringArray)	921
10.373.4.21 GetObjectMacro(DirectionCosines, vtkMatrix4x4)	921
10.373.4.22 GetStringMacro(StudyUID)	921

10.373.4.26	vtkGetStringMacro(SeriesUID)	921
10.373.4.27	vtkSetMacro(LossyFlag, int)	921
10.373.4.28	vtkSetMacro(Shift, double)	921
10.373.4.29	vtkSetMacro(Scale, double)	921
10.373.4.30	vtkSetMacro(ImageFormat, int)	921
10.373.4.31	vtkSetMacro(FileLowerLeft, int)	922
10.373.4.32	vtkSetMacro(PlanarConfiguration, int)	922
10.373.4.33	vtkSetMacro(CompressionType, int)	922
10.373.4.34	vtkSetStringMacro(StudyUID)	922
10.373.4.35	vtkSetStringMacro(SeriesUID)	922
10.373.4.36	vtkTypeMacro(vtkGDCMImageWriter, vtkImageWriter)	922
10.373.4.37	Write()	922
10.373.4.38	WriteGDCMData(vtkImageData *data, int timeStep)	922
10.373.4.39	WriteSlice(vtkImageData *data)	922
10.374	vtkGDCMMedicalImageProperties Class Reference	922
10.374.1	Constructor & Destructor Documentation	924
10.374.1.1	vtkGDCMMedicalImageProperties()	924
10.374.1.2	~vtkGDCMMedicalImageProperties()	924
10.374.2	Member Function Documentation	924
10.374.2.1	Clear()	924
10.374.2.2	GetFile(unsigned int t)	924
10.374.2.3	New()	924
10.374.2.4	PrintSelf(ostream &os, vtkIndent indent)	924
10.374.2.5	PushBackFile(gdcm::File const &f)	924
10.374.2.6	vtkTypeMacro(vtkGDCMMedicalImageProperties, vtkMedicalImageProperties)	924
10.374.3	Friends And Related Function Documentation	924
10.374.3.1	vtkGDCMImageReader	924
10.374.3.2	vtkGDCMImageReader2	924

10.374.3.vtkGDCMImageWriter	924
10.375.vtkGDCMPolyDataReader Class Reference	925
10.375.1.Detailed Description	926
10.375.2.Constructor & Destructor Documentation	926
10.375.2.1.vtkGDCMPolyDataReader()	926
10.375.2.2.~vtkGDCMPolyDataReader()	926
10.375.3.Member Function Documentation	926
10.375.3.1.FillMedicalImageInformation(const gdcm::Reader &reader)	926
10.375.3.2.New()	926
10.375.3.3.PrintSelf(ostream &os, vtkIndent indent)	927
10.375.3.4.RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *)	927
10.375.3.5.RequestData_HemodynamicWaveformStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector)	927
10.375.3.6.RequestData_RTStructureSetStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector)	927
10.375.3.7.RequestInformation(vtkInformation *vtkNotUsed(request), vtkInformationVector **vtkNotUsed(inputVector), vtkInformationVector *outputVector)	927
10.375.3.8.RequestInformation_HemodynamicWaveformStorage(gdcm::Reader const &reader)	927
10.375.3.9.RequestInformation_RTStructureSetStorage(gdcm::Reader const &reader)	927
10.375.3.10.vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties)	927
10.375.3.11.vtkGetObjectMacro(RTStructSetProperties, vtkRTStructSetProperties)	927
10.375.3.12.vtkGetStringMacro(FileName)	927
10.375.3.13.vtkSetStringMacro(FileName)	927
10.375.3.14.vtkTypeMacro(vtkGDCMPolyDataReader, vtkPolyDataAlgorithm)	927
10.375.4.Member Data Documentation	927
10.375.4.1.FileName	927
10.375.4.2.MedicalImageProperties	927
10.375.4.3.RTStructSetProperties	927
10.376.vtkGDCMPolyDataWriter Class Reference	928

10.376.1	Detailed Description	929
10.376.2	Constructor & Destructor Documentation	929
10.376.2.1	vtkGDCMPolyDataWriter()	929
10.376.2.2	~vtkGDCMPolyDataWriter()	929
10.376.3	Member Function Documentation	929
10.376.3.1	InitializeRTStructSet(vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtkStringArray *inROINames, vtkStringArray *inROIAlgorithmName, vtkStringArray *inROIType)	929
10.376.3.2	New()	929
10.376.3.3	PrintSelf(ostream &os, vtkIndent indent)	930
10.376.3.4	SetMedicalImageProperties(vtkMedicalImageProperties *pd)	930
10.376.3.5	SetNumberOfInputPorts(int n)	930
10.376.3.6	SetRTStructSetProperties(vtkRTStructSetProperties *pd)	930
10.376.3.7	vtkTypeMacro(vtkGDCMPolyDataWriter, vtkPolyDataWriter)	930
10.376.3.8	WriteData()	930
10.376.3.9	WriteRTSTRUCTData(gdcm::File &file, int num)	930
10.376.3.10	WriteRTSTRUCTInfo(gdcm::File &file)	930
10.376.4	Member Data Documentation	930
10.376.4.1	MedicalImageProperties	930
10.376.4.2	RTStructSetProperties	930
10.377	vtkGDCMTesting Class Reference	931
10.377.1	Detailed Description	932
10.377.2	Member Typedef Documentation	932
10.377.2.1	MD5MetainImagesType	932
10.377.3	Constructor & Destructor Documentation	932
10.377.3.1	vtkGDCMTesting()	932
10.377.3.2	~vtkGDCMTesting()	932
10.377.4	Member Function Documentation	932
10.377.4.1	GetGDCMDataRoot()	932

10.377.4.2GetMD5MetaImage(unsigned int file)	932
10.377.4.3GetMHDMD5FromFile(const char *filepath)	932
10.377.4.4GetNumberOfMD5MetaImages()	933
10.377.4.5GetRAWMD5FromFile(const char *filepath)	933
10.377.4.6GetVTKDataRoot()	933
10.377.4.7New()	933
10.377.4.8PrintSelf(ostream &os, vtkIndent indent)	933
10.377.4.9vtkTypeMacro(vtkGDCMTesting, vtkObject)	933
10.378.vtkGDCMThreadedImageReader Class Reference	933
10.378.1Constructor & Destructor Documentation	935
10.378.1.1vtkGDCMThreadedImageReader()	935
10.378.1.2~vtkGDCMThreadedImageReader()	935
10.378.2Member Function Documentation	935
10.378.2.1ExecuteData(vtkDataObject *out)	935
10.378.2.2ExecuteInformation()	935
10.378.2.3New()	935
10.378.2.4PrintSelf(ostream &os, vtkIndent indent)	935
10.378.2.5ReadFiles(unsigned int nfiles, const char *filenames[])	935
10.378.2.6RequestDataCompat()	935
10.378.2.7vtkBooleanMacro(UseShiftScale, int)	935
10.378.2.8vtkGetMacro(UseShiftScale, int)	935
10.378.2.9vtkSetMacro(Shift, double)	935
10.378.2.10vtkSetMacro(Scale, double)	935
10.378.2.11vtkSetMacro(UseShiftScale, int)	935
10.378.2.12vtkTypeMacro(vtkGDCMThreadedImageReader, vtkGDCMImageReader)	935
10.379.vtkGDCMThreadedImageReader2 Class Reference	936
10.379.1Constructor & Destructor Documentation	937
10.379.1.1vtkGDCMThreadedImageReader2()	937

10.379.1.2~vtkGDCMThreadedImageReader2()	937
10.379.2 Member Function Documentation	937
10.379.2.1 GetFileName(int i=0)	937
10.379.2.2 New()	938
10.379.2.3 PrintSelf(ostream &os, vtkIndent indent)	938
10.379.2.4 RequestInformation(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	938
10.379.2.5 SetFileName(const char *filename)	938
10.379.2.6 SetFileNames(vtkStringArray *)	938
10.379.2.7 SplitExtent(int splitExt[6], int startExt[6], int num, int total)	938
10.379.2.8 ThreadedRequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int outExt[6], int id)	938
10.379.2.9 vtkBooleanMacro(FileLowerLeft, int)	938
10.379.2.10 vtkBooleanMacro(LoadOverlays, int)	938
10.379.2.11 vtkBooleanMacro(UseShiftScale, int)	938
10.379.2.12 vtkGetMacro(FileLowerLeft, int)	938
10.379.2.13 vtkGetMacro(NumberOfOverlays, int)	938
10.379.2.14 vtkGetMacro(DataScalarType, int)	938
10.379.2.15 vtkGetMacro(NumberOfScalarComponents, int)	938
10.379.2.16 vtkGetMacro(LoadOverlays, int)	938
10.379.2.17 vtkGetMacro(Shift, double)	938
10.379.2.18 vtkGetMacro(Scale, double)	938
10.379.2.19 vtkGetMacro(UseShiftScale, int)	938
10.379.2.20 vtkGetObjectMacro(FileNames, vtkStringArray)	938
10.379.2.21 vtkGetVector3Macro(DataOrigin, double)	938
10.379.2.22 vtkGetVector3Macro(DataSpacing, double)	939
10.379.2.23 vtkGetVector6Macro(DataExtent, int)	939
10.379.2.24 vtkSetMacro(FileLowerLeft, int)	939

10.379.2.25	vtkSetMacro(DataScalarType, int)	939
10.379.2.26	vtkSetMacro(NumberOfScalarComponents, int)	939
10.379.2.27	vtkSetMacro(LoadOverlays, int)	939
10.379.2.28	vtkSetMacro(Shift, double)	939
10.379.2.29	vtkSetMacro(Scale, double)	939
10.379.2.30	vtkSetMacro(UseShiftScale, int)	939
10.379.2.31	vtkSetVector3Macro(DataOrigin, double)	939
10.379.2.32	vtkSetVector3Macro(DataSpacing, double)	939
10.379.2.33	vtkSetVector6Macro(DataExtent, int)	939
10.379.2.34	vtkTypeMacro(vtkGDCMThreadedImageReader2, vtkThreadedImageAlgorithm)	939
10.380	vtkImageColorViewer Class Reference	940
10.380.1	Detailed Description	942
10.380.2	Member Enumeration Documentation	942
10.380.2.1	anonymous enum	942
10.380.3	Constructor & Destructor Documentation	943
10.380.3.1	vtkImageColorViewer()	943
10.380.3.2	~vtkImageColorViewer()	943
10.380.4	Member Function Documentation	943
10.380.4.1	AddInput(vtkImageData *input)	943
10.380.4.2	AddInputConnection(vtkAlgorithmOutput *input)	943
10.380.4.3	GetColorLevel()	943
10.380.4.4	GetColorWindow()	943
10.380.4.5	GetInput()	943
10.380.4.6	GetOffScreenRendering()	943
10.380.4.7	GetOverlayVisibility()	943
10.380.4.8	GetPosition()	943
10.380.4.9	GetSize()	943
10.380.4.10	GetSliceMax()	943

10.380.4.10	GetSliceMin()	. . . . .	943
10.380.4.10	GetSliceRange(int range[2])	. . . . .	943
10.380.4.10	GetSliceRange(int &min, int &max)	. . . . .	943
10.380.4.10	GetSliceRange()	. . . . .	943
10.380.4.10	GetWindowName()	. . . . .	943
10.380.4.10	InstallPipeline()	. . . . .	943
10.380.4.10	New()	. . . . .	943
10.380.4.10	PrintSelf(ostream &os, vtkIndent indent)	. . . . .	944
10.380.4.10	Render(void)	. . . . .	944
10.380.4.20	SetColorLevel(double s)	. . . . .	944
10.380.4.20	SetColorWindow(double s)	. . . . .	944
10.380.4.20	SetDisplayId(void *a)	. . . . .	944
10.380.4.20	SetInput(vtkImageData *in)	. . . . .	944
10.380.4.20	SetInputConnection(vtkAlgorithmOutput *input)	. . . . .	944
10.380.4.20	SetOffScreenRendering(int)	. . . . .	944
10.380.4.20	SetOverlayVisibility(double vis)	. . . . .	944
10.380.4.20	SetParentId(void *a)	. . . . .	944
10.380.4.20	SetPosition(int a, int b)	. . . . .	944
10.380.4.20	SetPosition(int a[2])	. . . . .	944
10.380.4.30	SetRenderer(vtkRenderer *arg)	. . . . .	944
10.380.4.30	SetRenderWindow(vtkRenderWindow *arg)	. . . . .	944
10.380.4.30	SetSize(int a, int b)	. . . . .	944
10.380.4.30	SetSize(int a[2])	. . . . .	945
10.380.4.30	SetSlice(int s)	. . . . .	945
10.380.4.30	SetSliceOrientation(int orientation)	. . . . .	945
10.380.4.30	SetSliceOrientationToXY()	. . . . .	945
10.380.4.30	SetSliceOrientationToXZ()	. . . . .	945
10.380.4.30	SetSliceOrientationToYZ()	. . . . .	945

10.380.4.39	SetupInteractor(vtkRenderWindowInteractor *)	945
10.380.4.40	SetWindowId(void *a)	945
10.380.4.41	InstallPipeline()	945
10.380.4.42	UpdateDisplayExtent()	945
10.380.4.43	UpdateOrientation()	945
10.380.4.44	VTK_LEGACY(int GetWholeZMin())	945
10.380.4.45	VTK_LEGACY(int GetWholeZMax())	945
10.380.4.46	VTK_LEGACY(int GetZSlice())	946
10.380.4.47	VTK_LEGACY(void SetZSlice(int))	946
10.380.4.48	BooleanMacro(OffScreenRendering, int)	946
10.380.4.49	GetMacro(SliceOrientation, int)	946
10.380.4.50	GetMacro(Slice, int)	946
10.380.4.51	GetObjectMacro(RenderWindow, vtkRenderWindow)	946
10.380.4.52	GetObjectMacro(Renderer, vtkRenderer)	946
10.380.4.53	GetObjectMacro(ImageActor, vtkImageActor)	946
10.380.4.54	GetObjectMacro(WindowLevel, vtkImageMapToWindowLevelColors2)	946
10.380.4.55	GetObjectMacro(InteractorStyle, vtkInteractorStyleImage)	946
10.380.4.56	TypeMacro(vtkImageColorViewer, vtkObject)	946
10.380.5	Friends And Related Function Documentation	946
10.380.5.1	vtkImageColorViewerCallback	946
10.380.6	Member Data Documentation	946
10.380.6.1	FirstRender	946
10.380.6.2	ImageActor	946
10.380.6.3	Interactor	946
10.380.6.4	InteractorStyle	946
10.380.6.5	OverlayImageActor	946
10.380.6.6	Renderer	946
10.380.6.7	RenderWindow	946

10.380.6.8Slice	946
10.380.6.9SliceOrientation	946
10.380.6.10WindowLevel	946
10.381.vtkImageMapToColors16 Class Reference	947
10.381.1.Constructor & Destructor Documentation	948
10.381.1.1vtkImageMapToColors16()	948
10.381.1.2~vtkImageMapToColors16()	948
10.381.2.Member Function Documentation	948
10.381.2.1GetMTime()	948
10.381.2.2New()	948
10.381.2.3PrintSelf(ostream &os, vtkIndent indent)	948
10.381.2.4RequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	949
10.381.2.5RequestInformation(vtkInformation *, vtkInformationVector **, vtkInformationVector *)	949
10.381.2.6SetLookupTable(vtkScalarsToColors *)	949
10.381.2.7SetOutputFormatToLuminance()	949
10.381.2.8SetOutputFormatToLuminanceAlpha()	949
10.381.2.9SetOutputFormatToRGB()	949
10.381.2.10SetOutputFormatToRGBA()	949
10.381.2.11ThreadedRequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)	949
10.381.2.12kBooleanMacro(PassAlphaToOutput, int)	949
10.381.2.13kGetMacro(OutputFormat, int)	949
10.381.2.14kGetMacro(ActiveComponent, int)	949
10.381.2.15kGetMacro(PassAlphaToOutput, int)	949
10.381.2.16kGetObjectMacro(LookupTable, vtkScalarsToColors)	949
10.381.2.17kSetMacro(OutputFormat, int)	949
10.381.2.18kSetMacro(ActiveComponent, int)	949

10.381.2.1	vtkSetMacro(PassAlphaToOutput, int)	949
10.381.2.2	vtkTypeMacro(vtkImageMapToColors16, vtkThreadedImageAlgorithm)	949
10.381.3	Member Data Documentation	949
10.381.3.1	ActiveComponent	949
10.381.3.2	DataWasPassed	949
10.381.3.3	LookupTable	949
10.381.3.4	OutputFormat	949
10.381.3.5	PassAlphaToOutput	949
10.382	vtkImageMapToWindowLevelColors2 Class Reference	950
10.382.1	Constructor & Destructor Documentation	951
10.382.1.1	vtkImageMapToWindowLevelColors2()	951
10.382.1.2	~vtkImageMapToWindowLevelColors2()	951
10.382.2	Member Function Documentation	951
10.382.2.1	New()	951
10.382.2.2	PrintSelf(ostream &os, vtkIndent indent)	951
10.382.2.3	RequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)	951
10.382.2.4	RequestInformation(vtkInformation *, vtkInformationVector **, vtkInformationVector *)	951
10.382.2.5	ThreadedRequestData(vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)	951
10.382.2.6	vtkGetMacro(Window, double)	951
10.382.2.7	vtkGetMacro(Level, double)	952
10.382.2.8	vtkSetMacro(Window, double)	952
10.382.2.9	vtkSetMacro(Level, double)	952
10.382.2.10	vtkTypeMacro(vtkImageMapToWindowLevelColors2, vtkImageMapToColors)	952
10.382.3	Member Data Documentation	952
10.382.3.1	Level	952
10.382.3.2	Window	952

10.383. vtkImagePlanarComponentsToComponents Class Reference	952
10.383.1. Constructor & Destructor Documentation	953
10.383.1.1. vtkImagePlanarComponentsToComponents()	953
10.383.1.2. ~vtkImagePlanarComponentsToComponents()	953
10.383.2. Member Function Documentation	953
10.383.2.1. New()	953
10.383.2.2. PrintSelf(ostream &os, vtkIndent indent)	954
10.383.2.3. RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *)	954
10.383.2.4. vtkTypeMacro(vtkImagePlanarComponentsToComponents, vtkImageAlgorithm)	954
10.384. vtkImageRGBToYBR Class Reference	954
10.384.1. Constructor & Destructor Documentation	955
10.384.1.1. vtkImageRGBToYBR()	955
10.384.1.2. ~vtkImageRGBToYBR()	955
10.384.2. Member Function Documentation	955
10.384.2.1. New()	955
10.384.2.2. PrintSelf(ostream &os, vtkIndent indent)	955
10.384.2.3. ThreadedExecute(vtkImageData *inData, vtkImageData *outData, int ext[6], int id)	955
10.384.2.4. vtkTypeMacro(vtkImageRGBToYBR, vtkThreadedImageAlgorithm)	955
10.385. vtkImageYBRToRGB Class Reference	956
10.385.1. Constructor & Destructor Documentation	957
10.385.1.1. vtkImageYBRToRGB()	957
10.385.1.2. ~vtkImageYBRToRGB()	957
10.385.2. Member Function Documentation	957
10.385.2.1. New()	957
10.385.2.2. PrintSelf(ostream &os, vtkIndent indent)	957
10.385.2.3. ThreadedExecute(vtkImageData *inData, vtkImageData *outData, int ext[6], int id)	957
10.385.2.4. vtkTypeMacro(vtkImageYBRToRGB, vtkThreadedImageAlgorithm)	957
10.386. vtkLookupTable16 Class Reference	957

10.386.1	Constructor & Destructor Documentation	959
10.386.1.1	vtkLookupTable16(int size=256, int ext=256)	959
10.386.1.2	~vtkLookupTable16()	959
10.386.2	Member Function Documentation	959
10.386.2.1	Build()	959
10.386.2.2	GetPointer(const vtkIdType id)	959
10.386.2.3	MapScalarsThroughTable2(void *input, unsigned char *output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)	959
10.386.2.4	New()	959
10.386.2.5	PrintSelf(ostream &os, vtkIndent indent)	959
10.386.2.6	SetNumberOfTableValues(vtkIdType number)	959
10.386.2.7	vtkTypeMacro(vtkLookupTable16, vtkLookupTable)	959
10.386.2.8	WritePointer(const vtkIdType id, const int number)	959
10.386.3	Member Data Documentation	959
10.386.3.1	Table16	959
10.387	vtkRTStructSetProperties Class Reference	960
10.387.1	Detailed Description	962
10.387.2	Constructor & Destructor Documentation	962
10.387.2.1	vtkRTStructSetProperties()	962
10.387.2.2	~vtkRTStructSetProperties()	962
10.387.3	Member Function Documentation	962
10.387.3.1	AddContourReferencedFrameOfReference(vtkIdType pdnum, const char *classuid, const char *instanceuid)	962
10.387.3.2	AddReferencedFrameOfReference(const char *classuid, const char *instanceuid)	962
10.387.3.3	AddStructureSetROI(int roinumber, const char *reframerefuid, const char *roiname, const char *ROIGenerationAlgorithm, const char *ROIDescription=0)	962
10.387.3.4	AddStructureSetROIObservation(int refnumber, int observationnumber, const char *rtroiinterpretedtype, const char *roiinterpreter, const char *roiobservationlabel=0)	962
10.387.3.5	Clear()	962
10.387.3.6	DeepCopy(vtkRTStructSetProperties *p)	962

10.387.3.7	GetContourReferencedFrameOfReferenceClassUID(vtkIdType pdnum, vtkIdType id)	. 962
10.387.3.8	GetContourReferencedFrameOfReferenceInstanceUID(vtkIdType pdnum, vtkIdType id)	963
10.387.3.9	GetNumberOfContourReferencedFrameOfReferences()	. . . . . 963
10.387.3.10	GetNumberOfContourReferencedFrameOfReferences(vtkIdType pdnum)	. . . . . 963
10.387.3.10	GetNumberOfReferencedFrameOfReferences()	. . . . . 963
10.387.3.10	GetNumberOfStructureSetROIs()	. . . . . 963
10.387.3.10	GetReferencedFrameOfReferenceClassUID(vtkIdType id)	. . . . . 963
10.387.3.10	GetReferencedFrameOfReferenceInstanceUID(vtkIdType id)	. . . . . 963
10.387.3.10	GetStructureSetObservationNumber(vtkIdType id)	. . . . . 963
10.387.3.10	GetStructureSetROIDescription(vtkIdType id)	. . . . . 963
10.387.3.10	GetStructureSetROIGenerationAlgorithm(vtkIdType)	. . . . . 963
10.387.3.10	GetStructureSetROIName(vtkIdType)	. . . . . 963
10.387.3.10	GetStructureSetROINumber(vtkIdType id)	. . . . . 963
10.387.3.20	GetStructureSetROIObservationLabel(vtkIdType id)	. . . . . 963
10.387.3.20	GetStructureSetROIRefFrameRefUID(vtkIdType)	. . . . . 963
10.387.3.20	GetStructureSetRTROIInterpretedType(vtkIdType id)	. . . . . 963
10.387.3.20	New()	. . . . . 963
10.387.3.20	PrintSelf(ostream &os, vtkIndent indent)	. . . . . 964
10.387.3.20	GetStringMacro(StructureSetLabel)	. . . . . 964
10.387.3.20	GetStringMacro(StructureSetName)	. . . . . 964
10.387.3.20	GetStringMacro(StructureSetDate)	. . . . . 964
10.387.3.20	GetStringMacro(StructureSetTime)	. . . . . 964
10.387.3.20	GetStringMacro(SOPInstanceUID)	. . . . . 964
10.387.3.30	GetStringMacro(StudyInstanceUID)	. . . . . 964
10.387.3.30	GetStringMacro(SeriesInstanceUID)	. . . . . 964
10.387.3.30	GetStringMacro(ReferenceSeriesInstanceUID)	. . . . . 964
10.387.3.30	GetStringMacro(ReferenceFrameOfReferenceUID)	. . . . . 964
10.387.3.30	SetStringMacro(StructureSetLabel)	. . . . . 964

10.387.3.36	vtkSetStringMacro(StructureSetName)	964
10.387.3.36	vtkSetStringMacro(StructureSetDate)	964
10.387.3.37	vtkSetStringMacro(StructureSetTime)	964
10.387.3.38	vtkSetStringMacro(SOPInstanceUID)	964
10.387.3.38	vtkSetStringMacro(StudyInstanceUID)	964
10.387.3.40	vtkSetStringMacro(SeriesInstanceUID)	964
10.387.3.41	vtkSetStringMacro(ReferenceSeriesInstanceUID)	964
10.387.3.42	vtkSetStringMacro(ReferenceFrameOfReferenceUID)	964
10.387.3.42	vtkTypeMacro(vtkRTStructSetProperties, vtkObject)	964
10.387.4	Member Data Documentation	964
10.387.4.1	Internals	965
10.387.4.2	ReferenceFrameOfReferenceUID	965
10.387.4.3	ReferenceSeriesInstanceUID	965
10.387.4.4	SeriesInstanceUID	965
10.387.4.5	SOPInstanceUID	965
10.387.4.6	StructureSetDate	965
10.387.4.7	StructureSetLabel	965
10.387.4.8	StructureSetName	965
10.387.4.9	StructureSetTime	965
10.387.4.10	StudyInstanceUID	965
10.388	dcm::Waveform Class Reference	965
10.388.1	Detailed Description	965
10.388.2	Constructor & Destructor Documentation	966
10.388.2.1	Waveform()	966
10.389	dcm::WLMFindQuery Class Reference	966
10.389.1	Detailed Description	967
10.389.2	Constructor & Destructor Documentation	967
10.389.2.1	WLMFindQuery()	967

10.389.3	Member Function Documentation	967
10.389.3.1	GetAbstractSyntaxUID() const	967
10.389.3.2	GetTagListByLevel(const EQueryLevel &inQueryLevel)	968
10.389.3.3	GetValidDataSet() const	968
10.389.3.4	InitializeDataSet(const EQueryLevel &inQueryLevel)	968
10.389.3.5	ValidateQuery(bool inStrict=true) const	968
10.389.4	Friends And Related Function Documentation	968
10.389.4.1	QueryFactory	968
10.390	dcm::Writer Class Reference	969
10.390.1	Detailed Description	971
10.390.2	Constructor & Destructor Documentation	972
10.390.2.1	Writer()	972
10.390.2.2	~Writer()	972
10.390.3	Member Function Documentation	972
10.390.3.1	CheckFileMetaInformationOff()	972
10.390.3.2	CheckFileMetaInformationOn()	972
10.390.3.3	GetFile()	972
10.390.3.4	GetStreamPtr() const	972
10.390.3.5	SetCheckFileMetaInformation(bool b)	972
10.390.3.6	SetFile(const File &f)	972
10.390.3.7	SetFileName(const char *filename_native)	973
10.390.3.8	SetStream(std::ostream &output_stream)	973
10.390.3.9	SetWriteDataSetOnly(bool b)	973
10.390.3.10	Write()	973
10.390.4	Friends And Related Function Documentation	973
10.390.4.1	StreamImageWriter	973
10.390.5	Member Data Documentation	973
10.390.5.1	Ofstream	973

10.390.5.2Stream	973
10.391dcm::XMLDictReader Class Reference	974
10.391.1Detailed Description	975
10.391.2Constructor & Destructor Documentation	975
10.391.2.1XMLDictReader()	975
10.391.2.2~XMLDictReader()	975
10.391.3Member Function Documentation	975
10.391.3.1CharacterDataHandler(const char *data, int length)	975
10.391.3.2EndElement(const char *name)	975
10.391.3.3GetDict()	975
10.391.3.4HandleDescription(const char **atts)	975
10.391.3.5HandleEntry(const char **atts)	975
10.391.3.6StartElement(const char *name, const char **atts)	975
10.392dcm::XMLPrinter Class Reference	976
10.392.1Member Enumeration Documentation	977
10.392.1.1PrintStyles	977
10.392.2Constructor & Destructor Documentation	977
10.392.2.1XMLPrinter()	977
10.392.2.2~XMLPrinter()	977
10.392.3Member Function Documentation	977
10.392.3.1GetPrintStyle() const	977
10.392.3.2HandleBulkData(const char *uuid, const TransferSyntax &ts, const char *bulkdata, size_t bulklen)	977
10.392.3.3Print(std::ostream &os)	977
10.392.3.4PrintDataElement(std::ostream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, const TransferSyntax &ts)	977
10.392.3.5PrintDataSet(const DataSet &ds, const TransferSyntax &ts, std::ostream &os)	977
10.392.3.6PrintSQ(const SequenceOfItems *sqi, const TransferSyntax &ts, std::ostream &os)	977
10.392.3.7SetFile(File const &f)	977

10.392.3.8SetStyle(PrintStyles ps)	977
10.392.4Member Data Documentation	977
10.392.4.1F	977
10.392.4.2PrintStyle	977
10.393gdcmm::XMLPrivateDictReader Class Reference	978
10.393.1Detailed Description	979
10.393.2Constructor & Destructor Documentation	979
10.393.2.1XMLPrivateDictReader()	979
10.393.2.2~XMLPrivateDictReader()	979
10.393.3Member Function Documentation	979
10.393.3.1CharacterDataHandler(const char *data, int length)	979
10.393.3.2EndElement(const char *name)	979
10.393.3.3GetPrivateDict()	979
10.393.3.4HandleDescription(const char **atts)	979
10.393.3.5HandleEntry(const char **atts)	979
10.393.3.6StartElement(const char *name, const char **atts)	979
11 File Documentation	981
11.1 gdcmAAbortPDU.h File Reference	981
11.2 gdcmAAssociateACPDU.h File Reference	982
11.3 gdcmAAssociateRJPDU.h File Reference	982
11.4 gdcmAAssociateRQPDU.h File Reference	983
11.5 gdcmAbstractSyntax.h File Reference	984
11.6 gdcmAnonymizeEvent.h File Reference	985
11.7 gdcmAnonymizer.h File Reference	986
11.8 gdcmApplicationContext.h File Reference	987
11.9 gdcmApplicationEntity.h File Reference	988
11.10gdcmAReleaseRPPDU.h File Reference	988

11.11gdcmaReleaseRQPDU.h File Reference	989
11.12gdcmaRTIMTimer.h File Reference	990
11.13gdcmaASN1.h File Reference	991
11.14gdcmaAsynchronousOperationsWindowSub.h File Reference	992
11.15gdcmaAttribute.h File Reference	992
11.16gdcmaAudioCodec.h File Reference	994
11.17gdcmaBase64.h File Reference	994
11.18gdcmaBaseCompositeMessage.h File Reference	995
11.19gdcmaBaseNormalizedMessage.h File Reference	996
11.20gdcmaBasePDU.h File Reference	997
11.21gdcmaBaseQuery.h File Reference	998
11.22gdcmaBaseRootQuery.h File Reference	999
11.23gdcmaBasicOffsetTable.h File Reference	1000
11.24gdcmaBitmap.h File Reference	1001
11.25gdcmaBitmapToBitmapFilter.h File Reference	1002
11.26gdcmaBoxRegion.h File Reference	1003
11.27gdcmaByteBuffer.h File Reference	1003
11.28gdcmaByteSwap.h File Reference	1005
11.29gdcmaByteSwapFilter.h File Reference	1005
11.30gdcmaByteValue.h File Reference	1006
11.31gdcmaCAPICryptoFactory.h File Reference	1007
11.32gdcmaCAPICryptographicMessageSyntax.h File Reference	1008
11.33gdcmaCEchoMessages.h File Reference	1008
11.34gdcmaCFindMessages.h File Reference	1009
11.35gdcmaCMoveMessages.h File Reference	1010
11.36gdcmaCodec.h File Reference	1011
11.37gdcmaCoder.h File Reference	1012
11.38gdcmaCodeString.h File Reference	1014

11.39gdcCommand.h File Reference	1015
11.40gdcCommandDataSet.h File Reference	1016
11.41gdcCompositeMessageFactory.h File Reference	1017
11.42gdcCompositeNetworkFunctions.h File Reference	1017
11.43gdcConstCharWrapper.h File Reference	1018
11.44gdcCP246ExplicitDataElement.h File Reference	1019
11.45gdcCryptoFactory.h File Reference	1019
11.46gdcCryptographicMessageSyntax.h File Reference	1020
11.47gdcCSAElement.h File Reference	1021
11.48gdcCSAHeader.h File Reference	1022
11.49gdcCSAHeaderDict.h File Reference	1023
11.50gdcCSAHeaderDictEntry.h File Reference	1024
11.51gdcCStoreMessages.h File Reference	1026
11.52gdcCurve.h File Reference	1027
11.53gdcDataElement.h File Reference	1028
11.54gdcDataEvent.h File Reference	1029
11.55gdcDataSet.h File Reference	1030
11.56gdcDataSetEvent.h File Reference	1031
11.57gdcDataSetHelper.h File Reference	1031
11.58gdcDecoder.h File Reference	1032
11.59gdcDefinedTerms.h File Reference	1034
11.60gdcDeflateStream.h File Reference	1034
11.61gdcDefs.h File Reference	1035
11.62gdcDeltaEncodingCodec.h File Reference	1036
11.63gdcDICOmdir.h File Reference	1036
11.64gdcDICOmdirGenerator.h File Reference	1037
11.65gdcDict.h File Reference	1038
11.66gdcDictConverter.h File Reference	1039

11.67gdcDictEntry.h File Reference	1040
11.68gdcDictPrinter.h File Reference	1041
11.69gdcDicts.h File Reference	1042
11.70gdcDIMSE.h File Reference	1043
11.71gdcDirectionCosines.h File Reference	1043
11.72gdcDirectory.h File Reference	1044
11.73gdcDirectoryHelper.h File Reference	1045
11.74gdcDummyValueGenerator.h File Reference	1046
11.75gdcDumper.h File Reference	1047
11.76gdcElement.h File Reference	1047
11.76.1 Macro Definition Documentation	1049
11.76.1.1 VRDS16ILLEGAL	1049
11.77gdcEncapsulatedDocument.h File Reference	1049
11.78gdcEnumeratedValues.h File Reference	1050
11.79gdcEvent.h File Reference	1050
11.79.1 Macro Definition Documentation	1052
11.79.1.1 gdcEventMacro	1052
11.80gdcException.h File Reference	1052
11.81gdcExplicitDataElement.h File Reference	1053
11.82gdcExplicitImplicitDataElement.h File Reference	1054
11.83gdcFiducials.h File Reference	1054
11.84gdcFile.h File Reference	1055
11.85gdcFileAnonymizer.h File Reference	1056
11.86gdcFileChangeTransferSyntax.h File Reference	1057
11.87gdcFileDecompressLookupTable.h File Reference	1057
11.88gdcFileDerivation.h File Reference	1058
11.89gdcFileExplicitFilter.h File Reference	1059
11.90gdcFileMetaInformation.h File Reference	1060

11.91gdcmlFilename.h File Reference	1061
11.92gdcmlFileNameEvent.h File Reference	1061
11.93gdcmlFilenameGenerator.h File Reference	1062
11.94gdcmlFileSet.h File Reference	1063
11.95gdcmlFileStreamer.h File Reference	1064
11.96gdcmlFindPatientRootQuery.h File Reference	1065
11.97gdcmlFindStudyRootQuery.h File Reference	1066
11.98gdcmlFragment.h File Reference	1066
11.99gdcmlGlobal.h File Reference	1068
11.100gdcmlGroupDict.h File Reference	1069
11.101gdcmlIconImage.h File Reference	1069
11.102gdcmlIconImageFilter.h File Reference	1070
11.103gdcmlIconImageGenerator.h File Reference	1071
11.104gdcmlImage.h File Reference	1072
11.105gdcmlImageApplyLookupTable.h File Reference	1073
11.106gdcmlImageChangePhotometricInterpretation.h File Reference	1074
11.107gdcmlImageChangePlanarConfiguration.h File Reference	1074
11.108gdcmlImageChangeTransferSyntax.h File Reference	1075
11.109gdcmlImageCodec.h File Reference	1076
11.110gdcmlImageConverter.h File Reference	1077
11.111gdcmlImageFragmentSplitter.h File Reference	1078
11.112gdcmlImageHelper.h File Reference	1079
11.113gdcmlImageReader.h File Reference	1080
11.114gdcmlImageRegionReader.h File Reference	1081
11.115gdcmlImageToImageFilter.h File Reference	1081
11.116gdcmlImageWriter.h File Reference	1082
11.117gdcmlImplementationClassUIDSub.h File Reference	1083
11.118gdcmlImplementationUIDSub.h File Reference	1084

11.110dcmImplementationVersionNameSub.h File Reference	1085
11.120dcmImplicitDataElement.h File Reference	1086
11.121dcmIOD.h File Reference	1087
11.122dcmIODEntry.h File Reference	1089
11.123dcmIODs.h File Reference	1091
11.124dcmIPPSorter.h File Reference	1092
11.125dcmItem.h File Reference	1093
11.126dcmJPEG12Codec.h File Reference	1094
11.127dcmJPEG16Codec.h File Reference	1095
11.128dcmJPEG2000Codec.h File Reference	1095
11.129dcmJPEG8Codec.h File Reference	1096
11.130dcmJPEGCodec.h File Reference	1097
11.131dcmJPEGLSCCodec.h File Reference	1099
11.132dcmJSON.h File Reference	1099
11.133dcmKAKADUCodec.h File Reference	1100
11.134dcmLegacyMacro.h File Reference	1101
11.134.1Macro Definition Documentation	1102
11.134.1.1GDCM_LEGACY	1102
11.134.1.2GDCM_LEGACY_BODY	1102
11.134.1.3GDCM_LEGACY_REPLACED_BODY	1102
11.135dcmLO.h File Reference	1102
11.136dcmLookupTable.h File Reference	1103
11.137dcmMacro.h File Reference	1104
11.138dcmMacroEntry.h File Reference	1106
11.138.1Macro Definition Documentation	1107
11.138.1.1GDCMMACROENTRY_H	1107
11.139dcmMacros.h File Reference	1107
11.140dcmMaximumLengthSub.h File Reference	1109

11.141	dcmMD5.h File Reference	1110
11.142	dcmMediaStorage.h File Reference	1111
11.143	dcmMeshPrimitive.h File Reference	1112
11.144	dcmModalityPerformedProcedureStepCreateQuery.h File Reference	1113
11.145	dcmModalityPerformedProcedureStepSetQuery.h File Reference	1114
11.146	dcmModule.h File Reference	1114
11.147	dcmModuleEntry.h File Reference	1116
11.148	dcmModules.h File Reference	1118
11.149	dcmMovePatientRootQuery.h File Reference	1119
11.150	dcmMoveStudyRootQuery.h File Reference	1120
11.151	dcmNActionMessages.h File Reference	1120
11.152	dcmNCreateMessages.h File Reference	1121
11.153	dcmNDeleteMessages.h File Reference	1122
11.154	dcmNestedModuleEntries.h File Reference	1122
11.155	dcmNetworkEvents.h File Reference	1124
11.156	dcmNetworkStateID.h File Reference	1125
11.157	dcmNEventReportMessages.h File Reference	1126
11.158	dcmNGetMessages.h File Reference	1126
11.159	dcmNormalizedMessageFactory.h File Reference	1127
11.160	dcmNormalizedNetworkFunctions.h File Reference	1128
11.161	dcmNSetMessages.h File Reference	1129
11.162	dcmObject.h File Reference	1129
11.163	dcmOpenSSLCryptoFactory.h File Reference	1131
11.164	dcmOpenSSLCryptographicMessageSyntax.h File Reference	1131
11.165	dcmOpenSSLP7CryptoFactory.h File Reference	1133
11.166	dcmOpenSSLP7CryptographicMessageSyntax.h File Reference	1133
11.167	dcmOrientation.h File Reference	1135
11.168	dcmOverlay.h File Reference	1135

11.169dcmParseException.h File Reference	1136
11.170dcmParser.h File Reference	1138
11.171dcmPatient.h File Reference	1138
11.172dcmPDDataTFPDU.h File Reference	1139
11.173dcmPDBElement.h File Reference	1140
11.174dcmPDBHeader.h File Reference	1141
11.175dcmPDFCodec.h File Reference	1142
11.176dcmPDUFactory.h File Reference	1143
11.177dcmPersonName.h File Reference	1143
11.178dcmPGXCodec.h File Reference	1144
11.179dcmPhotometricInterpretation.h File Reference	1145
11.180dcmPixelFormat.h File Reference	1146
11.181dcmPixmap.h File Reference	1147
11.182dcmPixmapReader.h File Reference	1148
11.183dcmPixmapToPixmapFilter.h File Reference	1149
11.184dcmPixmapWriter.h File Reference	1150
11.185dcmPNMCodec.h File Reference	1151
11.186dcmPreamble.h File Reference	1151
11.187dcmPresentationContext.h File Reference	1153
11.188dcmPresentationContextAC.h File Reference	1154
11.189dcmPresentationContextGenerator.h File Reference	1155
11.190dcmPresentationContextRQ.h File Reference	1155
11.191dcmPresentationDataValue.h File Reference	1156
11.192dcmPrinter.h File Reference	1157
11.193dcmPrivateTag.h File Reference	1159
11.194dcmProgressEvent.h File Reference	1160
11.195dcmPVRGCodec.h File Reference	1161
11.196dcmPythonFilter.h File Reference	1161

11.197dcmQueryBase.h File Reference	1162
11.198dcmQueryFactory.h File Reference	1163
11.199dcmQueryImage.h File Reference	1164
11.200dcmQueryPatient.h File Reference	1165
11.201dcmQuerySeries.h File Reference	1166
11.202dcmQueryStudy.h File Reference	1167
11.203dcmRAWCodec.h File Reference	1168
11.204dcmReader.h File Reference	1168
11.205dcmRegion.h File Reference	1170
11.206dcmRescaler.h File Reference	1171
11.207dcmRLECodec.h File Reference	1172
11.208dcmRoleSelectionSub.h File Reference	1172
11.209dcmScanner.h File Reference	1173
11.210dcmSegment.h File Reference	1174
11.211dcmSegmentedPaletteColorLookupTable.h File Reference	1175
11.212dcmSegmentHelper.h File Reference	1176
11.213dcmSegmentReader.h File Reference	1177
11.214dcmSegmentWriter.h File Reference	1179
11.215dcmSequenceOfFragments.h File Reference	1180
11.216dcmSequenceOfItems.h File Reference	1180
11.217dcmSerieHelper.h File Reference	1181
11.218dcmSeries.h File Reference	1183
11.219dcmServiceClassApplicationInformation.h File Reference	1184
11.220dcmServiceClassUser.h File Reference	1185
11.221dcmSHA1.h File Reference	1185
11.222dcmSimpleSubjectWatcher.h File Reference	1186
11.223dcmSmartPointer.h File Reference	1187
11.224dcmSOPClassExtendedNegociationSub.h File Reference	1188

11.225dcmSOPClassUIDToIOD.h File Reference	1189
11.226dcmSorter.h File Reference	1190
11.227dcmSpacing.h File Reference	1192
11.228dcmSpectroscopy.h File Reference	1192
11.229dcmSplitMosaicFilter.h File Reference	1193
11.230dcmStaticAssert.h File Reference	1193
11.230.1Macro Definition Documentation	1194
11.230.1.1GDCM_DO_JOIN	1194
11.230.1.2GDCM_DO_JOIN2	1194
11.230.1.3GDCM_JOIN	1194
11.230.1.4GDCM_STATIC_ASSERT	1194
11.231dcmStreamImageReader.h File Reference	1195
11.232dcmStreamImageWriter.h File Reference	1195
11.233dcmStrictScanner.h File Reference	1196
11.234dcmString.h File Reference	1197
11.235dcmStringFilter.h File Reference	1199
11.236dcmStudy.h File Reference	1199
11.237dcmSubject.h File Reference	1201
11.238dcmSurface.h File Reference	1202
11.239dcmSurfaceHelper.h File Reference	1203
11.240dcmSurfaceReader.h File Reference	1203
11.241dcmSurfaceWriter.h File Reference	1204
11.242dcmSwapCode.h File Reference	1205
11.243dcmSwapper.h File Reference	1206
11.244dcmSystem.h File Reference	1207
11.245dcmTable.h File Reference	1208
11.246dcmTableEntry.h File Reference	1209
11.247dcmTableReader.h File Reference	1210

11.249	dcmTag.h File Reference	1211
11.249	dcmTagPath.h File Reference	1212
11.250	dcmTagToVR.h File Reference	1212
11.251	dcmTerminal.h File Reference	1213
11.250	dcmTestDriver.h File Reference	1214
11.250	dcmTesting.h File Reference	1215
11.254	dcmTrace.h File Reference	1216
11.254.1	Macro Definition Documentation	1217
11.254.1.1	GDCM_FUNCTION	1217
11.254.1.2	dcmAssertAlwaysMacro	1217
11.254.1.3	dcmAssertMacro	1217
11.254.1.4	dcmDebugMacro	1218
11.254.1.5	dcmErrorMacro	1218
11.254.1.6	dcmWarningMacro	1219
11.255	dcmTransferSyntax.h File Reference	1219
11.256	dcmTransferSyntaxSub.h File Reference	1221
11.257	dcmType.h File Reference	1222
11.258	dcmTypes.h File Reference	1223
11.259	dcmUIDGenerator.h File Reference	1223
11.260	dcmUIDs.h File Reference	1224
11.261	dcmULAction.h File Reference	1225
11.262	dcmULActionAA.h File Reference	1226
11.263	dcmULActionAE.h File Reference	1226
11.264	dcmULActionAR.h File Reference	1227
11.265	dcmULActionDT.h File Reference	1228
11.266	dcmULBasicCallback.h File Reference	1229
11.267	dcmULConnection.h File Reference	1229
11.268	dcmULConnectionCallback.h File Reference	1230

11.269dcmULConnectionInfo.h File Reference	1231
11.270dcmULConnectionManager.h File Reference	1233
11.271dcmULEvent.h File Reference	1233
11.272dcmULTransitionTable.h File Reference	1235
11.273dcmULWritingCallback.h File Reference	1236
11.274dcmUNExplicitDataElement.h File Reference	1236
11.275dcmUNExplicitImplicitDataElement.h File Reference	1237
11.276dcmUnpacker12Bits.h File Reference	1238
11.277dcmUsage.h File Reference	1238
11.278dcmUserInformation.h File Reference	1240
11.279dcmUUIDGenerator.h File Reference	1241
11.280dcmValidate.h File Reference	1241
11.281dcmValue.h File Reference	1242
11.282dcmValueIO.h File Reference	1243
11.283dcmVersion.h File Reference	1243
11.284dcmVL.h File Reference	1244
11.285dcmVM.h File Reference	1245
11.285.1Macro Definition Documentation	1246
11.285.1.1TYPETOLENGTH	1246
11.286dcmVR.h File Reference	1246
11.286.1Macro Definition Documentation	1248
11.286.1.1TYPETOENCODING	1248
11.286.1.2VRTemplateCase	1248
11.287dcmVR16ExplicitDataElement.h File Reference	1249
11.288dcmWaveform.h File Reference	1249
11.289dcmWin32.h File Reference	1250
11.289.1Macro Definition Documentation	1250
11.289.1.1GDCM_EXPORT	1250

11.290	dcmWLMFindQuery.h File Reference	1250
11.291	dcmWriter.h File Reference	1251
11.292	dcmXMLDictReader.h File Reference	1252
11.293	dcmXMLPrinter.h File Reference	1253
11.294	dcmXMLPrivateDictReader.h File Reference	1253
11.295	README.txt File Reference	1254
11.296	TestsList.txt File Reference	1254
11.297	tkGDCMImageReader.h File Reference	1254
11.297.1	Macro Definition Documentation	1255
11.297.1.1	VTK_CMYK	1255
11.297.1.2	VTK_INVERSE_LUMINANCE	1255
11.297.1.3	VTK_LOOKUP_TABLE	1255
11.297.1.4	VTK_YBR	1255
11.298	tkGDCMImageReader2.h File Reference	1255
11.298.1	Macro Definition Documentation	1256
11.298.1.1	VTK_CMYK	1256
11.298.1.2	VTK_INVERSE_LUMINANCE	1256
11.298.1.3	VTK_LOOKUP_TABLE	1256
11.298.1.4	VTK_YBR	1256
11.299	tkGDCMImageWriter.h File Reference	1256
11.300	tkGDCMMedicalImageProperties.h File Reference	1257
11.301	tkGDCMPolyDataReader.h File Reference	1257
11.302	tkGDCMPolyDataWriter.h File Reference	1258
11.303	tkGDCMTesting.h File Reference	1259
11.304	tkGDCMThreadedImageReader.h File Reference	1259
11.305	tkGDCMThreadedImageReader2.h File Reference	1260
11.306	tkImageColorViewer.h File Reference	1260
11.307	tkImageMapToColors16.h File Reference	1261
11.308	tkImageMapToWindowLevelColors2.h File Reference	1261
11.309	tkImagePlanarComponentsToComponents.h File Reference	1262
11.310	tkImageRGBToYBR.h File Reference	1262
11.311	tkImageYBRToRGB.h File Reference	1263
11.312	tkLookupTable16.h File Reference	1263
11.313	tkRTStructSetProperties.h File Reference	1264

12 Example Documentation	1265
12.1 AWTMedical3.java	1265
12.2 BasicAnonymizer.cs	1269
12.3 BasicImageAnonymizer.cs	1270
12.4 CastConvertPhilips.py	1272
12.5 ChangePrivateTags.cxx	1274
12.6 ChangeSequenceUltrasound.cxx	1275
12.7 CheckBigEndianBug.cxx	1276
12.8 ClinicalTrialAnnotate.cxx	1278
12.9 ClinicalTrialIdentificationWorkflow.cs	1279
12.10CompressImage.cxx	1282
12.11CompressLossyJPEG.cs	1283
12.12Compute3DSpacing.cxx	1284
12.13Convert16BitsTo8Bits.cxx	1286
12.14ConvertMPL.py	1286
12.15ConvertMultiFrameToSingleFrame.cxx	1288
12.16ConvertNumpy.py	1289
12.17ConvertPIL.py	1290
12.18ConvertRGBToLuminance.cxx	1291
12.19ConvertSingleBitTo8Bits.cxx	1292
12.20ConvertToQImage.cxx	1293
12.21CreateARGBImage.cxx	1295
12.22CreateCMYKImage.cxx	1296
12.23CreateFakePET.cxx	1297
12.24CreateFakeRTDOSE.cxx	1299
12.25CreateJPIPDataSet.cxx	1300
12.26CreateRAWStorage.py	1301
12.27csa2img.cxx	1304

12.28CStoreQtProgress.cxx	1306
12.29DecompressImage.cs	1308
12.30DecompressImage.java	1309
12.31DecompressImage.py	1310
12.32DecompressImageMultiframe.cs	1311
12.33DecompressJPEGFile.cs	1313
12.34DecompressPixmap.java	1314
12.35DiffFile.cxx	1315
12.36DiscriminateVolume.cxx	1316
12.37DumbAnonymizer.py	1320
12.38DumpADAC.cxx	1321
12.39DumpExamCard.cxx	1326
12.40DumpGEMSMovieGroup.cxx	1333
12.41DumpImageHeaderInfo.cxx	1339
12.42DumpPhilipsECHO.cxx	1341
12.43DumpToshibaDTI.cxx	1347
12.44DumpToSQLITE3.cxx	1348
12.45DuplicatePCDE.cxx	1350
12.46ELSCINT1WaveToText.cxx	1353
12.47EncapsulateFileInRawData.cxx	1354
12.48ExtractEncapsulatedFile.cs	1355
12.49ExtractEncryptedContent.cxx	1357
12.50ExtractIconFromFile.cxx	1358
12.51ExtractImageRegion.cs	1359
12.52ExtractImageRegion.java	1360
12.53ExtractImageRegionWithLUT.cs	1361
12.54Extracting_All_Resolution.cxx	1363
12.55ExtractOneFrame.cs	1369

12.56Fake_Image_Using_Stream_Image_Writer.cxx	1370
12.57FileAnonymize.cs	1373
12.58FileAnonymize.java	1374
12.59FileChangeTS.cs	1374
12.60FileChangeTSLossy.cs	1377
12.61FileStreaming.cs	1379
12.62FindAllPatientName.py	1380
12.63FixBrokenJ2K.cxx	1381
12.64FixCommaBug.py	1383
12.65FixJAIBugJPEGLS.cxx	1384
12.66FixOrientation.cxx	1387
12.67gdcmmorthoplanes.cxx	1388
12.68gdcmmreslice.cxx	1394
12.69gdcmmrtionplan.cxx	1396
12.70gdcmmrtplan.cxx	1400
12.71gdcmmscene.cxx	1404
12.72gdcmmtexture.cxx	1406
12.73gdcmmvolume.cxx	1408
12.74GenAllIVR.cxx	1409
12.75GenerateDICOMDIR.cs	1412
12.76GenerateRTSTRUCT.cxx	1412
12.77GenerateStandardSOPClasses.cxx	1415
12.78GenFakeIdentifyFile.cxx	1416
12.79GenFakeImage.cxx	1419
12.80GenLongSeqs.cxx	1420
12.81GenSeqs.cxx	1422
12.82GetArray.cs	1423
12.83GetJPEGSamplePrecision.cxx	1424

12.84GetPortionCSAHeader.py	1426
12.85GetSequenceUltrasound.cxx	1427
12.86GetSubSequenceData.cxx	1429
12.87headsq2dcm.py	1432
12.88HelloActiviz.cs	1432
12.89HelloActiviz2.cs	1434
12.90HelloActiviz3.cs	1435
12.91HelloActiviz4.cs	1436
12.92HelloActiviz5.cs	1436
12.93HelloSimple.java	1438
12.94HelloVizWorld.cxx	1438
12.95HelloVTKWorld.cs	1439
12.96HelloVTKWorld.java	1440
12.97HelloVTKWorld2.cs	1442
12.98HelloWorld.cxx	1442
12.99HelloWorld.py	1443
12.100J22tomultisc.cxx	1444
12.101LargeVRDSExplicit.cxx	1446
12.102MagnifyFile.cxx	1448
12.103MakeTemplate.cxx	1449
12.104ManipulateFile.cs	1450
12.105ManipulateFile.py	1451
12.106ManipulateSequence.py	1452
12.107MergeFile.py	1453
12.108MergeTwoFiles.cxx	1454
12.109MetalImageMD5Activiz.cs	1455
12.110MIPViewer.java	1457
12.111MpegVideoInfo.cs	1459

12.111MPRViewer.java	1464
12.113MPRViewer2.java	1466
12.114MrProtocol.cxx	1470
12.115NewSequence.cs	1477
12.116NewSequence.py	1478
12.117OffscreenImage.cxx	1479
12.118PatchFile.cxx	1480
12.119PhilipsPrivateRescaleInterceptSlope.py	1482
12.120PlaySound.py	1483
12.121pmst_rgb1.cxx	1484
12.122PrivateDict.py	1487
12.123PublicDict.cxx	1488
12.124QIDO-RS.cxx	1489
12.125ReadAndDumpDICOMDIR.cxx	1490
12.126ReadAndDumpDICOMDIR.py	1493
12.127ReadAndPrintAttributes.cxx	1495
12.128ReadExplicitLengthSQIVR.cxx	1497
12.129ReadFiles.java	1497
12.130ReadGEMSSDO.cxx	1499
12.131ReadMultiTimesException.cxx	1501
12.132ReadSeriesIntoVTK.java	1502
12.133ReadUTF8QtDir.cxx	1503
12.134RefCounting.cs	1505
12.135ReformatFile.cs	1505
12.136RemovePrivateTags.py	1507
12.137RescaleImage.cs	1507
12.138Reslicesphere.cxx	1508
12.139ReWriteSCAsMR.py	1516

12.140e2img.cxx	1517
12.141tstructapp.cxx	1520
12.142scanDirectory.cs	1522
12.143scanDirectory.java	1523
12.144scanDirectory.py	1527
12.145sendFileSCU.cs	1527
12.146simplePrint.cs	1528
12.147simplePrintPatientName.cs	1529
12.148simpleScanner.cxx	1530
12.149sortImage.cxx	1532
12.150sortImage.py	1533
12.151sortImage2.cs	1534
12.152standardizeFiles.cs	1535
12.153streamImageReaderTest.cxx	1536
12.154testByteSwap.cxx	1540
12.155testReader.cxx	1542
12.156testReader.py	1543
12.157threadgdc.cxx	1544
12.158reverseModules.cxx	1547
12.159id_unique.cxx	1549
12.160volumeSorter.cxx	1549
12.161writeBuffer.py	1552

Index**1555**

Chapter 1

GDCM Documentation

This is the developpers documentation.

A PDF version of this doxygen documentation can be found here:

<http://gdcml.sourceforge.net/2.6/gdcm-2.6.3.pdf>

A tarball version of this HTML doxygen documentation can be found here:

<http://gdcml.sourceforge.net/2.6/gdcm-2.6.3-doc.tar.gz>

Author

Mathieu Malaterre

Chapter 2

Todo List

Class `gdcm::CSAHeader`

MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

Class `gdcm::network::ApplicationContext`

Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

Class `gdcm::Overlay`

Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Class `gdcm::SequenceOfFragments`

I do not enforce that Sequence of Fragments ends with a SQ end del

Class `gdcm::TransferSyntax`

: The implementation is completely retarded -> see `gdcm::UIDs` for a replacement We need: `IsSupported` We need preprocess of raw/xml file We need `GetFullName()`

Member `gdcm::UIDGenerator::IsValid (const char *uid)`

: Move that in `DataStructureAndEncoding` (see `FileMetaInformation::CheckFileMetaInformation`)

Chapter 3

Deprecated List

Member [gdcm::CompositeNetworkFunctions::ConstructQuery](#) (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)

Member [gdcm::FileSet::AddFile](#) (File const &)

. Does nothing

Member [gdcm::TransferSyntax::GetSwapCode](#) () const

Return the [SwapCode](#) associated with the Transfer Syntax. Be careful with the special GE private syntax the [DataSet](#) is written in little endian but the Pixel Data is in Big Endian.

Chapter 4

Bug List

Class `gdcm::DICOMDIRGenerator`

: There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the [Scanner](#) does not allow us See PS 3.11 / [Table D.3-2 STD-GEN Additional DICOMDIR Keys](#)

Class `gdcm::IPPSorter`

There are currently a couple of bugs in this implementation:

Chapter 5

Namespace Index

5.1 Namespace List

Here is a list of all namespaces with brief descriptions:

gdc	45
gdc::network	69
gdc::SegmentHelper	76
gdc::terminal	
Class for Terminal Allow one to print in color in a shell	76

Chapter 6

Hierarchical Index

6.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

gdcmm::network::AbstractSyntax	91
gdcmm::network::ApplicationContext	102
gdcmm::ApplicationEntity	104
gdcmm::network::ARTIMTimer	109
gdcmm::ASN1	111
gdcmm::network::AsynchronousOperationsWindowSub	112
gdcmm::Attribute< Group, Element, TVR, TVM >	113
gdcmm::Attribute< Group, Element, TVR, VM::VM1 >	118
gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >	125
gdcmm::Attribute< Group, Element, TVR, VM::VM1_3 >	123
gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 >	124
gdcmm::Attribute< Group, Element, TVR, VM::VM2_n >	130
gdcmm::Attribute< Group, Element, TVR, VM::VM2_2n >	129
gdcmm::Attribute< Group, Element, TVR, VM::VM3_n >	134
gdcmm::Attribute< Group, Element, TVR, VM::VM3_3n >	132
gdcmm::Base64	137
gdcmm::network::BaseCompositeMessage	139
gdcmm::network::CEchoRQ	182
gdcmm::network::CEchoRSP	184
gdcmm::network::CFindCancelRQ	185
gdcmm::network::CFindRQ	186
gdcmm::network::CFindRSP	188
gdcmm::network::CMoveCancelRq	189
gdcmm::network::CMoveRQ	190
gdcmm::network::CMoveRSP	192
gdcmm::network::CStoreRQ	227
gdcmm::network::CStoreRSP	229
gdcmm::network::BaseNormalizedMessage	140
gdcmm::network::NActionRQ	517
gdcmm::network::NActionRSP	518

gdcmm::network::NCreateRQ	519
gdcmm::network::NCreateRSP	521
gdcmm::network::NDeleteRQ	522
gdcmm::network::NDeleteRSP	524
gdcmm::network::NEventReportRQ	528
gdcmm::network::NEventReportRSP	529
gdcmm::network::NGetRQ	530
gdcmm::network::NGetRSP	532
gdcmm::network::NSetRQ	536
gdcmm::network::NSetRSP	538
gdcmm::network::BasePDU	143
gdcmm::network::AAabortPDU	79
gdcmm::network::AAAssociateACPDU	81
gdcmm::network::AAAssociateRJPDU	84
gdcmm::network::AAAssociateRQPDU	86
gdcmm::network::AReleaseRPPDU	106
gdcmm::network::AReleaseRQPDU	108
gdcmm::network::PDataTFPDU	563
std::basic_string< Char >	
std::string	
gdcmm::String< TDelimiter, TMaxLength, TPadChar >	736
gdcmm::SegmentHelper::BasicCodedEntry	152
gdcmm::BitmapToBitmapFilter	165
gdcmm::PixmapToPixmapFilter	592
gdcmm::ImageToImageFilter	419
gdcmm::ImageApplyLookupTable	385
gdcmm::ImageChangePhotometricInterpretation	387
gdcmm::ImageChangePlanarConfiguration	390
gdcmm::ImageChangeTransferSyntax	393
gdcmm::ImageFragmentSplitter	405
gdcmm::ByteBuffer	170
gdcmm::ByteSwap< T >	171
gdcmm::ByteSwapFilter	173
gdcmm::network::CFind	185
gdcmm::Coder	194
gdcmm::Codec	193
gdcmm::AudioCodec	135
gdcmm::ImageCodec	397
gdcmm::DeltaEncodingCodec	262
gdcmm::JPEG2000Codec	448
gdcmm::JPEGCodec	455
gdcmm::JPEG12Codec	444
gdcmm::JPEG16Codec	446
gdcmm::JPEG8Codec	453
gdcmm::JPEGLSCodec	461
gdcmm::KAKADUCodec	466
gdcmm::PGXCodec	575
gdcmm::PNMCodec	598
gdcmm::PVRGCodec	623
gdcmm::RAWCodec	638
gdcmm::RLECodec	653
gdcmm::PDFCodec	570
gdcmm::CodeString	195

gdcmm::network::CompositeMessageFactory	202
gdcmm::CompositeNetworkFunctions	203
gdcmm::ConstCharWrapper	206
gdcmm::CryptoFactory	209
gdcmm::CAPICryptoFactory	179
gdcmm::OpenSSLCryptoFactory	541
gdcmm::OpenSSLP7CryptoFactory	545
gdcmm::CryptographicMessageSyntax	211
gdcmm::CAPICryptographicMessageSyntax	180
gdcmm::OpenSSLCryptographicMessageSyntax	543
gdcmm::OpenSSLP7CryptographicMessageSyntax	546
gdcmm::CSAElement	213
gdcmm::CSAHeader	218
gdcmm::CSAHeaderDict	223
gdcmm::CSAHeaderDictEntry	225
gdcmm::DataElement	233
gdcmm::CP246ExplicitDataElement	207
gdcmm::ExplicitDataElement	320
gdcmm::ExplicitImplicitDataElement	322
gdcmm::Fragment	367
gdcmm::BasicOffsetTable	154
gdcmm::ImplicitDataElement	426
gdcmm::Item	439
gdcmm::UNExplicitDataElement	872
gdcmm::UNExplicitImplicitDataElement	874
gdcmm::VR16ExplicitDataElement	900
gdcmm::DataSet	246
gdcmm::CommandDataSet	200
gdcmm::FileMetaInformation	342
gdcmm::DataSetHelper	256
gdcmm::Decoder	257
gdcmm::Codec	193
gdcmm::DefinedTerms	258
gdcmm::Defs	259
gdcmm::DICOMDIR	263
gdcmm::DICOMDIRGenerator	264
gdcmm::Dict	267
gdcmm::DictConverter	269
gdcmm::DictEntry	272
gdcmm::Dicts	276
gdcmm::network::DIMSE	279
gdcmm::DirectionCosines	281
gdcmm::Directory	283
gdcmm::DirectoryHelper	286
gdcmm::DummyValueGenerator	288
gdcmm::Element< TVR, TVM >	290
gdcmm::Element< TVR, VM::VM1_n >	295
gdcmm::Element< TVR, VM::VM1_2 >	294
gdcmm::Element< TVR, VM::VM2_n >	300
gdcmm::Element< TVR, VM::VM2_2n >	298
gdcmm::Element< TVR, VM::VM3_n >	303
gdcmm::Element< TVR, VM::VM3_3n >	301

gdcmm::Element< VR::AS, VM::VM5 >	304
gdcmm::Element< VR::OB, VM::VM1_n >	290
gdcmm::Element< VR::OB, VM::VM1 >	305
gdcmm::Element< VR::OW, VM::VM1_n >	290
gdcmm::Element< VR::OW, VM::VM1 >	306
gdcmm::ElementDisableCombinations< TVR, TVM >	308
gdcmm::ElementDisableCombinations< VR::OB, VM::VM1_n >	309
gdcmm::ElementDisableCombinations< VR::OW, VM::VM1_n >	309
gdcmm::EncapsulatedDocument	309
gdcmm::EncodingImplementation< T >	310
gdcmm::EncodingImplementation< VR::VRASCII >	310
gdcmm::EncodingImplementation< VR::VRBINARY >	312
gdcmm::EnumeratedValues	314
gdcmm::Event	314
gdcmm::AnyEvent	100
gdcmm::AbortEvent	90
gdcmm::AnonymizeEvent	93
gdcmm::DataEvent	244
gdcmm::DataSetEvent	254
gdcmm::EndEvent	312
gdcmm::ExitEvent	319
gdcmm::FileNameEvent	350
gdcmm::InitializeEvent	428
gdcmm::IterationEvent	443
gdcmm::ModifiedEvent	504
gdcmm::ProgressEvent	620
gdcmm::StartEvent	719
gdcmm::UserEvent	879
gdcmm::NoEvent	533
std::exception	
gdcmm::CSAHeaderDictException	227
gdcmm::DataElementException	243
gdcmm::Exception	317
gdcmm::ParseException	558
gdcmm::Fiducials	324
gdcmm::FileDerivation	337
gdcmm::FileExplicitFilter	339
gdcmm::Filename	347
gdcmm::FilenameGenerator	353
gdcmm::FileSet	355
gdcmm::Global	370
gdcmm::GroupDict	373
gdcmm::IconImageFilter	375
gdcmm::IconImageGenerator	377
gdcmm::ignore_char	380
gdcmm::ImageConverter	404
gdcmm::ImageHelper	407
gdcmm::network::ImplementationClassUIDSub	424
gdcmm::network::ImplementationUIDSub	425
gdcmm::network::ImplementationVersionNameSub	425
gdcmm::IOD	429
gdcmm::IODEntry	431
gdcmm::IODs	433

gdcmm::JSON	465
gdcmm::Scanner::ltstr	475
gdcmm::StrictScanner::ltstr	476
gdcmm::Macro	476
gdcmm::Macros	478
gdcmm::network::MaximumLengthSub	480
gdcmm::MD5	481
gdcmm::MediaStorage	482
gdcmm::Module	505
gdcmm::ModuleEntry	507
gdcmm::NestedModuleEntries	525
gdcmm::Modules	510
gdcmm::network::NormalizedMessageFactory	534
gdcmm::NormalizedNetworkFunctions	535
gdcmm::Object	539
gdcmm::BaseQuery	145
gdcmm::BaseRootQuery	149
gdcmm::FindPatientRootQuery	363
gdcmm::FindStudyRootQuery	365
gdcmm::MovePatientRootQuery	512
gdcmm::MoveStudyRootQuery	515
gdcmm::WLMFindQuery	966
gdcmm::ModalityPerformedProcedureStepCreateQuery	499
gdcmm::ModalityPerformedProcedureStepSetQuery	501
gdcmm::Bitmap	156
gdcmm::Pixmap	586
gdcmm::Image	381
gdcmm::Curve	230
gdcmm::File	325
gdcmm::FileWithName	361
gdcmm::LookupTable	471
gdcmm::SegmentedPaletteColorLookupTable	671
gdcmm::MeshPrimitive	495
gdcmm::Overlay	551
gdcmm::Segment	666
gdcmm::Subject	743
gdcmm::Anonymizer	95
gdcmm::Command	198
gdcmm::MemberCommand< T >	491
gdcmm::SimpleMemberCommand< T >	701
gdcmm::FileAnonymizer	328
gdcmm::FileChangeTransferSyntax	332
gdcmm::FileDecompressLookupTable	334
gdcmm::FileStreamer	357
gdcmm::network::ULConnectionManager	864
gdcmm::Scanner	659
gdcmm::ServiceClassUser	694
gdcmm::StrictScanner	730
gdcmm::Surface	746
gdcmm::Value	884
gdcmm::ByteValue	174
gdcmm::SequenceOfFragments	678
gdcmm::SequenceOfItems	683

gdcmm::Orientation	549
gdcmm::Parser	560
gdcmm::Patient	562
gdcmm::PDBElement	565
gdcmm::PDBHeader	567
gdcmm::network::PDUFactory	572
gdcmm::PersonName	574
gdcmm::PhotometricInterpretation	577
gdcmm::PixelFormat	580
gdcmm::Preamble	600
gdcmm::PresentationContext	602
gdcmm::network::PresentationContextAC	604
gdcmm::PresentationContextGenerator	605
gdcmm::network::PresentationContextRQ	608
gdcmm::network::PresentationDataValue	610
gdcmm::Printer	612
gdcmm::DictPrinter	275
gdcmm::Dumper	288
gdcmm::PrivateDict	616
gdcmm::PythonFilter	625
gdcmm::QueryBase	626
gdcmm::QueryImage	630
gdcmm::QueryPatient	632
gdcmm::QuerySeries	634
gdcmm::QueryStudy	636
gdcmm::QueryFactory	629
gdcmm::Reader	641
gdcmm::PixmapReader	589
gdcmm::ImageReader	411
gdcmm::ImageRegionReader	416
gdcmm::SegmentReader	673
gdcmm::SurfaceReader	756
gdcmm::RealWorldValueMappingContent	647
gdcmm::Region	648
gdcmm::BoxRegion	167
gdcmm::Rescaler	650
gdcmm::network::RoleSelectionSub	657
gdcmm::SerieHelper::Rule	658
gdcmm::SerieHelper	690
gdcmm::Series	693
gdcmm::network::ServiceClassApplicationInformation	693
gdcmm::SHA1	700
gdcmm::SimpleSubjectWatcher	704
gdcmm::SmartPointer< ObjectType >	706
gdcmm::SmartPointer< gdcmm::Bitmap >	706
gdcmm::SmartPointer< gdcmm::File >	706
gdcmm::SmartPointer< gdcmm::Image >	706
gdcmm::SmartPointer< gdcmm::MemberCommand >	706
gdcmm::SmartPointer< gdcmm::MeshPrimitive >	706
gdcmm::SmartPointer< gdcmm::Pixmap >	706
gdcmm::SmartPointer< gdcmm::SimpleMemberCommand >	706
gdcmm::SmartPointer< gdcmm::Subject >	706
gdcmm::SmartPointer< LookupTable >	706

gdcm::SmartPointer< Segment >	706
gdcm::SmartPointer< Surface >	706
gdcm::SmartPointer< Value >	706
gdcm::network::SOPClassExtendedNegociationSub	709
gdcm::SOPClassUIDToIOD	710
gdcm::Sorter	712
gdcm::IPPSorter	435
gdcm::Spacing	715
gdcm::Spectroscopy	717
gdcm::SplitMosaicFilter	718
gdcm::static_assert_test< x >	720
gdcm::STATIC_ASSERTION_FAILURE< x >	720
gdcm::STATIC_ASSERTION_FAILURE< true >	721
gdcm::StreamImageReader	721
gdcm::StreamImageWriter	724
String<'\', 64 >	
gdcm::LO	468
gdcm::StringFilter	740
gdcm::Study	742
gdcm::SurfaceHelper	753
gdcm::SwapCode	760
gdcm::SwapperDoOp	762
gdcm::SwapperNoOp	763
gdcm::System	763
gdcm::Table	768
gdcm::TableEntry	770
gdcm::TableReader	771
gdcm::XMLDictReader	974
gdcm::XMLPrivateDictReader	978
gdcm::network::TableRow	773
gdcm::Tag	774
gdcm::PrivateTag	618
gdcm::TagPath	781
gdcm::Testing	783
gdcm::Trace	788
gdcm::TransferSyntax	792
gdcm::network::TransferSyntaxSub	797
gdcm::network::Transition	799
gdcm::Type	800
gdcm::UI	802
gdcm::UIDGenerator	803
gdcm::UIDs	805
gdcm::network::ULAction	825
gdcm::network::ULActionAA1	828
gdcm::network::ULActionAA2	829
gdcm::network::ULActionAA3	830
gdcm::network::ULActionAA4	831
gdcm::network::ULActionAA5	832
gdcm::network::ULActionAA6	833
gdcm::network::ULActionAA7	834
gdcm::network::ULActionAA8	835
gdcm::network::ULActionAE1	836
gdcm::network::ULActionAE2	837

gdcmm::network::ULActionAE3	838
gdcmm::network::ULActionAE4	839
gdcmm::network::ULActionAE5	840
gdcmm::network::ULActionAE6	841
gdcmm::network::ULActionAE7	842
gdcmm::network::ULActionAE8	843
gdcmm::network::ULActionAR1	844
gdcmm::network::ULActionAR10	845
gdcmm::network::ULActionAR2	846
gdcmm::network::ULActionAR3	847
gdcmm::network::ULActionAR4	848
gdcmm::network::ULActionAR5	849
gdcmm::network::ULActionAR6	850
gdcmm::network::ULActionAR7	851
gdcmm::network::ULActionAR8	852
gdcmm::network::ULActionAR9	853
gdcmm::network::ULActionDT1	854
gdcmm::network::ULActionDT2	855
gdcmm::network::ULConnection	858
gdcmm::network::ULConnectionCallback	861
gdcmm::network::ULBasicCallback	856
gdcmm::network::ULWritingCallback	871
gdcmm::network::ULConnectionInfo	863
gdcmm::network::ULEvent	869
gdcmm::network::ULTransitionTable	870
gdcmm::Unpacker12Bits	876
gdcmm::Usage	877
gdcmm::network::UserInformation	880
gdcmm::UUIDGenerator	882
gdcmm::Validate	883
gdcmm::ValueIO< TDE, TSwap, TType >	886
gdcmm::Version	887
gdcmm::VL	888
gdcmm::VM	891
gdcmm::VMToLength< T >	895
gdcmm::VR	896
gdcmm::VRToEncoding< T >	902
gdcmm::VRToType< T >	902
gdcmm::VRToType< TVR >	902
gdcmm::VRVLSIZE< T >	903
gdcmm::VRVLSIZE< 0 >	903
gdcmm::VRVLSIZE< 1 >	904
vtkImageAlgorithm	
vtkImagePlanarComponentsToComponents	952
vtkImageMapToColors	
vtkImageMapToWindowLevelColors2	950
vtkImageWriter	
vtkGDCMImageWriter	917
vtkLookupTable	
vtkLookupTable16	957
vtkMedicalImageProperties	
vtkGDCMMedicalImageProperties	922
vtkMedicalImageReader2	
vtkGDCMImageReader	904

vtkGDCMThreadedImageReader	933
vtkGDCMImageReader2	911
vtkObject	
vtkGDCMTesting	931
vtkImageColorViewer	940
vtkRTStructSetProperties	960
vtkPolyDataAlgorithm	
vtkGDCMPolyDataReader	925
vtkPolyDataWriter	
vtkGDCMPolyDataWriter	928
vtkThreadedImageAlgorithm	
vtkGDCMThreadedImageReader2	936
vtkImageMapToColors16	947
vtkImageRGBToYBR	954
vtkImageYBRToRGB	956
gdcmm::Waveform	965
gdcmm::Writer	969
gdcmm::PixmapWriter	594
gdcmm::ImageWriter	421
gdcmm::SegmentWriter	676
gdcmm::SurfaceWriter	758
gdcmm::XMLPrinter	976

Chapter 7

Class Index

7.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

gdcmm::network::AAabortPDU	
AAabortPDU Table	9-26 A-ABORT PDU FIELDS 79
gdcmm::network::AAssociateACPDU	
AAssociateACPDU Table	9-17 ASSOCIATE-AC PDU fields 81
gdcmm::network::AAssociateRJPDU	
AAssociateRJPDU Table	9-21 ASSOCIATE-RJ PDU FIELDS 84
gdcmm::network::AAssociateRQPDU	
AAssociateRQPDU Table	9-11 ASSOCIATE-RQ PDU fields 86
gdcmm::AbortEvent	. . . . . 90
gdcmm::network::AbstractSyntax	
AbstractSyntax Table	9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS 91
gdcmm::AnonymizeEvent	
AnonymizeEvent	Special type of event triggered during the Anonymization process 93
gdcmm::Anonymizer	
Anonymizer	This class is a multi purpose anonymizer. It can work in 2 mode: 95
gdcmm::AnyEvent	. . . . . 100
gdcmm::network::ApplicationContext	
ApplicationContext Table	9-12 APPLICATION CONTEXT ITEM FIELDS 102
gdcmm::ApplicationEntity	
ApplicationEntity	. . . . . 104
gdcmm::network::AReleaseRPPDU	
AReleaseRPPDU Table	9-25 A-RELEASE-RP PDU fields 106
gdcmm::network::AReleaseRQPDU	
AReleaseRQPDU Table	9-24 A-RELEASE-RQ PDU FIELDS 108
gdcmm::network::ARTIMTimer	
ARTIMTimer	This file contains the code for the ARTIM timer 109
gdcmm::ASN1	
Class for ASN1	. . . . . 111
gdcmm::network::AsynchronousOperationsWindowSub	
AsynchronousOperationsWindowSub	PS 3.7 Table D.3-7 ASYNCHRONOUS OPERATIONS WIN↔ DOW SUB-ITEM FIELDS (A-ASSOCIATE-RQ) 112

gdcm::Attribute< Group, Element, TVR, TVM >	
Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary	113
gdcm::Attribute< Group, Element, TVR, VM::VM1 >	118
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >	123
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >	124
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >	125
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >	129
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >	130
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >	132
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >	134
gdcm::AudioCodec	
AudioCodec	135
gdcm::Base64	
Class for Base64	137
gdcm::network::BaseCompositeMessage	
BaseCompositeMessage The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets	139
gdcm::network::BaseNormalizedMessage	
BaseNormalizedMessage The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets	140
gdcm::network::BasePDU	
BasePDU base class for PDUs	143
gdcm::BaseQuery	
BaseQuery contains: a baseclass which will produce a dataset for all dimse messages	145
gdcm::BaseRootQuery	
BaseRootQuery contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root	149
gdcm::SegmentHelper::BasicCodedEntry	
This structure defines a basic coded entry with all of its attributes	152
gdcm::BasicOffsetTable	
Class to represent a BasicOffsetTable	154
gdcm::Bitmap	
Bitmap class A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)	156
gdcm::BitmapToBitmapFilter	
BitmapToBitmapFilter class Super class for all filter taking an image and producing an output image	165
gdcm::BoxRegion	
Class for manipulation box region This is a very simple implementation of the Region class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)	167
gdcm::ByteBuffer	
ByteBuffer	170
gdcm::ByteSwap< T >	
ByteSwap	171
gdcm::ByteSwapFilter	
ByteSwapFilter In place byte-swapping of a dataset FIXME: FL status ??	173
gdcm::ByteValue	
Class to represent binary value (array of bytes)	174
gdcm::CAPICryptoFactory	179
gdcm::CAPICryptographicMessageSyntax	180
gdcm::network::CEchoRQ	
CEchoRQ this file defines the messages for the cecho action	182

gdcmm::network::CEchoRSP	
CEchoRSP this file defines the messages for the cecho action	184
gdcmm::network::CFind	185
gdcmm::network::CFindCancelRQ	
CFindCancelRQ this file defines the messages for the cfind action	185
gdcmm::network::CFindRQ	
CFindRQ this file defines the messages for the cfind action	186
gdcmm::network::CFindRSP	
CFindRSP this file defines the messages for the cfind action	188
gdcmm::network::CMoveCancelRq	189
gdcmm::network::CMoveRQ	
CMoveRQ this file defines the messages for the cmove action	190
gdcmm::network::CMoveRSP	
CMoveRSP this file defines the messages for the cmove action	192
gdcmm::Codec	
Codec class	193
gdcmm::Coder	
Coder	194
gdcmm::CodeString	
CodeString This is an implementation of DICOM VR: CS The ctor will properly Trim so that operator== is correct	195
gdcmm::Command	
Command superclass for callback/observer methods	198
gdcmm::CommandDataSet	
Class to represent a Command DataSet	200
gdcmm::network::CompositeMessageFactory	
CompositeMessageFactory This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance)	202
gdcmm::CompositeNetworkFunctions	
Composite Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:	203
gdcmm::ConstCharWrapper	
Do not use me	206
gdcmm::CP246ExplicitDataElement	
Class to read/write a DataElement as CP246Explicit Data Element	207
gdcmm::CryptoFactory	
Class to do handle the crypto factory	209
gdcmm::CryptographicMessageSyntax	211
gdcmm::CSAElement	
Class to represent a CSA Element	213
gdcmm::CSAHeader	
Class for CSAHeader	218
gdcmm::CSAHeaderDict	
Class to represent a map of CSAHeaderDictEntry	223

gdcm::CSAHeaderDictEntry	
Class to represent an Entry in the Dict Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information	225
gdcm::CSAHeaderDictException	227
gdcm::network::CStoreRQ	
CStoreRQ this file defines the messages for the cecho action	227
gdcm::network::CStoreRSP	
CStoreRSP this file defines the messages for the cecho action	229
gdcm::Curve	
Curve class to handle element 50xx,3000 Curve Data WARNING: This is deprecated and lastly defined in PS 3.3 - 2004	230
gdcm::DataElement	
Class to represent a Data Element either Implicit or Explicit	233
gdcm::DataElementException	243
gdcm::DataEvent	
DataEvent	244
gdcm::DataSet	
Class to represent a Data Set (which contains Data Elements) A Data Set represents an instance of a real world Information Object	246
gdcm::DataSetEvent	
DataSetEvent Special type of event triggered during the DataSet store/move process	254
gdcm::DataSetHelper	
DataSetHelper (internal class, not intended for user level)	256
gdcm::Decoder	
Decoder	257
gdcm::DefinedTerms	
Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor	258
gdcm::Defs	
FIXME I do not like the name ' Defs '	259
gdcm::DeltaEncodingCodec	
DeltaEncodingCodec compression used by some private vendor	262
gdcm::DICOMDIR	
DICOMDIR class	263
gdcm::DICOMDIRGenerator	
DICOMDIRGenerator class This is a STD-GEN-CD DICOMDIR generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles	264
gdcm::Dict	
Class to represent a map of DictEntry	267
gdcm::DictConverter	
Class to convert a .dic file into something else:	269
gdcm::DictEntry	
Class to represent an Entry in the Dict Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information	272
gdcm::DictPrinter	
DictPrinter class	275

gdcmm::Dicts	
Class to manipulate the sum of knowledge (all the dict user load)	276
gdcmm::network::DIMSE	
DIMSE PS 3.7 - 2009 Annex E Command Dictionary (Normative) E.1 REGISTRY OF DICOM CO↔	
MMAND ELEMENTS Table E.1-1 COMMAND FIELDS (PART 1)	279
gdcmm::DirectionCosines	
Class to handle DirectionCosines	281
gdcmm::Directory	
Class for manipulation directories	283
gdcmm::DirectoryHelper	
DirectoryHelper this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts	286
gdcmm::DummyValueGenerator	
Class for generating dummy value	288
gdcmm::Dumper	
Codec class	288
gdcmm::Element< TVR, TVM >	
Element class	290
gdcmm::Element< TVR, VM::VM1_2 >	294
gdcmm::Element< TVR, VM::VM1_n >	295
gdcmm::Element< TVR, VM::VM2_2n >	298
gdcmm::Element< TVR, VM::VM2_n >	300
gdcmm::Element< TVR, VM::VM3_3n >	301
gdcmm::Element< TVR, VM::VM3_n >	303
gdcmm::Element< VR::AS, VM::VM5 >	304
gdcmm::Element< VR::OB, VM::VM1 >	305
gdcmm::Element< VR::OW, VM::VM1 >	306
gdcmm::ElementDisableCombinations< TVR, TVM >	
A class which is used to produce compile errors for an invalid combination of template parameters	308
gdcmm::ElementDisableCombinations< VR::OB, VM::VM1_n >	309
gdcmm::ElementDisableCombinations< VR::OW, VM::VM1_n >	309
gdcmm::EncapsulatedDocument	
EncapsulatedDocument	309
gdcmm::EncodingImplementation< T >	
EncodingImplementation	310
gdcmm::EncodingImplementation< VR::VRASCII >	310
gdcmm::EncodingImplementation< VR::VRBINARY >	312
gdcmm::EndEvent	312
gdcmm::EnumeratedValues	
Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:	314
gdcmm::Event	
Superclass for callback/observer methods	314
gdcmm::Exception	
Exception	317
gdcmm::ExitEvent	319
gdcmm::ExplicitDataElement	
Class to read/write a DataElement as Explicit Data Element	320

gdcm::ExplicitImplicitDataElement	
Class to read/write a DataElement as ExplicitImplicit Data Element	322
gdcm::Fiducials	
Fiducials	324
gdcm::File	
DICOM File See PS 3.10 File : A File is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the File . Files are identified by a unique File ID and may be written, read and/or deleted	325
gdcm::FileAnonymizer	
FileAnonymizer	328
gdcm::FileChangeTransferSyntax	
FileChangeTransferSyntax	332
gdcm::FileDecompressLookupTable	
FileDecompressLookupTable class It decompress the segmented LUT into linearized one (only P←ALETTE_COLOR images) Output will be a PhotometricInterpretation =RGB image	334
gdcm::FileDerivation	
FileDerivation class See PS 3.16 - 2008 For the list of Code Value that can be used for in Derivation Code Sequence	337
gdcm::FileExplicitFilter	
FileExplicitFilter class After changing a file from Implicit to Explicit representation (see Image←ChangeTransferSyntax) one operation is to make sure the VR of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the VR is not stored directly in the file	339
gdcm::FileMetaInformation	
Class to represent a File Meta Information	342
gdcm::Filename	
Class to manipulate file name's	347
gdcm::FilenameEvent	
FilenameEvent Special type of event triggered during processing of FileSet	350
gdcm::FilenameGenerator	
FilenameGenerator	353
gdcm::FileSet	
File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which File IDs are unique	355
gdcm::FileStreamer	
FileStreamer This class let a user create a massive DICOM DataSet from a template DICOM file, by appending chunks of data	357
gdcm::FileWithName	
FileWithName	361
gdcm::FindPatientRootQuery	
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root	363
gdcm::FindStudyRootQuery	
FindStudyRootQuery contains: the class which will produce a dataset for C-FIND with study root	365
gdcm::Fragment	
Class to represent a Fragment	367
gdcm::Global	
Global	370
gdcm::GroupDict	
Class to represent the mapping from group number to its abbreviation and name	373
gdcm::IconImageFilter	
IconImageFilter This filter will extract icons from a File This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12	375

gdcm::IconImageGenerator	
IconImageGenerator	This filter will generate a valid Icon from the Pixel Data element (an instance of Pixmap). To generate a valid Icon, one is only allowed the following Photometric Interpretation: 377
gdcm::ignore_char	. . . . . 380
gdcm::Image	
Image	This is the container for an Image in the general sense. From this container you should be able to request information like: 381
gdcm::ImageApplyLookupTable	
ImageApplyLookupTable	class It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a PhotometricInterpretation =RGB image 385
gdcm::ImageChangePhotometricInterpretation	
ImageChangePhotometricInterpretation	class Class to change the Photometric Interpretation of an input DICOM 387
gdcm::ImageChangePlanarConfiguration	
ImageChangePlanarConfiguration	class Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0 390
gdcm::ImageChangeTransferSyntax	
ImageChangeTransferSyntax	class Class to change the transfer syntax of an input DICOM 393
gdcm::ImageCodec	
ImageCodec	. . . . . 397
gdcm::ImageConverter	
Image	Converter 404
gdcm::ImageFragmentSplitter	
ImageFragmentSplitter	class For single frame image, DICOM standard allow splitting the frame into multiple fragments 405
gdcm::ImageHelper	
ImageHelper	(internal class, not intended for user level) 407
gdcm::ImageReader	
ImageReader	. . . . . 411
gdcm::ImageRegionReader	
ImageRegionReader	. . . . . 416
gdcm::ImageToImageFilter	
ImageToImageFilter	class Super class for all filter taking an image and producing an output image . 419
gdcm::ImageWriter	
ImageWriter	. . . . . 421
gdcm::network::ImplementationClassUIDSub	
ImplementationClassUIDSub	PS 3.7 Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ) 424
gdcm::network::ImplementationUIDSub	
ImplementationUIDSub	Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ) 425
gdcm::network::ImplementationVersionNameSub	
ImplementationVersionNameSub	Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ) 425
gdcm::ImplicitDataElement	
Class to represent an <i>Implicit VR</i> Data Element	. . . . . 426
gdcm::InitializeEvent	. . . . . 428
gdcm::IOD	
Class for representing a IOD	. . . . . 429
gdcm::IODEntry	
Class for representing a IODEntry	. . . . . 431
gdcm::IODs	
Class for representing a IODs	. . . . . 433

gdcm::IPPSorter	
IPPSorter Implement a simple Image Position (Patient) sorter, along the Image Orientation (Patient) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP	435
gdcm::Item	
Class to represent an Item A component of the value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set . See PS 3.5 7.5.1 Item Encoding Rules Each Item of a Data Element of VR SQ shall be encoded as a DICOM Standard Data Element with a specific Data Element Tag of Value (FFFE,E000). The Item Tag is followed by a 4 byte Item Length field encoded in one of the following two ways Explicit/ Implicit	439
gdcm::IterationEvent	443
gdcm::JPEG12Codec	
Class to do JPEG 12bits (lossy & lossless)	444
gdcm::JPEG16Codec	
Class to do JPEG 16bits (lossless)	446
gdcm::JPEG2000Codec	
Class to do JPEG 2000	448
gdcm::JPEG8Codec	
Class to do JPEG 8bits (lossy & lossless)	453
gdcm::JPEGCodec	
JPEG codec Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispach in between the different codec implementation: JPEG8Codec , JPEG12Codec & JPEG16Codec It also support inconsistency in between DICOM header and JPEG compressed stream ImageCodec implementation for the JPEG case	455
gdcm::JPEGLSCodec	
JPEG-LS	461
gdcm::JSON	465
gdcm::KAKADUCodec	
KAKADUCodec	466
gdcm::LO	
LO	468
gdcm::LookupTable	
LookupTable class	471
gdcm::Scanner::ltstr	475
gdcm::StrictScanner::ltstr	476
gdcm::Macro	
Class for representing a Macro	476
gdcm::Macros	
Class for representing a Modules	478
gdcm::network::MaximumLengthSub	
MaximumLengthSub Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIA↔TE-RQ)	480
gdcm::MD5	
Class for MD5	481
gdcm::MediaStorage	
MediaStorage	482
gdcm::MemberCommand< T >	
Command subclass that calls a pointer to a member function	491
gdcm::MeshPrimitive	
This class defines surface mesh primitives. It is designed from surface mesh primitives macro	495
gdcm::ModalityPerformedProcedureStepCreateQuery	
ModalityPerformedProcedureStepCreateQuery contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class	499

gdcm::ModalityPerformedProcedureStepSetQuery	
ModalityPerformedProcedureStepSetQuery contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class	501
gdcm::ModifiedEvent	504
gdcm::Module	
Class for representing a Module	505
gdcm::ModuleEntry	
Class for representing a ModuleEntry	507
gdcm::Modules	
Class for representing a Modules	510
gdcm::MovePatientRootQuery	
MovePatientRootQuery contains: the class which will produce a dataset for c-move with patient root	512
gdcm::MoveStudyRootQuery	
MoveStudyRootQuery contains: the class which will produce a dataset for C-MOVE with study root	515
gdcm::network::NActionRQ	
NActionRQ this file defines the messages for the NAction action	517
gdcm::network::NActionRSP	
NActionRSP this file defines the messages for the NAction action	518
gdcm::network::NCreateRQ	
NCreateRQ this file defines the messages for the ncreate action	519
gdcm::network::NCreateRSP	
NCreateRSP this file defines the messages for the ncreate action	521
gdcm::network::NDeleteRQ	
NDeleteRQ this file defines the messages for the ndelete action	522
gdcm::network::NDeleteRSP	
NDeleteRSP this file defines the messages for the ndelete action	524
gdcm::NestedModuleEntries	
Class for representing a NestedModuleEntries	525
gdcm::network::NEventReportRQ	
NEventReportRQ this file defines the messages for the neventreport action	528
gdcm::network::NEventReportRSP	
NEventReportRSP this file defines the messages for the neventreport action	529
gdcm::network::NGetRQ	
NGetRQ this file defines the messages for the nget action	530
gdcm::network::NGetRSP	
NGetRSP this file defines the messages for the nget action	532
gdcm::NoEvent	533
gdcm::network::NormalizedMessageFactory	534
gdcm::NormalizedNetworkFunctions	
Normalized Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:	535
gdcm::network::NSetRQ	
NSetRQ this file defines the messages for the nset action	536
gdcm::network::NSetRSP	
NSetRSP this file defines the messages for the nset action	538
gdcm::Object	
Object	539

gdcm::OpenSSLCryptoFactory	541
gdcm::OpenSSLCryptographicMessageSyntax	543
gdcm::OpenSSLP7CryptoFactory	545
gdcm::OpenSSLP7CryptographicMessageSyntax	
Class for CryptographicMessageSyntax encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities	546
gdcm::Orientation	
Class to handle Orientation	549
gdcm::Overlay	
Overlay class	551
gdcm::ParseException	
ParseException Standard exception handling object	558
gdcm::Parser	
Parser ala XML_Parser from expat (SAX)	560
gdcm::Patient	
See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54	562
gdcm::network::PDataTFPDU	
PDataTFPDU Table 9-22 P-DATA-TF PDU FIELDS	563
gdcm::PDBElement	
Class to represent a PDB Element	565
gdcm::PDBHeader	
Class for PDBHeader	567
gdcm::PDFCodec	
PDFCodec class	570
gdcm::network::PDUFactory	
PDUFactory basically, given an initial byte, construct the appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types	572
gdcm::PersonName	
PersonName class	574
gdcm::PGXCodec	
Class to do PGX See PGX as used in JPEG 2000 implementation and reference images	575
gdcm::PhotometricInterpretation	
Class to represent an PhotometricInterpretation	577
gdcm::PixelFormat	
PixelFormat	580
gdcm::Pixmap	
Pixmap class A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)	586
gdcm::PixmapReader	
PixmapReader	589
gdcm::PixmapToPixmapFilter	
PixmapToPixmapFilter class Super class for all filter taking an image and producing an output image	592
gdcm::PixmapWriter	
PixmapWriter This class will takes two inputs:	594
gdcm::PNMCodec	
Class to do PNM PNM is the Portable anymap file format. The main web page can be found at: http://netpbm.sourceforge.net/	598
gdcm::Preamble	
DICOM Preamble (Part 10)	600
gdcm::PresentationContext	
PresentationContext	602
gdcm::network::PresentationContextAC	
PresentationContextAC Table 9-18 PRESENTATION CONTEXT ITEM FIELDS	604

gdcm::PresentationContextGenerator	
PresentationContextGenerator	This class is responsible for generating the proper PresentationContext that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded
	605
gdcm::network::PresentationContextRQ	
PresentationContextRQ	Table 9-13 PRESENTATION CONTEXT ITEM FIELDS
	608
gdcm::network::PresentationDataValue	
PresentationDataValue	Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS
	610
gdcm::Printer	
Printer	class
	612
gdcm::PrivateDict	
Private Dict	. . . . .
	616
gdcm::PrivateTag	
	Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element , Owner)
	618
gdcm::ProgressEvent	
ProgressEvent	Special type of event triggered during
	620
gdcm::PVRGCodec	
PVRGCodec	. . . . .
	623
gdcm::PythonFilter	
PythonFilter	PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language
	625
gdcm::QueryBase	
QueryBase	contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE
	626
gdcm::QueryFactory	
QueryFactory.h	. . . . .
	629
gdcm::QueryImage	
QueryImage	contains: class to construct an image-based query for C-FIND and C-MOVE
	630
gdcm::QueryPatient	
QueryPatient	contains: class to construct a patient-based query for c-find and c-move
	632
gdcm::QuerySeries	
QuerySeries	contains: class to construct a series-based query for c-find and c-move
	634
gdcm::QueryStudy	
QueryStudy.h	contains: class to construct a study-based query for C-FIND and C-MOVE
	636
gdcm::RAWCodec	
RAWCodec	class
	638
gdcm::Reader	
Reader	ala DOM (Document Object Model)
	641
gdcm::RealWorldValueMappingContent	. . . . .
	647
gdcm::Region	
	Class for manipulation region
	648
gdcm::Rescaler	
Rescale	class This class is meant to apply the linear transform of Stored Pixel Value to Real World Value . This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel Type is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:
	$RWV = 1. * SV - 1024$
	So the best scalar to store the Real World Value will be 16 bits signed type
	650
gdcm::RLECodec	
	Class to do RLE
	653

gdcm::network::RoleSelectionSub	
RoleSelectionSub PS 3.7 Table D.3-9 SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)	657
gdcm::SerieHelper::Rule	658
gdcm::Scanner	
Scanner This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute	659
gdcm::Segment	
This class defines a segment. It mainly contains attributes of group 0x0062. In addition, it can be associated with surface	666
gdcm::SegmentedPaletteColorLookupTable	
SegmentedPaletteColorLookupTable class	671
gdcm::SegmentReader	
This class defines a segment reader. It reads attributes of group 0x0062	673
gdcm::SegmentWriter	
This class defines a segment writer. It writes attributes of group 0x0062	676
gdcm::SequenceOfFragments	
Class to represent a Sequence Of Fragments	678
gdcm::SequenceOfItems	
Class to represent a Sequence Of Items (value representation : SQ)	683
gdcm::SerieHelper	
SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned	690
gdcm::Series	
Series	693
gdcm::network::ServiceClassApplicationInformation	693
gdcm::ServiceClassUser	
ServiceClassUser	694
gdcm::SHA1	
Class for SHA1	700
gdcm::SimpleMemberCommand< T >	
Command subclass that calls a pointer to a member function	701
gdcm::SimpleSubjectWatcher	
SimpleSubjectWatcher This is a typical Subject Watcher class. It will observe all events	704
gdcm::SmartPointer< ObjectType >	
Class for Smart Pointer	706
gdcm::network::SOPClassExtendedNegociationSub	
SOPClassExtendedNegociationSub PS 3.7 Table D.3-11 SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-ASSOCIATE-AC)	709
gdcm::SOPClassUIDToIOD	
Class convert a class SOP Class UID into IOD	710
gdcm::Sorter	
Sorter General class to do sorting using a custom function You simply need to provide a function of type: Sorter::SortFunction	712
gdcm::Spacing	
Class for Spacing	715
gdcm::Spectroscopy	
Spectroscopy class	717
gdcm::SplitMosaicFilter	
SplitMosaicFilter class Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA Image Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture	718
gdcm::StartEvent	719

gdcm::static_assert_test< x >	720
gdcm::STATIC_ASSERTION_FAILURE< x >	720
gdcm::STATIC_ASSERTION_FAILURE< true >	721
gdcm::StreamImageReader	
StreamImageReader	721
gdcm::StreamImageWriter	
StreamImageReader	724
gdcm::StrictScanner	
StrictScanner This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute	730
gdcm::String< TDelimiter, TMaxLength, TPadChar >	
String	736
gdcm::StringFilter	
StringFilter StringFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language	740
gdcm::Study	
Study	742
gdcm::Subject	
Subject	743
gdcm::Surface	
This class defines a SURFACE IE. This members are taken from required surface mesh module attributes	746
gdcm::SurfaceHelper	
SurfaceHelper Helper class for Surface object	753
gdcm::SurfaceReader	
This class defines a SURFACE IE reader. It reads surface mesh module attributes	756
gdcm::SurfaceWriter	
This class defines a SURFACE IE writer. It writes surface mesh module attributes	758
gdcm::SwapCode	
SwapCode representation	760
gdcm::SwapperDoOp	762
gdcm::SwapperNoOp	763
gdcm::System	
Class to do system operation	763
gdcm::Table	
Table	768
gdcm::TableEntry	
TableEntry	770
gdcm::TableReader	
Class for representing a TableReader	771
gdcm::network::TableRow	773
gdcm::Tag	
Class to represent a DICOM Data Element (Attribute) Tag (Group, Element). Basically an uint32_t which can also be expressed as two uint16_t (group and element)	774
gdcm::TagPath	
Class to handle a path of tag	781
gdcm::Testing	
Class for testing	783
gdcm::Trace	
Trace	788
gdcm::TransferSyntax	
Class to manipulate Transfer Syntax	792

gdcmm::network::TransferSyntaxSub	
TransferSyntaxSub Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS	797
gdcmm::network::Transition	799
gdcmm::Type	
Type	800
gdcmm::UI	802
gdcmm::UIDGenerator	
Class for generating unique UID	803
gdcmm::UIDs	
All known uids	805
gdcmm::network::ULAction	
ULAction A ULConnection in a given ULState can perform certain ULActions. This base class provides the interface for running those ULActions on a given ULConnection	825
gdcmm::network::ULActionAA1	828
gdcmm::network::ULActionAA2	829
gdcmm::network::ULActionAA3	830
gdcmm::network::ULActionAA4	831
gdcmm::network::ULActionAA5	832
gdcmm::network::ULActionAA6	833
gdcmm::network::ULActionAA7	834
gdcmm::network::ULActionAA8	835
gdcmm::network::ULActionAE1	836
gdcmm::network::ULActionAE2	837
gdcmm::network::ULActionAE3	838
gdcmm::network::ULActionAE4	839
gdcmm::network::ULActionAE5	840
gdcmm::network::ULActionAE6	841
gdcmm::network::ULActionAE7	842
gdcmm::network::ULActionAE8	843
gdcmm::network::ULActionAR1	844
gdcmm::network::ULActionAR10	845
gdcmm::network::ULActionAR2	846
gdcmm::network::ULActionAR3	847
gdcmm::network::ULActionAR4	848
gdcmm::network::ULActionAR5	849
gdcmm::network::ULActionAR6	850
gdcmm::network::ULActionAR7	851
gdcmm::network::ULActionAR8	852
gdcmm::network::ULActionAR9	853
gdcmm::network::ULActionDT1	854
gdcmm::network::ULActionDT2	855
gdcmm::network::ULBasicCallback	
ULBasicCallback This is the most basic of callbacks for how the ULConnectionManager handles incoming datasets. DataSets are just concatenated to the mDataSets vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the ULConnectionManager	856
gdcmm::network::ULConnection	
ULConnection This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state	858
gdcmm::network::ULConnectionCallback	861

gdcm::network::ULConnectionInfo	
ULConnectionInfo	this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication
	863
gdcm::network::ULConnectionManager	
ULConnectionManager	The ULConnectionManager performs actions on the ULConnection given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc)
	864
gdcm::network::ULEvent	
ULEvent	base class for network events
	869
gdcm::network::ULTransitionTable	
ULTransitionTable	The transition table of all the ULEvents, new ULActions, and ULStates
	870
gdcm::network::ULWritingCallback	. . . . .
	871
gdcm::UNExplicitDataElement	
	Class to read/write a DataElement as UNExplicit Data Element
	872
gdcm::UNExplicitImplicitDataElement	
	Class to read/write a DataElement as ExplicitImplicit Data Element This class gather two known bugs:
	874
gdcm::Unpacker12Bits	
	Pack/Unpack 12 bits pixel into 16bits
	876
gdcm::Usage	
Usage	. . . . .
	877
gdcm::UserEvent	. . . . .
	879
gdcm::network::UserInformation	
UserInformation Table	9-16 USER INFORMATION ITEM FIELDS
	880
gdcm::UUIDGenerator	
	Class for generating unique UUID generate DCE 1.1 uid
	882
gdcm::Validate	
Validate	class
	883
gdcm::Value	
	Class to represent the value of a Data Element
	884
gdcm::ValueIO< TDE, TSwap, TType >	
	Class to dispatch template calls
	886
gdcm::Version	
	Major/minor and build version
	887
gdcm::VL	
Value	Length
	888
gdcm::VM	
Value	Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n
	891
gdcm::VMToLength< T >>	. . . . .
	895
gdcm::VR	
VR	class This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict
	896
gdcm::VR16ExplicitDataElement	
	Class to read/write a DataElement as Explicit Data Element
	900
gdcm::VRToEncoding< T >>	. . . . .
	902
gdcm::VRToType< T >>	. . . . .
	902
gdcm::VRVLSize< T >>	. . . . .
	903
gdcm::VRVLSize< 0 >>	. . . . .
	903
gdcm::VRVLSize< 1 >>	. . . . .
	904
vtkGDCMImageReader	. . . . .
	904

vtkGDCMImageReader2	911
vtkGDCMImageWriter	917
vtkGDCMMedicalImageProperties	922
vtkGDCMPolyDataReader	925
vtkGDCMPolyDataWriter	928
vtkGDCMTesting	931
vtkGDCMThreadedImageReader	933
vtkGDCMThreadedImageReader2	936
vtkImageColorViewer	940
vtkImageMapToColors16	947
vtkImageMapToWindowLevelColors2	950
vtkImagePlanarComponentsToComponents	952
vtkImageRGBToYBR	954
vtkImageYBRToRGB	956
vtkLookupTable16	957
vtkRTStructSetProperties	960
gdcm::Waveform	
Waveform class	965
gdcm::WLMFindQuery	
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root	966
gdcm::Writer	
Writer ala DOM (Document Object Model) This class is a non-validating writer, it will only performs well- formedness check only	969
gdcm::XMLDictReader	
Class for representing a XMLDictReader	974
gdcm::XMLPrinter	976
gdcm::XMLPrivateDictReader	
Class for representing a XMLPrivateDictReader	978

Chapter 8

File Index

8.1 File List

Here is a list of all files with brief descriptions:

gdcmAAabortPDU.h	981
gdcmAAAssociateACPDU.h	982
gdcmAAAssociateRJPDU.h	982
gdcmAAAssociateRQPDU.h	983
gdcmAbstractSyntax.h	984
gdcmAnonymizeEvent.h	985
gdcmAnonymizer.h	986
gdcmApplicationContext.h	987
gdcmApplicationEntity.h	988
gdcmAReleaseRPPDU.h	988
gdcmAReleaseRQPDU.h	989
gdcmARTIMTimer.h	990
gdcmASN1.h	991
gdcmAsynchronousOperationsWindowSub.h	992
gdcmAttribute.h	992
gdcmAudioCodec.h	994
gdcmBase64.h	994
gdcmBaseCompositeMessage.h	995
gdcmBaseNormalizedMessage.h	996
gdcmBasePDU.h	997
gdcmBaseQuery.h	998
gdcmBaseRootQuery.h	999
gdcmBasicOffsetTable.h	1000
gdcmBitmap.h	1001
gdcmBitmapToBitmapFilter.h	1002
gdcmBoxRegion.h	1003
gdcmByteBuffer.h	1003
gdcmByteSwap.h	1005
gdcmByteSwapFilter.h	1005
gdcmByteValue.h	1006
gdcmCAPICryptoFactory.h	1007

gdcmCAPICryptographicMessageSyntax.h	1008
gdcmCEchoMessages.h	1008
gdcmCFindMessages.h	1009
gdcmCMoveMessages.h	1010
gdcmCodec.h	1011
gdcmCoder.h	1012
gdcmCodeString.h	1014
gdcmCommand.h	1015
gdcmCommandDataSet.h	1016
gdcmCompositeMessageFactory.h	1017
gdcmCompositeNetworkFunctions.h	1017
gdcmConstCharWrapper.h	1018
gdcmCP246ExplicitDataElement.h	1019
gdcmCryptoFactory.h	1019
gdcmCryptographicMessageSyntax.h	1020
gdcmCSAElement.h	1021
gdcmCSAHeader.h	1022
gdcmCSAHeaderDict.h	1023
gdcmCSAHeaderDictEntry.h	1024
gdcmCStoreMessages.h	1026
gdcmCurve.h	1027
gdcmDataElement.h	1028
gdcmDataEvent.h	1029
gdcmDataSet.h	1030
gdcmDataSetEvent.h	1031
gdcmDataSetHelper.h	1031
gdcmDecoder.h	1032
gdcmDefinedTerms.h	1034
gdcmDeflateStream.h	1034
gdcmDefs.h	1035
gdcmDeltaEncodingCodec.h	1036
gdcmDICOMDIR.h	1036
gdcmDICOMDIRGenerator.h	1037
gdcmDict.h	1038
gdcmDictConverter.h	1039
gdcmDictEntry.h	1040
gdcmDictPrinter.h	1041
gdcmDicts.h	1042
gdcmDIMSE.h	1043
gdcmDirectionCosines.h	1043
gdcmDirectory.h	1044
gdcmDirectoryHelper.h	1045
gdcmDummyValueGenerator.h	1046
gdcmDumper.h	1047
gdcmElement.h	1047
gdcmEncapsulatedDocument.h	1049
gdcmEnumeratedValues.h	1050
gdcmEvent.h	1050
gdcmException.h	1052
gdcmExplicitDataElement.h	1053
gdcmExplicitImplicitDataElement.h	1054
gdcmFiducials.h	1054
gdcmFile.h	1055
gdcmFileAnonymizer.h	1056

gdcmFileChangeTransferSyntax.h	1057
gdcmFileDecompressLookupTable.h	1057
gdcmFileDerivation.h	1058
gdcmFileExplicitFilter.h	1059
gdcmFileMetaInformation.h	1060
gdcmFilename.h	1061
gdcmFileNameEvent.h	1061
gdcmFilenameGenerator.h	1062
gdcmFileSet.h	1063
gdcmFileStreamer.h	1064
gdcmFindPatientRootQuery.h	1065
gdcmFindStudyRootQuery.h	1066
gdcmFragment.h	1066
gdcmGlobal.h	1068
gdcmGroupDict.h	1069
gdcmIconImage.h	1069
gdcmIconImageFilter.h	1070
gdcmIconImageGenerator.h	1071
gdcmImage.h	1072
gdcmImageApplyLookupTable.h	1073
gdcmImageChangePhotometricInterpretation.h	1074
gdcmImageChangePlanarConfiguration.h	1074
gdcmImageChangeTransferSyntax.h	1075
gdcmImageCodec.h	1076
gdcmImageConverter.h	1077
gdcmImageFragmentSplitter.h	1078
gdcmImageHelper.h	1079
gdcmImageReader.h	1080
gdcmImageRegionReader.h	1081
gdcmImageToImageFilter.h	1081
gdcmImageWriter.h	1082
gdcmImplementationClassUIDSub.h	1083
gdcmImplementationUIDSub.h	1084
gdcmImplementationVersionNameSub.h	1085
gdcmImplicitDataElement.h	1086
gdcmIOD.h	1087
gdcmIODEntry.h	1089
gdcmIODs.h	1091
gdcmIPPSorter.h	1092
gdcmItem.h	1093
gdcmJPEG12Codec.h	1094
gdcmJPEG16Codec.h	1095
gdcmJPEG2000Codec.h	1095
gdcmJPEG8Codec.h	1096
gdcmJPEGCodec.h	1097
gdcmJPEGLSCodec.h	1099
gdcmJSON.h	1099
gdcmKAKADUCodec.h	1100
gdcmLegacyMacro.h	1101
gdcmLO.h	1102
gdcmLookupTable.h	1103
gdcmMacro.h	1104
gdcmMacroEntry.h	1106
gdcmMacros.h	1107

gdcmMaximumLengthSub.h	1109
gdcmMD5.h	1110
gdcmMediaStorage.h	1111
gdcmMeshPrimitive.h	1112
gdcmModalityPerformedProcedureStepCreateQuery.h	1113
gdcmModalityPerformedProcedureStepSetQuery.h	1114
gdcmModule.h	1114
gdcmModuleEntry.h	1116
gdcmModules.h	1118
gdcmMovePatientRootQuery.h	1119
gdcmMoveStudyRootQuery.h	1120
gdcmNActionMessages.h	1120
gdcmNCreateMessages.h	1121
gdcmNDeleteMessages.h	1122
gdcmNestedModuleEntries.h	1122
gdcmNetworkEvents.h	1124
gdcmNetworkStateID.h	1125
gdcmNEventReportMessages.h	1126
gdcmNGetMessages.h	1126
gdcmNormalizedMessageFactory.h	1127
gdcmNormalizedNetworkFunctions.h	1128
gdcmNSetMessages.h	1129
gdcmObject.h	1129
gdcmOpenSSLCryptoFactory.h	1131
gdcmOpenSSLCryptographicMessageSyntax.h	1131
gdcmOpenSSLP7CryptoFactory.h	1133
gdcmOpenSSLP7CryptographicMessageSyntax.h	1133
gdcmOrientation.h	1135
gdcmOverlay.h	1135
gdcmParseException.h	1136
gdcmParser.h	1138
gdcmPatient.h	1138
gdcmPDataTFPDU.h	1139
gdcmPDBelement.h	1140
gdcmPDBHeader.h	1141
gdcmPDFCodec.h	1142
gdcmPDUFactory.h	1143
gdcmPersonName.h	1143
gdcmPGXCodec.h	1144
gdcmPhotometricInterpretation.h	1145
gdcmPixelFormat.h	1146
gdcmPixmap.h	1147
gdcmPixmapReader.h	1148
gdcmPixmapToPixmapFilter.h	1149
gdcmPixmapWriter.h	1150
gdcmPNMCodec.h	1151
gdcmPreamble.h	1151
gdcmPresentationContext.h	1153
gdcmPresentationContextAC.h	1154
gdcmPresentationContextGenerator.h	1155
gdcmPresentationContextRQ.h	1155
gdcmPresentationDataValue.h	1156
gdcmPrinter.h	1157
gdcmPrivateTag.h	1159

gdcmProgressEvent.h	1160
gdcmPVRGCodec.h	1161
gdcmPythonFilter.h	1161
gdcmQueryBase.h	1162
gdcmQueryFactory.h	1163
gdcmQueryImage.h	1164
gdcmQueryPatient.h	1165
gdcmQuerySeries.h	1166
gdcmQueryStudy.h	1167
gdcmRAWCodec.h	1168
gdcmReader.h	1168
gdcmRegion.h	1170
gdcmRescaler.h	1171
gdcmRLECodec.h	1172
gdcmRoleSelectionSub.h	1172
gdcmScanner.h	1173
gdcmSegment.h	1174
gdcmSegmentedPaletteColorLookupTable.h	1175
gdcmSegmentHelper.h	1176
gdcmSegmentReader.h	1177
gdcmSegmentWriter.h	1179
gdcmSequenceOfFragments.h	1180
gdcmSequenceOfItems.h	1180
gdcmSerieHelper.h	1181
gdcmSeries.h	1183
gdcmServiceClassApplicationInformation.h	1184
gdcmServiceClassUser.h	1185
gdcmSHA1.h	1185
gdcmSimpleSubjectWatcher.h	1186
gdcmSmartPointer.h	1187
gdcmSOPClassExtendedNegociationSub.h	1188
gdcmSOPClassUIDToIOD.h	1189
gdcmSorter.h	1190
gdcmSpacing.h	1192
gdcmSpectroscopy.h	1192
gdcmSplitMosaicFilter.h	1193
gdcmStaticAssert.h	1193
gdcmStreamImageReader.h	1195
gdcmStreamImageWriter.h	1195
gdcmStrictScanner.h	1196
gdcmString.h	1197
gdcmStringFilter.h	1199
gdcmStudy.h	1199
gdcmSubject.h	1201
gdcmSurface.h	1202
gdcmSurfaceHelper.h	1203
gdcmSurfaceReader.h	1203
gdcmSurfaceWriter.h	1204
gdcmSwapCode.h	1205
gdcmSwapper.h	1206
gdcmSystem.h	1207
gdcmTable.h	1208
gdcmTableEntry.h	1209
gdcmTableReader.h	1210

gdcmTag.h	1211
gdcmTagPath.h	1212
gdcmTagToVR.h	1212
gdcmTerminal.h	1213
gdcmTestDriver.h	1214
gdcmTesting.h	1215
gdcmTrace.h	1216
gdcmTransferSyntax.h	1219
gdcmTransferSyntaxSub.h	1221
gdcmType.h	1222
gdcmTypes.h	1223
gdcmUIDGenerator.h	1223
gdcmUIDs.h	1224
gdcmULAction.h	1225
gdcmULActionAA.h	1226
gdcmULActionAE.h	1226
gdcmULActionAR.h	1227
gdcmULActionDT.h	1228
gdcmULBasicCallback.h	1229
gdcmULConnection.h	1229
gdcmULConnectionCallback.h	1230
gdcmULConnectionInfo.h	1231
gdcmULConnectionManager.h	1233
gdcmULEvent.h	1233
gdcmULTransitionTable.h	1235
gdcmULWritingCallback.h	1236
gdcmUNExplicitDataElement.h	1236
gdcmUNExplicitImplicitDataElement.h	1237
gdcmUnpacker12Bits.h	1238
gdcmUsage.h	1238
gdcmUserInformation.h	1240
gdcmUUIDGenerator.h	1241
gdcmValidate.h	1241
gdcmValue.h	1242
gdcmValueIO.h	1243
gdcmVersion.h	1243
gdcmVL.h	1244
gdcmVM.h	1245
gdcmVR.h	1246
gdcmVR16ExplicitDataElement.h	1249
gdcmWaveform.h	1249
gdcmWin32.h	1250
gdcmWLMFindQuery.h	1250
gdcmWriter.h	1251
gdcmXMLDictReader.h	1252
gdcmXMLPrinter.h	1253
gdcmXMLPrivateDictReader.h	1253
vtkGDCMImageReader.h	1254
vtkGDCMImageReader2.h	1255
vtkGDCMImageWriter.h	1256
vtkGDCMMedicalImageProperties.h	1257
vtkGDCMPolyDataReader.h	1257
vtkGDCMPolyDataWriter.h	1258
vtkGDCMTesting.h	1259

vtkGDCMThreadedImageReader.h	1259
vtkGDCMThreadedImageReader2.h	1260
vtkImageColorViewer.h	1260
vtkImageMapToColors16.h	1261
vtkImageMapToWindowLevelColors2.h	1261
vtkImagePlanarComponentsToComponents.h	1262
vtkImageRGBToYBR.h	1262
vtkImageYBRToRGB.h	1263
vtkLookupTable16.h	1263
vtkRTStructSetProperties.h	1264

Chapter 9

Namespace Documentation

9.1 gdcm Namespace Reference

Namespaces

- [network](#)
- [SegmentHelper](#)
- [terminal](#)

Class for Terminal Allow one to print in color in a shell.

Classes

- class [AbortEvent](#)
- class [AnonymizeEvent](#)
[AnonymizeEvent](#) Special type of event triggered during the Anonymization process.
- class [Anonymizer](#)
[Anonymizer](#) This class is a multi purpose anonymizer. It can work in 2 mode:
- class [AnyEvent](#)
- class [ApplicationEntity](#)
[ApplicationEntity](#).
- class [ASN1](#)
Class for [ASN1](#).
- class [Attribute](#)
[Attribute](#) class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class [Attribute< Group, Element, TVR, VM::VM1 >](#)
- class [Attribute< Group, Element, TVR, VM::VM1_3 >](#)
- class [Attribute< Group, Element, TVR, VM::VM1_8 >](#)
- class [Attribute< Group, Element, TVR, VM::VM1_n >](#)
- class [Attribute< Group, Element, TVR, VM::VM2_2n >](#)
- class [Attribute< Group, Element, TVR, VM::VM2_n >](#)
- class [Attribute< Group, Element, TVR, VM::VM3_3n >](#)

- class [Attribute< Group, Element, TVR, VM::VM3_n >](#)
- class [AudioCodec](#)
AudioCodec.
- class [Base64](#)
Class for Base64.
- class [BaseQuery](#)
BaseQuery contains: a baseclass which will produce a dataset for all dimse messages.
- class [BaseRootQuery](#)
BaseRootQuery contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root.
- class [BasicOffsetTable](#)
Class to represent a BasicOffsetTable.
- class [Bitmap](#)
Bitmap class A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)
- class [BitmapToBitmapFilter](#)
BitmapToBitmapFilter class Super class for all filter taking an image and producing an output image.
- class [BoxRegion](#)
Class for manipulation box region This is a very simple implementation of the Region class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)
- class [ByteBuffer](#)
ByteBuffer.
- class [ByteSwap](#)
ByteSwap.
- class [ByteSwapFilter](#)
ByteSwapFilter In place byte-swapping of a dataset FIXME: FL status ??
- class [ByteValue](#)
Class to represent binary value (array of bytes)
- class [CAPICryptoFactory](#)
- class [CAPICryptographicMessageSyntax](#)
- class [Codec](#)
Codec class.
- class [Coder](#)
Coder.
- class [CodeString](#)
CodeString This is an implementation of DICOM VR: CS The ctor will properly Trim so that operator== is correct.
- class [Command](#)
Command superclass for callback/observer methods.
- class [CommandDataSet](#)
Class to represent a Command DataSet.
- class [CompositeNetworkFunctions](#)
Composite Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:
- class [ConstCharWrapper](#)
Do not use me.

- class [CP246ExplicitDataElement](#)
Class to read/write a [DataElement](#) as CP246Explicit Data [Element](#).
- class [CryptoFactory](#)
Class to do handle the crypto factory.
- class [CryptographicMessageSyntax](#)
- class [CSAElement](#)
Class to represent a CSA [Element](#).
- class [CSAHeader](#)
Class for [CSAHeader](#).
- class [CSAHeaderDict](#)
Class to represent a map of [CSAHeaderDictEntry](#).
- class [CSAHeaderDictEntry](#)
Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.
- class [CSAHeaderDictException](#)
- class [Curve](#)
[Curve](#) class to handle element 50xx,3000 [Curve](#) Data WARNING: This is deprecated and lastly defined in PS 3.3 - 2004.
- class [DataElement](#)
Class to represent a Data [Element](#) either Implicit or Explicit.
- class [DataElementException](#)
- class [DataEvent](#)
[DataEvent](#).
- class [DataSet](#)
Class to represent a Data Set (which contains Data Elements) A Data Set represents an instance of a real world Information [Object](#).
- class [DataSetEvent](#)
[DataSetEvent](#) Special type of event triggered during the [DataSet](#) store/move process.
- class [DataSetHelper](#)
[DataSetHelper](#) (internal class, not intended for user level)
- class [Decoder](#)
[Decoder](#).
- class [DefinedTerms](#)
Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data [Element](#) with Defined Terms that does not contain a [Value](#) equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation [Type](#) ID (4008,0210) is an example of a Data [Element](#) having Defined Terms. It is defined to have a [Value](#) that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data [Element](#) has Defined Terms other Interpretation [Type](#) IDs may be defined by the implementor.
- class [Defs](#)
FIXME I do not like the name '[Defs](#)'.
- class [DeltaEncodingCodec](#)
[DeltaEncodingCodec](#) compression used by some private vendor.
- class [DICOMDIR](#)
[DICOMDIR](#) class.
- class [DICOMDIRGenerator](#)
[DICOMDIRGenerator](#) class This is a STD-GEN-CD [DICOMDIR](#) generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles.
- class [Dict](#)

Class to represent a map of [DictEntry](#).

- class [DictConverter](#)

Class to convert a .dic file into something else:

- class [DictEntry](#)

Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcn::Tag](#) to the needed information.

- class [DictPrinter](#)

[DictPrinter](#) class.

- class [Dicts](#)

Class to manipulate the sum of knowledge (all the dict user load)

- class [DirectionCosines](#)

class to handle [DirectionCosines](#)

- class [Directory](#)

Class for manipulation directories.

- class [DirectoryHelper](#)

[DirectoryHelper](#) this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts.

- class [DummyValueGenerator](#)

Class for generating dummy value.

- class [Dumper](#)

[Codec](#) class.

- class [Element](#)

[Element](#) class.

- class [Element< TVR, VM::VM1_2 >](#)
- class [Element< TVR, VM::VM1_n >](#)
- class [Element< TVR, VM::VM2_2n >](#)
- class [Element< TVR, VM::VM2_n >](#)
- class [Element< TVR, VM::VM3_3n >](#)
- class [Element< TVR, VM::VM3_n >](#)
- class [Element< VR::AS, VM::VM5 >](#)
- class [Element< VR::OB, VM::VM1 >](#)
- class [Element< VR::OW, VM::VM1 >](#)
- class [ElementDisableCombinations](#)

A class which is used to produce compile errors for an invalid combination of template parameters.

- class [ElementDisableCombinations< VR::OB, VM::VM1_n >](#)
- class [ElementDisableCombinations< VR::OW, VM::VM1_n >](#)
- class [EncapsulatedDocument](#)

[EncapsulatedDocument](#).

- class [EncodingImplementation](#)

[EncodingImplementation](#).

- class [EncodingImplementation< VR::VRASCII >](#)
- class [EncodingImplementation< VR::VRBINARY >](#)
- class [EndEvent](#)
- class [EnumeratedValues](#)

[Element](#). A Data [Element](#) with Enumerated Values that does not have a [Value](#) equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

- class [Event](#)
superclass for callback/observer methods
- class [Exception](#)
Exception.
- class [ExitEvent](#)
- class [ExplicitDataElement](#)
Class to read/write a [DataElement](#) as Explicit Data [Element](#).
- class [ExplicitImplicitDataElement](#)
Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#).
- class [Fiducials](#)
Fiducials.
- class [File](#)
a DICOM [File](#) See PS 3.10 [File](#): A [File](#) is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the [File](#). Files are identified by a unique [File](#) ID and may be written, read and/or deleted.
- class [FileAnonymizer](#)
FileAnonymizer.
- class [FileChangeTransferSyntax](#)
FileChangeTransferSyntax.
- class [FileDecompressLookupTable](#)
[FileDecompressLookupTable](#) class It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a [PhotometricInterpretation](#)=RGB image.
- class [FileDerivation](#)
[FileDerivation](#) class See PS 3.16 - 2008 For the list of Code [Value](#) that can be used for in Derivation Code Sequence.
- class [FileExplicitFilter](#)
[FileExplicitFilter](#) class After changing a file from Implicit to Explicit representation (see [ImageChangeTransferSyntax](#)) one operation is to make sure the [VR](#) of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the [VR](#) is not stored directly in the file.
- class [FileMetaInformation](#)
Class to represent a [File](#) Meta Information.
- class [Filename](#)
Class to manipulate file name's.
- class [FileNameEvent](#)
[FileNameEvent](#) Special type of event triggered during processing of [FileSet](#).
- class [FilenameGenerator](#)
FilenameGenerator.
- class [FileSet](#)
File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which [File](#) IDs are unique.
- class [FileStreamer](#)
[FileStreamer](#) This class let a user create a massive DICOM [DataSet](#) from a template DICOM file, by appending chunks of data.
- class [FileWithName](#)
FileWithName.
- class [FindPatientRootQuery](#)
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.
- class [FindStudyRootQuery](#)
FindStudyRootQuery contains: the class which will produce a dataset for C-FIND with study root.

- class [Fragment](#)
Class to represent a [Fragment](#).
- class [Global](#)
[Global](#).
- class [GroupDict](#)
Class to represent the mapping from group number to its abbreviation and name.
- class [IconImageFilter](#)
[IconImageFilter](#) This filter will extract icons from a [File](#) This filter will loop over all known sequence (public and private) that may contains an [IconImage](#) and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12.
- class [IconImageGenerator](#)
[IconImageGenerator](#) This filter will generate a valid Icon from the Pixel Data element (an instance of [Pixmap](#)). To generate a valid Icon, one is only allowed the following Photometric Interpretation:
- struct [ignore_char](#)
- class [Image](#)
[Image](#) This is the container for an [Image](#) in the general sense. From this container you should be able to request information like:
- class [ImageApplyLookupTable](#)
[ImageApplyLookupTable](#) class It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a [PhotometricInterpretation=RGB](#) image.
- class [ImageChangePhotometricInterpretation](#)
[ImageChangePhotometricInterpretation](#) class Class to change the Photometric Interpretation of an input DICOM.
- class [ImageChangePlanarConfiguration](#)
[ImageChangePlanarConfiguration](#) class Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0.
- class [ImageChangeTransferSyntax](#)
[ImageChangeTransferSyntax](#) class Class to change the transfer syntax of an input DICOM.
- class [ImageCodec](#)
[ImageCodec](#).
- class [ImageConverter](#)
[Image](#) Converter.
- class [ImageFragmentSplitter](#)
[ImageFragmentSplitter](#) class For single frame image, DICOM standard allow splitting the frame into multiple fragments.
- class [ImageHelper](#)
[ImageHelper](#) (internal class, not intended for user level)
- class [ImageReader](#)
[ImageReader](#).
- class [ImageRegionReader](#)
[ImageRegionReader](#).
- class [ImageToImageFilter](#)
[ImageToImageFilter](#) class Super class for all filter taking an image and producing an output image.
- class [ImageWriter](#)
[ImageWriter](#).
- class [ImplicitDataElement](#)
Class to represent an Implicit [VR](#) Data [Element](#).
- class [InitializeEvent](#)
- class [IOD](#)

- Class for representing a [IOD](#).
- class [IODEntry](#)
 - Class for representing a [IODEntry](#).
- class [IODs](#)
 - Class for representing a [IODs](#).
- class [IPPSorter](#)
 - [IPPSorter](#) Implement a simple [Image](#) Position ([Patient](#)) sorter, along the [Image Orientation](#) ([Patient](#)) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.
- class [Item](#)
 - Class to represent an [Item](#) A component of the value of a Data [Element](#) that is of [Value](#) Representation Sequence of Items. An [Item](#) contains a Data Set . See PS 3.5 7.5.1 [Item](#) Encoding Rules Each [Item](#) of a Data [Element](#) of VR SQ shall be encoded as a DICOM Standart Data [Element](#) with a specific Data [Element](#) Tag of [Value](#) (FFFE,E000). The [Item](#) Tag is followed by a 4 byte [Item](#) Length field encoded in one of the following two ways Explicit/ Implicit.
- class [IterationEvent](#)
- class [JPEG12Codec](#)
 - Class to do JPEG 12bits (lossy & lossless)
- class [JPEG16Codec](#)
 - Class to do JPEG 16bits (lossless)
- class [JPEG2000Codec](#)
 - Class to do JPEG 2000.
- class [JPEG8Codec](#)
 - Class to do JPEG 8bits (lossy & lossless)
- class [JPEGCodec](#)
 - JPEG codec Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispach in between the different codec implementation: [JPEG8Codec](#), [JPEG12Codec](#) & [JPEG16Codec](#) It also support inconsistency in between DICOM header and JPEG compressed stream [ImageCodec](#) implementation for the JPEG case.
- class [JPEGLSCCodec](#)
 - JPEG-LS.
- class [JSON](#)
- class [KAKADUCodec](#)
 - [KAKADUCodec](#).
- class [LO](#)
 - [LO](#).
- class [LookupTable](#)
 - [LookupTable](#) class.
- class [Macro](#)
 - Class for representing a [Macro](#).
- class [Macros](#)
 - Class for representing a [Modules](#).
- class [MD5](#)
 - Class for [MD5](#).
- class [MediaStorage](#)
 - [MediaStorage](#).
- class [MemberCommand](#)
 - [Command](#) subclass that calls a pointer to a member function.
- class [MeshPrimitive](#)
 - This class defines surface mesh primitives. It is designed from surface mesh primitives macro.
- class [ModalityPerformedProcedureStepCreateQuery](#)

[ModalityPerformedProcedureStepCreateQuery](#) contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class.

- class [ModalityPerformedProcedureStepSetQuery](#)

[ModalityPerformedProcedureStepSetQuery](#) contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class.

- class [ModifiedEvent](#)

- class [Module](#)

Class for representing a [Module](#).

- class [ModuleEntry](#)

Class for representing a [ModuleEntry](#).

- class [Modules](#)

Class for representing a [Modules](#).

- class [MovePatientRootQuery](#)

[MovePatientRootQuery](#) contains: the class which will produce a dataset for c-move with patient root.

- class [MoveStudyRootQuery](#)

[MoveStudyRootQuery](#) contains: the class which will produce a dataset for C-MOVE with study root.

- class [NestedModuleEntries](#)

Class for representing a [NestedModuleEntries](#).

- class [NoEvent](#)

- class [NormalizedNetworkFunctions](#)

Normalized Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- class [Object](#)

[Object](#).

- class [OpenSSLCryptoFactory](#)

- class [OpenSSLCryptographicMessageSyntax](#)

- class [OpenSSLP7CryptoFactory](#)

- class [OpenSSLP7CryptographicMessageSyntax](#)

Class for [CryptographicMessageSyntax](#) encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities.

- class [Orientation](#)

class to handle [Orientation](#)

- class [Overlay](#)

[Overlay](#) class.

- class [ParseException](#)

[ParseException](#) Standard exception handling object.

- class [Parser](#)

[Parser](#) ala XML_Parser from expat (SAX)

- class [Patient](#)

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

- class [PDBElement](#)

Class to represent a PDB [Element](#).

- class [PDBHeader](#)

Class for [PDBHeader](#).

- class [PDFCodec](#)
PDFCodec class.
- class [PersonName](#)
PersonName class.
- class [PGXCodec](#)
Class to do PGX See PGX as used in JPEG 2000 implementation and reference images.
- class [PhotometricInterpretation](#)
Class to represent an [PhotometricInterpretation](#).
- class [PixelFormat](#)
PixelFormat.
- class [Pixmap](#)
Pixmap class A bitmap based image. Used as parent for both *IconImage* and the main Pixel Data *Image* It does not contains any World Space information (IPP, IOP)
- class [PixmapReader](#)
PixmapReader.
- class [PixmapToPixmapFilter](#)
PixmapToPixmapFilter class Super class for all filter taking an image and producing an output image.
- class [PixmapWriter](#)
PixmapWriter This class will takes two inputs:
- class [PNMCodec](#)
Class to do PNM PNM is the Portable anmap file format. The main web page can be found at: <http://netpbm.sourceforge.net/>.
- class [Preamble](#)
DICOM Preamble (Part 10)
- class [PresentationContext](#)
PresentationContext.
- class [PresentationContextGenerator](#)
PresentationContextGenerator This class is responsible for generating the proper [PresentationContext](#) that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.
- class [Printer](#)
Printer class.
- class [PrivateDict](#)
Private Dict.
- class [PrivateTag](#)
Class to represent a Private DICOM Data [Element \(Attribute\)](#) [Tag](#) (Group, [Element](#), Owner)
- class [ProgressEvent](#)
ProgressEvent Special type of event triggered during.
- class [PVRGCodec](#)
PVRGCodec.
- class [PythonFilter](#)
PythonFilter *PythonFilter* is the class that make *gdcm2.x* looks more like *gdcm1* and transform the binary blob contained in a *DataElement* into a string, typically this is a nice feature to have for wrapped language.
- class [QueryBase](#)
QueryBase contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE.
- class [QueryFactory](#)
QueryFactory.h.
- class [QueryImage](#)

- QueryImage* contains: class to construct an image-based query for C-FIND and C-MOVE.
- class [QueryPatient](#)
 - QueryPatient* contains: class to construct a patient-based query for c-find and c-move.
- class [QuerySeries](#)
 - QuerySeries* contains: class to construct a series-based query for c-find and c-move.
- class [QueryStudy](#)
 - QueryStudy.h* contains: class to construct a study-based query for C-FIND and C-MOVE.
- class [RAWCodec](#)
 - RAWCodec* class.
- class [Reader](#)
 - Reader* ala DOM (Document [Object](#) Model)
- struct [RealWorldValueMappingContent](#)
- class [Region](#)
 - Class for manipulation region.
- class [Rescaler](#)
 - Rescale* class This class is meant to apply the linear transform of Stored Pixel [Value](#) to Real World [Value](#). This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel [Type](#) is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:
$$RWV = 1. * SV - 1024$$
 - So the best scalar to store the Real World [Value](#) will be 16 bits signed type.
- class [RLECodec](#)
 - Class to do RLE.
- class [Scanner](#)
 - Scanner* This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).
- class [Segment](#)
 - This class defines a segment. It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.
- class [SegmentedPaletteColorLookupTable](#)
 - SegmentedPaletteColorLookupTable* class.
- class [SegmentReader](#)
 - This class defines a segment reader. It reads attributes of group 0x0062.
- class [SegmentWriter](#)
 - This class defines a segment writer. It writes attributes of group 0x0062.
- class [SequenceOfFragments](#)
 - Class to represent a Sequence Of Fragments.
- class [SequenceOfItems](#)
 - Class to represent a Sequence Of Items (value representation : SQ)
- class [SerieHelper](#)
 - SerieHelper* DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.
- class [Series](#)
 - Series*.
- class [ServiceClassUser](#)
 - ServiceClassUser*.
- class [SHA1](#)
 - Class for [SHA1](#).

- class [SimpleMemberCommand](#)
Command subclass that calls a pointer to a member function.
- class [SimpleSubjectWatcher](#)
SimpleSubjectWatcher This is a typical [Subject](#) Watcher class. It will observe all events.
- class [SmartPointer](#)
Class for Smart Pointer.
- class [SOPClassUIDToIOD](#)
Class convert a class SOP Class UID into [IOD](#).
- class [Sorter](#)
Sorter General class to do sorting using a custom function You simply need to provide a function of type: [Sorter::Sort←Function](#).
- class [Spacing](#)
Class for [Spacing](#).
- class [Spectroscopy](#)
Spectroscopy class.
- class [SplitMosaicFilter](#)
SplitMosaicFilter class Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA [Image](#) Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture.
- class [StartEvent](#)
- struct [static_assert_test](#)
- struct [STATIC_ASSERTION_FAILURE](#)
- struct [STATIC_ASSERTION_FAILURE< true >](#)
- class [StreamImageReader](#)
StreamImageReader.
- class [StreamImageWriter](#)
StreamImageReader.
- class [StrictScanner](#)
StrictScanner This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).
- class [String](#)
String.
- class [StringFilter](#)
StringFilter StringFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.
- class [Study](#)
Study.
- class [Subject](#)
Subject.
- class [Surface](#)
This class defines a SURFACE IE. This members are taken from required surface mesh module attributes.
- class [SurfaceHelper](#)
SurfaceHelper Helper class for [Surface](#) object.
- class [SurfaceReader](#)
This class defines a SURFACE IE reader. It reads surface mesh module attributes.
- class [SurfaceWriter](#)
This class defines a SURFACE IE writer. It writes surface mesh module attributes.
- class [SwapCode](#)
SwapCode representation.

- class [SwapperDoOp](#)
- class [SwapperNoOp](#)
- class [System](#)
 - Class to do system operation.*
- class [Table](#)
 - Table.*
- class [TableEntry](#)
 - TableEntry.*
- class [TableReader](#)
 - Class for representing a [TableReader](#).*
- class [Tag](#)
 - Class to represent a DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#)). Basically an uint32_t which can also be expressed as two uint16_t (group and element)*
- class [TagPath](#)
 - class to handle a path of tag.*
- class [Testing](#)
 - class for testing*
- class [Trace](#)
 - Trace.*
- class [TransferSyntax](#)
 - Class to manipulate Transfer Syntax.*
- class [Type](#)
 - Type.*
- struct [UI](#)
- class [UIDGenerator](#)
 - Class for generating unique UID.*
- class [UIDs](#)
 - all known uids*
- class [UNExplicitDataElement](#)
 - Class to read/write a [DataElement](#) as UNExplicit Data [Element](#).*
- class [UNExplicitImplicitDataElement](#)
 - Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#) This class gather two known bugs:*
- class [Unpacker12Bits](#)
 - Pack/Unpack 12 bits pixel into 16bits.*
- class [Usage](#)
 - Usage.*
- class [UserEvent](#)
- class [UUIDGenerator](#)
 - Class for generating unique UUID generate DCE 1.1 uid.*
- class [Validate](#)
 - [Validate](#) class.*
- class [Value](#)
 - Class to represent the value of a Data [Element](#).*
- class [ValueIO](#)
 - Class to dispatch template calls.*
- class [Version](#)
 - major/minor and build version*

- class [VL](#)
Value Length.
- class [VM](#)
Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.
- struct [VMToLength](#)
- class [VR](#)
VR class This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict.
- class [VR16ExplicitDataElement](#)
Class to read/write a DataElement as Explicit Data Element.
- struct [VRToEncoding](#)
- struct [VRToType](#)
- class [VRVLSize](#)
- class [VRVLSize< 0 >](#)
- class [VRVLSize< 1 >](#)
- class [Waveform](#)
Waveform class.
- class [WLMFindQuery](#)
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.
- class [Writer](#)
Writer ala DOM (Document Object Model) This class is a non-validating writer, it will only performs well- formedness check only.
- class [XMLDictReader](#)
Class for representing a XMLDictReader.
- class [XMLPrinter](#)
- class [XMLPrivateDictReader](#)
Class for representing a XMLPrivateDictReader.

Typedefs

- typedef [String<'\\', 16 >](#) [AECComp](#)
- typedef [String<'\\', 64 >](#) [ASComp](#)
- typedef bool(* [BOOL_FUNCTION_PFILE_PFILE_POINTER](#)) ([File *](#), [File *](#))
- typedef [String<'\\', 16 >](#) [CSCComp](#)
- typedef [String<'\\', 64 >](#) [DACComp](#)
- typedef [String<'\\', 64 >](#) [DTComp](#)
- typedef std::vector< [SmartPointer< FileWithName >](#) > [FileList](#)
- typedef [Bitmap IconImage](#)
- typedef [String<'\\', 64 >](#) [LOComp](#)
- typedef [String<'\\', 64 >](#) [LTComp](#)
- typedef [ModuleEntry MacroEntry](#)
- typedef [NestedModuleEntries NestedMacroEntries](#)
- typedef [String<'\\', 64 >](#) [PNComp](#)
- typedef [String<'\\', 64 >](#) [SHComp](#)
- typedef [String<'\\', 64 >](#) [STComp](#)
- typedef [String<'\\', 16 >](#) [TMComp](#)
- typedef [String<'\\', 64, 0 >](#) [UIComp](#)
- typedef [String<'\\', 64 >](#) [UTComp](#)

Enumerations

- enum [CompOperators](#) {
[GDCM_EQUAL](#) = 0,
[GDCM_DIFFERENT](#),
[GDCM_GREATER](#),
[GDCM_GREATEROREQUAL](#),
[GDCM_LESS](#),
[GDCM_LESOREQUAL](#) }
- enum [ECharSet](#) {
[eLatin1](#) = 0,
[eLatin2](#),
[eLatin3](#),
[eLatin4](#),
[eCyrillic](#),
[eArabic](#),
[eGreek](#),
[eHebrew](#),
[eLatin5](#),
[eJapanese](#),
[eThai](#),
[eJapaneseKanjiMultibyte](#),
[eJapaneseSupplementaryKanjiMultibyte](#),
[eKoreanHangulHanjaMultibyte](#),
[eUTF8](#),
[eGB18030](#) }
- enum [ENQueryType](#) {
[eCreateMMPS](#) = 0,
[eSetMMPS](#) }
- enum [EQueryLevel](#) {
[ePatient](#) = 0,
[eStudy](#) = 1,
[eSeries](#) = 2,
[eImage](#) = 3 }
- enum [EQueryType](#) {
[eFind](#) = 0,
[eMove](#),
[eWLMFind](#) }
- enum [ERootType](#) {
[ePatientRootType](#),
[eStudyRootType](#) }
- enum [LodModeType](#) {
[LD_ALL](#) = 0x00000000,
[LD_NOSEQ](#) = 0x00000001,
[LD_NOSHADOW](#) = 0x00000002,
[LD_NOSHADOWSEQ](#) = 0x00000004 }

Functions

- [ignore_char](#) const [backslash](#) ("\\")
- [VR::VRType GetVRFromTag](#) ([Tag](#) const &tag)
- bool [operator!=](#) (const [CodeString](#) &ref, const [CodeString](#) &cs)

- bool [operator!=](#) (const [DataElement](#) &lhs, const [DataElement](#) &rhs)
- std::ostream & [operator<<](#) (std::ostream &os, const [Version](#) &v)
- std::ostream & [operator<<](#) (std::ostream &_os, const [NestedModuleEntries](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [SwapCode](#) &sc)
- std::ostream & [operator<<](#) (std::ostream &os, const [FileSet](#) &f)
- std::ostream & [operator<<](#) (std::ostream &os, const [Region](#) &r)
- std::ostream & [operator<<](#) (std::ostream &os, [Event](#) &e)

Generic inserter operator for [Event](#) and its subclasses.

- std::ostream & [operator<<](#) (std::ostream &os, const [PDBelement](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [CommandDataSet](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Orientation](#) &o)
- std::ostream & [operator<<](#) (std::ostream &_os, const [IODs](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Macros](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Modules](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Type](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [ModuleEntry](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [GroupDict](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [PrivateTag](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [IOD](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [File](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Usage](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Sorter](#) &s)
- std::ostream & [operator<<](#) (std::ostream &os, const [CSAHeaderDictEntry](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Preamble](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [IODEntry](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Macro](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [CSAHeaderDict](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Dicts](#) &d)
- std::ostream & [operator<<](#) (std::ostream &os, const [PDBHeader](#) &d)
- std::ostream & [operator<<](#) (std::ostream &os, const [CodeString](#) &str)
- std::ostream & [operator<<](#) (std::ostream &os, const [Directory](#) &d)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Module](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [PhotometricInterpretation](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Global](#) &g)
- std::ostream & [operator<<](#) (std::ostream &os, const [Object](#) &obj)
- std::ostream & [operator<<](#) (std::ostream &os, const [BasicOffsetTable](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [DictEntry](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [VL](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [CSAElement](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [CSAHeader](#) &d)
- std::ostream & [operator<<](#) (std::ostream &os, const [FileMetalInformation](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [TransferSyntax](#) &ts)
- std::ostream & [operator<<](#) (std::ostream &_os, const [VM](#) &_val)
- std::ostream & [operator<<](#) (std::ostream &os, const [StrictScanner](#) &s)
- std::ostream & [operator<<](#) (std::ostream &os, const [Scanner](#) &s)
- std::ostream & [operator<<](#) (std::ostream &os, const [Dict](#) &val)
- std::ostream & [operator<<](#) (std::ostream &_os, const [MediaStorage](#) &ms)
- std::ostream & [operator<<](#) (std::ostream &_os, const [VR](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [Fragment](#) &val)
- std::ostream & [operator<<](#) (std::ostream &os, const [PixelFormat](#) &pf)

- `std::ostream & operator<< (std::ostream &_os, const UI &_val)`
- `std::ostream & operator<< (std::ostream &os, const DataElement &val)`
- `std::ostream & operator<< (std::ostream &_os, const Tag &_val)`
- `std::ostream & operator<< (std::ostream &os, const Item &val)`
- `std::ostream & operator<< (std::ostream &os, const DataSet &val)`
- `std::ostream & operator<< (std::ostream &os, const PrivateDict &val)`
- `std::ostream & operator<< (std::ostream &_os, const UIDs &uid)`
- `bool operator== (const CodeString &ref, const CodeString &cs)`
- `template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
std::istream & operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)`
- `std::istream & operator>> (std::istream &in, ignore_char const &ic)`
- `std::istream & operator>> (std::istream &_is, Tag &_val)`
- `template<typename Float >
std::string to_string (Float data)`
- `TYPETOENCODING (SQ, VRBINARY, unsigned char) TYPETOENCODING(UN`

Variables

- static `Global GlobalInstance`
- `VRBINARY`

9.1.1 Detailed Description

This header defines the classes for the AA Actions, Association Abort Related Actions ([Table 9-9 of ps 3.8-2009](#)).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AE Actions, Association Establishment Related Actions ([Table 9-6 of ps 3.8-2009](#)).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AR Actions, Association Release Related Actions ([Table 9-8 of ps 3.8-2009](#)).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the DT Actions, Data Transfer Related Actions ([Table 9-8 of ps 3.8-2009](#)).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

9.1.2 Typedef Documentation

- 9.1.2.1 `typedef String<'\',16> gdcm::AECComp`
- 9.1.2.2 `typedef String<'\',64> gdcm::ASComp`
- 9.1.2.3 `typedef bool(* gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER)(File *, File *)`
- 9.1.2.4 `typedef String<'\',16> gdcm::CSComp`
- 9.1.2.5 `typedef String<'\',64> gdcm::DAComp`
- 9.1.2.6 `typedef String<'\',64> gdcm::DTComp`
- 9.1.2.7 `typedef std::vector<SmartPointer<FileWithName> > gdcm::FileList`
- 9.1.2.8 `typedef Bitmap gdcm::IconImage`
- 9.1.2.9 `typedef String<'\',64> gdcm::LOComp`
- 9.1.2.10 `typedef String<'\',64> gdcm::LTComp`
- 9.1.2.11 `typedef ModuleEntry gdcm::MacroEntry`
- 9.1.2.12 `typedef NestedModuleEntries gdcm::NestedMacroEntries`
- 9.1.2.13 `typedef String<'\',64> gdcm::PNComp`
- 9.1.2.14 `typedef String<'\',64> gdcm::SHComp`
- 9.1.2.15 `typedef String<'\',64> gdcm::STComp`
- 9.1.2.16 `typedef String<'\',16> gdcm::TMComp`
- 9.1.2.17 `typedef String<'\',64,0> gdcm::UIComp`
- 9.1.2.18 `typedef String<'\',64> gdcm::UTComp`

9.1.3 Enumeration Type Documentation

- 9.1.3.1 `enum gdcm::CompOperators`

Enumerator

GDCM_EQUAL
GDCM_DIFFERENT
GDCM_GREATER
GDCM_GREATEROREQUAL
GDCM_LESS
GDCM_LESOREQUAL

9.1.3.2 enum gdcm::ECharSet

The character sets enumerated in PS 3.3 2009 Annex C, section C.12.1.1.2 The resulting character set is stored in 0008,0005 The conversion to the data element is performed by the [QueryFactory](#) itself

Enumerator

- eLatin1***
- eLatin2***
- eLatin3***
- eLatin4***
- eCyrillic***
- eArabic***
- eGreek***
- eHebrew***
- eLatin5***
- eJapanese***
- eThai***
- eJapaneseKanjiMultibyte***
- eJapaneseSupplementaryKanjiMultibyte***
- eKoreanHangulHanjaMultibyte***
- eUTF8***
- eGB18030***

9.1.3.3 enum gdcm::ENQueryType

Enumerator

- eCreateMMPS***
- eSetMMPS***

9.1.3.4 enum gdcm::EQueryLevel

Enumerator

- ePatient***
- eStudy***
- eSeries***
- eImage***

9.1.3.5 enum gdcm::EQueryType

Enumerator

eFind
eMove
eWLMFind

9.1.3.6 enum gdcm::ERootType

Enumerator

ePatientRootType
eStudyRootType

9.1.3.7 enum gdcm::LodModeType

Enumerator

LD_ALL
LD_NOSEQ
LD_NOSHADOW
LD_NOSHADOWSEQ

9.1.4 Function Documentation

9.1.4.1 ignore_char const gdcm::backslash ('\\ ')

Referenced by gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength().

9.1.4.2 VR::VRType gdcm::GetVRFromTag (Tag const & tag)

9.1.4.3 bool gdcm::operator!= (const CodeString & ref, const CodeString & cs) [inline]

9.1.4.4 bool gdcm::operator!= (const DataElement & lhs, const DataElement & rhs) [inline]

9.1.4.5 std::ostream& gdcm::operator<< (std::ostream & os, const Version & v) [inline]

References gdcm::Version::Print().

9.1.4.6 `std::ostream& gdcm::operator<< (std::ostream &_os, const NestedModuleEntries &_val)` `[inline]`

References `gdcm::ModuleEntry::DataElementType`, `gdcm::ModuleEntry::DescriptionField`, and `gdcm::ModuleEntry::Name`.

9.1.4.7 `std::ostream& gdcm::operator<< (std::ostream &os, const SwapCode &sc)` `[inline]`

References `gdcm::SwapCode::GetSwapCodeString()`.

9.1.4.8 `std::ostream& gdcm::operator<< (std::ostream &os, const FileSet &f)` `[inline]`

9.1.4.9 `std::ostream& gdcm::operator<< (std::ostream &os, const Region &r)` `[inline]`

References `gdcm::Region::Print()`.

9.1.4.10 `std::ostream& gdcm::operator<< (std::ostream &os, Event &e)` `[inline]`

Generic inserter operator for `Event` and its subclasses.

References `gdcm::Event::Print()`.

9.1.4.11 `std::ostream& gdcm::operator<< (std::ostream &os, const PDBElement &val)` `[inline]`

References `gdcm::PDBElement::NameField`, and `gdcm::PDBElement::ValueField`.

9.1.4.12 `std::ostream& gdcm::operator<< (std::ostream &os, const CommandDataSet &val)` `[inline]`

References `gdcm::DataSet::Print()`.

9.1.4.13 `std::ostream& gdcm::operator<< (std::ostream &os, const Orientation &o)` `[inline]`

References `gdcm::Orientation::Print()`.

9.1.4.14 `std::ostream& gdcm::operator<< (std::ostream &_os, const IODs &_val)` `[inline]`

9.1.4.15 `std::ostream& gdcm::operator<< (std::ostream &_os, const Macros &_val)` `[inline]`

9.1.4.16 `std::ostream& gdcm::operator<< (std::ostream &_os, const Modules &_val)` `[inline]`

9.1.4.17 `std::ostream& gdcm::operator<< (std::ostream &_os, const Type &val)` `[inline]`

References `gdcm::Type::GetTypeString()`.

9.1.4.18 `std::ostream& gdcm::operator<< (std::ostream &_os, const ModuleEntry &_val)` `[inline]`

References `gdcm::ModuleEntry::DataElementType`, `gdcm::ModuleEntry::DescriptionField`, and `gdcm::ModuleEntry::Name`.

9.1.4.19 `std::ostream& gdcm::operator<< (std::ostream &_os, const GroupDict &_val)` `[inline]`

References `gdcm::GroupDict::GetAbbreviation()`, `gdcm::GroupDict::GetName()`, and `gdcm::GroupDict::Size()`.

9.1.4.20 `std::ostream& gdcm::operator<< (std::ostream &os, const PrivateTag &val)` `[inline]`

9.1.4.21 `std::ostream& gdcm::operator<< (std::ostream &_os, const IOD &_val)` `[inline]`

9.1.4.22 `std::ostream& gdcm::operator<< (std::ostream &os, const File &val)` `[inline]`

References `gdcm::File::GetHeader()`.

9.1.4.23 `std::ostream& gdcm::operator<< (std::ostream &_os, const Usage &val)` `[inline]`

References `gdcm::Usage::GetUsageString()`.

9.1.4.24 `std::ostream& gdcm::operator<< (std::ostream &os, const Sorter &s)` `[inline]`

References `gdcm::Sorter::Print()`.

9.1.4.25 `std::ostream& gdcm::operator<< (std::ostream &os, const CSAHeaderDictEntry &val)` `[inline]`

9.1.4.26 `std::ostream& gdcm::operator<< (std::ostream &os, const Preamble &val)` `[inline]`

9.1.4.27 `std::ostream& gdcm::operator<< (std::ostream &_os, const IODEntry &_val)` `[inline]`

9.1.4.28 `std::ostream& gdcm::operator<< (std::ostream &_os, const Macro &_val)` `[inline]`

9.1.4.29 `std::ostream& gdcm::operator<< (std::ostream &os, const CSAHeaderDict &val)` `[inline]`

9.1.4.30 `std::ostream& gdcm::operator<< (std::ostream &os, const Dicts &d)` `[inline]`

9.1.4.31 `std::ostream& gdcm::operator<< (std::ostream &os, const PDBHeader &d)` `[inline]`

References `gdcm::PDBHeader::Print()`.

9.1.4.32 `std::ostream& gdcm::operator<< (std::ostream & os, const CodeString & str)` `[inline]`

9.1.4.33 `std::ostream& gdcm::operator<< (std::ostream & os, const Directory & d)` `[inline]`

References `gdcm::Directory::Print()`.

Referenced by `gdcm::CSAElement::CSAElement()`, `gdcm::CSAHeaderDict::CSAHeaderDict()`, `gdcm::CSAHeaderDictEntry::CSAHeaderDictEntry()`, `gdcm::Dict::Dict()`, `gdcm::DictEntry::DictEntry()`, `gdcm::VL::GetLength()`, `gdcm::TransferSyntax::GetString()`, `gdcm::IOD::IOD()`, `gdcm::IODEntry::IODEntry()`, `gdcm::IODs::IODs()`, `gdcm::Macro::Macro()`, `gdcm::Macros::Macros()`, `gdcm::Module::Module()`, `gdcm::Modules::Modules()`, `gdcm::NestedModuleEntries::NestedModuleEntries()`, `gdcm::MediaStorage::operator MType()`, `gdcm::Type::operator TypeType()`, `gdcm::Usage::operator UsageType()`, `gdcm::VM::operator VMType()`, `gdcm::PDBelement::PDBelement()`, `gdcm::PhotometricInterpretation::PhotometricInterpretation()`, `gdcm::SwapCode::SwapCode()`, `gdcm::Tag::Tag()`, `gdcm::VR::Write()`, `gdcm::CommandDataSet::~~CommandDataSet()`, `gdcm::GroupDict::~~GroupDict()`, and `gdcm::ModuleEntry::~~ModuleEntry()`.

9.1.4.34 `std::ostream& gdcm::operator<< (std::ostream & _os, const Module & _val)` `[inline]`

9.1.4.35 `std::ostream& gdcm::operator<< (std::ostream & os, const PhotometricInterpretation & val)` `[inline]`

References `gdcm::PhotometricInterpretation::GetPIString()`.

9.1.4.36 `std::ostream& gdcm::operator<< (std::ostream & os, const Global & g)` `[inline]`

9.1.4.37 `std::ostream& gdcm::operator<< (std::ostream & os, const Object & obj)` `[inline]`

References `gdcm::Object::Print()`.

9.1.4.38 `std::ostream& gdcm::operator<< (std::ostream & os, const BasicOffsetTable & val)` `[inline]`

References `gdcm::DataElement::GetByteValue()`, `gdcm::DataElement::ValueField`, and `gdcm::DataElement::ValueLengthField`.

Referenced by `gdcm::BasicOffsetTable::BasicOffsetTable()`.

9.1.4.39 `std::ostream& gdcm::operator<< (std::ostream & os, const DictEntry & val)` `[inline]`

9.1.4.40 `std::ostream& gdcm::operator<< (std::ostream & os, const VL & val)` `[inline]`

9.1.4.41 `std::ostream& gdcm::operator<< (std::ostream & os, const CSAElement & val)` `[inline]`

References `gdcm::CSAElement::DataField`, `gdcm::ByteValue::GetLength()`, `gdcm::ByteValue::GetPointer()`, `gdcm::CSAElement::KeyField`, `gdcm::CSAElement::NameField`, `gdcm::CSAElement::NoOfItemsField`, `gdcm::CSAElement::SyngoDTField`, `gdcm::CSAElement::ValueMultiplicityField`, `gdcm::VM::VM1`, and `gdcm::CSAElement::VRField`.

9.1.4.42 `std::ostream& gdcm::operator<< (std::ostream & os, const CSAHeader & d)` `[inline]`

References `gdcm::CSAHeader::Print()`.

9.1.4.43 `std::ostream& gdcm::operator<< (std::ostream & os, const FileMetaInformation & val)` `[inline]`

References `gdcm::FileMetaInformation::GetPreamble()`, and `gdcm::DataSet::Print()`.

9.1.4.44 `std::ostream& gdcm::operator<< (std::ostream & _os, const TransferSyntax & ts)` `[inline]`

References `gdcm::TransferSyntax::GetTSSString()`.

9.1.4.45 `std::ostream& gdcm::operator<< (std::ostream & _os, const VM & _val)` `[inline]`

References `gdcm::VM::GetVMString()`.

9.1.4.46 `std::ostream& gdcm::operator<< (std::ostream & os, const StrictScanner & s)` `[inline]`

References `gdcm::StrictScanner::Print()`.

9.1.4.47 `std::ostream& gdcm::operator<< (std::ostream & os, const Scanner & s)` `[inline]`

References `gdcm::Scanner::Print()`.

9.1.4.48 `std::ostream& gdcm::operator<< (std::ostream & os, const Dict & val)` `[inline]`

9.1.4.49 `std::ostream& gdcm::operator<< (std::ostream & _os, const MediaStorage & ms)` `[inline]`

References `gdcm::MediaStorage::GetMSString()`.

9.1.4.50 `std::ostream& gdcm::operator<< (std::ostream & _os, const VR & val)` `[inline]`

References `gdcm::VR::GetVRString()`.

9.1.4.51 `std::ostream& gdcm::operator<< (std::ostream & os, const Fragment & val)` `[inline]`

References `gdcm::DataElement::TagField`, `gdcm::DataElement::ValueField`, and `gdcm::DataElement::ValueLength`↵
Field.

Referenced by `gdcm::Fragment::Fragment()`.

9.1.4.52 `std::ostream& gdcmm::operator<< (std::ostream & os, const PixelFormat & pf)` `[inline]`

References `gdcmm::PixelFormat::Print()`.

9.1.4.53 `std::ostream& gdcmm::operator<< (std::ostream & _os, const UI & _val)` `[inline]`

References `gdcmm::UI::Internal`.

9.1.4.54 `std::ostream& gdcmm::operator<< (std::ostream & os, const DataElement & val)` `[inline]`

References `gdcmm::Object::Print()`, `gdcmm::DataElement::TagField`, `gdcmm::DataElement::ValueField`, `gdcmm::DataElement::ValueLengthField`, and `gdcmm::DataElement::VRField`.

Referenced by `gdcmm::DataElement::DataElement()`.

9.1.4.55 `std::ostream& gdcmm::operator<< (std::ostream & _os, const Tag & _val)` `[inline]`

9.1.4.56 `std::ostream& gdcmm::operator<< (std::ostream & os, const Item & val)` `[inline]`

References `gdcmm::DataSet::Print()`, `gdcmm::DataElement::TagField`, and `gdcmm::DataElement::ValueLengthField`.

Referenced by `gdcmm::Item::Item()`.

9.1.4.57 `std::ostream& gdcmm::operator<< (std::ostream & os, const DataSet & val)` `[inline]`

References `gdcmm::DataSet::Begin()`, and `gdcmm::DataSet::Print()`.

Referenced by `gdcmm::DataSet::InsertDataElement()`.

9.1.4.58 `std::ostream& gdcmm::operator<< (std::ostream & os, const PrivateDict & val)` `[inline]`

9.1.4.59 `std::ostream& gdcmm::operator<< (std::ostream & _os, const UIDs & uid)` `[inline]`

References `gdcmm::UIDs::GetName()`, and `gdcmm::UIDs::GetString()`.

9.1.4.60 `bool gdcmm::operator== (const CodeString & ref, const CodeString & cs)` `[inline]`

Examples:

[DumpPhilipsECHO.cxx](#).

Referenced by `gdcmm::Value::~Value()`.

9.1.4.61 `template<char TDelimiter, unsigned int TMaxLength, char TPadChar> std::istream& gdcm::operator>> (std::istream & is, String< TDelimiter, TMaxLength, TPadChar > & ms) [inline]`

Referenced by `gdcm::Tag::Tag()`.

9.1.4.62 `std::istream& gdcm::operator>> (std::istream & in, ignore_char const & ic) [inline]`

References `gdcm::ignore_char::m_char`.

9.1.4.63 `std::istream& gdcm::operator>> (std::istream & _is, Tag & _val) [inline]`

References `gdcm::Tag::SetElement()`, and `gdcm::Tag::SetGroup()`.

9.1.4.64 `template<typename Float > std::string gdcm::to_string (Float data)`

Referenced by `gdcm::EncodingImplementation< VR::VRASCII >::Write()`.

9.1.4.65 `gdcm::TYPETOENCODING (SQ , VRBINARY , unsigned char)`

9.1.5 Variable Documentation

9.1.5.1 `Global gdcm::GlobalInstance [static]`

9.1.5.2 `gdcm::VRBINARY`

Referenced by `gdcm::Element< TVR, VM::VM1_n >::Set()`, and `gdcm::Element< TVR, VM::VM1_n >::SetNoSwap()`.

9.2 gdcm::network Namespace Reference

Classes

- class [AAabortPDU](#)
[AAabortPDU Table](#) 9-26 A-ABORT PDU FIELDS.
- class [AAssociateACPDU](#)
[AAssociateACPDU Table](#) 9-17 ASSOCIATE-AC PDU fields.
- class [AAssociateRJPDU](#)
[AAssociateRJPDU Table](#) 9-21 ASSOCIATE-RJ PDU FIELDS.
- class [AAssociateRQPDU](#)
[AAssociateRQPDU Table](#) 9-11 ASSOCIATE-RQ PDU fields.
- class [AbstractSyntax](#)

- [AbstractSyntax Table](#) 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS.
- class [ApplicationContext](#)

[ApplicationContext Table](#) 9-12 APPLICATION CONTEXT ITEM FIELDS.
- class [AReleaseRPPDU](#)

[AReleaseRPPDU Table](#) 9-25 A-RELEASE-RP PDU fields.
- class [AReleaseRQPDU](#)

[AReleaseRQPDU Table](#) 9-24 A-RELEASE-RQ PDU FIELDS.
- class [ARTIMTimer](#)

[ARTIMTimer](#) This file contains the code for the ARTIM timer.
- class [AsynchronousOperationsWindowSub](#)

[AsynchronousOperationsWindowSub](#) PS 3.7 [Table](#) D.3-7 ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM FIELDS (A-ASSOCIATE-RQ)
- class [BaseCompositeMessage](#)

[BaseCompositeMessage](#) The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.
- class [BaseNormalizedMessage](#)

[BaseNormalizedMessage](#) The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.
- class [BasePDU](#)

[BasePDU](#) base class for PDUs.
- class [CEchoRQ](#)

[CEchoRQ](#) this file defines the messages for the echo action.
- class [CEchoRSP](#)

[CEchoRSP](#) this file defines the messages for the echo action.
- class [CFind](#)
- class [CFindCancelRQ](#)

[CFindCancelRQ](#) this file defines the messages for the cfind action.
- class [CFindRQ](#)

[CFindRQ](#) this file defines the messages for the cfind action.
- class [CFindRSP](#)

[CFindRSP](#) this file defines the messages for the cfind action.
- class [CMoveCancelRq](#)
- class [CMoveRQ](#)

[CMoveRQ](#) this file defines the messages for the cmove action.
- class [CMoveRSP](#)

[CMoveRSP](#) this file defines the messages for the cmove action.
- class [CompositeMessageFactory](#)

[CompositeMessageFactory](#) This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).
- class [CStoreRQ](#)

[CStoreRQ](#) this file defines the messages for the echo action.
- class [CStoreRSP](#)

[CStoreRSP](#) this file defines the messages for the echo action.
- class [DIMSE](#)

DIMSE PS 3.7 - 2009 Annex E Command Dictionary (Normative) E.1 REGISTRY OF DICOM COMMAND ELEMENTS Table E.1-1 COMMAND FIELDS (PART 1)

- class [ImplementationClassUIDSub](#)
ImplementationClassUIDSub PS 3.7 Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ)
- class [ImplementationUIDSub](#)
ImplementationUIDSub Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)
- class [ImplementationVersionNameSub](#)
ImplementationVersionNameSub Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)
- class [MaximumLengthSub](#)
MaximumLengthSub Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)
- class [NActionRQ](#)
NActionRQ this file defines the messages for the NAction action.
- class [NActionRSP](#)
NActionRSP this file defines the messages for the NAction action.
- class [NCreateRQ](#)
NCreateRQ this file defines the messages for the ncreate action.
- class [NCreateRSP](#)
NCreateRSP this file defines the messages for the ncreate action.
- class [NDeleteRQ](#)
NDeleteRQ this file defines the messages for the ndelete action.
- class [NDeleteRSP](#)
NDeleteRSP this file defines the messages for the ndelete action.
- class [NEventReportRQ](#)
NEventReportRQ this file defines the messages for the neventreport action.
- class [NEventReportRSP](#)
NEventReportRSP this file defines the messages for the neventreport action.
- class [NGetRQ](#)
NGetRQ this file defines the messages for the nget action.
- class [NGetRSP](#)
NGetRSP this file defines the messages for the nget action.
- class [NormalizedMessageFactory](#)
- class [NSetRQ](#)
NSetRQ this file defines the messages for the nset action.
- class [NSetRSP](#)
NSetRSP this file defines the messages for the nset action.
- class [PDataTFPDU](#)
PDataTFPDU Table 9-22 P-DATA-TF PDU FIELDS.
- class [PDUFactory](#)
PDUFactory basically, given an initial byte, construct the appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.
- class [PresentationContextAC](#)
PresentationContextAC Table 9-18 PRESENTATION CONTEXT ITEM FIELDS.
- class [PresentationContextRQ](#)
PresentationContextRQ Table 9-13 PRESENTATION CONTEXT ITEM FIELDS.
- class [PresentationDataValue](#)
PresentationDataValue Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS.

- class [RoleSelectionSub](#)
RoleSelectionSub PS 3.7 [Table D.3-9](#) SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)
- class [ServiceClassApplicationInformation](#)
- class [SOPClassExtendedNegociationSub](#)
SOPClassExtendedNegociationSub PS 3.7 [Table D.3-11](#) SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-ASSOCIATE-AC)
- class [TableRow](#)
- class [TransferSyntaxSub](#)
TransferSyntaxSub [Table 9-15](#) TRANSFER SYNTAX SUB-ITEM FIELDS.
- struct [Transition](#)
- class [ULAction](#)
ULAction A [ULConnection](#) in a given *ULState* can perform certain *ULActions*. This base class provides the interface for running those *ULActions* on a given [ULConnection](#).
- class [ULActionAA1](#)
- class [ULActionAA2](#)
- class [ULActionAA3](#)
- class [ULActionAA4](#)
- class [ULActionAA5](#)
- class [ULActionAA6](#)
- class [ULActionAA7](#)
- class [ULActionAA8](#)
- class [ULActionAE1](#)
- class [ULActionAE2](#)
- class [ULActionAE3](#)
- class [ULActionAE4](#)
- class [ULActionAE5](#)
- class [ULActionAE6](#)
- class [ULActionAE7](#)
- class [ULActionAE8](#)
- class [ULActionAR1](#)
- class [ULActionAR10](#)
- class [ULActionAR2](#)
- class [ULActionAR3](#)
- class [ULActionAR4](#)
- class [ULActionAR5](#)
- class [ULActionAR6](#)
- class [ULActionAR7](#)
- class [ULActionAR8](#)
- class [ULActionAR9](#)
- class [ULActionDT1](#)
- class [ULActionDT2](#)
- class [ULBasicCallback](#)
ULBasicCallback This is the most basic of callbacks for how the [ULConnectionManager](#) handles incoming datasets. *DataSets* are just concatenated to the *mDataSets* vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the [ULConnectionManager](#).
- class [ULConnection](#)
ULConnection This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.
- class [ULConnectionCallback](#)
- class [ULConnectionInfo](#)

ULConnectionInfo this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

- class [ULConnectionManager](#)

ULConnectionManager The [ULConnectionManager](#) performs actions on the [ULConnection](#) given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

- class [ULEvent](#)

ULEvent base class for network events.

- class [ULTransitionTable](#)

ULTransitionTable The transition table of all the [ULEvents](#), new [ULActions](#), and [ULStates](#).

- class [ULWritingCallback](#)

- class [UserInformation](#)

UserInformation Table 9-16 USER INFORMATION ITEM FIELDS.

Enumerations

- enum [EEventID](#) {
[eAASSOCIATERequestLocalUser](#) = 0,
[eTransportConnConfirmLocal](#),
[eASSOCIATE_ACPDUreceived](#),
[eASSOCIATE_RJPDUreceived](#),
[eTransportConnIndicLocal](#),
[eAASSOCIATE_RQPDUREceived](#),
[eAASSOCIATEResponseAccept](#),
[eAASSOCIATEResponseReject](#),
[ePDATArequest](#),
[ePDATATFPDU](#),
[eARELEASERequest](#),
[eARELEASE_RQPDUREceivedOpen](#),
[eARELEASE_RPPDUREceived](#),
[eARELEASEResponse](#),
[eAABORTRequest](#),
[eAABORTPDUREceivedOpen](#),
[eTransportConnectionClosed](#),
[eARTIMTimerExpired](#),
[eUnrecognizedPDUREceived](#),
[eEventDoesNotExist](#) }
- enum [EStateID](#) {
[eStaDoesNotExist](#) = 0,
[eSta1Idle](#) = 1,
[eSta2Open](#) = 2,
[eSta3WaitLocalAssoc](#) = 4,
[eSta4LocalAssocDone](#) = 8,
[eSta5WaitRemoteAssoc](#) = 16,
[eSta6TransferReady](#) = 32,
[eSta7WaitRelease](#) = 64,
[eSta8WaitLocalRelease](#) = 128,
[eSta9ReleaseCollisionRqLocal](#) = 256,
[eSta10ReleaseCollisionAc](#) = 512,
[eSta11ReleaseCollisionRq](#) = 1024,
[eSta12ReleaseCollisionAcLocal](#) = 2048,
[eSta13AwaitingClose](#) = 4096 }

Functions

- int [GetStateIndex](#) ([EStateID](#) inState)

Variables

- const int [cMaxEventID](#) = [eEventDoesNotExist](#)
- const int [cMaxStateID](#) = 13

9.2.1 Enumeration Type Documentation

9.2.1.1 enum gdcm::network::EEventID

Enumerator

eAASSOCIATERequestLocalUser
eTransportConnConfirmLocal
eASSOCIATE_ACPDUreceived
eASSOCIATE_RJPDUreceived
eTransportConnIndicLocal
eAASSOCIATE_RQPDUreceived
eAASSOCIATEResponseAccept
eAASSOCIATEResponseReject
ePDATArequest
ePDATATFPDU
eARELEASERequest
eARELEASE_RQPDUReceivedOpen
eARELEASE_RPPDUReceived
eARELEASEResponse
eAABORTRequest
eAABORTPDUReceivedOpen
eTransportConnectionClosed
eARTIMTimerExpired
eUnrecognizedPDUReceived
eEventDoesNotExist

9.2.1.2 enum gdcn::network::EStateID

Each network connection will be in a particular state at any given time. Those states have IDs as described in the standard ps3.8-2009, roughly 1-13. This enumeration lists those states. The actual ULState class will contain more information about transitions to other states.

name and date: 16 sept 2010 mmr

Enumerator

eStaDoesNotExist
eSta1Idle
eSta2Open
eSta3WaitLocalAssoc
eSta4LocalAssocDone
eSta5WaitRemoteAssoc
eSta6TransferReady
eSta7WaitRelease
eSta8WaitLocalRelease
eSta9ReleaseCollisionRqLocal
eSta10ReleaseCollisionAc
eSta11ReleaseCollisionRq
eSta12ReleaseCollisionAcLocal
eSta13AwaitingClose

9.2.2 Function Documentation

9.2.2.1 int gdcn::network::GetStateIndex (EStateID *inState*) [inline]

References eSta10ReleaseCollisionAc, eSta11ReleaseCollisionRq, eSta12ReleaseCollisionAcLocal, eSta13AwaitingClose, eSta1Idle, eSta2Open, eSta3WaitLocalAssoc, eSta4LocalAssocDone, eSta5WaitRemoteAssoc, eSta6TransferReady, eSta7WaitRelease, eSta8WaitLocalRelease, eSta9ReleaseCollisionRqLocal, and eStaDoesNotExist.

9.2.3 Variable Documentation

9.2.3.1 const int gdcn::network::cMaxEventID = eEventDoesNotExist

9.2.3.2 const int gdcn::network::cMaxStateID = 13

Referenced by gdcn::network::TableRow::TableRow(), and gdcn::network::TableRow::~~TableRow().

9.3 gdcm::SegmentHelper Namespace Reference

Classes

- struct [BasicCodedEntry](#)

This structure defines a basic coded entry with all of its attributes.

9.4 gdcm::terminal Namespace Reference

Class for Terminal Allow one to print in color in a shell.

Enumerations

- enum [Attribute](#) {
 [reset](#) = 0,
 [bright](#) = 1,
 [dim](#) = 2,
 [underline](#) = 3,
 [blink](#) = 5,
 [reverse](#) = 7,
 [hidden](#) = 8 }
- enum [Color](#) {
 [black](#) = 0,
 [red](#),
 [green](#),
 [yellow](#),
 [blue](#),
 [magenta](#),
 [cyan](#),
 [white](#) }
- enum [Mode](#) {
 [CONSOLE](#) = 0,
 [VT100](#) }

Functions

- [GDCM_EXPORT](#) std::string [setattribute](#) ([Attribute](#) att)
- [GDCM_EXPORT](#) std::string [setbgcolor](#) ([Color](#) c)
- [GDCM_EXPORT](#) std::string [setfgcolor](#) ([Color](#) c)
- [GDCM_EXPORT](#) void [setmode](#) ([Mode](#) m)

9.4.1 Detailed Description

Class for Terminal Allow one to print in color in a shell.

- support VT100 compatible shell
- win32 console

9.4.2 Enumeration Type Documentation

9.4.2.1 enum gdcm::terminal::Attribute

Enumerator

reset
bright
dim
underline
blink
reverse
hidden

9.4.2.2 enum gdcm::terminal::Color

Enumerator

black
red
green
yellow
blue
magenta
cyan
white

9.4.2.3 enum gdcm::terminal::Mode

Enumerator

CONSOLE
VT100

9.4.3 Function Documentation

9.4.3.1 **GDCM_EXPORT** std::string gdcm::terminal::setattribute (**Attribute** *att*)

9.4.3.2 **GDCM_EXPORT** std::string gdcm::terminal::setbgcolor (**Color** *c*)

9.4.3.3 **GDCM_EXPORT** std::string gdcm::terminal::setfgcolor (**Color** *c*)

9.4.3.4 **GDCM_EXPORT** void gdcm::terminal::setmode (**Mode** *m*)

Chapter 10

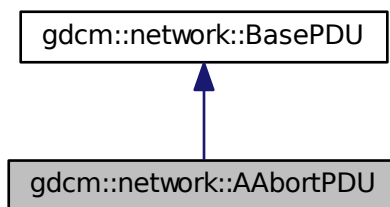
Class Documentation

10.1 gdcmm::network::AAabortPDU Class Reference

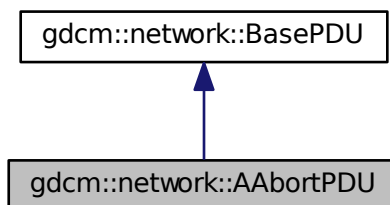
[AAabortPDU](#) Table 9-26 A-ABORT PDU FIELDS.

```
#include <gdcmmAAabortPDU.h>
```

Inheritance diagram for gdcmm::network::AAabortPDU:



Collaboration diagram for gdcmm::network::AAabortPDU:



Public Member Functions

- [AAbortPDU](#) ()
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetReason](#) (const uint8_t r)
- void [SetSource](#) (const uint8_t s)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.1.1 Detailed Description

[AAbortPDU](#) Table 9-26 A-ABORT PDU FIELDS.

10.1.2 Constructor & Destructor Documentation

10.1.2.1 `gdcn::network::AAbortPDU::AAbortPDU ()`

10.1.3 Member Function Documentation

10.1.3.1 `bool gdcn::network::AAbortPDU::IsLastFragment () const` `[inline],[virtual]`

Implements [gdcn::network::BasePDU](#).

10.1.3.2 `void gdcn::network::AAbortPDU::Print (std::ostream & os) const` `[virtual]`

Implements [gdcn::network::BasePDU](#).

10.1.3.3 `std::istream& gdcn::network::AAbortPDU::Read (std::istream & is)` `[virtual]`

Implements [gdcn::network::BasePDU](#).

10.1.3.4 `void gdcn::network::AAbortPDU::SetReason (const uint8_t r)`

10.1.3.5 `void gdcn::network::AAbortPDU::SetSource (const uint8_t s)`

10.1.3.6 `size_t gdcn::network::AAbortPDU::Size () const` `[virtual]`

Implements [gdcn::network::BasePDU](#).

10.1.3.7 `const std::ostream& gdcm::network::AAbortPDU::Write (std::ostream & os) const` [virtual]

Implements [gdcm::network::BasePDU](#).

The documentation for this class was generated from the following file:

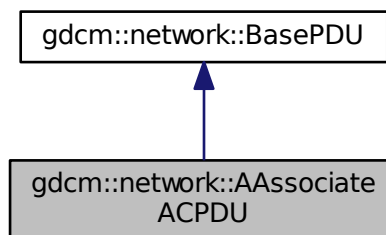
- [gdcmAAbortPDU.h](#)

10.2 gdcm::network::AAssociateACPDU Class Reference

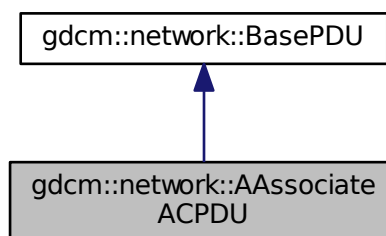
[AAssociateACPDU](#) Table 9-17 ASSOCIATE-AC PDU fields.

```
#include <gdcmAAssociateACPDU.h>
```

Inheritance diagram for `gdcm::network::AAssociateACPDU`:



Collaboration diagram for `gdcm::network::AAssociateACPDU`:



Public Types

- typedef std::vector< [PresentationContextAC](#) >::size_type [SizeType](#)

Public Member Functions

- [AAssociateACPDU](#) ()
- void [AddPresentationContextAC](#) ([PresentationContextAC](#) const &pcac)
- [SizeType](#) [GetNumberOfPresentationContextAC](#) () const
- const [PresentationContextAC](#) & [GetPresentationContextAC](#) ([SizeType](#) i)
- const [UserInformation](#) & [GetUserInformation](#) () const
- void [InitFromRQ](#) ([AAssociateRQPDU](#) const &rqpdu)
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- [SizeType](#) [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

Protected Member Functions

- void [SetCalledAETitle](#) (const char calledaetitle[16])
- void [SetCallingAETitle](#) (const char callingaetitle[16])

Friends

- class [AAssociateRQPDU](#)

10.2.1 Detailed Description

[AAssociateACPDU](#) Table 9-17 ASSOCIATE-AC PDU fields.

10.2.2 Member Typedef Documentation

10.2.2.1 typedef std::vector<[PresentationContextAC](#)>::size_type gdcn::network::AAssociateACPDU::SizeType

10.2.3 Constructor & Destructor Documentation

10.2.3.1 gdcn::network::AAssociateACPDU::AAssociateACPDU ()

10.2.4 Member Function Documentation

10.2.4.1 void gdcn::network::AAssociateACPDU::AddPresentationContextAC ([PresentationContextAC](#) const & pcac)

10.2.4.2 [SizeType](#) gdcn::network::AAssociateACPDU::GetNumberOfPresentationContextAC () const [\[inline\]](#)

10.2.4.3 const [PresentationContextAC](#) & gdcn::network::AAssociateACPDU::GetPresentationContextAC ([SizeType](#) i) [\[inline\]](#)

10.2.4.4 const [UserInformation](#) & gdcn::network::AAssociateACPDU::GetUserInformation () const [\[inline\]](#)

References [Print\(\)](#), and [Size\(\)](#).

10.2.4.5 void gdcm::network::AAssociateACPDU::InitFromRQ (AAssociateRQPDU const & *rqpdu*)

Referenced by IsLastFragment().

10.2.4.6 bool gdcm::network::AAssociateACPDU::IsLastFragment () const [inline],[virtual]

Implements [gdcm::network::BasePDU](#).

References InitFromRQ().

10.2.4.7 void gdcm::network::AAssociateACPDU::Print (std::ostream & *os*) const [virtual]

Implements [gdcm::network::BasePDU](#).

Referenced by GetUserInfoInformation().

10.2.4.8 std::istream& gdcm::network::AAssociateACPDU::Read (std::istream & *is*) [virtual]

Implements [gdcm::network::BasePDU](#).

10.2.4.9 void gdcm::network::AAssociateACPDU::SetCalledAETitle (const char *calledaetitle*[16]) [protected]

10.2.4.10 void gdcm::network::AAssociateACPDU::SetCallingAETitle (const char *callingaetitle*[16]) [protected]

10.2.4.11 **SizeType** gdcm::network::AAssociateACPDU::Size () const [virtual]

Implements [gdcm::network::BasePDU](#).

Referenced by GetUserInfoInformation().

10.2.4.12 const std::ostream& gdcm::network::AAssociateACPDU::Write (std::ostream & *os*) const [virtual]

Implements [gdcm::network::BasePDU](#).

10.2.5 Friends And Related Function Documentation

10.2.5.1 friend class AAssociateRQPDU [friend]

The documentation for this class was generated from the following file:

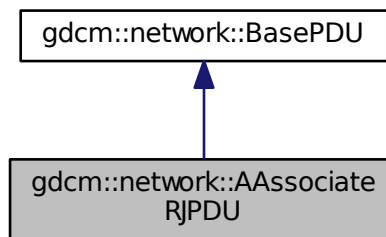
- [gdcmAAssociateACPDU.h](#)

10.3 gdcmm::network::AAssociateRJPDU Class Reference

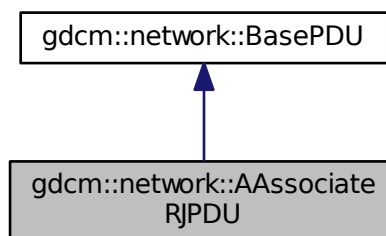
[AAssociateRJPDU Table](#) 9-21 ASSOCIATE-RJ PDU FIELDS.

```
#include <gdcmAAssociateRJPDU.h>
```

Inheritance diagram for gdcmm::network::AAssociateRJPDU:



Collaboration diagram for gdcmm::network::AAssociateRJPDU:



Public Member Functions

- [AAssociateRJPDU](#) ()
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.3.1 Detailed Description

[AAssociateRJPDU Table](#) 9-21 ASSOCIATE-RJ PDU FIELDS.

10.3.2 Constructor & Destructor Documentation

10.3.2.1 `gdcm::network::AAssociateRJPDU::AAssociateRJPDU ()`

10.3.3 Member Function Documentation

10.3.3.1 `bool gdcm::network::AAssociateRJPDU::IsLastFragment () const` `[inline]`, `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.3.3.2 `void gdcm::network::AAssociateRJPDU::Print (std::ostream & os) const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.3.3.3 `std::istream& gdcm::network::AAssociateRJPDU::Read (std::istream & is)` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.3.3.4 `size_t gdcm::network::AAssociateRJPDU::Size () const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.3.3.5 `const std::ostream& gdcm::network::AAssociateRJPDU::Write (std::ostream & os) const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

The documentation for this class was generated from the following file:

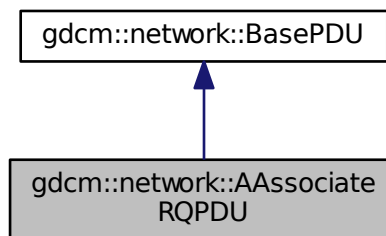
- [gdcmAAssociateRJPDU.h](#)

10.4 gdcmm::network::AAssociateRQPDU Class Reference

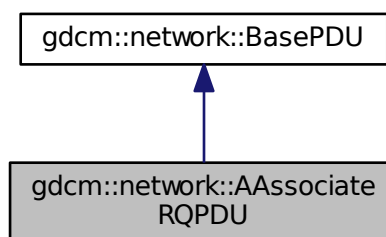
[AAssociateRQPDU](#) Table 9-11 ASSOCIATE-RQ PDU fields.

```
#include <gdcmAAssociateRQPDU.h>
```

Inheritance diagram for gdcmm::network::AAssociateRQPDU:



Collaboration diagram for gdcmm::network::AAssociateRQPDU:



Public Types

- typedef std::vector< [PresentationContextRQ](#) > [PresentationContextArrayType](#)
- typedef std::vector< [PresentationContextRQ](#) >::size_type [SizeType](#)

Public Member Functions

- [AAssociateRQPDU](#) ()
- [AAssociateRQPDU](#) (const [AAssociateRQPDU](#) &pdu)
- void [AddPresentationContext](#) ([PresentationContextRQ](#) const &pc)
- std::string [GetCalledAETitle](#) () const
- std::string [GetCallingAETitle](#) () const
- [SizeType](#) [GetNumberOfPresentationContext](#) () const
- [PresentationContextRQ](#) const & [GetPresentationContext](#) ([SizeType](#) i) const
- const [PresentationContextRQ](#) * [GetPresentationContextByAbstractSyntax](#) ([AbstractSyntax](#) const &absyn) const
- const [PresentationContextRQ](#) * [GetPresentationContextByID](#) (uint8_t i) const
- [PresentationContextArrayType](#) const & [GetPresentationContexts](#) ()
- const [UserInformation](#) & [GetUserInformation](#) () const
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetCalledAETitle](#) (const char calledaetitle[16])
Set the Called AE Title.
- void [SetCallingAETitle](#) (const char callingaetitle[16])
Set the Calling AE Title.
- void [SetUserInformation](#) ([UserInformation](#) const &ui)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

Static Public Member Functions

- static bool [IsAETitleValid](#) (const char title[16])
Check whether or not the.

Protected Member Functions

- std::string [GetReserved43_74](#) () const

Friends

- class [AAssociateACPDU](#)

10.4.1 Detailed Description

[AAssociateRQPDU](#) Table 9-11 ASSOCIATE-RQ PDU fields.

10.4.2 Member Typedef Documentation

10.4.2.1 `typedef std::vector<PresentationContextRQ> gdcm::network::AAAssociateRQPDU::PresentationContextArrayType`

10.4.2.2 `typedef std::vector<PresentationContextRQ>::size_type gdcm::network::AAAssociateRQPDU::SizeType`

10.4.3 Constructor & Destructor Documentation

10.4.3.1 `gdcm::network::AAAssociateRQPDU::AAAssociateRQPDU ()`

10.4.3.2 `gdcm::network::AAAssociateRQPDU::AAAssociateRQPDU (const AAAssociateRQPDU & pdu) [inline]`

10.4.4 Member Function Documentation

10.4.4.1 `void gdcm::network::AAAssociateRQPDU::AddPresentationContext (PresentationContextRQ const & pc)`

10.4.4.2 `std::string gdcm::network::AAAssociateRQPDU::GetCalledAETitle () const [inline]`

References SetCallingAETitle().

10.4.4.3 `std::string gdcm::network::AAAssociateRQPDU::GetCallingAETitle () const [inline]`

References IsAETitleValid(), and Print().

10.4.4.4 `SizeType gdcm::network::AAAssociateRQPDU::GetNumberOfPresentationContext () const [inline]`

10.4.4.5 `PresentationContextRQ const& gdcm::network::AAAssociateRQPDU::GetPresentationContext (SizeType i) const [inline]`

10.4.4.6 `const PresentationContextRQ* gdcm::network::AAAssociateRQPDU::GetPresentationContextByAbstractSyntax (AbstractSyntax const & absyn) const`

Referenced by GetPresentationContexts().

10.4.4.7 `const PresentationContextRQ* gdcm::network::AAAssociateRQPDU::GetPresentationContextByID (uint8_t i) const`

Referenced by GetPresentationContexts().

10.4.4.8 **PresentationContextArrayType** const& gdcm::network::AAssociateRQPDU::GetPresentationContexts ()
[inline]

References GetPresentationContextByAbstractSyntax(), and GetPresentationContextByID().

10.4.4.9 **std::string** gdcm::network::AAssociateRQPDU::GetReserved43_74 () const [protected]

10.4.4.10 **const UserInformation&** gdcm::network::AAssociateRQPDU::GetUserInformation () const [inline]

References SetUserInformation().

10.4.4.11 **static bool** gdcm::network::AAssociateRQPDU::IsAETitleValid (const char *title*[16]) [static]

Check whether or not the.

Parameters

<i>title</i>	is a valid AE title
--------------	---------------------

Referenced by GetCallingAETitle().

10.4.4.12 **bool** gdcm::network::AAssociateRQPDU::IsLastFragment () const [inline],[virtual]

Implements [gdcm::network::BasePDU](#).

10.4.4.13 **void** gdcm::network::AAssociateRQPDU::Print (std::ostream & *os*) const [virtual]

This function will initialize an [AAssociateACPDU](#) from the fields in the [AAssociateRQPDU](#) structure

Implements [gdcm::network::BasePDU](#).

Referenced by GetCallingAETitle().

10.4.4.14 **std::istream&** gdcm::network::AAssociateRQPDU::Read (std::istream & *is*) [virtual]

Implements [gdcm::network::BasePDU](#).

10.4.4.15 **void** gdcm::network::AAssociateRQPDU::SetCalledAETitle (const char *calledaetitle*[16])

Set the Called AE Title.

10.4.4.16 void `gdcm::network::AAssociateRQPDU::SetCallingAETitle (const char callingaetitle[16])`

Set the Calling AE Title.

Referenced by `GetCalledAETitle()`.

10.4.4.17 void `gdcm::network::AAssociateRQPDU::SetUserInformation (UserInformation const & ui)`

Referenced by `GetUserInformation()`.

10.4.4.18 size_t `gdcm::network::AAssociateRQPDU::Size () const` [virtual]

Implements [gdcm::network::BasePDU](#).

10.4.4.19 const std::ostream& `gdcm::network::AAssociateRQPDU::Write (std::ostream & os) const` [virtual]

Implements [gdcm::network::BasePDU](#).

10.4.5 Friends And Related Function Documentation

10.4.5.1 friend class `AAssociateACPDU` [friend]

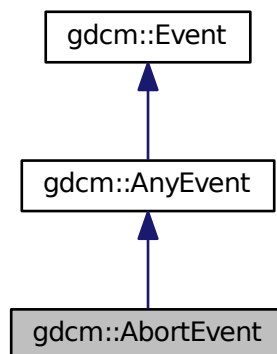
The documentation for this class was generated from the following file:

- [gdcmAAssociateRQPDU.h](#)

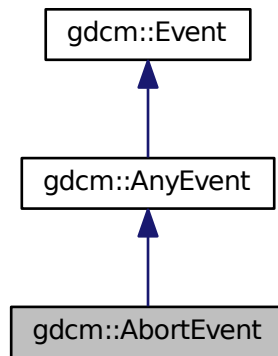
10.5 gdcm::AbortEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for `gdcm::AbortEvent`:



Collaboration diagram for gdcm::AbortEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcmEvent.h](#)

10.6 gdcm::network::AbstractSyntax Class Reference

[AbstractSyntax](#) Table 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS.

```
#include <gdcmAbstractSyntax.h>
```

Public Member Functions

- [AbstractSyntax](#) ()
- [DataElement GetAsDataElement](#) () const
- const char * [GetName](#) () const
- bool [operator==](#) (const [AbstractSyntax](#) &as) const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetName](#) (const char *name)
- void [SetNameFromUID](#) (UIDs::TSName tsname)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.6.1 Detailed Description

[AbstractSyntax](#) Table 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS.

10.6.2 Constructor & Destructor Documentation

10.6.2.1 `gdcm::network::AbstractSyntax::AbstractSyntax ()`

10.6.3 Member Function Documentation

10.6.3.1 `DataElement gdcm::network::AbstractSyntax::GetAsDataElement () const`

Referenced by operator==().

10.6.3.2 `const char* gdcm::network::AbstractSyntax::GetName () const` `[inline]`

References Print(), SetNameFromUID(), and Size().

10.6.3.3 `bool gdcm::network::AbstractSyntax::operator==(const AbstractSyntax & as) const` `[inline]`

References GetAsDataElement().

10.6.3.4 `void gdcm::network::AbstractSyntax::Print (std::ostream & os) const`

Referenced by GetName().

10.6.3.5 `std::istream& gdcm::network::AbstractSyntax::Read (std::istream & is)`

10.6.3.6 `void gdcm::network::AbstractSyntax::SetName (const char * name)` `[inline]`

10.6.3.7 `void gdcm::network::AbstractSyntax::SetNameFromUID (UIDs::TSName tsname)`

Referenced by GetName().

10.6.3.8 `size_t gdcm::network::AbstractSyntax::Size () const`

Referenced by GetName().

10.6.3.9 `const std::ostream& gdcm::network::AbstractSyntax::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

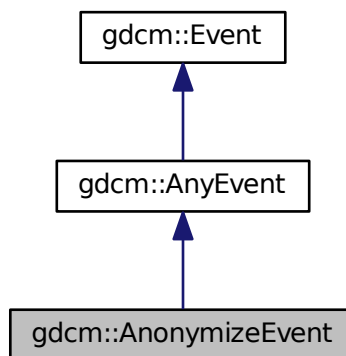
- [gdcmAbstractSyntax.h](#)

10.7 gdcm::AnonymizeEvent Class Reference

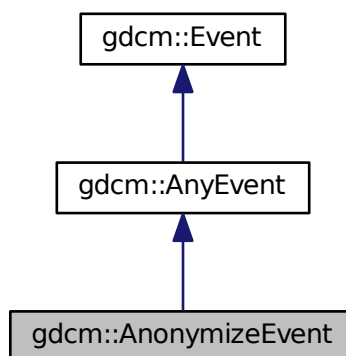
AnonymizeEvent Special type of event triggered during the Anonymization process.

```
#include <gdcmAnonymizeEvent.h>
```

Inheritance diagram for gdcm::AnonymizeEvent:



Collaboration diagram for gdcm::AnonymizeEvent:



Public Types

- typedef [AnonymizeEvent](#) [Self](#)
- typedef [AnyEvent](#) [Superclass](#)

Public Member Functions

- [AnonymizeEvent](#) ([Tag](#) const &tag=0)
- [AnonymizeEvent](#) (const [Self](#) &s)
- virtual [~AnonymizeEvent](#) ()
- virtual bool [CheckEvent](#) (const [::gdcmm::Event](#) *e) const
- virtual const char * [GetEventName](#) () const
- [Tag](#) const & [GetTag](#) () const
- virtual [::gdcmm::Event](#) * [MakeObject](#) () const
- void [SetTag](#) (const [Tag](#) &t)

10.7.1 Detailed Description

[AnonymizeEvent](#) Special type of event triggered during the Anonymization process.

See also

[Anonymizer](#)

10.7.2 Member Typedef Documentation

10.7.2.1 typedef [AnonymizeEvent](#) [gdcmm::AnonymizeEvent::Self](#)

10.7.2.2 typedef [AnyEvent](#) [gdcmm::AnonymizeEvent::Superclass](#)

10.7.3 Constructor & Destructor Documentation

10.7.3.1 [gdcmm::AnonymizeEvent::AnonymizeEvent](#) ([Tag](#) const & *tag* = 0) [\[inline\]](#)

10.7.3.2 virtual [gdcmm::AnonymizeEvent::~~AnonymizeEvent](#) () [\[inline\]](#),[\[virtual\]](#)

10.7.3.3 [gdcmm::AnonymizeEvent::AnonymizeEvent](#) (const [Self](#) & *s*) [\[inline\]](#)

10.7.4 Member Function Documentation

10.7.4.1 virtual bool [gdcmm::AnonymizeEvent::CheckEvent](#) (const [::gdcmm::Event](#) * *e*) const [\[inline\]](#),[\[virtual\]](#)

10.7.4.2 virtual const char* [gdcmm::AnonymizeEvent::GetEventName](#) () const [\[inline\]](#),[\[virtual\]](#)

Return the StringName associated with the event.

Implements [gdcmm::Event](#).

10.7.4.3 `Tag const& gdcm::AnonymizeEvent::GetTag () const` `[inline]`

10.7.4.4 `virtual ::gdcm::Event* gdcm::AnonymizeEvent::MakeObject () const` `[inline],[virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implements [gdcm::Event](#).

10.7.4.5 `void gdcm::AnonymizeEvent::SetTag (const Tag & t)` `[inline]`

The documentation for this class was generated from the following file:

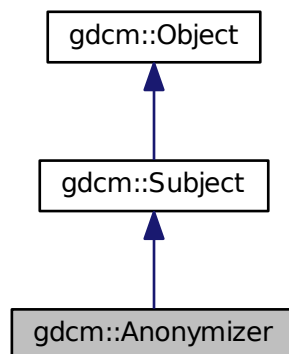
- [gdcmAnonymizeEvent.h](#)

10.8 gdcm::Anonymizer Class Reference

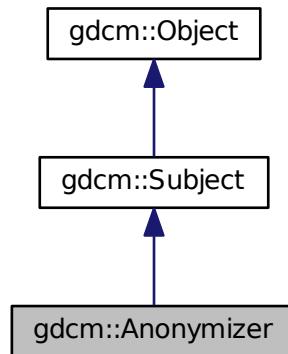
[Anonymizer](#) This class is a multi purpose anonymizer. It can work in 2 mode:

```
#include <gdcmAnonymizer.h>
```

Inheritance diagram for `gdcm::Anonymizer`:



Collaboration diagram for gdcm::Anonymizer:



Public Member Functions

- [Anonymizer](#) ()
- [~Anonymizer](#) ()
- bool [BasicApplicationLevelConfidentialityProfile](#) (bool deidentify=true)
- bool [Empty](#) (Tag const &t)
- const [CryptographicMessageSyntax](#) * [GetCryptographicMessageSyntax](#) () const
- [File](#) & [GetFile](#) ()
- bool [Remove](#) (Tag const &t)
- bool [RemoveGroupLength](#) ()
 - Main function that loop over all elements and remove group length.*
- bool [RemovePrivateTags](#) ()
 - Main function that loop over all elements and remove private tags.*
- bool [RemoveRetired](#) ()
 - Main function that loop over all elements and remove retired element.*
- bool [Replace](#) (Tag const &t, const char *value)
- bool [Replace](#) (Tag const &t, const char *value, [VL](#) const &vl)
- void [SetCryptographicMessageSyntax](#) ([CryptographicMessageSyntax](#) *cms)
 - Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.*
- void [SetFile](#) (const [File](#) &f)
 - Set/Get File.*

Static Public Member Functions

- static void [ClearInternalUIDs](#) ()
- static std::vector< [Tag](#) > [GetBasicApplicationLevelConfidentialityProfileAttributes](#) ()
 - Return the list of Tag that will be considered when anonymizing a DICOM file.*
- static [SmartPointer](#)< [Anonymizer](#) > [New](#) ()
 - for wrapped language: instantiate a reference counted object*

Protected Member Functions

- bool [BALCPPProtect](#) ([DataSet](#) &ds, [Tag](#) const &tag, const [IOD](#) &iod)
- bool [CanEmptyTag](#) ([Tag](#) const &tag, const [IOD](#) &iod) const
- void [RecurseDataSet](#) ([DataSet](#) &ds)

10.8.1 Detailed Description

[Anonymizer](#) This class is a multi purpose anonymizer. It can work in 2 mode:

- Full (irreversible) anonymizer (aka dumb mode)
- reversible de-identifier/re-identifier (aka smart mode). This implements the Basic Application Level Confidentiality Profile, DICOM PS 3.15-2009

1. dumb mode This is a dumb anonymizer implementation. All it allows user is simple operation such as:

[Tag](#) based functions:

- complete removal of DICOM attribute (Remove)
- make a tag empty, ie make it's length 0 (Empty)
- replace with another string-based value (Replace)

[DataSet](#) based functions:

- Remove all group length attribute from a DICOM dataset (Group Length element are deprecated, DICOM 2008)
- Remove all private attributes
- Remove all retired attributes

All function calls actually execute the user specified request. Previous implementation were calling a general Anonymize function but traversing a `std::set` is $O(n)$ operation, while a simple user specified request is $O(\log(n))$ operation. So 'm' user interaction is $O(m*\log(n))$ which is $< O(n)$ complexity.

1. smart mode this mode implements the Basic Application Level Confidentiality Profile (DICOM PS 3.15-2008) In this case, it is extremely important to use the same [Anonymizer](#) class when anonymizing a [FileSet](#). Once the [Anonymizer](#) is destroyed its memory of known (already processed) [UIDs](#) will be lost. which will make the anonymizer behaves incorrectly for attributes such as [Series](#) [UID](#) [Study](#) [UID](#) where user want some consistency. When attribute is [Type](#) 1 / [Type](#) 1C, a dummy generator will take in the existing value and produce a dummy value (a sha1 representation). sha1 algorithm is considered to be cryptographically strong (compared to md5sum) so that we meet the following two conditions:

- Produce the same dummy value for the same input value
- do not provide an easy way to retrieve the original value from the sha1 generated value

This class implement the Subject/Observer pattern trigger the following event:

- [AnonymizeEvent](#)
- [IterationEvent](#)
- [StartEvent](#)
- [EndEvent](#)

See also

[CryptographicMessageSyntax](#)

Examples:

[ClinicalTrialAnnotate.cxx](#), [CreateJPIPDataSet.cxx](#), and [EncapsulateFileInRawData.cxx](#).

10.8.2 Constructor & Destructor Documentation

10.8.2.1 `gdcm::Anonymizer::Anonymizer ()` `[inline]`

10.8.2.2 `gdcm::Anonymizer::~~Anonymizer ()`

10.8.3 Member Function Documentation

10.8.3.1 `bool gdcm::Anonymizer::BALCPPProtect (DataSet & ds, Tag const & tag, const IOD & iod)` `[protected]`

10.8.3.2 `bool gdcm::Anonymizer::BasicApplicationLevelConfidentialityProfile (bool deidentify = true)`

PS 3.15 / E.1.1 De-Identifier An Application may claim conformance to the Basic Application Level Confidentiality Profile as a deidentifier if it protects all Attributes that might be used by unauthorized entities to identify the patient. NOT THREAD SAFE

10.8.3.3 `bool gdcm::Anonymizer::CanEmptyTag (Tag const & tag, const IOD & iod) const` `[protected]`

10.8.3.4 `static void gdcm::Anonymizer::ClearInternalUIDs ()` `[static]`

Clear the internal mapping of real [UIDs](#) to generated [UIDs](#)

Warning

the mapping is definitely lost

10.8.3.5 `bool gdcm::Anonymizer::Empty (Tag const & t)`

Make [Tag](#) t empty (if not found tag will be created) Warning: does not handle SQ element

Examples:

[CreateJPIPDataSet.cxx](#).

10.8.3.6 `static std::vector<Tag> gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes () [static]`

Return the list of [Tag](#) that will be considered when anonymizing a DICOM file.

Examples:

[GenFakeIdentifyFile.cxx](#), and [TraverseModules.cxx](#).

10.8.3.7 `const CryptographicMessageSyntax* gdcm::Anonymizer::GetCryptographicMessageSyntax () const`

10.8.3.8 `File& gdcm::Anonymizer::GetFile () [inline]`

10.8.3.9 `static SmartPointer<Anonymizer> gdcm::Anonymizer::New () [inline],[static]`

for wrapped language: instantiate a reference counted object

10.8.3.10 `void gdcm::Anonymizer::RecurseDataSet (DataSet & ds) [protected]`

10.8.3.11 `bool gdcm::Anonymizer::Remove (Tag const & t)`

remove a tag (even a SQ can be removed) Return code is false when tag t cannot be found

10.8.3.12 `bool gdcm::Anonymizer::RemoveGroupLength ()`

Main function that loop over all elements and remove group length.

Examples:

[ClinicalTrialAnnotate.cxx](#).

10.8.3.13 `bool gdcm::Anonymizer::RemovePrivateTags ()`

Main function that loop over all elements and remove private tags.

Examples:

[ClinicalTrialAnnotate.cxx](#).

10.8.3.14 `bool gdcm::Anonymizer::RemoveRetired ()`

Main function that loop over all elements and remove retired element.

10.8.3.15 `bool gdcm::Anonymizer::Replace (Tag const & t, const char * value)`

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII

Examples:

[ClinicalTrialAnnotate.cxx](#), [CreateJPIPDataSet.cxx](#), and [EncapsulateFileInRawData.cxx](#).

10.8.3.16 `bool gdcm::Anonymizer::Replace (Tag const & t, const char * value, VL const & vl)`

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

10.8.3.17 `void gdcm::Anonymizer::SetCryptographicMessageSyntax (CryptographicMessageSyntax * cms)`

Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.

10.8.3.18 `void gdcm::Anonymizer::SetFile (const File & f) [inline]`

Set/Get [File](#).

Examples:

[ClinicalTrialAnnotate.cxx](#), [CreateJPIPDataSet.cxx](#), and [EncapsulateFileInRawData.cxx](#).

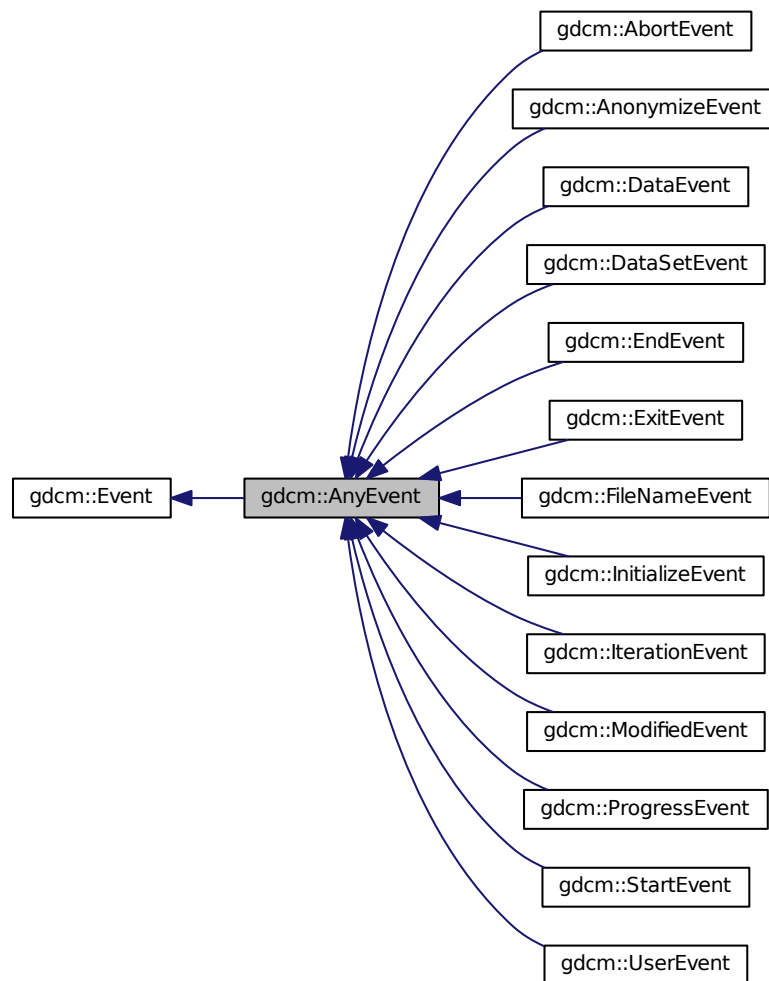
The documentation for this class was generated from the following file:

- [gdcmAnonymizer.h](#)

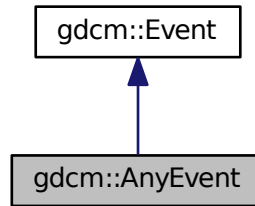
10.9 gdcm::AnyEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcM::AnyEvent:



Collaboration diagram for gdcM::AnyEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcMEvent.h](#)

10.10 gdcM::network::ApplicationContext Class Reference

[ApplicationContext Table](#) 9-12 APPLICATION CONTEXT ITEM FIELDS.

```
#include <gdcMApplicationContext.h>
```

Public Member Functions

- [ApplicationContext](#) ()
- const char * [GetName](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetName](#) (const char *name)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.10.1 Detailed Description

[ApplicationContext Table](#) 9-12 APPLICATION CONTEXT ITEM FIELDS.

Todo Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

10.10.2 Constructor & Destructor Documentation

10.10.2.1 `gdcm::network::ApplicationContext::ApplicationContext ()`

10.10.3 Member Function Documentation

10.10.3.1 `const char* gdcm::network::ApplicationContext::GetName () const` `[inline]`

References `Print()`, and `Size()`.

10.10.3.2 `void gdcm::network::ApplicationContext::Print (std::ostream & os) const`

Referenced by `GetName()`.

10.10.3.3 `std::istream& gdcm::network::ApplicationContext::Read (std::istream & is)`

10.10.3.4 `void gdcm::network::ApplicationContext::SetName (const char * name)` `[inline]`

10.10.3.5 `size_t gdcm::network::ApplicationContext::Size () const`

Referenced by `GetName()`.

10.10.3.6 `const std::ostream& gdcm::network::ApplicationContext::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

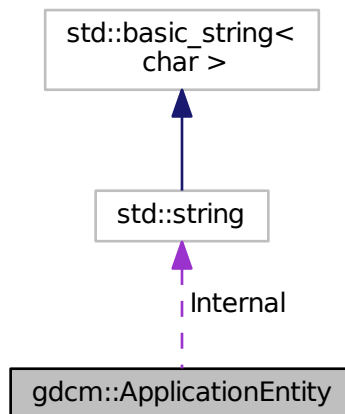
- [gdcmApplicationContext.h](#)

10.11 gdcm::ApplicationEntity Class Reference

[ApplicationEntity](#).

```
#include <gdcmApplicationEntity.h>
```

Collaboration diagram for gdcm::ApplicationEntity:



Public Member Functions

- bool [IsValid](#) () const
- void [Print](#) (std::ostream &os) const
- void [SetBlob](#) (const std::vector< char > &v)
- void [Squeeze](#) ()

Public Attributes

- std::string [Internal](#)

Static Public Attributes

- static const unsigned int [MaxLength](#) = 16
- static const unsigned int [MaxNumberOfComponents](#) = 1
- static const char [Padding](#) = ''
- static const char [Separator](#) = ''

10.11.1 Detailed Description

[ApplicationEntity](#).

- AE Application Entity
- A string of characters that identifies an Application Entity with leading and trailing spaces (20H) being non-significant. A value consisting solely of spaces shall not be used.
- Default Character Repertoire excluding character code 5CH (the BACKSLASH \ in ISO-IR 6), and control characters LF, FF, CR and ESC.
- 16 bytes maximum

10.11.2 Member Function Documentation

10.11.2.1 `bool gdcm::ApplicationEntity::IsValid () const` `[inline]`

10.11.2.2 `void gdcm::ApplicationEntity::Print (std::ostream & os) const` `[inline]`

10.11.2.3 `void gdcm::ApplicationEntity::SetBlob (const std::vector< char > & v)` `[inline]`

10.11.2.4 `void gdcm::ApplicationEntity::Squeeze ()` `[inline]`

10.11.3 Member Data Documentation

10.11.3.1 `std::string gdcm::ApplicationEntity::Internal`

10.11.3.2 `const unsigned int gdcm::ApplicationEntity::MaxLength = 16` `[static]`

10.11.3.3 `const unsigned int gdcm::ApplicationEntity::MaxNumberOfComponents = 1` `[static]`

10.11.3.4 `const char gdcm::ApplicationEntity::Padding = ''` `[static]`

10.11.3.5 `const char gdcm::ApplicationEntity::Separator = ''` `[static]`

The documentation for this class was generated from the following file:

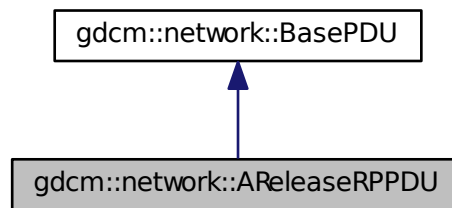
- [gdcmApplicationEntity.h](#)

10.12 gdcm::network::AReleaseRPPDU Class Reference

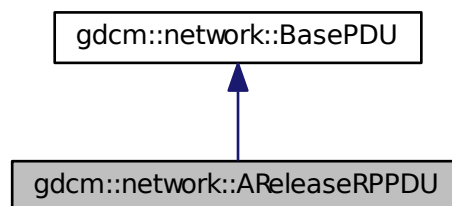
[AReleaseRPPDU](#) Table 9-25 A-RELEASE-RP PDU fields.

```
#include <gdcmAReleaseRPPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRPPDU:



Collaboration diagram for gdcm::network::AReleaseRPPDU:



Public Member Functions

- [AReleaseRPPDU](#) ()
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.12.1 Detailed Description

[AReleaseRPPDU Table](#) 9-25 A-RELEASE-RP PDU fields.

10.12.2 Constructor & Destructor Documentation

10.12.2.1 `gdcmm::network::AReleaseRPPDU::AReleaseRPPDU ()`

10.12.3 Member Function Documentation

10.12.3.1 `bool gdcmm::network::AReleaseRPPDU::IsLastFragment () const` `[inline], [virtual]`

Implements [gdcmm::network::BasePDU](#).

10.12.3.2 `void gdcmm::network::AReleaseRPPDU::Print (std::ostream & os) const` `[virtual]`

Implements [gdcmm::network::BasePDU](#).

10.12.3.3 `std::istream& gdcmm::network::AReleaseRPPDU::Read (std::istream & is)` `[virtual]`

Implements [gdcmm::network::BasePDU](#).

10.12.3.4 `size_t gdcmm::network::AReleaseRPPDU::Size () const` `[virtual]`

Implements [gdcmm::network::BasePDU](#).

10.12.3.5 `const std::ostream& gdcmm::network::AReleaseRPPDU::Write (std::ostream & os) const` `[virtual]`

Implements [gdcmm::network::BasePDU](#).

The documentation for this class was generated from the following file:

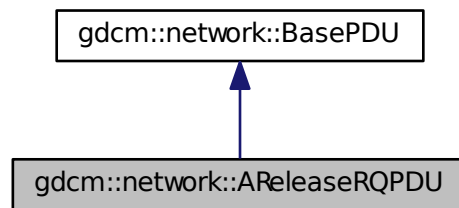
- [gdcmmAReleaseRPPDU.h](#)

10.13 gdcn::network::AReleaseRQPDU Class Reference

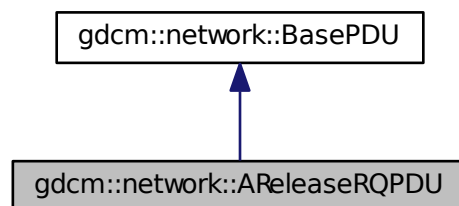
[AReleaseRQPDU](#) Table 9-24 A-RELEASE-RQ PDU FIELDS.

```
#include <gdcnAReleaseRQPDU.h>
```

Inheritance diagram for gdcn::network::AReleaseRQPDU:



Collaboration diagram for gdcn::network::AReleaseRQPDU:



Public Member Functions

- [AReleaseRQPDU](#) ()
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.13.1 Detailed Description

[AReleaseRQPDU](#) Table 9-24 A-RELEASE-RQ PDU FIELDS.

10.13.2 Constructor & Destructor Documentation

10.13.2.1 `gdcm::network::AReleaseRQPDU::AReleaseRQPDU ()`

10.13.3 Member Function Documentation

10.13.3.1 `bool gdcm::network::AReleaseRQPDU::IsLastFragment () const` `[inline],[virtual]`

Implements [gdcm::network::BasePDU](#).

10.13.3.2 `void gdcm::network::AReleaseRQPDU::Print (std::ostream & os) const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.13.3.3 `std::istream& gdcm::network::AReleaseRQPDU::Read (std::istream & is)` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.13.3.4 `size_t gdcm::network::AReleaseRQPDU::Size () const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

10.13.3.5 `const std::ostream& gdcm::network::AReleaseRQPDU::Write (std::ostream & os) const` `[virtual]`

Implements [gdcm::network::BasePDU](#).

The documentation for this class was generated from the following file:

- [gdcmAReleaseRQPDU.h](#)

10.14 gdcm::network::ARTIMTimer Class Reference

[ARTIMTimer](#) This file contains the code for the ARTIM timer.

```
#include <gdcmARTIMTimer.h>
```

Public Member Functions

- [ARTIMTimer](#) ()
- double [GetElapsedTime](#) () const
- bool [GetHasExpired](#) () const
- double [GetTimeout](#) () const
- void [SetTimeout](#) (double inTimeout)
- void [Start](#) ()
- void [Stop](#) ()

10.14.1 Detailed Description

[ARTIMTimer](#) This file contains the code for the ARTIM timer.

Basically, the ARTIM timer will just get the wall time when it's started, and then can be queried for the current time, and then can be stopped (ie, the start time reset).

Because we're trying to do this without threading, we should be able to 'start' the ARTIM timer by this mechanism, and then when waiting for a particular response, tight loop that with sleep calls and determinations of when the ARTIM timer has reached its peak. As such, this isn't a strict 'timer' in the traditional sense of the word, but more of a time keeper.

There can be only one ARTIM timer per connection.

10.14.2 Constructor & Destructor Documentation

10.14.2.1 `gdcm::network::ARTIMTimer::ARTIMTimer ()`

10.14.3 Member Function Documentation

10.14.3.1 `double gdcm::network::ARTIMTimer::GetElapsedTime () const`

10.14.3.2 `bool gdcm::network::ARTIMTimer::GetHasExpired () const`

10.14.3.3 `double gdcm::network::ARTIMTimer::GetTimeout () const`

10.14.3.4 `void gdcm::network::ARTIMTimer::SetTimeout (double inTimeout)`

10.14.3.5 `void gdcm::network::ARTIMTimer::Start ()`

10.14.3.6 `void gdcm::network::ARTIMTimer::Stop ()`

The documentation for this class was generated from the following file:

- [gdcmARTIMTimer.h](#)

10.15 gdcm::ASN1 Class Reference

Class for [ASN1](#).

```
#include <gdcmASN1.h>
```

Public Member Functions

- [ASN1](#) ()
- [~ASN1](#) ()

Static Public Member Functions

- static bool [ParseDump](#) (const char *array, size_t length)
- static bool [ParseDumpFile](#) (const char *filename)

Protected Member Functions

- int [TestPBKDF2](#) ()

10.15.1 Detailed Description

Class for [ASN1](#).

10.15.2 Constructor & Destructor Documentation

10.15.2.1 [gdcm::ASN1::ASN1](#) ()

10.15.2.2 [gdcm::ASN1::~~ASN1](#) ()

10.15.3 Member Function Documentation

10.15.3.1 [static bool gdcm::ASN1::ParseDump](#) (const char * *array*, size_t *length*) [static]

10.15.3.2 [static bool gdcm::ASN1::ParseDumpFile](#) (const char * *filename*) [static]

10.15.3.3 [int gdcm::ASN1::TestPBKDF2](#) () [protected]

The documentation for this class was generated from the following file:

- [gdcmASN1.h](#)

10.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference

[AsynchronousOperationsWindowSub](#) PS 3.7 [Table D.3-7](#) ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM F↔ IELDS (A-ASSOCIATE-RQ)

```
#include <gdcmAsynchronousOperationsWindowSub.h>
```

Public Member Functions

- [AsynchronousOperationsWindowSub](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.16.1 Detailed Description

[AsynchronousOperationsWindowSub](#) PS 3.7 [Table D.3-7](#) ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM F↔ IELDS (A-ASSOCIATE-RQ)

10.16.2 Constructor & Destructor Documentation

10.16.2.1 `gdcm::network::AsynchronousOperationsWindowSub::AsynchronousOperationsWindowSub ()`

10.16.3 Member Function Documentation

10.16.3.1 `void gdcm::network::AsynchronousOperationsWindowSub::Print (std::ostream & os) const`

10.16.3.2 `std::istream& gdcm::network::AsynchronousOperationsWindowSub::Read (std::istream & is)`

10.16.3.3 `size_t gdcm::network::AsynchronousOperationsWindowSub::Size () const`

10.16.3.4 `const std::ostream& gdcm::network::AsynchronousOperationsWindowSub::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

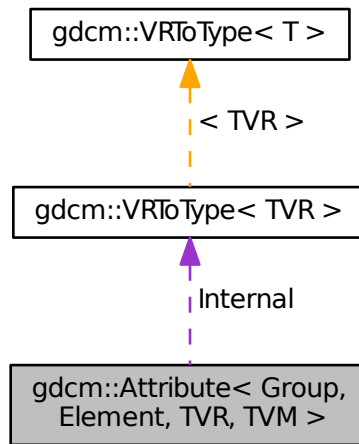
- [gdcmAsynchronousOperationsWindowSub.h](#)

10.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference

Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

```
#include <gdcmAttribute.h>
```

Collaboration diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Public Types

- enum { `VMType` = `VMToLength<TVM>::Length` }
- typedef `VRTToType< TVR >::Type` `ArrayType`

Public Member Functions

- `GDCM_STATIC_ASSERT` (((`VR::VRTType`) TVR &(`VR::VRTType`)(`TagToType< Group, Element >::VRTType`)))
- `GDCM_STATIC_ASSERT` (((`VM::VMType`) TVM &(`VM::VMType`)(`TagToType< Group, Element >::VMType`)))
- `GDCM_STATIC_ASSERT` ((((((`VR::VRTType`) TVR &`VR::VR_VM1`)&&((`VM::VMType`) TVM==`VM::VM1`))||!((`VR::VRTType`) TVR &`VR::VR_VM1`))))
- `DataElement` `GetAsDataElement` () const
- unsigned int `GetNumberOfValues` () const
- `ArrayType` & `GetValue` (unsigned int idx=0)
- `ArrayType` const & `GetValue` (unsigned int idx=0) const
- const `ArrayType` * `GetValues` () const
- bool `operator!=` (const `Attribute` &att) const
- bool `operator<` (const `Attribute` &att) const

- bool `operator==` (const `Attribute` &att) const
- `ArrayType` & `operator[]` (unsigned int idx)
- `ArrayType` const & `operator[]` (unsigned int idx) const
- void `Print` (std::ostream &os) const
- void `Set` (`DataSet` const &ds)
- void `SetFromDataElement` (`DataElement` const &de)
- void `SetFromDataSet` (`DataSet` const &ds)
- void `SetValue` (`ArrayType` v, unsigned int idx=0)
- void `SetValues` (const `ArrayType` *array, unsigned int numel=`VMType`)

Static Public Member Functions

- static `VM GetDictVM` ()
- static `VR GetDictVR` ()
- static `Tag GetTag` ()
- static `VM GetVM` ()
- static `VR GetVR` ()

Public Attributes

- `ArrayType Internal` [`VMToLength`< `TVM` >::Length]

Protected Member Functions

- void `SetByteValue` (const `ByteValue` *bv)
- void `SetByteValueNoSwap` (const `ByteValue` *bv)

10.17.1 Detailed Description

```
template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType>
class gdcmm::Attribute< Group, Element, TVR, TVM >
```

`Attribute` class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

Typical example that compile is: `Attribute<0x0008,0x9007> a = {"ORIGINAL","PRIMARY","T1","NONE"};`

Examples that will NOT compile are:

`Attribute<0x0018,0x1182, VR::IS, VM::VM1> fd1 = {};` // not enough parameters `Attribute<0x0018,0x1182, VR::IS, VM::VM2> fd2 = {0,1,2};` // too many initializers `Attribute<0x0018,0x1182, VR::IS, VM::VM3> fd3 = {0,1,2};` // VM3 is not valid `Attribute<0x0018,0x1182, VR::UL, VM::VM2> fd3 = {0,1};` // UL is not valid `VR`

Examples:

`CreateFakeRTDOSE.cxx`, `CreateJPIPDataSet.cxx`, `Extracting_All_Resolution.cxx`, `Fake_Image_Using_Stream↵_Image_Writer.cxx`, `FixOrientation.cxx`, `gdcmmrtionplan.cxx`, `gdcmmrtplan.cxx`, `GenFakeIdentifyFile.cxx`, `Get↵SequenceUltrasound.cxx`, `HelloWorld.cxx`, `LargeVRDSExplicit.cxx`, `PatchFile.cxx`, `pmsct_rgb1.cxx`, `ReadAnd↵PrintAttributes.cxx`, `rie2img.cxx`, `SortImage.cxx`, `StreamImageReaderTest.cxx`, and `VolumeSorter.cxx`.

10.17.2 Member Typedef Documentation

- 10.17.2.1 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType`

10.17.3 Member Enumeration Documentation

- 10.17.3.1 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> anonymous enum`

Enumerator

VMType

10.17.4 Member Function Documentation

- 10.17.4.1 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))`
- 10.17.4.2 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)))`
- 10.17.4.3 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT ((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))`
- 10.17.4.4 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const [inline]`

References `gdcm::DataElement::GetVR()`, `gdcm::DataElement::SetByteValue()`, and `gdcm::DataElement::SetVR()`.

- 10.17.4.5 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> static VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM () [inline], [static]`
- 10.17.4.6 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> static VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR () [inline], [static]`
- 10.17.4.7 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const [inline]`

Referenced by `gdcm::Attribute< Group, Element, TVR, TVM >::operator<()`, and `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator<()`.

10.17.4.8 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> static Tag gdcmm::Attribute< Group, Element, TVR, TVM >::GetTag () [inline], [static]`

10.17.4.9 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> ArrayType& gdcmm::Attribute< Group, Element, TVR, TVM >::GetValue (unsigned int idx = 0) [inline]`

10.17.4.10 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> ArrayType const& gdcmm::Attribute< Group, Element, TVR, TVM >::GetValue (unsigned int idx = 0) const [inline]`

10.17.4.11 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> const ArrayType* gdcmm::Attribute< Group, Element, TVR, TVM >::GetValues () const [inline]`

Referenced by `gdcmm::Attribute< Group, Element, TVR, TVM >::operator!=()`, `gdcmm::Attribute< Group, Element, T←VR, VM::VM1 >::operator!=()`, `gdcmm::Attribute< Group, Element, TVR, TVM >::operator<()`, `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >::operator<()`, `gdcmm::Attribute< Group, Element, TVR, TVM >::operator==()`, and `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >::operator==()`.

10.17.4.12 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> static VM gdcmm::Attribute< Group, Element, TVR, TVM >::GetVM () [inline], [static]`

10.17.4.13 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> static VR gdcmm::Attribute< Group, Element, TVR, TVM >::GetVR () [inline], [static]`

10.17.4.14 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> bool gdcmm::Attribute< Group, Element, TVR, TVM >::operator!= (const Attribute< Group, Element, TVR, TVM > & att) const [inline]`

References `gdcmm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.17.4.15 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> bool gdcmm::Attribute< Group, Element, TVR, TVM >::operator< (const Attribute< Group, Element, TVR, TVM > & att) const [inline]`

References `gdcmm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues()`, and `gdcmm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.17.4.16 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> bool gdcmm::Attribute< Group, Element, TVR, TVM >::operator== (const Attribute< Group, Element, TVR, TVM > & att) const [inline]`

References `gdcmm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.17.4.17 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> ArrayType& gdcm::Attribute< Group, Element, TVR, TVM >::operator[](unsigned int idx) [inline]`

10.17.4.18 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> ArrayType const& gdcm::Attribute< Group, Element, TVR, TVM >::operator[](unsigned int idx) const [inline]`

10.17.4.19 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::Print (std::ostream & os) const [inline]`

10.17.4.20 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::Set (DataSet const & ds) [inline]`

References `gdcm::DataSet::GetDataElement()`.

10.17.4.21 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (const ByteValue * bv) [inline], [protected]`

References `gdcm::ByteValue::GetLength()`, and `gdcm::ByteValue::GetPointer()`.

10.17.4.22 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (const ByteValue * bv) [inline], [protected]`

References `gdcm::ByteValue::GetLength()`, and `gdcm::ByteValue::GetPointer()`.

10.17.4.23 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (DataElement const & de) [inline]`

References `gdcm::DataElement::GetByteValue()`, `gdcm::Tag::GetGroup()`, `gdcm::DataElement::GetTag()`, `gdcm::DataElement::GetVR()`, and `gdcm::DataElement::IsEmpty()`.

10.17.4.24 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (DataSet const & ds) [inline]`

References `gdcm::DataSet::FindDataElement()`, `gdcm::DataSet::GetDataElement()`, and `gdcm::DataElement::IsEmpty()`.

- 10.17.4.25 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcM::Attribute< Group, Element, TVR, TVM >::SetValue (ArrayType v, unsigned int idx = 0) [inline]`
- 10.17.4.26 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> void gdcM::Attribute< Group, Element, TVR, TVM >::SetValues (const ArrayType * array, unsigned int numel = VMType) [inline]`

Examples:

[LargeVRDSExplicit.cxx](#).

10.17.5 Member Data Documentation

- 10.17.5.1 `template<uint16_t Group, uint16_t Element, int TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType> ArrayType gdcM::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]`

Referenced by `gdcM::Attribute< Group, Element, TVR, VM::VM3_3n >::GetVM()`.

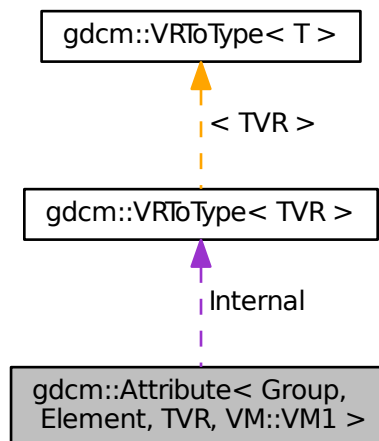
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

10.18 gdcM::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference

```
#include <gdcMAttribute.h>
```

Collaboration diagram for `gdcM::Attribute< Group, Element, TVR, VM::VM1 >`:



Public Types

- enum { [VMType](#) = VMToLength<VM::VM1>::Length }
- typedef [VRToType](#)< TVR >::Type ArrayType

Public Member Functions

- [GDCM_STATIC_ASSERT](#) (VMToLength< VM::VM1 >::Length==1)
- [GDCM_STATIC_ASSERT](#) (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, [Element](#) >::VRType)))
- [GDCM_STATIC_ASSERT](#) (((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, [Element](#) >::VMType)))
- [GDCM_STATIC_ASSERT](#) (((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1))))
- [DataElement](#) GetAsDataElement () const
- unsigned int [GetNumberOfValues](#) () const
- [ArrayType](#) & [GetValue](#) ()
- [ArrayType](#) const & [GetValue](#) () const
- const [ArrayType](#) * [GetValues](#) () const
- bool [operator!=](#) (const [Attribute](#) &att) const
- bool [operator<](#) (const [Attribute](#) &att) const
- bool [operator==](#) (const [Attribute](#) &att) const
- void [Print](#) (std::ostream &os) const
- void [Set](#) ([DataSet](#) const &ds)
- void [SetFromDataElement](#) ([DataElement](#) const &de)
- void [SetFromDataSet](#) ([DataSet](#) const &ds)
- void [SetValue](#) ([ArrayType](#) v)

Static Public Member Functions

- static [VM](#) [GetDictVM](#) ()
- static [VR](#) [GetDictVR](#) ()
- static [Tag](#) [GetTag](#) ()
- static [VM](#) [GetVM](#) ()
- static [VR](#) [GetVR](#) ()

Public Attributes

- [ArrayType](#) Internal

Protected Member Functions

- void [SetByteValue](#) (const [ByteValue](#) *bv)
- void [SetByteValueNoSwap](#) (const [ByteValue](#) *bv)

10.18.1 Member Typedef Documentation

- 10.18.1.1 `template<uint16_t Group, uint16_t Element, int TVR> typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1 >::ArrayType`

10.18.2 Member Enumeration Documentation

- 10.18.2.1 `template<uint16_t Group, uint16_t Element, int TVR> anonymous enum`

Enumerator

VMType

10.18.3 Member Function Documentation

- 10.18.3.1 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (VMToLength< VM::VM1 >::Length ==1)`
- 10.18.3.2 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))`
- 10.18.3.3 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)))`
- 10.18.3.4 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT ((((VR::VRType) TVR &VR::VR_VM1)&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))`
- 10.18.3.5 `template<uint16_t Group, uint16_t Element, int TVR> DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement () const [inline]`

References `gdcm::DataElement::GetVR()`, `gdcm::DataElement::SetByteValue()`, and `gdcm::DataElement::SetVR()`.

- 10.18.3.6 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVM () [inline],[static]`
- 10.18.3.7 `template<uint16_t Group, uint16_t Element, int TVR> static VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVR () [inline],[static]`
- 10.18.3.8 `template<uint16_t Group, uint16_t Element, int TVR> unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetNumberOfValues () const [inline]`

10.18.3.9 `template<uint16_t Group, uint16_t Element, int TVR> static Tag gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetTag() [inline], [static]`

10.18.3.10 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType& gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue() [inline]`

10.18.3.11 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType const& gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue() const [inline]`

10.18.3.12 `template<uint16_t Group, uint16_t Element, int TVR> const ArrayType* gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValues() const [inline]`

10.18.3.13 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVM() [inline], [static]`

10.18.3.14 `template<uint16_t Group, uint16_t Element, int TVR> static VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVR() [inline], [static]`

10.18.3.15 `template<uint16_t Group, uint16_t Element, int TVR> bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!=(const Attribute< Group, Element, TVR, VM::VM1 > & att) const [inline]`

References `gdcm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.18.3.16 `template<uint16_t Group, uint16_t Element, int TVR> bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator<(const Attribute< Group, Element, TVR, VM::VM1 > & att) const [inline]`

References `gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues()`, and `gdcm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.18.3.17 `template<uint16_t Group, uint16_t Element, int TVR> bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator==(const Attribute< Group, Element, TVR, VM::VM1 > & att) const [inline]`

References `gdcm::Attribute< Group, Element, TVR, TVM >::GetValues()`.

10.18.3.18 `template<uint16_t Group, uint16_t Element, int TVR> void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Print(std::ostream & os) const [inline]`

10.18.3.19 `template<uint16_t Group, uint16_t Element, int TVR> void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set(DataSet const & ds) [inline]`

References `gdcm::DataSet::GetDataElement()`.

10.18.3.20 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue (const ByteValue * bv) [inline], [protected]`

References `gdcM::ByteValue::GetLength()`, and `gdcM::ByteValue::GetPointer()`.

10.18.3.21 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap (const ByteValue * bv) [inline], [protected]`

References `gdcM::ByteValue::GetLength()`, and `gdcM::ByteValue::GetPointer()`.

10.18.3.22 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement (DataElement const & de) [inline]`

References `gdcM::DataElement::GetByteValue()`, `gdcM::Tag::GetGroup()`, `gdcM::DataElement::GetTag()`, `gdcM::DataElement::GetVR()`, and `gdcM::DataElement::IsEmpty()`.

10.18.3.23 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet (DataSet const & ds) [inline]`

References `gdcM::DataSet::FindDataElement()`, `gdcM::DataSet::GetDataElement()`, and `gdcM::DataElement::IsEmpty()`.

10.18.3.24 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1 >::SetValue (ArrayType v) [inline]`

10.18.4 Member Data Documentation

10.18.4.1 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType gdcM::Attribute< Group, Element, TVR, VM::VM1 >::Internal`

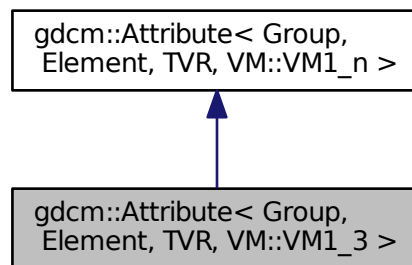
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

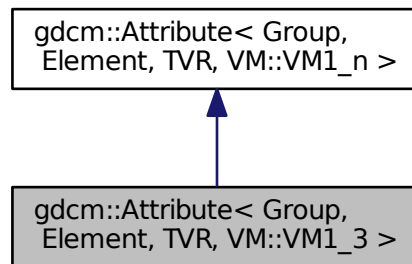
10.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Public Member Functions

- [VM GetVM](#) () const

Additional Inherited Members

10.19.1 Member Function Documentation

10.19.1.1 `template<uint16_t Group, uint16_t Element, int TVR> VM gdcM::Attribute< Group, Element, TVR, VM::VM1_3 >::GetVM () const [inline]`

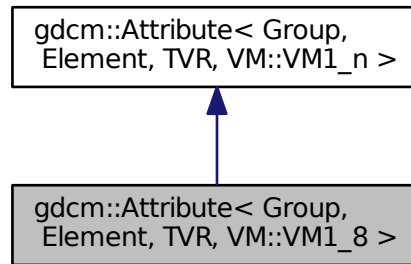
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

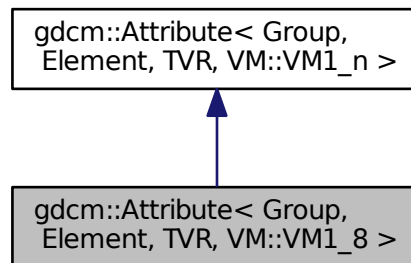
10.20 gdcM::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference

```
#include <gdcMAttribute.h>
```

Inheritance diagram for gdcM::Attribute< Group, Element, TVR, VM::VM1_8 >:



Collaboration diagram for gdcM::Attribute< Group, Element, TVR, VM::VM1_8 >:



Public Member Functions

- [VM GetVM](#) () const

Additional Inherited Members

10.20.1 Member Function Documentation

10.20.1.1 `template<uint16_t Group, uint16_t Element, int TVR> VM gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 >::GetVM () const [inline]`

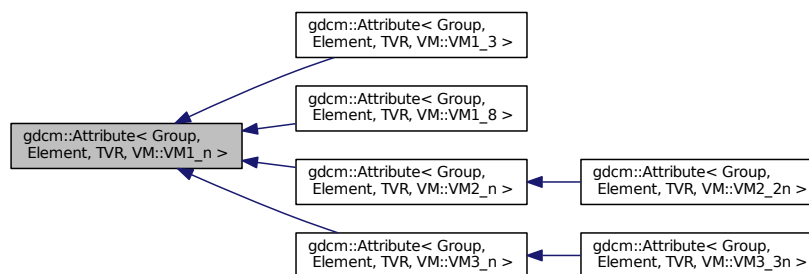
The documentation for this class was generated from the following file:

- [gdcmmAttribute.h](#)

10.21 gdcmm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmmAttribute.h>
```

Inheritance diagram for gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >:



Public Types

- `typedef VRToType< TVR >::Type ArrayType`

Public Member Functions

- [Attribute](#) ()
- [~Attribute](#) ()
- [GDCM_STATIC_ASSERT](#) ((([VR::VRType](#)) TVR &([VR::VRType](#))(TagToType< Group, [Element](#) >::VRType)))
- [GDCM_STATIC_ASSERT](#) (([VM::VM1_n](#) &([VM::VMType](#))(TagToType< Group, [Element](#) >::VMType)))
- [GDCM_STATIC_ASSERT](#) (((((([VR::VRType](#)) TVR &[VR::VR_VM1](#))&&(([VM::VMType](#)) TagToType< Group, [Element](#) >::VMType==[VM::VM1](#)))||!(([VR::VRType](#)) TVR &[VR::VR_VM1](#))))
- [DataElement](#) [GetAsDataElement](#) () const
- unsigned int [GetNumberOfValues](#) () const
- [ArrayType](#) & [GetValue](#) (unsigned int idx=0)
- [ArrayType](#) const & [GetValue](#) (unsigned int idx=0) const
- const [ArrayType](#) * [GetValues](#) () const
- [ArrayType](#) & [operator\[\]](#) (unsigned int idx)
- [ArrayType](#) const & [operator\[\]](#) (unsigned int idx) const
- void [Print](#) (std::ostream &os) const
- void [Set](#) ([DataSet](#) const &ds)
- void [SetFromDataElement](#) ([DataElement](#) const &de)
- void [SetFromDataSet](#) ([DataSet](#) const &ds)
- void [SetNumberOfValues](#) (unsigned int numel)
- void [SetValue](#) (unsigned int idx, [ArrayType](#) v)
- void [SetValue](#) ([ArrayType](#) v)
- void [SetValues](#) (const [ArrayType](#) *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static [VM](#) [GetDictVM](#) ()
- static [VR](#) [GetDictVR](#) ()
- static [Tag](#) [GetTag](#) ()
- static [VM](#) [GetVM](#) ()
- static [VR](#) [GetVR](#) ()

Protected Member Functions

- void [SetByteValue](#) (const [ByteValue](#) *bv)

10.21.1 Member Typedef Documentation

- 10.21.1.1 `template<uint16_t Group, uint16_t Element, int TVR> typedef VRToType<TVR>::Type gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::ArrayType`

10.21.2 Constructor & Destructor Documentation

- 10.21.2.1 `template<uint16_t Group, uint16_t Element, int TVR> gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::Attribute () [inline],[explicit]`

10.21.2.2 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::~~Attribute () [inline]`

10.21.3 Member Function Documentation

10.21.3.1 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))`

10.21.3.2 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))`

10.21.3.3 `template<uint16_t Group, uint16_t Element, int TVR> gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT ((((VR::VRType) TVR &VR::VR_VM1)&&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||((VR::VRType) TVR &VR::VR_VM1)))`

10.21.3.4 `template<uint16_t Group, uint16_t Element, int TVR> DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement () const [inline]`

References `gdcm::DataElement::GetVR()`, `gdcm::DataElement::SetByteValue()`, and `gdcm::DataElement::SetVR()`.

10.21.3.5 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVM () [inline], [static]`

10.21.3.6 `template<uint16_t Group, uint16_t Element, int TVR> static VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVR () [inline], [static]`

10.21.3.7 `template<uint16_t Group, uint16_t Element, int TVR> unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetNumberOfValues () const [inline]`

10.21.3.8 `template<uint16_t Group, uint16_t Element, int TVR> static Tag gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetTag () [inline], [static]`

10.21.3.9 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType& gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (unsigned int idx = 0) [inline]`

10.21.3.10 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType const& gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (unsigned int idx = 0) const [inline]`

10.21.3.11 `template<uint16_t Group, uint16_t Element, int TVR> const ArrayType* gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValues () const [inline]`

10.21.3.12 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVM () [inline], [static]`

- 10.21.3.13 `template<uint16_t Group, uint16_t Element, int TVR> static VR gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVR() [inline], [static]`
- 10.21.3.14 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType& gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (unsigned int idx) [inline]`
- 10.21.3.15 `template<uint16_t Group, uint16_t Element, int TVR> ArrayType const& gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (unsigned int idx) const [inline]`
- 10.21.3.16 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::Print (std::ostream & os) const [inline]`
- 10.21.3.17 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::Set (DataSet const & ds) [inline]`

References `gdcmm::DataSet::GetDataElement()`.

- 10.21.3.18 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue (const ByteValue * bv) [inline], [protected]`

References `gdcmm::ByteValue::GetLength()`, and `gdcmm::ByteValue::GetPointer()`.

- 10.21.3.19 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement (DataElement const & de) [inline]`

References `gdcmm::DataElement::GetByteValue()`, `gdcmm::Tag::GetGroup()`, `gdcmm::DataElement::GetTag()`, `gdcmm::DataElement::GetVR()`, and `gdcmm::DataElement::IsEmpty()`.

- 10.21.3.20 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet (DataSet const & ds) [inline]`

References `gdcmm::DataSet::FindDataElement()`, `gdcmm::DataSet::GetDataElement()`, and `gdcmm::DataElement::IsEmpty()`.

- 10.21.3.21 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetNumberOfValues (unsigned int numel) [inline]`

- 10.21.3.22 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (unsigned int idx, ArrayType v) [inline]`

- 10.21.3.23 `template<uint16_t Group, uint16_t Element, int TVR> void gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (ArrayType v) [inline]`

References `SetValue()`.

Referenced by `SetValue()`.

10.21.3.24 `template<uint16_t Group, uint16_t Element, int TVR> void gdcM::Attribute< Group, Element, TVR, VM::VM1_n >::SetValues (const ArrayType * array, unsigned int numel, bool own = false) [inline]`

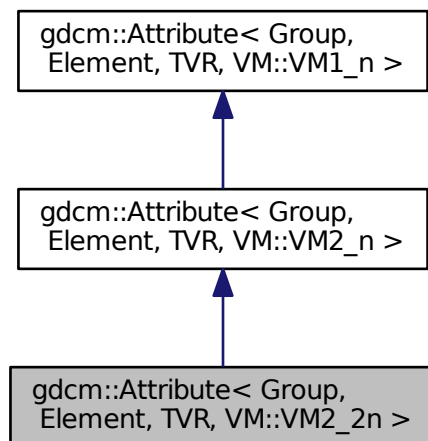
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

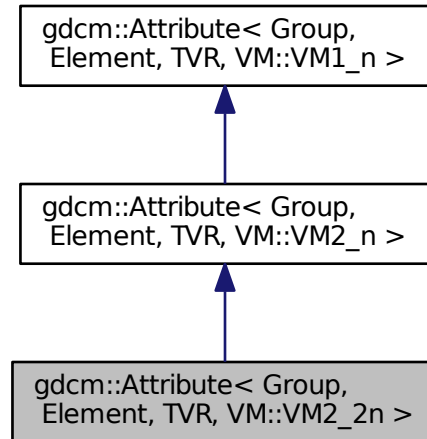
10.22 gdcM::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference

```
#include <gdcMAttribute.h>
```

Inheritance diagram for gdcM::Attribute< Group, Element, TVR, VM::VM2_2n >:



Collaboration diagram for `gdcM::Attribute< Group, Element, TVR, VM::VM2_2n >`:



Static Public Member Functions

- static [VM GetVM](#) ()

Additional Inherited Members

10.22.1 Member Function Documentation

10.22.1.1 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcM::Attribute< Group, Element, TVR, VM::VM2_2n >::GetVM () [inline],[static]`

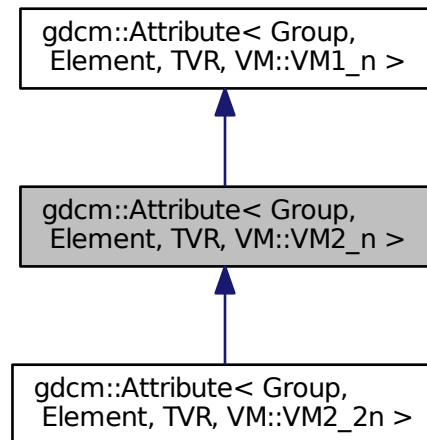
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

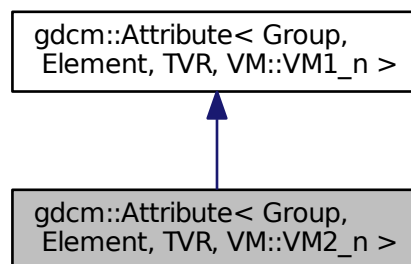
10.23 `gdcM::Attribute< Group, Element, TVR, VM::VM2_n >` Class Template Reference

```
#include <gdcMAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Public Member Functions

- [VM GetVM](#) () const

Additional Inherited Members

10.23.1 Member Function Documentation

10.23.1.1 `template<uint16_t Group, uint16_t Element, int TVR> VM gdcM::Attribute< Group, Element, TVR, VM::VM2_n >::GetVM() const [inline]`

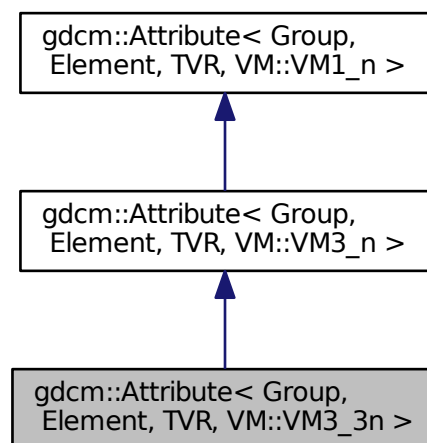
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

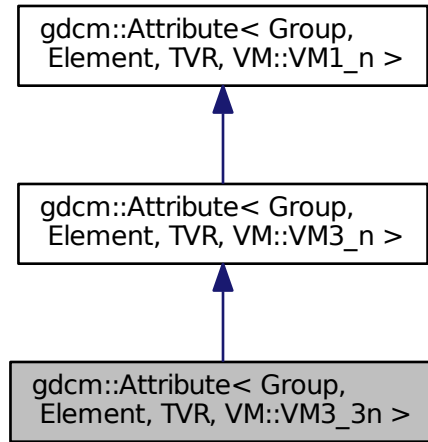
10.24 gdcM::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcMAttribute.h>
```

Inheritance diagram for gdcM::Attribute< Group, Element, TVR, VM::VM3_3n >:



Collaboration diagram for gdcM::Attribute< Group, Element, TVR, VM::VM3_3n >:



Static Public Member Functions

- static [VM GetVM](#) ()

Additional Inherited Members

10.24.1 Member Function Documentation

10.24.1.1 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcM::Attribute< Group, Element, TVR, VM::VM3_3n >::GetVM () [inline], [static]`

References `gdcM::Attribute< Group, Element, TVR, TVM >::Internal`.

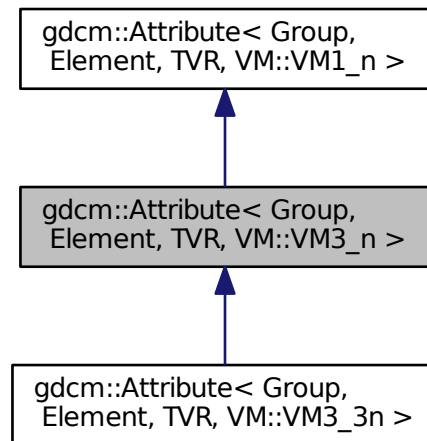
The documentation for this class was generated from the following file:

- [gdcMAttribute.h](#)

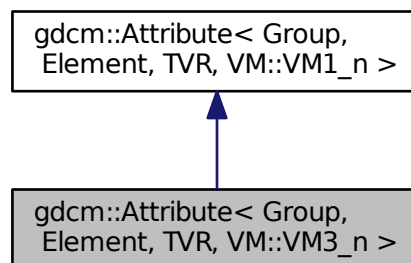
10.25 gdcM::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference

```
#include <gdcMAttribute.h>
```

Inheritance diagram for gdcM::Attribute< Group, Element, TVR, VM::VM3_n >:



Collaboration diagram for gdcM::Attribute< Group, Element, TVR, VM::VM3_n >:



Static Public Member Functions

- static [VM GetVM](#) ()

Additional Inherited Members

10.25.1 Member Function Documentation

10.25.1.1 `template<uint16_t Group, uint16_t Element, int TVR> static VM gdcm::Attribute< Group, Element, TVR, VM::VM3_n >::GetVM () [inline],[static]`

The documentation for this class was generated from the following file:

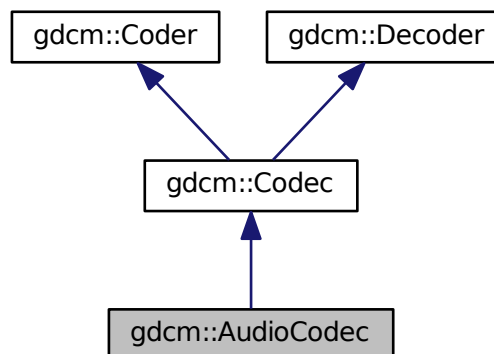
- [gdcmAttribute.h](#)

10.26 gdcm::AudioCodec Class Reference

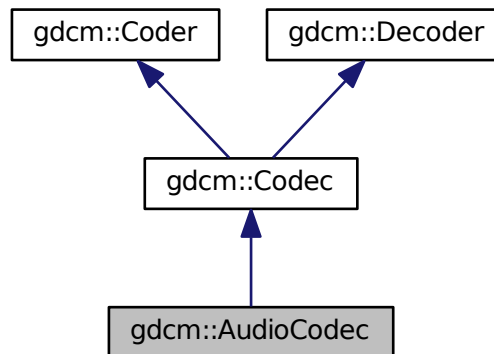
[AudioCodec.](#)

```
#include <gdcmAudioCodec.h>
```

Inheritance diagram for gdcm::AudioCodec:



Collaboration diagram for `gdcm::AudioCodec`:



Public Member Functions

- [AudioCodec](#) ()
- [~AudioCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &) const
Return whether this decoder support this transfer syntax (can decode it)
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.

Additional Inherited Members

10.26.1 Detailed Description

[AudioCodec](#).

10.26.2 Constructor & Destructor Documentation

10.26.2.1 `gdcm::AudioCodec::AudioCodec ()`

10.26.2.2 `gdcm::AudioCodec::~~AudioCodec ()`

10.26.3 Member Function Documentation

10.26.3.1 `bool gdcm::AudioCodec::CanCode (TransferSyntax const &) const` `[inline],[virtual]`

Return whether this coder support this transfer syntax (can code it)

Implements [gdcm::Coder](#).

10.26.3.2 `bool gdcm::AudioCodec::CanDecode (TransferSyntax const &) const` `[inline], [virtual]`

Return whether this decoder support this transfer syntax (can decode it)

Implements [gdcm::Decoder](#).

10.26.3.3 `bool gdcm::AudioCodec::Decode (DataElement const & , DataElement &)` `[virtual]`

Decode.

Reimplemented from [gdcm::Decoder](#).

The documentation for this class was generated from the following file:

- [gdcmAudioCodec.h](#)

10.27 gdcm::Base64 Class Reference

Class for [Base64](#).

```
#include <gdcmBase64.h>
```

Static Public Member Functions

- static `size_t Decode` (`char *dst`, `size_t dlen`, `const char *src`, `size_t slen`)
Decode a base64-formatted buffer.
- static `size_t Encode` (`char *dst`, `size_t dlen`, `const char *src`, `size_t slen`)
Encode a buffer into base64 format.
- static `size_t GetDecodeLength` (`const char *src`, `size_t len`)
- static `size_t GetEncodeLength` (`const char *src`, `size_t srclen`)

10.27.1 Detailed Description

Class for [Base64](#).

10.27.2 Member Function Documentation

10.27.2.1 `static size_t gdcm::Base64::Decode (char * dst, size_t dlen, const char * src, size_t slen)` `[static]`

Decode a base64-formatted buffer.

Parameters

<i>dst</i>	destination buffer
<i>dlen</i>	size of the buffer
<i>src</i>	source buffer
<i>slen</i>	amount of data to be decoded

Returns

0 if not successful, size of decoded otherwise

Examples:

[DumpExamCard.cxx](#).

10.27.2.2 `static size_t gdcm::Base64::Encode (char * dst, size_t dlen, const char * src, size_t slen)` `[static]`

Encode a buffer into base64 format.

Parameters

<i>dst</i>	destination buffer
<i>dlen</i>	size of the buffer
<i>src</i>	source buffer
<i>slen</i>	amount of data to be encoded

Returns

0 if not successful, size of encoded otherwise

10.27.2.3 `static size_t gdcm::Base64::GetDecodeLength (const char * src, size_t len)` `[static]`

Call this function to obtain the required buffer size

Examples:

[DumpExamCard.cxx](#).

10.27.2.4 `static size_t gdcm::Base64::GetEncodeLength (const char * src, size_t srclen)` `[static]`

Call this function to obtain the required buffer size

The documentation for this class was generated from the following file:

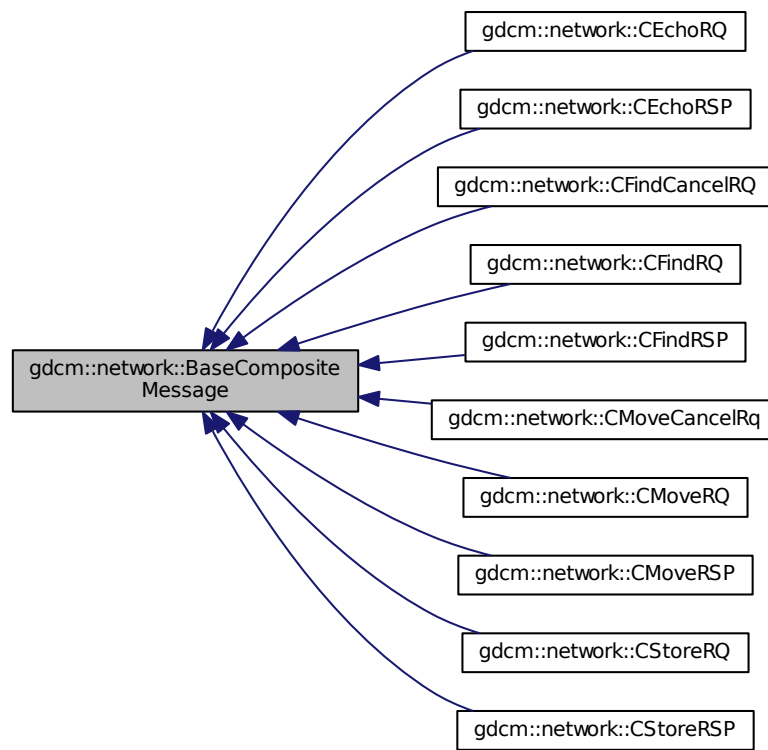
- [gdcmBase64.h](#)

10.28 gdcmm::network::BaseCompositeMessage Class Reference

BaseCompositeMessage The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

```
#include <gdcmmBaseCompositeMessage.h>
```

Inheritance diagram for gdcmm::network::BaseCompositeMessage:



Public Member Functions

- virtual [~BaseCompositeMessage](#) ()
- virtual std::vector< [PresentationDataValue](#) > [ConstructPDV](#) (const [ULConnection](#) &inConnection, const [BaseCompositeMessage](#) *inRootQuery)=0

10.28.1 Detailed Description

BaseCompositeMessage The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

So, for the five composites:

- C-ECHO
- C-FIND
- C-MOVE
- C-GET
- C-STORE there are a series of messages. However, all of these messages are obtained as part of a PDataPDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, `gdcmCompositePDUFactory`.

This is an abstract class. It cannot be instantiated on its own.

10.28.2 Constructor & Destructor Documentation

10.28.2.1 `virtual gdcm::network::BaseCompositeMessage::~BaseCompositeMessage () [inline], [virtual]`

References `ConstructPDV()`.

10.28.3 Member Function Documentation

10.28.3.1 `virtual std::vector<PresentationDataValue> gdcm::network::BaseCompositeMessage::ConstructPDV (const ULConnection & inConnection, const BaseRootQuery * inRootQuery) [pure virtual]`

Implemented in [gdcm::network::CMoveRQ](#), [gdcm::network::CFindRQ](#), and [gdcm::network::CEchoRQ](#).

Referenced by `~BaseCompositeMessage()`.

The documentation for this class was generated from the following file:

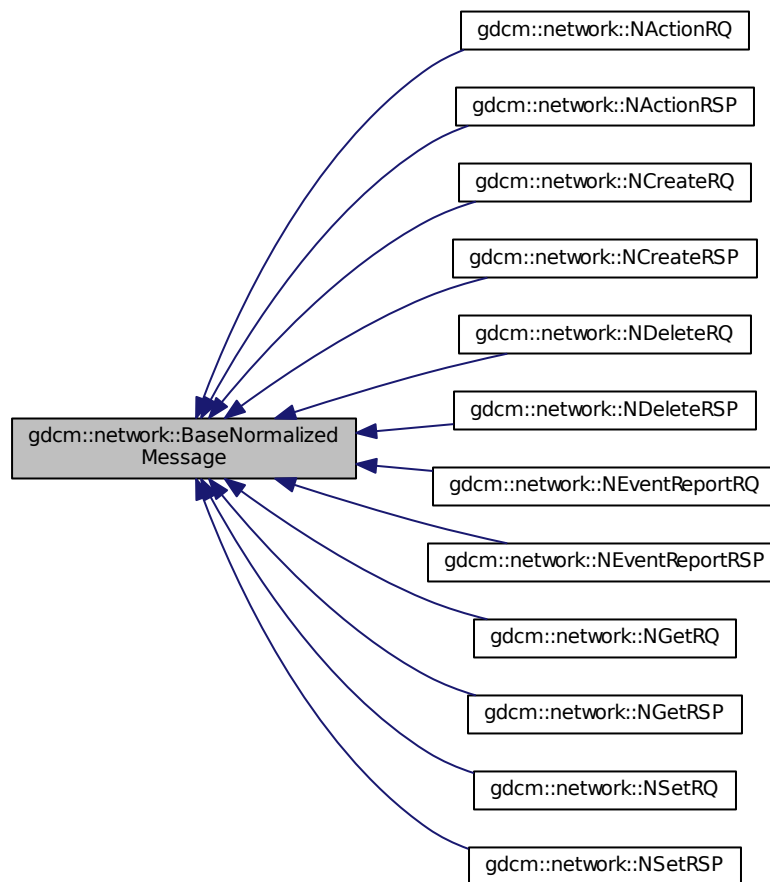
- [gdcmBaseCompositeMessage.h](#)

10.29 gdcm::network::BaseNormalizedMessage Class Reference

[BaseNormalizedMessage](#) The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

```
#include <gdcmBaseNormalizedMessage.h>
```

Inheritance diagram for gdcm::network::BaseNormalizedMessage:



Public Member Functions

- virtual [~BaseNormalizedMessage](#) ()
- virtual std::vector< [PresentationDataValue](#) > [ConstructPDV](#) (const [ULConnection](#) &inConnection, const [BaseNormalizedMessage](#) *inQuery)=0

10.29.1 Detailed Description

[BaseNormalizedMessage](#) The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

So, for the five normalized:

- N-ACTION
- N-CREATE
- N-DELETE
- N-EVENT
- N-GET
- N-SET there are a series of messages. However, all of these messages are obtained as part of a PDataPDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, [gdcnNormalizedMessageFactory.h](#).

This is an abstract class. It cannot be instantiated on its own.

10.29.2 Constructor & Destructor Documentation

10.29.2.1 `virtual gdcn::network::BaseNormalizedMessage::~BaseNormalizedMessage () [inline],[virtual]`

References ConstructPDV().

10.29.3 Member Function Documentation

10.29.3.1 `virtual std::vector<PresentationDataValue> gdcn::network::BaseNormalizedMessage::ConstructPDV (const ULConnection & inConnection, const BaseQuery * inQuery) [pure virtual]`

Implemented in [gdcn::network::NActionRQ](#), [gdcn::network::NCreateRQ](#), [gdcn::network::NDeleteRQ](#), [gdcn::network::NEventReportRQ](#), [gdcn::network::NGetRQ](#), and [gdcn::network::NSetRQ](#).

Referenced by `~BaseNormalizedMessage()`.

The documentation for this class was generated from the following file:

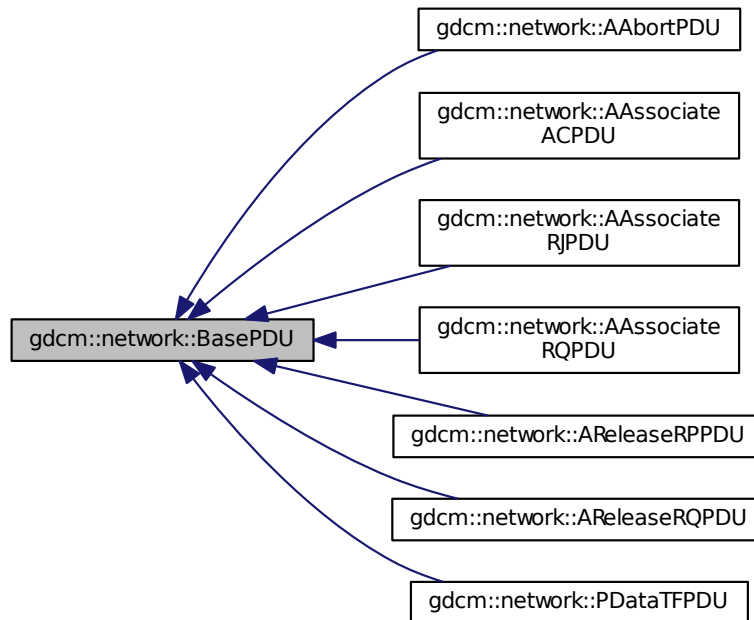
- [gdcnBaseNormalizedMessage.h](#)

10.30 gdcm::network::BasePDU Class Reference

[BasePDU](#) base class for PDUs.

```
#include <gdcmBasePDU.h>
```

Inheritance diagram for gdcm::network::BasePDU:



Public Member Functions

- virtual [~BasePDU](#) ()
- virtual bool [IsLastFragment](#) () const =0
- virtual void [Print](#) (std::ostream &os) const =0
- virtual std::istream & [Read](#) (std::istream &is)=0
- virtual size_t [Size](#) () const =0
- virtual const std::ostream & [Write](#) (std::ostream &os) const =0

10.30.1 Detailed Description

[BasePDU](#) base class for PDUs.

all PDUs start with the first ten bytes as specified: 01 PDU type 02 reserved 3-6 PDU Length (unsigned) 7-10 variable

on some, 7-10 are split (7-8 as protocol version in Associate-RQ, for instance, while associate-rj splits those four bytes differently).

Also common to all the PDUs is their ability to read and write to a stream.

So, let's just get them all bunched together into one (abstract) class, shall we?

Why? 1) so that the [ULEvent](#) can have the PDU stored in it, since the event takes PDUs and not other class structures (other class structures get converted into PDUs) 2) to make reading PDUs in the event loop cleaner

10.30.2 Constructor & Destructor Documentation

10.30.2.1 `virtual gdcn::network::BasePDU::~BasePDU () [inline],[virtual]`

References `IsLastFragment()`, `Print()`, `Read()`, `Size()`, and `Write()`.

10.30.3 Member Function Documentation

10.30.3.1 `virtual bool gdcn::network::BasePDU::IsLastFragment () const [pure virtual]`

Implemented in [gdcn::network::AAssociateRQPDU](#), [gdcn::network::AAssociateACPDU](#), [gdcn::network::PDataTFDU](#), [gdcn::network::AAabortPDU](#), [gdcn::network::AAssociateRJPDU](#), [gdcn::network::AReleaseRPPDU](#), and [gdcn::network::AReleaseRQPDU](#).

Referenced by `~BasePDU()`.

10.30.3.2 `virtual void gdcn::network::BasePDU::Print (std::ostream & os) const [pure virtual]`

Implemented in [gdcn::network::AAssociateRQPDU](#), [gdcn::network::AAssociateACPDU](#), [gdcn::network::PDataTFDU](#), [gdcn::network::AAabortPDU](#), [gdcn::network::AReleaseRPPDU](#), [gdcn::network::AReleaseRQPDU](#), and [gdcn::network::AAssociateRJPDU](#).

Referenced by `~BasePDU()`.

10.30.3.3 `virtual std::istream& gdcn::network::BasePDU::Read (std::istream & is) [pure virtual]`

Implemented in [gdcn::network::AAssociateACPDU](#), [gdcn::network::AAssociateRQPDU](#), [gdcn::network::PDataTFDU](#), [gdcn::network::AAssociateRJPDU](#), [gdcn::network::AReleaseRPPDU](#), [gdcn::network::AReleaseRQPDU](#), and [gdcn::network::AAabortPDU](#).

Referenced by `~BasePDU()`.

10.30.3.4 `virtual size_t gdcm::network::BasePDU::Size () const [pure virtual]`

Implemented in [gdcm::network::AAssociateACPDU](#), [gdcm::network::AAssociateRQPDU](#), [gdcm::network::PDataTFPDU](#), [gdcm::network::AAabortPDU](#), [gdcm::network::AAssociateRJPDU](#), [gdcm::network::AReleaseRPPDU](#), and [gdcm::network::AReleaseRQPDU](#).

Referenced by `~BasePDU()`.

10.30.3.5 `virtual const std::ostream& gdcm::network::BasePDU::Write (std::ostream & os) const [pure virtual]`

Implemented in [gdcm::network::AAssociateACPDU](#), [gdcm::network::AAssociateRQPDU](#), [gdcm::network::PDataTFPDU](#), [gdcm::network::AAabortPDU](#), [gdcm::network::AAssociateRJPDU](#), [gdcm::network::AReleaseRPPDU](#), [gdcm::network::AReleaseRQPDU](#), and [gdcm::network::AAabortPDU](#).

Referenced by `~BasePDU()`.

The documentation for this class was generated from the following file:

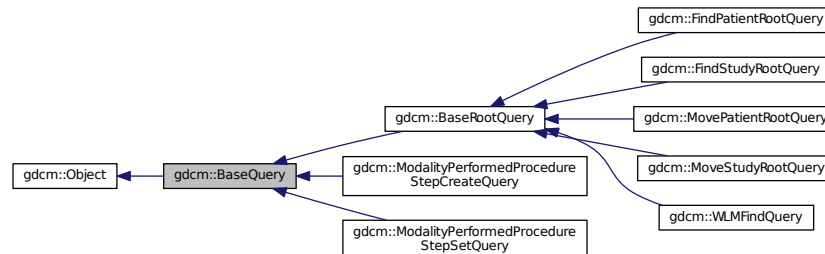
- [gdcmBasePDU.h](#)

10.31 gdcm::BaseQuery Class Reference

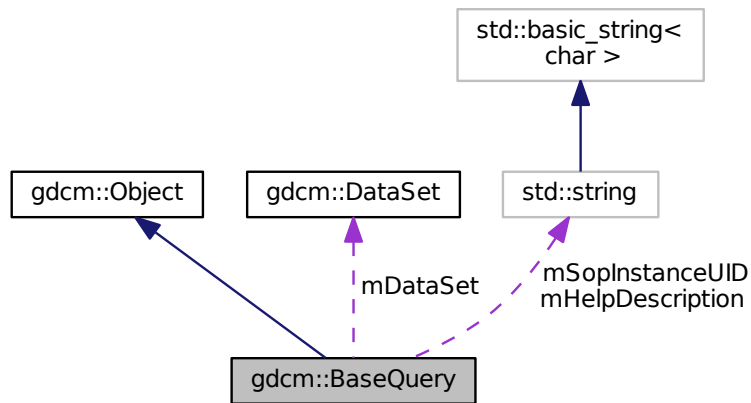
[BaseQuery](#) contains: a baseclass which will produce a dataset for all dimse messages.

```
#include <gdcmBaseQuery.h>
```

Inheritance diagram for `gdcm::BaseQuery`:



Collaboration diagram for `gdcm::BaseQuery`:



Public Member Functions

- virtual `~BaseQuery` ()
- void `AddQueryDataSet` (const `DataSet` &ds)
- virtual `UIDs::TSName GetAbstractSyntaxUID` () const =0
- `DataSet` const & `GetQueryDataSet` () const
Set/Get the internal representation of the query as a `DataSet`.
- `DataSet` & `GetQueryDataSet` ()
- std::string `GetSOPInstanceUID` () const
- void `Print` (std::ostream &os) const
- void `SetSearchParameter` (const `Tag` &inTag, const std::string &inValue)
- void `SetSearchParameter` (const std::string &inKeyword, const std::string &inValue)
- void `SetSOPInstanceUID` (const std::string &iSopInstanceUID)
- virtual bool `ValidateQuery` (bool inStrict=true) const =0
- const std::ostream & `WriteHelpFile` (std::ostream &os)
- bool `WriteQuery` (const std::string &inFileName)

Protected Member Functions

- `BaseQuery` ()
- void `SetSearchParameter` (const `Tag` &inTag, const `DictEntry` &inDictEntry, const std::string &inValue)
- bool `ValidDataSet` (const `DataSet` &dataSetToValid, const `DataSet` &dataSetReference) const

Protected Attributes

- `DataSet` `mDataSet`
- std::string `mHelpDescription`
- std::string `mSopInstanceUID`

Friends

- class [QueryFactory](#)

10.31.1 Detailed Description

[BaseQuery](#) contains: a baseclass which will produce a dataset for all dimse messages.

10.31.2 Constructor & Destructor Documentation

10.31.2.1 `gdcm::BaseQuery::BaseQuery ()` `[protected]`

10.31.2.2 `virtual gdcm::BaseQuery::~~BaseQuery ()` `[virtual]`

10.31.3 Member Function Documentation

10.31.3.1 `void gdcm::BaseQuery::AddQueryDataSet (const DataSet & ds)`

10.31.3.2 `virtual UIDs::TSName gdcm::BaseQuery::GetAbstractSyntaxUID () const` `[pure virtual]`

Implemented in [gdcm::FindStudyRootQuery](#), [gdcm::MovePatientRootQuery](#), [gdcm::MoveStudyRootQuery](#), [gdcm::WLMFindQuery](#), [gdcm::FindPatientRootQuery](#), [gdcm::ModalityPerformedProcedureStepCreateQuery](#), and [gdcm::ModalityPerformedProcedureStepSetQuery](#).

10.31.3.3 `DataSet const& gdcm::BaseQuery::GetQueryDataSet () const`

Set/Get the internal representation of the query as a [DataSet](#).

10.31.3.4 `DataSet& gdcm::BaseQuery::GetQueryDataSet ()`

10.31.3.5 `std::string gdcm::BaseQuery::GetSOPInstanceUID () const` `[inline]`

10.31.3.6 `void gdcm::BaseQuery::Print (std::ostream & os) const` `[virtual]`

Reimplemented from [gdcm::Object](#).

10.31.3.7 void gdcM::BaseQuery::SetSearchParameter (const Tag & *inTag*, const DictEntry & *inDictEntry*, const std::string & *inValue*) [protected]

10.31.3.8 void gdcM::BaseQuery::SetSearchParameter (const Tag & *inTag*, const std::string & *inValue*)

10.31.3.9 void gdcM::BaseQuery::SetSearchParameter (const std::string & *inKeyword*, const std::string & *inValue*)

10.31.3.10 void gdcM::BaseQuery::SetSOPInstanceUID (const std::string & *iSopInstanceUID*) [inline]

10.31.3.11 virtual bool gdcM::BaseQuery::ValidateQuery (bool *inStrict* = true) const [pure virtual]

Implemented in [gdcM::BaseRootQuery](#), [gdcM::FindStudyRootQuery](#), [gdcM::MovePatientRootQuery](#), [gdcM::MoveStudyRootQuery](#), [gdcM::WLMFindQuery](#), [gdcM::FindPatientRootQuery](#), [gdcM::ModalityPerformedProcedureStepCreateQuery](#), and [gdcM::ModalityPerformedProcedureStepSetQuery](#).

10.31.3.12 bool gdcM::BaseQuery::ValidDataSet (const DataSet & *dataSetToValid*, const DataSet & *dataSetReference*) const [protected]

10.31.3.13 const std::ostream& gdcM::BaseQuery::WriteHelpFile (std::ostream & *os*)

10.31.3.14 bool gdcM::BaseQuery::WriteQuery (const std::string & *inFileName*)

10.31.4 Friends And Related Function Documentation

10.31.4.1 friend class QueryFactory [friend]

10.31.5 Member Data Documentation

10.31.5.1 DataSet gdcM::BaseQuery::mDataSet [protected]

10.31.5.2 std::string gdcM::BaseQuery::mHelpDescription [protected]

10.31.5.3 std::string gdcM::BaseQuery::mSopInstanceUID [protected]

The documentation for this class was generated from the following file:

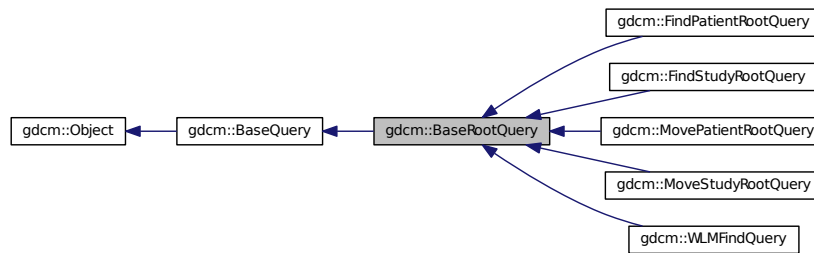
- [gdcMBaseQuery.h](#)

10.32 gdcmm::BaseRootQuery Class Reference

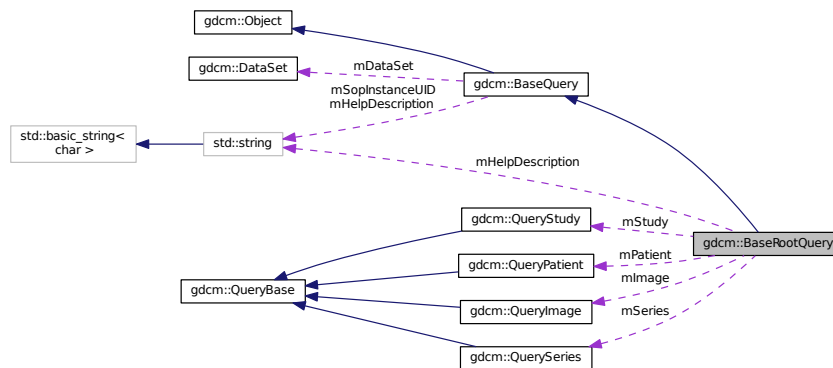
[BaseRootQuery](#) contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root.

```
#include <gdcmmBaseRootQuery.h>
```

Inheritance diagram for gdcmm::BaseRootQuery:



Collaboration diagram for gdcmm::BaseRootQuery:



Public Member Functions

- virtual [~BaseRootQuery](#) ()
- [EQueryLevel](#) [GetQueryLevelFromQueryRoot](#) ([ERootType](#) roottype)
- virtual std::vector< [Tag](#) > [GetTagListByLevel](#) (const [EQueryLevel](#) &inQueryLevel)=0
- virtual void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)=0
- virtual bool [ValidateQuery](#) (bool inStrict=true) const =0

Static Public Member Functions

- static [QueryBase](#) * [Construct](#) ([ERootType](#) inRootType, [EQueryLevel](#) qllevel)
- static int [GetQueryLevelFromString](#) (const char *str)
- static const char * [GetQueryLevelString](#) ([EQueryLevel](#) ql)

Protected Member Functions

- [BaseRootQuery](#) ()

Protected Attributes

- `std::string` [mHelpDescription](#)
- [QueryImage](#) [mImage](#)
- [QueryPatient](#) [mPatient](#)
- [ERootType](#) [mRootType](#)
- [QuerySeries](#) [mSeries](#)
- [QueryStudy](#) [mStudy](#)

Friends

- class [QueryFactory](#)

10.32.1 Detailed Description

[BaseRootQuery](#) contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root.

This class contains the functionality used in patient c-find and c-move queries. [PatientRootQuery](#) and [StudyRootQuery](#) derive from this class.

Namely: 1) list all tags associated with a particular query type 2) produce a query dataset via tag association

Eventually, it can be used to validate a particular dataset type.

The dataset held by this object (or, really, one of its derivatives) should be passed to a c-find or c-move query.

10.32.2 Constructor & Destructor Documentation

10.32.2.1 `gdcm::BaseRootQuery::BaseRootQuery ()` [protected]

10.32.2.2 `virtual gdcm::BaseRootQuery::~~BaseRootQuery ()` [virtual]

10.32.3 Member Function Documentation

10.32.3.1 `static QueryBase* gdcm::BaseRootQuery::Construct (ERootType inRootType, EQueryLevel qlevel)` [static]

10.32.3.2 `EQueryLevel gdcm::BaseRootQuery::GetQueryLevelFromQueryRoot (ERootType roottype)`

10.32.3.3 `static int gdcm::BaseRootQuery::GetQueryLevelFromString (const char * str)` [static]

10.32.3.4 `static const char* gdcm::BaseRootQuery::GetQueryLevelString (EQueryLevel ql)` [static]

10.32.3.5 `virtual std::vector<Tag> gdcm::BaseRootQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)` [pure virtual]

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean `forFind` is true if the query is a find query, or false for a move query.

Implemented in [gdcm::FindPatientRootQuery](#), [gdcm::FindStudyRootQuery](#), [gdcm::MovePatientRootQuery](#), [gdcm::MoveStudyRootQuery](#), and [gdcm::WLMFindQuery](#).

10.32.3.6 `virtual void gdcm::BaseRootQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` [pure virtual]

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmTk

Implemented in [gdcm::WLMFindQuery](#), [gdcm::FindPatientRootQuery](#), [gdcm::FindStudyRootQuery](#), [gdcm::MovePatientRootQuery](#), and [gdcm::MoveStudyRootQuery](#).

10.32.3.7 `virtual bool gdcm::BaseRootQuery::ValidateQuery (bool inStrict = true) const` [pure virtual]

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements [gdcm::BaseQuery](#).

Implemented in [gdcm::FindStudyRootQuery](#), [gdcm::MovePatientRootQuery](#), [gdcm::MoveStudyRootQuery](#), [gdcm::WLMFindQuery](#), and [gdcm::FindPatientRootQuery](#).

10.32.4 Friends And Related Function Documentation

10.32.4.1 `friend class QueryFactory` [friend]

10.32.5 Member Data Documentation

10.32.5.1 `std::string gdcm::BaseRootQuery::mHelpDescription` [protected]

10.32.5.2 `QueryImage gdcm::BaseRootQuery::mImage` [protected]

10.32.5.3 `QueryPatient gdcm::BaseRootQuery::mPatient` [protected]

10.32.5.4 `ERootType gdcm::BaseRootQuery::mRootType` [protected]

10.32.5.5 `QuerySeries gdcm::BaseRootQuery::mSeries` [protected]

10.32.5.6 `QueryStudy gdcm::BaseRootQuery::mStudy` [protected]

The documentation for this class was generated from the following file:

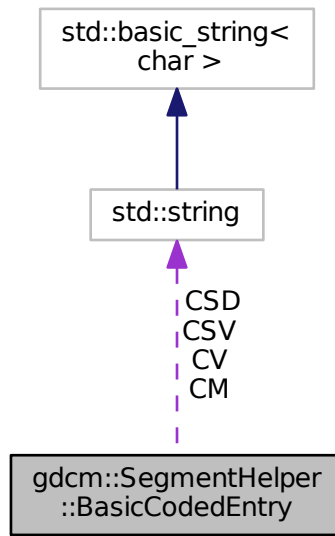
- [gdcmBaseRootQuery.h](#)

10.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference

This structure defines a basic coded entry with all of its attributes.

```
#include <gdcmSegmentHelper.h>
```

Collaboration diagram for gdcm::SegmentHelper::BasicCodedEntry:



Public Member Functions

- [BasicCodedEntry](#) ()
Constructor.
- [BasicCodedEntry](#) (const char *a_CV, const char *a_CSD, const char *a_CM)
constructor which defines type 1 attributes.
- [BasicCodedEntry](#) (const char *a_CV, const char *a_CSD, const char *a_CSV, const char *a_CM)
constructor which defines attributes.
- bool [IsEmpty](#) (const bool checkOptionalAttributes=false) const
Check if each attributes of the basic coded entry is defined.

Public Attributes

- std::string [CM](#)
Coding Scheme [Version](#) attribute.
- std::string [CSD](#)
Code [Value](#) attribute.
- std::string [CSV](#)
Coding Scheme Designator attribute.
- std::string [CV](#)

10.33.1 Detailed Description

This structure defines a basic coded entry with all of its attributes.

See also

PS 3.3 section 8.8.

10.33.2 Constructor & Destructor Documentation

10.33.2.1 `gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry () [inline]`

Constructor.

10.33.2.2 `gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (const char * a_CV, const char * a_CSD, const char * a_CM) [inline]`

constructor which defines type 1 attributes.

10.33.2.3 `gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (const char * a_CV, const char * a_CSD, const char * a_CSV, const char * a_CM) [inline]`

constructor which defines attributes.

References `IsEmpty()`.

10.33.3 Member Function Documentation

10.33.3.1 `bool gdcm::SegmentHelper::BasicCodedEntry::IsEmpty (const bool checkOptionalAttributes = false) const`

Check if each attributes of the basic coded entry is defined.

Parameters

<i>checkOptionalAttributes</i>	Check also type 1C attributes.
--------------------------------	--------------------------------

Referenced by `BasicCodedEntry()`.

10.33.4 Member Data Documentation

10.33.4.1 `std::string gdcm::SegmentHelper::BasicCodedEntry::CM`

Coding Scheme [Version](#) attribute.

10.33.4.2 `std::string gdcm::SegmentHelper::BasicCodedEntry::CSD`

Code [Value](#) attribute.

10.33.4.3 `std::string gdcm::SegmentHelper::BasicCodedEntry::CSV`

Coding Scheme Designator attribute.

10.33.4.4 `std::string gdcm::SegmentHelper::BasicCodedEntry::CV`

The documentation for this struct was generated from the following file:

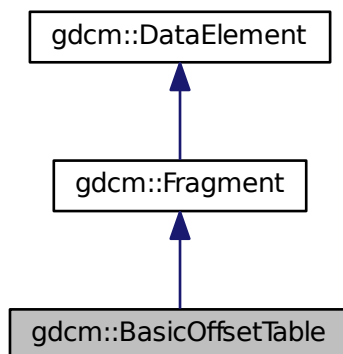
- [gdcmSegmentHelper.h](#)

10.34 `gdcm::BasicOffsetTable` Class Reference

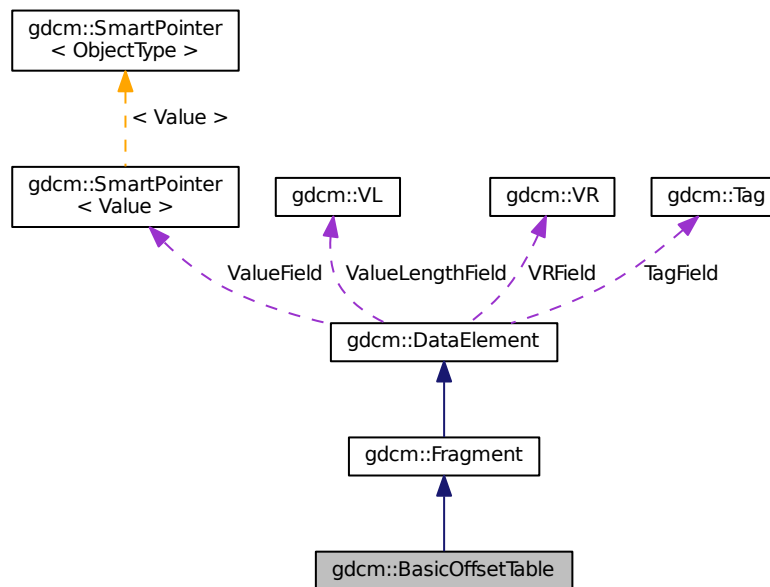
Class to represent a [BasicOffsetTable](#).

```
#include <gdcmBasicOffsetTable.h>
```

Inheritance diagram for `gdcm::BasicOffsetTable`:



Collaboration diagram for gdcm::BasicOffsetTable:



Public Member Functions

- [BasicOffsetTable](#) ()
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [BasicOffsetTable](#) &val)

Additional Inherited Members

10.34.1 Detailed Description

Class to represent a [BasicOffsetTable](#).

10.34.2 Constructor & Destructor Documentation

10.34.2.1 `gdcm::BasicOffsetTable::BasicOffsetTable () [inline]`

References `gdcm::operator<<()`.

10.34.3 Member Function Documentation

10.34.3.1 `template<typename TSwap> std::istream& gdcmm::BasicOffsetTable::Read (std::istream & is)` `[inline]`

References `gdcmmDebugMacro`.

10.34.4 Friends And Related Function Documentation

10.34.4.1 `std::ostream& operator<< (std::ostream & os, const BasicOffsetTable & val)` `[friend]`

The documentation for this class was generated from the following file:

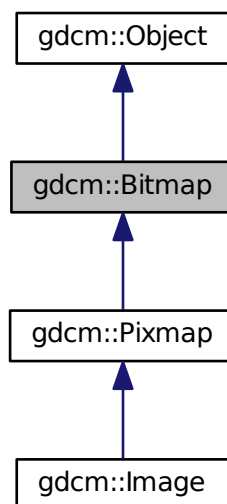
- [gdcmmBasicOffsetTable.h](#)

10.35 gdcmm::Bitmap Class Reference

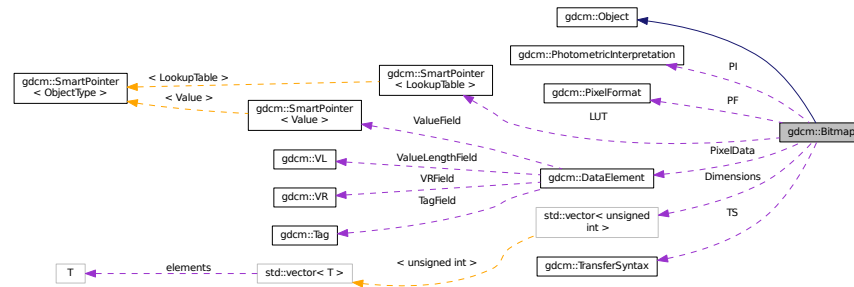
Bitmap class A bitmap based image. Used as parent for both `IconImage` and the main Pixel Data `Image` It does not contains any World Space information (IPP, IOP)

```
#include <gdcmmBitmap.h>
```

Inheritance diagram for `gdcmm::Bitmap`:



Collaboration diagram for gdcm::Bitmap:



Public Member Functions

- [Bitmap](#) ()
- [~Bitmap](#) ()
- virtual bool [AreOverlaysInPixelData](#) () const
- void [Clear](#) ()
- bool [GetBuffer](#) (char *buffer) const
Acces the raw data.
- unsigned long [GetBufferLength](#) () const
- unsigned int [GetColumns](#) () const
- const [DataElement](#) & [GetDataElement](#) () const
- [DataElement](#) & [GetDataElement](#) ()
- unsigned int [GetDimension](#) (unsigned int idx) const
- const unsigned int * [GetDimensions](#) () const
Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- const [LookupTable](#) & [GetLUT](#) () const
- [LookupTable](#) & [GetLUT](#) ()
- bool [GetNeedByteSwap](#) () const
- unsigned int [GetNumberOfDimensions](#) () const
Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const [PhotometricInterpretation](#) & [GetPhotometricInterpretation](#) () const
return the photometric interpretation
- const [PixelFormat](#) & [GetPixelFormat](#) () const
Get/Set PixelFormat.
- [PixelFormat](#) & [GetPixelFormat](#) ()
- unsigned int [GetPlanarConfiguration](#) () const
return the planar configuration
- unsigned int [GetRows](#) () const
- const [TransferSyntax](#) & [GetTransferSyntax](#) () const
- bool [IsEmpty](#) () const
- bool [IsLossy](#) () const
Return whether or not the image was compressed using a lossy compressor or not.
- bool [IsTransferSyntaxCompatible](#) ([TransferSyntax](#) const &ts) const
- void [Print](#) (std::ostream &) const

- void [SetColumns](#) (unsigned int col)
- void [SetDataElement](#) ([DataElement](#) const &de)
- void [SetDimension](#) (unsigned int idx, unsigned int dim)
- void [SetDimensions](#) (const unsigned int dims[3])
- void [SetLossyFlag](#) (bool f)
Specifically set that the image was compressed using a lossy compression mechanism.
- void [SetLUT](#) ([LookupTable](#) const &lut)
Set/Get LUT.
- void [SetNeedByteSwap](#) (bool b)
- void [SetNumberOfDimensions](#) (unsigned int dim)
- void [SetPhotometricInterpretation](#) ([PhotometricInterpretation](#) const &pi)
- void [SetPixelFormat](#) ([PixelFormat](#) const &pf)
- void [SetPlanarConfiguration](#) (unsigned int pc)
- void [SetRows](#) (unsigned int rows)
- void [SetTransferSyntax](#) ([TransferSyntax](#) const &ts)
Transfer syntax.

Protected Types

- typedef [SmartPointer](#)< [LookupTable](#) > [LUTPtr](#)

Protected Member Functions

- bool [ComputeLossyFlag](#) ()
- bool [GetBuffer2](#) (std::ostream &os) const
- bool [TryJPEG2000Codec](#) (char *buffer, bool &lossyflag) const
- bool [TryJPEG2000Codec2](#) (std::ostream &os) const
- bool [TryJPEGCodec](#) (char *buffer, bool &lossyflag) const
- bool [TryJPEGCodec2](#) (std::ostream &os) const
- bool [TryJPEGLSCodec](#) (char *buffer, bool &lossyflag) const
- bool [TryKAKADUCodec](#) (char *buffer, bool &lossyflag) const
- bool [TryPVRGCodec](#) (char *buffer, bool &lossyflag) const
- bool [TryRAWCodec](#) (char *buffer, bool &lossyflag) const
- bool [TryRLECodec](#) (char *buffer, bool &lossyflag) const

Protected Attributes

- std::vector< unsigned int > [Dimensions](#)
- bool [LossyFlag](#)
- [LUTPtr](#) [LUT](#)
- bool [NeedByteSwap](#)
- unsigned int [NumberOfDimensions](#)
- [PixelFormat](#) [PF](#)
- [PhotometricInterpretation](#) [PI](#)
- [DataElement](#) [PixelData](#)
- unsigned int [PlanarConfiguration](#)
- [TransferSyntax](#) [TS](#)

Friends

- class [ImageChangeTransferSyntax](#)
- class [PixmapReader](#)

10.35.1 Detailed Description

[Bitmap](#) class A bitmap based image. Used as parent for both [IconImage](#) and the main Pixel Data [Image](#) It does not contains any World Space information (IPP, IOP)

Examples:

[ExtractIconFromFile.cxx](#).

10.35.2 Member Typedef Documentation

10.35.2.1 `typedef SmartPointer<LookupTable> gdcm::Bitmap::LUTPtr` `[protected]`

10.35.3 Constructor & Destructor Documentation

10.35.3.1 `gdcm::Bitmap::Bitmap ()`

10.35.3.2 `gdcm::Bitmap::~~Bitmap ()`

10.35.4 Member Function Documentation

10.35.4.1 `virtual bool gdcm::Bitmap::AreOverlaysInPixelData () const` `[inline],[virtual]`

Reimplemented in [gdcm::Pixmap](#).

References `gdcm::terminal::dim`.

10.35.4.2 `void gdcm::Bitmap::Clear ()`

10.35.4.3 `bool gdcm::Bitmap::ComputeLossyFlag ()` `[protected]`

10.35.4.4 `bool gdcm::Bitmap::GetBuffer (char * buffer) const`

Acces the raw data.

Examples:

[ConvertToQImage.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.35.4.5 `bool gdcm::Bitmap::GetBuffer2 (std::ostream & os) const` `[protected]`

10.35.4.6 `unsigned long gdcm::Bitmap::GetBufferLength () const`

Return the length of the image after decompression WARNING for palette color: It will NOT take into account the Palette Color thus you need to multiply this length by 3 if computing the size of equivalent RGB image

Examples:

[ConvertToQImage.cxx](#), [GenFakeImage.cxx](#), [GetSubSequenceData.cxx](#), [PatchFile.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.35.4.7 `unsigned int gdcm::Bitmap::GetColumns () const` `[inline]`

10.35.4.8 `const DataElement& gdcm::Bitmap::GetDataElement () const` `[inline]`

Examples:

[ExtractIconFromFile.cxx](#).

10.35.4.9 `DataElement& gdcm::Bitmap::GetDataElement ()` `[inline]`

10.35.4.10 `unsigned int gdcm::Bitmap::GetDimension (unsigned int idx) const`

10.35.4.11 `const unsigned int* gdcm::Bitmap::GetDimensions () const`

Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...

Examples:

[ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), [FixJAIBugJPEGLS.cxx](#), [HelloVizWorld.cxx](#), and [threadgdcm.cxx](#).

10.35.4.12 `const LookupTable& gdcm::Bitmap::GetLUT () const` `[inline]`

Examples:

[ExtractIconFromFile.cxx](#).

10.35.4.13 **LookupTable& gdcm::Bitmap::GetLUT ()** `[inline]`

10.35.4.14 **bool gdcm::Bitmap::GetNeedByteSwap ()** `const [inline]`

10.35.4.15 **unsigned int gdcm::Bitmap::GetNumberOfDimensions ()** `const`

Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.

Examples:

[HelloVizWorld.cxx](#), and [threadgdcm.cxx](#).

10.35.4.16 **const PhotometricInterpretation& gdcm::Bitmap::GetPhotometricInterpretation ()** `const`

return the photometric interpretation

Examples:

[ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), and [HelloVizWorld.cxx](#).

10.35.4.17 **const PixelFormat& gdcm::Bitmap::GetPixelFormat ()** `const [inline]`

Get/Set [PixelFormat](#).

Examples:

[ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GenFakeImage.cxx](#), [GetJPEGSamplePrecision.cxx](#), and [threadgdcm.cxx](#).

10.35.4.18 **PixelFormat& gdcm::Bitmap::GetPixelFormat ()** `[inline]`

10.35.4.19 **unsigned int gdcm::Bitmap::GetPlanarConfiguration ()** `const`

return the planar configuration

10.35.4.20 **unsigned int gdcm::Bitmap::GetRows ()** `const [inline]`

10.35.4.21 **const TransferSyntax& gdcm::Bitmap::GetTransferSyntax ()** `const [inline]`

Examples:

[ExtractIconFromFile.cxx](#).

10.35.4.22 `bool gdcM::Bitmap::IsEmpty () const` `[inline]`

10.35.4.23 `bool gdcM::Bitmap::IsLossy () const`

Return whether or not the image was compressed using a lossy compressor or not.

10.35.4.24 `bool gdcM::Bitmap::IsTransferSyntaxCompatible (TransferSyntax const & ts) const`

10.35.4.25 `void gdcM::Bitmap::Print (std::ostream &) const` `[virtual]`

Reimplemented from [gdcM::Object](#).

Reimplemented in [gdcM::Image](#), and [gdcM::Pixmap](#).

Examples:

[ExtractIconFromFile.cxx](#).

10.35.4.26 `void gdcM::Bitmap::SetColumns (unsigned int col)` `[inline]`

10.35.4.27 `void gdcM::Bitmap::SetDataElement (DataElement const & de)` `[inline]`

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [GenFakeImage.cxx](#), [GetSubSequenceData.cxx](#), and [iU22tomultisc.cxx](#).

10.35.4.28 `void gdcM::Bitmap::SetDimension (unsigned int idx, unsigned int dim)`

Examples:

[csa2img.cxx](#), [GenFakeImage.cxx](#), [GetSubSequenceData.cxx](#), and [iU22tomultisc.cxx](#).

10.35.4.29 `void gdcM::Bitmap::SetDimensions (const unsigned int dims[3])`

Examples:

[CreateARGBImage.cxx](#), and [CreateCMYKImage.cxx](#).

10.35.4.30 `void gdcM::Bitmap::SetLossyFlag (bool f)` `[inline]`

Specifically set that the image was compressed using a lossy compression mechanism.

10.35.4.31 void gdcm::Bitmap::SetLUT (**LookupTable** const & *lut*) [inline]

Set/Get LUT.

10.35.4.32 void gdcm::Bitmap::SetNeedByteSwap (bool *b*) [inline]

10.35.4.33 void gdcm::Bitmap::SetNumberOfDimensions (unsigned int *dim*)

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [FileChangeTS.cs](#), [FileChangeTSLossy.cs](#), [GenFakelImage.cxx](#), [GetSubSequenceData.cxx](#), and [iU22tomultisc.cxx](#).

10.35.4.34 void gdcm::Bitmap::SetPhotometricInterpretation (**PhotometricInterpretation** const & *pi*)

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [GenFakelImage.cxx](#), [GetSubSequenceData.cxx](#), and [iU22tomultisc.cxx](#).

10.35.4.35 void gdcm::Bitmap::SetPixelFormat (**PixelFormat** const & *pf*) [inline]

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), and [iU22tomultisc.cxx](#).

References gdcm::PixelFormat::Validate().

10.35.4.36 void gdcm::Bitmap::SetPlanarConfiguration (unsigned int *pc*)

Warning

you need to call SetPixelFormat first (before SetPlanarConfiguration) for consistency checking

10.35.4.37 void gdcm::Bitmap::SetRows (unsigned int *rows*) [inline]

10.35.4.38 void gdcm::Bitmap::SetTransferSyntax (**TransferSyntax** const & *ts*) [inline]

Transfer syntax.

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), and [MergeTwoFiles.cxx](#).

10.35.4.39 `bool gdcm::Bitmap::TryJPEG2000Codec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.40 `bool gdcm::Bitmap::TryJPEG2000Codec2 (std::ostream & os) const` [protected]

10.35.4.41 `bool gdcm::Bitmap::TryJPEGCodec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.42 `bool gdcm::Bitmap::TryJPEGCodec2 (std::ostream & os) const` [protected]

10.35.4.43 `bool gdcm::Bitmap::TryJPEGLSCodec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.44 `bool gdcm::Bitmap::TryKAKADUCodec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.45 `bool gdcm::Bitmap::TryPVRGCodec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.46 `bool gdcm::Bitmap::TryRAWCodec (char * buffer, bool & lossyflag) const` [protected]

10.35.4.47 `bool gdcm::Bitmap::TryRLECodec (char * buffer, bool & lossyflag) const` [protected]

10.35.5 Friends And Related Function Documentation

10.35.5.1 `friend class ImageChangeTransferSyntax` [friend]

10.35.5.2 `friend class PixmapReader` [friend]

10.35.6 Member Data Documentation

10.35.6.1 `std::vector<unsigned int> gdcm::Bitmap::Dimensions` [protected]

10.35.6.2 `bool gdcm::Bitmap::LossyFlag` [protected]

10.35.6.3 `LUTPtr gdcm::Bitmap::LUT` [protected]

10.35.6.4 `bool gdcm::Bitmap::NeedByteSwap` [protected]

10.35.6.5 `unsigned int gdcm::Bitmap::NumberOfDimensions` [protected]

10.35.6.6 `PixelFormat gdcm::Bitmap::PF` [protected]

10.35.6.7 `PhotometricInterpretation gdcm::Bitmap::PI` [protected]

10.35.6.8 `DataElement gdcm::Bitmap::PixelData` [protected]

10.35.6.9 `unsigned int gdcm::Bitmap::PlanarConfiguration` [protected]

10.35.6.10 `TransferSyntax gdcm::Bitmap::TS` [protected]

The documentation for this class was generated from the following file:

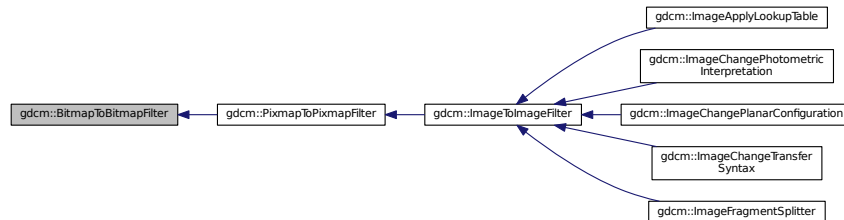
- [gdcmBitmap.h](#)

10.36 gdcm::BitmapToBitmapFilter Class Reference

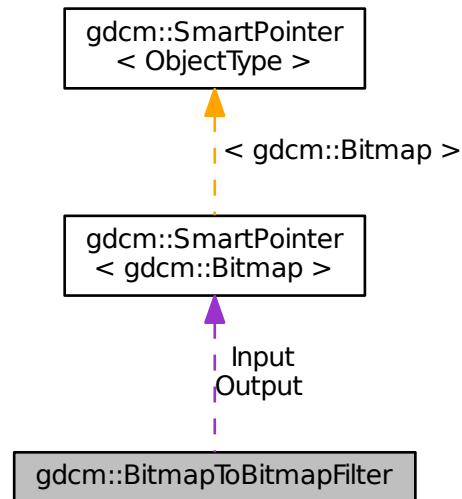
[BitmapToBitmapFilter](#) class Super class for all filter taking an image and producing an output image.

```
#include <gdcmBitmapToBitmapFilter.h>
```

Inheritance diagram for gdcm::BitmapToBitmapFilter:



Collaboration diagram for gdcm::BitmapToBitmapFilter:



Public Member Functions

- [BitmapToBitmapFilter](#) ()
- [~BitmapToBitmapFilter](#) ()
- const [Bitmap](#) & [GetOutput](#) () const
Get Output image.
- const [Bitmap](#) & [GetOutputAsBitmap](#) () const
- void [SetInput](#) (const [Bitmap](#) &image)
Set input image.

Protected Attributes

- [SmartPointer< Bitmap > Input](#)
- [SmartPointer< Bitmap > Output](#)

10.36.1 Detailed Description

[BitmapToBitmapFilter](#) class Super class for all filter taking an image and producing an output image.

10.36.2 Constructor & Destructor Documentation

10.36.2.1 `gdcm::BitmapToBitmapFilter::BitmapToBitmapFilter ()`

10.36.2.2 `gdcm::BitmapToBitmapFilter::~~BitmapToBitmapFilter ()` `[inline]`

10.36.3 Member Function Documentation

10.36.3.1 `const Bitmap& gdcm::BitmapToBitmapFilter::GetOutput () const` `[inline]`

Get Output image.

10.36.3.2 `const Bitmap& gdcm::BitmapToBitmapFilter::GetOutputAsBitmap () const`

10.36.3.3 `void gdcm::BitmapToBitmapFilter::SetInput (const Bitmap & image)`

Set input image.

Examples:

[CompressImage.cxx](#).

10.36.4 Member Data Documentation

10.36.4.1 `SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Input` `[protected]`

10.36.4.2 `SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Output` `[protected]`

The documentation for this class was generated from the following file:

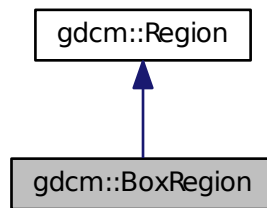
- [gdcmBitmapToBitmapFilter.h](#)

10.37 gdcm::BoxRegion Class Reference

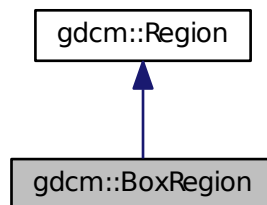
Class for manipulation box region This is a very simple implementation of the [Region](#) class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

```
#include <gdcmBoxRegion.h>
```

Inheritance diagram for gdcm::BoxRegion:



Collaboration diagram for gdcm::BoxRegion:



Public Member Functions

- [BoxRegion](#) ()
- [BoxRegion](#) (const [BoxRegion](#) &)
copy/cstor and al.
- [~BoxRegion](#) ()
- [size_t Area](#) () const
compute the area
- [Region * Clone](#) () const

- [BoxRegion ComputeBoundingBox \(\)](#)
Return the Axis-Aligned minimum bounding box for all regions.
- bool [Empty \(\)](#) const
return whether this domain is empty:
- unsigned int [GetXMax \(\)](#) const
- unsigned int [GetXMin \(\)](#) const
Get domain.
- unsigned int [GetYMax \(\)](#) const
- unsigned int [GetYMin \(\)](#) const
- unsigned int [GetZMax \(\)](#) const
- unsigned int [GetZMin \(\)](#) const
- bool [IsValid \(\)](#) const
return whether this is valid domain
- void [operator=](#) (const [BoxRegion](#) &)
- void [Print](#) (std::ostream &os=std::cout) const
Print.
- void [SetDomain](#) (unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)
Set domain.

Static Public Member Functions

- static [BoxRegion BoundingBox](#) ([BoxRegion](#) const &b1, [BoxRegion](#) const &b2)
Helper class to compute the bounding box of two [BoxRegion](#).

10.37.1 Detailed Description

Class for manipulation box region This is a very simple implementation of the [Region](#) class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

10.37.2 Constructor & Destructor Documentation

10.37.2.1 [gdcm::BoxRegion::BoxRegion \(\)](#)

10.37.2.2 [gdcm::BoxRegion::~~BoxRegion \(\)](#)

10.37.2.3 [gdcm::BoxRegion::BoxRegion \(const \[BoxRegion\]\(#\) & \)](#)

copy/cstor and al.

10.37.3 Member Function Documentation

10.37.3.1 `size_t gdcm::BoxRegion::Area () const` [virtual]

compute the area

Implements [gdcm::Region](#).

10.37.3.2 `static BoxRegion gdcm::BoxRegion::BoundingBox (BoxRegion const & b1, BoxRegion const & b2)`
[static]

Helper class to compute the bounding box of two [BoxRegion](#).

10.37.3.3 `Region* gdcm::BoxRegion::Clone () const` [virtual]

Implements [gdcm::Region](#).

10.37.3.4 `BoxRegion gdcm::BoxRegion::ComputeBoundingBox ()` [virtual]

Return the Axis-Aligned minimum bounding box for all regions.

Implements [gdcm::Region](#).

10.37.3.5 `bool gdcm::BoxRegion::Empty () const` [virtual]

return whether this domain is empty:

Implements [gdcm::Region](#).

10.37.3.6 `unsigned int gdcm::BoxRegion::GetXMax () const`

10.37.3.7 `unsigned int gdcm::BoxRegion::GetXMin () const`

Get domain.

10.37.3.8 unsigned int gdcM::BoxRegion::GetYMax () const

10.37.3.9 unsigned int gdcM::BoxRegion::GetYMin () const

10.37.3.10 unsigned int gdcM::BoxRegion::GetZMax () const

10.37.3.11 unsigned int gdcM::BoxRegion::GetZMin () const

10.37.3.12 bool gdcM::BoxRegion::IsValid () const [virtual]

return whether this is valid domain

Implements [gdcM::Region](#).

10.37.3.13 void gdcM::BoxRegion::operator= (const BoxRegion &)

10.37.3.14 void gdcM::BoxRegion::Print (std::ostream & os = std::cout) const [virtual]

Print.

Reimplemented from [gdcM::Region](#).

10.37.3.15 void gdcM::BoxRegion::SetDomain (unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)

Set domain.

The documentation for this class was generated from the following file:

- [gdcMBoxRegion.h](#)

10.38 gdcM::ByteBuffer Class Reference

[ByteBuffer](#).

```
#include <gdcMByteBuffer.h>
```

Public Member Functions

- [ByteBuffer](#) ()
- char * [Get](#) (int len)
- const char * [GetStart](#) () const
- void [ShiftEnd](#) (int len)
- void [UpdatePosition](#) ()

10.38.1 Detailed Description

[ByteBuffer](#).

Detailed description here

Note

looks like a `std::streambuf` or `std::filebuf` class with the get and peek pointer

10.38.2 Constructor & Destructor Documentation

10.38.2.1 `gdcm::ByteBuffer::ByteBuffer ()` [\[inline\]](#)

10.38.3 Member Function Documentation

10.38.3.1 `char* gdcm::ByteBuffer::Get (int len)` [\[inline\]](#)

10.38.3.2 `const char* gdcm::ByteBuffer::GetStart () const` [\[inline\]](#)

10.38.3.3 `void gdcm::ByteBuffer::ShiftEnd (int len)` [\[inline\]](#)

10.38.3.4 `void gdcm::ByteBuffer::UpdatePosition ()` [\[inline\]](#)

The documentation for this class was generated from the following file:

- [gdcmByteBuffer.h](#)

10.39 gdcm::ByteSwap< T > Class Template Reference

[ByteSwap](#).

```
#include <gdcmByteSwap.h>
```

Static Public Member Functions

- static void [Swap](#) (T &p)
- static void [SwapFromSwapCodeIntoSystem](#) (T &p, [SwapCode](#) const &sc)
- static void [SwapRange](#) (T *p, unsigned int num)
- static void [SwapRangeFromSwapCodeIntoSystem](#) (T *p, [SwapCode](#) const &sc, std::streamoff num)
- static bool [SystemIsBigEndian](#) ()
- static bool [SystemIsLittleEndian](#) ()

10.39.1 Detailed Description

```
template<class T>
class gdcm::ByteSwap< T >
```

[ByteSwap](#).

Perform machine dependent byte swaping (Little Endian, Big Endian, Bad Little Endian, Bad Big Endian). TODO: bswap_32 / bswap_64 ...

Examples:

[TestByteSwap.cxx](#).

10.39.2 Member Function Documentation

10.39.2.1 `template<class T> static void gdcm::ByteSwap< T >::Swap (T & p) [static]`

10.39.2.2 `template<class T> static void gdcm::ByteSwap< T >::SwapFromSwapCodeIntoSystem (T & p, SwapCode const & sc) [static]`

Examples:

[TestByteSwap.cxx](#).

10.39.2.3 `template<class T> static void gdcm::ByteSwap< T >::SwapRange (T * p, unsigned int num) [static]`

10.39.2.4 `template<class T> static void gdcm::ByteSwap< T >::SwapRangeFromSwapCodeIntoSystem (T * p, SwapCode const & sc, std::streamoff num) [static]`

Examples:

[TestByteSwap.cxx](#).

10.39.2.5 `template<class T> static bool gdcm::ByteSwap< T >::SystemIsBigEndian () [static]`

Query the machine Endian-ness.

10.39.2.6 `template<class T> static bool gdcm::ByteSwap< T >::SystemIsLittleEndian () [static]`

The documentation for this class was generated from the following file:

- [gdcmByteSwap.h](#)

10.40 gdcm::ByteSwapFilter Class Reference

[ByteSwapFilter](#) In place byte-swapping of a dataset FIXME: FL status ??

```
#include <gdcmByteSwapFilter.h>
```

Public Member Functions

- [ByteSwapFilter](#) ([DataSet](#) &ds)
- [~ByteSwapFilter](#) ()
- bool [ByteSwap](#) ()
- void [SetByteSwapTag](#) (bool b)

10.40.1 Detailed Description

[ByteSwapFilter](#) In place byte-swapping of a dataset FIXME: FL status ??

10.40.2 Constructor & Destructor Documentation

10.40.2.1 `gdcm::ByteSwapFilter::ByteSwapFilter (DataSet & ds)` `[inline]`

10.40.2.2 `gdcm::ByteSwapFilter::~~ByteSwapFilter ()`

10.40.3 Member Function Documentation

10.40.3.1 `bool gdcm::ByteSwapFilter::ByteSwap ()`

10.40.3.2 `void gdcm::ByteSwapFilter::SetByteSwapTag (bool b)` `[inline]`

The documentation for this class was generated from the following file:

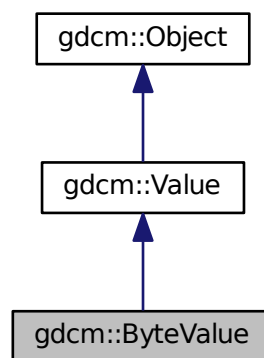
- [gdcmByteSwapFilter.h](#)

10.41 gdcm::ByteValue Class Reference

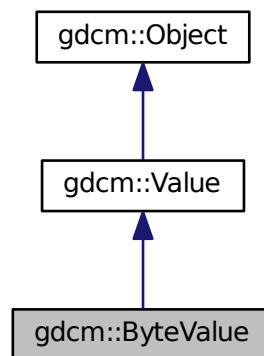
Class to represent binary value (array of bytes)

```
#include <gdcmByteValue.h>
```

Inheritance diagram for gdcm::ByteValue:



Collaboration diagram for gdcm::ByteValue:



Public Member Functions

- [ByteValue](#) (const char *array=0, [VL](#) const &vl=0)
- [ByteValue](#) (std::vector< char > &v)
- [~ByteValue](#) ()
- void [Append](#) ([ByteValue](#) const &bv)
- void [Clear](#) ()
- [VL ComputeLength](#) () const
- void [Fill](#) (char c)
- bool [GetBuffer](#) (char *buffer, unsigned long length) const
- [VL GetLength](#) () const
- const char * [GetPointer](#) () const
- bool [IsEmpty](#) () const
- bool [IsPrintable](#) ([VL](#) length) const

Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...
- [operator const std::vector< char > &](#) () const
- [ByteValue](#) & [operator=](#) (const [ByteValue](#) &val)
- bool [operator==](#) (const [ByteValue](#) &val) const
- bool [operator==](#) (const [Value](#) &val) const
- void [PrintASCII](#) (std::ostream &os, [VL](#) maxlength) const
- void [PrintASCIIXML](#) (std::ostream &os) const
- void [PrintGroupLength](#) (std::ostream &os)
- void [PrintHex](#) (std::ostream &os, [VL](#) maxlength) const
- void [PrintHexXML](#) (std::ostream &os) const
- void [PrintPNXML](#) (std::ostream &os) const
- template<typename TSwap, typename TType >
std::istream & [Read](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- void [SetLength](#) ([VL](#) vl)
- template<typename TSwap, typename TType >
std::ostream const & [Write](#) (std::ostream &os) const
- template<typename TSwap >
std::ostream const & [Write](#) (std::ostream &os) const
- bool [WriteBuffer](#) (std::ostream &os) const

Protected Member Functions

- void [Print](#) (std::ostream &os) const
- void [SetLengthOnly](#) ([VL](#) vl)

10.41.1 Detailed Description

Class to represent binary value (array of bytes)

Note

Examples:

[DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGSL.cxx](#), [GetSubSequenceData.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), and [rle2img.cxx](#).

10.41.2 Constructor & Destructor Documentation

10.41.2.1 `gdcM::ByteValue::ByteValue (const char * array = 0, VL const & vl = 0)` `[inline]`

References `gdcMDebugMacro`.

10.41.2.2 `gdcM::ByteValue::ByteValue (std::vector< char > & v)` `[inline]`

Warning

casting to `uint32_t`

10.41.2.3 `gdcM::ByteValue::~~ByteValue ()` `[inline]`

10.41.3 Member Function Documentation

10.41.3.1 `void gdcM::ByteValue::Append (ByteValue const & bv)`

10.41.3.2 `void gdcM::ByteValue::Clear ()` `[inline]`, `[virtual]`

Implements [gdcM::Value](#).

10.41.3.3 `VL gdcM::ByteValue::ComputeLength () const` `[inline]`

Referenced by `gdcM::Fragment::Write()`.

10.41.3.4 `void gdcM::ByteValue::Fill (char c)` `[inline]`

Examples:

[DuplicatePCDE.cxx](#).

10.41.3.5 `bool gdcM::ByteValue::GetBuffer (char * buffer, unsigned long length) const`

Examples:

[FixJAIBugJPEGLS.cxx](#).

10.41.3.6 `VL gdcm::ByteValue::GetLength () const [inline], [virtual]`

Implements [gdcm::Value](#).

Examples:

[DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetSubSequenceData.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcm::operator<<()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::Element< VR::OB, VM::VM1_n >::Set()`, `gdcm::Element< TVR, VM::VM1_n >::Set()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap()`, `gdcm::Element< VR::OB, VM::VM1_n >::SetNoSwap()`, `gdcm::Element< TVR, VM::VM1_n >::SetNoSwap()`, and `gdcm::Fragment::Write()`.

10.41.3.7 `const char* gdcm::ByteValue::GetPointer () const [inline]`

Examples:

[DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [GetSubSequenceData.cxx](#), [MrProtocol.cxx](#), [pmsct_rgb1.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcm::operator<<()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::Element< VR::OB, VM::VM1_n >::Set()`, `gdcm::Element< TVR, VM::VM1_n >::Set()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap()`, `gdcm::Element< VR::OB, VM::VM1_n >::SetNoSwap()`, and `gdcm::Element< TVR, VM::VM1_n >::SetNoSwap()`.

10.41.3.8 `bool gdcm::ByteValue::IsEmpty () const [inline]`

10.41.3.9 `bool gdcm::ByteValue::IsPrintable (VL length) const [inline]`

Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...

10.41.3.10 `gdcm::ByteValue::operator const std::vector< char > & () const [inline]`

10.41.3.11 `ByteValue& gdcm::ByteValue::operator= (const ByteValue & val) [inline]`

10.41.3.12 `bool gdcm::ByteValue::operator== (const ByteValue & val) const [inline]`

10.41.3.13 `bool gdcm::ByteValue::operator== (const Value & val) const [inline], [virtual]`

Implements [gdcm::Value](#).

10.41.3.14 `void gdcM::ByteValue::Print (std::ostream & os) const` `[inline]`,`[protected]`,`[virtual]`

Reimplemented from [gdcM::Object](#).

10.41.3.15 `void gdcM::ByteValue::PrintASCII (std::ostream & os, VL maxlength) const`

10.41.3.16 `void gdcM::ByteValue::PrintASCIIXML (std::ostream & os) const`

10.41.3.17 `void gdcM::ByteValue::PrintGroupLength (std::ostream & os)` `[inline]`

10.41.3.18 `void gdcM::ByteValue::PrintHex (std::ostream & os, VL maxlength) const`

10.41.3.19 `void gdcM::ByteValue::PrintHexXML (std::ostream & os) const`

10.41.3.20 `void gdcM::ByteValue::PrintPNXML (std::ostream & os) const`

To Print Values in Native DICOM format

10.41.3.21 `template<typename TSwap , typename TType > std::istream& gdcM::ByteValue::Read (std::istream & is, bool readvalues = true)` `[inline]`

10.41.3.22 `template<typename TSwap > std::istream& gdcM::ByteValue::Read (std::istream & is)` `[inline]`

10.41.3.23 `void gdcM::ByteValue::SetLength (VL vl)` `[virtual]`

Implements [gdcM::Value](#).

10.41.3.24 `void gdcM::ByteValue::SetLengthOnly (VL vl)` `[inline]`,`[protected]`,`[virtual]`

Reimplemented from [gdcM::Value](#).

10.41.3.25 `template<typename TSwap , typename TType > std::ostream const& gdcM::ByteValue::Write (std::ostream & os) const` `[inline]`

Referenced by `gdcM::Fragment::Write()`.

10.41.3.26 `template<typename TSwap > std::ostream const& gdcM::ByteValue::Write (std::ostream & os) const` `[inline]`

10.41.3.27 `bool gdcM::ByteValue::WriteBuffer (std::ostream & os) const` `[inline]`

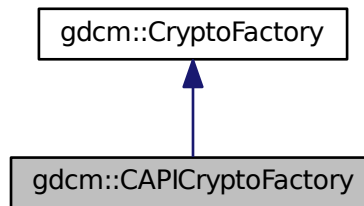
The documentation for this class was generated from the following file:

- [gdcMByteValue.h](#)

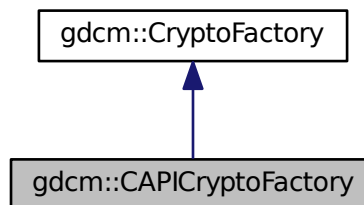
10.42 gdcm::CAPICryptoFactory Class Reference

```
#include <gdcmCAPICryptoFactory.h>
```

Inheritance diagram for gdcm::CAPICryptoFactory:



Collaboration diagram for gdcm::CAPICryptoFactory:



Public Member Functions

- [CAPICryptoFactory](#) ([CryptoLib](#) id)
- [CryptographicMessageSyntax](#) * [CreateCMSProvider](#) ()

Additional Inherited Members

10.42.1 Constructor & Destructor Documentation

10.42.1.1 gdcm::CAPICryptoFactory::CAPICryptoFactory ([CryptoLib](#) id)

10.42.2 Member Function Documentation

10.42.2.1 `CryptographicMessageSyntax*` `gdcm::CAPICryptoFactory::CreateCMSProvider ()` `[virtual]`

Implements [gdcm::CryptoFactory](#).

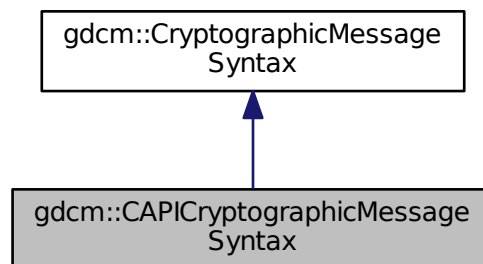
The documentation for this class was generated from the following file:

- [gdcmCAPICryptoFactory.h](#)

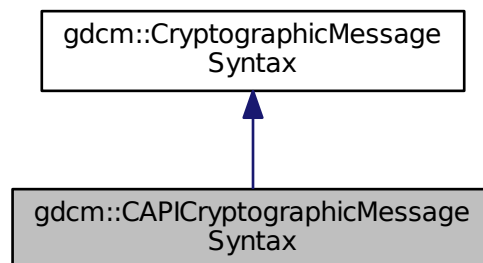
10.43 `gdcm::CAPICryptographicMessageSyntax` Class Reference

```
#include <gdcmCAPICryptographicMessageSyntax.h>
```

Inheritance diagram for `gdcm::CAPICryptographicMessageSyntax`:



Collaboration diagram for `gdcm::CAPICryptographicMessageSyntax`:



Public Member Functions

- [CAPICryptographicMessageSyntax](#) ()
- [~CAPICryptographicMessageSyntax](#) ()
- bool [Decrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
decrypt content from a CMS envelopedData structure
- bool [Encrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
create a CMS envelopedData structure
- [CipherTypes](#) [GetCipherType](#) () const
- bool [GetInitialized](#) () const
- bool [ParseCertificateFile](#) (const char *filename)
- bool [ParseKeyFile](#) (const char *filename)
- void [SetCipherType](#) ([CipherTypes](#) type)
- bool [SetPassword](#) (const char *pass, size_t passLen)

Additional Inherited Members

10.43.1 Constructor & Destructor Documentation

10.43.1.1 gdcM::CAPICryptographicMessageSyntax::CAPICryptographicMessageSyntax ()

10.43.1.2 gdcM::CAPICryptographicMessageSyntax::~~CAPICryptographicMessageSyntax ()

10.43.2 Member Function Documentation

10.43.2.1 bool gdcM::CAPICryptographicMessageSyntax::Decrypt (char * *output*, size_t & *outlen*, const char * *array*, size_t *len*) const [virtual]

decrypt content from a CMS envelopedData structure

Implements [gdcM::CryptographicMessageSyntax](#).

10.43.2.2 bool gdcM::CAPICryptographicMessageSyntax::Encrypt (char * *output*, size_t & *outlen*, const char * *array*, size_t *len*) const [virtual]

create a CMS envelopedData structure

Implements [gdcM::CryptographicMessageSyntax](#).

10.43.2.3 [CipherTypes](#) gdcM::CAPICryptographicMessageSyntax::GetCipherType () const [virtual]

Implements [gdcM::CryptographicMessageSyntax](#).

10.43.2.4 `bool gdcM::CAPICryptographicMessageSyntax::GetInitialized () const` `[inline]`

10.43.2.5 `bool gdcM::CAPICryptographicMessageSyntax::ParseCertificateFile (const char * filename)` `[virtual]`

Implements [gdcM::CryptographicMessageSyntax](#).

10.43.2.6 `bool gdcM::CAPICryptographicMessageSyntax::ParseKeyFile (const char * filename)` `[virtual]`

Implements [gdcM::CryptographicMessageSyntax](#).

10.43.2.7 `void gdcM::CAPICryptographicMessageSyntax::SetCipherType (CipherTypes type)`

10.43.2.8 `bool gdcM::CAPICryptographicMessageSyntax::SetPassword (const char * pass, size_t passLen)` `[virtual]`

Implements [gdcM::CryptographicMessageSyntax](#).

The documentation for this class was generated from the following file:

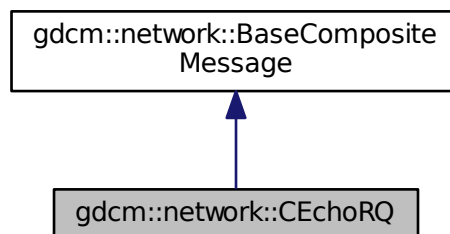
- [gdcMCAPICryptographicMessageSyntax.h](#)

10.44 gdcM::network::CEchoRQ Class Reference

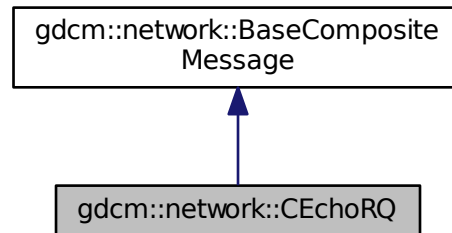
[CEchoRQ](#) this file defines the messages for the cecho action.

```
#include <gdcMCEchoMessages.h>
```

Inheritance diagram for gdcM::network::CEchoRQ:



Collaboration diagram for gdcm::network::CEchoRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)`

Public Attributes

- `UIComp AffectedSOPClassUID`
- `uint16_t MessageID`

10.44.1 Detailed Description

[CEchoRQ](#) this file defines the messages for the cecho action.

10.44.2 Member Function Documentation

10.44.2.1 `std::vector<PresentationDataValue> gdcm::network::CEchoRQ::ConstructPDV (const ULConnection &inConnection, const BaseRootQuery * inRootQuery) [virtual]`

Implements [gdcm::network::BaseCompositeMessage](#).

10.44.3 Member Data Documentation

10.44.3.1 `UIComp gdcm::network::CEchoRQ::AffectedSOPClassUID`

10.44.3.2 `uint16_t gdcm::network::CEchoRQ::MessageID`

The documentation for this class was generated from the following files:

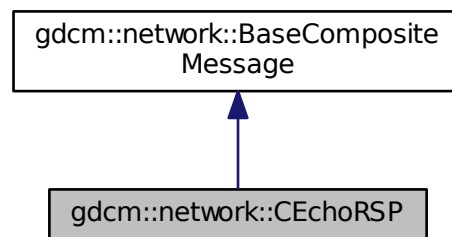
- [gdcmCEchoMessages.h](#)
- [gdcmDIMSE.h](#)

10.45 gdcm::network::CEchoRSP Class Reference

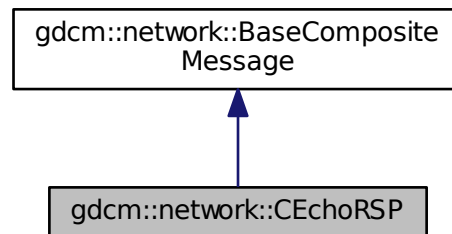
[CEchoRSP](#) this file defines the messages for the cecho action.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for `gdcm::network::CEchoRSP`:



Collaboration diagram for `gdcm::network::CEchoRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.45.1 Detailed Description

[CEchoRSP](#) this file defines the messages for the cecho action.

10.45.2 Member Function Documentation

10.45.2.1 `std::vector<PresentationDataValue> gdcm::network::CEchoRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

The documentation for this class was generated from the following file:

- [gdcmCEchoMessages.h](#)

10.46 gdcm::network::CFind Class Reference

```
#include <gdcmDIMSE.h>
```

10.46.1 Detailed Description

PS 3.4 - 2009 [Table B.2-1](#) C-STORE STATUS

The documentation for this class was generated from the following file:

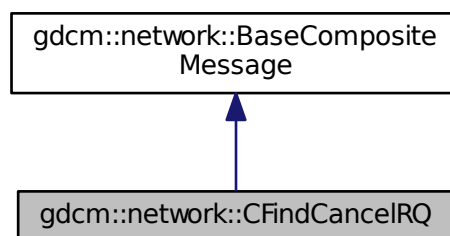
- [gdcmDIMSE.h](#)

10.47 gdcm::network::CFindCancelRQ Class Reference

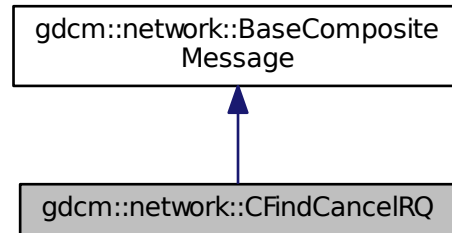
[CFindCancelRQ](#) this file defines the messages for the cfind action.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for `gdcm::network::CFindCancelRQ`:



Collaboration diagram for `gdcm::network::CFindCancelRQ`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.47.1 Detailed Description

[CFindCancelRQ](#) this file defines the messages for the cfind action.

10.47.2 Member Function Documentation

- 10.47.2.1 `std::vector<PresentationDataValue> gdcm::network::CFindCancelRQ::ConstructPDVByDataSet (const DataSet *inDataSet)`

The documentation for this class was generated from the following file:

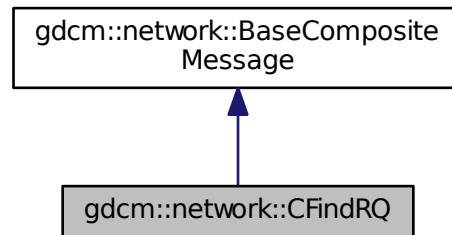
- [gdcmCFindMessages.h](#)

10.48 gdcm::network::CFindRQ Class Reference

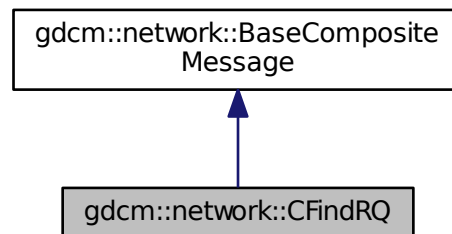
[CFindRQ](#) this file defines the messages for the cfind action.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcmm::network::CFindRQ:



Collaboration diagram for gdcmm::network::CFindRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)`

10.48.1 Detailed Description

[CFindRQ](#) this file defines the messages for the cfind action.

10.48.2 Member Function Documentation

10.48.2.1 `std::vector<PresentationDataValue> gdcmm::network::CFindRQ::ConstructPDV (const ULConnection & inConnection, const BaseRootQuery * inRootQuery) [virtual]`

Implements [gdcmm::network::BaseCompositeMessage](#).

The documentation for this class was generated from the following file:

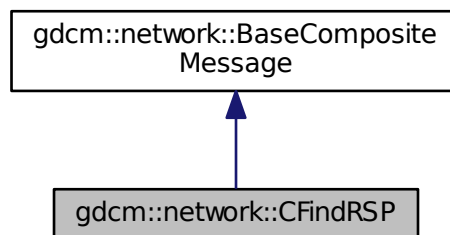
- [gdcmmCFindMessages.h](#)

10.49 gdcmm::network::CFindRSP Class Reference

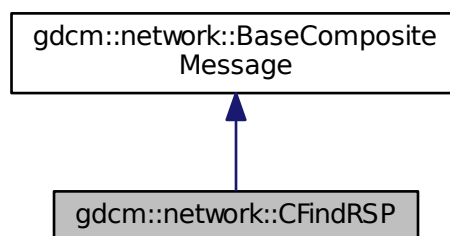
[CFindRSP](#) this file defines the messages for the cfind action.

```
#include <gdcmmCFindMessages.h>
```

Inheritance diagram for `gdcmm::network::CFindRSP`:



Collaboration diagram for `gdcmm::network::CFindRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.49.1 Detailed Description

[CFindRSP](#) this file defines the messages for the cfind action.

10.49.2 Member Function Documentation

10.49.2.1 `std::vector<PresentationDataValue> gdcm::network::CFindRSP::ConstructPDVByDataSet (const DataSet *inDataSet)`

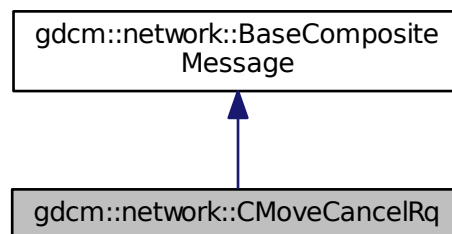
The documentation for this class was generated from the following file:

- [gdcmCFindMessages.h](#)

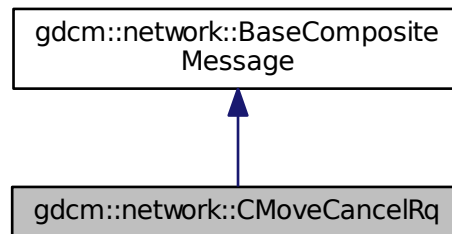
10.50 gdcm::network::CMoveCancelRq Class Reference

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for `gdcm::network::CMoveCancelRq`:



Collaboration diagram for `gdcm::network::CMoveCancelRq`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.50.1 Member Function Documentation

10.50.1.1 `std::vector<PresentationDataValue> gdcm::network::CMoveCancelRq::ConstructPDVByDataSet (const DataSet *inDataSet)`

The documentation for this class was generated from the following file:

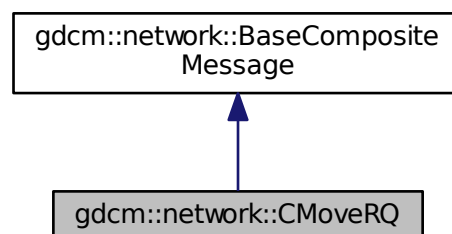
- [gdcmCMoveMessages.h](#)

10.51 gdcm::network::CMoveRQ Class Reference

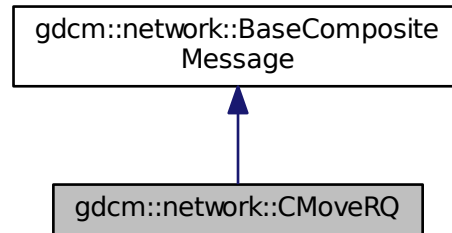
[CMoveRQ](#) this file defines the messages for the cmove action.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for `gdcm::network::CMoveRQ`:



Collaboration diagram for gdcm::network::CMoveRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)`

10.51.1 Detailed Description

[CMoveRQ](#) this file defines the messages for the cmove action.

10.51.2 Member Function Documentation

10.51.2.1 `std::vector<PresentationDataValue> gdcm::network::CMoveRQ::ConstructPDV (const ULConnection &
inConnection, const BaseRootQuery * inRootQuery)` [virtual]

Implements [gdcm::network::BaseCompositeMessage](#).

The documentation for this class was generated from the following file:

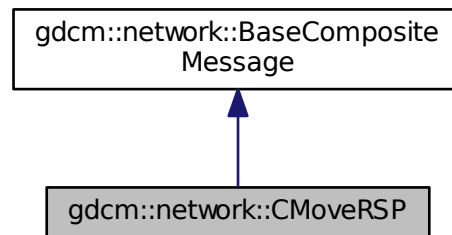
- [gdcmCMoveMessages.h](#)

10.52 gdcm::network::CMoveRSP Class Reference

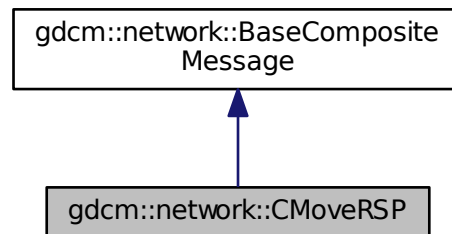
[CMoveRSP](#) this file defines the messages for the cmove action.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for `gdcm::network::CMoveRSP`:



Collaboration diagram for `gdcm::network::CMoveRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.52.1 Detailed Description

[CMoveRSP](#) this file defines the messages for the cmove action.

10.52.2 Member Function Documentation

10.52.2.1 `std::vector<PresentationDataValue> gdcm::network::CMoveRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

The documentation for this class was generated from the following file:

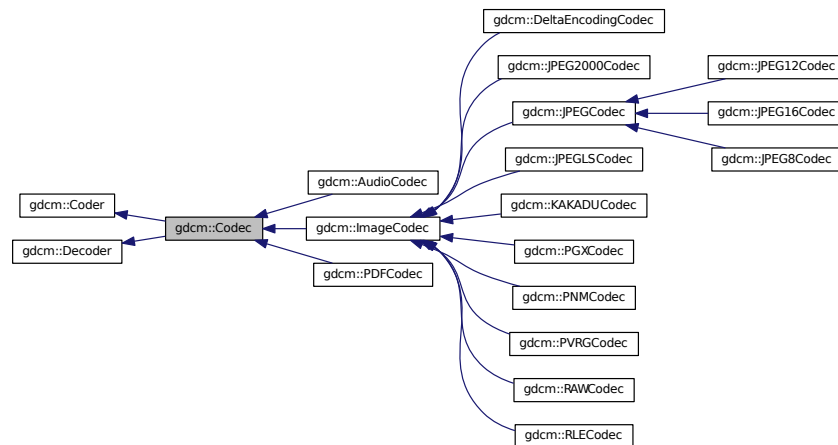
- [gdcmCMoveMessages.h](#)

10.53 gdcm::Codec Class Reference

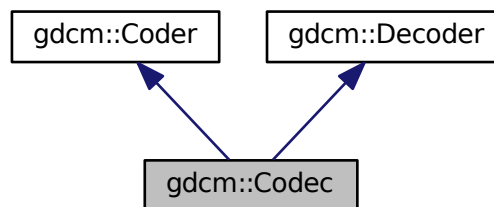
[Codec](#) class.

```
#include <gdcmCodec.h>
```

Inheritance diagram for `gdcm::Codec`:



Collaboration diagram for `gdcm::Codec`:



Additional Inherited Members

10.53.1 Detailed Description

[Codec](#) class.

The documentation for this class was generated from the following file:

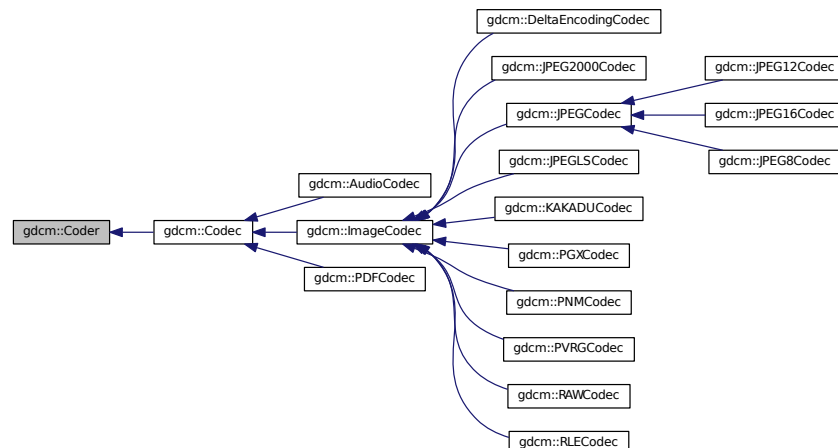
- [gdcmCodec.h](#)

10.54 gdcm::Coder Class Reference

[Coder](#).

```
#include <gdcmCoder.h>
```

Inheritance diagram for `gdcm::Coder`:



Public Member Functions

- virtual `~Coder()`
- virtual bool `CanCode(TransferSyntax const &) const` =0
Return whether this coder support this transfer syntax (can code it)
- virtual bool `Code(DataElement const &in_, DataElement &out_)`
Code.

Protected Member Functions

- virtual bool `InternalCode(const char *bv, unsigned long len, std::ostream &os)`

10.54.1 Detailed Description

[Coder](#).

10.54.2 Constructor & Destructor Documentation

10.54.2.1 `virtual gdcm::Coder::~Coder () [inline], [virtual]`

10.54.3 Member Function Documentation

10.54.3.1 `virtual bool gdcm::Coder::CanCode (TransferSyntax const &) const [pure virtual]`

Return whether this coder support this transfer syntax (can code it)

Implemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::JPEGLSCodec](#), [gdcm::ImageCodec](#), [gdcm::PNMCodec](#), [gdcm::PGXCodec](#), [gdcm::KAKADUCodec](#), [gdcm::RAWCodec](#), [gdcm::AudioCodec](#), and [gdcm::PDFCodec](#).

10.54.3.2 `virtual bool gdcm::Coder::Code (DataElement const & in_, DataElement & out_) [inline], [virtual]`

Code.

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::JPEGLSCodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::KAKADUCodec](#), and [gdcm::RAWCodec](#).

10.54.3.3 `virtual bool gdcm::Coder::InternalCode (const char * bv, unsigned long len, std::ostream & os) [inline], [protected], [virtual]`

Reimplemented in [gdcm::JPEG12Codec](#), [gdcm::JPEG16Codec](#), and [gdcm::JPEG8Codec](#).

The documentation for this class was generated from the following file:

- [gdcmCoder.h](#)

10.55 gdcm::CodeString Class Reference

[CodeString](#) This is an implementation of DICOM [VR: CS](#) The ctor will properly Trim so that operator== is correct.

```
#include <gdcmCodeString.h>
```

Public Types

- typedef [InternalClass::const_iterator](#) const_iterator
- typedef [InternalClass::const_reference](#) const_reference
- typedef [InternalClass::const_reverse_iterator](#) const_reverse_iterator
- typedef [InternalClass::difference_type](#) difference_type
- typedef [InternalClass::iterator](#) iterator
- typedef [InternalClass::pointer](#) pointer
- typedef [InternalClass::reference](#) reference
- typedef [InternalClass::reverse_iterator](#) reverse_iterator
- typedef [InternalClass::size_type](#) size_type
- typedef [InternalClass::value_type](#) value_type

Public Member Functions

- [CodeString](#) ()
[CodeString](#) constructors.
- [CodeString](#) (const [value_type](#) *s)
- [CodeString](#) (const [value_type](#) *s, [size_type](#) n)
- [CodeString](#) (const [InternalClass](#) &s, [size_type](#) pos=0, [size_type](#) n=[InternalClass::npos](#))
- std::string [GetAsString](#) () const
Return the full code string as std::string.
- bool [IsValid](#) () const
Check if [CodeString](#) obj is correct..
- [size_type](#) [Size](#) () const
Return the size of the string.

Protected Member Functions

- std::string [TrimInternal](#) () const

Friends

- bool [operator!=](#) (const [CodeString](#) &ref, const [CodeString](#) &cs)
- std::ostream & [operator<<](#) (std::ostream &os, const [CodeString](#) &str)
- bool [operator==](#) (const [CodeString](#) &ref, const [CodeString](#) &cs)

10.55.1 Detailed Description

[CodeString](#) This is an implementation of DICOM [VR](#): CS The ctor will properly Trim so that [operator==](#) is correct.

Note

the ctor of [CodeString](#) will Trim the string on the fly so as to remove the extra leading and ending spaces. However it will not perform validation on the fly ([CodeString](#) obj can contains invalid char such as lower cases). This design was chosen to be a little tolerant to broken DICOM implementation, and thus allow user to compare lower case CS from there input file without the need to first rewrite them to get rid of invalid character (validation is a different operation from searching, querying).

Warning

when writing out DICOM file it is highly recommended to perform the [IsValid\(\)](#) call, at least to check that the length of the string match the definition in the standard.

10.55.2 Member Typedef Documentation

10.55.2.1 `typedef InternalClass::const_iterator gdcm::CodeString::const_iterator`

10.55.2.2 `typedef InternalClass::const_reference gdcm::CodeString::const_reference`

10.55.2.3 `typedef InternalClass::const_reverse_iterator gdcm::CodeString::const_reverse_iterator`

10.55.2.4 `typedef InternalClass::difference_type gdcm::CodeString::difference_type`

10.55.2.5 `typedef InternalClass::iterator gdcm::CodeString::iterator`

10.55.2.6 `typedef InternalClass::pointer gdcm::CodeString::pointer`

10.55.2.7 `typedef InternalClass::reference gdcm::CodeString::reference`

10.55.2.8 `typedef InternalClass::reverse_iterator gdcm::CodeString::reverse_iterator`

10.55.2.9 `typedef InternalClass::size_type gdcm::CodeString::size_type`

10.55.2.10 `typedef InternalClass::value_type gdcm::CodeString::value_type`

10.55.3 Constructor & Destructor Documentation

10.55.3.1 `gdcm::CodeString::CodeString () [inline]`

[CodeString](#) constructors.

10.55.3.2 `gdcm::CodeString::CodeString (const value_type * s) [inline]`

10.55.3.3 `gdcm::CodeString::CodeString (const value_type * s, size_type n) [inline]`

10.55.3.4 `gdcm::CodeString::CodeString (const InternalClass & s, size_type pos = 0, size_type n = InternalClass::npos) [inline]`

10.55.4 Member Function Documentation

10.55.4.1 `std::string gdcm::CodeString::GetAsString () const [inline]`

Return the full code string as std::string.

10.55.4.2 `bool gdcm::CodeString::IsValid () const`

Check if [CodeString](#) obj is correct..

10.55.4.3 `size_type gdcm::CodeString::Size () const` `[inline]`

Return the size of the string.

10.55.4.4 `std::string gdcm::CodeString::TrimInternal () const` `[inline]`, `[protected]`

10.55.5 Friends And Related Function Documentation

10.55.5.1 `bool operator!= (const CodeString & ref, const CodeString & cs)` `[friend]`

10.55.5.2 `std::ostream& operator<< (std::ostream & os, const CodeString & str)` `[friend]`

10.55.5.3 `bool operator== (const CodeString & ref, const CodeString & cs)` `[friend]`

The documentation for this class was generated from the following file:

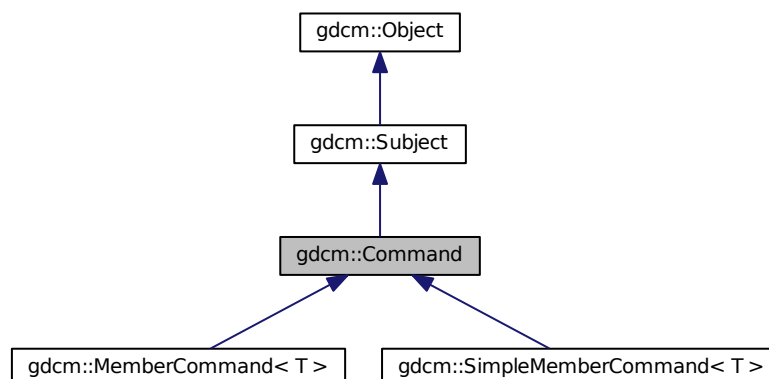
- [gdcmCodeString.h](#)

10.56 gdcm::Command Class Reference

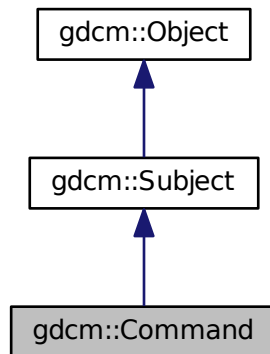
[Command](#) superclass for callback/observer methods.

```
#include <gdcmCommand.h>
```

Inheritance diagram for `gdcm::Command`:



Collaboration diagram for gdcm::Command:



Public Member Functions

- virtual void [Execute](#) ([Subject](#) *caller, const [Event](#) &event)=0
Abstract method that defines the action to be taken by the command.
- virtual void [Execute](#) (const [Subject](#) *caller, const [Event](#) &event)=0

Protected Member Functions

- [Command](#) ()
- [~Command](#) ()

10.56.1 Detailed Description

[Command](#) superclass for callback/observer methods.

See also

[Subject](#)

10.56.2 Constructor & Destructor Documentation

10.56.2.1 `gdcm::Command::Command ()` [protected]

10.56.2.2 `gdcm::Command::~~Command ()` [protected]

10.56.3 Member Function Documentation

10.56.3.1 `virtual void gdcm::Command::Execute (Subject * caller, const Event & event)` [pure virtual]

Abstract method that defines the action to be taken by the command.

Implemented in [gdcm::SimpleMemberCommand< T >](#), and [gdcm::MemberCommand< T >](#).

10.56.3.2 `virtual void gdcM::Command::Execute (const Subject * caller, const Event & event)` [pure virtual]

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const [Object](#)

Implemented in [gdcM::SimpleMemberCommand< T >](#), and [gdcM::MemberCommand< T >](#).

The documentation for this class was generated from the following file:

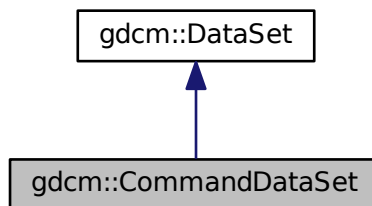
- [gdcMCommand.h](#)

10.57 gdcM::CommandDataSet Class Reference

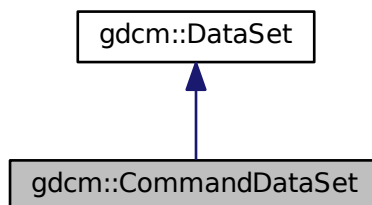
Class to represent a [Command DataSet](#).

```
#include <gdcMCommandDataSet.h>
```

Inheritance diagram for gdcM::CommandDataSet:



Collaboration diagram for gdcM::CommandDataSet:



Public Member Functions

- [CommandDataSet](#) ()
- [~CommandDataSet](#) ()
- void [Insert](#) (const [DataElement](#) &de)
- std::istream & [Read](#) (std::istream &is)
Read.
- void [Replace](#) (const [DataElement](#) &de)
- std::ostream & [Write](#) (std::ostream &os) const
Write.

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [CommandDataSet](#) &_val)

Additional Inherited Members

10.57.1 Detailed Description

Class to represent a [Command DataSet](#).

See also

[DataSet](#)

10.57.2 Constructor & Destructor Documentation

10.57.2.1 `gdcm::CommandDataSet::CommandDataSet ()` `[inline]`

10.57.2.2 `gdcm::CommandDataSet::~~CommandDataSet ()` `[inline]`

References `gdcm::operator<<()`.

10.57.3 Member Function Documentation

10.57.3.1 `void gdcm::CommandDataSet::Insert (const DataElement & de)` `[inline]`

References `gdcmErrorMacro`, `gdcm::Tag::GetGroup()`, and `gdcm::DataElement::GetTag()`.

10.57.3.2 `std::istream& gdcm::CommandDataSet::Read (std::istream & is)`

Read.

10.57.3.3 `void gdcm::CommandDataSet::Replace (const DataElement & de) [inline]`

References `gdcm::DataElement::GetTag()`.

10.57.3.4 `std::ostream& gdcm::CommandDataSet::Write (std::ostream & os) const`

Write.

10.57.4 Friends And Related Function Documentation

10.57.4.1 `std::ostream& operator<< (std::ostream & _os, const CommandDataSet & _val) [friend]`

The documentation for this class was generated from the following file:

- [gdcmCommandDataSet.h](#)

10.58 gdcm::network::CompositeMessageFactory Class Reference

[CompositeMessageFactory](#) This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).

```
#include <gdcmCompositeMessageFactory.h>
```

Static Public Member Functions

- static `std::vector< PresentationDataValue > ConstructCEchoRQ` (const [ULConnection](#) &inConnection)
- static `std::vector< PresentationDataValue > ConstructCFindRQ` (const [ULConnection](#) &inConnection, const [BaseRootQuery](#) *inRootQuery)
- static `std::vector< PresentationDataValue > ConstructCMoveRQ` (const [ULConnection](#) &inConnection, const [BaseRootQuery](#) *inRootQuery)
- static `std::vector< PresentationDataValue > ConstructCStoreRQ` (const [ULConnection](#) &inConnection, const [File](#) &file, bool writeDataSet=true)
- static `std::vector< PresentationDataValue > ConstructCStoreRSP` (const [DataSet](#) *inDataSet, const [BasePDU](#) *inPC)

10.58.1 Detailed Description

[CompositeMessageFactory](#) This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).

10.58.2 Member Function Documentation

- 10.58.2.1 `static std::vector<PresentationDataValue> gdcm::network::CompositeMessageFactory::ConstructCEchoRQ (const ULConnection & inConnection) [static]`
- 10.58.2.2 `static std::vector<PresentationDataValue> gdcm::network::CompositeMessageFactory::ConstructCFindRQ (const ULConnection & inConnection, const BaseRootQuery * inRootQuery) [static]`
- 10.58.2.3 `static std::vector<PresentationDataValue> gdcm::network::CompositeMessageFactory::ConstructCMoveRQ (const ULConnection & inConnection, const BaseRootQuery * inRootQuery) [static]`
- 10.58.2.4 `static std::vector<PresentationDataValue> gdcm::network::CompositeMessageFactory::ConstructCStoreRQ (const ULConnection & inConnection, const File & file, bool writeDataSet = true) [static]`
- 10.58.2.5 `static std::vector<PresentationDataValue> gdcm::network::CompositeMessageFactory::ConstructCStoreRSP (const DataSet * inDataSet, const BasePDU * inPC) [static]`

The documentation for this class was generated from the following file:

- [gdcmCompositeMessageFactory.h](#)

10.59 gdcm::CompositeNetworkFunctions Class Reference

Composite Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

```
#include <gdcmCompositeNetworkFunctions.h>
```

Public Types

- typedef std::vector< [KeyValuePairType](#) > [KeyValuePairArrayType](#)
- typedef std::pair< [Tag](#), std::string > [KeyValuePairType](#)

Static Public Member Functions

- static bool [CEcho](#) (const char *remote, uint16_t portno, const char *aetitle=NULL, const char *call=NULL)
- static bool [CFind](#) (const char *remote, uint16_t portno, const [BaseRootQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle=NULL, const char *call=NULL)
- static bool [CMove](#) (const char *remote, uint16_t portno, const [BaseRootQuery](#) *query, uint16_t portscp, const char *aetitle=NULL, const char *call=NULL, const char *outputdir=NULL)
- static [BaseRootQuery](#) * [ConstructQuery](#) ([ERootType](#) inRootType, [EQueryLevel](#) inQueryLevel, const [DataSet](#) &queryds, [EQueryType](#) queryType=[eFind](#))
- static [BaseRootQuery](#) * [ConstructQuery](#) ([ERootType](#) inRootType, [EQueryLevel](#) inQueryLevel, const [KeyValuePairArrayType](#) &keys, [EQueryType](#) queryType=[eFind](#))
- static bool [CStore](#) (const char *remote, uint16_t portno, const [Directory::FileNamesType](#) &filenames, const char *aetitle=NULL, const char *call=NULL)

10.59.1 Detailed Description

Composite Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- C-ECHO SCU
- C-FIND SCU
- C-STORE SCU
- C-MOVE SCU (+internal C-STORE SCP)

10.59.2 Member Typedef Documentation

10.59.2.1 `typedef std::vector< KeyValuePairType > gdcmm::CompositeNetworkFunctions::KeyValuePairArrayType`

10.59.2.2 `typedef std::pair<Tag, std::string> gdcmm::CompositeNetworkFunctions::KeyValuePairType`

10.59.3 Member Function Documentation

10.59.3.1 `static bool gdcmm::CompositeNetworkFunctions::CEcho (const char * remote, uint16_t portno, const char * aetitle = NULL, const char * call = NULL) [static]`

The most basic network function. Use this function to ensure that the remote server is responding on the given IP and port number as expected.

Parameters

<i>aetitle</i>	when not set will default to 'GDCMSCU'
<i>call</i>	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

10.59.3.2 **static bool** gdcmm::CompositeNetworkFunctions::CFind (const char * *remote*, uint16_t *portno*, const BaseRootQuery * *query*, std::vector< DataSet > & *retDataSets*, const char * *aetitle* = NULL, const char * *call* = NULL) [static]

This function will use the provided query to determine what files a remote server contains that match the query strings. The return is a vector of datasets that contain tags as reported by the server. If the dataset is empty, then it is possible that an error condition was encountered; in which case, the user should monitor the error and warning streams.

Parameters

<i>aetitle</i>	when not set will default to 'GDCMSCU'
<i>call</i>	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

10.59.3.3 **static bool** gdcmm::CompositeNetworkFunctions::CMove (const char * *remote*, uint16_t *portno*, const BaseRootQuery * *query*, uint16_t *portscp*, const char * *aetitle* = NULL, const char * *call* = NULL, const char * *outputdir* = NULL) [static]

This function will use the provided query to get files from a remote server. NOTE that this functionality is essentially equivalent to C-GET in the DICOM standard; however, C-GET has been deprecated, so this function allows for the user to ask a remote server for files matching a query and return them to the local machine. Files will be written to the given output directory. If the operation succeeds, the function returns true. This function is a prime candidate for being overwritten by expert users; if the datasets should remain in memory, for instance, that behavior can be changed by creating a user-level version of this function.

Parameters

<i>aetitle</i>	when not set will default to 'GDCMSCU'
<i>call</i>	when not set will default to 'ANY-SCP' This is an error to set remote to NULL or portno to 0 when
<i>outputdir</i>	is not set default to current dir ('.')

Returns

true if it worked.

10.59.3.4 **static BaseRootQuery*** gdcmm::CompositeNetworkFunctions::ConstructQuery (ERootType *inRootType*, EQueryLevel *inQueryLevel*, const DataSet & *queryds*, EQueryType *queryType* = eFind) [static]

This function will take a list of strings and tags and fill in a query that can be used for either CFind or CMove (depending on the input boolean

Parameters

<i>inMove</i>).	Note that the caller is responsible for deleting the constructed query. This function is used to build both a move and a find query (true for inMove if it's move, false if it's find)
------------------	--

10.59.3.5 **static BaseRootQuery* gdcM::CompositeNetworkFunctions::ConstructQuery (ERootType *inRootType*, EQueryLevel *inQueryLevel*, const KeyValuePairArrayType & *keys*, EQueryType *queryType* = eFind)**
[static]

Deprecated

10.59.3.6 **static bool gdcM::CompositeNetworkFunctions::CStore (const char * *remote*, uint16_t *portno*, const Directory::FileNamesType & *filenames*, const char * *aetitle* = NULL, const char * *call* = NULL)** [static]

This function will place the provided files into the remote server. The function returns true if it worked for all files.

Warning

the server side can refuse an association on a given file

Parameters

<i>aetitle</i>	when not set will default to 'GDCMSCU'
<i>call</i>	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked for all files

The documentation for this class was generated from the following file:

- [gdcMCompositeNetworkFunctions.h](#)

10.60 gdcM::ConstCharWrapper Class Reference

Do not use me.

```
#include <gdcMConstCharWrapper.h>
```

Public Member Functions

- [ConstCharWrapper](#) (const char *i=0)
- [operator const char *](#) () const

10.60.1 Detailed Description

Do not use me.

10.60.2 Constructor & Destructor Documentation

10.60.2.1 `gdcm::ConstCharWrapper::ConstCharWrapper (const char * i = 0) [inline]`

10.60.3 Member Function Documentation

10.60.3.1 `gdcm::ConstCharWrapper::operator const char * () const [inline]`

The documentation for this class was generated from the following file:

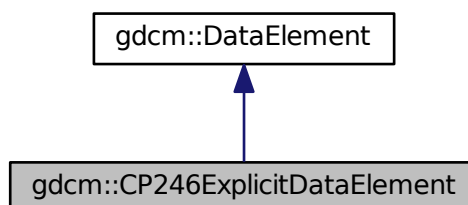
- [gdcmConstCharWrapper.h](#)

10.61 gdcm::CP246ExplicitDataElement Class Reference

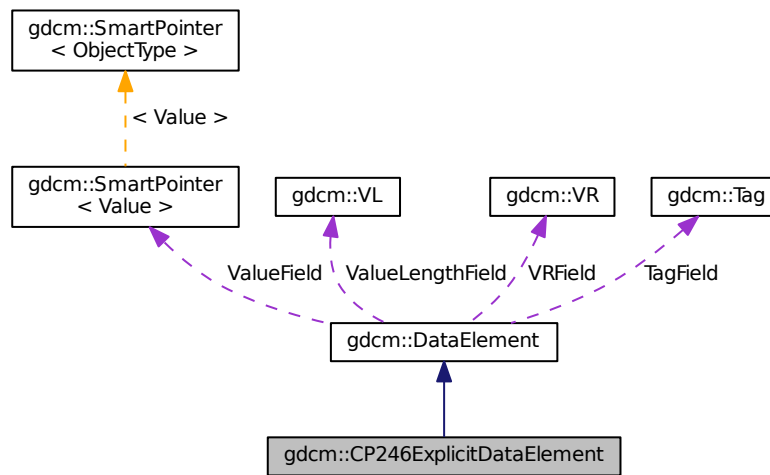
Class to read/write a [DataElement](#) as CP246Explicit Data [Element](#).

```
#include <gdcmCP246ExplicitDataElement.h>
```

Inheritance diagram for `gdcm::CP246ExplicitDataElement`:



Collaboration diagram for `gdcm::CP246ExplicitDataElement`:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length)

Additional Inherited Members

10.61.1 Detailed Description

Class to read/write a [DataElement](#) as CP246Explicit Data [Element](#).

Note

Some system are producing SQ, declare them as UN, but encode the SQ as 'Explicit' instead of Implicit

10.61.2 Member Function Documentation

10.61.2.1 VL `gdcm::CP246ExplicitDataElement::GetLength () const`

10.61.2.2 `template<typename TSwap> std::istream& gdcm::CP246ExplicitDataElement::Read (std::istream & is)`

10.61.2.3 `template<typename TSwap> std::istream& gdcm::CP246ExplicitDataElement::ReadPreValue (std::istream & is)`

10.61.2.4 `template<typename TSwap> std::istream& gdcm::CP246ExplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.61.2.5 `template<typename TSwap> std::istream& gdcm::CP246ExplicitDataElement::ReadWithLength (std::istream & is, VL & length)`

The documentation for this class was generated from the following file:

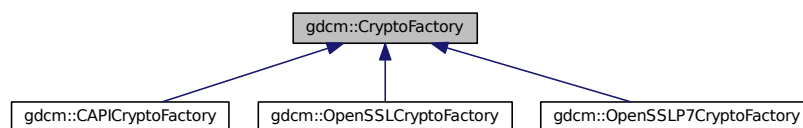
- [gdcmCP246ExplicitDataElement.h](#)

10.62 gdcm::CryptoFactory Class Reference

Class to do handle the crypto factory.

```
#include <gdcmCryptoFactory.h>
```

Inheritance diagram for `gdcm::CryptoFactory`:



Public Types

- enum `CryptoLib` {
`DEFAULT` = 0,
`OPENSSL` = 1,
`CAPI` = 2,
`OPENSSL7` = 3 }

Public Member Functions

- virtual [CryptographicMessageSyntax](#) * [CreateCMSProvider](#) ()=0

Static Public Member Functions

- static [CryptoFactory](#) * [GetFactoryInstance](#) ([CryptoLib](#) id=DEFAULT)

Protected Member Functions

- [CryptoFactory](#) ([CryptoLib](#) id)
- [CryptoFactory](#) ()
- [~CryptoFactory](#) ()

10.62.1 Detailed Description

Class to do handle the crypto factory.

GDCM needs to access in a platform independant way the user specified crypto engine. It can be:

- CAPI (windows only)
- OPENSSL (portable)
- OPENSSL7 (portable) By default the factory will try: CAPI if on windows OPENSSL if possible OPENSSL7 when older OpenSSL is used.

10.62.2 Member Enumeration Documentation

10.62.2.1 enum `gdcm::CryptoFactory::CryptoLib`

Enumerator

DEFAULT
OPENSSL
CAPI
OPENSSL7

10.62.3 Constructor & Destructor Documentation

10.62.3.1 `gdcm::CryptoFactory::CryptoFactory (CryptoLib id)` `[inline]`, `[protected]`

References `gdcmErrorMacro`.

10.62.3.2 `gdcm::CryptoFactory::CryptoFactory ()` `[inline]`, `[protected]`

10.62.3.3 `gdcm::CryptoFactory::~~CryptoFactory ()` `[inline]`, `[protected]`

10.62.4 Member Function Documentation

10.62.4.1 `virtual CryptographicMessageSyntax* gdcm::CryptoFactory::CreateCMSProvider ()` `[pure virtual]`

Implemented in [gdcm::OpenSSLCryptoFactory](#), [gdcm::OpenSSLP7CryptoFactory](#), and [gdcm::CAPICryptoFactory](#).

10.62.4.2 `static CryptoFactory* gdcm::CryptoFactory::GetFactoryInstance (CryptoLib id = DEFAULT)` `[static]`

Examples:

[BasicAnonymizer.cs](#), and [ClinicalTrialIdentificationWorkflow.cs](#).

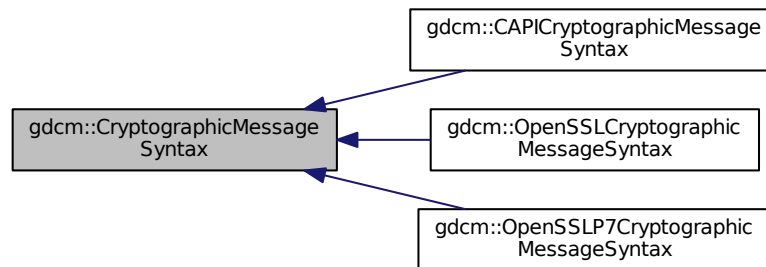
The documentation for this class was generated from the following file:

- [gdcmCryptoFactory.h](#)

10.63 gdcm::CryptographicMessageSyntax Class Reference

```
#include <gdcmCryptographicMessageSyntax.h>
```

Inheritance diagram for `gdcm::CryptographicMessageSyntax`:



Public Types

- enum [CipherTypes](#) {
[DES3_CIPHER](#),
[AES128_CIPHER](#),
[AES192_CIPHER](#),
[AES256_CIPHER](#) }

Public Member Functions

- [CryptographicMessageSyntax](#) ()
- virtual [~CryptographicMessageSyntax](#) ()
- virtual bool [Decrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const =0
decrypt content from a CMS envelopedData structure
- virtual bool [Encrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const =0
create a CMS envelopedData structure
- virtual [CipherTypes](#) [GetCipherType](#) () const =0
- virtual bool [ParseCertificateFile](#) (const char *filename)=0
- virtual bool [ParseKeyFile](#) (const char *filename)=0
- virtual void [SetCipherType](#) ([CipherTypes](#) type)=0
- virtual bool [SetPassword](#) (const char *pass, size_t passLen)=0

10.63.1 Member Enumeration Documentation

10.63.1.1 enum `gdcm::CryptographicMessageSyntax::CipherTypes`

Enumerator

DES3_CIPHER
AES128_CIPHER
AES192_CIPHER
AES256_CIPHER

10.63.2 Constructor & Destructor Documentation

10.63.2.1 `gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax ()` [`inline`]

10.63.2.2 virtual `gdcm::CryptographicMessageSyntax::~~CryptographicMessageSyntax ()` [`inline`], [`virtual`]

10.63.3 Member Function Documentation

10.63.3.1 virtual bool `gdcm::CryptographicMessageSyntax::Decrypt (char * output, size_t & outlen, const char * array, size_t len) const` [`pure virtual`]

decrypt content from a CMS envelopedData structure

Implemented in [gdcm::OpenSSLP7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.2 virtual bool `gdcm::CryptographicMessageSyntax::Encrypt (char * output, size_t & outlen, const char * array, size_t len) const` [`pure virtual`]

create a CMS envelopedData structure

Implemented in [gdcm::OpenSSLP7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.3 virtual **CipherTypes** gdcm::CryptographicMessageSyntax::GetCipherType () const [pure virtual]

Implemented in [gdcm::OpenSSL7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.4 virtual bool gdcm::CryptographicMessageSyntax::ParseCertificateFile (const char * *filename*) [pure virtual]

Implemented in [gdcm::OpenSSL7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.5 virtual bool gdcm::CryptographicMessageSyntax::ParseKeyFile (const char * *filename*) [pure virtual]

Implemented in [gdcm::OpenSSL7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.6 virtual void gdcm::CryptographicMessageSyntax::SetCipherType (**CipherTypes** *type*) [pure virtual]

Implemented in [gdcm::OpenSSL7CryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

10.63.3.7 virtual bool gdcm::CryptographicMessageSyntax::SetPassword (const char * *pass*, size_t *passLen*) [pure virtual]

Implemented in [gdcm::OpenSSL7CryptographicMessageSyntax](#), [gdcm::CAPICryptographicMessageSyntax](#), and [gdcm::OpenSSLCryptographicMessageSyntax](#).

The documentation for this class was generated from the following file:

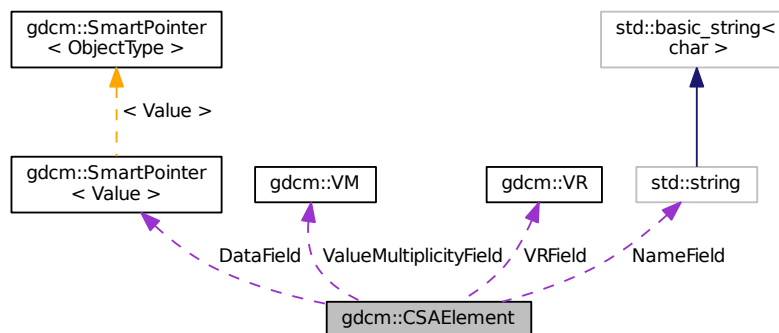
- [gdcmCryptographicMessageSyntax.h](#)

10.64 gdcm::CSAElement Class Reference

Class to represent a CSA [Element](#).

```
#include <gdcmCSAElement.h>
```

Collaboration diagram for gdcm::CSAElement:



Public Member Functions

- [CSAElement](#) (unsigned int kf=0)
- [CSAElement](#) (const [CSAElement](#) &_val)
- const [ByteValue](#) * [GetByteValue](#) () const
- unsigned int [GetKey](#) () const
Set/Get Key.
- const char * [GetName](#) () const
Set/Get Name.
- unsigned int [GetNoOfItems](#) () const
Set/Get NoOfItems.
- unsigned int [GetSyngoDT](#) () const
Set/Get SyngoDT.
- [Value](#) const & [GetValue](#) () const
Set/Get Value (bytes array, SQ of items, SQ of fragments):
- [Value](#) & [GetValue](#) ()
- const [VM](#) & [GetVM](#) () const
Set/Get VM.
- [VR](#) const & [GetVR](#) () const
Set/Get VR.
- bool [IsEmpty](#) () const
Check if CSA Element is empty.
- bool [operator<](#) (const [CSAElement](#) &de) const
- [CSAElement](#) & [operator=](#) (const [CSAElement](#) &de)
- bool [operator==](#) (const [CSAElement](#) &de) const
- void [SetByteValue](#) (const char *array, [VL](#) length)
Set.
- void [SetKey](#) (unsigned int key)
- void [SetName](#) (const char *name)
- void [SetNoOfItems](#) (unsigned int items)
- void [SetSyngoDT](#) (unsigned int syngodt)
- void [SetValue](#) ([Value](#) const &vl)
- void [SetVM](#) (const [VM](#) &vm)
- void [SetVR](#) ([VR](#) const &vr)

Protected Types

- typedef [SmartPointer](#)< [Value](#) > [DataPtr](#)

Protected Attributes

- [DataPtr](#) [DataField](#)
- unsigned int [KeyField](#)
- std::string [NameField](#)
- unsigned int [NoOfItemsField](#)
- unsigned int [SyngoDTField](#)
- [VM](#) [ValueMultiplicityField](#)
- [VR](#) [VRField](#)

Friends

- `std::ostream & operator<< (std::ostream &os, const CSAElement &val)`

10.64.1 Detailed Description

Class to represent a CSA [Element](#).

See also

[CSAHeader](#)

Examples:

[csa2img.cxx](#), and [MrProtocol.cxx](#).

10.64.2 Member Typedef Documentation

10.64.2.1 `typedef SmartPointer<Value> gdcm::CSAElement::DataPtr` `[protected]`

10.64.3 Constructor & Destructor Documentation

10.64.3.1 `gdcm::CSAElement::CSAElement (unsigned int kf=0)` `[inline]`

References `gdcm::operator<<()`.

10.64.3.2 `gdcm::CSAElement::CSAElement (const CSAElement &_val)` `[inline]`

10.64.4 Member Function Documentation

10.64.4.1 `const ByteValue* gdcm::CSAElement::GetByteValue () const` `[inline]`

Return the [Value](#) of [CSAElement](#) as a [ByteValue](#) (if possible)

Warning

: You need to check for NULL return value

Examples:

[MrProtocol.cxx](#).

10.64.4.2 `unsigned int gdcM::CSAElement::GetKey () const` `[inline]`

Set/Get Key.

Referenced by operator<().

10.64.4.3 `const char* gdcM::CSAElement::GetName () const` `[inline]`

Set/Get Name.

10.64.4.4 `unsigned int gdcM::CSAElement::GetNoOfItems () const` `[inline]`

Set/Get NoOfItems.

10.64.4.5 `unsigned int gdcM::CSAElement::GetSyngoDT () const` `[inline]`

Set/Get SyngoDT.

10.64.4.6 `Value const& gdcM::CSAElement::GetValue () const` `[inline]`

Set/Get [Value](#) (bytes array, SQ of items, SQ of fragments):

Examples:

[csa2img.cxx](#).

10.64.4.7 `Value& gdcM::CSAElement::GetValue ()` `[inline]`

10.64.4.8 `const VM& gdcM::CSAElement::GetVM () const` `[inline]`

Set/Get [VM](#).

10.64.4.9 `VR const& gdcM::CSAElement::GetVR () const` `[inline]`

Set/Get [VR](#).

10.64.4.10 `bool gdcm::CSAElement::IsEmpty () const [inline]`

Check if CSA [Element](#) is empty.

Examples:

[csa2img.cxx](#).

10.64.4.11 `bool gdcm::CSAElement::operator< (const CSAElement & de) const [inline]`

References [GetKey\(\)](#).

10.64.4.12 `CSAElement& gdcm::CSAElement::operator= (const CSAElement & de) [inline]`

References [DataField](#), [KeyField](#), [NameField](#), [NoOfItemsField](#), [SyngoDTField](#), [ValueMultiplicityField](#), and [VRField](#).

10.64.4.13 `bool gdcm::CSAElement::operator== (const CSAElement & de) const [inline]`

References [KeyField](#), [NameField](#), [SyngoDTField](#), [ValueMultiplicityField](#), and [VRField](#).

10.64.4.14 `void gdcm::CSAElement::SetByteValue (const char * array, VL length) [inline]`

Set.

10.64.4.15 `void gdcm::CSAElement::SetKey (unsigned int key) [inline]`

10.64.4.16 `void gdcm::CSAElement::SetName (const char * name) [inline]`

10.64.4.17 `void gdcm::CSAElement::SetNoOfItems (unsigned int items) [inline]`

10.64.4.18 `void gdcm::CSAElement::SetSyngoDT (unsigned int syngodt) [inline]`

10.64.4.19 `void gdcm::CSAElement::SetValue (Value const & vl) [inline]`

10.64.4.20 `void gdcm::CSAElement::SetVM (const VM & vm) [inline]`

10.64.4.21 `void gdcm::CSAElement::SetVR (VR const & vr) [inline]`

10.64.5 Friends And Related Function Documentation

10.64.5.1 `std::ostream& operator<< (std::ostream & os, const CSAElement & val) [friend]`

10.64.6 Member Data Documentation

10.64.6.1 `DataPtr gdcm::CSAElement::DataField [protected]`

Referenced by [gdcm::operator<<\(\)](#), and [operator=\(\)](#).

10.64.6.2 `unsigned int gdcm::CSAElement::KeyField` [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

10.64.6.3 `std::string gdcm::CSAElement::NameField` [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

10.64.6.4 `unsigned int gdcm::CSAElement::NoOfItemsField` [protected]

Referenced by `gdcm::operator<<()`, and `operator=()`.

10.64.6.5 `unsigned int gdcm::CSAElement::SyngoDTField` [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

10.64.6.6 `VM gdcm::CSAElement::ValueMultiplicityField` [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

10.64.6.7 `VR gdcm::CSAElement::VRField` [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

The documentation for this class was generated from the following file:

- [gdcmCSAElement.h](#)

10.65 gdcm::CSAHeader Class Reference

Class for [CSAHeader](#).

```
#include <gdcmCSAHeader.h>
```

Public Types

- enum [CSAHeaderType](#) {
[UNKNOWN](#) = 0,
[SV10](#),
[NOMAGIC](#),
[DATASET_FORMAT](#),
[INTERFILE](#),
[ZEROED_OUT](#) }

Divers format of [CSAHeader](#) as found 'in the wild'.

Public Member Functions

- [CSAHeader](#) ()
- [~CSAHeader](#) ()
- bool [FindCSAELEMENTByName](#) (const char *name)
- const [CSAELEMENT](#) & [GetCSAELEMENTByName](#) (const char *name)
- const [DataSet](#) & [GetDataSet](#) () const
Return the [DataSet](#) output (use only if Format == DATASET_FORMAT)
- [CSAHeaderType](#) [GetFormat](#) () const
- const char * [GetInterfile](#) () const
Return the string output (use only if Format == Interfile)
- bool [LoadFromDataElement](#) ([DataElement](#) const &de)
Decode the [CSAHeader](#) from element 'de'.
- void [Print](#) (std::ostream &os) const
Print the [CSAHeader](#) (use only if Format == SV10 or NOMAGIC)
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
const std::ostream & [Write](#) (std::ostream &os) const

Static Public Member Functions

- static const [PrivateTag](#) & [GetCSADataInfo](#) ()
- static const [PrivateTag](#) & [GetCSAImageHeaderInfoTag](#) ()
- static const [PrivateTag](#) & [GetCSASeriesHeaderInfoTag](#) ()

Protected Member Functions

- const [CSAELEMENT](#) & [GetCSAEEnd](#) () const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [CSAHeader](#) &d)

10.65.1 Detailed Description

Class for [CSAHeader](#).

SIEMENS store private information in tag (0x0029,0x10,"SIEMENS CSA HEADER") this class is meant for user wishing to access values stored within this private attribute. There are basically two main 'format' for this attribute : SV10/NOMAGIC and DATASET_FORMAT SV10 and NOMAGIC are from a user prospective identical, see CSAHeader.xml for possible name / value stored in this format. DATASET_FORMAT is in fact simply just another DICOM dataset (implicit) with -currently unknown- value. This can be only be printed for now.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.
the API of this class might change.

Todo MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

See also

[PDBHeader](#)

External references: 5.1.3.2.4.1 MEDCOM History Information and 5.1.4.3 CSA Non-Image [Module](#) in http://tamsinfo.toshiba.com/docrequest/pdf/E.Soft_v2.0.pdf

Examples:

[csa2img.cxx](#), and [MrProtocol.cxx](#).

10.65.2 Member Enumeration Documentation**10.65.2.1 enum gdcm::CSAHeader::CSAHeaderType**

Divers format of [CSAHeader](#) as found 'in the wild'.

Enumerator

UNKNOWN
SV10
NOMAGIC
DATASET_FORMAT
INTERFILE
ZEROED_OUT

10.65.3 Constructor & Destructor Documentation

10.65.3.1 gdcm::CSAHeader::CSAHeader () [[inline](#)]

10.65.3.2 gdcm::CSAHeader::~~CSAHeader () [[inline](#)]

10.65.4 Member Function Documentation

10.65.4.1 bool gdcm::CSAHeader::FindCSAElementByName (const char * *name*)

Return true if the CSA element matching 'name' is found or not

Warning

Case Sensitive

Examples:

[csa2img.cxx](#), and [MrProtocol.cxx](#).

10.65.4.2 `static const PrivateTag& gdcm::CSAHeader::GetCSADataInfo () [static]`

Return the private tag used by SIEMENS to store the CSA Data Info This is: [PrivateTag](#)(0x0029,0x0010,"SIEMENS CSA NON-IMAGE");

10.65.4.3 `const CSAElement& gdcm::CSAHeader::GetCSAEEnd () const [protected]`

10.65.4.4 `const CSAElement& gdcm::CSAHeader::GetCSAElementByName (const char * name)`

Return the [CSAElement](#) corresponding to name 'name'

Warning

Case Sensitive

Examples:

[csa2img.cxx](#), and [MrProtocol.cxx](#).

10.65.4.5 `static const PrivateTag& gdcm::CSAHeader::GetCSAImageHeaderInfoTag () [static]`

Return the private tag used by SIEMENS to store the CSA [Image](#) Header This is: [PrivateTag](#)(0x0029,0x0010,"SIEMENS CSA HEADER");

Examples:

[csa2img.cxx](#), and [PublicDict.cxx](#).

10.65.4.6 `static const PrivateTag& gdcm::CSAHeader::GetCSASeriesHeaderInfoTag () [static]`

Return the private tag used by SIEMENS to store the CSA [Series](#) Header This is: [PrivateTag](#)(0x0029,0x0020,"SIEMENS CSA HEADER");

Examples:

[MrProtocol.cxx](#).

10.65.4.7 `const DataSet& gdcm::CSAHeader::GetDataSet () const [inline]`

Return the [DataSet](#) output (use only if Format == DATASET_FORMAT)

10.65.4.8 `CSAHeaderType` `gdcm::CSAHeader::GetFormat () const`

return the format of the [CSAHeader](#) SV10 and NOMAGIC are equivalent.

10.65.4.9 `const char*` `gdcm::CSAHeader::GetInterfile () const` `[inline]`

Return the string output (use only if Format == Interfile)

10.65.4.10 `bool` `gdcm::CSAHeader::LoadFromDataElement (DataElement const & de)`

Decode the [CSAHeader](#) from element 'de'.

Examples:

[csa2img.cxx](#), and [MrProtocol.cxx](#).

10.65.4.11 `void` `gdcm::CSAHeader::Print (std::ostream & os) const`

Print the [CSAHeader](#) (use only if Format == SV10 or NOMAGIC)

Examples:

[csa2img.cxx](#).

Referenced by `gdcm::operator<<()`.

10.65.4.12 `template<typename TSwap > std::istream&` `gdcm::CSAHeader::Read (std::istream & is)`

10.65.4.13 `template<typename TSwap > const std::ostream&` `gdcm::CSAHeader::Write (std::ostream & os) const`

10.65.5 Friends And Related Function Documentation

10.65.5.1 `std::ostream&` `operator<< (std::ostream & _os, const CSAHeader & d)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmCSAHeader.h](#)

10.66 gdcm::CSAHeaderDict Class Reference

Class to represent a map of [CSAHeaderDictEntry](#).

```
#include <gdcmCSAHeaderDict.h>
```

Public Types

- typedef MapCSAHeaderDictEntry::const_iterator [ConstIterator](#)
- typedef MapCSAHeaderDictEntry::iterator [Iterator](#)
- typedef std::set< [CSAHeaderDictEntry](#) > [MapCSAHeaderDictEntry](#)

Public Member Functions

- [CSAHeaderDict](#) ()
- void [AddCSAHeaderDictEntry](#) (const [CSAHeaderDictEntry](#) &de)
- [ConstIterator](#) [Begin](#) () const
- [ConstIterator](#) [End](#) () const
- const [CSAHeaderDictEntry](#) & [GetCSAHeaderDictEntry](#) (const char *name) const
- bool [IsEmpty](#) () const

Protected Member Functions

- void [LoadDefault](#) ()

Friends

- class [Dicts](#)
- std::ostream & [operator<<](#) (std::ostream &_os, const [CSAHeaderDict](#) &_val)

10.66.1 Detailed Description

Class to represent a map of [CSAHeaderDictEntry](#).

Examples:

[MrProtocol.cxx](#).

10.66.2 Member Typedef Documentation

10.66.2.1 `typedef MapCSAHeaderDictEntry::const_iterator gdcm::CSAHeaderDict::ConstIterator`

10.66.2.2 `typedef MapCSAHeaderDictEntry::iterator gdcm::CSAHeaderDict::Iterator`

10.66.2.3 `typedef std::set<CSAHeaderDictEntry> gdcm::CSAHeaderDict::MapCSAHeaderDictEntry`

10.66.3 Constructor & Destructor Documentation

10.66.3.1 `gdcm::CSAHeaderDict::CSAHeaderDict () [inline]`

References `gdcm::operator<<()`.

10.66.4 Member Function Documentation

10.66.4.1 `void gdcm::CSAHeaderDict::AddCSAHeaderDictEntry (const CSAHeaderDictEntry & de) [inline]`

10.66.4.2 `ConstIterator gdcm::CSAHeaderDict::Begin () const [inline]`

10.66.4.3 `ConstIterator gdcm::CSAHeaderDict::End () const [inline]`

10.66.4.4 `const CSAHeaderDictEntry& gdcm::CSAHeaderDict::GetCSAHeaderDictEntry (const char * name) const [inline]`

Examples:

[MrProtocol.cxx](#).

10.66.4.5 `bool gdcm::CSAHeaderDict::IsEmpty () const [inline]`

10.66.4.6 `void gdcm::CSAHeaderDict::LoadDefault () [protected]`

10.66.5 Friends And Related Function Documentation

10.66.5.1 `friend class Dicts [friend]`

10.66.5.2 `std::ostream& operator<< (std::ostream & _os, const CSAHeaderDict & _val) [friend]`

The documentation for this class was generated from the following file:

- [gdcmCSAHeaderDict.h](#)

10.67 gdcm::CSAHeaderDictEntry Class Reference

Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.

```
#include <gdcmCSAHeaderDictEntry.h>
```

Public Member Functions

- [CSAHeaderDictEntry](#) (const char *name="", [VR](#) const &vr=[VR::INVALID](#), [VM](#) const &vm=[VM::VM0](#), const char *desc="")
- const char * [GetDescription](#) () const
Set/Get Description.
- const char * [GetName](#) () const
Set/Get Name.
- const [VM](#) & [GetVM](#) () const
Set/Get VM.
- const [VR](#) & [GetVR](#) () const
Set/Get VR.
- bool [operator<](#) (const [CSAHeaderDictEntry](#) &entry) const
- void [SetDescription](#) (const char *desc)
- void [SetName](#) (const char *name)
- void [SetVM](#) ([VM](#) const &vm)
- void [SetVR](#) (const [VR](#) &vr)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [CSAHeaderDictEntry](#) &_val)

10.67.1 Detailed Description

Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.

Note

bla TODO FIXME: Need a PublicCSAHeaderDictEntry...indeed [CSAHeaderDictEntry](#) has a notion of retired which does not exist in PrivateCSAHeaderDictEntry...

See also

[gdcm::Dict](#)

Examples:

[MrProtocol.cxx](#).

10.67.2 Constructor & Destructor Documentation

10.67.2.1 `gdcm::CSAHeaderDictEntry::CSAHeaderDictEntry (const char * name = " ", VR const & vr = VR::INVALID, VM const & vm = VM::VM0, const char * desc = " ") [inline]`

References `gdcm::operator<<()`.

10.67.3 Member Function Documentation

10.67.3.1 `const char* gdcm::CSAHeaderDictEntry::GetDescription () const [inline]`

Set/Get Description.

10.67.3.2 `const char* gdcm::CSAHeaderDictEntry::GetName () const [inline]`

Set/Get Name.

Referenced by `operator<<()`.

10.67.3.3 `const VM& gdcm::CSAHeaderDictEntry::GetVM () const [inline]`

Set/Get [VM](#).

10.67.3.4 `const VR& gdcm::CSAHeaderDictEntry::GetVR () const [inline]`

Set/Get [VR](#).

10.67.3.5 `bool gdcm::CSAHeaderDictEntry::operator< (const CSAHeaderDictEntry & entry) const [inline]`

References `GetName()`.

10.67.3.6 `void gdcm::CSAHeaderDictEntry::SetDescription (const char * desc) [inline]`

10.67.3.7 `void gdcm::CSAHeaderDictEntry::SetName (const char * name) [inline]`

10.67.3.8 `void gdcm::CSAHeaderDictEntry::SetVM (VM const & vm) [inline]`

10.67.3.9 `void gdcm::CSAHeaderDictEntry::SetVR (const VR & vr) [inline]`

10.67.4 Friends And Related Function Documentation

10.67.4.1 `std::ostream& operator<< (std::ostream & _os, const CSAHeaderDictEntry & _val) [friend]`

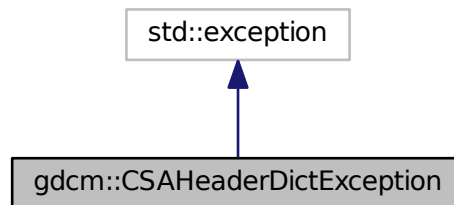
The documentation for this class was generated from the following file:

- [gdcmCSAHeaderDictEntry.h](#)

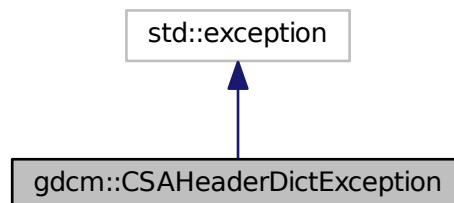
10.68 gdcm::CSAHeaderDictException Class Reference

```
#include <gdcmCSAHeaderDict.h>
```

Inheritance diagram for gdcm::CSAHeaderDictException:



Collaboration diagram for gdcm::CSAHeaderDictException:



The documentation for this class was generated from the following file:

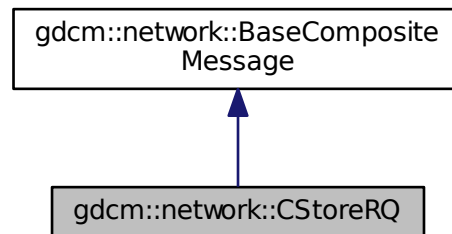
- [gdcmCSAHeaderDict.h](#)

10.69 gdcm::network::CStoreRQ Class Reference

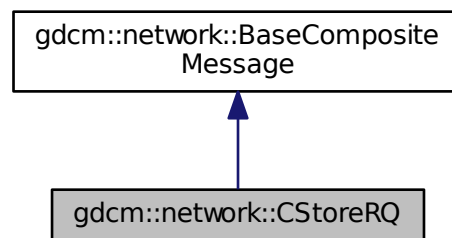
[CStoreRQ](#) this file defines the messages for the cecho action.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for `gdcm::network::CStoreRQ`:



Collaboration diagram for `gdcm::network::CStoreRQ`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV` (const [ULConnection](#) &inConnection, const [File](#) &file, bool writeDataSet=true)

10.69.1 Detailed Description

[CStoreRQ](#) this file defines the messages for the cecho action.

10.69.2 Member Function Documentation

- 10.69.2.1 `std::vector<PresentationDataValue> gdcm::network::CStoreRQ::ConstructPDV (const ULConnection &inConnection, const File &file, bool writeDataSet = true)`

The documentation for this class was generated from the following file:

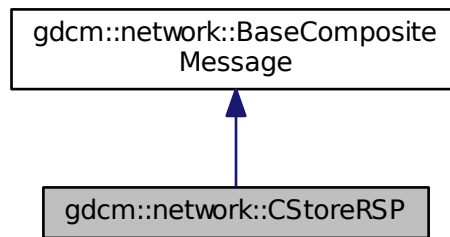
- [gdcmCStoreMessages.h](#)

10.70 gdcm::network::CStoreRSP Class Reference

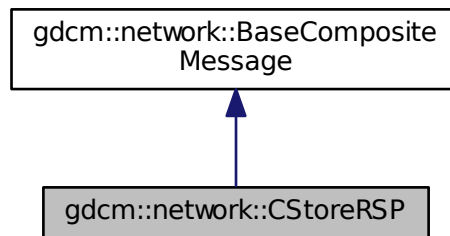
[CStoreRSP](#) this file defines the messages for the cecho action.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for gdcm::network::CStoreRSP:



Collaboration diagram for gdcm::network::CStoreRSP:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV` (const [DataSet](#) *inDataSet, const [BasePDU](#) *inPC)

10.70.1 Detailed Description

[CStoreRSP](#) this file defines the messages for the cecho action.

10.70.2 Member Function Documentation

10.70.2.1 `std::vector<PresentationDataValue> gdcmm::network::CStoreRSP::ConstructPDV (const DataSet * inDataSet, const BasePDU * inPC)`

The documentation for this class was generated from the following file:

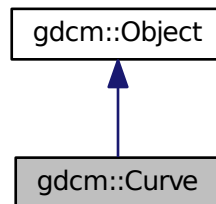
- [gdcmmCStoreMessages.h](#)

10.71 gdcmm::Curve Class Reference

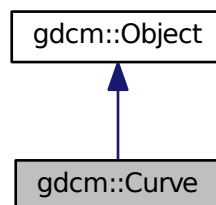
[Curve](#) class to handle element 50xx,3000 [Curve](#) Data WARNING: This is deprecated and lastly defined in PS 3.3 - 2004.

```
#include <gdcmmCurve.h>
```

Inheritance diagram for gdcmm::Curve:



Collaboration diagram for gdcmm::Curve:



Public Member Functions

- [Curve](#) ()
- [Curve](#) ([Curve](#) const &ov)
- [~Curve](#) ()
- void [Decode](#) (std::istream &is, std::ostream &os)
- void [GetAsPoints](#) (float *array) const
- std::vector< unsigned short > const & [GetCurveDataDescriptor](#) () const
- unsigned short [GetDataValueRepresentation](#) () const
- unsigned short [GetDimensions](#) () const
- unsigned short [GetGroup](#) () const
- unsigned short [GetNumberOfPoints](#) () const
- const char * [GetTypeOfData](#) () const
- const char * [GetTypeOfDataDescription](#) () const
- bool [IsEmpty](#) () const
- void [Print](#) (std::ostream &) const
- void [SetCoordinateStartValue](#) (unsigned short v)
- void [SetCoordinateStepValue](#) (unsigned short v)
- void [SetCurve](#) (const char *array, unsigned int length)
- void [SetCurveDataDescriptor](#) (const uint16_t *values, size_t num)
- void [SetCurveDescription](#) (const char *curvedescription)
- void [SetDataValueRepresentation](#) (unsigned short datavaluerepresentation)
- void [SetDimensions](#) (unsigned short dimensions)
- void [SetGroup](#) (unsigned short group)
- void [SetNumberOfPoints](#) (unsigned short numberofpoints)
- void [SetTypeOfData](#) (const char *typeofdata)
- void [Update](#) (const [DataElement](#) &de)

Static Public Member Functions

- static unsigned int [GetNumberOfCurves](#) ([DataSet](#) const &ds)

Additional Inherited Members

10.71.1 Detailed Description

[Curve](#) class to handle element 50xx,3000 [Curve](#) Data WARNING: This is deprecated and lastly defined in PS 3.3 - 2004.

Examples:

- GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
- GE_DLX-8-MONO2-Multiframe.dcm
- gdcmSampleData/Philips_Medical_Images/integriss_HV_5000/xa_integriss.dcm
- TOSHIBA-CurveData[1-3].dcm

10.71.2 Constructor & Destructor Documentation

10.71.2.1 `gdcm::Curve::Curve ()`

10.71.2.2 `gdcm::Curve::~~Curve ()`

10.71.2.3 `gdcm::Curve::Curve (Curve const & ov)`

10.71.3 Member Function Documentation

10.71.3.1 `void gdcm::Curve::Decode (std::istream & is, std::ostream & os)`

10.71.3.2 `void gdcm::Curve::GetAsPoints (float * array) const`

10.71.3.3 `std::vector<unsigned short> const& gdcm::Curve::GetCurveDataDescriptor () const`

10.71.3.4 `unsigned short gdcm::Curve::GetDataValueRepresentation () const`

10.71.3.5 `unsigned short gdcm::Curve::GetDimensions () const`

10.71.3.6 `unsigned short gdcm::Curve::GetGroup () const`

10.71.3.7 `static unsigned int gdcm::Curve::GetNumberOfCurves (DataSet const & ds) [static]`

10.71.3.8 `unsigned short gdcm::Curve::GetNumberOfPoints () const`

10.71.3.9 `const char* gdcm::Curve::GetTypeOfData () const`

10.71.3.10 `const char* gdcm::Curve::GetTypeOfDataDescription () const`

10.71.3.11 `bool gdcm::Curve::IsEmpty () const`

10.71.3.12 `void gdcm::Curve::Print (std::ostream &) const [virtual]`

Reimplemented from [gdcm::Object](#).

10.71.3.13 void gdcm::Curve::SetCoordinateStartValue (unsigned short *v*)

10.71.3.14 void gdcm::Curve::SetCoordinateStepValue (unsigned short *v*)

10.71.3.15 void gdcm::Curve::SetCurve (const char * *array*, unsigned int *length*)

10.71.3.16 void gdcm::Curve::SetCurveDataDescriptor (const uint16_t * *values*, size_t *num*)

10.71.3.17 void gdcm::Curve::SetCurveDescription (const char * *curvedescription*)

10.71.3.18 void gdcm::Curve::SetDataValueRepresentation (unsigned short *datavaluerepresentation*)

10.71.3.19 void gdcm::Curve::SetDimensions (unsigned short *dimensions*)

10.71.3.20 void gdcm::Curve::SetGroup (unsigned short *group*)

10.71.3.21 void gdcm::Curve::SetNumberOfPoints (unsigned short *numberofpoints*)

10.71.3.22 void gdcm::Curve::SetTypeOfData (const char * *typeofdata*)

10.71.3.23 void gdcm::Curve::Update (const DataElement & *de*)

The documentation for this class was generated from the following file:

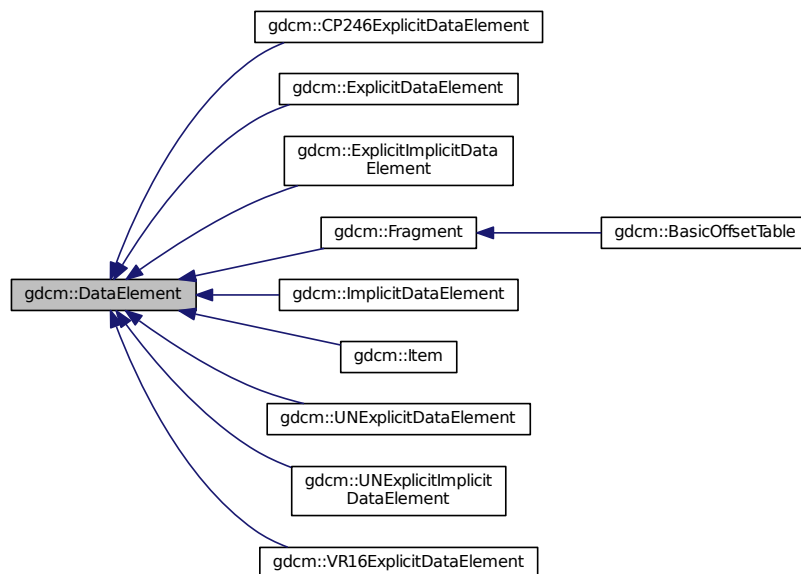
- [gdcmCurve.h](#)

10.72 gdcm::DataElement Class Reference

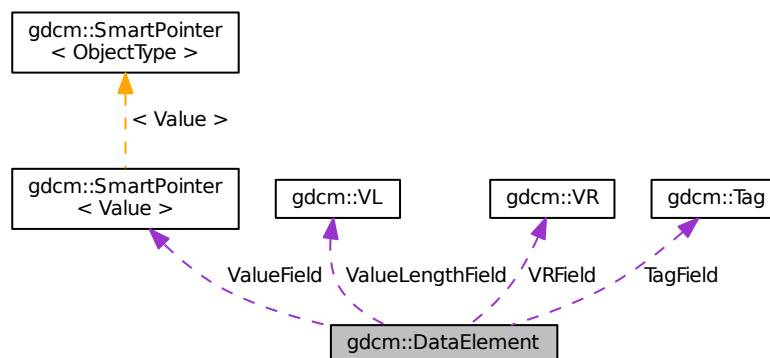
Class to represent a Data [Element](#) either Implicit or Explicit.

```
#include <gdcmDataElement.h>
```

Inheritance diagram for `gdcm::DataElement`:



Collaboration diagram for `gdcm::DataElement`:



Public Member Functions

- `DataElement` (const `Tag` &t=`Tag`(0), const `VL` &vl=0, const `VR` &vr=`VR::INVALID`)
- `DataElement` (const `DataElement` &_val)
- void `Clear` ()

- Clear Data *Element* (make *Value* empty and invalidate *Tag* & *VR*)
- void **Empty** ()
 - Make Data *Element* empty (no *Value*)
- const *ByteValue* * **GetByteValue** () const
- template<typename TDE > **VL GetLength** () const
- const *SequenceOfFragments* * **GetSequenceOfFragments** () const
- *SequenceOfFragments* * **GetSequenceOfFragments** ()
- const *Tag* & **GetTag** () const
 - Get *Tag*.
- *Tag* & **GetTag** ()
- *Value* const & **GetValue** () const
 - Set/Get *Value* (bytes array, SQ of items, SQ of fragments):
- *Value* & **GetValue** ()
- *SmartPointer*< *SequenceOfItems* > **GetValueAsSQ** () const
- const *VL* & **GetVL** () const
 - Get *VL*.
- *VL* & **GetVL** ()
- *VR* const & **GetVR** () const
- bool **IsEmpty** () const
 - Check if Data *Element* is empty.
- bool **IsUndefinedLength** () const
 - return if *Value* Length if of undefined length
- bool **operator<** (const *DataElement* &de) const
- *DataElement* & **operator=** (const *DataElement* &de)
- bool **operator==** (const *DataElement* &de) const
- template<typename TDE , typename TSwap > std::istream & **Read** (std::istream &is)
- template<typename TDE , typename TSwap > std::istream & **ReadOrSkip** (std::istream &is, std::set< *Tag* > const &skiptags)
- template<typename TDE , typename TSwap > std::istream & **ReadPreValue** (std::istream &is, std::set< *Tag* > const &skiptags)
- template<typename TDE , typename TSwap > std::istream & **ReadValue** (std::istream &is, std::set< *Tag* > const &skiptags)
- template<typename TDE , typename TSwap > std::istream & **ReadValueWithLength** (std::istream &is, *VL* &length, std::set< *Tag* > const &skiptags)
- template<typename TDE , typename TSwap > std::istream & **ReadWithLength** (std::istream &is, *VL* &length)
- void **SetByteValue** (const char *array, *VL* length)
- void **SetTag** (const *Tag* &t)
- void **SetValue** (*Value* const &vl)
- void **SetVL** (const *VL* &vl)
- void **SetVLToUndefined** ()
- void **SetVR** (*VR* const &vr)
- template<typename TDE , typename TSwap > const std::ostream & **Write** (std::ostream &os) const

Protected Types

- typedef *SmartPointer*< *Value* > *ValuePtr*

Protected Member Functions

- void [SetValueFieldLength](#) ([VL](#) vl, bool readvalues)

Protected Attributes

- [Tag](#) TagField
- [ValuePtr](#) ValueField
- [VL](#) ValueLengthField
- [VR](#) VRField

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [DataElement](#) &_val)

10.72.1 Detailed Description

Class to represent a Data [Element](#) either Implicit or Explicit.

DATA ELEMENT: A unit of information as defined by a single entry in the data dictionary. An encoded Information [Object](#) Definition (IOD) [Attribute](#) that is composed of, at a minimum, three fields: a Data [Element](#) [Tag](#), a [Value](#) Length, and a [Value](#) Field. For some specific Transfer Syntaxes, a Data [Element](#) also contains a [VR](#) Field where the [Value](#) Representation of that Data [Element](#) is specified explicitly.

Design:

- A [DataElement](#) in GDCM always store [VL](#) ([Value](#) Length) on a 32 bits integer even when [VL](#) is 16 bits
- A [DataElement](#) always store the [VR](#) even for Implicit TS, in which case [VR](#) is defaulted to [VR::INVALID](#)
- For [Item](#) start/end (See 0xfffe tags), [Value](#) is NULL

See also

[ExplicitDataElement](#) [ImplicitDataElement](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [gdcmrtpplan.cxx](#), [gdcmrtpplan.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSEExplicit.cxx](#), [pmsct_rgb1.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

10.72.2 Member Typedef Documentation

10.72.2.1 `typedef SmartPointer<Value> gdcm::DataElement::ValuePtr` `[protected]`

10.72.3 Constructor & Destructor Documentation

10.72.3.1 `gdcm::DataElement::DataElement (const Tag & t = Tag (0), const VL & vl = 0, const VR & vr = VR::INVALID)`
`[inline]`

References `gdcm::operator<<()`.

10.72.3.2 `gdcm::DataElement::DataElement (const DataElement & _val)` `[inline]`

10.72.4 Member Function Documentation

10.72.4.1 `void gdcm::DataElement::Clear ()` `[inline]`

Clear Data [Element](#) (make [Value](#) empty and invalidate [Tag](#) & [VR](#))

10.72.4.2 `void gdcm::DataElement::Empty ()` `[inline]`

Make Data [Element](#) empty (no [Value](#))

10.72.4.3 `const ByteValue* gdcm::DataElement::GetByteValue () const` `[inline]`

Return the [Value](#) of [DataElement](#) as a [ByteValue](#) (if possible)

Warning

: You need to check for NULL return value

Examples:

[DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumplmageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDICOM.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetSubSequenceData.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [ReadDICOM.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcm::operator<<()`, `gdcm::Element< VR::OB, VM::VM1_n >::SetFromDataElement()`, `gdcm::Element< Group, Element, TVR, TVM >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement()`, `gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement()`, and `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`.

10.72.4.4 `template<typename TDE > VL gdcm::DataElement::GetLength () const [inline]`

10.72.4.5 `const SequenceOfFragments* gdcm::DataElement::GetSequenceOfFragments () const`

Return the [Value](#) of [DataElement](#) as a Sequence Of Fragments (if possible)

Warning

: You need to check for NULL return value

Examples:

[FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), and [GetJPEGSamplePrecision.cxx](#).

10.72.4.6 `SequenceOfFragments* gdcm::DataElement::GetSequenceOfFragments ()`

10.72.4.7 `const Tag& gdcm::DataElement::GetTag () const [inline]`

Get [Tag](#).

Examples:

[DumpGEMSMovieGroup.cxx](#), [DuplicatePCDE.cxx](#), [pmsct_rgb1.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcm::CommandDataSet::Insert()`, `gdcm::FileMetaInformation::Insert()`, `gdcm::DataSet::Insert()`, `operator<()`, `gdcm::SequenceOfItems::Read()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::CommandDataSet::Replace()`, `gdcm::FileMetaInformation::Replace()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement()`, and `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`.

10.72.4.8 `Tag& gdcm::DataElement::GetTag () [inline]`

10.72.4.9 `Value const& gdcm::DataElement::GetValue () const [inline]`

Set/Get [Value](#) (bytes array, SQ of items, SQ of fragments):

Examples:

[ReadAndDumpDICOMDIR.cxx](#).

References `gdcmAssertAlwaysMacro`.

Referenced by `gdcm::DataSet::InsertDataElement()`, `gdcm::Element< VR::OB, VM::VM1_n >::SetFromDataElement()`, and `gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement()`.

10.72.4.10 **Value&** gdcm::DataElement::GetValue () [inline]

10.72.4.11 **SmartPointer<SequenceOfItems>** gdcm::DataElement::GetValueAsSQ () const

Interpret the [Value](#) stored in the [DataElement](#). This is more robust (but also more expensive) to call this function rather than the simplest form: `GetSequenceOfItems()` It also return NULL when the [Value](#) is NOT of type [SequenceOfItems](#)

Warning

in case `GetSequenceOfItems()` succeed the function return this value, otherwise it creates a new [SequenceOfItems](#), you should handle that in your case, for instance: `SmartPointer<SequenceOfItems> sqi = de.GetValueAsSQ();`

Examples:

[ChangeSequenceUltrasound.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ExtractEncryptedContent.cxx](#), [gdcmrtnionplan.cxx](#), [gdcmrtpian.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [LargeVRDSExplicit.cxx](#), and [ReadAndDumpDICOMDIR.cxx](#).

10.72.4.12 **const VL&** gdcm::DataElement::GetVL () const [inline]

Get [VL](#).

Referenced by `gdcm::DataSet::InsertDataElement()`, `gdcm::SequenceOfItems::Read()`, and `gdcm::SequenceOfFragments::ReadValue()`.

10.72.4.13 **VL&** gdcm::DataElement::GetVL () [inline]

10.72.4.14 **VR const&** gdcm::DataElement::GetVR () const [inline]

Get [VR](#) do not set [VR::SQ](#) on bytevalue data element

Examples:

[DuplicatePCDE.cxx](#), and [GenFakeIdentifyFile.cxx](#).

Referenced by `gdcm::Element< VR::OB, VM::VM1_n >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement()`, `gdcm::Element< VR::OB, VM::VM1_n >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`, `gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement()`, and `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`.

10.72.4.15 `bool gdcm::DataElement::IsEmpty () const [inline]`

Check if Data [Element](#) is empty.

Examples:

[DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [FixJAIBugJPEGLS.cxx](#), [pmsct_rgb1.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcm::DataSet::InsertDataElement()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet()`, and `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet()`.

10.72.4.16 `bool gdcm::DataElement::IsUndefinedLength () const [inline]`

return if [Value](#) Length if of undefined length

10.72.4.17 `bool gdcm::DataElement::operator< (const DataElement & de) const [inline]`

References `GetTag()`.

10.72.4.18 `DataElement& gdcm::DataElement::operator= (const DataElement & de) [inline]`

References `TagField`, `ValueField`, `ValueLengthField`, and `VRField`.

10.72.4.19 `bool gdcm::DataElement::operator== (const DataElement & de) const [inline]`

References `TagField`, `ValueField`, `ValueLengthField`, and `VRField`.

10.72.4.20 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::Read (std::istream & is) [inline]`

10.72.4.21 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::ReadOrSkip (std::istream & is, std::set< Tag > const & skiptags) [inline]`

10.72.4.22 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::ReadPreValue (std::istream & is, std::set< Tag > const & skiptags) [inline]`

10.72.4.23 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::ReadValue (std::istream & is, std::set< Tag > const & skiptags) [inline]`

10.72.4.24 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::ReadValueWithLength (std::istream & is, VL & length, std::set< Tag > const & skiptags) [inline]`

10.72.4.25 `template<typename TDE , typename TSwap > std::istream& gdcm::DataElement::ReadWithLength (std::istream & is, VL & length) [inline]`

10.72.4.26 `void gdcm::DataElement::SetByteValue (const char * array, VL length) [inline]`

Set the byte value

Warning

user need to read DICOM standard for an understanding of:

- even padding
- \0 vs space padding By default even padding is achieved using \0 regardless of the of [VR](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FileChangeTS.cs](#), [FileChangeTSLossy.cs](#), [FixBrokenJ2K.cxx](#), [FixJAI BugJPEGLS.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSubSequenceData.cxx](#), [IU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [NewSequence.cs](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

Referenced by `gdcm::Element< VR::OB, VM::VM1_n >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement()`, and `gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement()`.

10.72.4.27 `void gdcm::DataElement::SetTag (const Tag & t) [inline]`

Set [Tag](#) Use with cautious (need to match Part 6)

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), and [GetSubSequenceData.cxx](#).

10.72.4.28 `void gdcm::DataElement::SetValue (Value const & vl) [inline]`

Warning

you need to set the ValueLengthField explicitly

Examples:

[DuplicatePCDE.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), and [GenSeqs.cxx](#).

References `gdcm::Value::GetLength()`.

10.72.4.29 `void gdcm::DataElement::SetValueFieldLength (VL vl, bool readvalues) [protected]`

10.72.4.30 `void gdcm::DataElement::SetVL (const VL & vl) [inline]`

Set [VL](#) Use with cautious (need to match Part 6), advanced user only

See also

[SetByteValue](#)

10.72.4.31 `void gdcm::DataElement::SetVLToUndefined ()`

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), and [NewSequence.cs](#).

10.72.4.32 `void gdcm::DataElement::SetVR (VR const & vr) [inline]`

Set [VR](#) Use with cautious (need to match Part 6), advanced user only

Precondition

vr is a [VR::VRALL](#) (not a dual one such as OB_OW)

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [NewSequence.cs](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

References [gdcm::VR::IsVRFile\(\)](#).

Referenced by [gdcm::Element< VR::OB, VM::VM1_n >::GetAsDataElement\(\)](#), [gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement\(\)](#), [gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement\(\)](#), [gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement\(\)](#), and [gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement\(\)](#).

10.72.4.33 `template<typename TDE , typename TSwap > const std::ostream& gdcm::DataElement::Write (std::ostream & os) const [inline]`

10.72.5 Friends And Related Function Documentation

10.72.5.1 `std::ostream& operator<< (std::ostream & _os, const DataElement & _val) [friend]`

10.72.6 Member Data Documentation

10.72.6.1 `Tag gdcm::DataElement::TagField [protected]`

Referenced by [gdcm::operator<<\(\)](#), [operator=\(\)](#), and [operator==\(\)](#).

10.72.6.2 `ValuePtr gdcm::DataElement::ValueField [protected]`

Referenced by [gdcm::operator<<\(\)](#), [operator=\(\)](#), and [operator==\(\)](#).

10.72.6.3 VL gdcm::DataElement::ValueLengthField [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

10.72.6.4 VR gdcm::DataElement::VRField [protected]

Referenced by `gdcm::operator<<()`, `operator=()`, and `operator==()`.

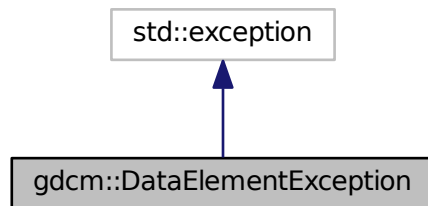
The documentation for this class was generated from the following file:

- [gdcmDataElement.h](#)

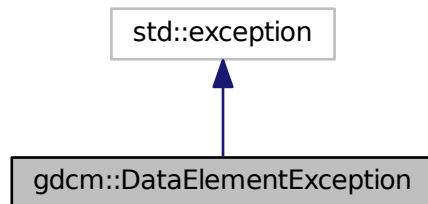
10.73 gdcm::DataElementException Class Reference

```
#include <gdcmDataSet.h>
```

Inheritance diagram for `gdcm::DataElementException`:



Collaboration diagram for `gdcm::DataElementException`:



The documentation for this class was generated from the following file:

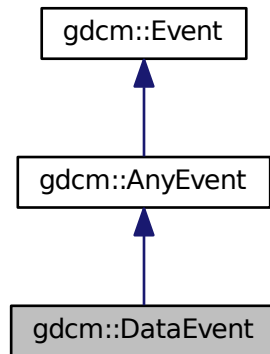
- [gdcmDataSet.h](#)

10.74 gdcm::DataEvent Class Reference

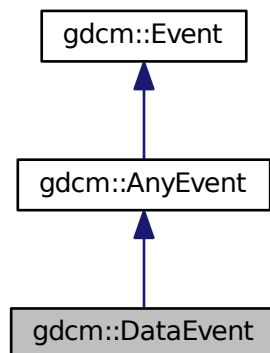
[DataEvent](#).

```
#include <gdcmDataEvent.h>
```

Inheritance diagram for gdcm::DataEvent:



Collaboration diagram for gdcm::DataEvent:



Public Types

- typedef [DataEvent](#) Self
- typedef [AnyEvent](#) Superclass

Public Member Functions

- [DataEvent](#) (const char *bytes=0, size_t len=0)
- [DataEvent](#) (const [Self](#) &s)
- virtual [~DataEvent](#) ()
- virtual bool [CheckEvent](#) (const ::gdcm::Event *e) const
- const char * [GetData](#) () const
- size_t [GetDataLength](#) () const
- virtual const char * [GetEventName](#) () const
- virtual ::gdcm::Event * [MakeObject](#) () const
- void [SetData](#) (const char *bytes, size_t len)

10.74.1 Detailed Description

[DataEvent](#).

10.74.2 Member Typedef Documentation

10.74.2.1 typedef DataEvent gdcm::DataEvent::Self

10.74.2.2 typedef AnyEvent gdcm::DataEvent::Superclass

10.74.3 Constructor & Destructor Documentation

10.74.3.1 gdcm::DataEvent::DataEvent (const char * *bytes* = 0, size_t *len* = 0) [inline]

10.74.3.2 virtual gdcm::DataEvent::~~DataEvent () [inline],[virtual]

10.74.3.3 gdcm::DataEvent::DataEvent (const Self & *s*) [inline]

10.74.4 Member Function Documentation

10.74.4.1 virtual bool gdcm::DataEvent::CheckEvent (const ::gdcm::Event * *e*) const [inline],[virtual]

10.74.4.2 const char* gdcm::DataEvent::GetData () const [inline]

10.74.4.3 size_t gdcm::DataEvent::GetDataLength () const [inline]

10.74.4.4 virtual const char* gdcm::DataEvent::GetEventName () const [inline],[virtual]

Return the StringName associated with the event.

Implements [gdcm::Event](#).

10.74.4.5 `virtual ::gdcm::Event* gdcm::DataEvent::MakeObject () const` `[inline],[virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implements [gdcm::Event](#).

10.74.4.6 `void gdcm::DataEvent::SetData (const char * bytes, size_t len)` `[inline]`

The documentation for this class was generated from the following file:

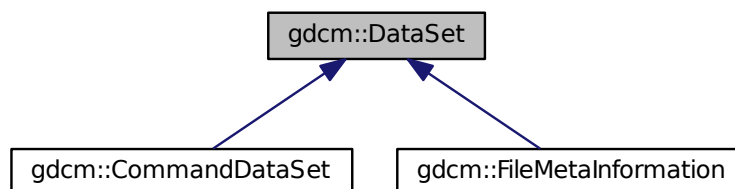
- [gdcmDataEvent.h](#)

10.75 gdcm::DataSet Class Reference

Class to represent a Data Set (which contains Data Elements) A Data Set represents an instance of a real world Information [Object](#).

```
#include <gdcmDataSet.h>
```

Inheritance diagram for `gdcm::DataSet`:



Public Types

- typedef `DataElementSet::const_iterator` [ConstIterator](#)
- typedef `std::set< DataElement >` [DataElementSet](#)
- typedef `DataElementSet::iterator` [Iterator](#)
- typedef `DataElementSet::size_type` [SizeType](#)

Public Member Functions

- [ConstIterator Begin](#) () const
- [Iterator Begin](#) ()
- void [Clear](#) ()
- template<typename TDE >
unsigned int [ComputeGroupLength](#) ([Tag](#) const &tag) const
- [ConstIterator End](#) () const
- [Iterator End](#) ()
- bool [FindDataElement](#) (const [PrivateTag](#) &t) const
Look up if private tag 't' is present in the dataset:
- bool [FindDataElement](#) (const [Tag](#) &t) const
- const [DataElement](#) & [FindNextDataElement](#) (const [Tag](#) &t) const
- const [DataElement](#) & [GetDataElement](#) (const [Tag](#) &t) const
- const [DataElement](#) & [GetDataElement](#) (const [PrivateTag](#) &t) const
Return the dataelement.
- const [DataElementSet](#) & [GetDES](#) () const
- [DataElementSet](#) & [GetDES](#) ()
- template<typename TDE >
[VL GetLength](#) () const
- [MediaStorage GetMediaStorage](#) () const
- std::string [GetPrivateCreator](#) (const [Tag](#) &t) const
Return the private creator of the private tag 't':
- void [Insert](#) (const [DataElement](#) &de)
- bool [IsEmpty](#) () const
Returns if the dataset is empty.
- const [DataElement](#) & [operator\(\)](#) (uint16_t group, uint16_t element) const
- [DataSet](#) & [operator=](#) ([DataSet](#) const &val)
- const [DataElement](#) & [operator\[\]](#) (const [Tag](#) &t) const
- void [Print](#) (std::ostream &os, std::string const &indent="") const
- template<typename TDE , typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TDE , typename TSwap >
std::istream & [ReadNested](#) (std::istream &is)
- template<typename TDE , typename TSwap >
std::istream & [ReadSelectedPrivateTags](#) (std::istream &is, const std::set< [PrivateTag](#) > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
std::istream & [ReadSelectedPrivateTagsWithLength](#) (std::istream &is, const std::set< [PrivateTag](#) > &tags, [VL](#) &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
std::istream & [ReadSelectedTags](#) (std::istream &is, const std::set< [Tag](#) > &tags, bool readvalues=true)
- template<typename TDE , typename TSwap >
std::istream & [ReadSelectedTagsWithLength](#) (std::istream &is, const std::set< [Tag](#) > &tags, [VL](#) &length, bool readvalues=true)
- template<typename TDE , typename TSwap >
std::istream & [ReadUpToTag](#) (std::istream &is, const [Tag](#) &t, std::set< [Tag](#) > const &skiptags)
- template<typename TDE , typename TSwap >
std::istream & [ReadUpToTagWithLength](#) (std::istream &is, const [Tag](#) &t, std::set< [Tag](#) > const &skiptags, [VL](#) &length)

- `template<typename TDE , typename TSwap >`
`std::istream & ReadWithLength (std::istream &is, VL &length)`
- `SizeType Remove (const Tag &tag)`
Completely remove a dataelement from the dataset.
- `void Replace (const DataElement &de)`
Replace a dataelement with another one.
- `void ReplaceEmpty (const DataElement &de)`
Only replace a DICOM attribute when it is missing or empty.
- `SizeType Size () const`
- `template<typename TDE , typename TSwap >`
`std::ostream const & Write (std::ostream &os) const`

Protected Member Functions

- `Tag ComputeDataElement (const PrivateTag &t) const`
- `const DataElement & GetDEEnd () const`
- `void InsertDataElement (const DataElement &de)`

Friends

- class `CSAHeader`
- `std::ostream & operator<< (std::ostream &_os, const DataSet &val)`

10.75.1 Detailed Description

Class to represent a Data Set (which contains Data Elements) A Data Set represents an instance of a real world Information [Object](#).

Note

DATA SET: Exchanged information consisting of a structured set of [Attribute](#) values directly or indirectly related to Information Objects. The value of each [Attribute](#) in a Data Set is expressed as a Data [Element](#). A collection of Data Elements ordered by increasing Data [Element Tag](#) number that is an encoding of the values of Attributes of a real world object.

Implementation note. If one do: `DataSet ds; ds.SetLength(0); ds.Read(is);` setting length to 0 actually means try to read is as if it was a root [DataSet](#). Other value are undefined (nested dataset with undefined length) or defined length (different from 0) means nested dataset with defined length.

Warning

a [DataSet](#) does not have a Transfer Syntax type, only a [File](#) does.

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixOrientation.cxx](#), [gdcmrtonplan.cxx](#), [gdcmrtpian.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [rle2img.cxx](#), [SortImage.cxx](#), [StreamImageReaderTest.cxx](#), and [VolumeSorter.cxx](#).

10.75.2 Member Typedef Documentation

10.75.2.1 `typedef DataSet::const_iterator gdcm::DataSet::ConstIterator`

10.75.2.2 `typedef std::set<DataElement> gdcm::DataSet::DataElementSet`

10.75.2.3 `typedef DataSet::iterator gdcm::DataSet::Iterator`

10.75.2.4 `typedef DataSet::size_type gdcm::DataSet::SizeType`

10.75.3 Member Function Documentation

10.75.3.1 `ConstIterator gdcm::DataSet::Begin () const` `[inline]`

Examples:

[DiffFile.cxx](#), [DumpGEMSMovieGroup.cxx](#), and [DuplicatePCDE.cxx](#).

Referenced by `gdcm::operator<<()`.

10.75.3.2 `Iterator gdcm::DataSet::Begin ()` `[inline]`

10.75.3.3 `void gdcm::DataSet::Clear ()` `[inline]`

Referenced by `gdcm::Item::Read()`.

10.75.3.4 `Tag gdcm::DataSet::ComputeDataElement (const PrivateTag & t) const` `[protected]`

10.75.3.5 `template<typename TDE > unsigned int gdcm::DataSet::ComputeGroupLength (Tag const & tag) const` `[inline]`

References `gdcm::Tag::GetElement()`, and `gdcm::Tag::GetGroup()`.

10.75.3.6 `ConstIterator gdcm::DataSet::End () const` `[inline]`

Examples:

[DiffFile.cxx](#), [DumpGEMSMovieGroup.cxx](#), and [DuplicatePCDE.cxx](#).

10.75.3.7 **Iterator** `gdcmm::DataSet::End ()` `[inline]`

10.75.3.8 **bool** `gdcmm::DataSet::FindDataElement (const PrivateTag & t) const`

Look up if private tag 't' is present in the dataset:

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [csa2img.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [gdcmmrtionplan.cxx](#), [gdcmmrtplan.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [LargeVRDSExplicit.cxx](#), [MrProtocol.cxx](#), [pmsct_rgb1.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcmm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet()`, `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet()`, and `gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet()`.

10.75.3.9 **bool** `gdcmm::DataSet::FindDataElement (const Tag & t) const` `[inline]`

10.75.3.10 **const DataElement&** `gdcmm::DataSet::FindNextDataElement (const Tag & t) const` `[inline]`

Examples:

[DuplicatePCDE.cxx](#).

10.75.3.11 **const DataElement&** `gdcmm::DataSet::GetDataElement (const Tag & t) const` `[inline]`

Return the [DataElement](#) with [Tag](#) 't'

Warning

: This only search at the 'root level' of the [DataSet](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [csa2img.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [gdcmmrtionplan.cxx](#), [gdcmmrtplan.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

Referenced by `gdcmm::Attribute< Group, Element, TVR, TVM >::Set()`, `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >::Set()`, `gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::Set()`, `gdcmm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet()`, `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet()`, and `gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet()`.

10.75.3.12 `const DataElement& gdcm::DataSet::GetDataElement (const PrivateTag & t) const`

Return the dataelement.

10.75.3.13 `const DataElement& gdcm::DataSet::GetDEEnd () const` `[protected]`

10.75.3.14 `const DataElementSet& gdcm::DataSet::GetDES () const` `[inline]`

Examples:

[ReadAndDumpDICOMDIR.cxx](#).

10.75.3.15 `DataElementSet& gdcm::DataSet::GetDES ()` `[inline]`

10.75.3.16 `template<typename TDE > VL gdcm::DataSet::GetLength () const` `[inline]`

10.75.3.17 `MediaStorage gdcm::DataSet::GetMediaStorage () const`

10.75.3.18 `std::string gdcm::DataSet::GetPrivateCreator (const Tag & t) const`

Return the private creator of the private tag 't':

Examples:

[DuplicatePCDE.cxx](#).

10.75.3.19 `void gdcm::DataSet::Insert (const DataElement & de)` `[inline]`

Insert a [DataElement](#) in the [DataSet](#).

Warning

: [Tag](#) need to be $\geq 0x8$ to be considered valid data element

Examples:

[CreateJPIPDataSet.cxx](#), [DuplicatePCDE.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_↔ Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [NewSequence.cs](#), and [StreamImageReaderTest.cxx](#).

References [gdcmErrorMacro](#), [gdcm::Tag::GetGroup\(\)](#), and [gdcm::DataElement::GetTag\(\)](#).

10.75.3.20 `void gdcM::DataSet::InsertDataElement (const DataElement & de) [inline], [protected]`

References `gdcMWarningMacro`, `gdcM::Value::GetLength()`, `gdcM::DataElement::GetValue()`, `gdcM::DataElement::GetVL()`, `gdcM::DataElement::IsEmpty()`, and `gdcM::operator<<()`.

10.75.3.21 `bool gdcM::DataSet::IsEmpty () const [inline]`

Returns if the dataset is empty.

Referenced by `gdcM::Item::Read()`.

10.75.3.22 `const DataElement& gdcM::DataSet::operator() (uint16_t group, uint16_t element) const [inline]`

10.75.3.23 `DataSet& gdcM::DataSet::operator= (DataSet const & val) [inline]`

10.75.3.24 `const DataElement& gdcM::DataSet::operator[] (const Tag & t) const [inline]`

10.75.3.25 `void gdcM::DataSet::Print (std::ostream & os, std::string const & indent = " ") const [inline]`

Referenced by `gdcM::operator<<()`.

10.75.3.26 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::Read (std::istream & is)`

10.75.3.27 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadNested (std::istream & is)`

10.75.3.28 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadSelectedPrivateTags (std::istream & is, const std::set< PrivateTag > & tags, bool readvalues = true)`

10.75.3.29 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadSelectedPrivateTagsWithLength (std::istream & is, const std::set< PrivateTag > & tags, VL & length, bool readvalues = true)`

10.75.3.30 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadSelectedTags (std::istream & is, const std::set< Tag > & tags, bool readvalues = true)`

10.75.3.31 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadSelectedTagsWithLength (std::istream & is, const std::set< Tag > & tags, VL & length, bool readvalues = true)`

10.75.3.32 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadUpToTag (std::istream & is, const Tag & t, std::set< Tag > const & skiptags)`

10.75.3.33 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadUpToTagWithLength (std::istream & is, const Tag & t, std::set< Tag > const & skiptags, VL & length)`

10.75.3.34 `template<typename TDE, typename TSwap> std::istream& gdcM::DataSet::ReadWithLength (std::istream & is, VL & length)`

10.75.3.35 `SizeType gdcM::DataSet::Remove (const Tag & tag) [inline]`

Completely remove a dataelement from the dataset.

Examples:

[ClinicalTrialIdentificationWorkflow.cs](#), [GenFakeIdentifyFile.cxx](#), [LargeVRDSExplicit.cxx](#), [MergeTwoFiles.cxx](#), [pmsct_rgb1.cxx](#), [ReformatFile.cs](#), [rle2img.cxx](#), and [StandardizeFiles.cs](#).

10.75.3.36 `void gdcm::DataSet::Replace (const DataElement & de) [inline]`

Replace a dataelement with another one.

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateFakeRTDOSE.cxx](#), [FixBrokenJ2K.cxx](#), [FixJ2KBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [GenFakeIdentifyFile.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [i2tU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), and [rle2img.cxx](#).

References `gdcmAssertAlwaysMacro`.

10.75.3.37 `void gdcm::DataSet::ReplaceEmpty (const DataElement & de) [inline]`

Only replace a DICOM attribute when it is missing or empty.

References `gdcmAssertAlwaysMacro`.

10.75.3.38 `SizeType gdcm::DataSet::Size () const [inline]`

Examples:

[DumpGEMSMovieGroup.cxx](#).

Referenced by `gdcm::SequenceOfItems::Read()`.

10.75.3.39 `template<typename TDE , typename TSwap > std::ostream const& gdcm::DataSet::Write (std::ostream & os) const`

10.75.4 Friends And Related Function Documentation

10.75.4.1 `friend class CSAHeader [friend]`

10.75.4.2 `std::ostream& operator<< (std::ostream & _os, const DataSet & val) [friend]`

The documentation for this class was generated from the following file:

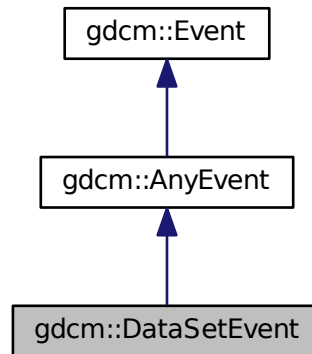
- [gdcmDataSet.h](#)

10.76 gdcm::DataSetEvent Class Reference

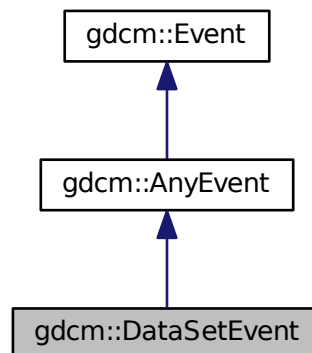
[DataSetEvent](#) Special type of event triggered during the [DataSet](#) store/move process.

```
#include <gdcmDataSetEvent.h>
```

Inheritance diagram for `gdcm::DataSetEvent`:



Collaboration diagram for `gdcm::DataSetEvent`:



Public Types

- typedef [DataSetEvent](#) Self
- typedef [AnyEvent](#) Superclass

Public Member Functions

- [DataSetEvent](#) ([DataSet](#) const *ds=NULL)
- [DataSetEvent](#) (const [Self](#) &s)
- virtual [~DataSetEvent](#) ()
- virtual bool [CheckEvent](#) (const ::gdcm::Event *e) const
- [DataSet](#) const & [GetDataSet](#) () const
- virtual const char * [GetEventName](#) () const
- virtual ::gdcm::Event * [MakeObject](#) () const

10.76.1 Detailed Description

[DataSetEvent](#) Special type of event triggered during the [DataSet](#) store/move process.

See also

10.76.2 Member Typedef Documentation

10.76.2.1 typedef [DataSetEvent](#) gdcm::DataSetEvent::Self

10.76.2.2 typedef [AnyEvent](#) gdcm::DataSetEvent::Superclass

10.76.3 Constructor & Destructor Documentation

10.76.3.1 gdcm::DataSetEvent::DataSetEvent ([DataSet](#) const * *ds* = NULL) [inline]

10.76.3.2 virtual gdcm::DataSetEvent::~~DataSetEvent () [inline],[virtual]

10.76.3.3 gdcm::DataSetEvent::DataSetEvent (const [Self](#) & *s*) [inline]

10.76.4 Member Function Documentation

10.76.4.1 virtual bool gdcm::DataSetEvent::CheckEvent (const ::gdcm::Event * *e*) const [inline],[virtual]

10.76.4.2 [DataSet](#) const& gdcm::DataSetEvent::GetDataSet () const [inline]

10.76.4.3 virtual const char* gdcm::DataSetEvent::GetEventName () const [inline],[virtual]

Return the StringName associated with the event.

Implements [gdcm::Event](#).

10.76.4.4 `virtual ::gdcm::Event* gdcm::DataSetEvent::MakeObject () const [inline],[virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implements [gdcm::Event](#).

The documentation for this class was generated from the following file:

- [gdcmDataSetEvent.h](#)

10.77 gdcm::DataSetHelper Class Reference

[DataSetHelper](#) (internal class, not intended for user level)

```
#include <gdcmDataSetHelper.h>
```

Static Public Member Functions

- static [VR ComputeVR](#) ([File](#) const &file, [DataSet](#) const &ds, const [Tag](#) &tag)

10.77.1 Detailed Description

[DataSetHelper](#) (internal class, not intended for user level)

10.77.2 Member Function Documentation

10.77.2.1 `static VR gdcm::DataSetHelper::ComputeVR (File const & file, DataSet const & ds, const Tag & tag) [static]`

ds -> current dataset, which is not the same as the root dataset return [VR::INVALID](#) in case of error

The documentation for this class was generated from the following file:

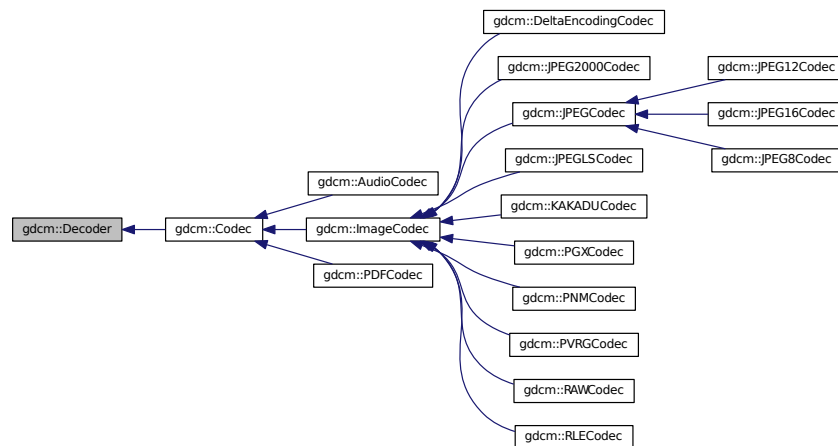
- [gdcmDataSetHelper.h](#)

10.78 gdcm::Decoder Class Reference

[Decoder.](#)

```
#include <gdcmDecoder.h>
```

Inheritance diagram for gdcm::Decoder:



Public Member Functions

- virtual [~Decoder](#) ()
- virtual bool [CanDecode](#) ([TransferSyntax](#) const &) const =0
Return whether this decoder support this transfer syntax (can decode it)
- virtual bool [Decode](#) ([DataElement](#) const &, [DataElement](#) &)
Decode.

Protected Member Functions

- virtual bool [DecodeByStreams](#) (std::istream &, std::ostream &)

10.78.1 Detailed Description

[Decoder.](#)

10.78.2 Constructor & Destructor Documentation

10.78.2.1 `virtual gdcm::Decoder::~~Decoder () [inline],[virtual]`

10.78.3 Member Function Documentation

10.78.3.1 `virtual bool gdcm::Decoder::CanDecode (TransferSyntax const &) const [pure virtual]`

Return whether this decoder support this transfer syntax (can decode it)

Implemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::ImageCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::PNMCodec](#), [gdcm::RAWCodec](#), [gdcm::AudioCodec](#), [gdcm::PDFCodec](#), [gdcm::PGXCodec](#), and [gdcm::KAKADUCodec](#).

10.78.3.2 `virtual bool gdcm::Decoder::Decode (DataElement const & , DataElement &) [inline],[virtual]`

Decode.

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::JPEGLSCodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::ImageCodec](#), [gdcm::DeltaEncodingCodec](#), [gdcm::KAKADUCodec](#), [gdcm::RAWCodec](#), [gdcm::AudioCodec](#), and [gdcm::PDFCodec](#).

10.78.3.3 `virtual bool gdcm::Decoder::DecodeByStreams (std::istream & , std::ostream &) [inline],[protected],[virtual]`

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::RLECodec](#), [gdcm::ImageCodec](#), [gdcm::RAWCodec](#), [gdcm::JPEG12Codec](#), [gdcm::JPEG16Codec](#), and [gdcm::JPEG8Codec](#).

The documentation for this class was generated from the following file:

- [gdcmDecoder.h](#)

10.79 gdcm::DefinedTerms Class Reference

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data [Element](#) with Defined Terms that does not contain a [Value](#) equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation [Type](#) ID (4008,0210) is an example of a Data [Element](#) having Defined Terms. It is defined to have a [Value](#) that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data [Element](#) has Defined Terms other Interpretation [Type](#) IDs may be defined by the implementor.

```
#include <gdcmDefinedTerms.h>
```

Public Member Functions

- [DefinedTerms](#) ()

10.79.1 Detailed Description

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data [Element](#) with Defined Terms that does not contain a [Value](#) equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation [Type](#) ID (4008,0210) is an example of a Data [Element](#) having Defined Terms. It is defined to have a [Value](#) that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data [Element](#) has Defined Terms other Interpretation [Type](#) IDs may be defined by the implementor.

10.79.2 Constructor & Destructor Documentation

10.79.2.1 gdcm::DefinedTerms::DefinedTerms () [inline]

The documentation for this class was generated from the following file:

- [gdcmDefinedTerms.h](#)

10.80 gdcm::Defs Class Reference

FIXME I do not like the name 'Defs'.

```
#include <gdcmDefs.h>
```

Public Member Functions

- [Defs](#) ()
- [~Defs](#) ()
- const [IOD](#) & [GetIODFromFile](#) (const [File](#) &file) const
- const [IODs](#) & [GetIODs](#) () const
- [IODs](#) & [GetIODs](#) ()
- const [Macros](#) & [GetMacros](#) () const
- [Macros](#) & [GetMacros](#) ()
- const [Modules](#) & [GetModules](#) () const
- [Modules](#) & [GetModules](#) ()
- [Type](#) [GetTypeFromTag](#) (const [File](#) &file, const [Tag](#) &tag) const
- bool [IsEmpty](#) () const
- bool [Verify](#) (const [File](#) &file) const
- bool [Verify](#) (const [DataSet](#) &ds) const

Static Public Member Functions

- static const char * [GetIODNameFromMediaStorage](#) ([MediaStorage](#) const &ms)

Protected Member Functions

- void [LoadDefaults](#) ()
- void [LoadFromFile](#) (const char *filename)

Friends

- class [Global](#)

10.80.1 Detailed Description

FIXME I do not like the name '[Defs](#)'.

Note

bla

Examples:

[GenerateStandardSOPClasses.cxx](#), and [TraverseModules.cxx](#).

10.80.2 Constructor & Destructor Documentation

10.80.2.1 `gdcm::Defs::Defs ()`

10.80.2.2 `gdcm::Defs::~~Defs ()`

10.80.3 Member Function Documentation

10.80.3.1 `const IOD& gdcm::Defs::GetIODFromFile (const File & file) const`

10.80.3.2 `static const char* gdcm::Defs::GetIODNameFromMediaStorage (MediaStorage const & ms) [static]`

Examples:

[GenerateStandardSOPClasses.cxx](#).

10.80.3.3 `const IODs& gdcm::Defs::GetIODs () const [inline]`

Examples:

[TraverseModules.cxx](#).

10.80.3.4 `IODs& gdcm::Defs::GetIODs () [inline]`

10.80.3.5 `const Macros& gdcm::Defs::GetMacros () const [inline]`

Users should not directly use [Macro](#). [Macro](#) are simply a way for DICOM WG to re-use Tables. [Macros](#) are conveniently wrapped within [Modules](#). See [gdcm::Module](#) API directly

Examples:

[TraverseModules.cxx](#).

10.80.3.6 `Macros& gdcm::Defs::GetMacros () [inline]`

10.80.3.7 `const Modules& gdcm::Defs::GetModules () const [inline]`

Examples:

[TraverseModules.cxx](#).

10.80.3.8 `Modules& gdcm::Defs::GetModules () [inline]`

10.80.3.9 `Type gdcm::Defs::GetTypeFromTag (const File & file, const Tag & tag) const`

10.80.3.10 `bool gdcm::Defs::IsEmpty () const [inline]`

10.80.3.11 `void gdcm::Defs::LoadDefaults () [protected]`

10.80.3.12 `void gdcm::Defs::LoadFromFile (const char * filename) [protected]`

10.80.3.13 `bool gdcm::Defs::Verify (const File & file) const`

10.80.3.14 `bool gdcm::Defs::Verify (const DataSet & ds) const`

10.80.4 Friends And Related Function Documentation

10.80.4.1 `friend class Global [friend]`

The documentation for this class was generated from the following file:

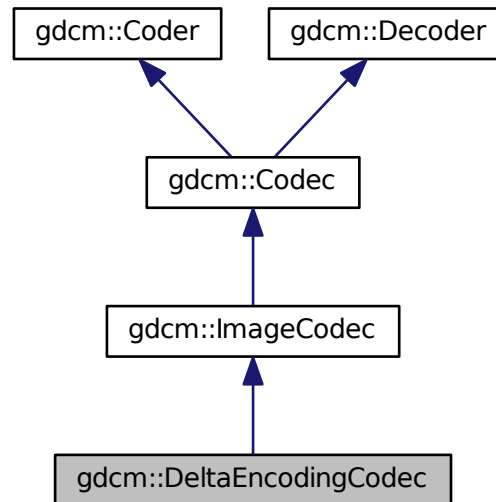
- [gdcmDefs.h](#)

10.81 gdcm::DeltaEncodingCodec Class Reference

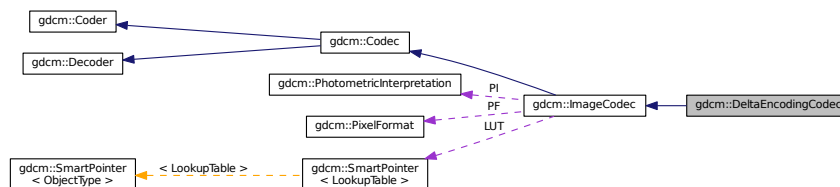
[DeltaEncodingCodec](#) compression used by some private vendor.

```
#include <gdcmDeltaEncodingCodec.h>
```

Inheritance diagram for `gdcm::DeltaEncodingCodec`:



Collaboration diagram for `gdcm::DeltaEncodingCodec`:



Public Member Functions

- [DeltaEncodingCodec](#) ()
- [~DeltaEncodingCodec](#) ()
- bool [CanDecode](#) ([TransferSyntax](#) const &ts)
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)

Decode.

Protected Member Functions

- bool [Decode](#) (std::istream &is, std::ostream &os)

Additional Inherited Members

10.81.1 Detailed Description

[DeltaEncodingCodec](#) compression used by some private vendor.

10.81.2 Constructor & Destructor Documentation

10.81.2.1 `gdcm::DeltaEncodingCodec::DeltaEncodingCodec ()`

10.81.2.2 `gdcm::DeltaEncodingCodec::~~DeltaEncodingCodec ()`

10.81.3 Member Function Documentation

10.81.3.1 `bool gdcm::DeltaEncodingCodec::CanDecode (TransferSyntax const & ts)`

10.81.3.2 `bool gdcm::DeltaEncodingCodec::Decode (DataElement const &, DataElement &)` [virtual]

Decode.

Reimplemented from [gdcm::Decoder](#).

10.81.3.3 `bool gdcm::DeltaEncodingCodec::Decode (std::istream & is, std::ostream & os)` [protected]

The documentation for this class was generated from the following file:

- [gdcmDeltaEncodingCodec.h](#)

10.82 gdcm::DICOMDIR Class Reference

[DICOMDIR](#) class.

```
#include <gdcmDICOMDIR.h>
```

Public Member Functions

- [DICOMDIR](#) ()
- [DICOMDIR](#) (const [FileSet](#) &fs)

10.82.1 Detailed Description

[DICOMDIR](#) class.

Structured for handling [DICOMDIR](#)

10.82.2 Constructor & Destructor Documentation

10.82.2.1 `gdcm::DICOMDIR::DICOMDIR ()` `[inline]`

10.82.2.2 `gdcm::DICOMDIR::DICOMDIR (const FileSet & fs)` `[inline]`

The documentation for this class was generated from the following file:

- [gdcmDICOMDIR.h](#)

10.83 gdcm::DICOMDIRGenerator Class Reference

[DICOMDIRGenerator](#) class This is a STD-GEN-CD [DICOMDIR](#) generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles.

```
#include <gdcmDICOMDIRGenerator.h>
```

Public Types

- typedef [Directory::FilenameType](#) [FilenameType](#)
- typedef [Directory::FilenameType](#) [FilenameType](#)

Public Member Functions

- [DICOMDIRGenerator](#) ()
- [~DICOMDIRGenerator](#) ()
- bool [Generate](#) ()
Main function to generate the [DICOMDIR](#).
- [File](#) & [GetFile](#) ()
- void [SetDescriptor](#) (const char *d)
- void [SetFile](#) (const [File](#) &f)
Set/Get file. The [DICOMDIR](#) file will be valid once a call to Generate has been done.
- void [SetFilenames](#) ([FilenameType](#) const &fns)
Set the list of filenames from which the [DICOMDIR](#) should be generated from.
- void [SetRootDirectory](#) ([FilenameType](#) const &root)
Set the root directory from which the filenames should be considered.

Protected Member Functions

- bool [AddImageDirectoryRecord](#) ()
- bool [AddPatientDirectoryRecord](#) ()
- bool [AddSeriesDirectoryRecord](#) ()
- bool [AddStudyDirectoryRecord](#) ()
- [Scanner](#) & [GetScanner](#) ()

10.83.1 Detailed Description

[DICOMDIRGenerator](#) class This is a STD-GEN-CD [DICOMDIR](#) generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles.

Note

PS 3.11 - 2008 / D.3.2 Physical Medium And Medium Format The STD-GEN-CD and STD-GEN-SEC-CD application profiles require the 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format, as defined in PS3.12. See also PS 3.12 - 2008 / Annex F 120mm CD-R Medium (Normative) and PS 3.10 - 2008 / 8 DICOM [File Service](#) / 8.1 FILE-SET

Warning

: PS 3.11 - 2008 / D.3.1 SOP Classes and Transfer Syntaxes Composite [Image](#) & Stand-alone Storage are required to be stored as Explicit [VR](#) Little Endian Uncompressed (1.2.840.10008.1.2.1). When a DICOM file is found using another Transfer Syntax the generator will simply stops.

- Input files should be Explicit [VR](#) Little Endian
- filenames should be valid [VR::CS](#) value (16 bytes, upper case ...)

Bug : There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the [Scanner](#) does not allow us See PS 3.11 / [Table D.3-2 STD-GEN Additional \[DICOMDIR\]\(#\) Keys](#)

10.83.2 Member Typedef Documentation

10.83.2.1 typedef [Directory::FilenamesType](#) gdcm::DICOMDIRGenerator::FilenamesType

10.83.2.2 typedef [Directory::FilenameType](#) gdcm::DICOMDIRGenerator::FilenameType

10.83.3 Constructor & Destructor Documentation

10.83.3.1 gdcm::DICOMDIRGenerator::DICOMDIRGenerator ()

10.83.3.2 gdcm::DICOMDIRGenerator::~~DICOMDIRGenerator ()

10.83.4 Member Function Documentation

10.83.4.1 `bool gdcM::DICOMDIRGenerator::AddImageDirectoryRecord ()` [protected]

10.83.4.2 `bool gdcM::DICOMDIRGenerator::AddPatientDirectoryRecord ()` [protected]

10.83.4.3 `bool gdcM::DICOMDIRGenerator::AddSeriesDirectoryRecord ()` [protected]

10.83.4.4 `bool gdcM::DICOMDIRGenerator::AddStudyDirectoryRecord ()` [protected]

10.83.4.5 `bool gdcM::DICOMDIRGenerator::Generate ()`

Main function to generate the [DICOMDIR](#).

10.83.4.6 `File& gdcM::DICOMDIRGenerator::GetFile ()`

10.83.4.7 `Scanner& gdcM::DICOMDIRGenerator::GetScanner ()` [protected]

10.83.4.8 `void gdcM::DICOMDIRGenerator::SetDescriptor (const char * d)`

Set the [File](#) Set ID.

Warning

 this need to be a valid [VR::CS](#) value

10.83.4.9 `void gdcM::DICOMDIRGenerator::SetFile (const File & f)`

Set/Get file. The [DICOMDIR](#) file will be valid once a call to Generate has been done.

10.83.4.10 `void gdcM::DICOMDIRGenerator::SetFilenames (FilenamesType const & fns)`

Set the list of filenames from which the [DICOMDIR](#) should be generated from.

10.83.4.11 `void gdcM::DICOMDIRGenerator::SetRootDirectory (FilenameType const & root)`

Set the root directory from which the filenames should be considered.

The documentation for this class was generated from the following file:

- [gdcMDICOMDIRGenerator.h](#)

10.84 gdcM::Dict Class Reference

Class to represent a map of [DictEntry](#).

```
#include <gdcMDict.h>
```

Public Types

- typedef MapDictEntry::const_iterator [ConstIterator](#)
- typedef MapDictEntry::iterator [Iterator](#)
- typedef std::map< [Tag](#), [DictEntry](#) > [MapDictEntry](#)

Public Member Functions

- [Dict](#) ()
- void [AddDictEntry](#) (const [Tag](#) &tag, const [DictEntry](#) &de)
- [ConstIterator](#) [Begin](#) () const
- [ConstIterator](#) [End](#) () const
- const [DictEntry](#) & [GetDictEntry](#) (const [Tag](#) &tag) const
- const [DictEntry](#) & [GetDictEntryByKeyword](#) (const char *keyword, [Tag](#) &tag) const
- const [DictEntry](#) & [GetDictEntryByName](#) (const char *name, [Tag](#) &tag) const
- const char * [GetKeywordFromTag](#) ([Tag](#) const &tag) const
Function to return the Keyword from a [Tag](#).
- bool [IsEmpty](#) () const

Protected Member Functions

- void [LoadDefault](#) ()

Friends

- class [Dicts](#)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Dict](#) &_val)

10.84.1 Detailed Description

Class to represent a map of [DictEntry](#).

Note

bla TODO FIXME: For [Element](#) == 0x0 need to return Name = Group Length ValueRepresentation = UL Value↔
 Multiplicity = 1

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [PublicDict.cxx](#), and [ReadAndPrintAttributes.cxx](#).

10.84.2 Member Typedef Documentation

10.84.2.1 `typedef MapDictEntry::const_iterator gdcmm::Dict::ConstIterator`

10.84.2.2 `typedef MapDictEntry::iterator gdcmm::Dict::Iterator`

10.84.2.3 `typedef std::map<Tag, DictEntry> gdcmm::Dict::MapDictEntry`

10.84.3 Constructor & Destructor Documentation

10.84.3.1 `gdcmm::Dict::Dict () [inline]`

References `gdcmm::operator<<()`.

10.84.4 Member Function Documentation

10.84.4.1 `void gdcmm::Dict::AddDictEntry (const Tag & tag, const DictEntry & de) [inline]`

10.84.4.2 `ConstIterator gdcmm::Dict::Begin () const [inline]`

Examples:

[GenAllVR.cxx](#), and [GenFakeIdentifyFile.cxx](#).

10.84.4.3 `ConstIterator gdcmm::Dict::End () const [inline]`

Examples:

[GenAllVR.cxx](#), and [GenFakeIdentifyFile.cxx](#).

10.84.4.4 `const DictEntry& gdcmm::Dict::GetDictEntry (const Tag & tag) const [inline]`

Examples:

[GenFakeIdentifyFile.cxx](#), and [PublicDict.cxx](#).

10.84.4.5 `const DictEntry& gdcmm::Dict::GetDictEntryByKeyword (const char * keyword, Tag & tag) const [inline]`

Lookup [DictEntry](#) by keyword. Even if DICOM standard defines keyword as being unique. The lookup table is built on [Tag](#). Therefore looking up a [DictEntry](#) by Keyword is more inefficient than looking up by [Tag](#).

10.84.4.6 `const DictEntry& gdcm::Dict::GetDictEntryByName (const char * name, Tag & tag) const` `[inline]`

Inefficient way of looking up tag by name. Technically DICOM does not guarantee uniqueness (and [Curve](#) / [Overlay](#) are there to prove it). But most of the time name is in fact uniq and can be uniquely link to a tag

Examples:

[ReadAndPrintAttributes.cxx](#).

10.84.4.7 `const char* gdcm::Dict::GetKeywordFromTag (Tag const & tag) const` `[inline]`

Function to return the Keyword from a [Tag](#).

10.84.4.8 `bool gdcm::Dict::IsEmpty () const` `[inline]`

Referenced by `gdcm::Dicts::IsEmpty()`.

10.84.4.9 `void gdcm::Dict::LoadDefault ()` `[protected]`

10.84.5 Friends And Related Function Documentation

10.84.5.1 `friend class Dicts` `[friend]`

10.84.5.2 `std::ostream& operator<< (std::ostream & _os, const Dict & _val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmDict.h](#)

10.85 gdcm::DictConverter Class Reference

Class to convert a .dic file into something else:

```
#include <gdcmDictConverter.h>
```

Public Types

- enum [OutputTypes](#) {
[DICT_DEFAULT](#) = 0,
[DICT_DEBUG](#),
[DICT_XML](#) }

Public Member Functions

- [DictConverter](#) ()
- [~DictConverter](#) ()
- void [Convert](#) ()
- const std::string & [GetDictName](#) () const
- const std::string & [GetInputFilename](#) () const
- const std::string & [GetOutputFilename](#) () const
- int [GetOutputType](#) () const
- void [SetDictName](#) (const char *name)
- void [SetInputFileName](#) (const char *filename)
- void [SetOutputFileName](#) (const char *filename)
- void [SetOutputType](#) (int type)

Static Public Member Functions

- static bool [Readuint16](#) (const char *raw, uint16_t &ov)
- static bool [ReadVM](#) (const char *raw, [VM::VMType](#) &type)
- static bool [ReadVR](#) (const char *raw, [VR::VRType](#) &type)

Protected Member Functions

- void [AddGroupLength](#) ()
- bool [ConvertToCXX](#) (const char *raw, std::string &cxx)
- bool [ConvertToXML](#) (const char *raw, std::string &cxx)
- void [WriteFooter](#) ()
- void [WriteHeader](#) ()

10.85.1 Detailed Description

Class to convert a .dic file into something else:

- CXX code : embeded dict into shared lib (DICT_DEFAULT)
- Debug mode (DICT_DEBUG)
- XML dict (DICT_XML)

Note

10.85.2 Member Enumeration Documentation

10.85.2.1 enum `gdcmm::DictConverter::OutputTypes`

Enumerator

DICT_DEFAULT

DICT_DEBUG

DICT_XML

10.85.3 Constructor & Destructor Documentation

10.85.3.1 `gdcm::DictConverter::DictConverter ()`

10.85.3.2 `gdcm::DictConverter::~~DictConverter ()`

10.85.4 Member Function Documentation

10.85.4.1 `void gdcm::DictConverter::AddGroupLength ()` [protected]

10.85.4.2 `void gdcm::DictConverter::Convert ()`

10.85.4.3 `bool gdcm::DictConverter::ConvertToCXX (const char * raw, std::string & cxx)` [protected]

10.85.4.4 `bool gdcm::DictConverter::ConvertToXML (const char * raw, std::string & cxx)` [protected]

10.85.4.5 `const std::string& gdcm::DictConverter::GetDictName () const`

10.85.4.6 `const std::string& gdcm::DictConverter::GetInputFilename () const`

10.85.4.7 `const std::string& gdcm::DictConverter::GetOutputFilename () const`

10.85.4.8 `int gdcm::DictConverter::GetOutputType () const` [inline]

10.85.4.9 `static bool gdcm::DictConverter::Readuint16 (const char * raw, uint16_t & ov)` [static]

10.85.4.10 `static bool gdcm::DictConverter::ReadVM (const char * raw, VM::VMType & type)` [static]

10.85.4.11 `static bool gdcm::DictConverter::ReadVR (const char * raw, VR::VRType & type)` [static]

10.85.4.12 `void gdcm::DictConverter::SetDictName (const char * name)`

10.85.4.13 `void gdcm::DictConverter::SetInputFileName (const char * filename)`

10.85.4.14 `void gdcm::DictConverter::SetOutputFileName (const char * filename)`

10.85.4.15 `void gdcm::DictConverter::SetOutputType (int type)` [inline]

10.85.4.16 `void gdcm::DictConverter::WriteFooter ()` [protected]

10.85.4.17 `void gdcm::DictConverter::WriteHeader ()` [protected]

The documentation for this class was generated from the following file:

- [gdcmDictConverter.h](#)

10.86 gdcm::DictEntry Class Reference

Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.

```
#include <gdcmDictEntry.h>
```

Public Member Functions

- [DictEntry](#) (const char *name="", const char *keyword="", [VR](#) const &vr=[VR::INVALID](#), [VM](#) const &vm=[VM::VM0](#), bool ret=false)
- const char * [GetKeyword](#) () const
same as GetName but without spaces...
- const char * [GetName](#) () const
Set/Get Name.
- bool [GetRetired](#) () const
Set/Get Retired flag.
- const [VM](#) & [GetVM](#) () const
Set/Get VM.
- const [VR](#) & [GetVR](#) () const
Set/Get VR.
- bool [IsUnique](#) () const
- void [SetElementXX](#) (bool v)
Set whether element is shared in multiple elements (Source [Image](#) IDs typically)
- void [SetGroupXX](#) (bool v)
Set whether element is shared in multiple groups (Curve/Overlay typically)
- void [SetKeyword](#) (const char *keyword)
- void [SetName](#) (const char *name)
- void [SetRetired](#) (bool retired)
- void [SetVM](#) ([VM](#) const &vm)
- void [SetVR](#) (const [VR](#) &vr)

Friends

- class [Dict](#)
- std::ostream & [operator<<](#) (std::ostream &_os, const [DictEntry](#) &_val)

10.86.1 Detailed Description

Class to represent an Entry in the [Dict](#) Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.

Note

bla TODO FIXME: Need a PublicDictEntry...indeed [DictEntry](#) has a notion of retired which does not exist in PrivateDictEntry...

See also

[gdcm::Dict](#)

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [PublicDict.cxx](#), and [TraverseModules.cxx](#).

10.86.2 Constructor & Destructor Documentation

10.86.2.1 `gdcmm::DictEntry::DictEntry (const char * name = " ", const char * keyword = " ", VR const & vr = VR::INVALID, VM const & vm = VM::VMO, bool ret = false) [inline]`

References `gdcmm::operator<<()`.

10.86.3 Member Function Documentation

10.86.3.1 `const char* gdcmm::DictEntry::GetKeyword () const [inline]`

same as `GetName` but without spaces...

10.86.3.2 `const char* gdcmm::DictEntry::GetName () const [inline]`

Set/Get Name.

Referenced by `gdcmm::PrivateDict::PrintXML()`.

10.86.3.3 `bool gdcmm::DictEntry::GetRetired () const [inline]`

Set/Get Retired flag.

Examples:

[GenAllVR.cxx](#).

10.86.3.4 `const VM& gdcmm::DictEntry::GetVM () const [inline]`

Set/Get [VM](#).

Referenced by `gdcmm::PrivateDict::AddDictEntry()`, and `gdcmm::PrivateDict::PrintXML()`.

10.86.3.5 `const VR& gdcmm::DictEntry::GetVR () const [inline]`

Set/Get [VR](#).

Examples:

[GenAllVR.cxx](#), and [GenFakeIdentifyFile.cxx](#).

Referenced by `gdcmm::PrivateDict::AddDictEntry()`, and `gdcmm::PrivateDict::PrintXML()`.

10.86.3.6 `bool gdcM::DictEntry::IsUnique () const [inline]`

Return whether the name of the [DataElement](#) can be considered to be unique. As of 2008 all elements name were unique (except the explicitly 'XX' ones)

10.86.3.7 `void gdcM::DictEntry::SetElementXX (bool v) [inline]`

Set whether element is shared in multiple elements (Source [Image](#) IDs typically)

10.86.3.8 `void gdcM::DictEntry::SetGroupXX (bool v) [inline]`

Set whether element is shared in multiple groups (Curve/Overlay typically)

10.86.3.9 `void gdcM::DictEntry::SetKeyword (const char * keyword) [inline]`

10.86.3.10 `void gdcM::DictEntry::SetName (const char * name) [inline]`

10.86.3.11 `void gdcM::DictEntry::SetRetired (bool retired) [inline]`

10.86.3.12 `void gdcM::DictEntry::SetVM (VM const & vm) [inline]`

10.86.3.13 `void gdcM::DictEntry::SetVR (const VR & vr) [inline]`

Referenced by `gdcM::PrivateDict::AddDictEntry()`.

10.86.4 Friends And Related Function Documentation

10.86.4.1 `friend class Dict [friend]`

10.86.4.2 `std::ostream& operator<< (std::ostream & _os, const DictEntry & _val) [friend]`

The documentation for this class was generated from the following file:

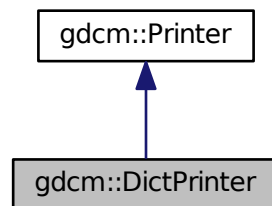
- [gdcMDictEntry.h](#)

10.87 gdcm::DictPrinter Class Reference

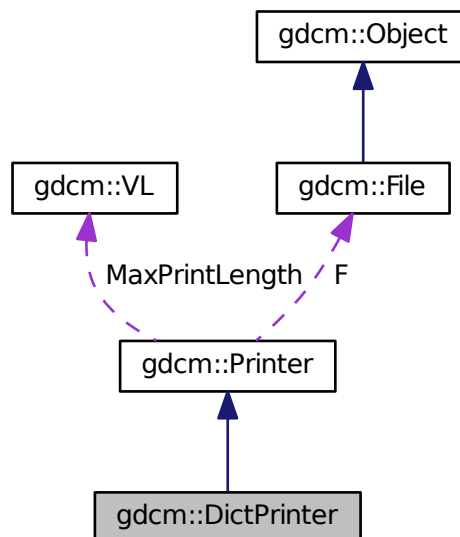
[DictPrinter](#) class.

```
#include <gdcmDictPrinter.h>
```

Inheritance diagram for gdcm::DictPrinter:



Collaboration diagram for gdcm::DictPrinter:



Public Member Functions

- [DictPrinter](#) ()
- [~DictPrinter](#) ()
- void [Print](#) (std::ostream &os)

Protected Member Functions

- void [PrintDataElement2](#) (std::ostream &os, const [DataSet](#) &ds, const [DataElement](#) &ide)
- void [PrintDataSet2](#) (std::ostream &os, const [DataSet](#) &ds)

Additional Inherited Members

10.87.1 Detailed Description

[DictPrinter](#) class.

10.87.2 Constructor & Destructor Documentation

10.87.2.1 `gdcm::DictPrinter::DictPrinter ()`

10.87.2.2 `gdcm::DictPrinter::~~DictPrinter ()`

10.87.3 Member Function Documentation

10.87.3.1 `void gdcm::DictPrinter::Print (std::ostream & os)`

10.87.3.2 `void gdcm::DictPrinter::PrintDataElement2 (std::ostream & os, const DataSet & ds, const DataElement & ide)`
[protected]

10.87.3.3 `void gdcm::DictPrinter::PrintDataSet2 (std::ostream & os, const DataSet & ds)` [protected]

The documentation for this class was generated from the following file:

- [gdcmDictPrinter.h](#)

10.88 gdcm::Dicts Class Reference

Class to manipulate the sum of knowledge (all the dict user load)

```
#include <gdcmDicts.h>
```

Public Member Functions

- [Dicts](#) ()
- [~Dicts](#) ()
- const [CSAHeaderDict](#) & [GetCSAHeaderDict](#) () const
- const [DictEntry](#) & [GetDictEntry](#) (const [Tag](#) &tag, const char *owner=NULL) const
NOT THREAD SAFE.
- const [DictEntry](#) & [GetDictEntry](#) (const [PrivateTag](#) &tag) const
- const [PrivateDict](#) & [GetPrivateDict](#) () const
- [PrivateDict](#) & [GetPrivateDict](#) ()
- const [Dict](#) & [GetPublicDict](#) () const
- bool [IsEmpty](#) () const

Protected Types

- enum [ConstructorType](#) {
 [PHILIPS](#),
 [GEMS](#),
 [SIEMENS](#) }

Protected Member Functions

- void [LoadDefaults](#) ()

Static Protected Member Functions

- static const char * [GetConstructorString](#) ([ConstructorType](#) type)

Friends

- class [Global](#)
- std::ostream & [operator<<](#) (std::ostream &_os, const [Dicts](#) &d)

10.88.1 Detailed Description

Class to manipulate the sum of knowledge (all the dict user load)

Note

bla

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [PublicDict.cxx](#), [ReadAndPrintAttributes.cxx](#), and [TraverseModules.cxx](#).

10.88.2 Member Enumeration Documentation

10.88.2.1 enum `gdcm::Dicts::ConstructorType` `[protected]`

Enumerator

PHILIPS

GEMS

SIEMENS

10.88.3 Constructor & Destructor Documentation

10.88.3.1 `gdcm::Dicts::Dicts ()`

10.88.3.2 `gdcm::Dicts::~~Dicts ()`

10.88.4 Member Function Documentation

10.88.4.1 `static const char* gdcm::Dicts::GetConstructorString (ConstructorType type)` `[static], [protected]`

10.88.4.2 `const CSAHeaderDict& gdcm::Dicts::GetCSAHeaderDict () const`

Examples:

[MrProtocol.cxx](#).

10.88.4.3 `const DictEntry& gdcm::Dicts::GetDictEntry (const Tag & tag, const char * owner = NULL) const`

NOT THREAD SAFE.

works for both public and private dicts: owner is null for public dict

Warning

owner need to be set to appropriate owner for call to work. see

Examples:

[PublicDict.cxx](#), and [TraverseModules.cxx](#).

10.88.4.4 `const DictEntry& gdcm::Dicts::GetDictEntry (const PrivateTag & tag) const`

10.88.4.5 `const PrivateDict& gdcm::Dicts::GetPrivateDict () const`

10.88.4.6 `PrivateDict& gdcm::Dicts::GetPrivateDict ()`

10.88.4.7 `const Dict& gdcm::Dicts::GetPublicDict () const`

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [PublicDict.cxx](#), and [ReadAndPrintAttributes.cxx](#).

10.88.4.8 `bool gdcm::Dicts::IsEmpty () const [inline]`

References `gdcm::Dict::IsEmpty()`.

10.88.4.9 `void gdcm::Dicts::LoadDefaults () [protected]`

10.88.5 Friends And Related Function Documentation

10.88.5.1 `friend class Global [friend]`

10.88.5.2 `std::ostream& operator<< (std::ostream & _os, const Dicts & d) [friend]`

The documentation for this class was generated from the following file:

- [gdcmDicts.h](#)

10.89 gdcm::network::DIMSE Class Reference

[DIMSE PS 3.7 - 2009 Annex E Command Dictionary \(Normative\) E.1 REGISTRY OF DICOM COMMAND ELEMENTS Table E.1-1 COMMAND FIELDS \(PART 1\)](#)

```
#include <gdcmDIMSE.h>
```

Public Types

- enum [CommandTypes](#) {
[C_STORE_RQ](#) = 0x0001,
[C_STORE_RSP](#) = 0x8001,
[C_GET_RQ](#) = 0x0010,
[C_GET_RSP](#) = 0x8010,
[C_FIND_RQ](#) = 0x0020,
[C_FIND_RSP](#) = 0x8020,
[C_MOVE_RQ](#) = 0x0021,
[C_MOVE_RSP](#) = 0x8021,
[C_ECHO_RQ](#) = 0x0030,
[C_ECHO_RSP](#) = 0x8030,
[N_EVENT_REPORT_RQ](#) = 0x0100,
[N_EVENT_REPORT_RSP](#) = 0x8100,
[N_GET_RQ](#) = 0x0110,
[N_GET_RSP](#) = 0x8110,
[N_SET_RQ](#) = 0x0120,
[N_SET_RSP](#) = 0x8120,
[N_ACTION_RQ](#) = 0x0130,
[N_ACTION_RSP](#) = 0x8130,
[N_CREATE_RQ](#) = 0x0140,
[N_CREATE_RSP](#) = 0x8140,
[N_DELETE_RQ](#) = 0x0150,
[N_DELETE_RSP](#) = 0x8150,
[C_CANCEL_RQ](#) = 0x0FFF }

10.89.1 Detailed Description

[DIMSE PS 3.7 - 2009 Annex E](#) [Command](#) Dictionary (Normative) E.1 REGISTRY OF DICOM COMMAND ELEMENTS
[Table E.1-1](#) COMMAND FIELDS (PART 1)

10.89.2 Member Enumeration Documentation

10.89.2.1 enum gdcm::network::DIMSE::CommandTypes

Enumerator

C_STORE_RQ
C_STORE_RSP
C_GET_RQ
C_GET_RSP
C_FIND_RQ
C_FIND_RSP
C_MOVE_RQ
C_MOVE_RSP
C_ECHO_RQ
C_ECHO_RSP

N_EVENT_REPORT_RQ
N_EVENT_REPORT_RSP
N_GET_RQ
N_GET_RSP
N_SET_RQ
N_SET_RSP
N_ACTION_RQ
N_ACTION_RSP
N_CREATE_RQ
N_CREATE_RSP
N_DELETE_RQ
N_DELETE_RSP
C_CANCEL_RQ

The documentation for this class was generated from the following file:

- [gdcmDIMSE.h](#)

10.90 gdcm::DirectionCosines Class Reference

class to handle [DirectionCosines](#)

```
#include <gdcmDirectionCosines.h>
```

Public Member Functions

- [DirectionCosines](#) ()
- [DirectionCosines](#) (const double dircos[6])
- [~DirectionCosines](#) ()
- double [ComputeDistAlongNormal](#) (const double ipp[3]) const
Compute the distance along the normal.
- void [Cross](#) (double z[3]) const
Compute Cross product.
- double [CrossDot](#) ([DirectionCosines](#) const &dc) const
Compute the Dot product of the two cross vector of both [DirectionCosines](#) object.
- double [Dot](#) () const
Compute Dot.
- bool [IsValid](#) () const
Return whether or not this is a valid direction cosines.
- void [Normalize](#) ()
Normalize in-place.
- [operator const double *](#) () const
*Make the class behave like a const double *.*
- void [Print](#) (std::ostream &) const
Print.
- bool [SetFromString](#) (const char *str)

10.90.1 Detailed Description

class to handle [DirectionCosines](#)

Examples:

[DiscriminateVolume.cxx](#).

10.90.2 Constructor & Destructor Documentation

10.90.2.1 `gdc::DirectionCosines::DirectionCosines ()`

10.90.2.2 `gdc::DirectionCosines::DirectionCosines (const double dircos[6])`

10.90.2.3 `gdc::DirectionCosines::~~DirectionCosines ()`

10.90.3 Member Function Documentation

10.90.3.1 `double gdc::DirectionCosines::ComputeDistAlongNormal (const double ipp[3]) const`

Compute the distance along the normal.

10.90.3.2 `void gdc::DirectionCosines::Cross (double z[3]) const`

Compute Cross product.

10.90.3.3 `double gdc::DirectionCosines::CrossDot (DirectionCosines const & dc) const`

Compute the Dot product of the two cross vector of both [DirectionCosines](#) object.

Examples:

[DiscriminateVolume.cxx](#).

10.90.3.4 `double gdc::DirectionCosines::Dot () const`

Compute Dot.

10.90.3.5 `bool gdc::DirectionCosines::IsValid () const`

Return whether or not this is a valid direction cosines.

10.90.3.6 void gdcm::DirectionCosines::Normalize ()

Normalize in-place.

10.90.3.7 gdcm::DirectionCosines::operator const double * () const [inline]

Make the class behave like a const double *.

10.90.3.8 void gdcm::DirectionCosines::Print (std::ostream &) const

Print.

10.90.3.9 bool gdcm::DirectionCosines::SetFromString (const char * *str*)

Initialize from string str. It requires 6 floating point separated by a backslash character.

Examples:

[DiscriminateVolume.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmDirectionCosines.h](#)

10.91 gdcm::Directory Class Reference

Class for manipulation directories.

```
#include <gdcmDirectory.h>
```

Public Types

- typedef std::vector< [FilenameType](#) > [FileNamesType](#)
- typedef std::string [FilenameType](#)

Public Member Functions

- [Directory](#) ()
- [~Directory](#) ()
- [FilenameType](#) const & [GetDirectories](#) () const
Return the Directories traversed.
- [FilenameType](#) const & [GetFileNames](#) () const
Set/Get the file names within the directory.
- [FilenameType](#) const & [GetToplevel](#) () const
Get the name of the toplevel directory.
- unsigned int [Load](#) ([FilenameType](#) const &name, bool recursive=false)
- void [Print](#) (std::ostream &os=std::cout) const
Print.

Protected Member Functions

- unsigned int [Explore](#) ([FilenameType](#) const &name, bool recursive)
*Return number of file found when 'recursive'ly exploring directory *name**

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Directory](#) &d)

10.91.1 Detailed Description

Class for manipulation directories.

Note

This implementation provide a cross platform implementation for manipulating directores: basically traversing directories and harvesting files
will not take into account unix type hidden file recursive option will not look into UNIX type hidden directory (those starting with a '.')
Since python or C# provide there own equivalent implementation, in which case [gdcm::Directory](#) does not make much sense.

Examples:

[DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [gdcmorthoplanes.cxx](#), [GenerateRTSTRUCT.cxx](#), [ReadUTF8Qt←Dir.cxx](#), [reslicesphere.cxx](#), [SortImage.cxx](#), [threadgdcm.cxx](#), and [VolumeSorter.cxx](#).

10.91.2 Member Typedef Documentation

10.91.2.1 typedef std::vector<[FilenameType](#)> [gdcm::Directory::FilenameType](#)

Examples:

[DiscriminateVolume.cxx](#).

10.91.2.2 `typedef std::string gdcm::Directory::FilenameType`

10.91.3 Constructor & Destructor Documentation

10.91.3.1 `gdcm::Directory::Directory () [inline]`

10.91.3.2 `gdcm::Directory::~~Directory () [inline]`

10.91.4 Member Function Documentation

10.91.4.1 `unsigned int gdcm::Directory::Explore (FilenameType const & name, bool recursive) [protected]`

Return number of file found when 'recursive'ly exploring directory `name`

10.91.4.2 `FilenameType const& gdcm::Directory::GetDirectories () const [inline]`

Return the Directories traversed.

10.91.4.3 `FilenameType const& gdcm::Directory::GetFilenames () const [inline]`

Set/Get the file names within the directory.

Examples:

[DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [gdcmorthoplanes.cxx](#), [GenerateRTSTRUCT.cxx](#), [ReadUTF8QtDir.cxx](#), [reslicesphere.cxx](#), [SortImage.cxx](#), [threadgdcm.cxx](#), and [VolumeSorter.cxx](#).

10.91.4.4 `FilenameType const& gdcm::Directory::GetToplevel () const [inline]`

Get the name of the toplevel directory.

10.91.4.5 `unsigned int gdcm::Directory::Load (FilenameType const & name, bool recursive = false)`

construct a list of filenames and subdirectory beneath directory: `name`

Warning

: hidden file and hidden directory are not loaded.

Examples:

[DecompressImageMultiframe.cs](#), [DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [gdcmorthoplanes.cxx](#), [GenerateRTSTRUCT.cxx](#), [ReadUTF8QtDir.cxx](#), [reslicesphere.cxx](#), [SortImage.cxx](#), [threadgdcm.cxx](#), and [VolumeSorter.cxx](#).

10.91.4.6 `void gdcmm::Directory::Print (std::ostream & os = std::cout) const`

Print.

Examples:

[SortImage.cxx](#).

Referenced by `gdcmm::operator<<()`.

10.91.5 Friends And Related Function Documentation

10.91.5.1 `std::ostream& operator<< (std::ostream & _os, const Directory & d)` [[friend](#)]

The documentation for this class was generated from the following file:

- [gdcmmDirectory.h](#)

10.92 gdcmm::DirectoryHelper Class Reference

[DirectoryHelper](#) this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts.

```
#include <gdcmmDirectoryHelper.h>
```

Static Public Member Functions

- static [Directory::FilenameType GetCTImageSeriesUIDs](#) (const std::string &inDirectory)
- static [Directory::FilenameType GetFilenamesFromSeriesUIDs](#) (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string [GetFrameOfReference](#) (const std::vector< [DataSet](#) > &inDS)
- static [Directory::FilenameType GetMRImageSeriesUIDs](#) (const std::string &inDirectory)
- static [Directory::FilenameType GetRTStructSeriesUIDs](#) (const std::string &inDirectory)
- static [Directory::FilenameType GetSeriesUIDsBySOPClassUID](#) (const std::string &inDirectory, const std::string &inSOPClassUID)
- static std::string [GetSOPClassUID](#) (const std::vector< [DataSet](#) > &inDS)
- static std::string [GetStringValueFromTag](#) (const [Tag](#) &t, const [DataSet](#) &ds)
- static std::vector< [DataSet](#) > [LoadImageFromFiles](#) (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string [RetrieveSOPInstanceUIDFromIndex](#) (int inIndex, const std::vector< [DataSet](#) > &inDS)
- static std::string [RetrieveSOPInstanceUIDFromZPosition](#) (double inZPos, const std::vector< [DataSet](#) > &inDS)

10.92.1 Detailed Description

[DirectoryHelper](#) this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts.

10.92.2 Member Function Documentation

10.92.2.1 **static Directory::FilenameType** gdcm::DirectoryHelper::GetCTImageSeriesUIDs (const std::string & *inDirectory*)
[static]

10.92.2.2 **static Directory::FilenameType** gdcm::DirectoryHelper::GetFileNamesFromSeriesUIDs (const std::string & *inDirectory*, const std::string & *inSeriesUID*) [static]

Examples:

[GenerateRTSTRUCT.cxx](#).

10.92.2.3 **static std::string** gdcm::DirectoryHelper::GetFrameOfReference (const std::vector< DataSet > & *inDS*) [static]

10.92.2.4 **static Directory::FilenameType** gdcm::DirectoryHelper::GetMRImageSeriesUIDs (const std::string & *inDirectory*)
[static]

10.92.2.5 **static Directory::FilenameType** gdcm::DirectoryHelper::GetRTStructSeriesUIDs (const std::string & *inDirectory*)
[static]

Examples:

[GenerateRTSTRUCT.cxx](#).

10.92.2.6 **static Directory::FilenameType** gdcm::DirectoryHelper::GetSeriesUIDsBySOPClassUID (const std::string & *inDirectory*, const std::string & *inSOPClassUID*) [static]

10.92.2.7 **static std::string** gdcm::DirectoryHelper::GetSOPClassUID (const std::vector< DataSet > & *inDS*) [static]

10.92.2.8 **static std::string** gdcm::DirectoryHelper::GetStringValueFromTag (const Tag & *t*, const DataSet & *ds*) [static]

10.92.2.9 **static std::vector<DataSet>** gdcm::DirectoryHelper::LoadImageFromFiles (const std::string & *inDirectory*, const std::string & *inSeriesUID*) [static]

10.92.2.10 **static std::string** gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromIndex (int *inIndex*, const std::vector< DataSet > & *inDS*) [static]

10.92.2.11 **static std::string** gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromZPosition (double *inZPos*, const std::vector< DataSet > & *inDS*) [static]

The documentation for this class was generated from the following file:

- [gdcmDirectoryHelper.h](#)

10.93 gdcm::DummyValueGenerator Class Reference

Class for generating dummy value.

```
#include <gdcmDummyValueGenerator.h>
```

Static Public Member Functions

- static const char * [Generate](#) (const char *input)

10.93.1 Detailed Description

Class for generating dummy value.

See also

[Anonymizer](#)

10.93.2 Member Function Documentation

10.93.2.1 static const char* gdcm::DummyValueGenerator::Generate (const char * *input*) [static]

Generate a dummy value from an input value. This is guarantee to always return the same output value when input is identical. Return an array of bytes that can be used for anonymization purpose, return NULL on error NOT THREAD SAFE

The documentation for this class was generated from the following file:

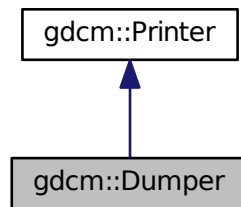
- [gdcmDummyValueGenerator.h](#)

10.94 gdcm::Dumper Class Reference

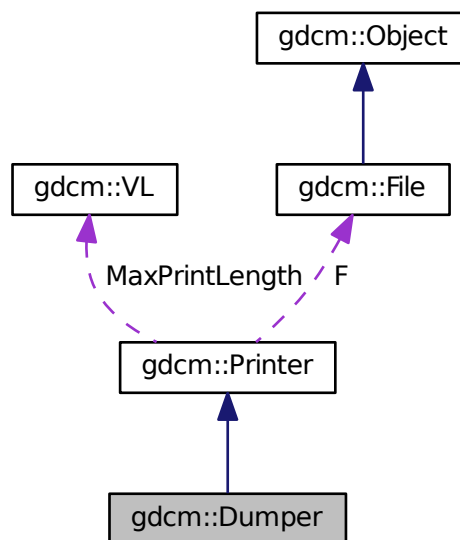
[Codec](#) class.

```
#include <gdcmDumper.h>
```


Inheritance diagram for gdcm::Dumper:



Collaboration diagram for gdcm::Dumper:



Public Member Functions

- [Dumper](#) ()
- [~Dumper](#) ()

Additional Inherited Members

10.94.1 Detailed Description

[Codec](#) class.

Note

Use it to simply dump value read from the file. No interpretation is done. But it is real fast ! Almost no overhead

10.94.2 Constructor & Destructor Documentation

10.94.2.1 `gdcm::Dumper::Dumper ()` `[inline]`

10.94.2.2 `gdcm::Dumper::~~Dumper ()` `[inline]`

The documentation for this class was generated from the following file:

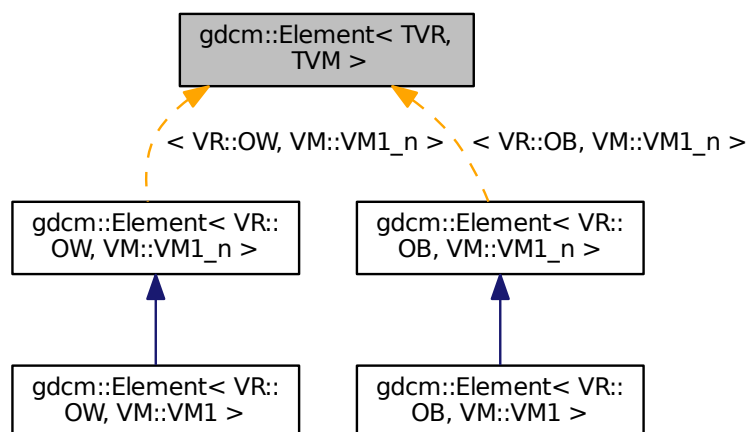
- [gdcmDumper.h](#)

10.95 `gdcm::Element< TVR, TVM >` Class Template Reference

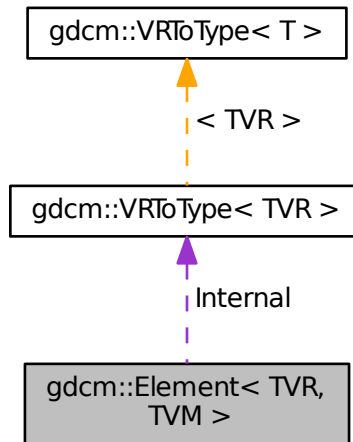
[Element](#) class.

```
#include <gdcmElement.h>
```

Inheritance diagram for `gdcm::Element< TVR, TVM >`:



Collaboration diagram for gdcm::Element< TVR, TVM >:



Public Types

- typedef `VRToType< TVR >::Type` `Type`

Public Member Functions

- `DataElement GetAsDataElement ()` const
- unsigned long `GetLength ()` const
- const `VRToType< TVR >::Type & GetValue` (unsigned int idx=0) const
- `VRToType< TVR >::Type & GetValue` (unsigned int idx=0)
- const `VRToType< TVR >::Type * GetValues ()` const
- `VRToType< TVR >::Type operator[]` (unsigned int idx) const
- void `Print` (std::ostream &_os) const
- void `Read` (std::istream &_is)
- void `Set` (Value const &v)
- void `SetFromDataElement` (DataElement const &de)
- void `SetValue` (typename `VRToType< TVR >::Type` v, unsigned int idx=0)
- void `Write` (std::ostream &_os) const

Static Public Member Functions

- static `VM GetVM ()`
- static `VR GetVR ()`

Public Attributes

- [VRToType](#)< TVR >::Type Internal [[VMToLength](#)< TVM >::Length]

Protected Member Functions

- void [SetNoSwap](#) (Value const &v)

10.95.1 Detailed Description

```
template<int TVR, int TVM>
class gdcm::Element< TVR, TVM >
```

[Element](#) class.

Note

TODO

Examples:

[csa2img.cxx](#), [DumpADAC.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GetSubSequenceData.cxx](#), and [iU22tomultisc.cxx](#).

10.95.2 Member Typedef Documentation

10.95.2.1 `template<int TVR, int TVM> typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type`

10.95.3 Member Function Documentation

10.95.3.1 `template<int TVR, int TVM> DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const` `[inline]`

10.95.3.2 `template<int TVR, int TVM> unsigned long gdcm::Element< TVR, TVM >::GetLength () const` `[inline]`

10.95.3.3 `template<int TVR, int TVM> const VRToType<TVR>::Type& gdcm::Element< TVR, TVM >::GetValue (unsigned int idx = 0) const` `[inline]`

10.95.3.4 `template<int TVR, int TVM> VRToType<TVR>::Type& gdcm::Element< TVR, TVM >::GetValue (unsigned int idx = 0)` `[inline]`

10.95.3.5 `template<int TVR, int TVM> const VRToType<TVR>::Type* gdcm::Element< TVR, TVM >::GetValues () const` `[inline]`

10.95.3.6 `template<int TVR, int TVM> static VM gdcm::Element< TVR, TVM >::GetVM () [inline], [static]`

10.95.3.7 `template<int TVR, int TVM> static VR gdcm::Element< TVR, TVM >::GetVR () [inline], [static]`

10.95.3.8 `template<int TVR, int TVM> VRToType<TVR>::Type gdcm::Element< TVR, TVM >::operator[] (unsigned int idx) const [inline]`

10.95.3.9 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::Print (std::ostream & _os) const [inline]`

10.95.3.10 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::Read (std::istream & _is) [inline]`

10.95.3.11 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::Set (Value const & v) [inline]`

10.95.3.12 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::SetFromDataElement (DataElement< TVR, TVM > const & de) [inline]`

10.95.3.13 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::SetNoSwap (Value const & v) [inline], [protected]`

10.95.3.14 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::SetValue (typename VRToType< TVR >::Type v, unsigned int idx = 0) [inline]`

10.95.3.15 `template<int TVR, int TVM> void gdcm::Element< TVR, TVM >::Write (std::ostream & _os) const [inline]`

10.95.4 Member Data Documentation

10.95.4.1 `template<int TVR, int TVM> VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]`

Referenced by `gdcm::Element< TVR, VM::VM1_n >::operator=()`.

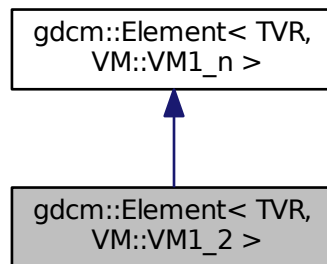
The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

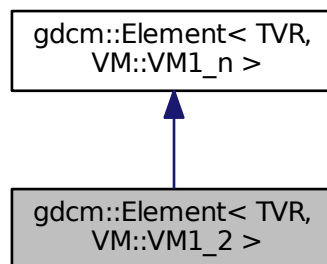
10.96 `gdcm::Element< TVR, VM::VM1_2 >` Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for `gdcm::Element< TVR, VM::VM1_2 >`:



Collaboration diagram for `gdcm::Element< TVR, VM::VM1_2 >`:



Public Types

- typedef `Element< TVR, VM::VM1_n >` `Parent`

Public Member Functions

- void `SetLength` (int len)

Additional Inherited Members

10.96.1 Member Typedef Documentation

10.96.1.1 `template<int TVR> typedef Element<TVR, VM::VM1_n> gdcmm::Element< TVR, VM::VM1_2 >::Parent`

10.96.2 Member Function Documentation

10.96.2.1 `template<int TVR> void gdcmm::Element< TVR, VM::VM1_2 >::SetLength (int len) [inline]`

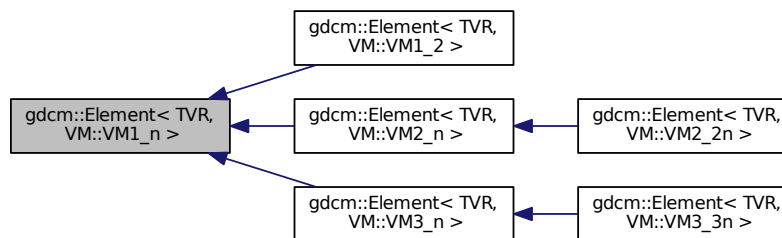
The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

10.97 gdcmm::Element< TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmmElement.h>
```

Inheritance diagram for gdcmm::Element< TVR, VM::VM1_n >:



Public Types

- `typedef VRToType< TVR >::Type Type`

Public Member Functions

- [Element](#) ()
- [Element](#) (const [Element](#) &_val)
- [~Element](#) ()
- [DataElement](#) [GetAsDataElement](#) () const
- unsigned long [GetLength](#) () const
- const [VRToType](#)< TVR >::Type & [GetValue](#) (unsigned int idx=0) const
- [VRToType](#)< TVR >::Type & [GetValue](#) (unsigned int idx=0)
- [Element](#) & [operator=](#) (const [Element](#) &_val)
- [VRToType](#)< TVR >::Type [operator\[\]](#) (unsigned int idx) const
- void [Print](#) (std::ostream &_os) const
- void [Read](#) (std::istream &_is)
- void [Set](#) ([Value](#) const &v)
- void [SetArray](#) (const [Type](#) *array, unsigned long len, bool save=false)
- void [SetFromDataElement](#) ([DataElement](#) const &de)
- void [SetLength](#) (unsigned long len)
- void [SetValue](#) (typename [VRToType](#)< TVR >::Type v, unsigned int idx=0)
- void [Write](#) (std::ostream &_os) const
- void [WriteASCII](#) (std::ostream &os) const

Static Public Member Functions

- static [VM](#) [GetVM](#) ()
- static [VR](#) [GetVR](#) ()

Protected Member Functions

- void [SetNoSwap](#) ([Value](#) const &v)

10.97.1 Member Typedef Documentation

10.97.1.1 `template<int TVR> typedef VRToType<TVR>::Type gdcmm::Element< TVR, VM::VM1_n >::Type`

10.97.2 Constructor & Destructor Documentation

10.97.2.1 `template<int TVR> gdcmm::Element< TVR, VM::VM1_n >::Element () \[inline\],\[explicit\]`

10.97.2.2 `template<int TVR> gdcmm::Element< TVR, VM::VM1_n >::~~Element () \[inline\]`

10.97.2.3 `template<int TVR> gdcmm::Element< TVR, VM::VM1_n >::Element (const Element< TVR, VM::VM1_n > &_val) \[inline\]`

10.97.3 Member Function Documentation

10.97.3.1 `template<int TVR> DataElement gdcmm::Element< TVR, VM::VM1_n >::GetAsDataElement () const \[inline\]`

References [gdcmm::DataElement::GetVR\(\)](#), [gdcmm::DataElement::SetByteValue\(\)](#), and [gdcmm::DataElement::SetVR\(\)](#).

10.97.3.2 `template<int TVR> unsigned long gdcm::Element< TVR, VM::VM1_n >::GetLength () const [inline]`

10.97.3.3 `template<int TVR> const VRToType<TVR>::Type& gdcm::Element< TVR, VM::VM1_n >::GetValue (unsigned int idx = 0) const [inline]`

10.97.3.4 `template<int TVR> VRToType<TVR>::Type& gdcm::Element< TVR, VM::VM1_n >::GetValue (unsigned int idx = 0) [inline]`

10.97.3.5 `template<int TVR> static VM gdcm::Element< TVR, VM::VM1_n >::GetVM () [inline],[static]`

10.97.3.6 `template<int TVR> static VR gdcm::Element< TVR, VM::VM1_n >::GetVR () [inline],[static]`

10.97.3.7 `template<int TVR> Element& gdcm::Element< TVR, VM::VM1_n >::operator= (const Element< TVR, VM::VM1_n > &_val) [inline]`

References `gdcm::Element< TVR, TVM >::Internal`.

10.97.3.8 `template<int TVR> VRToType<TVR>::Type gdcm::Element< TVR, VM::VM1_n >::operator[] (unsigned int idx) const [inline]`

10.97.3.9 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::Print (std::ostream & _os) const [inline]`

10.97.3.10 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::Read (std::istream & _is) [inline]`

10.97.3.11 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::Set (Value const & v) [inline]`

References `gdcm::ByteValue::GetLength()`, `gdcm::ByteValue::GetPointer()`, and `gdcm::VRBINARY`.

10.97.3.12 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::SetArray (const Type * array, unsigned long len, bool save = false) [inline]`

10.97.3.13 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement (DataElement< TVR, VM::VM1_n > const & de) [inline]`

References `gdcm::DataElement::GetByteValue()`, `gdcm::DataElement::GetValue()`, and `gdcm::DataElement::GetVR()`.

10.97.3.14 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::SetLength (unsigned long len) [inline]`

10.97.3.15 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::SetNoSwap (Value const & v) [inline],[protected]`

References `gdcm::ByteValue::GetLength()`, `gdcm::ByteValue::GetPointer()`, and `gdcm::VRBINARY`.

10.97.3.16 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::SetValue (typename VRToType< TVR >::Type v, unsigned int idx = 0) [inline]`

10.97.3.17 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::Write (std::ostream & _os) const [inline]`

10.97.3.18 `template<int TVR> void gdcm::Element< TVR, VM::VM1_n >::WriteASCII (std::ostream & os) const [inline]`

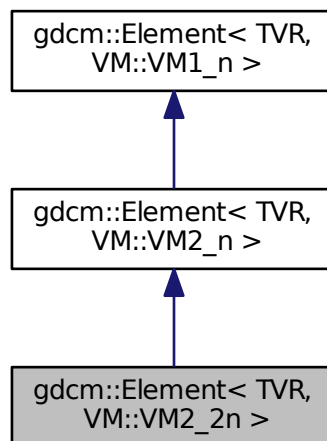
The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

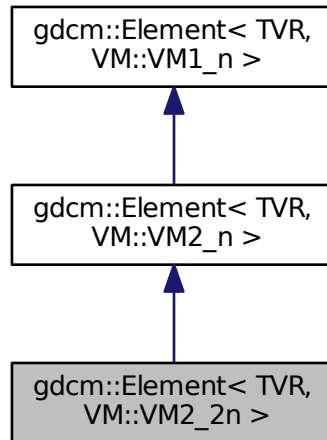
10.98 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_2n >:



Collaboration diagram for gdcmm::Element< TVR, VM::VM2_2n >:



Public Types

- typedef [Element](#)< TVR, [VM::VM2_n](#) > [Parent](#)

Public Member Functions

- void [SetLength](#) (int len)

Additional Inherited Members

10.98.1 Member Typedef Documentation

10.98.1.1 `template<int TVR> typedef Element<TVR, VM::VM2_n> gdcmm::Element< TVR, VM::VM2_2n >::Parent`

10.98.2 Member Function Documentation

10.98.2.1 `template<int TVR> void gdcmm::Element< TVR, VM::VM2_2n >::SetLength (int len) [inline]`

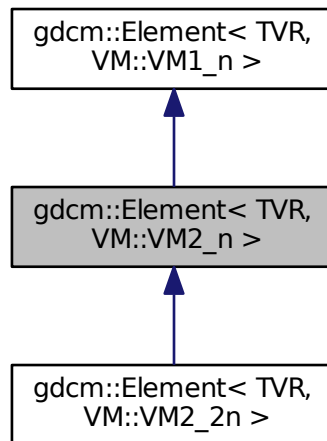
The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

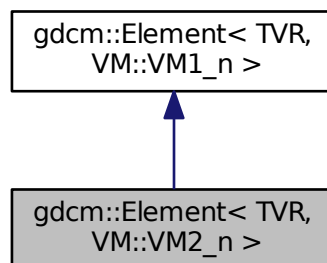
10.99 gdcElement< TVR, VM::VM2_n > Class Template Reference

```
#include <gdcElement.h>
```

Inheritance diagram for gdcElement< TVR, VM::VM2_n >:



Collaboration diagram for gdcElement< TVR, VM::VM2_n >:



Public Types

- typedef [Element](#)< TVR, [VM::VM1_n](#) > [Parent](#)

Public Member Functions

- void [SetLength](#) (int len)

Additional Inherited Members

10.99.1 Member Typedef Documentation

10.99.1.1 `template<int TVR> typedef Element<TVR, VM::VM1_n> gdcmm::Element< TVR, VM::VM2_n >::Parent`

10.99.2 Member Function Documentation

10.99.2.1 `template<int TVR> void gdcmm::Element< TVR, VM::VM2_n >::SetLength (int len) [inline]`

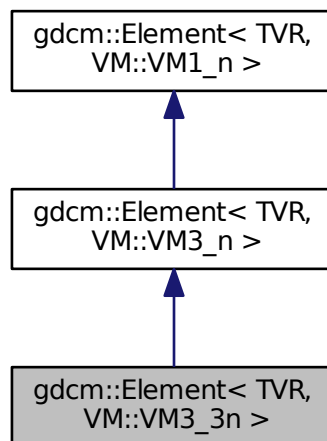
The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

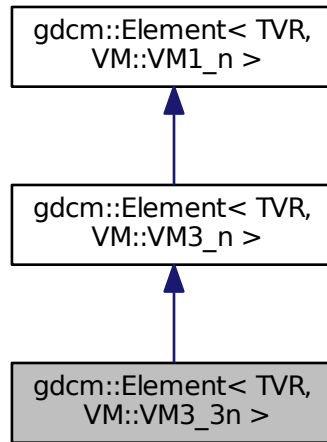
10.100 gdcmm::Element< TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmmElement.h>
```

Inheritance diagram for gdcmm::Element< TVR, VM::VM3_3n >:



Collaboration diagram for `gdcM::Element< TVR, VM::VM3_3n >`:



Public Types

- typedef `Element< TVR, VM::VM3_n >` `Parent`

Public Member Functions

- void `SetLength` (int len)

Additional Inherited Members

10.100.1 Member Typedef Documentation

10.100.1.1 `template<int TVR> typedef Element<TVR, VM::VM3_n> gdcM::Element< TVR, VM::VM3_3n >::Parent`

10.100.2 Member Function Documentation

10.100.2.1 `template<int TVR> void gdcM::Element< TVR, VM::VM3_3n >::SetLength (int len) [inline]`

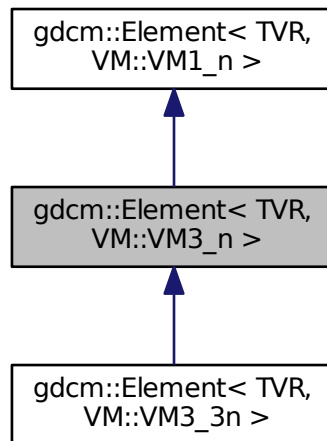
The documentation for this class was generated from the following file:

- `gdcMElement.h`

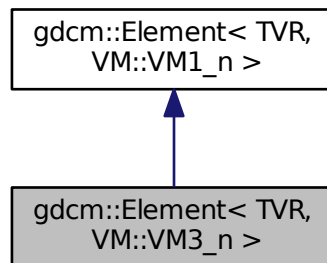
10.101 gdcM::Element< TVR, VM::VM3_n > Class Template Reference

```
#include <gdcMElement.h>
```

Inheritance diagram for gdcM::Element< TVR, VM::VM3_n >:



Collaboration diagram for gdcM::Element< TVR, VM::VM3_n >:



Public Types

- typedef `Element< TVR, VM::VM1_n >` `Parent`

Public Member Functions

- void [SetLength](#) (int len)

Additional Inherited Members

10.101.1 Member Typedef Documentation

10.101.1.1 `template<int TVR> typedef Element<TVR, VM::VM1_n> gdcmm::Element< TVR, VM::VM3_n >::Parent`

10.101.2 Member Function Documentation

10.101.2.1 `template<int TVR> void gdcmm::Element< TVR, VM::VM3_n >::SetLength (int len) [inline]`

The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

10.102 gdcmm::Element< VR::AS, VM::VM5 > Class Template Reference

```
#include <gdcmmElement.h>
```

Public Member Functions

- unsigned long [GetLength](#) () const
- void [Print](#) (std::ostream &_os) const

Public Attributes

- char [Internal](#) [[VMToLength](#)< VM::VM5 >::Length *sizeof([VRToType](#)< VR::AS >::Type)]

10.102.1 Member Function Documentation

10.102.1.1 `unsigned long gdcmm::Element< VR::AS, VM::VM5 >::GetLength () const [inline]`

10.102.1.2 `void gdcmm::Element< VR::AS, VM::VM5 >::Print (std::ostream &_os) const [inline]`

10.102.2 Member Data Documentation

10.102.2.1 `char gdcmm::Element< VR::AS, VM::VM5 >::Internal[VMToLength< VM::VM5 >::Length *sizeof(VRToType< VR::AS >::Type)]`

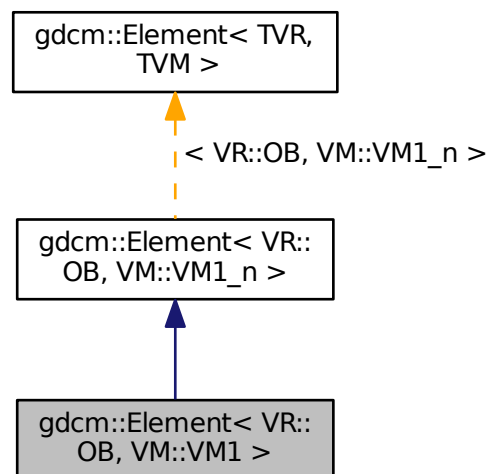
The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

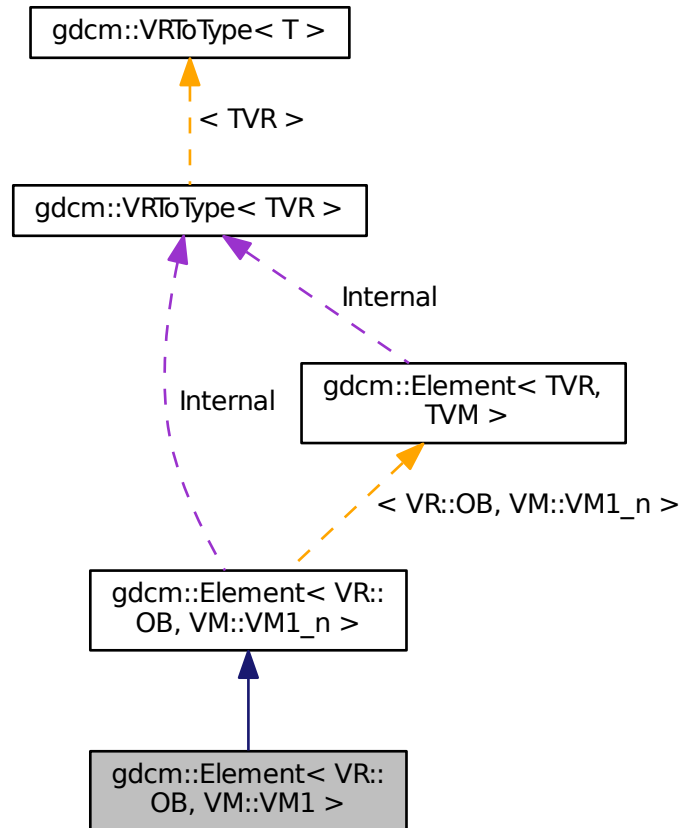
10.103 gdcm::Element< VR::OB, VM::VM1 > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OB, VM::VM1 >:



Collaboration diagram for `gdcm::Element< VR::OB, VM::VM1 >`:



Additional Inherited Members

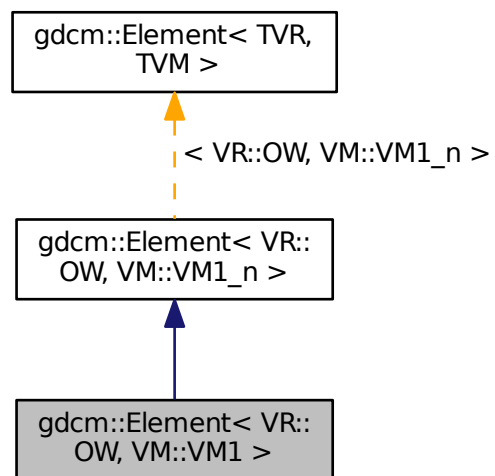
The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

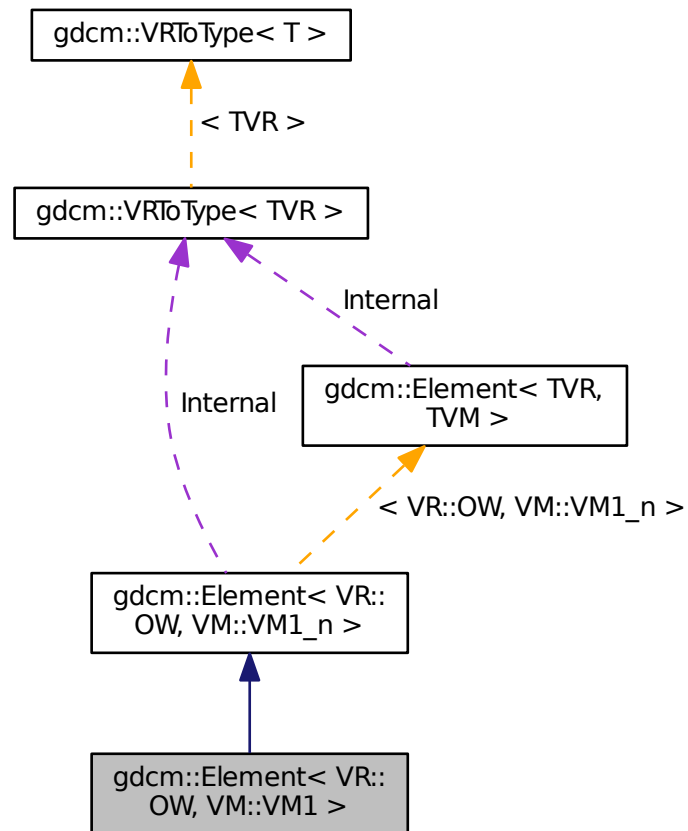
10.104 `gdcm::Element< VR::OW, VM::VM1 >` Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OW, VM::VM1 >:



Collaboration diagram for `gdcM::Element< VR::OW, VM::VM1 >`:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcMElement.h](#)

10.105 `gdcM::ElementDisableCombinations< TVR, TVM >` Class Template Reference

A class which is used to produce compile errors for an invalid combination of template parameters.

```
#include <gdcMElement.h>
```

10.105.1 Detailed Description

```
template<int TVR, int TVM>
class gdcm::ElementDisableCombinations< TVR, TVM >
```

A class which is used to produce compile errors for an invalid combination of template parameters.

Invalid combinations have specialized declarations with no definition.

The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

10.106 `gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >` Class Template Reference

```
#include <gdcmElement.h>
```

The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

10.107 `gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >` Class Template Reference

```
#include <gdcmElement.h>
```

The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

10.108 `gdcm::EncapsulatedDocument` Class Reference

[EncapsulatedDocument](#).

```
#include <gdcmEncapsulatedDocument.h>
```

Public Member Functions

- [EncapsulatedDocument](#) ()

10.108.1 Detailed Description

[EncapsulatedDocument](#).

10.108.2 Constructor & Destructor Documentation

10.108.2.1 `gdcm::EncapsulatedDocument::EncapsulatedDocument () [inline]`

The documentation for this class was generated from the following file:

- [gdcmEncapsulatedDocument.h](#)

10.109 `gdcm::EncodingImplementation< T >` Class Template Reference

[EncodingImplementation](#).

```
#include <gdcmElement.h>
```

10.109.1 Detailed Description

```
template<int T>
class gdcm::EncodingImplementation< T >
```

[EncodingImplementation](#).

Note

TODO

The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

10.110 `gdcm::EncodingImplementation< VR::VRASCII >` Class Template Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- `template<>`
void [Write](#) (const float *data, unsigned long length, std::ostream &_os)
- `template<>`
void [Write](#) (const double *data, unsigned long length, std::ostream &_os)

Static Public Member Functions

- `template<typename T >`
static void [Read](#) (T *data, unsigned long length, std::istream &_is)
- `template<typename T >`
static void [ReadComputeLength](#) (T *data, unsigned int &length, std::istream &_is)
- `template<typename T >`
static void [ReadNoSwap](#) (T *data, unsigned long length, std::istream &_is)
- `template<typename T >`
static void [Write](#) (const T *data, unsigned long length, std::ostream &_os)

10.110.1 Member Function Documentation

10.110.1.1 `template<typename T > static void gdcmm::EncodingImplementation< VR::VRASCII >::Read (T * data, unsigned long length, std::istream &_is)` `[inline]`, `[static]`

10.110.1.2 `template<typename T > static void gdcmm::EncodingImplementation< VR::VRASCII >::ReadComputeLength (T * data, unsigned int & length, std::istream &_is)` `[inline]`, `[static]`

References `gdcmm::backslash()`.

10.110.1.3 `template<typename T > static void gdcmm::EncodingImplementation< VR::VRASCII >::ReadNoSwap (T * data, unsigned long length, std::istream &_is)` `[inline]`, `[static]`

10.110.1.4 `template<typename T > static void gdcmm::EncodingImplementation< VR::VRASCII >::Write (const T * data, unsigned long length, std::ostream &_os)` `[inline]`, `[static]`

10.110.1.5 `template<> void gdcmm::EncodingImplementation< VR::VRASCII >::Write (const float * data, unsigned long length, std::ostream &_os)` `[inline]`

References `gdcmm::to_string()`.

10.110.1.6 `template<> void gdcmm::EncodingImplementation< VR::VRASCII >::Write (const double * data, unsigned long length, std::ostream &_os)` `[inline]`

References `gdcmm::to_string()`.

The documentation for this class was generated from the following file:

- [gdcmmElement.h](#)

10.111 gdcm::EncodingImplementation< VR::VRBINARY > Class Template Reference

```
#include <gdcmElement.h>
```

Static Public Member Functions

- template<typename T >
static void [Read](#) (T *data, unsigned long length, std::istream &_is)
- template<typename T >
static void [ReadComputeLength](#) (T *data, unsigned int &length, std::istream &_is)
- template<typename T >
static void [ReadNoSwap](#) (T *data, unsigned long length, std::istream &_is)
- template<typename T >
static void [Write](#) (const T *data, unsigned long length, std::ostream &_os)

10.111.1 Member Function Documentation

10.111.1.1 template<typename T > static void **gdcm::EncodingImplementation< VR::VRBINARY >::Read** (T * *data*, unsigned long *length*, std::istream & *_is*) `[inline]`, `[static]`

10.111.1.2 template<typename T > static void **gdcm::EncodingImplementation< VR::VRBINARY >::ReadComputeLength** (T * *data*, unsigned int & *length*, std::istream & *_is*) `[inline]`, `[static]`

10.111.1.3 template<typename T > static void **gdcm::EncodingImplementation< VR::VRBINARY >::ReadNoSwap** (T * *data*, unsigned long *length*, std::istream & *_is*) `[inline]`, `[static]`

10.111.1.4 template<typename T > static void **gdcm::EncodingImplementation< VR::VRBINARY >::Write** (const T * *data*, unsigned long *length*, std::ostream & *_os*) `[inline]`, `[static]`

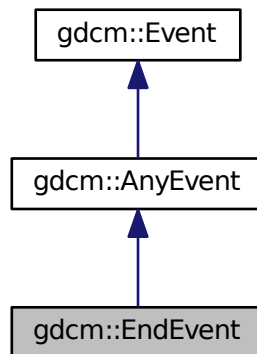
The documentation for this class was generated from the following file:

- [gdcmElement.h](#)

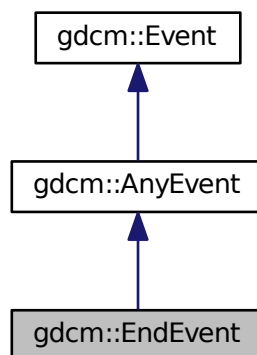
10.112 gdcm::EndEvent Class Reference

```
#include <gdcmEvent.h>
```


Inheritance diagram for gdcm::EndEvent:



Collaboration diagram for gdcm::EndEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcmEvent.h](#)

10.113 gdcm::EnumeratedValues Class Reference

Element. A Data [Element](#) with Enumerated Values that does not have a [Value](#) equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

```
#include <gdcmEnumeratedValues.h>
```

Public Member Functions

- [EnumeratedValues](#) ()

10.113.1 Detailed Description

Element. A Data [Element](#) with Enumerated Values that does not have a [Value](#) equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

1. [Patient](#) Sex (0010, 0040) is an example of a Data [Element](#) having Enumerated Values. It is defined to have a [Value](#) that is either "M", "F", or "O" (see PS 3.3). No other [Value](#) shall be given to this Data [Element](#).
2. Future modifications of this standard may add to the set of allowed values for Data Elements with Enumerated Values. Such additions by themselves may or may not require a change in SOP Class [UIDs](#), depending on the semantics of the Data [Element](#).

10.113.2 Constructor & Destructor Documentation

10.113.2.1 `gdcm::EnumeratedValues::EnumeratedValues ()` `[inline]`

The documentation for this class was generated from the following file:

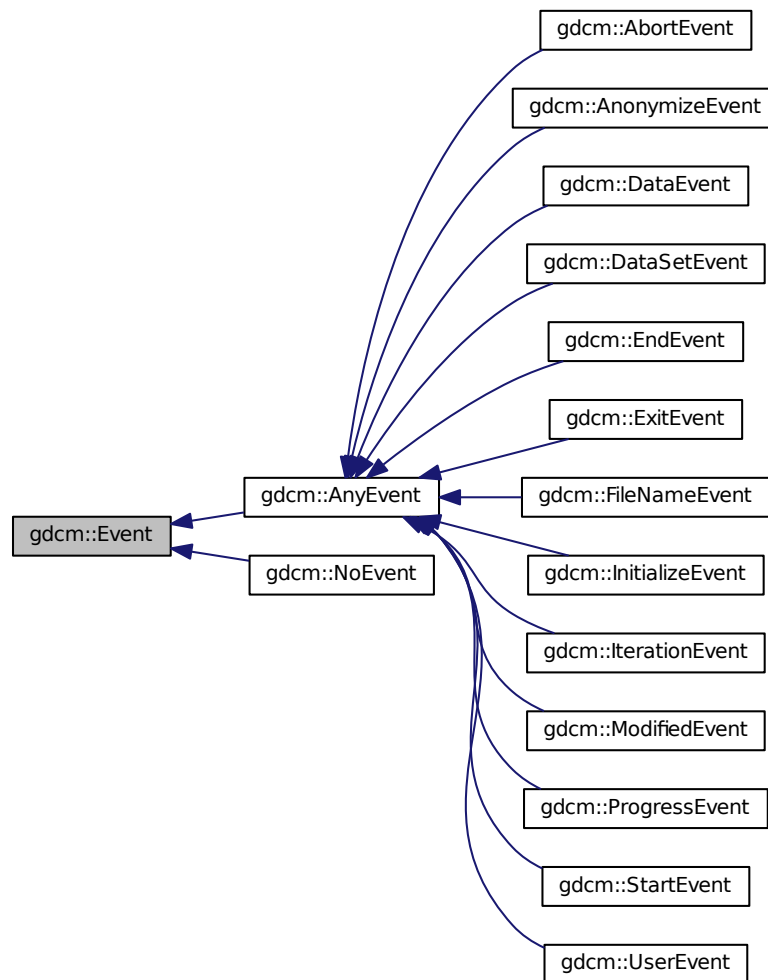
- [gdcmEnumeratedValues.h](#)

10.114 gdcm::Event Class Reference

superclass for callback/observer methods

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcmm::Event:



Public Member Functions

- [Event](#) ()
- [Event](#) (const [Event](#) &)
- virtual [~Event](#) ()
- virtual bool [CheckEvent](#) (const [Event](#) *) const =0
- virtual const char * [GetEventName](#) (void) const =0
- virtual [Event](#) * [MakeObject](#) () const =0
- virtual void [Print](#) (std::ostream &os) const

10.114.1 Detailed Description

superclass for callback/observer methods

See also

[Command Subject](#)

Examples:

[SimpleScanner.cxx](#).

10.114.2 Constructor & Destructor Documentation

10.114.2.1 `gdcm::Event::Event ()`

10.114.2.2 `gdcm::Event::Event (const Event &)`

10.114.2.3 `virtual gdcm::Event::~~Event () [virtual]`

10.114.3 Member Function Documentation

10.114.3.1 `virtual bool gdcm::Event::CheckEvent (const Event *) const [pure virtual]`

Check if given event matches or derives from this event.

10.114.3.2 `virtual const char* gdcm::Event::GetEventName (void) const [pure virtual]`

Return the StringName associated with the event.

Implemented in [gdcm::FileNameEvent](#), [gdcm::ProgressEvent](#), [gdcm::DataSetEvent](#), [gdcm::AnonymizeEvent](#), and [gdcm::DataEvent](#).

10.114.3.3 `virtual Event* gdcm::Event::MakeObject () const [pure virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implemented in [gdcm::FileNameEvent](#), [gdcm::ProgressEvent](#), [gdcm::DataSetEvent](#), [gdcm::AnonymizeEvent](#), and [gdcm::DataEvent](#).

10.114.3.4 `virtual void gdcm::Event::Print (std::ostream & os) const` `[virtual]`

Print [Event](#) information. This method can be overridden by specific [Event](#) subtypes. The default is to print out the type of the event.

Referenced by `gdcm::operator<<()`.

The documentation for this class was generated from the following file:

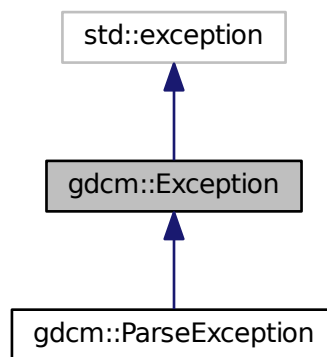
- [gdcmEvent.h](#)

10.115 gdcm::Exception Class Reference

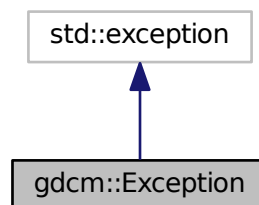
[Exception](#).

```
#include <gdcmException.h>
```

Inheritance diagram for `gdcm::Exception`:



Collaboration diagram for `gdcm::Exception`:



Public Member Functions

- [Exception](#) (const char *desc="None", const char *file=__FILE__, unsigned int lineNumber=__LINE__, const char *func="")
- virtual [~Exception](#) () throw ()
- const char * [GetDescription](#) () const
Return the Description.
- const char * [what](#) () const throw ()
what implementation

10.115.1 Detailed Description

[Exception](#).

Standard exception handling object.

Note

Its copy-constructor and assignment operator are generated by the compiler.

10.115.2 Constructor & Destructor Documentation

10.115.2.1 `gdcmm::Exception::Exception (const char * desc = "None", const char * file = __FILE__, unsigned int lineNumber = __LINE__, const char * func = " ") [inline],[explicit]`

Explicit constructor, initializing the description and the text returned by [what\(\)](#).

Note

The last parameter is ignored for the time being. It may be used to specify the function where the exception was thrown.

10.115.2.2 `virtual gdcmm::Exception::~~Exception () throw) [inline],[virtual]`

10.115.3 Member Function Documentation

10.115.3.1 `const char* gdcmm::Exception::GetDescription () const [inline]`

Return the Description.

Referenced by `gdcmm::SequenceOfItems::Read()`.

10.115.3.2 `const char* gdcm::Exception::what () const throw ()` `[inline]`

what implementation

Referenced by `gdcm::SequenceOfFragments::ReadValue()`.

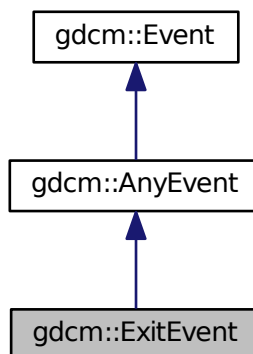
The documentation for this class was generated from the following file:

- [gdcmException.h](#)

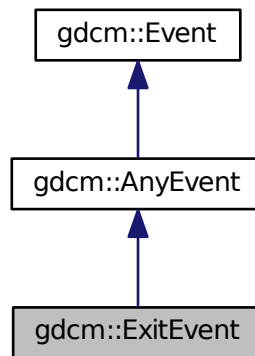
10.116 gdcm::ExitEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for `gdcm::ExitEvent`:



Collaboration diagram for `gdcm::ExitEvent`:



Additional Inherited Members

The documentation for this class was generated from the following file:

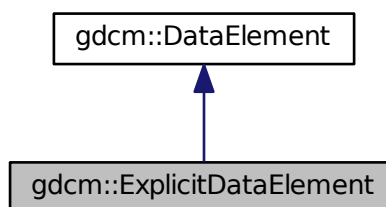
- [gdcmEvent.h](#)

10.117 `gdcm::ExplicitDataElement` Class Reference

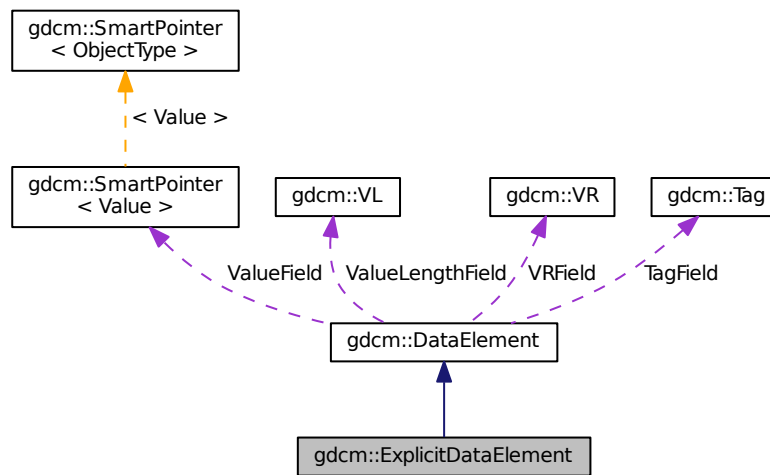
Class to read/write a [DataElement](#) as Explicit Data [Element](#).

```
#include <gdcmExplicitDataElement.h>
```

Inheritance diagram for `gdcm::ExplicitDataElement`:



Collaboration diagram for gdcm::ExplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length)
- template<typename TSwap >
const std::ostream & [Write](#) (std::ostream &os) const

Additional Inherited Members

10.117.1 Detailed Description

Class to read/write a [DataElement](#) as Explicit Data [Element](#).

Note

bla

10.117.2 Member Function Documentation

10.117.2.1 `VL gdcm::ExplicitDataElement::GetLength () const`

10.117.2.2 `template<typename TSwap > std::istream& gdcm::ExplicitDataElement::Read (std::istream & is)`

10.117.2.3 `template<typename TSwap > std::istream& gdcm::ExplicitDataElement::ReadPreValue (std::istream & is)`

10.117.2.4 `template<typename TSwap > std::istream& gdcm::ExplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.117.2.5 `template<typename TSwap > std::istream& gdcm::ExplicitDataElement::ReadWithLength (std::istream & is, VL & length)`

10.117.2.6 `template<typename TSwap > const std::ostream& gdcm::ExplicitDataElement::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

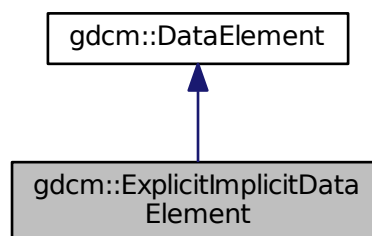
- [gdcmExplicitDataElement.h](#)

10.118 gdcm::ExplicitImplicitDataElement Class Reference

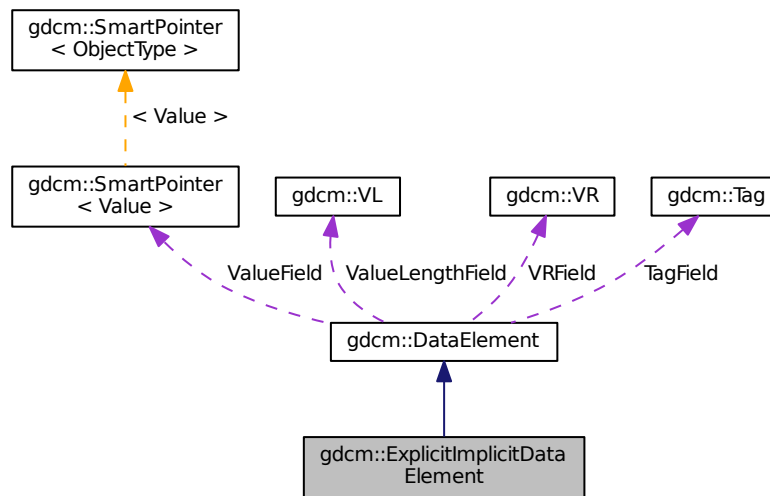
Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#).

```
#include <gdcmExplicitImplicitDataElement.h>
```

Inheritance diagram for `gdcm::ExplicitImplicitDataElement`:



Collaboration diagram for gdcm::ExplicitImplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length)

Additional Inherited Members

10.118.1 Detailed Description

Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#).

Note

This only happen for some Philips images Should I derive from [ExplicitDataElement](#) instead ? This is the class that is the closest the GDCM1.x parser. At each element we try first to read it as explicit, if this fails, then we try again as an implicit element.

10.118.2 Member Function Documentation

10.118.2.1 `VL gdcm::ExplicitImplicitDataElement::GetLength () const`

10.118.2.2 `template<typename TSwap > std::istream& gdcm::ExplicitImplicitDataElement::Read (std::istream & is)`

10.118.2.3 `template<typename TSwap > std::istream& gdcm::ExplicitImplicitDataElement::ReadPreValue (std::istream & is)`

10.118.2.4 `template<typename TSwap > std::istream& gdcm::ExplicitImplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.118.2.5 `template<typename TSwap > std::istream& gdcm::ExplicitImplicitDataElement::ReadWithLength (std::istream & is, VL & length) [inline]`

The documentation for this class was generated from the following file:

- [gdcmExplicitImplicitDataElement.h](#)

10.119 gdcm::Fiducials Class Reference

[Fiducials.](#)

```
#include <gdcmFiducials.h>
```

Public Member Functions

- [Fiducials](#) ()

10.119.1 Detailed Description

[Fiducials.](#)

10.119.2 Constructor & Destructor Documentation

10.119.2.1 `gdcm::Fiducials::Fiducials () [inline]`

The documentation for this class was generated from the following file:

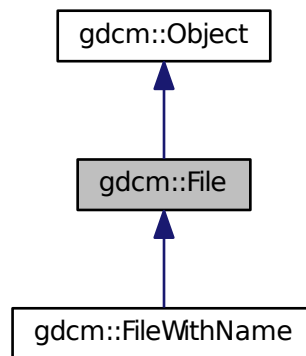
- [gdcmFiducials.h](#)

10.120 gdcm::File Class Reference

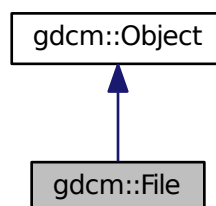
a DICOM [File](#) See PS 3.10 [File](#): A [File](#) is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the [File](#). Files are identified by a unique [File](#) ID and may be written, read and/or deleted.

```
#include <gdcmFile.h>
```

Inheritance diagram for gdcm::File:



Collaboration diagram for gdcm::File:



Public Member Functions

- [File](#) ()
- [~File](#) ()

- const [DataSet](#) & [GetDataSet](#) () const
Get Data Set.
- [DataSet](#) & [GetDataSet](#) ()
Get Data Set.
- const [FileMetaInformation](#) & [GetHeader](#) () const
Get File Meta Information.
- [FileMetaInformation](#) & [GetHeader](#) ()
Get File Meta Information.
- std::istream & [Read](#) (std::istream &is)
Read.
- void [SetDataSet](#) (const [DataSet](#) &ds)
Set Data Set.
- void [SetHeader](#) (const [FileMetaInformation](#) &fmi)
Set File Meta Information.
- std::ostream const & [Write](#) (std::ostream &os) const
Write.

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [File](#) &val)

Additional Inherited Members

10.120.1 Detailed Description

a DICOM [File](#) See PS 3.10 [File](#): A [File](#) is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the [File](#). Files are identified by a unique [File](#) ID and may be written, read and/or deleted.

See also

[Reader Writer](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [DiffFile.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DuplicatePCDE.cxx](#), [EncapsulateFileInRawData.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixOrientation.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [PatchFile.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadGEMSSDO.cxx](#), and [StreamImageReaderTest.cxx](#).

10.120.2 Constructor & Destructor Documentation

10.120.2.1 `gdcm::File::File ()`

10.120.2.2 `gdcm::File::~~File ()`

10.120.3 Member Function Documentation

10.120.3.1 `const DataSet& gdcm::File::GetDataSet () const` `[inline]`

Get Data Set.

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [gdcmrtpionplan.cxx](#), [gdcmrtpian.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

10.120.3.2 `DataSet& gdcm::File::GetDataSet ()` `[inline]`

Get Data Set.

10.120.3.3 `const FileMetaInformation& gdcm::File::GetHeader () const` `[inline]`

Get [File](#) Meta Information.

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GetJPEGSamplePrecision.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [MpegVideoInfo.cs](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

Referenced by `gdcm::operator<<()`.

10.120.3.4 `FileMetaInformation& gdcm::File::GetHeader ()` `[inline]`

Get [File](#) Meta Information.

10.120.3.5 `std::istream& gdcM::File::Read (std::istream & is)`

Read.

10.120.3.6 `void gdcM::File::SetDataSet (const DataSet & ds)` `[inline]`

Set Data Set.

10.120.3.7 `void gdcM::File::SetHeader (const FileMetaInformation & fmi)` `[inline]`

Set [File](#) Meta Information.

10.120.3.8 `std::ostream const& gdcM::File::Write (std::ostream & os) const`

Write.

10.120.4 Friends And Related Function Documentation

10.120.4.1 `std::ostream& operator<< (std::ostream & os, const File & val)` `[friend]`

The documentation for this class was generated from the following file:

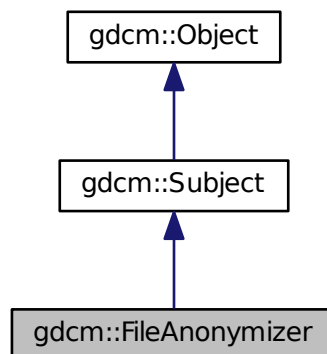
- [gdcMFile.h](#)

10.121 gdcM::FileAnonymizer Class Reference

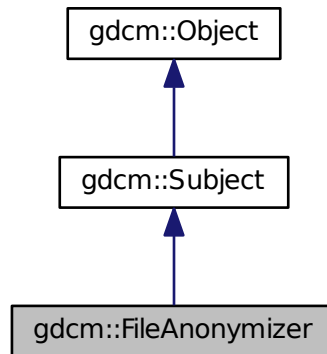
[FileAnonymizer](#).

```
#include <gdcMFileAnonymizer.h>
```

Inheritance diagram for gdcM::FileAnonymizer:



Collaboration diagram for gdcm::FileAnonymizer:



Public Member Functions

- [FileAnonymizer](#) ()
- [~FileAnonymizer](#) ()
- void [Empty](#) ([Tag](#) const &t)
- void [Remove](#) ([Tag](#) const &t)
remove a tag (even a SQ can be removed)
- void [Replace](#) ([Tag](#) const &t, const char *value_str)
- void [Replace](#) ([Tag](#) const &t, const char *value_data, [VL](#) const &vl)
- void [SetInputFileName](#) (const char *filename_native)
Set input filename.
- void [SetOutputFileName](#) (const char *filename_native)
Set output filename.
- bool [Write](#) ()
Write the output file.

Additional Inherited Members

10.121.1 Detailed Description

[FileAnonymizer](#).

This [Anonymizer](#) is a file-based [Anonymizer](#). It requires a valid DICOM file and will use the [Value](#) Length to skip over any information.

It will not load the DICOM dataset taken from [SetInputFileName\(\)](#) into memory and should consume much less memory than [Anonymizer](#).

Warning

: Each time you call [Replace\(\)](#) with a value. This value will be copied, and stored in memory. The behavior is not ideal for extremely large data (larger than memory size). This class is really meant to take a large DICOM input file and then only change some small attribute.

caveats:

- This class will NOT work with unordered attributes in a DICOM [File](#),
- This class does neither recompute nor update the Group Length element,
- This class currently does not update the [File](#) Meta Information header.
- Only strict inplace Replace operation is supported when input and output file are the same.

Examples:

[MakeTemplate.cxx](#).

10.121.2 Constructor & Destructor Documentation

10.121.2.1 `gdcm::FileAnonymizer::FileAnonymizer ()`

10.121.2.2 `gdcm::FileAnonymizer::~~FileAnonymizer ()`

10.121.3 Member Function Documentation

10.121.3.1 `void gdcm::FileAnonymizer::Empty (Tag const & t)`

Make [Tag](#) empty Warning: does not handle SQ element

Examples:

[MakeTemplate.cxx](#).

10.121.3.2 `void gdcm::FileAnonymizer::Remove (Tag const & t)`

remove a tag (even a SQ can be removed)

10.121.3.3 `void gdcm::FileAnonymizer::Replace (Tag const & t, const char * value_str)`

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII WARNING: Do not ever try to write a value in a SQ Data [Element](#) !

10.121.3.4 void gdcm::FileAnonymizer::Replace (Tag const & *t*, const char * *value_data*, VL const & *vl*)

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARy tag

10.121.3.5 void gdcm::FileAnonymizer::SetInputFileName (const char * *filename_native*)

Set input filename.

Examples:

[FileAnonymize.cs](#), and [MakeTemplate.cxx](#).

10.121.3.6 void gdcm::FileAnonymizer::SetOutputFileName (const char * *filename_native*)

Set output filename.

Examples:

[MakeTemplate.cxx](#).

10.121.3.7 bool gdcm::FileAnonymizer::Write ()

Write the output file.

Examples:

[MakeTemplate.cxx](#).

The documentation for this class was generated from the following file:

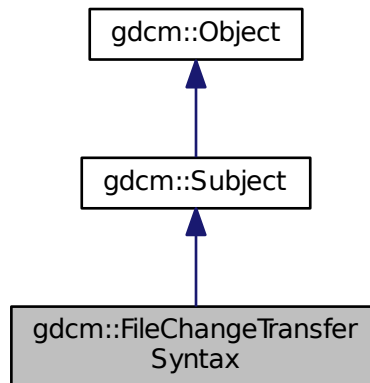
- [gdcmFileAnonymizer.h](#)

10.122 gdcm::FileChangeTransferSyntax Class Reference

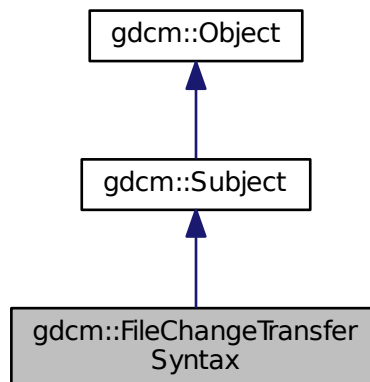
[FileChangeTransferSyntax](#).

```
#include <gdcmFileChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::FileChangeTransferSyntax:



Collaboration diagram for gdcm::FileChangeTransferSyntax:



Public Member Functions

- [FileChangeTransferSyntax](#) ()
- [~FileChangeTransferSyntax](#) ()
- bool [Change](#) ()
Change the transfer syntax.
- [ImageCodec](#) * [GetCodec](#) ()
- void [SetInputFileName](#) (const char *filename_native)
Set input filename (raw DICOM)
- void [SetOutputFileName](#) (const char *filename_native)
Set output filename (target compressed DICOM)
- void [SetTransferSyntax](#) ([TransferSyntax](#) const &ts)
Specify the Target Transfer Syntax.

Static Public Member Functions

- static [SmartPointer](#)< [FileChangeTransferSyntax](#) > [New](#) ()
for wrapped language: instantiate a reference counted object

Additional Inherited Members

10.122.1 Detailed Description

[FileChangeTransferSyntax](#).

This class is a file-based (limited) replacement of the in-memory [ImageChangeTransferSyntax](#).

This class provide a file-based compression-only mechanism. It will take in an uncompressed DICOM image file (Pixel Data element). Then produced as output a compressed DICOM file (Transfer Syntax will be updated).

Currently it supports the following transfer syntax:

- JPEGLosslessProcess14_1

10.122.2 Constructor & Destructor Documentation

10.122.2.1 `gdcm::FileChangeTransferSyntax::FileChangeTransferSyntax ()`

10.122.2.2 `gdcm::FileChangeTransferSyntax::~~FileChangeTransferSyntax ()`

10.122.3 Member Function Documentation

10.122.3.1 `bool gdcm::FileChangeTransferSyntax::Change ()`

Change the transfer syntax.

10.122.3.2 `ImageCodec*` `gdcm::FileChangeTransferSyntax::GetCodec ()`

Retrieve the actual codec (valid after calling `SetTransferSyntax`) Only advanced users should call this function.

10.122.3.3 `static SmartPointer<FileChangeTransferSyntax> gdcm::FileChangeTransferSyntax::New ()` `[inline]`, `[static]`

for wrapped language: instantiate a reference counted object

10.122.3.4 `void gdcm::FileChangeTransferSyntax::SetInputFileName (const char * filename_native)`

Set input filename (raw DICOM)

10.122.3.5 `void gdcm::FileChangeTransferSyntax::SetOutputFileName (const char * filename_native)`

Set output filename (target compressed DICOM)

10.122.3.6 `void gdcm::FileChangeTransferSyntax::SetTransferSyntax (TransferSyntax const & ts)`

Specify the Target Transfer Syntax.

The documentation for this class was generated from the following file:

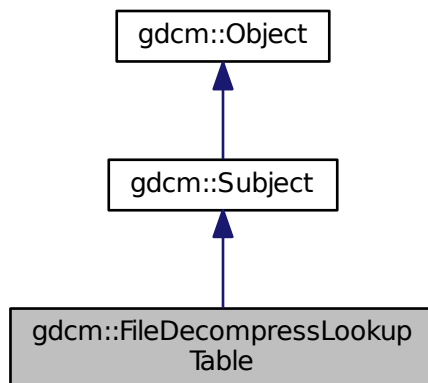
- [gdcmFileChangeTransferSyntax.h](#)

10.123 `gdcm::FileDecompressLookupTable` Class Reference

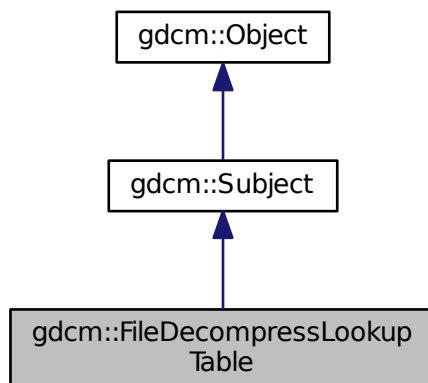
[FileDecompressLookupTable](#) class It decompress the segmented LUT into linearized one (only `PALETTE_COLOR` images) Output will be a [PhotometricInterpretation](#)=RGB image.

```
#include <gdcmFileDecompressLookupTable.h>
```

Inheritance diagram for gdcm::FileDecompressLookupTable:



Collaboration diagram for gdcm::FileDecompressLookupTable:



Public Member Functions

- [FileDecompressLookupTable](#) ()
- [~FileDecompressLookupTable](#) ()
- [bool Change](#) ()
Decompress.

- [File](#) & [GetFile](#) ()
- const [Pixmap](#) & [GetPixmap](#) () const
- [Pixmap](#) & [GetPixmap](#) ()
- void [SetFile](#) (const [File](#) &f)
 Set/Get [File](#).
- void [SetPixmap](#) ([Pixmap](#) const &img)

Additional Inherited Members

10.123.1 Detailed Description

[FileDecompressLookupTable](#) class It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a [PhotometricInterpretation](#)=RGB image.

10.123.2 Constructor & Destructor Documentation

10.123.2.1 `gdcm::FileDecompressLookupTable::FileDecompressLookupTable ()` `[inline]`

10.123.2.2 `gdcm::FileDecompressLookupTable::~~FileDecompressLookupTable ()` `[inline]`

10.123.3 Member Function Documentation

10.123.3.1 `bool gdcm::FileDecompressLookupTable::Change ()`

Decompress.

10.123.3.2 `File& gdcm::FileDecompressLookupTable::GetFile ()` `[inline]`

10.123.3.3 `const Pixmap& gdcm::FileDecompressLookupTable::GetPixmap () const` `[inline]`

10.123.3.4 `Pixmap& gdcm::FileDecompressLookupTable::GetPixmap ()` `[inline]`

10.123.3.5 `void gdcm::FileDecompressLookupTable::SetFile (const File & f)` `[inline]`

Set/Get [File](#).

10.123.3.6 `void gdcm::FileDecompressLookupTable::SetPixmap (Pixmap const & img)` `[inline]`

The documentation for this class was generated from the following file:

- [gdcmFileDecompressLookupTable.h](#)

10.124 gdcm::FileDerivation Class Reference

[FileDerivation](#) class See PS 3.16 - 2008 For the list of Code [Value](#) that can be used for in Derivation Code Sequence.

```
#include <gdcmFileDerivation.h>
```

Public Member Functions

- [FileDerivation](#) ()
- [~FileDerivation](#) ()
- bool [AddReference](#) (const char *referencedsopclassuid, const char *referencedsopinstanceuid)
- bool [Derive](#) ()
Change.
- [File](#) & [GetFile](#) ()
- const [File](#) & [GetFile](#) () const
- void [SetDerivationCodeSequenceCodeValue](#) (unsigned int codevalue)
Specify the Derivation Code Sequence Code [Value](#). Eg 113040.
- void [SetDerivationDescription](#) (const char *dd)
Specify the Derivation Description. Eg "lossy conversion".
- void [SetFile](#) (const [File](#) &f)
Set/Get [File](#).
- void [SetPurposeOfReferenceCodeSequenceCodeValue](#) (unsigned int codevalue)
Specify the Purpose Of Reference Code [Value](#). Eg. 121320.

Protected Member Functions

- bool [AddDerivationDescription](#) ()
- bool [AddPurposeOfReferenceCodeSequence](#) ([DataSet](#) &ds)
- bool [AddSourceImageSequence](#) ()

10.124.1 Detailed Description

[FileDerivation](#) class See PS 3.16 - 2008 For the list of Code [Value](#) that can be used for in Derivation Code Sequence.

URL: http://medical.nema.org/medical/dicom/2008/08_16pu.pdf

DICOM Part 16 has two Context Groups CID 7202 and CID 7203 which contain a set of codes defining reason for a source image reference (ie. reason code for referenced image sequence) and a coded description of the derivation applied to the new image data from the original. Both these context groups are extensible.

[File](#) Derivation is compulsory when creating a lossy derived image.

Examples:

[GenFakelImage.cxx](#).

10.124.2 Constructor & Destructor Documentation

10.124.2.1 `gdcm::FileDerivation::FileDerivation ()`

10.124.2.2 `gdcm::FileDerivation::~~FileDerivation ()`

10.124.3 Member Function Documentation

10.124.3.1 `bool gdcm::FileDerivation::AddDerivationDescription ()` `[protected]`

10.124.3.2 `bool gdcm::FileDerivation::AddPurposeOfReferenceCodeSequence (DataSet & ds)` `[protected]`

10.124.3.3 `bool gdcm::FileDerivation::AddReference (const char * referencedsopclassuid, const char * referencedsopinstanceuid)`

Create the proper reference. Need to pass the original SOP Class UID and the original SOP Instance UID, so that those value can be used as Reference.

Warning

`referencedsopclassuid` and `referencedsopinstanceuid` needs to be `\0` padded. This is not compatible with how `ByteValue->GetPointer` works.

Examples:

[GenFakelImage.cxx](#).

10.124.3.4 `bool gdcm::FileDerivation::AddSourceImageSequence ()` `[protected]`

10.124.3.5 `bool gdcm::FileDerivation::Derive ()`

Change.

Examples:

[GenFakelImage.cxx](#).

10.124.3.6 `File& gdcm::FileDerivation::GetFile ()` `[inline]`

Examples:

[GenFakelImage.cxx](#).

10.124.3.7 `const File& gdcm::FileDerivation::GetFile () const` `[inline]`

10.124.3.8 `void gdcm::FileDerivation::SetDerivationCodeSequenceCodeValue (unsigned int codevalue)`

Specify the Derivation Code Sequence Code [Value](#). Eg 113040.

Examples:

[GenFakelImage.cxx](#).

10.124.3.9 `void gdcm::FileDerivation::SetDerivationDescription (const char * dd)`

Specify the Derivation Description. Eg "lossy conversion".

10.124.3.10 `void gdcm::FileDerivation::SetFile (const File & f)` `[inline]`

Set/Get [File](#).

Examples:

[GenFakelImage.cxx](#).

10.124.3.11 `void gdcm::FileDerivation::SetPurposeOfReferenceCodeSequenceCodeValue (unsigned int codevalue)`

Specify the Purpose Of Reference Code [Value](#). Eg. 121320.

Examples:

[GenFakelImage.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmFileDerivation.h](#)

10.125 gdcm::FileExplicitFilter Class Reference

[FileExplicitFilter](#) class After changing a file from Implicit to Explicit representation (see [ImageChangeTransferSyntax](#)) one operation is to make sure the [VR](#) of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the [VR](#) is not stored directly in the file.

```
#include <gdcmFileExplicitFilter.h>
```

Public Member Functions

- [FileExplicitFilter](#) ()
- [~FileExplicitFilter](#) ()
- bool [Change](#) ()
Set FMI Transfer Syntax.
- [File](#) & [GetFile](#) ()
- void [SetChangePrivateTags](#) (bool b)
Decide whether or not to [VR](#)'ify private tags.
- void [SetFile](#) (const [File](#) &f)
Set/Get [File](#).
- void [SetRecomputeItemLength](#) (bool b)
By default set Sequence & [Item](#) length to Undefined to avoid recomputing length:
- void [SetRecomputeSequenceLength](#) (bool b)
- void [SetUseVRUN](#) (bool b)
When [VR](#)=16bits in explicit but Implicit has a 32bits length, use [VR](#)=UN.

Protected Member Functions

- bool [ChangeFMI](#) ()
- bool [ProcessDataSet](#) ([DataSet](#) &ds, [Dicts](#) const &dicts)

10.125.1 Detailed Description

[FileExplicitFilter](#) class After changing a file from Implicit to Explicit representation (see [ImageChangeTransferSyntax](#)) one operation is to make sure the [VR](#) of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the [VR](#) is not stored directly in the file.

Warning

changing an implicit dataset to an explicit dataset is NOT a trivial task of simply changing the [VR](#) to the dict one:

- One has to make sure SQ is properly set
- One has to recompute the explicit length SQ
- One has to make sure that [VR](#) is valid for the encoding
- One has to make sure that [VR](#) 16bits can store the original value length

Examples:

[GenAllVR.cxx](#), and [LargeVRDSExplicit.cxx](#).

10.125.2 Constructor & Destructor Documentation

10.125.2.1 `gdcm::FileExplicitFilter::FileExplicitFilter ()` `[inline]`

10.125.2.2 `gdcm::FileExplicitFilter::~~FileExplicitFilter ()` `[inline]`

10.125.3 Member Function Documentation

10.125.3.1 `bool gdcm::FileExplicitFilter::Change ()`

Set FMI Transfer Syntax.

Change

Examples:

[GenAIIVR.cxx](#), and [LargeVRDSExplicit.cxx](#).

10.125.3.2 `bool gdcm::FileExplicitFilter::ChangeFMI ()` `[protected]`

10.125.3.3 `File& gdcm::FileExplicitFilter::GetFile ()` `[inline]`

10.125.3.4 `bool gdcm::FileExplicitFilter::ProcessDataSet (DataSet & ds, Dicts const & dicts)` `[protected]`

10.125.3.5 `void gdcm::FileExplicitFilter::SetChangePrivateTags (bool b)` `[inline]`

Decide whether or not to [VR](#)ify private tags.

10.125.3.6 `void gdcm::FileExplicitFilter::SetFile (const File & f)` `[inline]`

Set/Get [File](#).

Examples:

[GenAIIVR.cxx](#), and [LargeVRDSExplicit.cxx](#).

10.125.3.7 `void gdcm::FileExplicitFilter::SetRecomputeItemLength (bool b)`

By default set Sequence & [Item](#) length to Undefined to avoid recomputing length:

10.125.3.8 void `gdcm::FileExplicitFilter::SetRecomputeSequenceLength (bool b)`

10.125.3.9 void `gdcm::FileExplicitFilter::SetUseVRUN (bool b)` `[inline]`

When `VR=16bits` in explicit but Implicit has a 32bits length, use `VR=UN`.

The documentation for this class was generated from the following file:

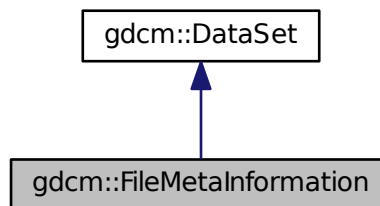
- [gdcmFileExplicitFilter.h](#)

10.126 `gdcm::FileMetaInformation` Class Reference

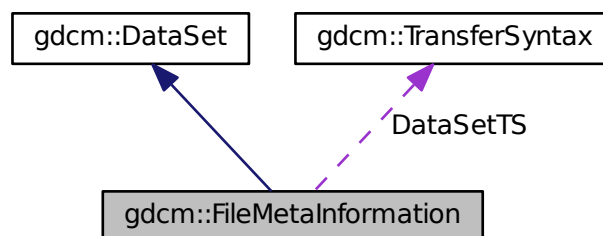
Class to represent a [File](#) Meta Information.

```
#include <gdcmFileMetaInformation.h>
```

Inheritance diagram for `gdcm::FileMetaInformation`:



Collaboration diagram for `gdcm::FileMetaInformation`:



Public Member Functions

- [FileMetaInformation](#) ()
- [FileMetaInformation](#) ([FileMetaInformation](#) const &fmi)
- [~FileMetaInformation](#) ()
- void [FillFromDataSet](#) ([DataSet](#) const &ds)
Construct a [FileMetaInformation](#) from an already existing [DataSet](#):
- const [TransferSyntax](#) & [GetDataSetTransferSyntax](#) () const
- [VL](#) [GetFullLength](#) () const
- [MediaStorage](#) [GetMediaStorage](#) () const
- std::string [GetMediaStorageAsString](#) () const
- [TransferSyntax::NegociatedType](#) [GetMetaInformationTS](#) () const
- const [Preamble](#) & [GetPreamble](#) () const
Get [Preamble](#).
- [Preamble](#) & [GetPreamble](#) ()
- void [Insert](#) (const [DataElement](#) &de)
- bool [IsValid](#) () const
- std::istream & [Read](#) (std::istream &is)
Read.
- std::istream & [ReadCompat](#) (std::istream &is)
- void [Replace](#) (const [DataElement](#) &de)
- void [SetDataSetTransferSyntax](#) (const [TransferSyntax](#) &ts)
- void [SetPreamble](#) (const [Preamble](#) &p)
- std::ostream & [Write](#) (std::ostream &os) const
Write.

Static Public Member Functions

- static void [AppendImplementationClassUID](#) (const char *imp)
- static const char * [GetImplementationClassUID](#) ()
- static const char * [GetImplementationVersionName](#) ()
- static const char * [GetSourceApplicationEntityTitle](#) ()
- static void [SetImplementationClassUID](#) (const char *imp)
Override the GDCM default values:
- static void [SetImplementationVersionName](#) (const char *version)
- static void [SetSourceApplicationEntityTitle](#) (const char *title)

Protected Member Functions

- void [ComputeDataSetMediaStorageSOPClass](#) ()
- void [ComputeDataSetTransferSyntax](#) ()
- void [Default](#) ()
- template<typename TSwap >
std::istream & [ReadCompatInternal](#) (std::istream &is)

Static Protected Member Functions

- static const char * [GetFileMetaInformationVersion](#) ()
- static const char * [GetGDCMImplementationClassUID](#) ()
- static const char * [GetGDCMImplementationVersionName](#) ()
- static const char * [GetGDCMSourceApplicationEntityTitle](#) ()

Protected Attributes

- [MediaStorage::MSType](#) DataSetMS
- [TransferSyntax](#) DataSetTS
- [TransferSyntax::NegociatedType](#) MetaInformationTS

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [FileMetaInformation](#) &_val)

Additional Inherited Members

10.126.1 Detailed Description

Class to represent a [File](#) Meta Information.

[FileMetaInformation](#) is a Explicit Structured Set. Whenever the file contains an [ImplicitDataElement](#) [DataSet](#), a conversion will take place.

Definition: The [File](#) Meta Information includes identifying information on the encapsulated Data Set. This header consists of a 128 byte [File Preamble](#), followed by a 4 byte DICOM prefix, followed by the [File](#) Meta Elements shown in [Table 7.1-1](#). This header shall be present in every DICOM file.

See also

[Writer Reader](#)

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), and [ReadAndDumpDICOMDIR.cxx](#).

10.126.2 Constructor & Destructor Documentation

10.126.2.1 `gdcm::FileMetaInformation::FileMetaInformation ()`

10.126.2.2 `gdcm::FileMetaInformation::~~FileMetaInformation ()`

10.126.2.3 `gdcm::FileMetaInformation::FileMetaInformation (FileMetaInformation const & fmi)` `[inline]`

References [DataSetMS](#), [DataSetTS](#), and [MetaInformationTS](#).

10.126.3 Member Function Documentation

10.126.3.1 static void gdcm::FileMetaInformation::AppendImplementationClassUID (const char * *imp*) [static]

10.126.3.2 void gdcm::FileMetaInformation::ComputeDataSetMediaStorageSOPClass () [protected]

10.126.3.3 void gdcm::FileMetaInformation::ComputeDataSetTransferSyntax () [protected]

10.126.3.4 void gdcm::FileMetaInformation::Default () [protected]

10.126.3.5 void gdcm::FileMetaInformation::FillFromDataSet (DataSet const & *ds*)

Construct a [FileMetaInformation](#) from an already existing [DataSet](#):

10.126.3.6 const TransferSyntax& gdcm::FileMetaInformation::GetDataSetTransferSyntax () const [inline]

Examples:

[GetJPEGSamplePrecision.cxx](#), and [MergeTwoFiles.cxx](#).

10.126.3.7 static const char* gdcm::FileMetaInformation::GetFileMetaInformationVersion () [static],[protected]

10.126.3.8 VL gdcm::FileMetaInformation::GetFullLength () const [inline]

References gdcm::VL::GetLength().

10.126.3.9 static const char* gdcm::FileMetaInformation::GetGDCMImplementationClassUID () [static],[protected]

10.126.3.10 static const char* gdcm::FileMetaInformation::GetGDCMImplementationVersionName () [static],[protected]

10.126.3.11 static const char* gdcm::FileMetaInformation::GetGDCMSourceApplicationEntityTitle () [static],[protected]

10.126.3.12 static const char* gdcm::FileMetaInformation::GetImplementationClassUID () [static]

10.126.3.13 static const char* gdcm::FileMetaInformation::GetImplementationVersionName () [static]

10.126.3.14 MediaStorage gdcm::FileMetaInformation::GetMediaStorage () const

10.126.3.15 std::string gdcm::FileMetaInformation::GetMediaStorageAsString () const

10.126.3.16 TransferSyntax::NegociatedType gdcm::FileMetaInformation::GetMetaInformationTS () const [inline]

10.126.3.17 const Preamble& gdcm::FileMetaInformation::GetPreamble () const [inline]

Get [Preamble](#).

Referenced by gdcm::operator<<().

10.126.3.18 **Preamble& gdcm::FileMetaInformation::GetPreamble ()** [inline]

10.126.3.19 **static const char* gdcm::FileMetaInformation::GetSourceApplicationEntityTitle ()** [static]

10.126.3.20 **void gdcm::FileMetaInformation::Insert (const DataElement & de)** [inline]

References gdcmErrorMacro, gdcm::Tag::GetGroup(), and gdcm::DataElement::GetTag().

10.126.3.21 **bool gdcm::FileMetaInformation::IsValid () const** [inline]

10.126.3.22 **std::istream& gdcm::FileMetaInformation::Read (std::istream & is)**

Read.

10.126.3.23 **std::istream& gdcm::FileMetaInformation::ReadCompat (std::istream & is)**

10.126.3.24 **template<typename TSwap > std::istream& gdcm::FileMetaInformation::ReadCompatInternal (std::istream & is)**
[protected]

10.126.3.25 **void gdcm::FileMetaInformation::Replace (const DataElement & de)** [inline]

Examples:

[LargeVRDSExplicit.cxx](#).

References gdcm::DataElement::GetTag().

10.126.3.26 **void gdcm::FileMetaInformation::SetDataSetTransferSyntax (const TransferSyntax & ts)**

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MpegVideoInfo.cs](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

10.126.3.27 **static void gdcm::FileMetaInformation::SetImplementationClassUID (const char * imp)** [static]

Override the GDCM default values:

10.126.3.28 `static void gdcm::FileMetaInformation::SetImplementationVersionName (const char * version) [static]`

10.126.3.29 `void gdcm::FileMetaInformation::SetPreamble (const Preamble & p) [inline]`

10.126.3.30 `static void gdcm::FileMetaInformation::SetSourceApplicationEntityTitle (const char * title) [static]`

Examples:

[ClinicalTrialIdentificationWorkflow.cs](#), [FixJAIBugJPEGLS.cxx](#), [GenerateDICOMDIR.cs](#), [ReformatFile.cs](#), and [StandardizeFiles.cs](#).

10.126.3.31 `std::ostream& gdcm::FileMetaInformation::Write (std::ostream & os) const`

Write.

10.126.4 Friends And Related Function Documentation

10.126.4.1 `std::ostream& operator<< (std::ostream & _os, const FileMetaInformation & _val) [friend]`

10.126.5 Member Data Documentation

10.126.5.1 `MediaStorage::MSType gdcm::FileMetaInformation::DataSetMS [protected]`

Referenced by FileMetaInformation().

10.126.5.2 `TransferSyntax gdcm::FileMetaInformation::DataSetTS [protected]`

Referenced by FileMetaInformation().

10.126.5.3 `TransferSyntax::NegociatedType gdcm::FileMetaInformation::MetaInformationTS [protected]`

Referenced by FileMetaInformation().

The documentation for this class was generated from the following file:

- [gdcmFileMetaInformation.h](#)

10.127 gdcm::Filename Class Reference

Class to manipulate file name's.

```
#include <gdcmFilename.h>
```

Public Member Functions

- [Filename](#) (const char *filename="")
- bool [EndWith](#) (const char ending[]) const
Does the filename ends with a particular string ?
- const char * [GetExtension](#) ()
return only the extension part of a filename
- const char * [GetFileName](#) () const
Return the full filename.
- const char * [GetName](#) ()
return only the name part of a filename
- const char * [GetPath](#) ()
Return only the path component of a filename.
- bool [IsEmpty](#) () const
return whether the filename is empty
- bool [IsIdentical](#) ([Filename](#) const &fn) const
- operator const char * () const
- const char * [ToUnixSlashes](#) ()
Convert backslash (windows style) to UNIX style slash.
- const char * [ToWindowsSlashes](#) ()
Convert forward slash (UNIX style) to windows style slash.

Static Public Member Functions

- static const char * [Join](#) (const char *path, const char *filename)

10.127.1 Detailed Description

Class to manipulate file name's.

Note

OS independant representation of a filename (to query path, name and extension from a filename)

10.127.2 Constructor & Destructor Documentation

10.127.2.1 `gdcn::Filename::Filename (const char * filename = " ")` `[inline]`

10.127.3 Member Function Documentation

10.127.3.1 `bool gdcn::Filename::EndWith (const char ending[])` const

Does the filename ends with a particular string ?

10.127.3.2 `const char* gdcm::Filename::GetExtension ()`

return only the extension part of a filename

10.127.3.3 `const char* gdcm::Filename::GetFileName () const [inline]`

Return the full filename.

10.127.3.4 `const char* gdcm::Filename::GetName ()`

return only the name part of a filename

10.127.3.5 `const char* gdcm::Filename::GetPath ()`

Return only the path component of a filename.

Examples:

[ClinicalTrialIdentificationWorkflow.cs](#).

10.127.3.6 `bool gdcm::Filename::IsEmpty () const [inline]`

return whether the filename is empty

10.127.3.7 `bool gdcm::Filename::IsIdentical (Filename const & fn) const`

10.127.3.8 `static const char* gdcm::Filename::Join (const char * path, const char * filename) [static]`

Join two paths NOT THREAD SAFE

Examples:

[BasicAnonymizer.cs](#), and [ClinicalTrialIdentificationWorkflow.cs](#).

10.127.3.9 `gdcm::Filename::operator const char * () const [inline]`

Simple operator to allow [Filename](#) myfilename("..."); const char * s = myfilename;

10.127.3.10 `const char* gdcm::Filename::ToUnixSlashes ()`

Convert backslash (windows style) to UNIX style slash.

10.127.3.11 `const char* gdcm::Filename::ToWindowsSlashes ()`

Convert forward slash (UNIX style) to windows style slash.

The documentation for this class was generated from the following file:

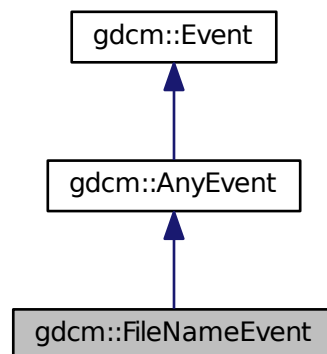
- [gdcmFilename.h](#)

10.128 gdcm::FileNameEvent Class Reference

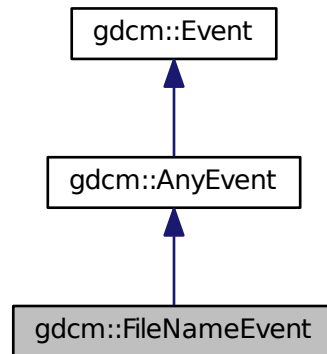
[FileNameEvent](#) Special type of event triggered during processing of [FileSet](#).

```
#include <gdcmFileNameEvent.h>
```

Inheritance diagram for `gdcm::FileNameEvent`:



Collaboration diagram for gdcm::FileNameEvent:



Public Types

- typedef [FileNameEvent](#) Self
- typedef [AnyEvent](#) Superclass

Public Member Functions

- [FileNameEvent](#) (const char *s="")
- [FileNameEvent](#) (const Self &s)
- virtual [~FileNameEvent](#) ()
- virtual bool [CheckEvent](#) (const ::gdcm::Event *e) const
- virtual const char * [GetEventName](#) () const
- const char * [GetFileName](#) () const
- virtual ::gdcm::Event * [MakeObject](#) () const
- void [SetFileName](#) (const char *f)

10.128.1 Detailed Description

[FileNameEvent](#) Special type of event triggered during processing of [FileSet](#).

See also

[AnyEvent](#)

Examples:

[SimpleScanner.cxx](#).

10.128.2 Member Typedef Documentation

10.128.2.1 `typedef FileNameEvent gdcm::FileNameEvent::Self`

10.128.2.2 `typedef AnyEvent gdcm::FileNameEvent::Superclass`

10.128.3 Constructor & Destructor Documentation

10.128.3.1 `gdcm::FileNameEvent::FileNameEvent (const char * s = " ") [inline]`

10.128.3.2 `virtual gdcm::FileNameEvent::~~FileNameEvent () [inline],[virtual]`

10.128.3.3 `gdcm::FileNameEvent::FileNameEvent (const Self & s) [inline]`

10.128.4 Member Function Documentation

10.128.4.1 `virtual bool gdcm::FileNameEvent::CheckEvent (const ::gdcm::Event * e) const [inline],[virtual]`

10.128.4.2 `virtual const char* gdcm::FileNameEvent::GetEventName () const [inline],[virtual]`

Return the StringName associated with the event.

Implements [gdcm::Event](#).

10.128.4.3 `const char* gdcm::FileNameEvent::GetFileName () const [inline]`

Examples:

[SimpleScanner.cxx](#).

10.128.4.4 `virtual ::gdcm::Event* gdcm::FileNameEvent::MakeObject () const [inline],[virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implements [gdcm::Event](#).

10.128.4.5 `void gdcm::FileNameEvent::SetFileName (const char * f) [inline]`

The documentation for this class was generated from the following file:

- [gdcmFileNameEvent.h](#)

10.129 gdcm::FilenameGenerator Class Reference

[FilenameGenerator](#).

```
#include <gdcmFilenameGenerator.h>
```

Public Types

- typedef std::vector< [FilenameType](#) > [FileNamesType](#)
- typedef std::string [FilenameType](#)
- typedef [FileNamesType](#)::size_type [SizeType](#)

Public Member Functions

- [FilenameGenerator](#) ()
- [~FilenameGenerator](#) ()
- bool [Generate](#) ()
Generate (return success)
- const char * [GetFilename](#) ([SizeType](#) n) const
Get a particular filename (call after Generate)
- [FileNamesType](#) const & [GetFileNames](#) () const
Return all filenames.
- [SizeType](#) [GetNumberOfFileNames](#) () const
- const char * [GetPattern](#) () const
- const char * [GetPrefix](#) () const
- void [SetNumberOfFileNames](#) ([SizeType](#) nfiles)
Set/Get the number of filenames to generate.
- void [SetPattern](#) (const char *pattern)
Set/Get pattern.
- void [SetPrefix](#) (const char *prefix)
Set/Get prefix.

10.129.1 Detailed Description

[FilenameGenerator](#).

class to generate filenames based on a pattern (C-style)

Output will be:

for i = 0, number of filenames: outfilename[i] = prefix + (pattern % i)

where pattern % i means C-style sprintf of Pattern using value 'i'

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.2 Member Typedef Documentation

10.129.2.1 `typedef std::vector<FilenameType> gdcm::FilenameGenerator::FileNamesType`

10.129.2.2 `typedef std::string gdcm::FilenameGenerator::FilenameType`

10.129.2.3 `typedef FileNamesType::size_type gdcm::FilenameGenerator::SizeType`

10.129.3 Constructor & Destructor Documentation

10.129.3.1 `gdcm::FilenameGenerator::FilenameGenerator ()` `[inline]`

10.129.3.2 `gdcm::FilenameGenerator::~~FilenameGenerator ()` `[inline]`

10.129.4 Member Function Documentation

10.129.4.1 `bool gdcm::FilenameGenerator::Generate ()`

Generate (return success)

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.4.2 `const char* gdcm::FilenameGenerator::GetFilename (SizeType n) const`

Get a particular filename (call after Generate)

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.4.3 `FileNamesType const& gdcm::FilenameGenerator::GetFileNames () const` `[inline]`

Return all filenames.

10.129.4.4 `SizeType gdcm::FilenameGenerator::GetNumberOfFileNames () const`

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.4.5 `const char* gdcm::FilenameGenerator::GetPattern () const` `[inline]`

10.129.4.6 `const char* gdcm::FilenameGenerator::GetPrefix () const` `[inline]`

10.129.4.7 `void gdcm::FilenameGenerator::SetNumberOfFileNames (SizeType nfiles)`

Set/Get the number of filenames to generate.

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.4.8 `void gdcm::FilenameGenerator::SetPattern (const char * pattern)` `[inline]`

Set/Get pattern.

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.129.4.9 `void gdcm::FilenameGenerator::SetPrefix (const char * prefix)` `[inline]`

Set/Get prefix.

The documentation for this class was generated from the following file:

- [gdcmFilenameGenerator.h](#)

10.130 gdcm::FileSet Class Reference

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which [File](#) IDs are unique.

```
#include <gdcmFileSet.h>
```

Public Types

- `typedef std::vector< FileType > FilesType`
- `typedef std::string FileType`

Public Member Functions

- [FileSet](#) ()
- void [AddFile](#) ([File](#) const &)
- bool [AddFile](#) (const char *filename)
- [FileType](#) const & [GetFiles](#) () const
- void [SetFiles](#) ([FileType](#) const &files)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [FileSet](#) &d)

10.130.1 Detailed Description

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which [File](#) IDs are unique.

10.130.2 Member Typedef Documentation

10.130.2.1 `typedef std::vector<FileType> gdcm::FileSet::FileType`

10.130.2.2 `typedef std::string gdcm::FileSet::FileType`

10.130.3 Constructor & Destructor Documentation

10.130.3.1 `gdcm::FileSet::FileSet () [inline]`

10.130.4 Member Function Documentation

10.130.4.1 `void gdcm::FileSet::AddFile (File const &) [inline]`

Deprecated . Does nothing

10.130.4.2 `bool gdcm::FileSet::AddFile (const char * filename)`

Add a file 'filename' to the list of files. Return true on success, false in case filename could not be found on system.

10.130.4.3 **FileType** const& gdcm::FileSet::GetFiles () const [inline]

10.130.4.4 void gdcm::FileSet::SetFiles (**FileType** const & *files*)

10.130.5 Friends And Related Function Documentation

10.130.5.1 std::ostream& operator<< (std::ostream & *_os*, const **FileSet** & *d*) [friend]

The documentation for this class was generated from the following file:

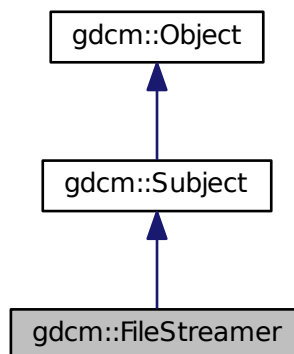
- [gdcmFileSet.h](#)

10.131 gdcm::FileStreamer Class Reference

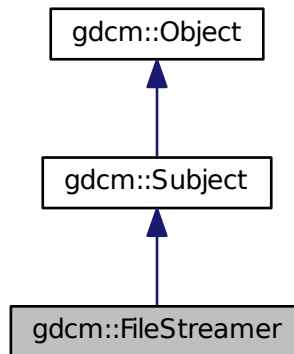
FileStreamer This class let a user create a massive DICOM **DataSet** from a template DICOM file, by appending chunks of data.

```
#include <gdcmFileStreamer.h>
```

Inheritance diagram for gdcm::FileStreamer:



Collaboration diagram for `gdcm::FileStreamer`:



Public Member Functions

- [FileStreamer](#) ()
- [~FileStreamer](#) ()
- bool [AppendToDataElement](#) (const [Tag](#) &t, const char *array, size_t len)
Append to previously started [Tag](#) t.
- bool [AppendToGroupDataElement](#) (const [PrivateTag](#) &pt, const char *array, size_t len)
Append to previously started private creator.
- bool [CheckDataElement](#) (const [Tag](#) &t)
- void [CheckTemplateFileName](#) (bool check)
- bool [ReserveDataElement](#) (size_t len)
- bool [ReserveGroupDataElement](#) (unsigned short ndataelement)
- void [SetOutputFileName](#) (const char *filename_native)
Set output filename (target file)
- void [SetTemplateFileName](#) (const char *filename_native)
Set input DICOM template filename.
- bool [StartDataElement](#) (const [Tag](#) &t)
- bool [StartGroupDataElement](#) (const [PrivateTag](#) &pt, size_t maxsize=0, uint8_t startoffset=0)
- bool [StopDataElement](#) (const [Tag](#) &t)
Stop appending to tag t. This will compute the proper attribute length.
- bool [StopGroupDataElement](#) (const [PrivateTag](#) &pt)
Stop appending to private creator.

Static Public Member Functions

- static [SmartPointer](#)< [FileStreamer](#) > [New](#) ()
for wrapped language: instantiate a reference counted object

Additional Inherited Members

10.131.1 Detailed Description

[FileStreamer](#) This class let a user create a massive DICOM [DataSet](#) from a template DICOM file, by appending chunks of data.

This class support two mode of operation:

1. Creating a single [DataElement](#) by appending chunk after chunk of data.
2. Creating a set of [DataElement](#) within the same group, using a private creator for start. New [DataElement](#) are added any time the user defined maximum size for data element is reached.

Warning

any existing [DataElement](#) is removed, pick carefully which [DataElement](#) to add.

10.131.2 Constructor & Destructor Documentation

10.131.2.1 `gdcm::FileStreamer::FileStreamer ()`

10.131.2.2 `gdcm::FileStreamer::~~FileStreamer ()`

10.131.3 Member Function Documentation

10.131.3.1 `bool gdcm::FileStreamer::AppendToDataElement (const Tag & t, const char * array, size_t len)`

Append to previously started [Tag](#) t.

10.131.3.2 `bool gdcm::FileStreamer::AppendToGroupDataElement (const PrivateTag & pt, const char * array, size_t len)`

Append to previously started private creator.

10.131.3.3 `bool gdcm::FileStreamer::CheckDataElement (const Tag & t)`

Decide to check the Data [Element](#) to be written (default: off) The implementation has default strategy for checking validity of [DataElement](#). Currently it only support checking for the following tags:

- (7fe0,0010) Pixel Data

10.131.3.4 `void gdcM::FileStreamer::CheckTemplateFileName (bool check)`

Instead of simply blindly copying the input DICOM Template file, GDCM will be used to check the input file, and correct any issues recognized within the file. Only use if you do not have control over the input template file.

10.131.3.5 `static SmartPointer<FileStreamer> gdcM::FileStreamer::New () [inline],[static]`

for wrapped language: instantiate a reference counted object

10.131.3.6 `bool gdcM::FileStreamer::ReserveDataElement (size_t len)`

Add a hint on the final size of the dataelement. When optimally chosen, this reduce the number of file in-place copying. Should be called before StartDataElement

10.131.3.7 `bool gdcM::FileStreamer::ReserveGroupDataElement (unsigned short ndataelement)`

Optimisation: pre-allocate the number of dataelement within the private group (*ndataelement* <= 256). Should be called before StartGroupDataElement

10.131.3.8 `void gdcM::FileStreamer::SetOutputFileName (const char * filename_native)`

Set output filename (target file)

10.131.3.9 `void gdcM::FileStreamer::SetTemplateFileName (const char * filename_native)`

Set input DICOM template filename.

Examples:

[FileStreaming.cs](#).

10.131.3.10 `bool gdcM::FileStreamer::StartDataElement (const Tag & t)`

Start Single Data [Element](#) Operation This will delete any existing [Tag](#) t. Need to call it only once.

10.131.3.11 `bool gdcM::FileStreamer::StartGroupDataElement (const PrivateTag & pt, size_t maxsize = 0, uint8_t startoffset = 0)`

Start Private Group (multiple [DataElement](#)) Operation. Each newly added [DataElement](#) will have a length lower than

Parameters

<i>maxsize</i>	. When not specified, maxsize is set to maximum size allowed by DICOM ($= 2^{32}$). startoffset can be used to specify the very first element you want to start with (instead of the first possible). Value should be in [0x0, 0xff] This will find the first available private creator.
----------------	--

10.131.3.12 `bool gdcm::FileStreamer::StopDataElement (const Tag & t)`

Stop appending to tag t. This will compute the proper attribute length.

10.131.3.13 `bool gdcm::FileStreamer::StopGroupDataElement (const PrivateTag & pt)`

Stop appending to private creator.

The documentation for this class was generated from the following file:

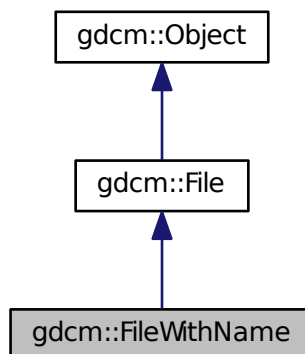
- [gdcmFileStreamer.h](#)

10.132 gdcm::FileWithName Class Reference

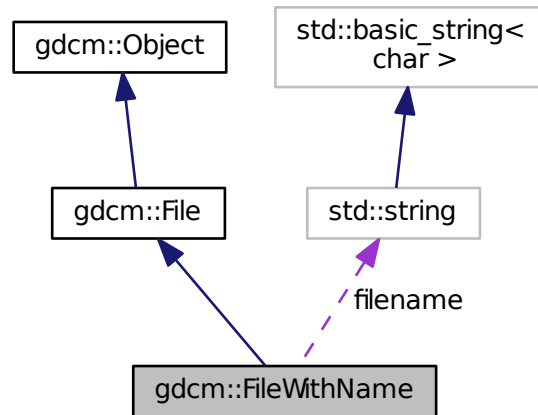
[FileWithName](#).

```
#include <gdcmSerieHelper.h>
```

Inheritance diagram for gdcm::FileWithName:



Collaboration diagram for `gdcm::FileWithName`:



Public Member Functions

- [FileWithName](#) ([File](#) &[f](#))

Public Attributes

- `std::string` [filename](#)

Additional Inherited Members

10.132.1 Detailed Description

[FileWithName](#).

Backward only class do not use in newer code

10.132.2 Constructor & Destructor Documentation

10.132.2.1 `gdcm::FileWithName::FileWithName (File & f)` `[inline]`

10.132.3 Member Data Documentation

10.132.3.1 `std::string` `gdcm::FileWithName::filename`

The documentation for this class was generated from the following file:

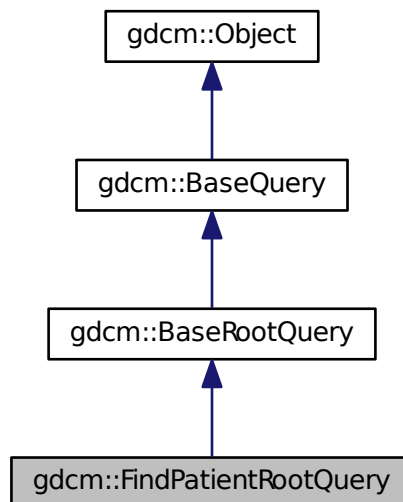
- [gdcmSerieHelper.h](#)

10.133 gdcm::FindPatientRootQuery Class Reference

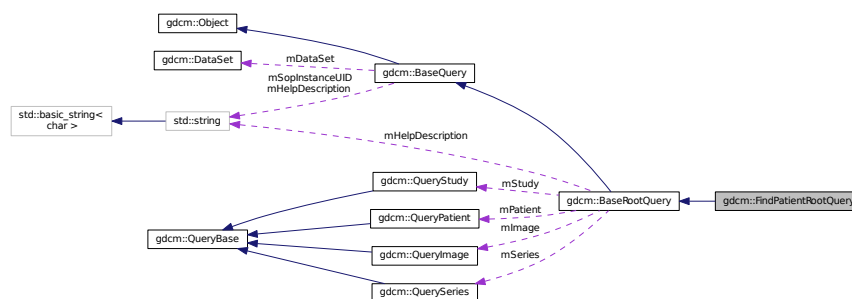
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.

```
#include <gdcmFindPatientRootQuery.h>
```

Inheritance diagram for gdcm::FindPatientRootQuery:



Collaboration diagram for gdcm::FindPatientRootQuery:



Public Member Functions

- [FindPatientRootQuery](#) ()
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- `std::vector< Tag > GetTagListByLevel` (const [EQueryLevel](#) &inQueryLevel)
- void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.133.1 Detailed Description

PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.

10.133.2 Constructor & Destructor Documentation

10.133.2.1 `gdcm::FindPatientRootQuery::FindPatientRootQuery ()`

10.133.3 Member Function Documentation

10.133.3.1 `UIDs::TSName gdcm::FindPatientRootQuery::GetAbstractSyntaxUID () const` `[virtual]`

Implements [gdcm::BaseQuery](#).

10.133.3.2 `std::vector<Tag> gdcm::FindPatientRootQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)`
`[virtual]`

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements [gdcm::BaseRootQuery](#).

10.133.3.3 `void gdcm::FindPatientRootQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` `[virtual]`

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcm4che

Implements [gdcm::BaseRootQuery](#).

10.133.3.4 `bool gdcm::FindPatientRootQuery::ValidateQuery (bool inStrict = true) const` `[virtual]`

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements [gdcm::BaseRootQuery](#).

10.133.4 Friends And Related Function Documentation

10.133.4.1 friend class QueryFactory [friend]

The documentation for this class was generated from the following file:

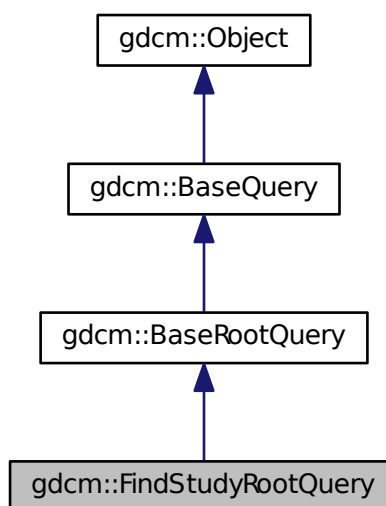
- [gdcmFindPatientRootQuery.h](#)

10.134 gdcm::FindStudyRootQuery Class Reference

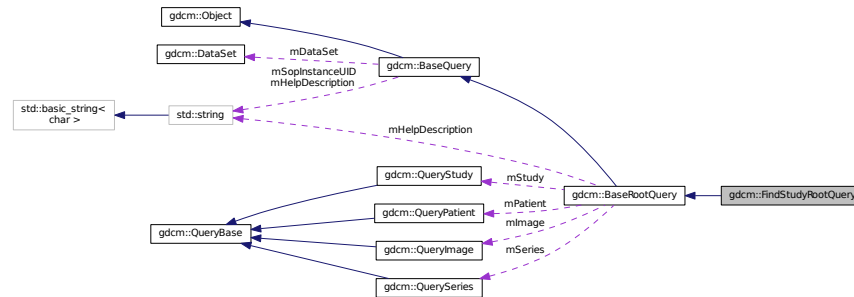
[FindStudyRootQuery](#) contains: the class which will produce a dataset for C-FIND with study root.

```
#include <gdcmFindStudyRootQuery.h>
```

Inheritance diagram for gdcm::FindStudyRootQuery:



Collaboration diagram for `gdcm::FindStudyRootQuery`:



Public Member Functions

- [FindStudyRootQuery](#) ()
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- [std::vector< Tag > GetTagListByLevel](#) (const [EQueryLevel](#) &inQueryLevel)
- void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.134.1 Detailed Description

[FindStudyRootQuery](#) contains: the class which will produce a dataset for C-FIND with study root.

10.134.2 Constructor & Destructor Documentation

10.134.2.1 `gdcm::FindStudyRootQuery::FindStudyRootQuery ()`

10.134.3 Member Function Documentation

10.134.3.1 `UIDs::TSName gdcm::FindStudyRootQuery::GetAbstractSyntaxUID () const` [virtual]

Implements [gdcm::BaseQuery](#).

10.134.3.2 `std::vector<Tag> gdcmm::FindStudyRootQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)`
[virtual]

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements [gdcmm::BaseRootQuery](#).

10.134.3.3 `void gdcmm::FindStudyRootQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` [virtual]

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmTk

Implements [gdcmm::BaseRootQuery](#).

10.134.3.4 `bool gdcmm::FindStudyRootQuery::ValidateQuery (bool inStrict = true) const` [virtual]

have to be able to ensure that (0008,0052) is set that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional)

Implements [gdcmm::BaseRootQuery](#).

10.134.4 Friends And Related Function Documentation

10.134.4.1 `friend class QueryFactory` [friend]

The documentation for this class was generated from the following file:

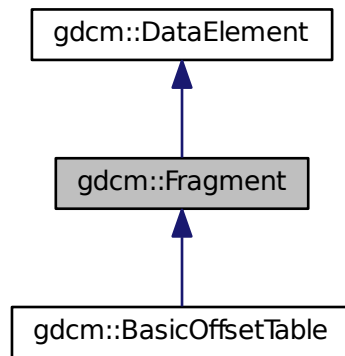
- [gdcmmFindStudyRootQuery.h](#)

10.135 gdcmm::Fragment Class Reference

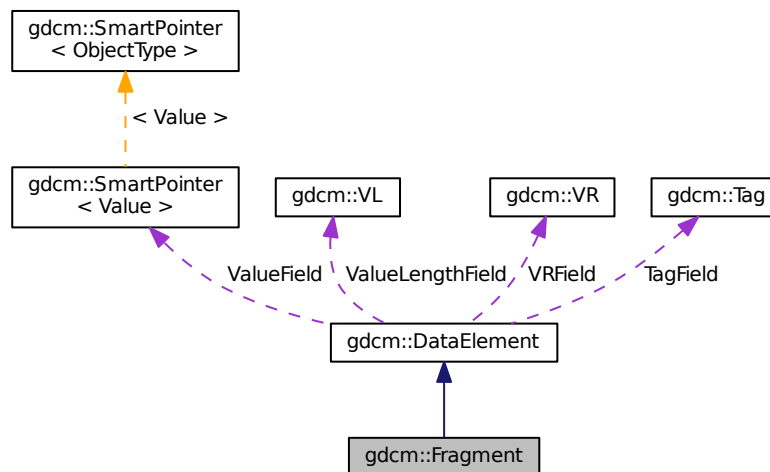
Class to represent a [Fragment](#).

```
#include <gdcmmFragment.h>
```

Inheritance diagram for `gdcm::Fragment`:



Collaboration diagram for `gdcm::Fragment`:



Public Member Functions

- [Fragment](#) ()
- [VL ComputeLength](#) () const
- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)

- `template<typename TSwap >`
`std::istream & ReadBacktrack (std::istream &is)`
- `template<typename TSwap >`
`std::istream & ReadPreValue (std::istream &is)`
- `template<typename TSwap >`
`std::istream & ReadValue (std::istream &is)`
- `template<typename TSwap >`
`std::ostream & Write (std::ostream &os) const`

Friends

- `std::ostream & operator<< (std::ostream &os, const Fragment &val)`

Additional Inherited Members

10.135.1 Detailed Description

Class to represent a [Fragment](#).

Examples:

[FixBrokenJ2K.cxx](#), and [FixJAIBugJPEGLS.cxx](#).

10.135.2 Constructor & Destructor Documentation

10.135.2.1 `gdcm::Fragment::Fragment ()` [`inline`]

References `gdcm::operator<<()`.

10.135.3 Member Function Documentation

10.135.3.1 `VL gdcm::Fragment::ComputeLength ()` `const`

10.135.3.2 `VL gdcm::Fragment::GetLength ()` `const`

10.135.3.3 `template<typename TSwap > std::istream& gdcm::Fragment::Read (std::istream & is)` [`inline`]

Referenced by `gdcm::SequenceOfFragments::ReadValue()`.

10.135.3.4 `template<typename TSwap > std::istream& gdcm::Fragment::ReadBacktrack (std::istream & is)` [`inline`]

References `gdcmErrorMacro`, `gdcmWarningMacro`, and `gdcm::ParseException::SetLastElement()`.

Referenced by `gdcm::SequenceOfFragments::ReadValue()`.

10.135.3.5 `template<typename TSwap > std::istream& gdcm::Fragment::ReadPreValue (std::istream & is) [inline]`

10.135.3.6 `template<typename TSwap > std::istream& gdcm::Fragment::ReadValue (std::istream & is) [inline]`

References `gdcmWarningMacro`, and `gdcm::ParseException::SetLastElement()`.

10.135.3.7 `template<typename TSwap > std::ostream& gdcm::Fragment::Write (std::ostream & os) const [inline]`

References `gdcm::ByteValue::ComputeLength()`, `gdcm::ByteValue::GetLength()`, `gdcm::VL::Write()`, and `gdcm::ByteValue::Write()`.

10.135.4 Friends And Related Function Documentation

10.135.4.1 `std::ostream& operator<< (std::ostream & os, const Fragment & val) [friend]`

The documentation for this class was generated from the following file:

- [gdcmFragment.h](#)

10.136 gdcm::Global Class Reference

[Global](#).

```
#include <gdcmGlobal.h>
```

Public Member Functions

- [Global](#) ()
- [~Global](#) ()
- bool [Append](#) (const char *path)
- [Defs](#) const & [GetDefs](#) () const
- [Dicts](#) const & [GetDicts](#) () const
- [Dicts](#) & [GetDicts](#) ()
- bool [LoadResourcesFiles](#) ()
- bool [Prepend](#) (const char *path)

Static Public Member Functions

- static [Global](#) & [GetInstance](#) ()
return the singleton instance

Protected Member Functions

- `const char * Locate (const char *resfile) const`
Locate a resource file.

Friends

- `std::ostream & operator<< (std::ostream &_os, const Global &g)`

10.136.1 Detailed Description

[Global](#).

Note

[Global](#) should be included in any translation unit that will use [Dict](#) or that implements the singleton pattern. It makes sure that the [Dict](#) singleton is created before and destroyed after all other singletons in GDCM.

Examples:

[GenAllVR.cxx](#), [GenerateStandardSOPClasses.cxx](#), [GenFakeIdentifyFile.cxx](#), [PublicDict.cxx](#), [ReadAndPrintAttributes.cxx](#), and [TraverseModules.cxx](#).

10.136.2 Constructor & Destructor Documentation

10.136.2.1 `gdcm::Global::Global ()`

10.136.2.2 `gdcm::Global::~~Global ()`

10.136.3 Member Function Documentation

10.136.3.1 `bool gdcm::Global::Append (const char * path)`

Append path at the end of the path list

Warning

not thread safe !

10.136.3.2 `Defs const& gdcm::Global::GetDefs () const`

retrieve the default/internal (Part 3) You need to explicitly call LoadResourcesFiles before

Examples:

[GenerateStandardSOPClasses.cxx](#), and [TraverseModules.cxx](#).

10.136.3.3 Dicts const& gdcm::Global::GetDicts () const

retrieve the default/internal dicts (Part 6) This dict is filled up at load time

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [MrProtocol.cxx](#), [PublicDict.cxx](#), [ReadAndPrintAttributes.cxx](#), and [TraverseModules.cxx](#).

10.136.3.4 Dicts& gdcm::Global::GetDicts ()

10.136.3.5 static Global& gdcm::Global::GetInstance () [static]

return the singleton instance

Examples:

[BasicAnonymizer.cs](#), [ClinicalTrialIdentificationWorkflow.cs](#), [GenAllVR.cxx](#), [GenerateStandardSOPClasses.cxx](#), [GenFakeIdentifyFile.cxx](#), [MrProtocol.cxx](#), [PublicDict.cxx](#), [ReadAndPrintAttributes.cxx](#), and [TraverseModules.cxx](#).

10.136.3.6 bool gdcm::Global::LoadResourcesFiles ()

Load all internal XML files, resource path need to have been set before calling this member function (see [Append/↔](#) Prepend members func)

Warning

not thread safe !

Examples:

[GenerateStandardSOPClasses.cxx](#), and [TraverseModules.cxx](#).

10.136.3.7 const char* gdcm::Global::Locate (const char * *resfile*) const [protected]

Locate a resource file.

10.136.3.8 bool gdcm::Global::Prepend (const char * *path*)

Prepend path at the beginning of the path list

Warning

not thread safe !

10.136.4 Friends And Related Function Documentation

10.136.4.1 `std::ostream& operator<< (std::ostream &_os, const Global &g)` [[friend](#)]

The documentation for this class was generated from the following file:

- [gdcmGlobal.h](#)

10.137 gdcm::GroupDict Class Reference

Class to represent the mapping from group number to its abbreviation and name.

```
#include <gdcmGroupDict.h>
```

Public Types

- typedef `std::vector< std::string >` [GroupStringVector](#)

Public Member Functions

- [GroupDict](#) ()
- [~GroupDict](#) ()
- `std::string const &` [GetAbbreviation](#) (uint16_t num) const
- `std::string const &` [GetName](#) (uint16_t num) const
- `size_t` [Size](#) () const

Protected Member Functions

- void [Add](#) (std::string const &abbreviation, std::string const &name)
- void [Insert](#) (uint16_t num, std::string const &abbreviation, std::string const &name)

Friends

- `std::ostream &` [operator<<](#) (std::ostream &_os, const [GroupDict](#) &_val)

10.137.1 Detailed Description

Class to represent the mapping from group number to its abbreviation and name.

Note

Should I rewrite this class to use a `std::map` instead of `std::vector` for problem of memory consumption ?

10.137.2 Member Typedef Documentation

10.137.2.1 `typedef std::vector<std::string> gdcm::GroupDict::GroupStringVector`

10.137.3 Constructor & Destructor Documentation

10.137.3.1 `gdcm::GroupDict::GroupDict ()` `[inline]`

10.137.3.2 `gdcm::GroupDict::~~GroupDict ()` `[inline]`

References `gdcm::operator<<()`.

10.137.4 Member Function Documentation

10.137.4.1 `void gdcm::GroupDict::Add (std::string const & abbreviation, std::string const & name)` `[protected]`

10.137.4.2 `std::string const& gdcm::GroupDict::GetAbbreviation (uint16_t num) const`

Referenced by `gdcm::operator<<()`.

10.137.4.3 `std::string const& gdcm::GroupDict::GetName (uint16_t num) const`

Referenced by `gdcm::operator<<()`.

10.137.4.4 `void gdcm::GroupDict::Insert (uint16_t num, std::string const & abbreviation, std::string const & name)`
`[protected]`

10.137.4.5 `size_t gdcm::GroupDict::Size () const` `[inline]`

Referenced by `gdcm::operator<<()`.

10.137.5 Friends And Related Function Documentation

10.137.5.1 `std::ostream& operator<< (std::ostream & _os, const GroupDict & _val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmGroupDict.h](#)

10.138 gdcm::IconImageFilter Class Reference

[IconImageFilter](#) This filter will extract icons from a [File](#) This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12.

```
#include <gdcmIconImageFilter.h>
```

Public Member Functions

- [IconImageFilter](#) ()
- [~IconImageFilter](#) ()
- bool [Extract](#) ()
 - Extract all Icon found in [File](#).*
- [File](#) & [GetFile](#) ()
- const [File](#) & [GetFile](#) () const
- [IconImage](#) & [GetIconImage](#) (unsigned int i) const
- unsigned int [GetNumberOfIconImages](#) () const
 - Retrieve extract IconImage (need to call Extract first)*
- void [SetFile](#) (const [File](#) &f)
 - Set/Get [File](#).*

Protected Member Functions

- void [ExtractIconImages](#) ()
- void [ExtractVeprolIconImages](#) ()

10.138.1 Detailed Description

[IconImageFilter](#) This filter will extract icons from a [File](#) This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12.

Implementation details: This filter supports the following Icons:

- (0088,0200) Icon [Image](#) Sequence
- (0009,10,GEIIS) GE IIS Thumbnail Sequence
- (6003,10,GEMS_Ultrasound_ImageGroup_001) GEMS [Image](#) Thumbnail Sequence
- (0055,30,VEPRO VIF 3.0 DATA) Icon Data
- (0055,30,VEPRO VIM 5.0 DATA) ICONDATA2

Warning

the icon stored in those private attribute do not conform to definition of Icon [Image](#) Sequence (do not simply copy/paste). For example some private icon can be expressed as 12bits pixel, while the DICOM standard only allow 8bits icons.

See also

[ImageReader](#)

Examples:

[ExtractIconFromFile.cxx](#).

10.138.2 Constructor & Destructor Documentation

10.138.2.1 `gdcm::IconImageFilter::IconImageFilter ()`

10.138.2.2 `gdcm::IconImageFilter::~~IconImageFilter ()`

10.138.3 Member Function Documentation

10.138.3.1 `bool gdcm::IconImageFilter::Extract ()`

Extract all Icon found in [File](#).

Examples:

[ExtractIconFromFile.cxx](#).

10.138.3.2 `void gdcm::IconImageFilter::ExtractIconImages ()` [protected]

10.138.3.3 `void gdcm::IconImageFilter::ExtractVeprolconImages ()` [protected]

10.138.3.4 `File& gdcm::IconImageFilter::GetFile ()` [inline]

10.138.3.5 `const File& gdcm::IconImageFilter::GetFile () const` [inline]

10.138.3.6 `IconImage& gdcm::IconImageFilter::GetIconImage (unsigned int i) const`

Examples:

[ExtractIconFromFile.cxx](#).

10.138.3.7 unsigned int gdcm::IconImageFilter::GetNumberOfIconImages () const

Retrieve extract IconImage (need to call Extract first)

Examples:

[ExtractIconFromFile.cxx](#).

10.138.3.8 void gdcm::IconImageFilter::SetFile (const File & f) [inline]

Set/Get [File](#).

Examples:

[ExtractIconFromFile.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmIconImageFilter.h](#)

10.139 gdcm::IconImageGenerator Class Reference

[IconImageGenerator](#) This filter will generate a valid Icon from the Pixel Data element (an instance of [Pixmap](#)). To generate a valid Icon, one is only allowed the following Photometric Interpretation:

```
#include <gdcmIconImageGenerator.h>
```

Public Member Functions

- [IconImageGenerator](#) ()
- [~IconImageGenerator](#) ()
- void [AutoPixelMinMax](#) (bool b)
- void [ConvertRGBToPaletteColor](#) (bool b)
- bool [Generate](#) ()
Generate Icon.
- const [IconImage](#) & [GetIconImage](#) () const
Retrieve generated Icon.
- [Pixmap](#) & [GetPixmap](#) ()
- const [Pixmap](#) & [GetPixmap](#) () const
- void [SetOutputDimensions](#) (const unsigned int dims[2])
Set Target dimension of output Icon.
- void [SetOutsideValuePixel](#) (double v)
- void [SetPixelMinMax](#) (double min, double max)
- void [SetPixmap](#) (const [Pixmap](#) &p)
Set/Get File.

10.139.1 Detailed Description

[IconImageGenerator](#) This filter will generate a valid Icon from the Pixel Data element (an instance of [Pixmap](#)). To generate a valid Icon, one is only allowed the following Photometric Interpretation:

- MONOCHROME1
- MONOCHROME2
- PALETTE_COLOR

The Pixel Bits Allocated is restricted to 8bits, therefore 16 bits image needs to be rescaled. By default the filter will use the full scalar range of 16bits image to rescale to unsigned 8bits. This may not be ideal for some situation, in which case the API SetPixelMinMax can be used to overwrite the default min,max interval used.

See also

[ImageReader](#)

Examples:

[ExtractIconFromFile.cxx](#).

10.139.2 Constructor & Destructor Documentation

10.139.2.1 `gdcm::IconImageGenerator::IconImageGenerator ()`

10.139.2.2 `gdcm::IconImageGenerator::~~IconImageGenerator ()`

10.139.3 Member Function Documentation

10.139.3.1 `void gdcm::IconImageGenerator::AutoPixelMinMax (bool b)`

Instead of explicitly specifying the min/max value for the rescale operation, let the internal mechanism compute the min/max of icon and rescale to best appropriate.

Examples:

[ExtractIconFromFile.cxx](#).

10.139.3.2 `void gdcm::IconImageGenerator::ConvertRGBToPaletteColor (bool b)`

Converting from RGB to PALETTE_COLOR can be a slow operation. However DICOM standard requires that color icon be described as palette. Set this boolean to false only if you understand the consequences. default value is true, false generates invalid Icon [Image](#) Sequence

10.139.3.3 bool gdcm::IconImageGenerator::Generate ()

Generate Icon.

Examples:

[ExtractIconFromFile.cxx](#).

10.139.3.4 const IconImage& gdcm::IconImageGenerator::GetIconImage () const [inline]

Retrieve generated Icon.

Examples:

[ExtractIconFromFile.cxx](#).

10.139.3.5 Pixmap& gdcm::IconImageGenerator::GetPixmap () [inline]

10.139.3.6 const Pixmap& gdcm::IconImageGenerator::GetPixmap () const [inline]

10.139.3.7 void gdcm::IconImageGenerator::SetOutputDimensions (const unsigned int *dims*[2])

Set Target dimension of output Icon.

Examples:

[ExtractIconFromFile.cxx](#).

10.139.3.8 void gdcm::IconImageGenerator::SetOutsideValuePixel (double *v*)

Set a pixel value that should be discarded. This happen typically for CT image, where a pixel has been used to pad outside the image (see Pixel Padding [Value](#)). Requires `AutoPixelMinMax(true)`

10.139.3.9 void gdcm::IconImageGenerator::SetPixelMinMax (double *min*, double *max*)

Override default min/max to compute best rescale for 16bits -> 8bits downscale. Typically those value can be read from the `SmallestImagePixelValue` `LargestImagePixelValue` DICOM attribute.

10.139.3.10 void gdcmlconImageGenerator::SetPixmap (const Pixmap & p) [inline]

Set/Get [File](#).

Examples:

[ExtractIconFromFile.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmIconImageGenerator.h](#)

10.140 gdcm::ignore_char Struct Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- [ignore_char](#) (char c)

Public Attributes

- char [m_char](#)

10.140.1 Constructor & Destructor Documentation

10.140.1.1 gdcm::ignore_char::ignore_char (char c) [inline]

10.140.2 Member Data Documentation

10.140.2.1 char gdcm::ignore_char::m_char

Referenced by `gdcm::operator>>()`.

The documentation for this struct was generated from the following file:

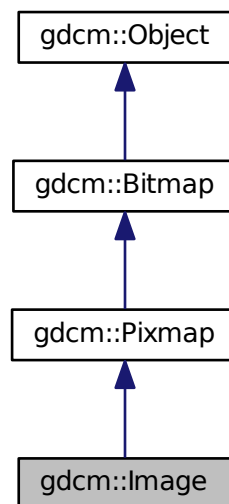
- [gdcmElement.h](#)

10.141 gdcm::Image Class Reference

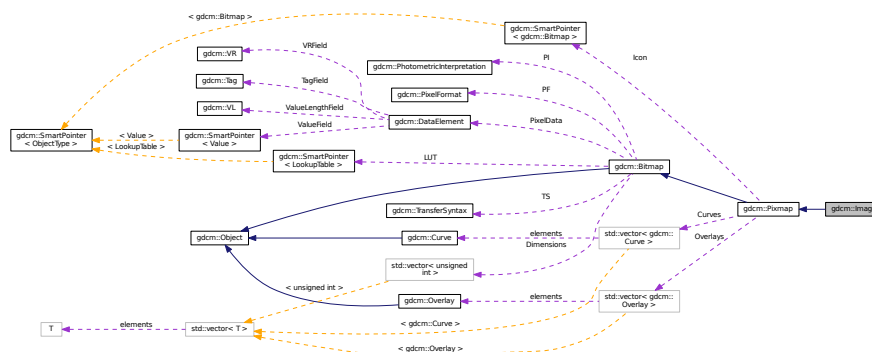
Image This is the container for an **Image** in the general sense. From this container you should be able to request information like:

```
#include <gdcmImage.h>
```

Inheritance diagram for `gdcm::Image`:



Collaboration diagram for `gdcm::Image`:



Public Member Functions

- [Image](#) ()
 - [~Image](#) ()
 - const double * [GetDirectionCosines](#) () const
 - double [GetDirectionCosines](#) (unsigned int idx) const
 - double [GetIntercept](#) () const
 - const double * [GetOrigin](#) () const
 - double [GetOrigin](#) (unsigned int idx) const
 - double [GetSlope](#) () const
 - const double * [GetSpacing](#) () const
 - double [GetSpacing](#) (unsigned int idx) const
 - void [Print](#) (std::ostream &os) const
- print*
- void [SetDirectionCosines](#) (const float *dircos)
 - void [SetDirectionCosines](#) (const double *dircos)
 - void [SetDirectionCosines](#) (unsigned int idx, double dircos)
 - void [SetIntercept](#) (double intercept)
- intercept*
- void [SetOrigin](#) (const float *ori)
 - void [SetOrigin](#) (const double *ori)
 - void [SetOrigin](#) (unsigned int idx, double ori)
 - void [SetSlope](#) (double slope)
- slope*
- void [SetSpacing](#) (const double *spacing)
 - void [SetSpacing](#) (unsigned int idx, double spacing)

Additional Inherited Members

10.141.1 Detailed Description

[Image](#) This is the container for an [Image](#) in the general sense. From this container you should be able to request information like:

- Origin
- Dimension
- [PixelFormat](#) ... But also to retrieve the image as a raw buffer (char *) Since we have to deal with both RAW data and JPEG stream (which internally encode all the above information) this API might seems redundant. One way to solve that would be to subclass [Image](#) with [JPEGImage](#) which would from the stream extract the header info and fill it to please [Image](#)...well except origin for instance

Basically you can see it as a storage for the Pixel Data element (7fe0,0010).

Warning

This class does some heuristics to guess the [Spacing](#) but is not compatible with DICOM CP-586. In case of doubt use [PixmapReader](#) instead

See also

[ImageReader](#) [PixmapReader](#)

Examples:

[CompressImage.cxx](#), [ConvertToQImage.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [ExtractIconFromFile.cxx](#), [FixJAI Bug JPEGLS.cxx](#), [GenFakeImage.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), [iU22tomultisc.cxx](#), [PatchFile.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.141.2 Constructor & Destructor Documentation

10.141.2.1 `gdcm::Image::Image ()` `[inline]`

10.141.2.2 `gdcm::Image::~~Image ()` `[inline]`

10.141.3 Member Function Documentation

10.141.3.1 `const double* gdcm::Image::GetDirectionCosines ()` `const`

Return a 6-tuples specifying the direction cosines A default value of (1,0,0,0,1,0) will be return when the direction cosines was not specified.

10.141.3.2 `double gdcm::Image::GetDirectionCosines (unsigned int idx)` `const`

10.141.3.3 `double gdcm::Image::GetIntercept ()` `const` `[inline]`

10.141.3.4 `const double* gdcm::Image::GetOrigin ()` `const`

Return a 3-tuples specifying the origin Will return (0,0,0) if the origin was not specified.

Examples:

[HelloVizWorld.cxx](#).

10.141.3.5 `double gdcm::Image::GetOrigin (unsigned int idx)` `const`

10.141.3.6 `double gdcm::Image::GetSlope ()` `const` `[inline]`

10.141.3.7 `const double* gdcm::Image::GetSpacing ()` `const`

Return a 3-tuples specifying the spacing NOTE: 3rd value can be an arbitrary 1 value when the spacing was not specified (ex. 2D image). WARNING: when the spacing is not specifier, a default value of 1 will be returned

10.141.3.8 `double gdcM::Image::GetSpacing (unsigned int idx) const`

10.141.3.9 `void gdcM::Image::Print (std::ostream & os) const` `[virtual]`

print

Reimplemented from [gdcM::Bitmap](#).

Examples:

[CompressImage.cxx](#), and [PatchFile.cxx](#).

10.141.3.10 `void gdcM::Image::SetDirectionCosines (const float * dircos)`

10.141.3.11 `void gdcM::Image::SetDirectionCosines (const double * dircos)`

10.141.3.12 `void gdcM::Image::SetDirectionCosines (unsigned int idx, double dircos)`

10.141.3.13 `void gdcM::Image::SetIntercept (double intercept)` `[inline]`

intercept

10.141.3.14 `void gdcM::Image::SetOrigin (const float * ori)`

10.141.3.15 `void gdcM::Image::SetOrigin (const double * ori)`

10.141.3.16 `void gdcM::Image::SetOrigin (unsigned int idx, double ori)`

10.141.3.17 `void gdcM::Image::SetSlope (double slope)` `[inline]`

slope

10.141.3.18 `void gdcM::Image::SetSpacing (const double * spacing)`

Examples:

[csa2img.cxx](#), and [iU22tomultisc.cxx](#).

10.141.3.19 `void gdcM::Image::SetSpacing (unsigned int idx, double spacing)`

The documentation for this class was generated from the following file:

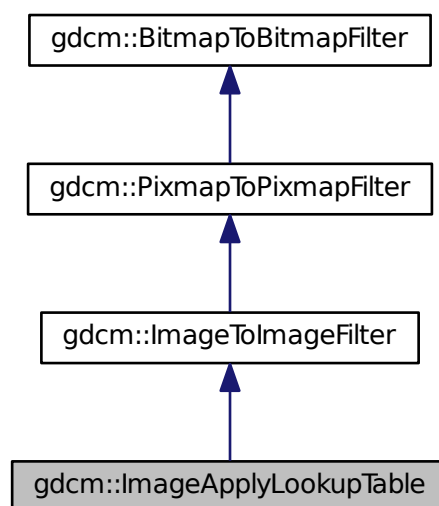
- [gdcMImage.h](#)

10.142 gdcm::ImageApplyLookupTable Class Reference

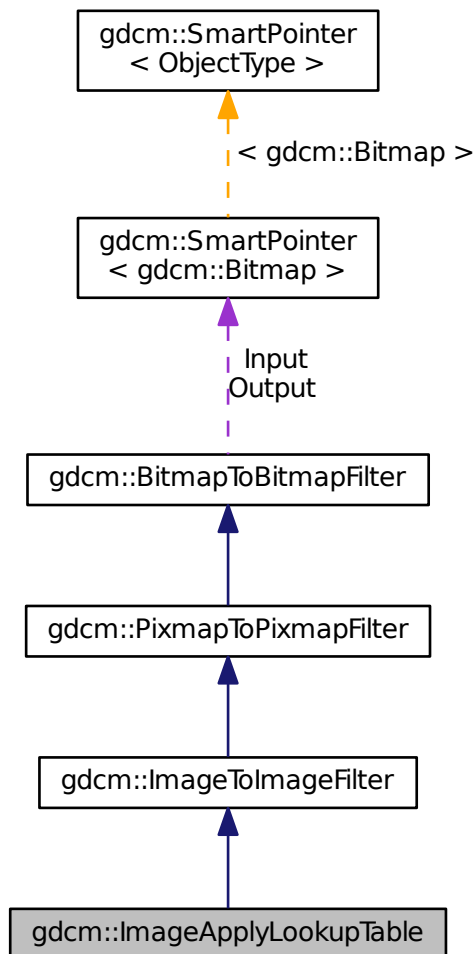
[ImageApplyLookupTable](#) class It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a [PhotometricInterpretation=RGB](#) image.

```
#include <gdcmImageApplyLookupTable.h>
```

Inheritance diagram for gdcm::ImageApplyLookupTable:



Collaboration diagram for `gdcm::ImageApplyLookupTable`:



Public Member Functions

- [ImageApplyLookupTable](#) ()
- [~ImageApplyLookupTable](#) ()
- `bool` [Apply](#) ()

Apply:

Additional Inherited Members

10.142.1 Detailed Description

[ImageApplyLookupTable](#) class It applies the LUT the `PixelData` (only `PALETTE_COLOR` images) Output will be a [PhotometricInterpretation=RGB](#) image.

10.142.2 Constructor & Destructor Documentation

10.142.2.1 `gdcm::ImageApplyLookupTable::ImageApplyLookupTable ()` `[inline]`

10.142.2.2 `gdcm::ImageApplyLookupTable::~~ImageApplyLookupTable ()` `[inline]`

10.142.3 Member Function Documentation

10.142.3.1 `bool gdcm::ImageApplyLookupTable::Apply ()`

Apply.

The documentation for this class was generated from the following file:

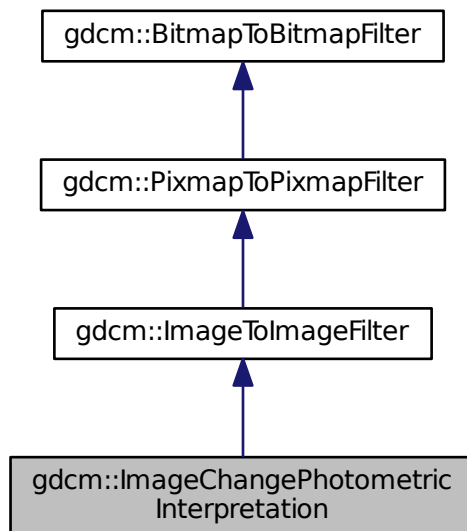
- [gdcmImageApplyLookupTable.h](#)

10.143 gdcm::ImageChangePhotometricInterpretation Class Reference

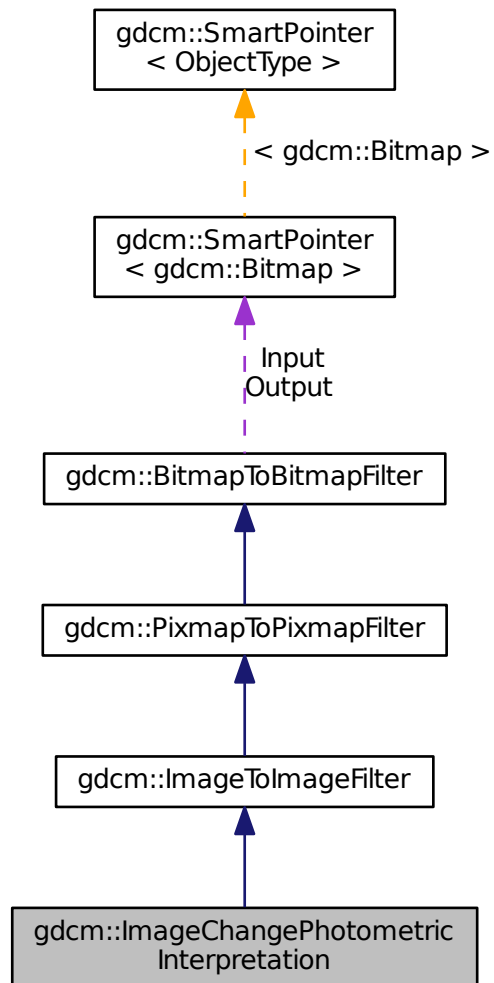
[ImageChangePhotometricInterpretation](#) class Class to change the Photometric Interpretation of an input DICOM.

```
#include <gdcmImageChangePhotometricInterpretation.h>
```

Inheritance diagram for `gdcm::ImageChangePhotometricInterpretation`:



Collaboration diagram for `gdcm::ImageChangePhotometricInterpretation`:



Public Member Functions

- [ImageChangePhotometricInterpretation \(\)](#)
- [~ImageChangePhotometricInterpretation \(\)](#)
- [bool Change \(\)](#)
Change.
- [const PhotometricInterpretation & GetPhotometricInterpretation \(\) const](#)
- [void SetPhotometricInterpretation \(PhotometricInterpretation const &pi\)](#)
Set/Get requested PhotometricInterpretation.

Static Public Member Functions

- template<typename T >
static void [RGB2YBR](#) (T ybr[3], const T rgb[3])
colorspace conversion (based on CCIR Recommendation 601-2)
- template<typename T >
static void [YBR2RGB](#) (T rgb[3], const T ybr[3])

Protected Member Functions

- bool [ChangeMonochrome](#) ()

Additional Inherited Members

10.143.1 Detailed Description

[ImageChangePhotometricInterpretation](#) class Class to change the Photometric Interpretation of an input DICOM.

10.143.2 Constructor & Destructor Documentation

10.143.2.1 `gdcm::ImageChangePhotometricInterpretation::ImageChangePhotometricInterpretation ()` `[inline]`

10.143.2.2 `gdcm::ImageChangePhotometricInterpretation::~~ImageChangePhotometricInterpretation ()` `[inline]`

10.143.3 Member Function Documentation

10.143.3.1 `bool gdcm::ImageChangePhotometricInterpretation::Change ()`

Change.

10.143.3.2 `bool gdcm::ImageChangePhotometricInterpretation::ChangeMonochrome ()` `[protected]`

10.143.3.3 `const PhotometricInterpretation& gdcm::ImageChangePhotometricInterpretation::GetPhotometricInterpretation ()`
`const` `[inline]`

10.143.3.4 `template<typename T > void gdcm::ImageChangePhotometricInterpretation::RGB2YBR (T ybr[3], const T rgb[3])`
`[static]`

colorspace conversion (based on CCIR Recommendation 601-2)

```
10.143.3.5 void gdcM::ImageChangePhotometricInterpretation::SetPhotometricInterpretation ( PhotometricInterpretation
const & pi ) [inline]
```

Set/Get requested [PhotometricInterpretation](#).

```
10.143.3.6 template<typename T > void gdcM::ImageChangePhotometricInterpretation::YBR2RGB ( T rgb[3], const T ybr[3] )
[static]
```

The documentation for this class was generated from the following file:

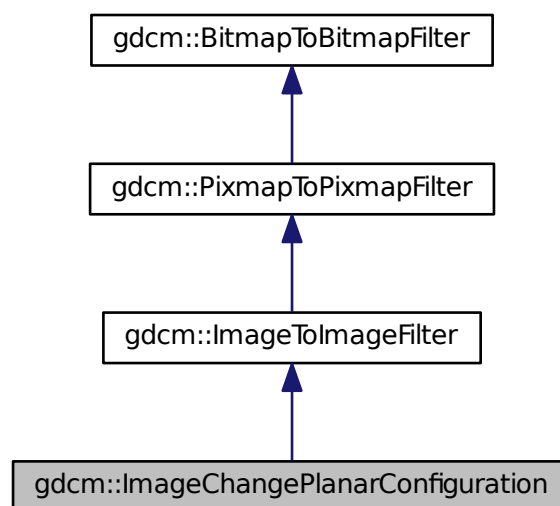
- [gdcMImageChangePhotometricInterpretation.h](#)

10.144 gdcM::ImageChangePlanarConfiguration Class Reference

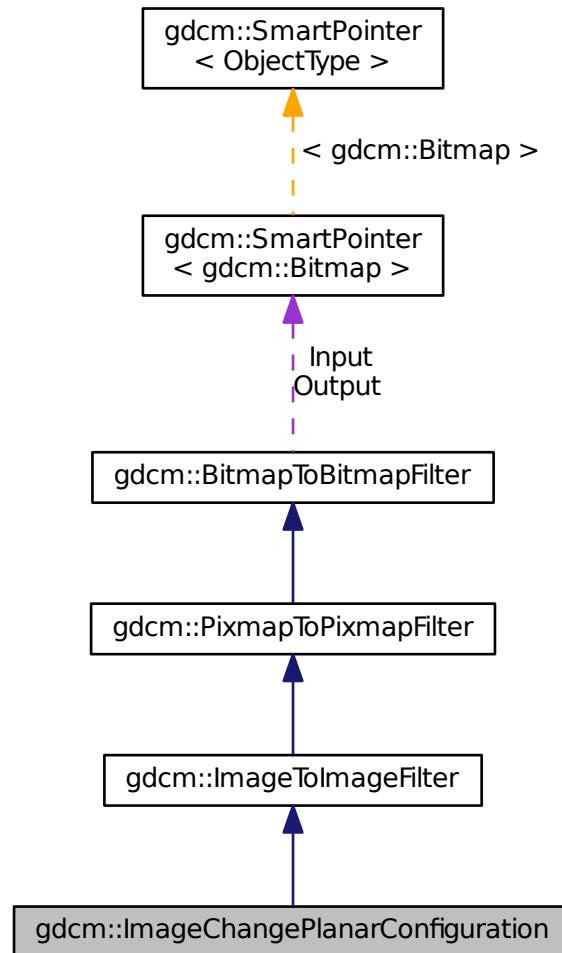
[ImageChangePlanarConfiguration](#) class Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0.

```
#include <gdcMImageChangePlanarConfiguration.h>
```

Inheritance diagram for gdcM::ImageChangePlanarConfiguration:



Collaboration diagram for gdcm::ImageChangePlanarConfiguration:



Public Member Functions

- [ImageChangePlanarConfiguration](#) ()
- [~ImageChangePlanarConfiguration](#) ()
- `bool` [Change](#) ()
Change.
- `unsigned int` [GetPlanarConfiguration](#) () `const`
- `void` [SetPlanarConfiguration](#) (`unsigned int` pc)
Set/Get requested PlanarConfiguration.

Static Public Member Functions

- `template<typename T >`
`static size_t RGBPixelsToRGBPlanes (T *r, T *g, T *b, const T *rgb, size_t s)`
- `template<typename T >`
`static size_t RGBPlanesToRGBPixels (T *out, const T *r, const T *g, const T *b, size_t s)`

Additional Inherited Members

10.144.1 Detailed Description

[ImageChangePlanarConfiguration](#) class Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0.

10.144.2 Constructor & Destructor Documentation

10.144.2.1 `gdcm::ImageChangePlanarConfiguration::ImageChangePlanarConfiguration ()` `[inline]`

10.144.2.2 `gdcm::ImageChangePlanarConfiguration::~~ImageChangePlanarConfiguration ()` `[inline]`

10.144.3 Member Function Documentation

10.144.3.1 `bool gdcm::ImageChangePlanarConfiguration::Change ()`

Change.

10.144.3.2 `unsigned int gdcm::ImageChangePlanarConfiguration::GetPlanarConfiguration () const` `[inline]`

10.144.3.3 `template<typename T > size_t gdcm::ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes (T * r, T * g, T * b, const T * rgb, size_t s)` `[static]`

Convert a regular RGB pixel image (R,G,B,R,G,B...) into a planar R,G,B image (R,R...,G,G...B,B)

Warning

this works on a frame basis, you need to loop over all frames in multiple frames image to apply this function

10.144.3.4 `template<typename T > size_t gdcm::ImageChangePlanarConfiguration::RGBPlanesToRGBPixels (T * out, const T * r, const T * g, const T * b, size_t s)` `[static]`

s is the size of one plane (r,g or b). Thus the output buffer needs to be at least 3*s bytes long s can be seen as the number of RGB pixels in the output

10.144.3.5 void gdcm::ImageChangePlanarConfiguration::SetPlanarConfiguration (unsigned int *pc*) [inline]

Set/Get requested PlanarConfiguration.

The documentation for this class was generated from the following file:

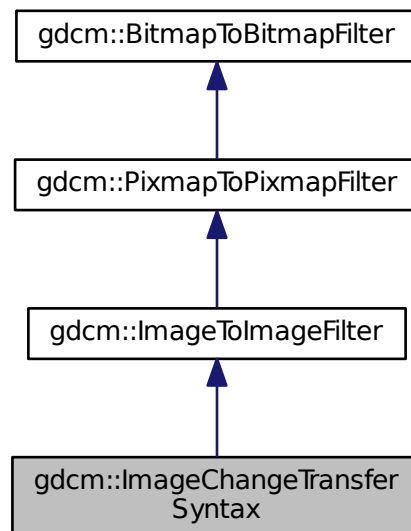
- [gdcmImageChangePlanarConfiguration.h](#)

10.145 gdcm::ImageChangeTransferSyntax Class Reference

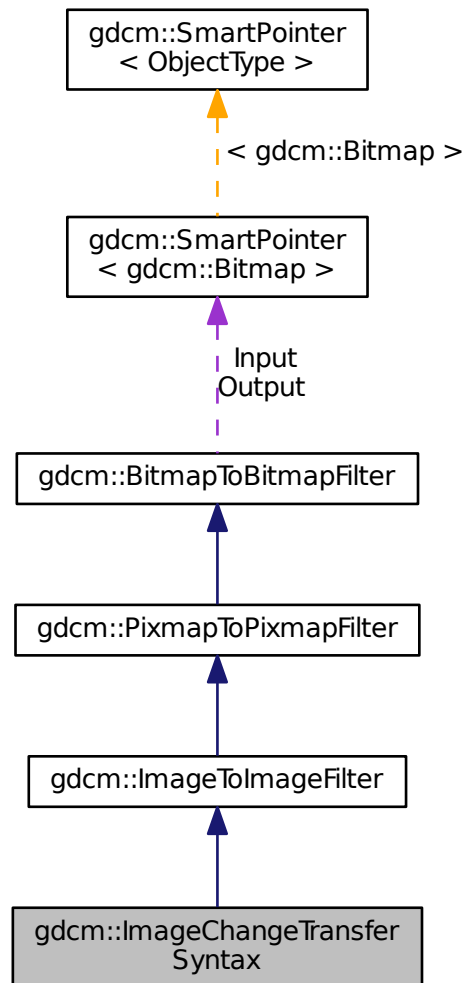
[ImageChangeTransferSyntax](#) class Class to change the transfer syntax of an input DICOM.

```
#include <gdcmImageChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::ImageChangeTransferSyntax:



Collaboration diagram for `gdcm::ImageChangeTransferSyntax`:



Public Member Functions

- `ImageChangeTransferSyntax ()`
- `~ImageChangeTransferSyntax ()`
- `bool Change ()`
Change.
- `const TransferSyntax & GetTransferSyntax () const`
Get Transfer Syntax.
- `void SetCompressIconImage (bool b)`
- `void SetForce (bool f)`
- `void SetTransferSyntax (const TransferSyntax &ts)`

Set target Transfer Syntax.

- void [SetUserCodec](#) ([ImageCodec](#) *ic)

Protected Member Functions

- bool [TryJPEG2000Codec](#) (const [DataElement](#) &pixelde, [Bitmap](#) const &input, [Bitmap](#) &output)
- bool [TryJPEGCodec](#) (const [DataElement](#) &pixelde, [Bitmap](#) const &input, [Bitmap](#) &output)
- bool [TryJPEGLSCodec](#) (const [DataElement](#) &pixelde, [Bitmap](#) const &input, [Bitmap](#) &output)
- bool [TryRAWCodec](#) (const [DataElement](#) &pixelde, [Bitmap](#) const &input, [Bitmap](#) &output)
- bool [TryRLECodec](#) (const [DataElement](#) &pixelde, [Bitmap](#) const &input, [Bitmap](#) &output)

Additional Inherited Members

10.145.1 Detailed Description

[ImageChangeTransferSyntax](#) class Class to change the transfer syntax of an input DICOM.

If only Force param is set but no input [TransferSyntax](#) is set, it is assumed that user only wants to inspect encapsulated stream (advanced dev. option).

When using UserCodec it is very important that the [TransferSyntax](#) (as set in [SetTransferSyntax](#)) is actually understood by UserCodec (ie. UserCodec->CanCode([TransferSyntax](#))). Otherwise the behavior is to use a default codec.

See also

[JPEGCodec](#) [JPEGLSCodec](#) [JPEG2000Codec](#)

Examples:

[CompressImage.cxx](#).

10.145.2 Constructor & Destructor Documentation

10.145.2.1 `gdcm::ImageChangeTransferSyntax::ImageChangeTransferSyntax ()` `[inline]`

10.145.2.2 `gdcm::ImageChangeTransferSyntax::~~ImageChangeTransferSyntax ()` `[inline]`

10.145.3 Member Function Documentation

10.145.3.1 `bool gdcm::ImageChangeTransferSyntax::Change ()`

Change.

Examples:

[CompressImage.cxx](#).

10.145.3.2 `const TransferSyntax& gdcm::ImageChangeTransferSyntax::GetTransferSyntax () const` `[inline]`

Get Transfer Syntax.

10.145.3.3 `void gdcm::ImageChangeTransferSyntax::SetCompressIconImage (bool b)` `[inline]`

Decide whether or not to also compress the Icon [Image](#) using the same Transfer Syntax. Default is to simply decompress icon image

10.145.3.4 `void gdcm::ImageChangeTransferSyntax::SetForce (bool f)` `[inline]`

When target Transfer Syntax is identical to input target syntax, no operation is actually done. This is an issue when someone wants to re-compress using GDCM internal implementation a JPEG (for example) image

10.145.3.5 `void gdcm::ImageChangeTransferSyntax::SetTransferSyntax (const TransferSyntax & ts)` `[inline]`

Set target Transfer Syntax.

Examples:

[CompressImage.cxx](#).

10.145.3.6 `void gdcm::ImageChangeTransferSyntax::SetUserCodec (ImageCodec * ic)` `[inline]`

Allow user to specify exactly which codec to use. this is needed to specify special qualities or compression option.

Warning

if the codec '*ic*' is not compatible with the [TransferSyntax](#) requested, it will not be used. It is the user responsibility to check that `UserCodec->CanCode(TransferSyntax)`

10.145.3.7 `bool gdcm::ImageChangeTransferSyntax::TryJPEG2000Codec (const DataElement & pixelde, Bitmap const & input, Bitmap & output)` `[protected]`

10.145.3.8 `bool gdcm::ImageChangeTransferSyntax::TryJPEGCodec (const DataElement & pixelde, Bitmap const & input, Bitmap & output)` `[protected]`

10.145.3.9 `bool gdcm::ImageChangeTransferSyntax::TryJPEGLSCodec (const DataElement & pixelde, Bitmap const & input, Bitmap & output)` `[protected]`

10.145.3.10 `bool gdcm::ImageChangeTransferSyntax::TryRAWCodec (const DataElement & pixelde, Bitmap const & input, Bitmap & output)` `[protected]`

10.145.3.11 `bool gdcm::ImageChangeTransferSyntax::TryRLECodec (const DataElement & pixelde, Bitmap const & input, Bitmap & output)` `[protected]`

The documentation for this class was generated from the following file:

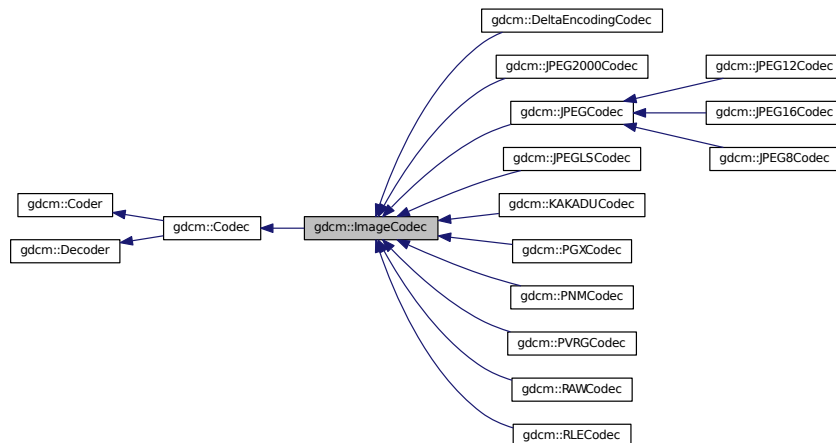
- [gdcmImageChangeTransferSyntax.h](#)

10.146 gdcm::ImageCodec Class Reference

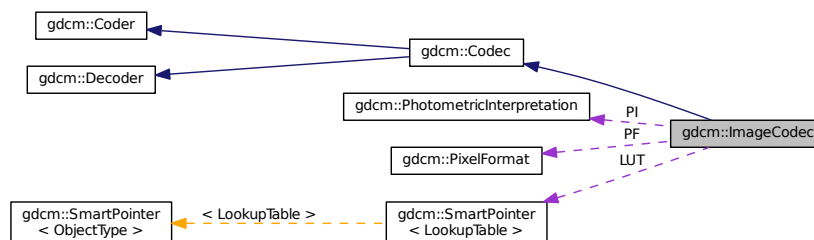
[ImageCodec](#).

```
#include <gdcmImageCodec.h>
```

Inheritance diagram for gdcm::ImageCodec:



Collaboration diagram for gdcm::ImageCodec:



Public Member Functions

- [ImageCodec](#) ()
- [~ImageCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &) const
Return whether this decoder support this transfer syntax (can decode it)

- virtual [ImageCodec](#) * [Clone](#) () const =0
- bool [Decode](#) ([DataElement](#) const &is_, [DataElement](#) &os)
 Decode.
- const unsigned int * [GetDimensions](#) () const
- virtual bool [GetHeaderInfo](#) (std::istream &is_, [TransferSyntax](#) &ts)
- bool [GetLossyFlag](#) () const
- const [LookupTable](#) & [GetLUT](#) () const
- bool [GetNeedByteSwap](#) () const
- unsigned int [GetNumberOfDimensions](#) () const
- const [PhotometricInterpretation](#) & [GetPhotometricInterpretation](#) () const
- [PixelFormat](#) & [GetPixelFormat](#) ()
- const [PixelFormat](#) & [GetPixelFormat](#) () const
- unsigned int [GetPlanarConfiguration](#) () const
- bool [IsLossy](#) () const
- void [SetDimensions](#) (const unsigned int d[3])
- void [SetDimensions](#) (const std::vector< unsigned int > &d)
- void [SetLossyFlag](#) (bool l)
- void [SetLUT](#) ([LookupTable](#) const &lut)
- void [SetNeedByteSwap](#) (bool b)
- void [SetNeedOverlayCleanup](#) (bool b)
- void [SetNumberOfDimensions](#) (unsigned int dim)
- void [SetPhotometricInterpretation](#) ([PhotometricInterpretation](#) const &pi)
- virtual void [SetPixelFormat](#) ([PixelFormat](#) const &pf)
- void [SetPlanarConfiguration](#) (unsigned int pc)

Protected Types

- typedef [SmartPointer](#)< [LookupTable](#) > [LUTPtr](#)

Protected Member Functions

- virtual bool [AppendFrameEncode](#) (std::ostream &out, const char *data, size_t datalen)
- virtual bool [AppendRowEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [DecodeByStreams](#) (std::istream &is_, std::ostream &os)
- bool [DoByteSwap](#) (std::istream &is_, std::ostream &os)
- bool [DoInvertMonochrome](#) (std::istream &is_, std::ostream &os)
- bool [DoOverlayCleanup](#) (std::istream &is_, std::ostream &os)
- bool [DoPaddedCompositePixelCode](#) (std::istream &is_, std::ostream &os)
- bool [DoPlanarConfiguration](#) (std::istream &is_, std::ostream &os)
- bool [DoSimpleCopy](#) (std::istream &is_, std::ostream &os)
- bool [DoYBR](#) (std::istream &is_, std::ostream &os)
- virtual bool [IsFrameEncoder](#) ()
- virtual bool [IsRowEncoder](#) ()
- virtual bool [IsValid](#) ([PhotometricInterpretation](#) const &pi)
- virtual bool [StartEncode](#) (std::ostream &os)
- virtual bool [StopEncode](#) (std::ostream &os)

Protected Attributes

- unsigned int [Dimensions](#) [3]
- bool [LossyFlag](#)
- [LUTPtr](#) LUT
- bool [NeedByteSwap](#)
- bool [NeedOverlayCleanup](#)
- unsigned int [NumberOfDimensions](#)
- [PixelFormat](#) PF
- [PhotometricInterpretation](#) PI
- unsigned int [PlanarConfiguration](#)
- bool [RequestPaddedCompositePixelCode](#)
- bool [RequestPlanarConfiguration](#)

Friends

- class [FileChangeTransferSyntax](#)
- class [ImageChangePhotometricInterpretation](#)

10.146.1 Detailed Description

[ImageCodec](#).

Note

Main codec, this is a central place for all implementation

10.146.2 Member Typedef Documentation

10.146.2.1 `typedef SmartPointer<LookupTable> gdcm::ImageCodec::LUTPtr` [protected]

10.146.3 Constructor & Destructor Documentation

10.146.3.1 `gdcm::ImageCodec::ImageCodec ()`

10.146.3.2 `gdcm::ImageCodec::~~ImageCodec ()`

10.146.4 Member Function Documentation

10.146.4.1 `virtual bool gdcm::ImageCodec::AppendFrameEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.4.2 `virtual bool gdcm::ImageCodec::AppendRowEncode (std::ostream & out, const char * data, size_t datalen)`
`[protected], [virtual]`

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.4.3 `bool gdcm::ImageCodec::CanCode (TransferSyntax const &) const` `[inline], [virtual]`

Return whether this coder support this transfer syntax (can code it)

Implements [gdcm::Coder](#).

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::JPEGLSCodec](#), [gdcm::PNMCodec](#), [gdcm::PGXCodec](#), [gdcm::KAKADUCodec](#), and [gdcm::RAWCodec](#).

10.146.4.4 `bool gdcm::ImageCodec::CanDecode (TransferSyntax const &) const` `[inline], [virtual]`

Return whether this decoder support this transfer syntax (can decode it)

Implements [gdcm::Decoder](#).

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::JPEGLSCodec](#), [gdcm::PNMCodec](#), [gdcm::RAWCodec](#), [gdcm::PGXCodec](#), and [gdcm::KAKADUCodec](#).

10.146.4.5 `virtual ImageCodec* gdcm::ImageCodec::Clone () const` `[pure virtual]`

Implemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::JPEGLSCodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::PNMCodec](#), [gdcm::RAWCodec](#), [gdcm::KAKADUCodec](#), and [gdcm::PGXCodec](#).

10.146.4.6 `bool gdcm::ImageCodec::Decode (DataElement const & , DataElement &)` `[virtual]`

Decode.

Reimplemented from [gdcm::Decoder](#).

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::RLECodec](#), [gdcm::JPEGLSCodec](#), [gdcm::PVRGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::KAKADUCodec](#), and [gdcm::RAWCodec](#).

10.146.4.7 `bool gdcm::ImageCodec::DecodeByStreams (std::istream & is_, std::ostream & os)` `[protected], [virtual]`

Reimplemented from [gdcm::Decoder](#).

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEG2000Codec](#), [gdcm::RLECodec](#), [gdcm::RAWCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPG12Codec](#), [gdcm::JPG16Codec](#), and [gdcm::JPG8Codec](#).

10.146.4.8 `bool gdcm::ImageCodec::DoByteSwap (std::istream & is, std::ostream & os)` [protected]

10.146.4.9 `bool gdcm::ImageCodec::DoInvertMonochrome (std::istream & is, std::ostream & os)` [protected]

10.146.4.10 `bool gdcm::ImageCodec::DoOverlayCleanup (std::istream & is, std::ostream & os)` [protected]

10.146.4.11 `bool gdcm::ImageCodec::DoPaddedCompositePixelCode (std::istream & is, std::ostream & os)` [protected]

10.146.4.12 `bool gdcm::ImageCodec::DoPlanarConfiguration (std::istream & is, std::ostream & os)` [protected]

10.146.4.13 `bool gdcm::ImageCodec::DoSimpleCopy (std::istream & is, std::ostream & os)` [protected]

10.146.4.14 `bool gdcm::ImageCodec::DoYBR (std::istream & is, std::ostream & os)` [protected]

10.146.4.15 `const unsigned int* gdcm::ImageCodec::GetDimensions () const` [inline]

References `gdcm::terminal::dim`.

10.146.4.16 `virtual bool gdcm::ImageCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented in `gdcm::JPEGCodec`, `gdcm::RLECodec`, `gdcm::JPEGLSCCodec`, `gdcm::JPEG2000Codec`, `gdcm::PNMCodec`, `gdcm::JPEG12Codec`, `gdcm::JPEG16Codec`, `gdcm::JPEG8Codec`, `gdcm::RAWCodec`, and `gdcm::PGXCodec`.

10.146.4.17 `bool gdcm::ImageCodec::GetLossyFlag () const`

10.146.4.18 `const LookupTable& gdcm::ImageCodec::GetLUT () const` [inline]

10.146.4.19 `bool gdcm::ImageCodec::GetNeedByteSwap () const` [inline]

10.146.4.20 `unsigned int gdcm::ImageCodec::GetNumberOfDimensions () const`

10.146.4.21 `const PhotometricInterpretation& gdcm::ImageCodec::GetPhotometricInterpretation () const`

10.146.4.22 `PixelFormat& gdcm::ImageCodec::GetPixelFormat ()` [inline]

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.146.4.23 `const PixelFormat& gdcm::ImageCodec::GetPixelFormat () const` [inline]

10.146.4.24 `unsigned int gdcm::ImageCodec::GetPlanarConfiguration () const` [inline]

10.146.4.25 `virtual bool gdcm::ImageCodec::IsFrameEncoder ()` [protected],[virtual]

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.4.26 `bool gdcm::ImageCodec::IsLossy () const`

10.146.4.27 `virtual bool gdcm::ImageCodec::IsRowEncoder ()` [protected],[virtual]

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.4.28 `virtual bool gdcm::ImageCodec::IsValid (PhotometricInterpretation const & pi)` [protected],[virtual]

Reimplemented in [gdcm::JPEGCodec](#).

10.146.4.29 `void gdcm::ImageCodec::SetDimensions (const unsigned int d[3])`

Examples:

[ExtractIconFromFile.cxx](#).

10.146.4.30 `void gdcm::ImageCodec::SetDimensions (const std::vector< unsigned int > & d)`

10.146.4.31 `void gdcm::ImageCodec::SetLossyFlag (bool l)`

10.146.4.32 `void gdcm::ImageCodec::SetLUT (LookupTable const & lut)` [inline]

Examples:

[ExtractIconFromFile.cxx](#).

10.146.4.33 `void gdcm::ImageCodec::SetNeedByteSwap (bool b)` [inline]

10.146.4.34 `void gdcm::ImageCodec::SetNeedOverlayCleanup (bool b)` [inline]

10.146.4.35 `void gdcm::ImageCodec::SetNumberOfDimensions (unsigned int dim)`

10.146.4.36 `void gdcm::ImageCodec::SetPhotometricInterpretation (PhotometricInterpretation const & pi)`

Examples:

[ExtractIconFromFile.cxx](#).

10.146.4.37 `virtual void gdcm::ImageCodec::SetPixelFormat (PixelFormat const & pf) [inline],[virtual]`

Reimplemented in [gdcm::JPEGCodec](#).

Examples:

[ExtractIconFromFile.cxx](#).

10.146.4.38 `void gdcm::ImageCodec::SetPlanarConfiguration (unsigned int pc) [inline]`

10.146.4.39 `virtual bool gdcm::ImageCodec::StartEncode (std::ostream & os) [protected],[virtual]`

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.4.40 `virtual bool gdcm::ImageCodec::StopEncode (std::ostream & os) [protected],[virtual]`

Reimplemented in [gdcm::JPEGCodec](#), [gdcm::JPEGLSCodec](#), [gdcm::JPEG2000Codec](#), and [gdcm::RLECodec](#).

10.146.5 Friends And Related Function Documentation

10.146.5.1 `friend class FileChangeTransferSyntax [friend]`

This is a high level API to encode in a streaming fashion. Each plugin will handle differently the caching mechanism so that a limited memory is used when compressing dataset. [Codec](#) will fall into two categories:

- Full row encoder: only a single scanline (row) of data is needed to be loaded at a time;
- Full frame encoder (default): a complete frame (row x col) is needed to be loaded at a time

10.146.5.2 `friend class ImageChangePhotometricInterpretation [friend]`

10.146.6 Member Data Documentation

10.146.6.1 `unsigned int gdcm::ImageCodec::Dimensions[3] [protected]`

10.146.6.2 `bool gdcm::ImageCodec::LossyFlag [protected]`

10.146.6.3 `LUTPtr gdcm::ImageCodec::LUT [protected]`

10.146.6.4 `bool gdcm::ImageCodec::NeedByteSwap [protected]`

- 10.146.6.5 `bool gdcM::ImageCodec::NeedOverlayCleanup` [protected]
- 10.146.6.6 `unsigned int gdcM::ImageCodec::NumberOfDimensions` [protected]
- 10.146.6.7 `PixelFormat gdcM::ImageCodec::PF` [protected]
- 10.146.6.8 `PhotometricInterpretation gdcM::ImageCodec::PI` [protected]
- 10.146.6.9 `unsigned int gdcM::ImageCodec::PlanarConfiguration` [protected]
- 10.146.6.10 `bool gdcM::ImageCodec::RequestPaddedCompositePixelCode` [protected]
- 10.146.6.11 `bool gdcM::ImageCodec::RequestPlanarConfiguration` [protected]

The documentation for this class was generated from the following file:

- [gdcMImageCodec.h](#)

10.147 gdcM::ImageConverter Class Reference

[Image](#) Converter.

```
#include <gdcMImageConverter.h>
```

Public Member Functions

- [ImageConverter](#) ()
- [~ImageConverter](#) ()
- void [Convert](#) ()
- const [Image](#) & [GetOutput](#) () const
- void [SetInput](#) ([Image](#) const &input)

10.147.1 Detailed Description

[Image](#) Converter.

Note

This is the class used to convert from on [Image](#) to another This is typically used to convert let say YBR JPEG compressed [Image](#) to a RAW RGB [Image](#). So that the buffer can be directly pass to third party application. This filter is application level and not integrated directly in GDCM

10.147.2 Constructor & Destructor Documentation

10.147.2.1 `gdcm::ImageConverter::ImageConverter ()`

10.147.2.2 `gdcm::ImageConverter::~~ImageConverter ()`

10.147.3 Member Function Documentation

10.147.3.1 `void gdcm::ImageConverter::Convert ()`

10.147.3.2 `const Image& gdcm::ImageConverter::GetOutput () const`

10.147.3.3 `void gdcm::ImageConverter::SetInput (Image const & input)`

The documentation for this class was generated from the following file:

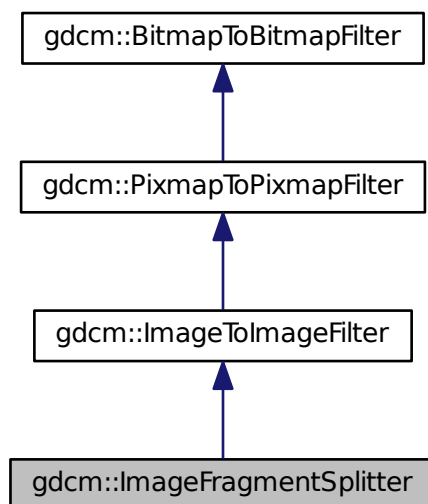
- [gdcmImageConverter.h](#)

10.148 gdcm::ImageFragmentSplitter Class Reference

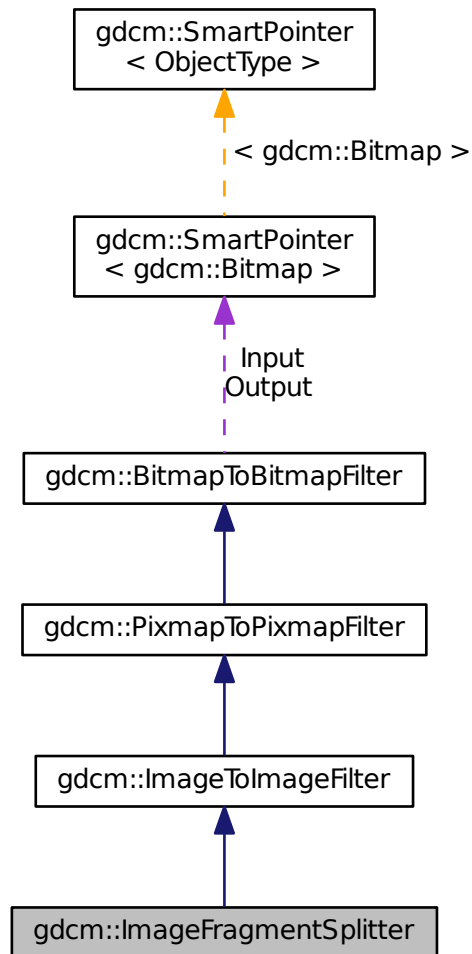
[ImageFragmentSplitter](#) class For single frame image, DICOM standard allow splitting the frame into multiple fragments.

```
#include <gdcmImageFragmentSplitter.h>
```

Inheritance diagram for `gdcm::ImageFragmentSplitter`:



Collaboration diagram for `gdcm::ImageFragmentSplitter`:



Public Member Functions

- `ImageFragmentSplitter ()`
- `~ImageFragmentSplitter ()`
- `unsigned int GetFragmentSizeMax () const`
- `void SetForce (bool f)`
- `void SetFragmentSizeMax (unsigned int fragsize)`
FragmentSizeMax needs to be an even number.
- `bool Split ()`
Split.

Additional Inherited Members

10.148.1 Detailed Description

[ImageFragmentSplitter](#) class For single frame image, DICOM standard allow splitting the frame into multiple fragments.

10.148.2 Constructor & Destructor Documentation

10.148.2.1 `gdcm::ImageFragmentSplitter::ImageFragmentSplitter ()` `[inline]`

10.148.2.2 `gdcm::ImageFragmentSplitter::~~ImageFragmentSplitter ()` `[inline]`

10.148.3 Member Function Documentation

10.148.3.1 `unsigned int gdcm::ImageFragmentSplitter::GetFragmentSizeMax () const` `[inline]`

10.148.3.2 `void gdcm::ImageFragmentSplitter::SetForce (bool f)` `[inline]`

When file already has all it's segment < FragmentSizeMax there is not need to run the filter. Unless the user explicitly say 'force' recomputation !

10.148.3.3 `void gdcm::ImageFragmentSplitter::SetFragmentSizeMax (unsigned int fragsize)`

FragmentSizeMax needs to be an even number.

10.148.3.4 `bool gdcm::ImageFragmentSplitter::Split ()`

Split.

The documentation for this class was generated from the following file:

- [gdcmImageFragmentSplitter.h](#)

10.149 gdcm::ImageHelper Class Reference

[ImageHelper](#) (internal class, not intended for user level)

```
#include <gdcmImageHelper.h>
```

Static Public Member Functions

- static [MediaStorage](#) [ComputeMediaStorageFromModality](#) (const char *modality, unsigned int dimension=2, [PixelFormat](#) const &pf=[PixelFormat](#)(), [PhotometricInterpretation](#) const &pi=[PhotometricInterpretation](#)(), double rescaleintercept=0, double rescaleslope=1)
Moved from [MediaStorage](#) here, since we need extra info stored in [PixelFormat](#) & [PhotometricInterpretation](#).
- static bool [ComputeSpacingFromImagePositionPatient](#) (const std::vector< double > &imageposition, std::vector< double > &spacing)
DO NOT USE.
- static std::vector< unsigned int > [GetDimensionsValue](#) (const [File](#) &f)
- static bool [GetDirectionCosinesFromDataSet](#) ([DataSet](#) const &ds, std::vector< double > &dircos)
- static std::vector< double > [GetDirectionCosinesValue](#) ([File](#) const &f)
- static bool [GetForcePixelSpacing](#) ()
- static bool [GetForceRescaleInterceptSlope](#) ()
- static [SmartPointer](#)< [LookupTable](#) > [GetLUT](#) ([File](#) const &f)
returns the lookup table of an image file
- static std::vector< double > [GetOriginValue](#) ([File](#) const &f)
Set/Get Origin (IPP) from/to a file.
- static [PhotometricInterpretation](#) [GetPhotometricInterpretationValue](#) ([File](#) const &f)
- static [PixelFormat](#) [GetPixelFormatValue](#) (const [File](#) &f)
- static unsigned int [GetPlanarConfigurationValue](#) (const [File](#) &f)
- static bool [GetPMSRescaleInterceptSlope](#) ()
- static const [ByteValue](#) * [GetPointerFromElement](#) ([Tag](#) const &tag, [File](#) const &f)
- static bool [GetRealWorldValueMappingContent](#) ([File](#) const &f, [RealWorldValueMappingContent](#) &rwvmc)
- static std::vector< double > [GetRescaleInterceptSlopeValue](#) ([File](#) const &f)
- static std::vector< double > [GetSpacingValue](#) ([File](#) const &f)
Set/Get [Spacing](#) from/to a [File](#).
- static void [SetDimensionsValue](#) ([File](#) &f, const [Pixmap](#) &img)
- static void [SetDirectionCosinesValue](#) ([DataSet](#) &ds, const std::vector< double > &dircos)
- static void [SetForcePixelSpacing](#) (bool)
- static void [SetForceRescaleInterceptSlope](#) (bool)
- static void [SetOriginValue](#) ([DataSet](#) &ds, const [Image](#) &img)
- static void [SetPMSRescaleInterceptSlope](#) (bool)
- static void [SetRescaleInterceptSlopeValue](#) ([File](#) &f, const [Image](#) &img)
- static void [SetSpacingValue](#) ([DataSet](#) &ds, const std::vector< double > &spacing)

Static Protected Member Functions

- static [Tag](#) [GetSpacingTagFromMediaStorage](#) ([MediaStorage](#) const &ms)
- static [Tag](#) [GetZSpacingTagFromMediaStorage](#) ([MediaStorage](#) const &ms)

10.149.1 Detailed Description

[ImageHelper](#) (internal class, not intended for user level)

Helper for writing World images in DICOM. DICOM has a 'template' approach to image where MR [Image](#) Storage are distinct object from Enhanced MR [Image](#) Storage. For example the Pixel [Spacing](#) in one object is not at the same position (ie [Tag](#)) as in the other this class is the central (read: fragile) place where all the dispatching is done from a unified view of a world image (typically VTK or ITK point of view) down to the low level DICOM point of view.

Warning

: do not expect the API of this class to be maintained at any point, since as Modalities are added the API might have to be augmented or behavior changed to cope with new modalities.

10.149.2 Member Function Documentation

10.149.2.1 static **MediaStorage** gdcm::ImageHelper::ComputeMediaStorageFromModality (const char * *modality*, unsigned int *dimension* = 2, **PixelFormat** const & *pf* = **PixelFormat** (), **PhotometricInterpretation** const & *pi* = **PhotometricInterpretation** (), double *rescaleintercept* = 0, double *rescaleslope* = 1) [static]

Moved from [MediaStorage](#) here, since we need extra info stored in [PixelFormat](#) & [PhotometricInterpretation](#).

10.149.2.2 static bool gdcm::ImageHelper::ComputeSpacingFromImagePositionPatient (const std::vector< double > & *imageposition*, std::vector< double > & *spacing*) [static]

DO NOT USE.

10.149.2.3 static std::vector<unsigned int> gdcm::ImageHelper::GetDimensionsValue (const **File** & *f*) [static]

This function checks tags (0x0028, 0x0010) and (0x0028, 0x0011) for the rows and columns of the image in pixels (as opposed to actual distances). The output is {col , row}

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.149.2.4 static bool gdcm::ImageHelper::GetDirectionCosinesFromDataSet (**DataSet** const & *ds*, std::vector< double > & *dircos*) [static]

10.149.2.5 static std::vector<double> gdcm::ImageHelper::GetDirectionCosinesValue (**File** const & *f*) [static]

Get Direction Cosines (IOP) from/to a file Requires a file because mediastorage must be known

10.149.2.6 static bool gdcm::ImageHelper::GetForcePixelSpacing () [static]

10.149.2.7 static bool gdcm::ImageHelper::GetForceRescaleInterceptSlope () [static]

10.149.2.8 static **SmartPointer**<**LookupTable**> gdcm::ImageHelper::GetLUT (**File** const & *f*) [static]

returns the lookup table of an image file

10.149.2.9 static std::vector<double> gdcm::ImageHelper::GetOriginValue (**File** const & *f*) [static]

Set/Get Origin (IPP) from/to a file.

10.149.2.10 **static PhotometricInterpretation** gdcm::ImageHelper::GetPhotometricInterpretationValue (**File** const & *f*)
[static]

10.149.2.11 **static PixelFormat** gdcm::ImageHelper::GetPixelFormatValue (**const File** & *f*) [static]

This function returns pixel information about an image from its dataset That includes samples per pixel and bit depth (in that order)

10.149.2.12 **static unsigned int** gdcm::ImageHelper::GetPlanarConfigurationValue (**const File** & *f*) [static]

10.149.2.13 **static bool** gdcm::ImageHelper::GetPMSRescaleInterceptSlope () [static]

10.149.2.14 **static const ByteValue*** gdcm::ImageHelper::GetPointerFromElement (**Tag** const & *tag*, **File** const & *f*)
[static]

10.149.2.15 **static bool** gdcm::ImageHelper::GetRealWorldValueMappingContent (**File** const & *f*,
RealWorldValueMappingContent & *rwvmc*) [static]

10.149.2.16 **static std::vector<double>** gdcm::ImageHelper::GetRescaleInterceptSlopeValue (**File** const & *f*) [static]

Set/Get shift/scale from/to a file

Warning

this function reads/sets the Slope/Intercept in appropriate class storage, but also Grid Scaling in RT Dose Storage
Can't take a dataset because the mediastorage of the file must be known

10.149.2.17 **static Tag** gdcm::ImageHelper::GetSpacingTagFromMediaStorage (**MediaStorage** const & *ms*) [static],
[protected]

10.149.2.18 **static std::vector<double>** gdcm::ImageHelper::GetSpacingValue (**File** const & *f*) [static]

Set/Get [Spacing](#) from/to a [File](#).

10.149.2.19 **static Tag** gdcm::ImageHelper::GetZSpacingTagFromMediaStorage (**MediaStorage** const & *ms*) [static],
[protected]

10.149.2.20 **static void** gdcm::ImageHelper::SetDimensionsValue (**File** & *f*, **const Pixmap** & *img*) [static]

10.149.2.21 **static void** gdcm::ImageHelper::SetDirectionCosinesValue (**DataSet** & *ds*, **const std::vector< double >** & *dircos*)
[static]

Set Direction Cosines (IOP) from/to a file When [IOD](#) does not defines what is IOP (eg. typically Secondary Capture [Image](#) Storage) this call will simply remove the IOP attribute. Else in case of MR/CT image storage, this call will properly lookup the correct attribute to store the IOP.

10.149.2.22 `static void gdcm::ImageHelper::SetForcePixelSpacing (bool) [static]`

GDCM 1.x compatibility issue: When using ReWrite an MR [Image](#) Storage would be rewritten as Secondary Capture [Object](#) while still having a Pixel [Spacing](#) tag (0028,0030). If you have deal with those files, use this very special flag to handle them Unless explicitly set elsewhere by the standard, it will use value from 0028,0030 / 0018,0088 for the Pixel [Spacing](#) of the [Image](#)

10.149.2.23 `static void gdcm::ImageHelper::SetForceRescaleInterceptSlope (bool) [static]`

GDCM 1.x compatibility issue: Do not use anymore. This hack was used for some MR [Image](#) Storage generated by Philips Modality. When "Combine MR Rescaling" is set to TRUE, rescaling is removed. But when set to FALSE, the Modality LUT was exported. Internally GDCM now handles this gracefully.

10.149.2.24 `static void gdcm::ImageHelper::SetOriginValue (DataSet & ds, const Image & img) [static]`

10.149.2.25 `static void gdcm::ImageHelper::SetPMSRescaleInterceptSlope (bool) [static]`

Since GDCM 2.6.1 Philips Medical [System](#) are read using the Private Field For Rescale Slope/Intercept by default. This mechanism can be deactivated using the following API: This option has no effect when ForceRescaleInterceptSlope is set to true GDCM will only read those private attribute but never write them out.

10.149.2.26 `static void gdcm::ImageHelper::SetRescaleInterceptSlopeValue (File & f, const Image & img) [static]`

10.149.2.27 `static void gdcm::ImageHelper::SetSpacingValue (DataSet & ds, const std::vector< double > & spacing) [static]`

The documentation for this class was generated from the following file:

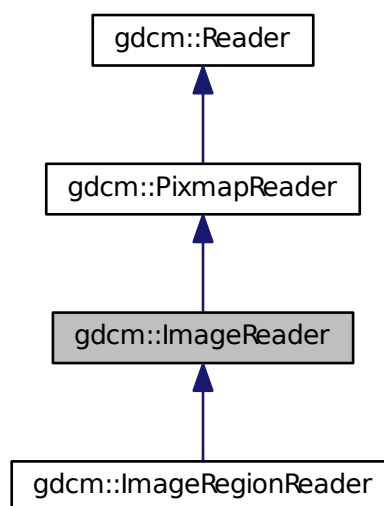
- [gdcmImageHelper.h](#)

10.150 gdcm::ImageReader Class Reference

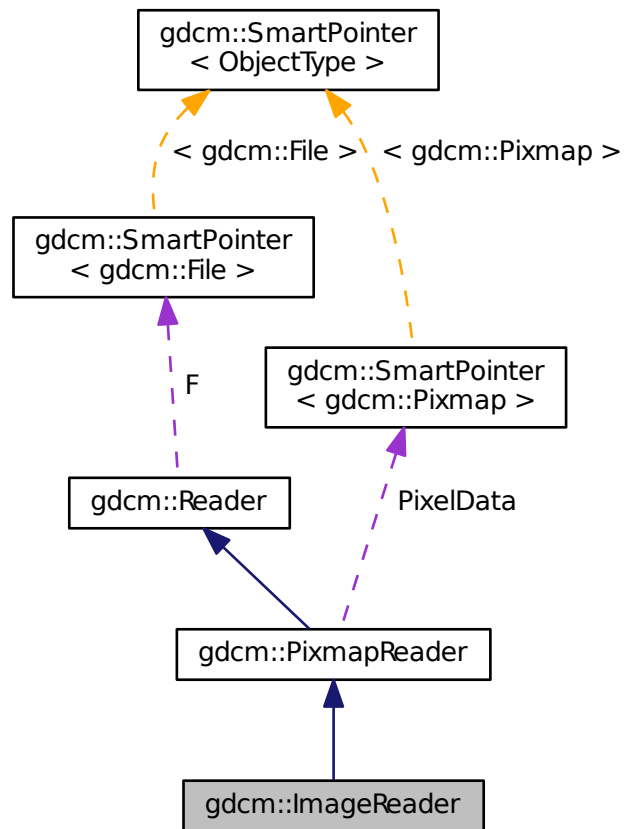
[ImageReader](#).

```
#include <gdcmImageReader.h>
```

Inheritance diagram for `gdcm::ImageReader`:



Collaboration diagram for gdcm::ImageReader:



Public Member Functions

- [ImageReader](#) ()
- virtual [~ImageReader](#) ()
- const [Image](#) & [GetImage](#) () const
Return the read image.
- [Image](#) & [GetImage](#) ()
- virtual bool [Read](#) ()

Protected Member Functions

- bool [ReadACRNEMAIImage](#) ()
- bool [ReadImage](#) ([MediaStorage](#) const &ms)

Additional Inherited Members

10.150.1 Detailed Description

[ImageReader](#).

Note

its role is to convert the DICOM [DataSet](#) into a [Image](#) representation [Image](#) is different from [Pixmap](#) has it has a position and a direction in Space.

See also

[Image](#)

Examples:

[CheckBigEndianBug.cxx](#), [CompressImage.cxx](#), [ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetJPEGSamplePrecision.cxx](#), [HelloVizWorld.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.150.2 Constructor & Destructor Documentation

10.150.2.1 `gdcm::ImageReader::ImageReader ()`

10.150.2.2 `virtual gdcm::ImageReader::~~ImageReader ()` [virtual]

10.150.3 Member Function Documentation

10.150.3.1 `const Image& gdcm::ImageReader::GetImage ()` const

Return the read image.

Examples:

[CompressImage.cxx](#), [ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetJPEGSamplePrecision.cxx](#), [HelloVizWorld.cxx](#), [MergeTwoFiles.cxx](#), [PatchFile.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.150.3.2 `Image& gdcm::ImageReader::GetImage ()`

10.150.3.3 `virtual bool gdcm::ImageReader::Read ()` [virtual]

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an [Image](#).

Reimplemented from [gdcm::PixmapReader](#).

Reimplemented in [gdcm::ImageRegionReader](#).

Examples:

[CheckBigEndianBug.cxx](#), [CompressImage.cxx](#), [ConvertToQImage.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetJPEGSamplePrecision.cxx](#), [HelloVizWorld.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [PatchFile.cxx](#), [ReadMultiTimesException.cxx](#), and [threadgdcm.cxx](#).

10.150.3.4 `bool gdcm::ImageReader::ReadACRNEMAImage ()` [protected],[virtual]

Reimplemented from [gdcm::PixmapReader](#).

10.150.3.5 `bool gdcm::ImageReader::ReadImage (MediaStorage const & ms)` [protected],[virtual]

Reimplemented from [gdcm::PixmapReader](#).

The documentation for this class was generated from the following file:

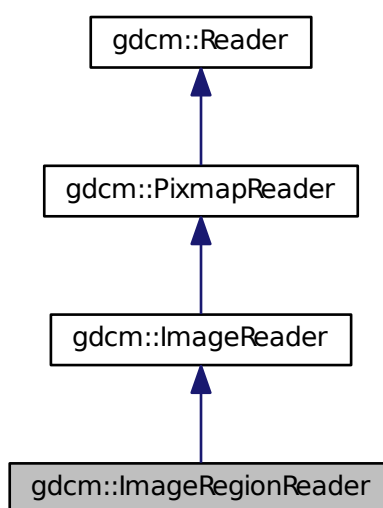
- [gdcmImageReader.h](#)

10.151 gdcm::ImageRegionReader Class Reference

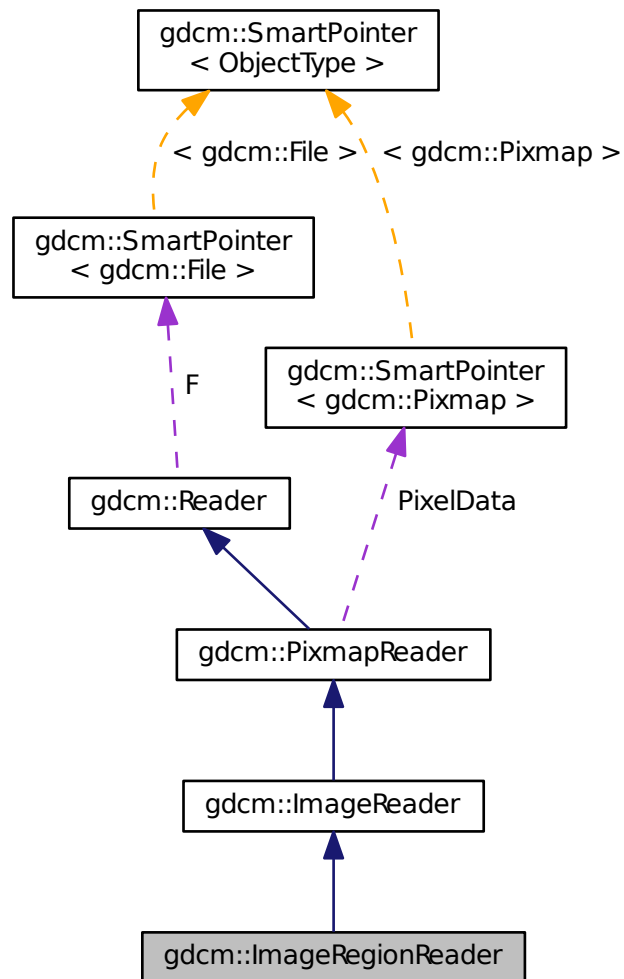
[ImageRegionReader](#).

```
#include <gdcmImageRegionReader.h>
```

Inheritance diagram for gdcm::ImageRegionReader:



Collaboration diagram for gdcm::ImageRegionReader:



Public Member Functions

- [ImageRegionReader](#) ()
- [~ImageRegionReader](#) ()
- [size_t ComputeBufferLength](#) () const
- [Region](#) const & [GetRegion](#) () const
- [bool ReadInformation](#) ()
- [bool ReadIntoBuffer](#) (char *inreadbuffer, size_t buflen)
- [void SetRegion](#) ([Region](#) const ®ion)

Set/Get [Region](#) to be read.

Protected Member Functions

- bool [Read](#) ()

To prevent user from calling super class [Read\(\)](#) function.

Additional Inherited Members

10.151.1 Detailed Description

[ImageRegionReader](#).

See also

[ImageReader](#)

10.151.2 Constructor & Destructor Documentation

10.151.2.1 `gdcm::ImageRegionReader::ImageRegionReader ()`

10.151.2.2 `gdcm::ImageRegionReader::~~ImageRegionReader ()`

10.151.3 Member Function Documentation

10.151.3.1 `size_t gdcm::ImageRegionReader::ComputeBufferLength () const`

Explicit call which will compute the minimal buffer length that can hold the whole uncompressed image as defined by [Region](#) region.

Returns

0 upon error

10.151.3.2 `Region const& gdcm::ImageRegionReader::GetRegion () const`

10.151.3.3 `bool gdcm::ImageRegionReader::Read () [protected],[virtual]`

To prevent user from calling super class [Read\(\)](#) function.

Reimplemented from [gdcm::ImageReader](#).

10.151.3.4 bool gdcm::ImageRegionReader::ReadInformation ()

Read meta information (not Pixel Data) from the DICOM file.

Returns

false upon error

10.151.3.5 bool gdcm::ImageRegionReader::ReadIntoBuffer (char * *inreadbuffer*, size_t *buflen*)

Read into buffer:

Returns

false upon error

10.151.3.6 void gdcm::ImageRegionReader::SetRegion (Region const & *region*)

Set/Get [Region](#) to be read.

The documentation for this class was generated from the following file:

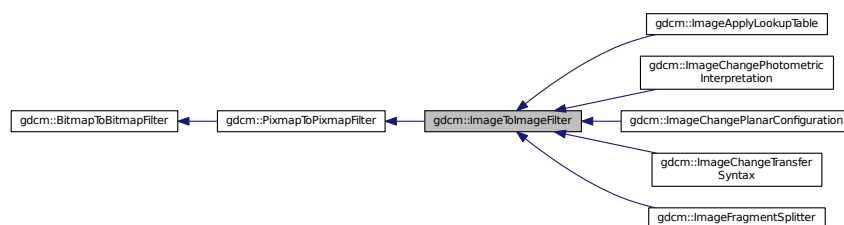
- [gdcmImageRegionReader.h](#)

10.152 gdcm::ImageToImageFilter Class Reference

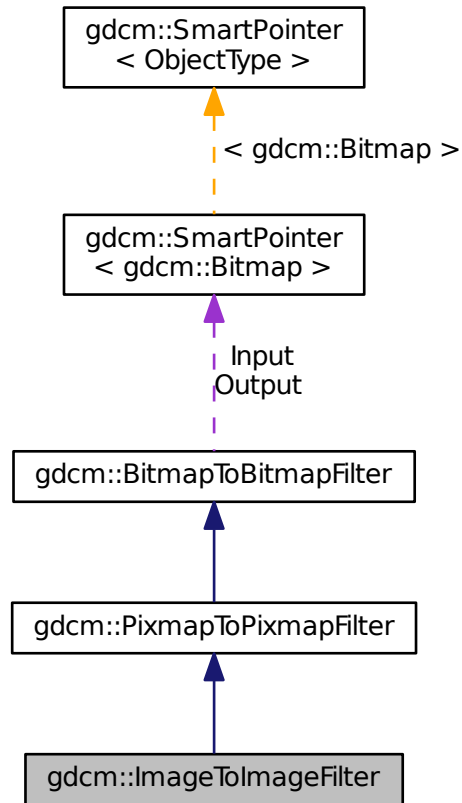
[ImageToImageFilter](#) class Super class for all filter taking an image and producing an output image.

```
#include <gdcmImageToImageFilter.h>
```

Inheritance diagram for gdcm::ImageToImageFilter:



Collaboration diagram for `gdcm::ImageToImageFilter`:



Public Member Functions

- [ImageToImageFilter](#) ()
- [~ImageToImageFilter](#) ()
- [Image](#) & [GetInput](#) ()
- `const Image & GetOutput () const`
Get Output image.

Additional Inherited Members

10.152.1 Detailed Description

[ImageToImageFilter](#) class Super class for all filter taking an image and producing an output image.

10.152.2 Constructor & Destructor Documentation

10.152.2.1 `gdcm::ImageToImageFilter::ImageToImageFilter ()`

10.152.2.2 `gdcm::ImageToImageFilter::~~ImageToImageFilter ()` `[inline]`

10.152.3 Member Function Documentation

10.152.3.1 `Image& gdcm::ImageToImageFilter::GetInput ()`

10.152.3.2 `const Image& gdcm::ImageToImageFilter::GetOutput () const`

Get Output image.

Examples:

[CompressImage.cxx](#).

The documentation for this class was generated from the following file:

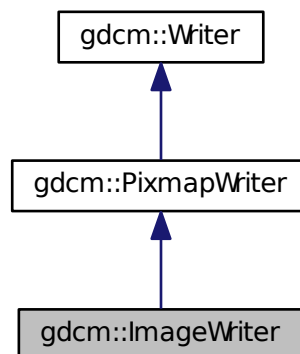
- [gdcmImageToImageFilter.h](#)

10.153 gdcm::ImageWriter Class Reference

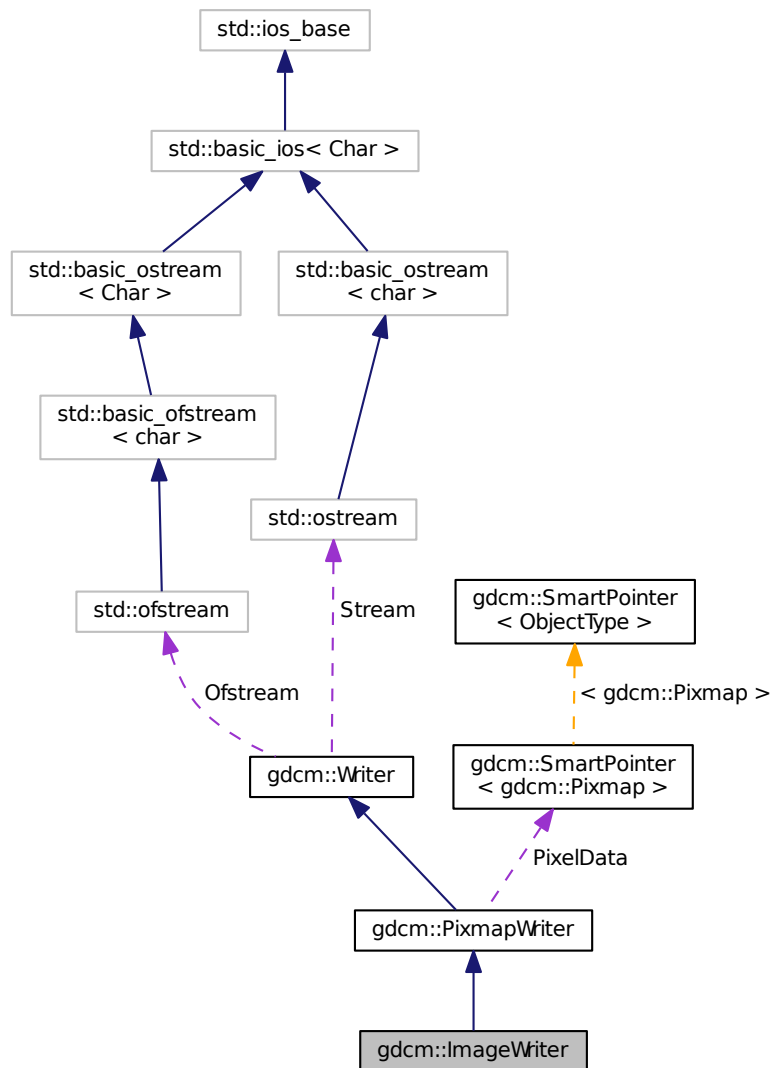
[ImageWriter](#).

```
#include <gdcmImageWriter.h>
```

Inheritance diagram for `gdcm::ImageWriter`:



Collaboration diagram for `gdcm::ImageWriter`:



Public Member Functions

- [ImageWriter](#) ()
- [~ImageWriter](#) ()
- [MediaStorage ComputeTargetMediaStorage](#) ()
- `const Image & GetImage () const`
- `Image & GetImage ()`
- `bool Write ()`

Write.

Additional Inherited Members

10.153.1 Detailed Description

[ImageWriter](#).

Examples:

[CompressImage.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [GenFakeImage.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), [iU22tomultisc.cxx](#), and [MergeTwoFiles.cxx](#).

10.153.2 Constructor & Destructor Documentation

10.153.2.1 `gdcm::ImageWriter::ImageWriter ()`

10.153.2.2 `gdcm::ImageWriter::~~ImageWriter ()`

10.153.3 Member Function Documentation

10.153.3.1 `MediaStorage gdcm::ImageWriter::ComputeTargetMediaStorage ()`

internal function used to compute a target [MediaStorage](#) the most appropriate User may want to call this function ahead of time (before Write)

10.153.3.2 `const Image& gdcm::ImageWriter::GetImage () const [inline],[virtual]`

Set/Get [Image](#) to be written It will overwrite anything [Image](#) infos found in [DataSet](#) (see parent class to see how to pass dataset)

Reimplemented from [gdcm::PixmapWriter](#).

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), and [iU22tomultisc.cxx](#).

10.153.3.3 `Image& gdcm::ImageWriter::GetImage () [inline],[virtual]`

Reimplemented from [gdcm::PixmapWriter](#).

10.153.3.4 `bool gdcmm::ImageWriter::Write () [virtual]`

Write.

Reimplemented from [gdcmm::Writer](#).

Examples:

[CompressImage.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [GenFakelImage.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), [iU22tomultisc.cxx](#), and [MergeTwoFiles.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmmImageWriter.h](#)

10.154 gdcmm::network::ImplementationClassUIDSub Class Reference

[ImplementationClassUIDSub](#) PS 3.7 [Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS \(A-ASSOCIATE-RQ\)](#)

```
#include <gdcmmImplementationClassUIDSub.h>
```

Public Member Functions

- [ImplementationClassUIDSub](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.154.1 Detailed Description

[ImplementationClassUIDSub](#) PS 3.7 [Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS \(A-ASSOCIATE-RQ\)](#)

10.154.2 Constructor & Destructor Documentation

10.154.2.1 `gdcmm::network::ImplementationClassUIDSub::ImplementationClassUIDSub ()`

10.154.3 Member Function Documentation

10.154.3.1 `void gdcmm::network::ImplementationClassUIDSub::Print (std::ostream & os) const`

10.154.3.2 `std::istream& gdcmm::network::ImplementationClassUIDSub::Read (std::istream & is)`

10.154.3.3 `size_t gdcmm::network::ImplementationClassUIDSub::Size () const`

10.154.3.4 `const std::ostream& gdcmm::network::ImplementationClassUIDSub::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

- [gdcmmImplementationClassUIDSub.h](#)

10.155 gdcm::network::ImplementationUIDSub Class Reference

[ImplementationUIDSub Table](#) D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

```
#include <gdcmImplementationUIDSub.h>
```

Public Member Functions

- [ImplementationUIDSub](#) ()
- const std::ostream & [Write](#) (std::ostream &os) const

10.155.1 Detailed Description

[ImplementationUIDSub Table](#) D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

10.155.2 Constructor & Destructor Documentation

10.155.2.1 gdcm::network::ImplementationUIDSub::ImplementationUIDSub ()

10.155.3 Member Function Documentation

10.155.3.1 const std::ostream& gdcm::network::ImplementationUIDSub::Write (std::ostream & os) const

The documentation for this class was generated from the following file:

- [gdcmImplementationUIDSub.h](#)

10.156 gdcm::network::ImplementationVersionNameSub Class Reference

[ImplementationVersionNameSub Table](#) D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

```
#include <gdcmImplementationVersionNameSub.h>
```

Public Member Functions

- [ImplementationVersionNameSub](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.156.1 Detailed Description

[ImplementationVersionNameSub Table](#) D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.156.2 Constructor & Destructor Documentation

10.156.2.1 `gdcmm::network::ImplementationVersionNameSub::ImplementationVersionNameSub ()`

10.156.3 Member Function Documentation

10.156.3.1 `void gdcmm::network::ImplementationVersionNameSub::Print (std::ostream & os) const`

10.156.3.2 `std::istream& gdcmm::network::ImplementationVersionNameSub::Read (std::istream & is)`

10.156.3.3 `size_t gdcmm::network::ImplementationVersionNameSub::Size () const`

10.156.3.4 `const std::ostream& gdcmm::network::ImplementationVersionNameSub::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

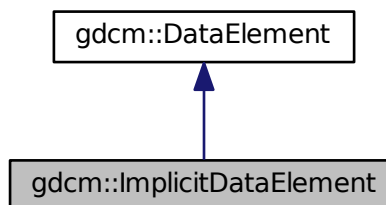
- [gdcmmImplementationVersionNameSub.h](#)

10.157 gdcmm::ImplicitDataElement Class Reference

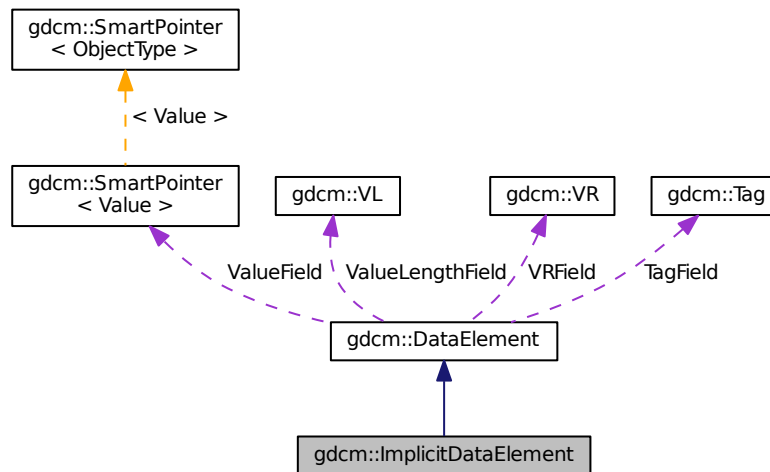
Class to represent an *Implicit VR Data Element*.

```
#include <gdcmmImplicitDataElement.h>
```

Inheritance diagram for `gdcmm::ImplicitDataElement`:



Collaboration diagram for gdcm::ImplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadValueWithLength](#) (std::istream &is, [VL](#) &length, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length, bool readvalues=true)
- template<typename TSwap >
const std::ostream & [Write](#) (std::ostream &os) const

Additional Inherited Members

10.157.1 Detailed Description

Class to represent an *Implicit* [VR](#) Data [Element](#).

Note

bla

Examples:

[ReadExplicitLengthSQIVR.cxx](#).

10.157.2 Member Function Documentation

10.157.2.1 `VL gdcm::ImplicitDataElement::GetLength () const`

10.157.2.2 `template<typename TSwap > std::istream& gdcm::ImplicitDataElement::Read (std::istream & is)`

10.157.2.3 `template<typename TSwap > std::istream& gdcm::ImplicitDataElement::ReadPreValue (std::istream & is)`

10.157.2.4 `template<typename TSwap > std::istream& gdcm::ImplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.157.2.5 `template<typename TSwap > std::istream& gdcm::ImplicitDataElement::ReadValueWithLength (std::istream & is, VL & length, bool readvalues = true)`

10.157.2.6 `template<typename TSwap > std::istream& gdcm::ImplicitDataElement::ReadWithLength (std::istream & is, VL & length, bool readvalues = true)`

10.157.2.7 `template<typename TSwap > const std::ostream& gdcm::ImplicitDataElement::Write (std::ostream & os) const`

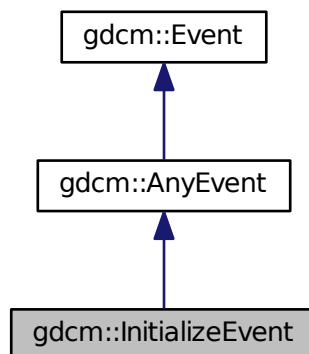
The documentation for this class was generated from the following file:

- [gdcmImplicitDataElement.h](#)

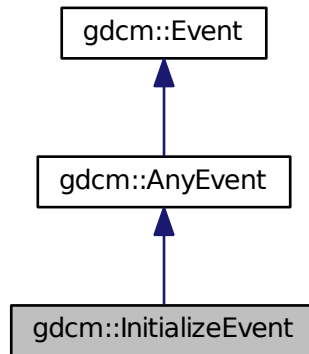
10.158 gdcm::InitializeEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for `gdcm::InitializeEvent`:



Collaboration diagram for gdcm::InitializeEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcmEvent.h](#)

10.159 gdcm::IOD Class Reference

Class for representing a [IOD](#).

```
#include <gdcmIOD.h>
```

Public Types

- typedef std::vector< [IODEntry](#) > [MapIODEntry](#)
- typedef MapIODEntry::size_type [SizeType](#)

Public Member Functions

- [IOD](#) ()
- void [AddIODEntry](#) (const [IODEntry](#) &iode)
- void [Clear](#) ()
- const [IODEntry](#) & [GetIODEntry](#) ([SizeType](#) idx) const
- [SizeType](#) [GetNumberOfIODs](#) () const
- [Type](#) [GetTypeFromTag](#) (const [Defs](#) &defs, const [Tag](#) &tag) const

Friends

- `std::ostream & operator<< (std::ostream &_os, const IOD &_val)`

10.159.1 Detailed Description

Class for representing a [IOD](#).

Note

bla

See also

[Dict](#)

Examples:

[TraverseModules.cxx](#).

10.159.2 Member Typedef Documentation

10.159.2.1 `typedef std::vector<IODEntry> gdcm::IOD::MapIODEntry`

10.159.2.2 `typedef MapIODEntry::size_type gdcm::IOD::SizeType`

10.159.3 Constructor & Destructor Documentation

10.159.3.1 `gdcm::IOD::IOD () [inline]`

References `gdcm::operator<<()`.

10.159.4 Member Function Documentation

10.159.4.1 `void gdcm::IOD::AddIODEntry (const IODEntry & iode) [inline]`

10.159.4.2 `void gdcm::IOD::Clear () [inline]`

10.159.4.3 `const IODEntry& gdcm::IOD::GetIODEntry (SizeType idx) const [inline]`

Examples:

[TraverseModules.cxx](#).

10.159.4.4 `SizeType` `gdcm::IOD::GetNumberOfIODs () const` `[inline]`

Examples:

[TraverseModules.cxx](#).

10.159.4.5 `Type` `gdcm::IOD::GetTypeFromTag (const Defs & defs, const Tag & tag) const`

10.159.5 Friends And Related Function Documentation

10.159.5.1 `std::ostream& operator<< (std::ostream &_os, const IOD &_val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmIOD.h](#)

10.160 gdcm::IODEntry Class Reference

Class for representing a [IODEntry](#).

```
#include <gdcmIODEntry.h>
```

Public Member Functions

- [IODEntry](#) (const char *name="", const char *ref="", const char *usag="")
- const char * [GetIE](#) () const
- const char * [GetName](#) () const
- const char * [GetRef](#) () const
- const char * [GetUsage](#) () const
- [Usage::UsageType](#) [GetUsageType](#) () const
- void [SetIE](#) (const char *ie)
- void [SetName](#) (const char *name)
- void [SetRef](#) (const char *ref)
- void [SetUsage](#) (const char *usag)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [IODEntry](#) &_val)

10.160.1 Detailed Description

Class for representing a [IODEntry](#).

Note

A.1.3 [IOD Module Table](#) and Functional Group [Macro Table](#) This Section of each [IOD](#) defines in a tabular form the [Modules](#) comprising the [IOD](#). The following information must be specified for each [Module](#) in the table:

- The name of the [Module](#) or Functional Group
- A reference to the Section in Annex C which defines the [Module](#) or Functional Group
- The usage of the [Module](#) or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The [Modules](#) referenced are defined in Annex C. A.1.3.1 MAN↔DATORY MODULES For each [IOD](#), Mandatory [Modules](#) shall be supported per the definitions, semantics and requirements defined in Annex C. PS 3.3 - 2008 Page 96
- Standard - A.1.3.2 CONDITIONAL MODULES Conditional [Modules](#) are Mandatory [Modules](#) if specific conditions are met. If the specified conditions are not met, this [Module](#) shall not be supported; that is, no information defined in that [Module](#) shall be sent. A.1.3.3 USER OPTION MODULES User Option [Modules](#) may or may not be supported. If an optional [Module](#) is supported, the [Attribute](#) Types specified in the [Modules](#) in Annex C shall be supported.

See also

[DictEntry](#)

Examples:

[TraverseModules.cxx](#).

10.160.2 Constructor & Destructor Documentation

10.160.2.1 `gdcm::IODEntry::IODEntry (const char * name = " ", const char * ref = " ", const char * usag = " ") [inline]`

References `gdcm::operator<<()`.

10.160.3 Member Function Documentation

10.160.3.1 `const char* gdcm::IODEntry::GetIE () const [inline]`

10.160.3.2 `const char* gdcm::IODEntry::GetName () const [inline]`

10.160.3.3 `const char* gdcm::IODEntry::GetRef () const [inline]`

Examples:

[TraverseModules.cxx](#).

10.160.3.4 `const char* gdcm::IODEntry::GetUsage () const` `[inline]`

10.160.3.5 `Usage::UsageType gdcm::IODEntry::GetUsageType () const`

10.160.3.6 `void gdcm::IODEntry::SetIE (const char * ie)` `[inline]`

10.160.3.7 `void gdcm::IODEntry::SetName (const char * name)` `[inline]`

10.160.3.8 `void gdcm::IODEntry::SetRef (const char * ref)` `[inline]`

10.160.3.9 `void gdcm::IODEntry::SetUsage (const char * usag)` `[inline]`

10.160.4 Friends And Related Function Documentation

10.160.4.1 `std::ostream& operator<< (std::ostream & _os, const IODEntry & _val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmIODEntry.h](#)

10.161 gdcm::IODs Class Reference

Class for representing a [IODs](#).

```
#include <gdcmIODs.h>
```

Public Types

- `typedef std::map< IODName, IOD > IODMapType`
- `typedef IODMapType::const_iterator IODMapTypeConstIterator`
- `typedef std::string IODName`

Public Member Functions

- [IODs](#) ()
- `void AddIOD (const char *name, const IOD &module)`
- `IODMapTypeConstIterator Begin () const`
- `void Clear ()`
- `IODMapTypeConstIterator End () const`
- `const IOD & GetIOD (const char *name) const`

Friends

- `std::ostream & operator<< (std::ostream &_os, const IODs &_val)`

10.161.1 Detailed Description

Class for representing a [IODs](#).

Note

bla

See also

[IOD](#)

Examples:

[TraverseModules.cxx](#).

10.161.2 Member Typedef Documentation

10.161.2.1 `typedef std::map<IODName, IOD> gdcm::IODs::IODMapType`

10.161.2.2 `typedef IODMapType::const_iterator gdcm::IODs::IODMapTypeConstIterator`

10.161.2.3 `typedef std::string gdcm::IODs::IODName`

10.161.3 Constructor & Destructor Documentation

10.161.3.1 `gdcm::IODs::IODs () [inline]`

References `gdcm::operator<<()`.

10.161.4 Member Function Documentation

10.161.4.1 `void gdcm::IODs::AddIOD (const char * name, const IOD & module) [inline]`

10.161.4.2 `IODMapTypeConstIterator gdcm::IODs::Begin () const [inline]`

Examples:

[TraverseModules.cxx](#).

10.161.4.3 void gdcm::IODs::Clear () [inline]

10.161.4.4 IODMapTypeConstIterator gdcm::IODs::End () const [inline]

Examples:

[TraverseModules.cxx](#).

10.161.4.5 const IOD& gdcm::IODs::GetIOD (const char * *name*) const [inline]

10.161.5 Friends And Related Function Documentation

10.161.5.1 std::ostream& operator<< (std::ostream &_os, const IODs &_val) [friend]

The documentation for this class was generated from the following file:

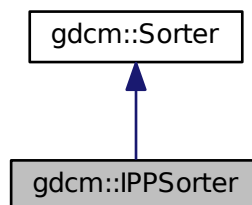
- [gdcmIODs.h](#)

10.162 gdcm::IPPSorter Class Reference

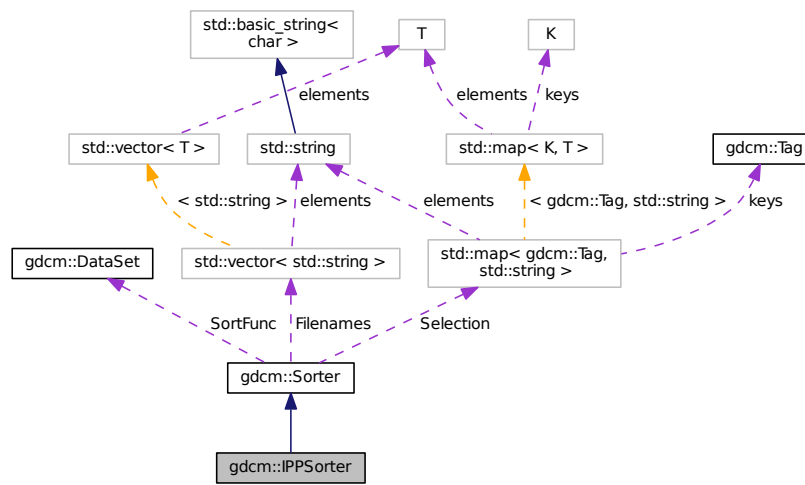
IPPSorter Implement a simple **Image** Position (**Patient**) sorter, along the **Image Orientation** (**Patient**) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

```
#include <gdcmIPPSorter.h>
```

Inheritance diagram for gdcm::IPPSorter:



Collaboration diagram for `gdcm::IPPSorter`:



Public Member Functions

- `IPPSorter ()`
- `double GetDirectionCosinesTolerance () const`
- `double GetZSpacing () const`
- `double GetZSpacingTolerance () const`
- `void SetComputeZSpacing (bool b)`
- `void SetDirectionCosinesTolerance (double tol)`
- `void SetDropDuplicatePositions (bool b)`
- `void SetZSpacingTolerance (double tol)`
- `virtual bool Sort (std::vector< std::string > const &filenames)`

Protected Attributes

- `bool ComputeZSpacing`
- `double DirCosTolerance`
- `bool DropDuplicatePositions`
- `double ZSpacing`
- `double ZTolerance`

Additional Inherited Members

10.162.1 Detailed Description

`IPPSorter` Implement a simple `Image` Position (`Patient`) sorter, along the `Image Orientation` (`Patient`) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

Warning

See special note for SetZSpacingTolerance when computing the ZSpacing from the IPP of each DICOM files (default tolerance for consistent spacing is: 1e-6mm)

For more information on [Spacing](#), and how it is defined in DICOM, advanced users may refers to:

http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing

Bug There are currently a couple of bugs in this implementation:

- Gantry Tilt is not considered (always an error)
- Application programmer should only sort valid [DataSet](#) (eg. MRImageStorage, CTImageStorage, PETImageStorage)

Examples:

[Compute3DSpacing.cxx](#), [gdcmorthoplanes.cxx](#), [reslicesphere.cxx](#), and [VolumeSorter.cxx](#).

10.162.2 Constructor & Destructor Documentation

10.162.2.1 `gdcm::IPPSorter::IPPSorter ()`

10.162.3 Member Function Documentation

10.162.3.1 `double gdcm::IPPSorter::GetDirectionCosinesTolerance () const` `[inline]`

10.162.3.2 `double gdcm::IPPSorter::GetZSpacing () const` `[inline]`

Read-only function to provide access to the computed value for the Z-Spacing The ComputeZSpacing must have been set to true before execution of sort algorithm. Call this function *after* calling [Sort\(\)](#); Z-Spacing will be 0 on 2 occasions:

- Sorting simply failed, potentially duplicate IPP => ZSpacing = 0
- ZSpacing could not be computed (Z-Spacing is not constant, or ZTolerance is too low)

Examples:

[Compute3DSpacing.cxx](#), [gdcmorthoplanes.cxx](#), and [reslicesphere.cxx](#).

10.162.3.3 `double gdcmm::IPPSorter::GetZSpacingTolerance () const` `[inline]`

10.162.3.4 `void gdcmm::IPPSorter::SetComputeZSpacing (bool b)` `[inline]`

Functions related to Z-Spacing computation Set to true when sort algorithm should also perform a regular Z-Spacing computation using the [Image](#) Position ([Patient](#)) Potential reason for failure:

1. ALL slices are taken into account, if one slice is missing then ZSpacing will be set to 0 since the spacing will not be found to be regular along the [Series](#)

Examples:

[Compute3DSpacing.cxx](#), [gdcmmorthoplanes.cxx](#), [reslicesphere.cxx](#), and [VolumeSorter.cxx](#).

10.162.3.5 `void gdcmm::IPPSorter::SetDirectionCosinesTolerance (double tol)` `[inline]`

Sometimes IOP along a series is slightly changing for example: "0.999081\\0.0426953\\0.00369272\\-0.0419025\\0.955059\\0.293439", "0.999081\\0.0426953\\0.00369275\\-0.0419025\\0.955059\\0.293439", "0.999081\\0.0426952\\0.00369272\\-0.0419025\\0.955059\\0.293439", We need an API to define the tolerance which is allowed. Internally the cross vector of each direction cosines is computed. The tolerance then define the distance in between 1.0 to the dot product of those cross vectors. In a perfect world this dot product is of course 1.0 which imply a [DirectionCosines](#) tolerance of exactly 0.0 (default).

10.162.3.6 `void gdcmm::IPPSorter::SetDropDuplicatePositions (bool b)` `[inline]`

Makes the [IPPSorter](#) ignore multiple images located at the same position. Only the first occurrence will be kept. `DropDuplicatePositions` defaults to false.

10.162.3.7 `void gdcmm::IPPSorter::SetZSpacingTolerance (double tol)` `[inline]`

1. Another reason for failure is that that Z-Spacing is only slightly changing (eg 1e-3) along the serie, a human can determine that this is ok and change the tolerance from its default value: 1e-6

Examples:

[Compute3DSpacing.cxx](#), [gdcmmorthoplanes.cxx](#), and [reslicesphere.cxx](#).

10.162.3.8 `virtual bool gdcmm::IPPSorter::Sort (std::vector< std::string > const & filenames)` `[virtual]`

Main entry point to the sorter. It will execute the filter, option should be set before running this function (`SetZSpacingTolerance`, ...) Return value indicate if sorting could be achieved. Warning this does *NOT* imply that spacing is consistent, it only means the file are sorted according to IPP You should check if ZSpacing is 0 or not to deduce if file are actually a 3D volume

Reimplemented from [gdcmm::Sorter](#).

Examples:

[Compute3DSpacing.cxx](#), [gdcmmorthoplanes.cxx](#), [reslicesphere.cxx](#), and [VolumeSorter.cxx](#).

10.162.4 Member Data Documentation

10.162.4.1 `bool gdcm::IPPSorter::ComputeZSpacing` [protected]

10.162.4.2 `double gdcm::IPPSorter::DirCosTolerance` [protected]

10.162.4.3 `bool gdcm::IPPSorter::DropDuplicatePositions` [protected]

10.162.4.4 `double gdcm::IPPSorter::ZSpacing` [protected]

10.162.4.5 `double gdcm::IPPSorter::ZTolerance` [protected]

The documentation for this class was generated from the following file:

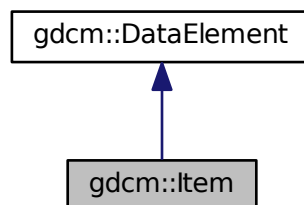
- [gdcmIPPSorter.h](#)

10.163 gdcm::Item Class Reference

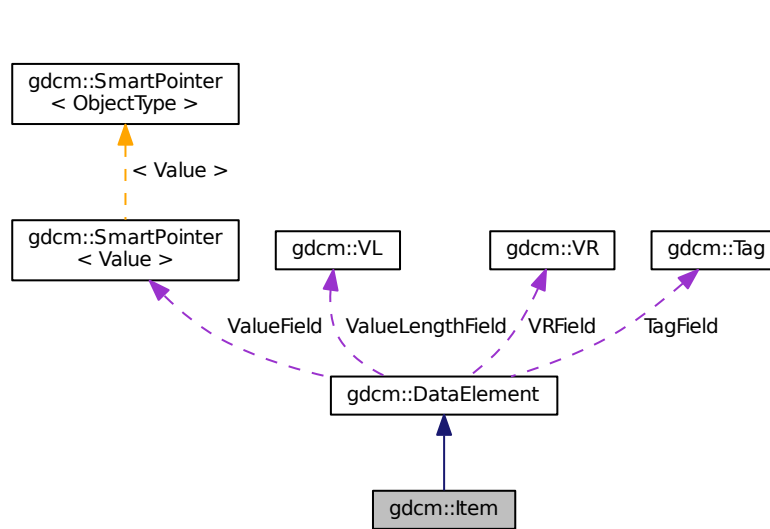
Class to represent an [Item](#) A component of the value of a Data [Element](#) that is of [Value](#) Representation Sequence of Items. An [Item](#) contains a Data Set . See PS 3.5 7.5.1 [Item](#) Encoding Rules Each [Item](#) of a Data [Element](#) of [VR](#) SQ shall be encoded as a DICOM Standart Data [Element](#) with a specific Data [Element](#) Tag of [Value](#) (FFFE,E000). The [Item](#) [Tag](#) is followed by a 4 byte [Item](#) Length field encoded in one of the following two ways Explicit/ Implicit.

```
#include <gdcmItem.h>
```

Inheritance diagram for gdcm::Item:



Collaboration diagram for `gdcm::Item`:



Public Member Functions

- `Item ()`
- `Item (Item const &val)`
- `void Clear ()`
- `bool FindDataElement (const Tag &t) const`
- `const DataElement & GetDataElement (const Tag &t) const`
- `template<typename TDE >`
`VL GetLength () const`
- `const DataSet & GetNestedDataSet () const`
- `DataSet & GetNestedDataSet ()`
- `void InsertDataElement (const DataElement &de)`
- `template<typename TDE , typename TSwap >`
`std::istream & Read (std::istream &is)`
- `void SetNestedDataSet (const DataSet &nested)`
- `template<typename TDE , typename TSwap >`
`const std::ostream & Write (std::ostream &os) const`

Friends

- `std::ostream & operator<< (std::ostream &os, const Item &val)`

Additional Inherited Members

10.163.1 Detailed Description

Class to represent an [Item](#) A component of the value of a Data [Element](#) that is of [Value](#) Representation Sequence of Items. An [Item](#) contains a Data Set . See PS 3.5 7.5.1 [Item](#) Encoding Rules Each [Item](#) of a Data [Element](#) of VR SQ shall be encoded as a DICOM Standart Data [Element](#) with a specific Data [Element](#) Tag of [Value](#) (FFFE,E000). The [Item](#) Tag is followed by a 4 byte [Item](#) Length field encoded in one of the following two ways Explicit/ Implicit.

Note

ITEM: A component of the [Value](#) of a Data [Element](#) that is of [Value](#) Representation Sequence of Items. An [Item](#) contains a Data Set.

Examples:

[ChangeSequenceUltrasound.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [gdcmrtionplan.cxx](#), [gdcmrtplan.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), and [LargeVRDSExplicit.cxx](#).

10.163.2 Constructor & Destructor Documentation

10.163.2.1 `gdcm::Item::Item () [inline]`

References `gdcm::operator<<()`.

10.163.2.2 `gdcm::Item::Item (Item const & val) [inline]`

10.163.3 Member Function Documentation

10.163.3.1 `void gdcm::Item::Clear () [inline]`

Referenced by `gdcm::SequenceOfItems::Read()`.

10.163.3.2 `bool gdcm::Item::FindDataElement (const Tag & t) const [inline]`

Examples:

[ReadAndDumpDICOMDIR.cxx](#).

10.163.3.3 `const DataElement& gdcm::Item::GetDataElement (const Tag & t) const` `[inline]`

Examples:

[ReadAndDumpDICOMDIR.cxx](#).

10.163.3.4 `template<typename TDE > VL gdcm::Item::GetLength () const`

10.163.3.5 `const DataSet& gdcm::Item::GetNestedDataSet () const` `[inline]`

Examples:

[ChangeSequenceUltrasound.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [gdcmrtnplan.cxx](#), [gdcmrtpplan.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenSeqs.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), and [LargeVRDSExplicit.cxx](#).

Referenced by `gdcm::SequenceOfItems::Read()`.

10.163.3.6 `DataSet& gdcm::Item::GetNestedDataSet ()` `[inline]`

10.163.3.7 `void gdcm::Item::InsertDataElement (const DataElement & de)` `[inline]`

10.163.3.8 `template<typename TDE , typename TSwap > std::istream& gdcm::Item::Read (std::istream & is)` `[inline]`

References `gdcm::DataSet::Clear()`, `gdcmDebugMacro`, `gdcmErrorMacro`, `gdcmWarningMacro`, and `gdcm::DataSet::IsEmpty()`.

Referenced by `gdcm::SequenceOfItems::Read()`.

10.163.3.9 `void gdcm::Item::SetNestedDataSet (const DataSet & nested)` `[inline]`

10.163.3.10 `template<typename TDE , typename TSwap > const std::ostream& gdcm::Item::Write (std::ostream & os) const` `[inline]`

References `gdcmWarningMacro`, `gdcm::VL::GetLength()`, `gdcm::VL::Write()`, and `gdcm::Tag::Write()`.

10.163.4 Friends And Related Function Documentation

10.163.4.1 `std::ostream& operator<< (std::ostream & os, const Item & val)` `[friend]`

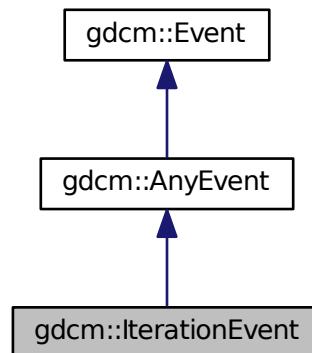
The documentation for this class was generated from the following file:

- [gdcmItem.h](#)

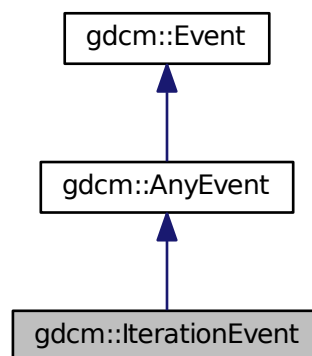
10.164 gdcm::IterationEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::IterationEvent:



Collaboration diagram for gdcm::IterationEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

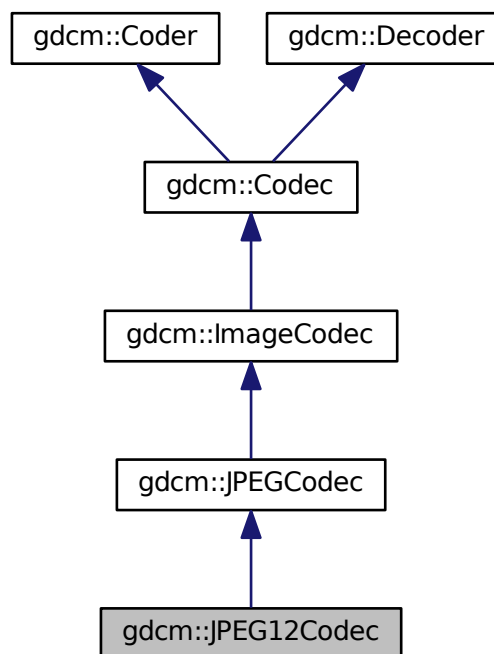
- [gdcmEvent.h](#)

10.165 gdcm::JPEG12Codec Class Reference

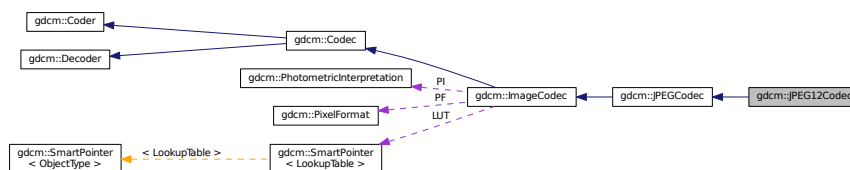
Class to do JPEG 12bits (lossy & lossless)

```
#include <gdcmJPEG12Codec.h>
```

Inheritance diagram for gdcm::JPEG12Codec:



Collaboration diagram for gdcm::JPEG12Codec:



Public Member Functions

- [JPEG12Codec](#) ()
- [~JPEG12Codec](#) ()
- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [InternalCode](#) (const char *input, unsigned long len, std::ostream &os)

Protected Member Functions

- virtual bool [EncodeBuffer](#) (std::ostream &os, const char *data, size_t datalen)
- bool [IsStateSuspension](#) () const

Additional Inherited Members

10.165.1 Detailed Description

Class to do JPEG 12bits (lossy & lossless)

Note

internal class

10.165.2 Constructor & Destructor Documentation

10.165.2.1 `gdcm::JPEG12Codec::JPEG12Codec ()`

10.165.2.2 `gdcm::JPEG12Codec::~~JPEG12Codec ()`

10.165.3 Member Function Documentation

10.165.3.1 `bool gdcm::JPEG12Codec::DecodeByStreams (std::istream & is, std::ostream & os)` [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.165.3.2 `virtual bool gdcm::JPEG12Codec::EncodeBuffer (std::ostream & os, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::JPEGCodec](#).

10.165.3.3 `bool gdcm::JPEG12Codec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcm::JPEGCodec](#).

10.165.3.4 `bool gdcM::JPEG12Codec::InternalCode (const char * input, unsigned long len, std::ostream & os)` `[virtual]`

Reimplemented from [gdcM::Coder](#).

10.165.3.5 `bool gdcM::JPEG12Codec::IsStateSuspension () const` `[protected]`, `[virtual]`

Reimplemented from [gdcM::JPEGCodec](#).

The documentation for this class was generated from the following file:

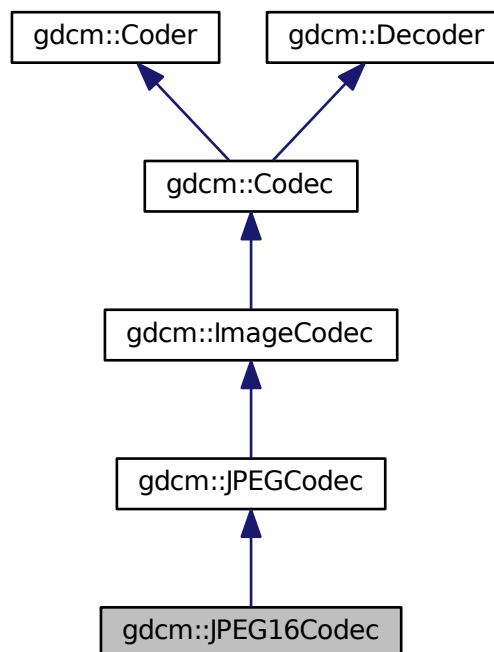
- [gdcMJPEG12Codec.h](#)

10.166 gdcM::JPEG16Codec Class Reference

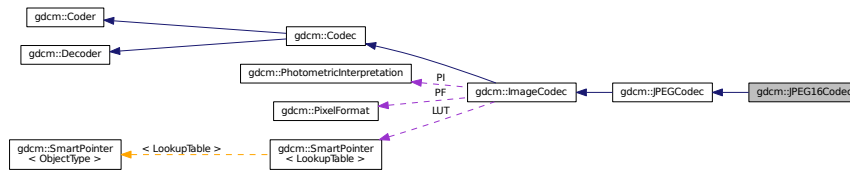
Class to do JPEG 16bits (lossless)

```
#include <gdcMJPEG16Codec.h>
```

Inheritance diagram for gdcM::JPEG16Codec:



Collaboration diagram for gdcm::JPEG16Codec:



Public Member Functions

- [JPEG16Codec](#) ()
- [~JPEG16Codec](#) ()
- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [InternalCode](#) (const char *input, unsigned long len, std::ostream &os)

Protected Member Functions

- virtual bool [EncodeBuffer](#) (std::ostream &os, const char *data, size_t datalen)
- bool [IsStateSuspension](#) () const

Additional Inherited Members

10.166.1 Detailed Description

Class to do JPEG 16bits (lossless)

Note

internal class

10.166.2 Constructor & Destructor Documentation

10.166.2.1 `gdcm::JPEG16Codec::JPEG16Codec ()`

10.166.2.2 `gdcm::JPEG16Codec::~~JPEG16Codec ()`

10.166.3 Member Function Documentation

10.166.3.1 `bool gdcm::JPEG16Codec::DecodeByStreams (std::istream & is, std::ostream & os)` [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.166.3.2 `virtual bool gdcM::JPEG16Codec::EncodeBuffer (std::ostream & os, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcM::JPEGCodec](#).

10.166.3.3 `bool gdcM::JPEG16Codec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcM::JPEGCodec](#).

10.166.3.4 `bool gdcM::JPEG16Codec::InternalCode (const char * input, unsigned long len, std::ostream & os)` [virtual]

Reimplemented from [gdcM::Coder](#).

10.166.3.5 `bool gdcM::JPEG16Codec::IsStateSuspension () const` [protected], [virtual]

Reimplemented from [gdcM::JPEGCodec](#).

The documentation for this class was generated from the following file:

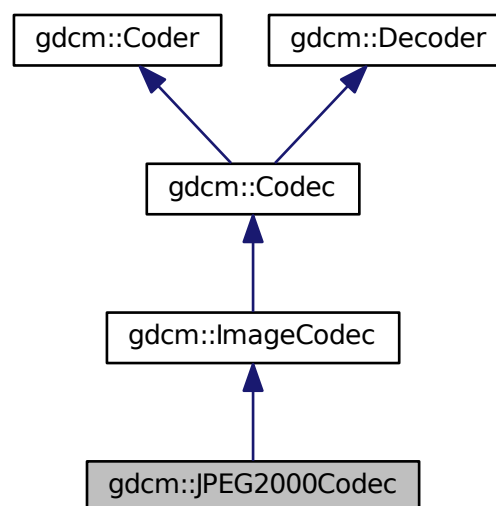
- [gdcMJPEG16Codec.h](#)

10.167 gdcM::JPEG2000Codec Class Reference

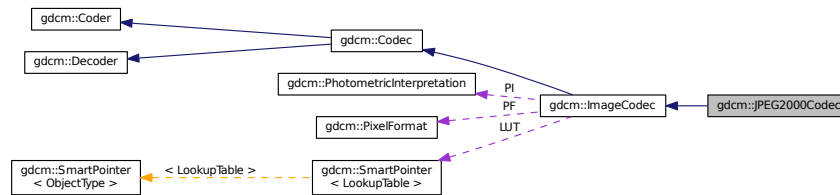
Class to do JPEG 2000.

```
#include <gdcMJPEG2000Codec.h>
```

Inheritance diagram for gdcM::JPEG2000Codec:



Collaboration diagram for gdcm::JPEG2000Codec:



Public Member Functions

- [JPEG2000Codec](#) ()
- [~JPEG2000Codec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)
Code.
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.
- virtual bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- double [GetQuality](#) (unsigned int idx=0) const
- double [GetRate](#) (unsigned int idx=0) const
- void [SetNumberOfResolutions](#) (unsigned int nres)
- void [SetQuality](#) (unsigned int idx, double q)
- void [SetRate](#) (unsigned int idx, double rate)
- void [SetReversible](#) (bool res)
- void [SetTileSize](#) (unsigned int tx, unsigned int ty)

Protected Member Functions

- bool [AppendFrameEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [AppendRowEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)
- bool [DecodeExtent](#) (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool [IsFrameEncoder](#) ()
- bool [IsRowEncoder](#) ()
- bool [StartEncode](#) (std::ostream &)
- bool [StopEncode](#) (std::ostream &)

Friends

- class [Bitmap](#)
- class [ImageRegionReader](#)

Additional Inherited Members

10.167.1 Detailed Description

Class to do JPEG 2000.

Note

the class will produce JPC (JPEG 2000 codestream), since some private implementor are using full jp2 file the decoder tolerate jp2 input this is an implementation of an [ImageCodec](#)

10.167.2 Constructor & Destructor Documentation

10.167.2.1 `gdcm::JPEG2000Codec::JPEG2000Codec ()`

10.167.2.2 `gdcm::JPEG2000Codec::~~JPEG2000Codec ()`

10.167.3 Member Function Documentation

10.167.3.1 `bool gdcm::JPEG2000Codec::AppendFrameEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.2 `bool gdcm::JPEG2000Codec::AppendRowEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.3 `bool gdcm::JPEG2000Codec::CanCode (TransferSyntax const &) const` [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.4 `bool gdcm::JPEG2000Codec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.5 `virtual ImageCodec* gdcm::JPEG2000Codec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.167.3.6 `bool gdcm::JPEG2000Codec::Code (DataElement const & in_, DataElement & out_)` [virtual]

Code.

Reimplemented from [gdcm::Coder](#).

10.167.3.7 `bool gdcm::JPEG2000Codec::Decode (DataElement const &, DataElement &)` [virtual]

Decode.

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.8 `bool gdcm::JPEG2000Codec::DecodeByStreams (std::istream & is, std::ostream & os)` [protected],
[virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.9 `bool gdcm::JPEG2000Codec::DecodeExtent (char * buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin,
unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream & is)` [protected]

10.167.3.10 `virtual bool gdcm::JPEG2000Codec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.11 `double gdcm::JPEG2000Codec::GetQuality (unsigned int idx = 0) const`

10.167.3.12 `double gdcm::JPEG2000Codec::GetRate (unsigned int idx = 0) const`

10.167.3.13 `bool gdcm::JPEG2000Codec::IsFrameEncoder ()` [protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.167.3.14 `bool gdc::JPEG2000Codec::IsRowEncoder ()` [protected],[virtual]

Reimplemented from [gdc::ImageCodec](#).

10.167.3.15 `void gdc::JPEG2000Codec::SetNumberOfResolutions (unsigned int nres)`

10.167.3.16 `void gdc::JPEG2000Codec::SetQuality (unsigned int idx, double q)`

10.167.3.17 `void gdc::JPEG2000Codec::SetRate (unsigned int idx, double rate)`

10.167.3.18 `void gdc::JPEG2000Codec::SetReversible (bool res)`

10.167.3.19 `void gdc::JPEG2000Codec::SetTileSize (unsigned int tx, unsigned int ty)`

10.167.3.20 `bool gdc::JPEG2000Codec::StartEncode (std::ostream &)` [protected],[virtual]

Reimplemented from [gdc::ImageCodec](#).

10.167.3.21 `bool gdc::JPEG2000Codec::StopEncode (std::ostream &)` [protected],[virtual]

Reimplemented from [gdc::ImageCodec](#).

10.167.4 Friends And Related Function Documentation

10.167.4.1 `friend class Bitmap` [friend]

10.167.4.2 `friend class ImageRegionReader` [friend]

The documentation for this class was generated from the following file:

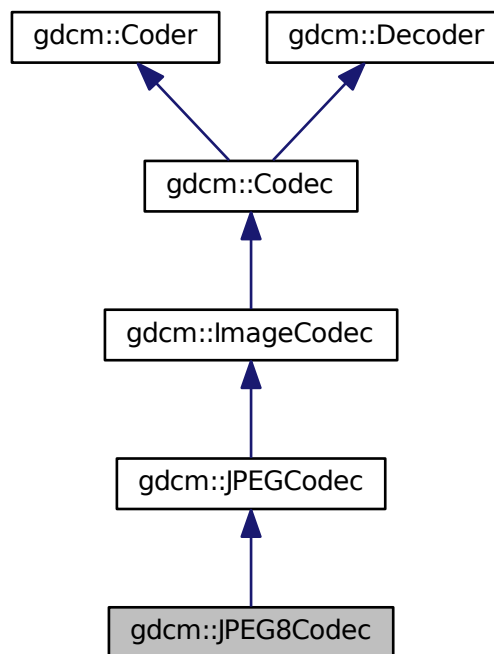
- [gdcJPEG2000Codec.h](#)

10.168 gdcm::JPEG8Codec Class Reference

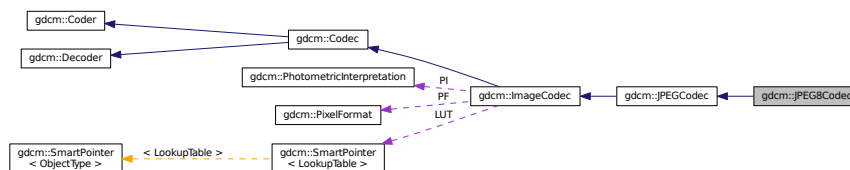
Class to do JPEG 8bits (lossy & lossless)

```
#include <gdcmJPEG8Codec.h>
```

Inheritance diagram for gdcm::JPEG8Codec:



Collaboration diagram for gdcm::JPEG8Codec:



Public Member Functions

- [JPEG8Codec](#) ()
- [~JPEG8Codec](#) ()
- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [InternalCode](#) (const char *input, unsigned long len, std::ostream &os)

Protected Member Functions

- virtual bool [EncodeBuffer](#) (std::ostream &os, const char *data, size_t datalen)
- bool [IsStateSuspension](#) () const

Additional Inherited Members

10.168.1 Detailed Description

Class to do JPEG 8bits (lossy & lossless)

Note

internal class

10.168.2 Constructor & Destructor Documentation

10.168.2.1 `gdcm::JPEG8Codec::JPEG8Codec ()`

10.168.2.2 `gdcm::JPEG8Codec::~~JPEG8Codec ()`

10.168.3 Member Function Documentation

10.168.3.1 `bool gdcm::JPEG8Codec::DecodeByStreams (std::istream & is, std::ostream & os)` `[virtual]`

Reimplemented from [gdcm::ImageCodec](#).

10.168.3.2 `virtual bool gdcm::JPEG8Codec::EncodeBuffer (std::ostream & os, const char * data, size_t datalen)`
`[protected], [virtual]`

Reimplemented from [gdcm::JPEGCodec](#).

10.168.3.3 `bool gdcm::JPEG8Codec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` `[virtual]`

Reimplemented from [gdcm::JPEGCodec](#).

10.168.3.4 `bool gdcm::JPEG8Codec::InternalCode (const char * input, unsigned long len, std::ostream & os)` [virtual]

Reimplemented from [gdcm::Coder](#).

10.168.3.5 `bool gdcm::JPEG8Codec::IsStateSuspension () const` [protected],[virtual]

Reimplemented from [gdcm::JPEGCodec](#).

The documentation for this class was generated from the following file:

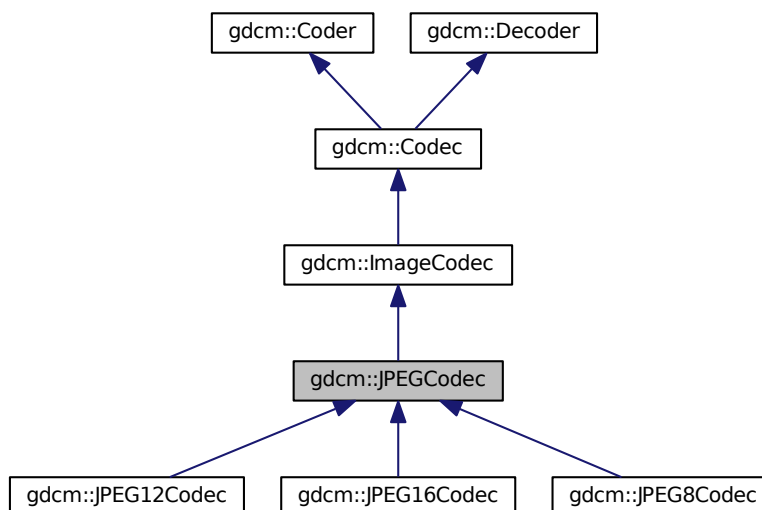
- [gdcmJPEG8Codec.h](#)

10.169 gdcm::JPEGCodec Class Reference

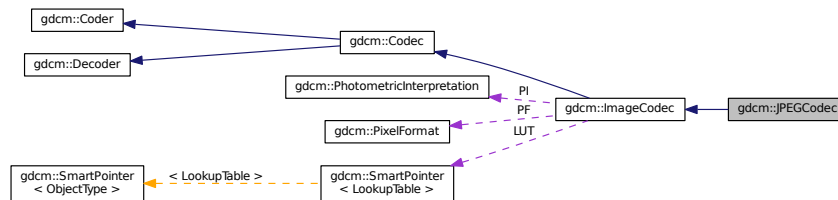
JPEG codec Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispach in between the different codec implementation: [JPEG8Codec](#), [JPEG12Codec](#) & [JPEG16Codec](#) It also support inconsistency in between DICOM header and JPEG compressed stream [ImageCodec](#) implementation for the JPEG case.

```
#include <gdcmJPEGCodec.h>
```

Inheritance diagram for `gdcm::JPEGCodec`:



Collaboration diagram for `gdcm::JPEGCodec`:



Public Member Functions

- `JPEGCodec ()`
- `~JPEGCodec ()`
- `bool CanCode (TransferSyntax const &ts) const`
Return whether this coder support this transfer syntax (can code it)
- `bool CanDecode (TransferSyntax const &ts) const`
Return whether this decoder support this transfer syntax (can decode it)
- `virtual ImageCodec * Clone () const`
- `bool Code (DataElement const &in, DataElement &out)`
Compress into JPEG.
- `void ComputeOffsetTable (bool b)`
Compute the offset table:
- `bool Decode (DataElement const &is, DataElement &os)`
Decode.
- `virtual bool EncodeBuffer (std::ostream &out, const char *inbuffer, size_t inlen)`
- `virtual bool GetHeaderInfo (std::istream &is, TransferSyntax &ts)`
- `bool GetLossless () const`
- `double GetQuality () const`
- `void SetLossless (bool l)`
- `void SetPixelFormat (PixelFormat const &pf)`
- `void SetQuality (double q)`

Protected Member Functions

- `bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)`
- `bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)`
- `bool DecodeByStreams (std::istream &is, std::ostream &os)`
- `bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)`
- `bool IsFrameEncoder ()`
- `bool IsRowEncoder ()`
- `virtual bool IsStateSuspension () const`
- `bool IsValid (PhotometricInterpretation const &pi)`
- `void SetBitSample (int bit)`
- `bool StartEncode (std::ostream &)`
- `bool StopEncode (std::ostream &)`

Protected Attributes

- int [BitSample](#)
- int [Quality](#)

Friends

- class [ImageRegionReader](#)

Additional Inherited Members

10.169.1 Detailed Description

JPEG codec Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispach in between the different codec implementation: [JPEG8Codec](#), [JPEG12Codec](#) & [JPEG16Codec](#) It also support inconsistency in between DICOM header and JPEG compressed stream [ImageCodec](#) implementation for the JPEG case.

Note

Things you should know if you ever want to dive into DICOM/JPEG world (among other):

- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/625e46919f208
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/75fdfccc65a62
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/2d525ef6a2f09
- http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/6b93af410f8c92

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.169.2 Constructor & Destructor Documentation

10.169.2.1 `gdcm::JPEGCodec::JPEGCodec ()`

10.169.2.2 `gdcm::JPEGCodec::~~JPEGCodec ()`

10.169.3 Member Function Documentation

10.169.3.1 `bool gdcm::JPEGCodec::AppendFrameEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.2 `bool gdcm::JPEGCodec::AppendRowEncode (std::ostream & out, const char * data, size_t datalen)`
[protected],[virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.3 `bool gdcm::JPEGCodec::CanCode (TransferSyntax const &) const` [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.4 `bool gdcm::JPEGCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.5 `virtual ImageCodec* gdcm::JPEGCodec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.169.3.6 `bool gdcm::JPEGCodec::Code (DataElement const & in, DataElement & out)` [virtual]

Compress into JPEG.

Reimplemented from [gdcm::Coder](#).

10.169.3.7 `void gdcm::JPEGCodec::ComputeOffsetTable (bool b)`

Compute the offset table:

10.169.3.8 `bool gdcm::JPEGCodec::Decode (DataElement const & , DataElement &)` [virtual]

Decode.

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.9 `bool gdcm::JPEGCodec::DecodeByStreams (std::istream & is, std::ostream & os)` [protected],[virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.10 `bool gdcm::JPEGCodec::DecodeExtent (char * buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream & is)` [protected]

10.169.3.11 `virtual bool gdcm::JPEGCodec::EncodeBuffer (std::ostream & out, const char * inbuffer, size_t inlen)` [virtual]

Reimplemented in [gdcm::JPEG12Codec](#), [gdcm::JPEG16Codec](#), and [gdcm::JPEG8Codec](#).

10.169.3.12 `virtual bool gdcm::JPEGCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcm::ImageCodec](#).

Reimplemented in [gdcm::JPEG12Codec](#), [gdcm::JPEG16Codec](#), and [gdcm::JPEG8Codec](#).

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.169.3.13 `bool gdcm::JPEGCodec::GetLossless () const`

10.169.3.14 `double gdcm::JPEGCodec::GetQuality () const`

10.169.3.15 `bool gdcm::JPEGCodec::IsFrameEncoder ()` [protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.16 `bool gdcm::JPEGCodec::IsRowEncoder ()` [protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.17 `virtual bool gdcm::JPEGCodec::IsStateSuspension () const` [protected], [virtual]

Reimplemented in [gdcm::JPEG12Codec](#), [gdcm::JPEG16Codec](#), and [gdcm::JPEG8Codec](#).

10.169.3.18 `bool gdcm::JPEGCodec::IsValid (PhotometricInterpretation const & pi)` [protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.169.3.19 void gdcM::JPEGCodec::SetBitSample (int *bit*) [protected]

10.169.3.20 void gdcM::JPEGCodec::SetLossless (bool *l*)

10.169.3.21 void gdcM::JPEGCodec::SetPixelFormat (PixelFormat const & *pf*) [virtual]

Reimplemented from [gdcM::ImageCodec](#).

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.169.3.22 void gdcM::JPEGCodec::SetQuality (double *q*)

10.169.3.23 bool gdcM::JPEGCodec::StartEncode (std::ostream &) [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.169.3.24 bool gdcM::JPEGCodec::StopEncode (std::ostream &) [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.169.4 Friends And Related Function Documentation

10.169.4.1 friend class ImageRegionReader [friend]

10.169.5 Member Data Documentation

10.169.5.1 int gdcM::JPEGCodec::BitSample [protected]

10.169.5.2 int gdcM::JPEGCodec::Quality [protected]

The documentation for this class was generated from the following file:

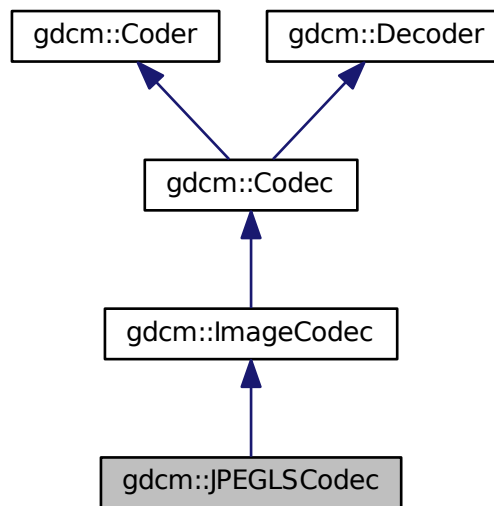
- [gdcMJPEGCodec.h](#)

10.170 gdcm::JPEGLSCodec Class Reference

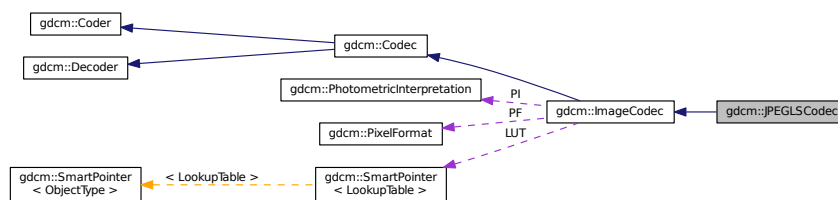
JPEG-LS.

```
#include <gdcmJPEGLSCodec.h>
```

Inheritance diagram for gdcm::JPEGLSCodec:



Collaboration diagram for gdcm::JPEGLSCodec:



Public Member Functions

- [JPEGLSCodec](#) ()
- [~JPEGLSCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const

Return whether this coder support this transfer syntax (can code it)

- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const

Return whether this decoder support this transfer syntax (can decode it)

- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)

Code.

- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)

Decode.

- bool [Decode](#) ([DataElement](#) const &in, char *outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)
- unsigned long [GetBufferLength](#) () const
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [GetLossless](#) () const
- void [SetBufferLength](#) (unsigned long l)
- void [SetLossless](#) (bool l)
- void [SetLossyError](#) (int error)

[0-3] generally

Protected Member Functions

- bool [AppendFrameEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [AppendRowEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [DecodeExtent](#) (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool [IsFrameEncoder](#) ()
- bool [IsRowEncoder](#) ()
- bool [StartEncode](#) (std::ostream &)
- bool [StopEncode](#) (std::ostream &)

Friends

- class [ImageRegionReader](#)

Additional Inherited Members

10.170.1 Detailed Description

JPEG-LS.

Note

codec that implement the JPEG-LS compression this is an implementation of [ImageCodec](#) for JPEG-LS

It uses the CharLS JPEG-LS implementation <http://charls.codeplex.com>

10.170.2 Constructor & Destructor Documentation

10.170.2.1 `gdcm::JPEGLSCodec::JPEGLSCodec ()`

10.170.2.2 `gdcm::JPEGLSCodec::~~JPEGLSCodec ()`

10.170.3 Member Function Documentation

10.170.3.1 `bool gdcm::JPEGLSCodec::AppendFrameEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.170.3.2 `bool gdcm::JPEGLSCodec::AppendRowEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.170.3.3 `bool gdcm::JPEGLSCodec::CanCode (TransferSyntax const &) const` [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.170.3.4 `bool gdcm::JPEGLSCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.170.3.5 `virtual ImageCodec* gdcm::JPEGLSCodec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.170.3.6 `bool gdcm::JPEGLSCodec::Code (DataElement const & in_, DataElement & out_)` [virtual]

Code.

Reimplemented from [gdcm::Coder](#).

10.170.3.7 `bool gdcM::JPEGLSCodec::Decode (DataElement const & , DataElement &)` [virtual]

Decode.

Reimplemented from [gdcM::ImageCodec](#).

10.170.3.8 `bool gdcM::JPEGLSCodec::Decode (DataElement const & in, char * outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)`

10.170.3.9 `bool gdcM::JPEGLSCodec::DecodeExtent (char * buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream & is)` [protected]

10.170.3.10 `unsigned long gdcM::JPEGLSCodec::GetBufferLength () const` [inline]

10.170.3.11 `bool gdcM::JPEGLSCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.170.3.12 `bool gdcM::JPEGLSCodec::GetLossless () const`

10.170.3.13 `bool gdcM::JPEGLSCodec::IsFrameEncoder ()` [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.170.3.14 `bool gdcM::JPEGLSCodec::IsRowEncoder ()` [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.170.3.15 `void gdcM::JPEGLSCodec::SetBufferLength (unsigned long /)` [inline]

10.170.3.16 `void gdcM::JPEGLSCodec::SetLossless (bool /)`

10.170.3.17 `void gdcM::JPEGLSCodec::SetLossyError (int error)`

[0-3] generally

10.170.3.18 `bool gdcM::JPEGLSCodec::StartEncode (std::ostream &)` [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.170.3.19 `bool gdcm::JPEGLSCodec::StopEncode (std::ostream &)` `[protected]`, `[virtual]`

Reimplemented from [gdcm::ImageCodec](#).

10.170.4 Friends And Related Function Documentation

10.170.4.1 `friend class ImageRegionReader` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmJPEGLSCodec.h](#)

10.171 gdcm::JSON Class Reference

```
#include <gdcmJSON.h>
```

Public Member Functions

- [JSON](#) ()
- [~JSON](#) ()
- `bool` [Code](#) ([DataSet](#) const &in, std::ostream &os)
- `bool` [Decode](#) (std::istream &is, [DataSet](#) &out)
- `bool` [GetPrettyPrint](#) () const
- `void` [PrettyPrintOff](#) ()
- `void` [PrettyPrintOn](#) ()
- `void` [SetPrettyPrint](#) (bool onoff)

10.171.1 Detailed Description

Examples:

[QIDO-RS.cxx](#).

10.171.2 Constructor & Destructor Documentation

10.171.2.1 `gdcm::JSON::JSON ()`

10.171.2.2 `gdcm::JSON::~~JSON ()`

10.171.3 Member Function Documentation

10.171.3.1 `bool` `gdcm::JSON::Code` (`DataSet` const & *in*, std::ostream & *os*)

Examples:

[QIDO-RS.cxx](#).

10.171.3.2 `bool gdcM::JSON::Decode (std::istream & is, DataSet & out)`

Examples:

[QIDO-RS.cxx](#).

10.171.3.3 `bool gdcM::JSON::GetPrettyPrint () const`

10.171.3.4 `void gdcM::JSON::PrettyPrintOff ()`

10.171.3.5 `void gdcM::JSON::PrettyPrintOn ()`

Examples:

[QIDO-RS.cxx](#).

10.171.3.6 `void gdcM::JSON::SetPrettyPrint (bool onoff)`

The documentation for this class was generated from the following file:

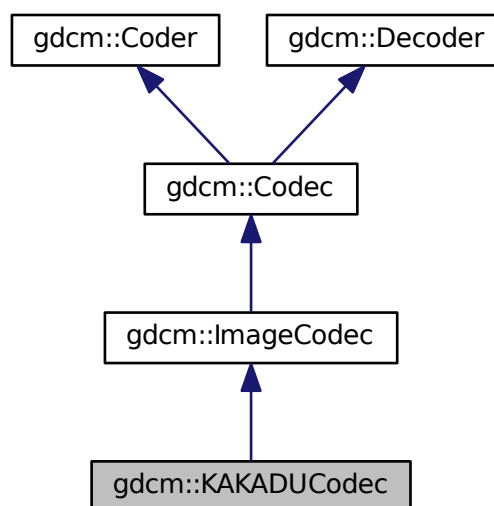
- [gdcMJSON.h](#)

10.172 gdcM::KAKADUCodec Class Reference

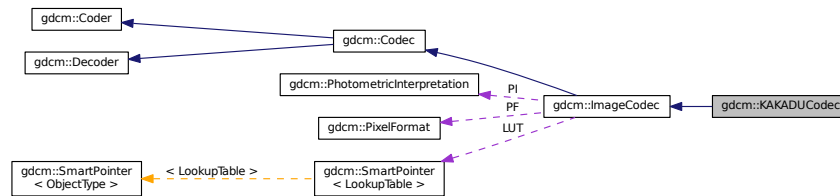
[KAKADUCodec](#).

```
#include <gdcM KAKADUCodec.h>
```

Inheritance diagram for gdcM::KAKADUCodec:



Collaboration diagram for gdcm::KAKADUCodec:



Public Member Functions

- [KAKADUCodec](#) ()
- [~KAKADUCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)
Code.
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.

Additional Inherited Members

10.172.1 Detailed Description

[KAKADUCodec](#).

10.172.2 Constructor & Destructor Documentation

10.172.2.1 [gdcm::KAKADUCodec::KAKADUCodec](#) ()

10.172.2.2 [gdcm::KAKADUCodec::~~KAKADUCodec](#) ()

10.172.3 Member Function Documentation

10.172.3.1 bool [gdcm::KAKADUCodec::CanCode](#) ([TransferSyntax](#) const &) const [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.172.3.2 `bool gdcm::KAKADUCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.172.3.3 `virtual ImageCodec* gdcm::KAKADUCodec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.172.3.4 `bool gdcm::KAKADUCodec::Code (DataElement const & in_, DataElement & out_)` [virtual]

Code.

Reimplemented from [gdcm::Coder](#).

10.172.3.5 `bool gdcm::KAKADUCodec::Decode (DataElement const & , DataElement &)` [virtual]

Decode.

Reimplemented from [gdcm::ImageCodec](#).

The documentation for this class was generated from the following file:

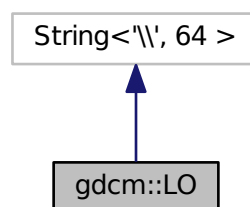
- [gdcmKAKADUCodec.h](#)

10.173 gdcm::LO Class Reference

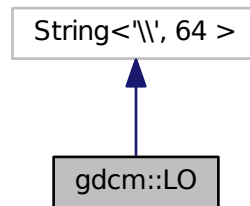
[LO](#).

```
#include <gdcmLO.h>
```

Inheritance diagram for `gdcm::LO`:



Collaboration diagram for gdcm::LO:



Public Types

- typedef Superclass::const_iterator [const_iterator](#)
- typedef Superclass::const_reference [const_reference](#)
- typedef Superclass::const_reverse_iterator [const_reverse_iterator](#)
- typedef Superclass::difference_type [difference_type](#)
- typedef Superclass::iterator [iterator](#)
- typedef Superclass::pointer [pointer](#)
- typedef Superclass::reference [reference](#)
- typedef Superclass::reverse_iterator [reverse_iterator](#)
- typedef Superclass::size_type [size_type](#)
- typedef [String](#)<'\\', 64 > [Superclass](#)
- typedef Superclass::value_type [value_type](#)

Public Member Functions

- [LO](#) ()
- [LO](#) (const [value_type](#) *s)
- [LO](#) (const [value_type](#) *s, [size_type](#) n)
- [LO](#) (const [Superclass](#) &s, [size_type](#) pos=0, [size_type](#) n=npow)
- bool [IsValid](#) () const

10.173.1 Detailed Description

[LO](#).

Note

TODO

10.173.2 Member Typedef Documentation

10.173.2.1 `typedef Superclass::const_iterator gdcm::LO::const_iterator`

10.173.2.2 `typedef Superclass::const_reference gdcm::LO::const_reference`

10.173.2.3 `typedef Superclass::const_reverse_iterator gdcm::LO::const_reverse_iterator`

10.173.2.4 `typedef Superclass::difference_type gdcm::LO::difference_type`

10.173.2.5 `typedef Superclass::iterator gdcm::LO::iterator`

10.173.2.6 `typedef Superclass::pointer gdcm::LO::pointer`

10.173.2.7 `typedef Superclass::reference gdcm::LO::reference`

10.173.2.8 `typedef Superclass::reverse_iterator gdcm::LO::reverse_iterator`

10.173.2.9 `typedef Superclass::size_type gdcm::LO::size_type`

10.173.2.10 `typedef String<'\',64> gdcm::LO::Superclass`

10.173.2.11 `typedef Superclass::value_type gdcm::LO::value_type`

10.173.3 Constructor & Destructor Documentation

10.173.3.1 `gdcm::LO::LO()` `[inline]`

10.173.3.2 `gdcm::LO::LO(const value_type * s)` `[inline]`

10.173.3.3 `gdcm::LO::LO(const value_type * s, size_type n)` `[inline]`

10.173.3.4 `gdcm::LO::LO(const Superclass & s, size_type pos = 0, size_type n = npos)` `[inline]`

10.173.4 Member Function Documentation

10.173.4.1 `bool gdcm::LO::IsValid()` `const` `[inline]`

The documentation for this class was generated from the following file:

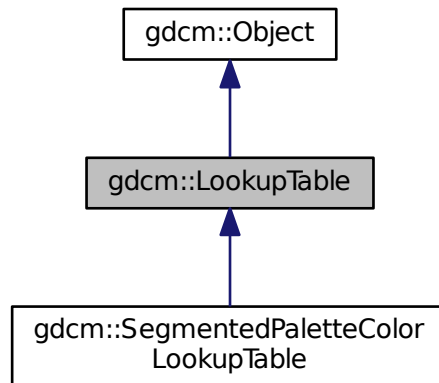
- [gdcmLO.h](#)

10.174 gdcm::LookupTable Class Reference

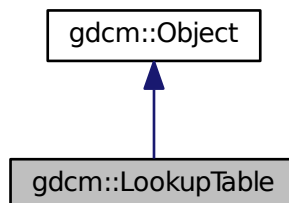
[LookupTable](#) class.

```
#include <gdcmLookupTable.h>
```

Inheritance diagram for gdcm::LookupTable:



Collaboration diagram for gdcm::LookupTable:



Public Types

- enum [LookupTableType](#) {
 [RED](#) = 0,
 [GREEN](#),
 [BLUE](#),
 [GRAY](#),
 [UNKNOWN](#) }

Public Member Functions

- [LookupTable](#) ()
- [LookupTable](#) ([LookupTable](#) const &lut)
- [~LookupTable](#) ()
- void [Allocate](#) (unsigned short bitsample=8)
Allocate the LUT.
- void [Clear](#) ()
Clear the LUT.
- void [Decode](#) (std::istream &is, std::ostream &os) const
Decode the LUT.
- bool [Decode](#) (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- unsigned short [GetBitSample](#) () const
return the bit sample
- bool [GetBufferAsRGBA](#) (unsigned char *rgba) const
return the LUT as RGBA buffer
- void [GetLUT](#) ([LookupTableType](#) type, unsigned char *array, unsigned int &length) const
- void [GetLUTDescriptor](#) ([LookupTableType](#) type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int [GetLUTLength](#) ([LookupTableType](#) type) const
- const unsigned char * [GetPointer](#) () const
return a raw pointer to the LUT
- void [InitializeBlueLUT](#) (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool [Initialized](#) () const
return whether the LUT has been initialized
- void [InitializeGreenLUT](#) (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void [InitializeLUT](#) ([LookupTableType](#) type, unsigned short length, unsigned short subscript, unsigned short bitsize)
Generic interface:
- void [InitializeRedLUT](#) (unsigned short length, unsigned short subscript, unsigned short bitsize)
RED / GREEN / BLUE specific:
- void [Print](#) (std::ostream &) const
- void [SetBlueLUT](#) (const unsigned char *blue, unsigned int length)
- void [SetGreenLUT](#) (const unsigned char *green, unsigned int length)
- virtual void [SetLUT](#) ([LookupTableType](#) type, const unsigned char *array, unsigned int length)
- void [SetRedLUT](#) (const unsigned char *red, unsigned int length)
- bool [WriteBufferAsRGBA](#) (const unsigned char *rgba)
Write the LUT as RGBA.

Protected Attributes

- unsigned short [BitSample](#)
- bool [IncompleteLUT](#):1
- [LookupTableInternal](#) * [Internal](#)

Additional Inherited Members

10.174.1 Detailed Description

[LookupTable](#) class.

10.174.2 Member Enumeration Documentation

10.174.2.1 enum gdcm::LookupTable::LookupTableType

Enumerator

RED
GREEN
BLUE
GRAY
UNKNOWN

10.174.3 Constructor & Destructor Documentation

10.174.3.1 gdcm::LookupTable::LookupTable ()

10.174.3.2 gdcm::LookupTable::~~LookupTable ()

10.174.3.3 gdcm::LookupTable::LookupTable (LookupTable const & lut) [inline]

10.174.4 Member Function Documentation

10.174.4.1 void gdcm::LookupTable::Allocate (unsigned short *bitsample* = 8)

Allocate the LUT.

10.174.4.2 void gdcm::LookupTable::Clear ()

Clear the LUT.

10.174.4.3 void gdcm::LookupTable::Decode (std::istream & *is*, std::ostream & *os*) const

Decode the LUT.

10.174.4.4 bool gdcm::LookupTable::Decode (char * *outputbuffer*, size_t *outlen*, const char * *inputbuffer*, size_t *inlen*) const

Decode the LUT outputbuffer will contains the RGB decoded PALETTE COLOR input image of size inlen the outputbuffer should be at least 3 times the size of inlen

10.174.4.5 unsigned short gdcm::LookupTable::GetBitSample () const [inline]

return the bit sample

10.174.4.6 `bool gdc::LookupTable::GetBufferAsRGBA (unsigned char * rgba) const`

return the LUT as RGBA buffer

10.174.4.7 `void gdc::LookupTable::GetLUT (LookupTableType type, unsigned char * array, unsigned int & length) const`

Examples:

[ExtractImageRegionWithLUT.cs](#).

10.174.4.8 `void gdc::LookupTable::GetLUTDescriptor (LookupTableType type, unsigned short & length, unsigned short & subscript, unsigned short & bitsize) const`

10.174.4.9 `unsigned int gdc::LookupTable::GetLUTLength (LookupTableType type) const`

10.174.4.10 `const unsigned char* gdc::LookupTable::GetPointer () const`

return a raw pointer to the LUT

10.174.4.11 `void gdc::LookupTable::InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)`

10.174.4.12 `bool gdc::LookupTable::Initialized () const`

return whether the LUT has been initialized

10.174.4.13 `void gdc::LookupTable::InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)`

10.174.4.14 `void gdc::LookupTable::InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)`

Generic interface:

10.174.4.15 `void gdc::LookupTable::InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)`

RED / GREEN / BLUE specific:

10.174.4.16 void gdcm::LookupTable::Print (std::ostream &) const [inline],[virtual]

Reimplemented from [gdcm::Object](#).

Reimplemented in [gdcm::SegmentedPaletteColorLookupTable](#).

References [gdcm::terminal::blue](#), [gdcm::terminal::green](#), and [gdcm::terminal::red](#).

10.174.4.17 void gdcm::LookupTable::SetBlueLUT (const unsigned char * *blue*, unsigned int *length*)

10.174.4.18 void gdcm::LookupTable::SetGreenLUT (const unsigned char * *green*, unsigned int *length*)

10.174.4.19 virtual void gdcm::LookupTable::SetLUT (LookupTableType *type*, const unsigned char * *array*, unsigned int *length*) [virtual]

Reimplemented in [gdcm::SegmentedPaletteColorLookupTable](#).

10.174.4.20 void gdcm::LookupTable::SetRedLUT (const unsigned char * *red*, unsigned int *length*)

10.174.4.21 bool gdcm::LookupTable::WriteBufferAsRGBA (const unsigned char * *rgba*)

Write the LUT as RGBA.

10.174.5 Member Data Documentation

10.174.5.1 unsigned short gdcm::LookupTable::BitSample [protected]

10.174.5.2 bool gdcm::LookupTable::IncompleteLUT [protected]

10.174.5.3 LookupTableInternal* gdcm::LookupTable::Internal [protected]

The documentation for this class was generated from the following file:

- [gdcmLookupTable.h](#)

10.175 gdcm::Scanner::Itstr Struct Reference

```
#include <gdcmScanner.h>
```

Public Member Functions

- bool [operator\(\)](#) (const char *s1, const char *s2) const

10.175.1 Member Function Documentation

10.175.1.1 bool `gdcm::Scanner::ltstr::operator()` (const char * *s1*, const char * *s2*) const `[inline]`

The documentation for this struct was generated from the following file:

- [gdcmScanner.h](#)

10.176 gdcm::StrictScanner::ltstr Struct Reference

```
#include <gdcmStrictScanner.h>
```

Public Member Functions

- bool [operator\(\)](#) (const char *s1, const char *s2) const

10.176.1 Member Function Documentation

10.176.1.1 bool `gdcm::StrictScanner::ltstr::operator()` (const char * *s1*, const char * *s2*) const `[inline]`

The documentation for this struct was generated from the following file:

- [gdcmStrictScanner.h](#)

10.177 gdcm::Macro Class Reference

Class for representing a [Macro](#).

```
#include <gdcmMacro.h>
```

Public Types

- typedef std::vector< std::string > [ArrayIncludeMacrosType](#)
- typedef std::map< [Tag](#), [MacroEntry](#) > [MapModuleEntry](#)

Public Member Functions

- [Macro](#) ()
- void [AddMacroEntry](#) (const [Tag](#) &tag, const [MacroEntry](#) &module)
Will add a [ModuleEntry](#) directly at root-level. See [Macro](#) for nested-included level.
- void [Clear](#) ()
- bool [FindMacroEntry](#) (const [Tag](#) &tag) const
- const [MacroEntry](#) & [GetMacroEntry](#) (const [Tag](#) &tag) const
- const char * [GetName](#) () const
- void [SetName](#) (const char *name)
- bool [Verify](#) (const [DataSet](#) &ds, [Usage](#) const &usage) const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Macro](#) &_val)

10.177.1 Detailed Description

Class for representing a [Macro](#).

Note

[Attribute Macro](#): a set of Attributes that are described in a single table that is referenced by multiple [Module](#) or other tables.

See also

[Module](#)

10.177.2 Member Typedef Documentation

10.177.2.1 `typedef std::vector<std::string> gdcm::Macro::ArrayIncludeMacrosType`

10.177.2.2 `typedef std::map<Tag, MacroEntry> gdcm::Macro::MapModuleEntry`

10.177.3 Constructor & Destructor Documentation

10.177.3.1 `gdcm::Macro::Macro () [inline]`

References `gdcm::operator<<()`.

10.177.4 Member Function Documentation

10.177.4.1 `void gdcM::Macro::AddMacroEntry (const Tag & tag, const MacroEntry & module)` `[inline]`

Will add a [ModuleEntry](#) directly at root-level. See [Macro](#) for nested-included level.

10.177.4.2 `void gdcM::Macro::Clear ()` `[inline]`

10.177.4.3 `bool gdcM::Macro::FindMacroEntry (const Tag & tag) const`

Find or Get a [ModuleEntry](#). [ModuleEntry](#) are either search are root-level or within nested-macro included in module.

10.177.4.4 `const MacroEntry& gdcM::Macro::GetMacroEntry (const Tag & tag) const`

10.177.4.5 `const char* gdcM::Macro::GetName () const` `[inline]`

10.177.4.6 `void gdcM::Macro::SetName (const char * name)` `[inline]`

10.177.4.7 `bool gdcM::Macro::Verify (const DataSet & ds, Usage const & usage) const`

10.177.5 Friends And Related Function Documentation

10.177.5.1 `std::ostream& operator<< (std::ostream & _os, const Macro & _val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcMMacro.h](#)

10.178 gdcM::Macros Class Reference

Class for representing a [Modules](#).

```
#include <gdcMMacros.h>
```

Public Types

- `typedef std::map< std::string, Macro > ModuleMapType`

Public Member Functions

- [Macros](#) ()
- void [AddMacro](#) (const char *ref, const [Macro](#) &module)
- void [Clear](#) ()
- const [Macro](#) & [GetMacro](#) (const char *name) const
- bool [IsEmpty](#) () const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Macros](#) &_val)

10.178.1 Detailed Description

Class for representing a [Modules](#).

Note

bla

See also

[Module](#)

Examples:

[TraverseModules.cxx](#).

10.178.2 Member Typedef Documentation

10.178.2.1 `typedef std::map<std::string, Macro> gdcm::Macros::ModuleMapType`

10.178.3 Constructor & Destructor Documentation

10.178.3.1 `gdcm::Macros::Macros () [inline]`

References `gdcm::operator<<()`.

10.178.4 Member Function Documentation

10.178.4.1 `void gdcM::Macros::AddMacro (const char * ref, const Macro & module)` `[inline]`

10.178.4.2 `void gdcM::Macros::Clear ()` `[inline]`

10.178.4.3 `const Macro& gdcM::Macros::GetMacro (const char * name) const` `[inline]`

10.178.4.4 `bool gdcM::Macros::IsEmpty () const` `[inline]`

10.178.5 Friends And Related Function Documentation

10.178.5.1 `std::ostream& operator<< (std::ostream & _os, const Macros & _val)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcMMacros.h](#)

10.179 gdcM::network::MaximumLengthSub Class Reference

[MaximumLengthSub](#) Annex D [Table D.1-1](#) MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

```
#include <gdcMMaximumLengthSub.h>
```

Public Member Functions

- [MaximumLengthSub](#) ()
- `uint32_t` [GetMaximumLength](#) () const
- `void` [Print](#) (std::ostream &os) const
- `std::istream &` [Read](#) (std::istream &is)
- `void` [SetMaximumLength](#) (uint32_t maximumlength)
- `size_t` [Size](#) () const
- `const std::ostream &` [Write](#) (std::ostream &os) const

10.179.1 Detailed Description

[MaximumLengthSub](#) Annex D [Table D.1-1](#) MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

or

[Table D.1-2](#) Maximum length sub-item fields (A-ASSOCIATE-AC)

10.179.2 Constructor & Destructor Documentation

10.179.2.1 `gdcm::network::MaximumLengthSub::MaximumLengthSub ()`

10.179.3 Member Function Documentation

10.179.3.1 `uint32_t gdcm::network::MaximumLengthSub::GetMaximumLength () const` `[inline]`

References `Print()`, and `SetMaximumLength()`.

10.179.3.2 `void gdcm::network::MaximumLengthSub::Print (std::ostream & os) const`

Referenced by `GetMaximumLength()`.

10.179.3.3 `std::istream& gdcm::network::MaximumLengthSub::Read (std::istream & is)`

10.179.3.4 `void gdcm::network::MaximumLengthSub::SetMaximumLength (uint32_t maximumlength)`

Referenced by `GetMaximumLength()`.

10.179.3.5 `size_t gdcm::network::MaximumLengthSub::Size () const`

10.179.3.6 `const std::ostream& gdcm::network::MaximumLengthSub::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

- [gdcmMaximumLengthSub.h](#)

10.180 gdcm::MD5 Class Reference

Class for [MD5](#).

```
#include <gdcmMD5.h>
```

Public Member Functions

- [MD5](#) ()
- [~MD5](#) ()

Static Public Member Functions

- static bool [Compute](#) (const char *buffer, unsigned long buf_len, char digest_str[33])
- static bool [ComputeFile](#) (const char *filename, char digest_str[33])

10.180.1 Detailed Description

Class for [MD5](#).

Warning

this class is able to pick from two implementations:

1. a lightweight md5 implementation (when GDCM_BUILD_TESTING is turned ON)
2. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

10.180.2 Constructor & Destructor Documentation

10.180.2.1 `gdcm::MD5::MD5 ()`

10.180.2.2 `gdcm::MD5::~~MD5 ()`

10.180.3 Member Function Documentation

10.180.3.1 `static bool gdcm::MD5::Compute (const char * buffer, unsigned long buf_len, char digest_str[33])` `[static]`

10.180.3.2 `static bool gdcm::MD5::ComputeFile (const char * filename, char digest_str[33])` `[static]`

The documentation for this class was generated from the following file:

- [gdcmMD5.h](#)

10.181 gdcm::MediaStorage Class Reference

[MediaStorage](#).

```
#include <gdcmMediaStorage.h>
```


Public Types

- enum [MSType](#) {
 - [MediaStorageDirectoryStorage](#) = 0,
 - [ComputedRadiographyImageStorage](#),
 - [DigitalXRayImageStorageForPresentation](#),
 - [DigitalXRayImageStorageForProcessing](#),
 - [DigitalMammographyImageStorageForPresentation](#),
 - [DigitalMammographyImageStorageForProcessing](#),
 - [DigitalIntraoralXrayImageStorageForPresentation](#),
 - [DigitalIntraoralXRayImageStorageForProcessing](#),
 - [CTImageStorage](#),
 - [EnhancedCTImageStorage](#),
 - [UltrasoundImageStorageRetired](#),
 - [UltrasoundImageStorage](#),
 - [UltrasoundMultiFrameImageStorageRetired](#),
 - [UltrasoundMultiFrameImageStorage](#),
 - [MRIImageStorage](#),
 - [EnhancedMRIImageStorage](#),
 - [MRSpectroscopyStorage](#),
 - [NuclearMedicineImageStorageRetired](#),
 - [SecondaryCaptureImageStorage](#),
 - [MultiframeSingleBitSecondaryCaptureImageStorage](#),
 - [MultiframeGrayscaleByteSecondaryCaptureImageStorage](#),
 - [MultiframeGrayscaleWordSecondaryCaptureImageStorage](#),
 - [MultiframeTrueColorSecondaryCaptureImageStorage](#),
 - [StandaloneOverlayStorage](#),
 - [StandaloneCurveStorage](#),
 - [LeadECGWaveformStorage](#),
 - [GeneralECGWaveformStorage](#),
 - [AmbulatoryECGWaveformStorage](#),
 - [HemodynamicWaveformStorage](#),
 - [CardiacElectrophysiologyWaveformStorage](#),
 - [BasicVoiceAudioWaveformStorage](#),
 - [StandaloneModalityLUTStorage](#),
 - [StandaloneVOILUTStorage](#),
 - [GrayscaleSoftcopyPresentationStateStorageSOPClass](#),
 - [XRayAngiographicImageStorage](#),
 - [XRayRadiofluoroscopicImageStorage](#),
 - [XRayAngiographicBiPlaneImageStorageRetired](#),
 - [NuclearMedicineImageStorage](#),
 - [RawDataStorage](#),
 - [SpatialRegistrationStorage](#),
 - [SpatialFiducialsStorage](#),
 - [PETImageStorage](#),
 - [RTImageStorage](#),
 - [RTDoseStorage](#),
 - [RTStructureSetStorage](#),
 - [RTPlanStorage](#),
 - [CSANonImageStorage](#),
 - [Philips3D](#),
 - [EnhancedSR](#),
 - [BasicTextSR](#),
 - [HardcopyGrayscaleImageStorage](#),
 - [ComprehensiveSR](#),
 - [DetachedStudyManagementSOPClass](#),
 - [EncapsulatedPDFStorage](#),
 - [EncapsulatedCDASStorage](#),
 - [StudyComponentManagementSOPClass](#),
 - [DetachedVisitManagementSOPClass](#),
 - [DetachedPatientManagementSOPClass](#),

```

    MS_END }
• enum ObjectType {
    NoObject = 0,
    Video,
    Waveform,
    Audio,
    PDF,
    URI,
    Segmentation,
    ObjectEnd }

```

Public Member Functions

- [MediaStorage](#) (MSType type=MS_END)
- const char * [GetModality](#) () const
- unsigned int [GetModalityDimension](#) () const
- const char * [GetString](#) () const
Return the Media [String](#) of the object.
- void [GuessFromModality](#) (const char *modality, unsigned int dimension=2)
- bool [IsUndefined](#) () const
- operator MSType () const
- bool [SetFromDataSet](#) (DataSet const &ds)
- bool [SetFromFile](#) (File const &file)
- bool [SetFromHeader](#) (FileMetaInformation const &fmi)
- bool [SetFromModality](#) (DataSet const &ds)

Static Public Member Functions

- static const char * [GetMSString](#) (MSType ts)
Return the Media [String](#) associated. Will return NULL for MS_END.
- static MSType [GetMSType](#) (const char *str)
- static unsigned int [GetNumberOfModality](#) ()
- static unsigned int [GetNumberOfMSString](#) ()
- static unsigned int [GetNumberOfMSType](#) ()
- static bool [IsImage](#) (MSType ts)

Protected Member Functions

- void [SetFromSourceImageSequence](#) (DataSet const &ds)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [MediaStorage](#) &ms)

10.181.1 Detailed Description

[MediaStorage](#).

Note

FIXME There should not be any notion of [Image](#) and/or PDF at that point Only the codec can answer yes I support this Media Storage or not... For instance an [ImageCodec](#) will answer yes to most of them while a [PDFCodec](#) will answer only for the Encapsulated PDF

See also

[UIDs](#)

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [gdcmrtionplan.cxx](#), [gdcmrtplan.cxx](#), [GenAllVR.cxx](#), [GenerateStandardSOPClasses.cxx](#), [GenFakeIdentifyFile.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [StreamImageReaderTest.cxx](#), and [TestReader.cxx](#).

10.181.2 Member Enumeration Documentation

10.181.2.1 enum gdcm::MediaStorage::MSType

Enumerator

MediaStorageDirectoryStorage
ComputedRadiographylImageStorage
DigitalXRayImageStorageForPresentation
DigitalXRayImageStorageForProcessing
DigitalMammographylImageStorageForPresentation
DigitalMammographylImageStorageForProcessing
DigitalIntraoralXrayImageStorageForPresentation
DigitalIntraoralXRayImageStorageForProcessing
CTImageStorage
EnhancedCTImageStorage
UltrasoundImageStorageRetired
UltrasoundImageStorage
UltrasoundMultiFrameImageStorageRetired
UltrasoundMultiFrameImageStorage
MRImageStorage
EnhancedMRImageStorage
MRSpectroscopyStorage
NuclearMedicineImageStorageRetired

SecondaryCaptureImageStorage
MultiframeSingleBitSecondaryCaptureImageStorage
MultiframeGrayscaleByteSecondaryCaptureImageStorage
MultiframeGrayscaleWordSecondaryCaptureImageStorage
MultiframeTrueColorSecondaryCaptureImageStorage
StandaloneOverlayStorage
StandaloneCurveStorage
LeadECGWaveformStorage
GeneralECGWaveformStorage
AmbulatoryECGWaveformStorage
HemodynamicWaveformStorage
CardiacElectrophysiologyWaveformStorage
BasicVoiceAudioWaveformStorage
StandaloneModalityLUTStorage
StandaloneVOILUTStorage
GrayscaleSoftcopyPresentationStateStorageSOPClass
XRayAngiographicImageStorage
XRayRadiofluoroscopicImageStorage
XRayAngiographicBiPlaneImageStorageRetired
NuclearMedicineImageStorage
RawDataStorage
SpacialRegistrationStorage
SpacialFiducialsStorage
PETImageStorage
RTImageStorage
RTDoseStorage
RTStructureSetStorage
RTPlanStorage
CSANonImageStorage
Philips3D
EnhancedSR
BasicTextSR
HardcopyGrayscaleImageStorage
ComprehensiveSR
DetachedStudyManagementSOPClass
EncapsulatedPDFStorage
EncapsulatedCDASStorage
StudyComponentManagementSOPClass
DetachedVisitManagementSOPClass
DetachedPatientManagementSOPClass
VideoEndoscopicImageStorage
GeneralElectricMagneticResonanceImageStorage

GEPrivate3DModelStorage
ToshibaPrivateDataStorage
MammographyCADSR
KeyObjectSelectionDocument
HangingProtocolStorage
ModalityPerformedProcedureStepSOPClass
PhilipsPrivateMRSyntheticImageStorage
VLPhotographicImageStorage
SegmentationStorage
RTIonPlanStorage
XRay3DAngiographicImageStorage
EnhancedXAImageStorage
RTIonBeamsTreatmentRecordStorage
SurfaceSegmentationStorage
VLWholeSlideMicroscopyImageStorage
RTTreatmentSummaryRecordStorage
EnhancedUSVolumeStorage
XRayRadiationDoseSR
VLEndoscopicImageStorage
BreastTomosynthesisImageStorage
FujiPrivateCRLImageStorage
OphthalmicPhotography8BitImageStorage
OphthalmicTomographyImageStorage
VLMicroscopicImageStorage
EnhancedPETImageStorage
VideoPhotographicImageStorage
MS_END

Examples:

[GenerateStandardSOPClasses.cxx](#).

10.181.2.2 enum gdcm::MediaStorage::ObjectType

Enumerator

NoObject
Video
Waveform
Audio
PDF
URI
Segmentation
ObjectEnd

10.181.3 Constructor & Destructor Documentation

10.181.3.1 `gdcm::MediaStorage::MediaStorage (MStype type = MS_END) [inline]`

10.181.4 Member Function Documentation

10.181.4.1 `const char* gdcm::MediaStorage::GetModality () const`

10.181.4.2 `unsigned int gdcm::MediaStorage::GetModalityDimension () const`

10.181.4.3 `static const char* gdcm::MediaStorage::GetMSString (MStype ts) [static]`

Return the Media [String](#) associated. Will return NULL for MS_END.

Examples:

[GenerateStandardSOPClasses.cxx](#).

Referenced by `gdcm::operator<<()`.

10.181.4.4 `static MStype gdcm::MediaStorage::GetMStype (const char * str) [static]`

Examples:

[MetalImageMD5Activiz.cs](#), and [TestReader.cxx](#).

10.181.4.5 `static unsigned int gdcm::MediaStorage::GetNumberOfModality () [static]`

10.181.4.6 `static unsigned int gdcm::MediaStorage::GetNumberOfMSString () [static]`

10.181.4.7 `static unsigned int gdcm::MediaStorage::GetNumberOfMStype () [static]`

10.181.4.8 `const char* gdcm::MediaStorage::GetString () const`

Return the Media [String](#) of the object.

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_↵
Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.↵
cxx](#), and [StreamImageReaderTest.cxx](#).

10.181.4.9 void gdcM::MediaStorage::GuessFromModality (const char * *modality*, unsigned int *dimension* = 2)

10.181.4.10 static bool gdcM::MediaStorage::IsImage (MStype *ts*) [static]

Returns whether DICOM has a Pixel Data element (7fe0,0010)

Warning

MRSpectroscopyStorage could be image but are not

Examples:

[MetaImageMD5Activiz.cs](#).

10.181.4.11 bool gdcM::MediaStorage::IsUndefined () const [inline]

Examples:

[TestReader.cxx](#).

10.181.4.12 gdcM::MediaStorage::operator MStype () const [inline]

References gdcM::operator<<().

10.181.4.13 bool gdcM::MediaStorage::SetFromDataSet (DataSet const & *ds*)

Advanced user only (functions should be protected level...) Those function are lower level than SetFromFile

10.181.4.14 bool gdcM::MediaStorage::SetFromFile (File const & *file*)

Attempt to set the [MediaStorage](#) from a file: WARNING: When no [MediaStorage](#) & Modality are found BUT a PixelData element is found then [MediaStorage](#) is set to the default SecondaryCaptureImageStorage (return value is false in this case)

Examples:

[gdcMrtionplan.cxx](#), [gdcMrtplan.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), and [TestReader.cxx](#).

10.181.4.15 `bool gdcm::MediaStorage::SetFromHeader (FileMetaInformation const & fmi)`

10.181.4.16 `bool gdcm::MediaStorage::SetFromModality (DataSet const & ds)`

10.181.4.17 `void gdcm::MediaStorage::SetFromSourceImageSequence (DataSet const & ds)` `[protected]`

10.181.5 Friends And Related Function Documentation

10.181.5.1 `std::ostream& operator<< (std::ostream & os, const MediaStorage & ms)` `[friend]`

The documentation for this class was generated from the following file:

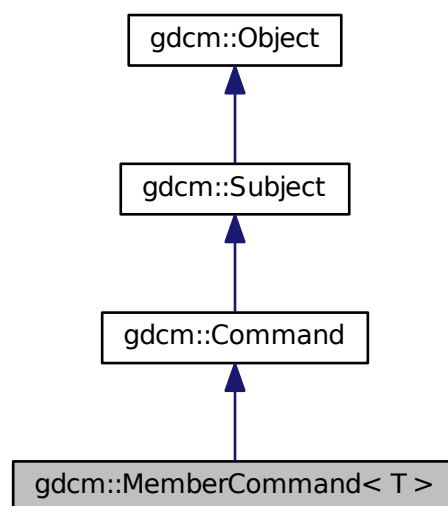
- [gdcmMediaStorage.h](#)

10.182 gdcm::MemberCommand< T > Class Template Reference

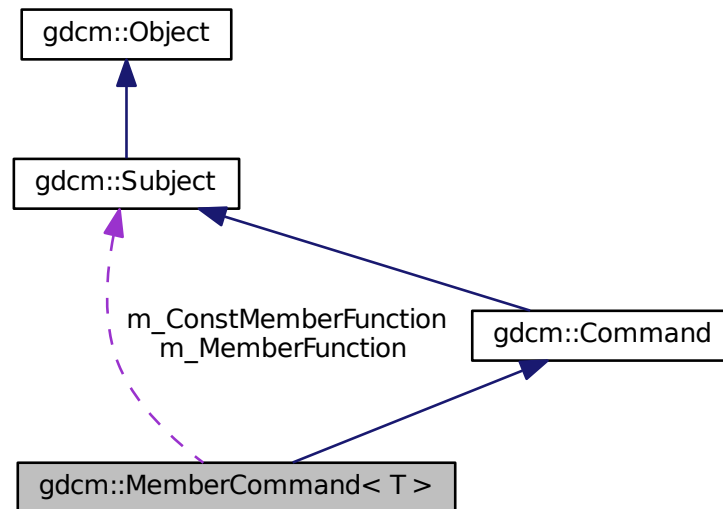
[Command](#) subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for `gdcm::MemberCommand< T >`:



Collaboration diagram for `gdcm::MemberCommand< T >`:



Public Types

- typedef `MemberCommand Self`
- typedef `void(T::* TConstMemberFunctionPointer) (const Subject *, const Event &)`
- typedef `void(T::* TMemberFunctionPointer) (Subject *, const Event &)`

Public Member Functions

- virtual `void Execute (Subject *caller, const Event &event)`
- virtual `void Execute (const Subject *caller, const Event &event)`
- `void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)`
- `void SetCallbackFunction (T *object, TConstMemberFunctionPointer memberFunction)`

Static Public Member Functions

- static `SmartPointer< MemberCommand > New ()`

Protected Member Functions

- `MemberCommand ()`
- virtual `~MemberCommand ()`

Protected Attributes

- [TConstMemberFunctionPointer m_ConstMemberFunction](#)
- [TMemberFunctionPointer m_MemberFunction](#)
- [T * m_This](#)

10.182.1 Detailed Description

```
template<class T>
class gdcmmembercommand< T >
```

[Command](#) subclass that calls a pointer to a member function.

[MemberCommand](#) calls a pointer to a member function with the same arguments as `Execute` on [Command](#).

10.182.2 Member Typedef Documentation

10.182.2.1 `template<class T > typedef MemberCommand gdcmmembercommand< T >::Self`

Standard class typedefs.

10.182.2.2 `template<class T > typedef void(T::* gdcmmembercommand< T >::TConstMemberFunctionPointer) (const Subject *, const Event &)`

10.182.2.3 `template<class T > typedef void(T::* gdcmmembercommand< T >::TMemberFunctionPointer) (Subject *, const Event &)`

pointer to a member function that takes a `Subject*` and the event

10.182.3 Constructor & Destructor Documentation

10.182.3.1 `template<class T > gdcmmembercommand< T >::MemberCommand () [inline], [protected]`

10.182.3.2 `template<class T > virtual gdcmmembercommand< T >::~~MemberCommand () [inline], [protected], [virtual]`

10.182.4 Member Function Documentation

10.182.4.1 `template<class T > virtual void gdcmmembercommand< T >::Execute (Subject * caller, const Event & event) [inline], [virtual]`

Invoke the member function.

Implements [gdcmmembercommand::Command](#).

10.182.4.2 `template<class T> virtual void gdcm::MemberCommand<T>::Execute (const Subject * caller, const Event & event) [inline], [virtual]`

Invoke the member function with a const object.

Implements [gdcm::Command](#).

10.182.4.3 `template<class T> static SmartPointer<MemberCommand> gdcm::MemberCommand<T>::New () [inline], [static]`

Method for creation through the object factory.

10.182.4.4 `template<class T> void gdcm::MemberCommand<T>::SetCallbackFunction (T * object, TMemberFunctionPointer memberFunction) [inline]`

Run-time type information (and related methods). Set the callback function along with the object that it will be invoked on.

10.182.4.5 `template<class T> void gdcm::MemberCommand<T>::SetCallbackFunction (T * object, TConstMemberFunctionPointer memberFunction) [inline]`

10.182.5 Member Data Documentation

10.182.5.1 `template<class T> TConstMemberFunctionPointer gdcm::MemberCommand<T>::m_ConstMemberFunction [protected]`

10.182.5.2 `template<class T> TMemberFunctionPointer gdcm::MemberCommand<T>::m_MemberFunction [protected]`

10.182.5.3 `template<class T> T* gdcm::MemberCommand<T>::m_This [protected]`

The documentation for this class was generated from the following file:

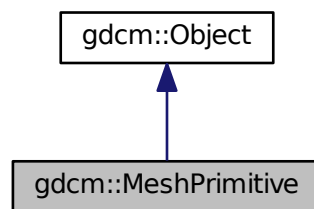
- [gdcmCommand.h](#)

10.183 gdcm::MeshPrimitive Class Reference

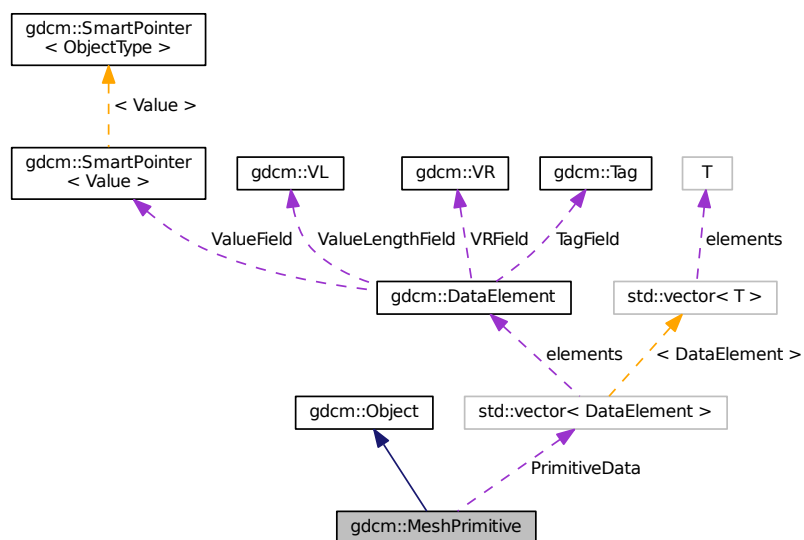
This class defines surface mesh primitives. It is designed from surface mesh primitives macro.

```
#include <gdcmMeshPrimitive.h>
```

Inheritance diagram for gdcm::MeshPrimitive:



Collaboration diagram for gdcm::MeshPrimitive:



Public Types

- enum [MPTType](#) {
[VERTEX](#) = 0,
[EDGE](#),
[TRIANGLE](#),
[TRIANGLE_STRIP](#),
[TRIANGLE_FAN](#),
[LINE](#),
[FACET](#),
[MPTType_END](#) }
This enumeration defines primitive types.
- typedef std::vector< [DataElement](#) > [PrimitivesData](#)

Public Member Functions

- [MeshPrimitive](#) ()
- virtual [~MeshPrimitive](#) ()
- void [AddPrimitiveData](#) ([DataElement](#) const &de)
- unsigned int [GetNumberOfPrimitivesData](#) () const
- const [DataElement](#) & [GetPrimitiveData](#) () const
- [DataElement](#) & [GetPrimitiveData](#) ()
- const [DataElement](#) & [GetPrimitiveData](#) (const unsigned int idx) const
- [DataElement](#) & [GetPrimitiveData](#) (const unsigned int idx)
- const [PrimitivesData](#) & [GetPrimitivesData](#) () const
- [PrimitivesData](#) & [GetPrimitivesData](#) ()
- [MPTType](#) [GetPrimitiveType](#) () const
- void [SetPrimitiveData](#) ([DataElement](#) const &de)
- void [SetPrimitiveData](#) (const unsigned int idx, [DataElement](#) const &de)
- void [SetPrimitivesData](#) ([PrimitivesData](#) const &DEs)
- void [SetPrimitiveType](#) (const [MPTType](#) type)

Static Public Member Functions

- static [MPTType](#) [GetMPTType](#) (const char *type)
- static const char * [GetMPTTypeString](#) (const [MPTType](#) type)

Protected Attributes

- [PrimitivesData](#) [PrimitiveData](#)
- [MPTType](#) [PrimitiveType](#)

Additional Inherited Members

10.183.1 Detailed Description

This class defines surface mesh primitives. It is designed from surface mesh primitives macro.

See also

PS 3.3 C.27.4

10.183.2 Member Typedef Documentation

10.183.2.1 `typedef std::vector< DataElement > gdcm::MeshPrimitive::PrimitivesData`

10.183.3 Member Enumeration Documentation

10.183.3.1 `enum gdcm::MeshPrimitive::MPType`

This enumeration defines primitive types.

See also

PS 3.3 C.27.4.1

Enumerator

VERTEX
EDGE
TRIANGLE
TRIANGLE_STRIP
TRIANGLE_FAN
LINE
FACET
MPType_END

10.183.4 Constructor & Destructor Documentation

10.183.4.1 `gdcm::MeshPrimitive::MeshPrimitive ()`

10.183.4.2 `virtual gdcm::MeshPrimitive::~~MeshPrimitive () [virtual]`

10.183.5 Member Function Documentation

10.183.5.1 `void gdcm::MeshPrimitive::AddPrimitiveData (DataElement const & de)`

10.183.5.2 `static MPType gdcm::MeshPrimitive::GetMPType (const char * type) [static]`

10.183.5.3 `static const char* gdcm::MeshPrimitive::GetMPTypeString (const MPType type) [static]`

10.183.5.4 `unsigned int gdcm::MeshPrimitive::GetNumberOfPrimitivesData () const`

10.183.5.5 `const DataElement& gdcm::MeshPrimitive::GetPrimitiveData () const`

10.183.5.6 **DataElement&** gdcM::MeshPrimitive::GetPrimitiveData ()

10.183.5.7 **const DataElement&** gdcM::MeshPrimitive::GetPrimitiveData (**const unsigned int** *idx*) **const**

10.183.5.8 **DataElement&** gdcM::MeshPrimitive::GetPrimitiveData (**const unsigned int** *idx*)

10.183.5.9 **const PrimitivesData&** gdcM::MeshPrimitive::GetPrimitivesData () **const**

10.183.5.10 **PrimitivesData&** gdcM::MeshPrimitive::GetPrimitivesData ()

10.183.5.11 **MPTYPE** gdcM::MeshPrimitive::GetPrimitiveType () **const**

10.183.5.12 **void** gdcM::MeshPrimitive::SetPrimitiveData (**DataElement const &** *de*)

10.183.5.13 **void** gdcM::MeshPrimitive::SetPrimitiveData (**const unsigned int** *idx*, **DataElement const &** *de*)

10.183.5.14 **void** gdcM::MeshPrimitive::SetPrimitivesData (**PrimitivesData const &** *DEs*)

10.183.5.15 **void** gdcM::MeshPrimitive::SetPrimitiveType (**const MPTYPE** *type*)

10.183.6 Member Data Documentation

10.183.6.1 **PrimitivesData** gdcM::MeshPrimitive::PrimitiveData [protected]

10.183.6.2 **MPTYPE** gdcM::MeshPrimitive::PrimitiveType [protected]

The documentation for this class was generated from the following file:

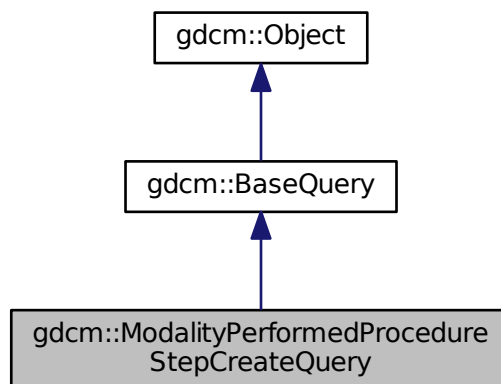
- [gdcMMeshPrimitive.h](#)

10.184 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference

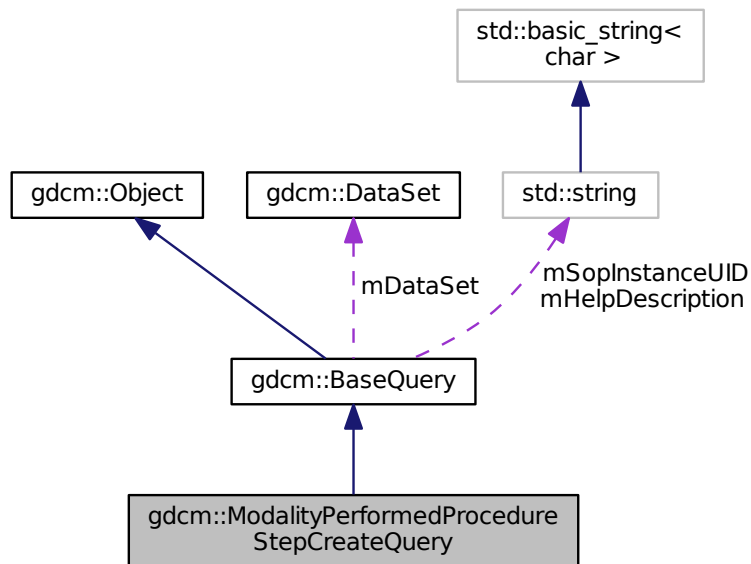
[ModalityPerformedProcedureStepCreateQuery](#) contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class.

```
#include <gdcmModalityPerformedProcedureStepCreateQuery.h>
```

Inheritance diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Collaboration diagram for `gdcm::ModalityPerformedProcedureStepCreateQuery`:



Public Member Functions

- [ModalityPerformedProcedureStepCreateQuery](#) (const std::string &iSopInstanceUID)
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- [gdcm::DataSet GetRequiredDataSet](#) () const
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.184.1 Detailed Description

[ModalityPerformedProcedureStepCreateQuery](#) contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class.

10.184.2 Constructor & Destructor Documentation

10.184.2.1 `gdcm::ModalityPerformedProcedureStepCreateQuery::ModalityPerformedProcedureStepCreateQuery (const std::string & iSopInstanceUID)`

10.184.3 Member Function Documentation

10.184.3.1 **UIDs::TSName** `gdcm::ModalityPerformedProcedureStepCreateQuery::GetAbstractSyntaxUID () const`
[virtual]

Implements [gdcm::BaseQuery](#).

10.184.3.2 `gdcm::DataSet` `gdcm::ModalityPerformedProcedureStepCreateQuery::GetRequiredDataSet () const`

10.184.3.3 `bool` `gdcm::ModalityPerformedProcedureStepCreateQuery::ValidateQuery (bool inStrict = true) const`
[virtual]

Implements [gdcm::BaseQuery](#).

10.184.4 Friends And Related Function Documentation

10.184.4.1 `friend class QueryFactory` [friend]

The documentation for this class was generated from the following file:

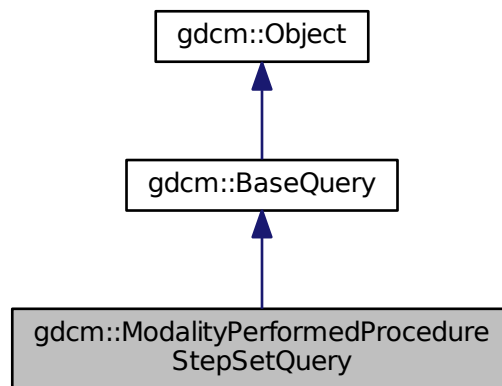
- [gdcmModalityPerformedProcedureStepCreateQuery.h](#)

10.185 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference

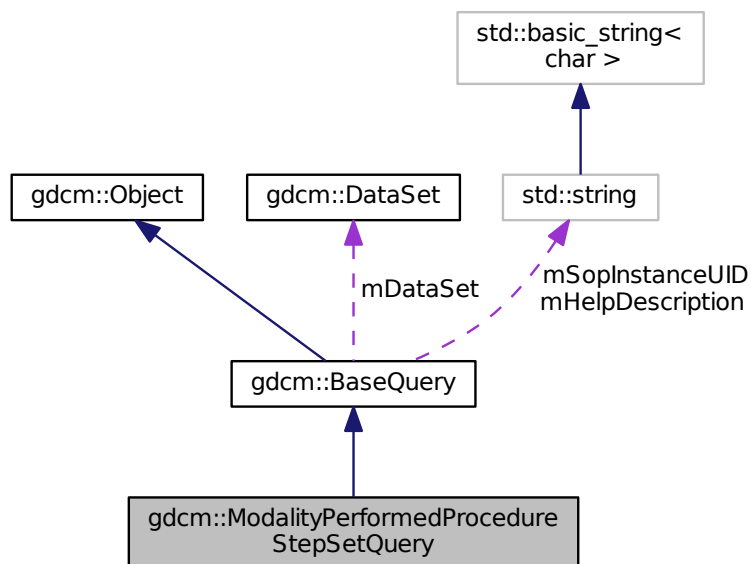
[ModalityPerformedProcedureStepSetQuery](#) contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class.

```
#include <gdcmModalityPerformedProcedureStepSetQuery.h>
```

Inheritance diagram for `gdcm::ModalityPerformedProcedureStepSetQuery`:



Collaboration diagram for `gdcm::ModalityPerformedProcedureStepSetQuery`:



Public Member Functions

- [ModalityPerformedProcedureStepSetQuery](#) (const `std::string` &`iSopInstanceUID`)

- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- [gdcm::DataSet GetRequiredDataSet](#) () const
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.185.1 Detailed Description

[ModalityPerformedProcedureStepSetQuery](#) contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class.

10.185.2 Constructor & Destructor Documentation

10.185.2.1 `gdcm::ModalityPerformedProcedureStepSetQuery::ModalityPerformedProcedureStepSetQuery (const std::string & iSopInstanceUID)`

10.185.3 Member Function Documentation

10.185.3.1 `UIDs::TSName gdcm::ModalityPerformedProcedureStepSetQuery::GetAbstractSyntaxUID () const` [virtual]

Implements [gdcm::BaseQuery](#).

10.185.3.2 `gdcm::DataSet gdcm::ModalityPerformedProcedureStepSetQuery::GetRequiredDataSet () const`

10.185.3.3 `bool gdcm::ModalityPerformedProcedureStepSetQuery::ValidateQuery (bool inStrict = true) const` [virtual]

Implements [gdcm::BaseQuery](#).

10.185.4 Friends And Related Function Documentation

10.185.4.1 `friend class QueryFactory` [friend]

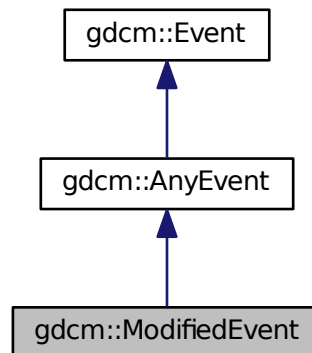
The documentation for this class was generated from the following file:

- [gdcmModalityPerformedProcedureStepSetQuery.h](#)

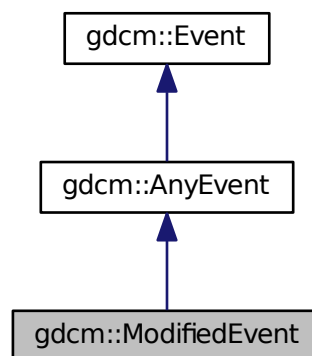
10.186 gdcM::ModifiedEvent Class Reference

```
#include <gdcMEvent.h>
```

Inheritance diagram for gdcM::ModifiedEvent:



Collaboration diagram for gdcM::ModifiedEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcMEvent.h](#)

10.187 gdcm::Module Class Reference

Class for representing a [Module](#).

```
#include <gdcmModule.h>
```

Public Types

- typedef std::vector< std::string > [ArrayIncludeMacroType](#)
- typedef std::map< [Tag](#), [ModuleEntry](#) > [MapModuleEntry](#)

Public Member Functions

- [Module](#) ()
- void [AddMacro](#) (const char *include)
- void [AddModuleEntry](#) (const [Tag](#) &tag, const [ModuleEntry](#) &module)
Will add a [ModuleEntry](#) directly at root-level. See [Macro](#) for nested-included level.
- void [Clear](#) ()
- bool [FindModuleEntryInMacros](#) ([Macros](#) const ¯os, const [Tag](#) &tag) const
- const [ModuleEntry](#) & [GetModuleEntryInMacros](#) ([Macros](#) const ¯os, const [Tag](#) &tag) const
- const char * [GetName](#) () const
- void [SetName](#) (const char *name)
- bool [Verify](#) (const [DataSet](#) &ds, [Usage](#) const &usage) const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Module](#) &_val)

10.187.1 Detailed Description

Class for representing a [Module](#).

Note

[Module](#): A set of Attributes within an Information Entity or Normalized [IOD](#) which are logically related to each other.

See also

[Macro](#)

Examples:

[TraverseModules.cxx](#).

10.187.2 Member Typedef Documentation

10.187.2.1 `typedef std::vector<std::string> gdcmmodule::ArrayIncludeMacrosType`

10.187.2.2 `typedef std::map<Tag, ModuleEntry> gdcmmodule::MapModuleEntry`

10.187.3 Constructor & Destructor Documentation

10.187.3.1 `gdcmmodule::Module () [inline]`

References `gdcmmodule::operator<<()`.

10.187.4 Member Function Documentation

10.187.4.1 `void gdcmmodule::AddMacro (const char * include) [inline]`

10.187.4.2 `void gdcmmodule::AddModuleEntry (const Tag & tag, const ModuleEntry & module) [inline]`

Will add a [ModuleEntry](#) directly at root-level. See [Macro](#) for nested-included level.

10.187.4.3 `void gdcmmodule::Clear () [inline]`

10.187.4.4 `bool gdcmmodule::FindModuleEntryInMacros (Macros const & macros, const Tag & tag) const`

Find or Get a [ModuleEntry](#). [ModuleEntry](#) are either search are root-level or within nested-macro included in module.

Examples:

[TraverseModules.cxx](#).

10.187.4.5 `const ModuleEntry& gdcmmodule::GetModuleEntryInMacros (Macros const & macros, const Tag & tag) const`

Examples:

[TraverseModules.cxx](#).

10.187.4.6 `const char* gdcm::Module::GetName () const` `[inline]`

10.187.4.7 `void gdcm::Module::SetName (const char * name)` `[inline]`

10.187.4.8 `bool gdcm::Module::Verify (const DataSet & ds, Usage const & usage) const`

10.187.5 Friends And Related Function Documentation

10.187.5.1 `std::ostream& operator<< (std::ostream & _os, const Module & _val)` `[friend]`

The documentation for this class was generated from the following file:

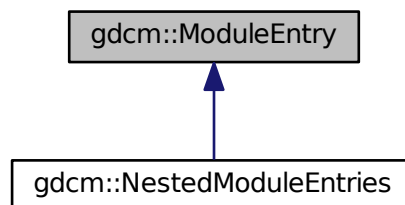
- [gdcmModule.h](#)

10.188 gdcm::ModuleEntry Class Reference

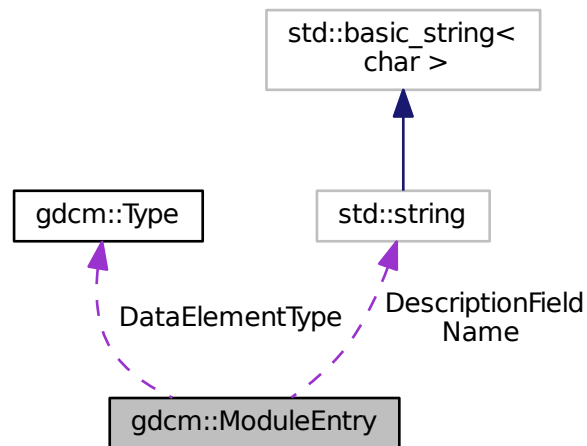
Class for representing a [ModuleEntry](#).

```
#include <gdcmModuleEntry.h>
```

Inheritance diagram for gdcm::ModuleEntry:



Collaboration diagram for `gdcm::ModuleEntry`:



Public Types

- typedef `std::string` [Description](#)

Public Member Functions

- [ModuleEntry](#) (`const char *name=""`, `const char *type="3"`, `const char *description=""`)
- virtual `~ModuleEntry` ()
- `const` [Description](#) & [GetDescription](#) () `const`
- `const char *` [GetName](#) () `const`
- `const` [Type](#) & [GetType](#) () `const`
- void [SetDescription](#) (`const char *d`)
- void [SetName](#) (`const char *name`)
- void [SetType](#) (`const` [Type](#) &`type`)

Protected Attributes

- [Type](#) [DataElementType](#)
- [Description](#) [DescriptionField](#)
- `std::string` [Name](#)

Friends

- `std::ostream` & [operator<<](#) (`std::ostream` &`_os`, `const` [ModuleEntry](#) &`_val`)

10.188.1 Detailed Description

Class for representing a [ModuleEntry](#).

Note

bla

See also

[DictEntry](#)

Examples:

[TraverseModules.cxx](#).

10.188.2 Member Typedef Documentation

10.188.2.1 `typedef std::string gdcm::ModuleEntry::Description`

10.188.3 Constructor & Destructor Documentation

10.188.3.1 `gdcm::ModuleEntry::ModuleEntry (const char * name = " ", const char * type = "3", const char * description = " ")`
`[inline]`

References `gdcm::Type::GetTypeType()`.

10.188.3.2 `virtual gdcm::ModuleEntry::~~ModuleEntry ()` `[inline]`, `[virtual]`

References `gdcm::operator<<()`.

10.188.4 Member Function Documentation

10.188.4.1 `const Description& gdcm::ModuleEntry::GetDescription () const` `[inline]`

10.188.4.2 `const char* gdcm::ModuleEntry::GetName () const` `[inline]`

10.188.4.3 `const Type& gdcm::ModuleEntry::GetType () const` `[inline]`

Examples:

[TraverseModules.cxx](#).

10.188.4.4 `void gdcm::ModuleEntry::SetDescription (const char * d)` `[inline]`

10.188.4.5 `void gdcm::ModuleEntry::SetName (const char * name)` `[inline]`

10.188.4.6 `void gdcm::ModuleEntry::SetType (const Type & type)` `[inline]`

10.188.5 Friends And Related Function Documentation

10.188.5.1 `std::ostream& operator<< (std::ostream &_os, const ModuleEntry &_val)` `[friend]`

10.188.6 Member Data Documentation

10.188.6.1 `Type gdcm::ModuleEntry::DataElementType` `[protected]`

Referenced by `gdcm::operator<<()`.

10.188.6.2 `Description gdcm::ModuleEntry::DescriptionField` `[protected]`

Referenced by `gdcm::operator<<()`.

10.188.6.3 `std::string gdcm::ModuleEntry::Name` `[protected]`

Referenced by `gdcm::operator<<()`.

The documentation for this class was generated from the following file:

- [gdcmModuleEntry.h](#)

10.189 gdcm::Modules Class Reference

Class for representing a [Modules](#).

```
#include <gdcmModules.h>
```

Public Types

- `typedef std::map< std::string, Module > ModuleMapType`

Public Member Functions

- [Modules](#) ()
- void [AddModule](#) (const char *ref, const [Module](#) &module)
- void [Clear](#) ()
- const [Module](#) & [GetModule](#) (const char *name) const
- bool [IsEmpty](#) () const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Modules](#) &_val)

10.189.1 Detailed Description

Class for representing a [Modules](#).

Note

bla

See also

[Module](#)

Examples:

[TraverseModules.cxx](#).

10.189.2 Member Typedef Documentation

10.189.2.1 `typedef std::map<std::string, Module> gdcm::Modules::ModuleMapType`

10.189.3 Constructor & Destructor Documentation

10.189.3.1 `gdcm::Modules::Modules ()` `[inline]`

References `gdcm::operator<<()`.

10.189.4 Member Function Documentation

10.189.4.1 `void gdcm::Modules::AddModule (const char * ref, const Module & module)` `[inline]`

10.189.4.2 `void gdcm::Modules::Clear ()` `[inline]`

10.189.4.3 `const Module& gdcm::Modules::GetModule (const char * name) const` `[inline]`

Examples:

[TraverseModules.cxx](#).

10.189.4.4 `bool gdcM::Modules::IsEmpty () const [inline]`

10.189.5 Friends And Related Function Documentation

10.189.5.1 `std::ostream& operator<< (std::ostream &_os, const Modules &_val) [friend]`

The documentation for this class was generated from the following file:

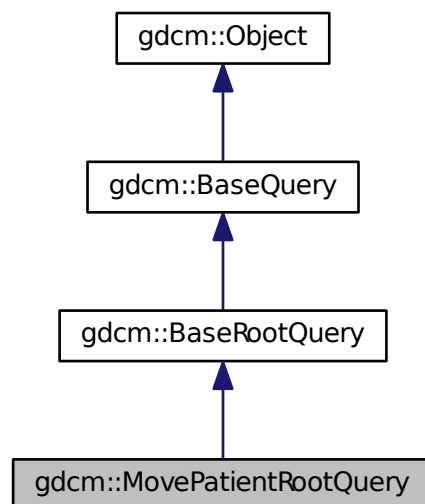
- [gdcMModules.h](#)

10.190 gdcM::MovePatientRootQuery Class Reference

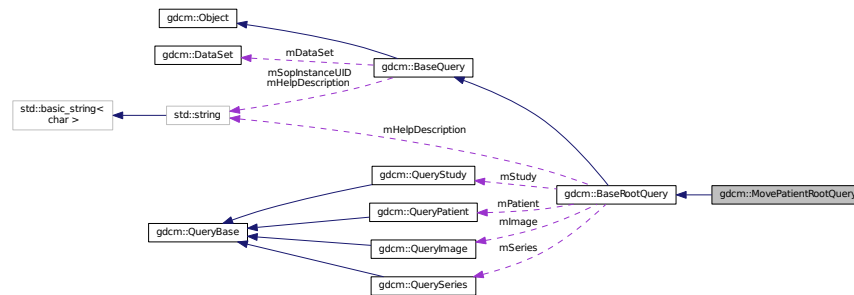
[MovePatientRootQuery](#) contains: the class which will produce a dataset for c-move with patient root.

```
#include <gdcMMovePatientRootQuery.h>
```

Inheritance diagram for gdcM::MovePatientRootQuery:



Collaboration diagram for gdcm::MovePatientRootQuery:



Public Member Functions

- [MovePatientRootQuery](#) ()
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- [std::vector< Tag > GetTagListByLevel](#) (const [EQueryLevel](#) &inQueryLevel)
- void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.190.1 Detailed Description

[MovePatientRootQuery](#) contains: the class which will produce a dataset for c-move with patient root.

10.190.2 Constructor & Destructor Documentation

10.190.2.1 [gdcm::MovePatientRootQuery::MovePatientRootQuery](#) ()

10.190.3 Member Function Documentation

10.190.3.1 [UIDs::TSName gdcm::MovePatientRootQuery::GetAbstractSyntaxUID](#) () const [virtual]

Implements [gdcm::BaseQuery](#).

10.190.3.2 `std::vector<Tag> gdcmm::MovePatientRootQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)`
[virtual]

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements [gdcmm::BaseRootQuery](#).

10.190.3.3 `void gdcmm::MovePatientRootQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` [virtual]

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcm4chee

Implements [gdcmm::BaseRootQuery](#).

10.190.3.4 `bool gdcmm::MovePatientRootQuery::ValidateQuery (bool inStrict=true) const` [virtual]

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements [gdcmm::BaseRootQuery](#).

10.190.4 Friends And Related Function Documentation

10.190.4.1 `friend class QueryFactory` [friend]

The documentation for this class was generated from the following file:

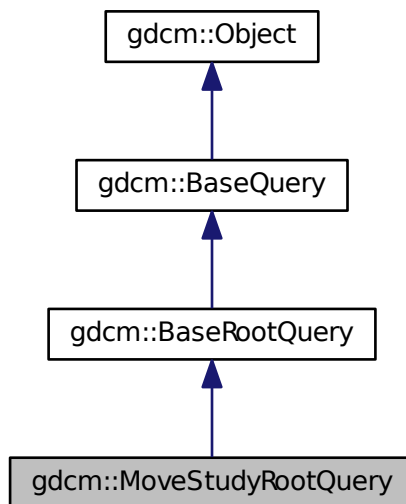
- [gdcmmMovePatientRootQuery.h](#)

10.191 gdcm::MoveStudyRootQuery Class Reference

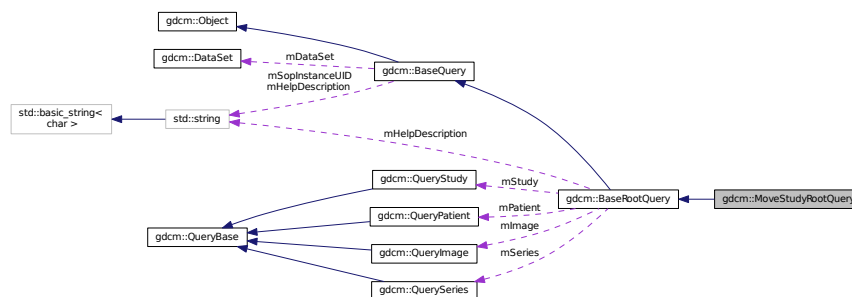
[MoveStudyRootQuery](#) contains: the class which will produce a dataset for C-MOVE with study root.

```
#include <gdcmMoveStudyRootQuery.h>
```

Inheritance diagram for gdcm::MoveStudyRootQuery:



Collaboration diagram for gdcm::MoveStudyRootQuery:



Public Member Functions

- [MoveStudyRootQuery](#) ()
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- `std::vector< Tag > GetTagListByLevel` (const [EQueryLevel](#) &inQueryLevel)
- void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)
- bool [ValidateQuery](#) (bool inStrict=true) const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.191.1 Detailed Description

[MoveStudyRootQuery](#) contains: the class which will produce a dataset for C-MOVE with study root.

10.191.2 Constructor & Destructor Documentation

10.191.2.1 `gdcm::MoveStudyRootQuery::MoveStudyRootQuery ()`

10.191.3 Member Function Documentation

10.191.3.1 `UIDs::TSName gdcm::MoveStudyRootQuery::GetAbstractSyntaxUID () const` `[virtual]`

Implements [gdcm::BaseQuery](#).

10.191.3.2 `std::vector<Tag> gdcm::MoveStudyRootQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)`
`[virtual]`

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements [gdcm::BaseRootQuery](#).

10.191.3.3 `void gdcm::MoveStudyRootQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` `[virtual]`

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcm4chee

Implements [gdcm::BaseRootQuery](#).

10.191.3.4 `bool gdcm::MoveStudyRootQuery::ValidateQuery (bool inStrict = true) const` `[virtual]`

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements [gdcm::BaseRootQuery](#).

10.191.4 Friends And Related Function Documentation

10.191.4.1 friend class QueryFactory [friend]

The documentation for this class was generated from the following file:

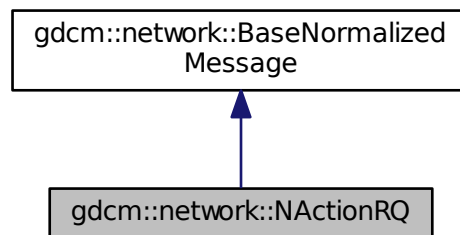
- [gdcmmMoveStudyRootQuery.h](#)

10.192 gdcmm::network::NActionRQ Class Reference

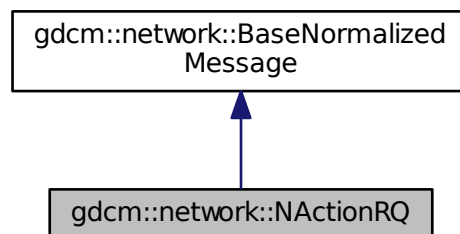
[NActionRQ](#) this file defines the messages for the NAction action.

```
#include <gdcmmNActionMessages.h>
```

Inheritance diagram for gdcmm::network::NActionRQ:



Collaboration diagram for gdcmm::network::NActionRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV` (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)

10.192.1 Detailed Description

[NActionRQ](#) this file defines the messages for the NAction action.

10.192.2 Member Function Documentation

10.192.2.1 `std::vector<PresentationDataValue> gdcM::network::NActionRQ::ConstructPDV (const ULConnection &inConnection, const BaseQuery * inQuery)` [virtual]

Implements [gdcM::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

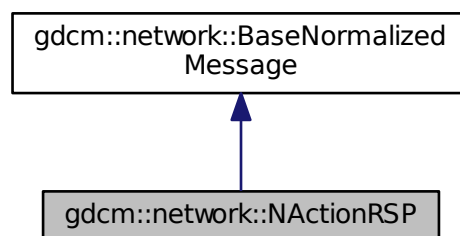
- [gdcMNActionMessages.h](#)

10.193 gdcM::network::NActionRSP Class Reference

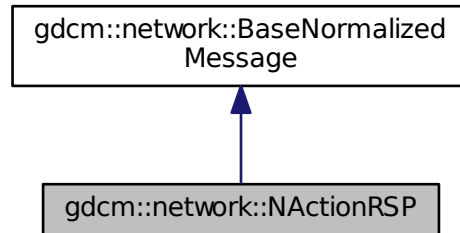
[NActionRSP](#) this file defines the messages for the NAction action.

```
#include <gdcMNActionMessages.h>
```

Inheritance diagram for `gdcM::network::NActionRSP`:



Collaboration diagram for gdcm::network::NActionRSP:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.193.1 Detailed Description

[NActionRSP](#) this file defines the messages for the NAction action.

10.193.2 Member Function Documentation

10.193.2.1 `std::vector<PresentationDataValue> gdcm::network::NActionRSP::ConstructPDVByDataSet (const DataSet *
inDataSet)`

The documentation for this class was generated from the following file:

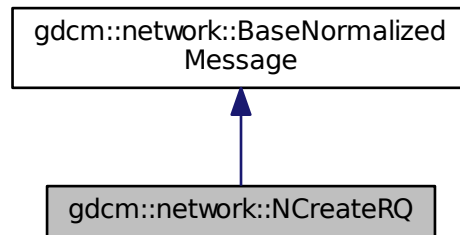
- [gdcmNActionMessages.h](#)

10.194 gdcm::network::NCreateRQ Class Reference

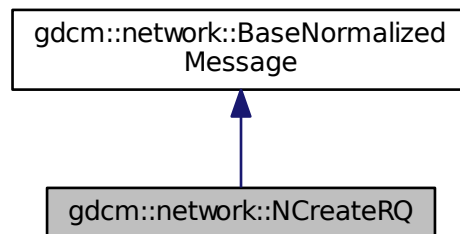
[NCreateRQ](#) this file defines the messages for the ncreate action.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for `gdcm::network::NCreateRQ`:



Collaboration diagram for `gdcm::network::NCreateRQ`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV` (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)

10.194.1 Detailed Description

[NCreateRQ](#) this file defines the messages for the ncreate action.

10.194.2 Member Function Documentation

10.194.2.1 `std::vector<PresentationDataValue> gdcm::network::NCreateRQ::ConstructPDV (const ULConnection & inConnection, const BaseQuery * inQuery) [virtual]`

Implements [gdcm::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

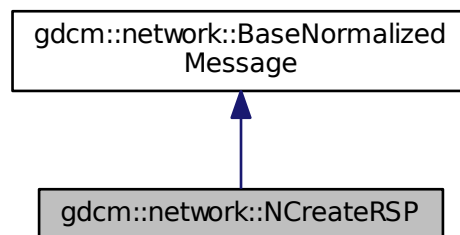
- [gdcmNCreateMessages.h](#)

10.195 gdcm::network::NCreateRSP Class Reference

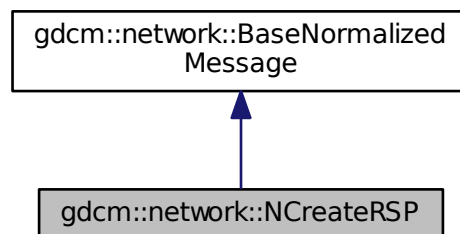
[NCreateRSP](#) this file defines the messages for the ncreate action.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for `gdcm::network::NCreateRSP`:



Collaboration diagram for `gdcm::network::NCreateRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet` (const [DataSet](#) *inDataSet)

10.195.1 Detailed Description

[NCreateRSP](#) this file defines the messages for the ncreate action.

10.195.2 Member Function Documentation

10.195.2.1 `std::vector<PresentationDataValue> gdcmm::network::NCreateRSP::ConstructPDVByDataSet (const DataSet *inDataSet)`

The documentation for this class was generated from the following file:

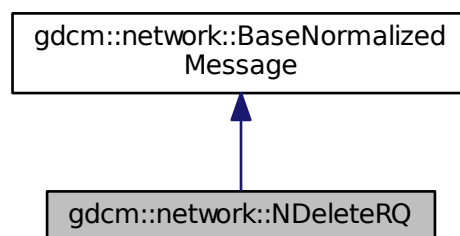
- [gdcmmNCreateMessages.h](#)

10.196 gdcmm::network::NDeleteRQ Class Reference

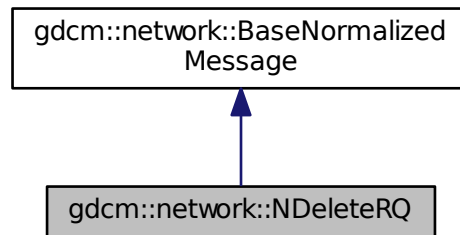
[NDeleteRQ](#) this file defines the messages for the ndelete action.

```
#include <gdcmmNDeleteMessages.h>
```

Inheritance diagram for gdcmm::network::NDeleteRQ:



Collaboration diagram for gdcm::network::NDeleteRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)`

10.196.1 Detailed Description

[NDeleteRQ](#) this file defines the messages for the ndelete action.

10.196.2 Member Function Documentation

10.196.2.1 `std::vector<PresentationDataValue> gdcm::network::NDeleteRQ::ConstructPDV (const ULConnection &inConnection, const BaseQuery * inQuery) [virtual]`

Implements [gdcm::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

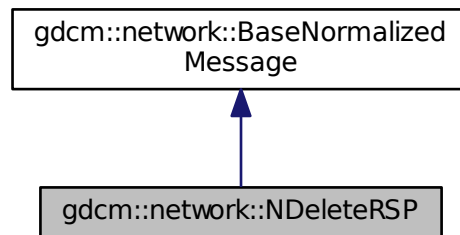
- [gdcmNDeleteMessages.h](#)

10.197 gdcm::network::NDeleteRSP Class Reference

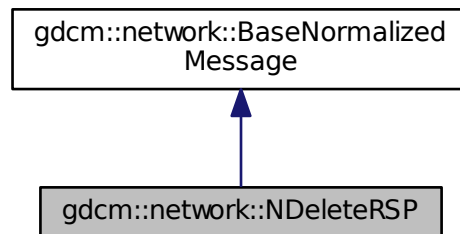
[NDeleteRSP](#) this file defines the messages for the ndelete action.

```
#include <gdcmNDeleteMessages.h>
```

Inheritance diagram for `gdcm::network::NDeleteRSP`:



Collaboration diagram for `gdcm::network::NDeleteRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet` (const [DataSet](#) *inDataSet)

10.197.1 Detailed Description

[NDeleteRSP](#) this file defines the messages for the ndelete action.

10.197.2 Member Function Documentation

10.197.2.1 `std::vector<PresentationDataValue> gdcm::network::NDeleteRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

The documentation for this class was generated from the following file:

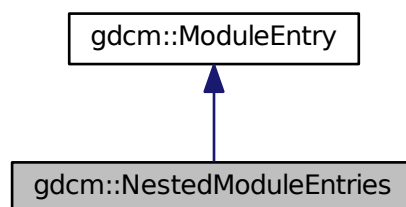
- [gdcmNDeleteMessages.h](#)

10.198 gdcm::NestedModuleEntries Class Reference

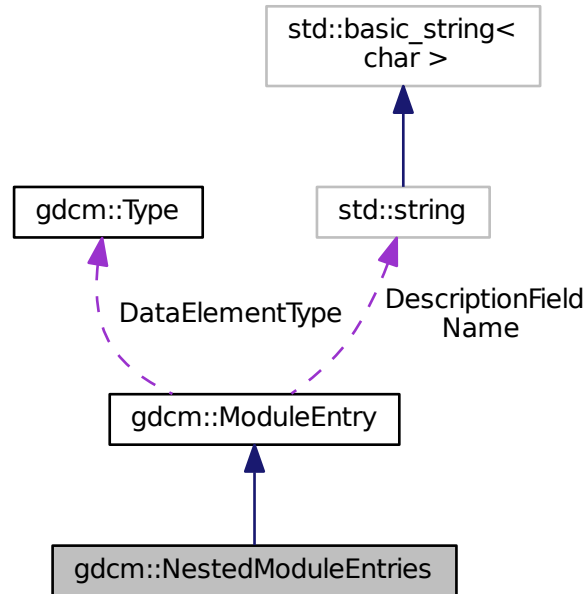
Class for representing a [NestedModuleEntries](#).

```
#include <gdcmNestedModuleEntries.h>
```

Inheritance diagram for gdcm::NestedModuleEntries:



Collaboration diagram for `gdcm::NestedModuleEntries`:



Public Types

- `typedef std::vector< ModuleEntry >::size_type SizeType`

Public Member Functions

- `NestedModuleEntries (const char *name="", const char *type="3", const char *description="")`
- `void AddModuleEntry (const ModuleEntry &me)`
- `const ModuleEntry & GetModuleEntry (SizeType idx) const`
- `ModuleEntry & GetModuleEntry (SizeType idx)`
- `SizeType GetNumberOfModuleEntries ()`

Friends

- `std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)`

Additional Inherited Members

10.198.1 Detailed Description

Class for representing a [NestedModuleEntries](#).

Note

bla

See also

[ModuleEntry](#)

10.198.2 Member Typedef Documentation

10.198.2.1 `typedef std::vector<ModuleEntry>::size_type gdcm::NestedModuleEntries::SizeType`

10.198.3 Constructor & Destructor Documentation

10.198.3.1 `gdcm::NestedModuleEntries::NestedModuleEntries (const char * name = " ", const char * type = "3", const char * description = " ") [inline]`

References `gdcm::operator<<()`.

10.198.4 Member Function Documentation

10.198.4.1 `void gdcm::NestedModuleEntries::AddModuleEntry (const ModuleEntry & me) [inline]`

10.198.4.2 `const ModuleEntry& gdcm::NestedModuleEntries::GetModuleEntry (SizeType idx) const [inline]`

10.198.4.3 `ModuleEntry& gdcm::NestedModuleEntries::GetModuleEntry (SizeType idx) [inline]`

10.198.4.4 `SizeType gdcm::NestedModuleEntries::GetNumberOfModuleEntries () [inline]`

10.198.5 Friends And Related Function Documentation

10.198.5.1 `std::ostream& operator<< (std::ostream & _os, const NestedModuleEntries & _val) [friend]`

The documentation for this class was generated from the following file:

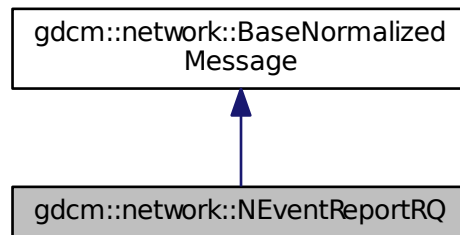
- [gdcmNestedModuleEntries.h](#)

10.199 gdcm::network::NEventReportRQ Class Reference

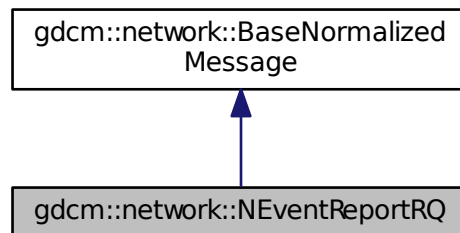
[NEventReportRQ](#) this file defines the messages for the neventreport action.

```
#include <gdcmNEventReportMessages.h>
```

Inheritance diagram for `gdcm::network::NEventReportRQ`:



Collaboration diagram for `gdcm::network::NEventReportRQ`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV` (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)

10.199.1 Detailed Description

[NEventReportRQ](#) this file defines the messages for the neventreport action.

10.199.2 Member Function Documentation

10.199.2.1 `std::vector<PresentationDataValue> gdcmm::network::NEventReportRQ::ConstructPDV (const ULConnection & inConnection, const BaseQuery * inQuery)` [virtual]

Implements [gdcmm::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

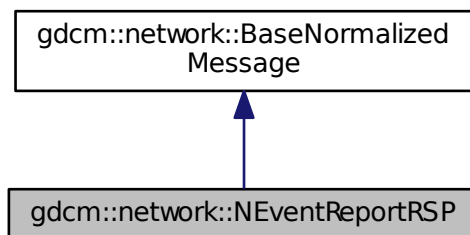
- [gdcmmNEventReportMessages.h](#)

10.200 gdcmm::network::NEventReportRSP Class Reference

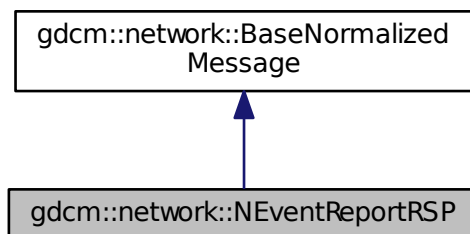
[NEventReportRSP](#) this file defines the messages for the neventreport action.

```
#include <gdcmmNEventReportMessages.h>
```

Inheritance diagram for gdcmm::network::NEventReportRSP:



Collaboration diagram for gdcmm::network::NEventReportRSP:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet` (const [DataSet](#) *inDataSet)

10.200.1 Detailed Description

[NEventReportRSP](#) this file defines the messages for the neventreport action.

10.200.2 Member Function Documentation

10.200.2.1 `std::vector<PresentationDataValue> gdcmm::network::NEventReportRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

The documentation for this class was generated from the following file:

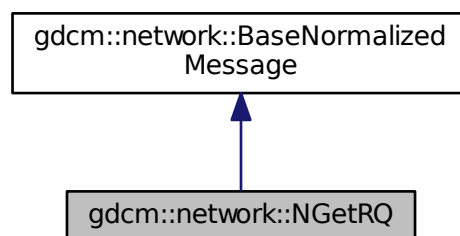
- [gdcmmNEventReportMessages.h](#)

10.201 gdcmm::network::NGetRQ Class Reference

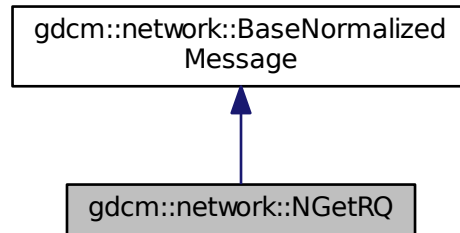
[NGetRQ](#) this file defines the messages for the nget action.

```
#include <gdcmmNGetMessages.h>
```

Inheritance diagram for gdcmm::network::NGetRQ:



Collaboration diagram for gdcM::network::NGetRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)`

10.201.1 Detailed Description

[NGetRQ](#) this file defines the messages for the nget action.

10.201.2 Member Function Documentation

10.201.2.1 `std::vector<PresentationDataValue> gdcM::network::NGetRQ::ConstructPDV (const ULConnection &inConnection, const BaseQuery * inQuery) [virtual]`

Implements [gdcM::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

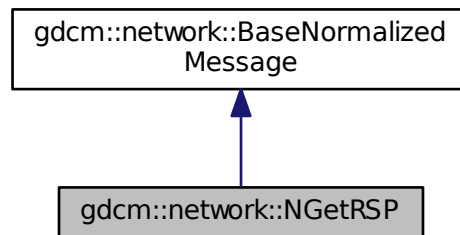
- [gdcMNGetMessages.h](#)

10.202 gdcm::network::NGetRSP Class Reference

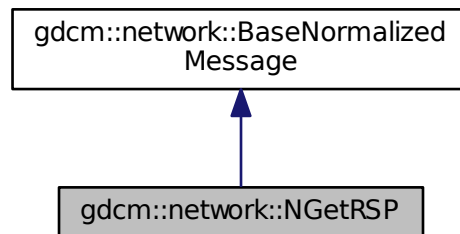
[NGetRSP](#) this file defines the messages for the nget action.

```
#include <gdcmNGetMessages.h>
```

Inheritance diagram for gdcm::network::NGetRSP:



Collaboration diagram for gdcm::network::NGetRSP:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)`

10.202.1 Detailed Description

[NGetRSP](#) this file defines the messages for the nget action.

10.202.2 Member Function Documentation

10.202.2.1 `std::vector<PresentationDataValue> gdcM::network::NGetRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

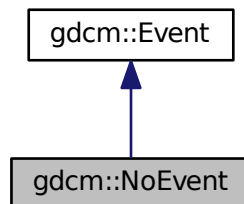
The documentation for this class was generated from the following file:

- [gdcMNGetMessages.h](#)

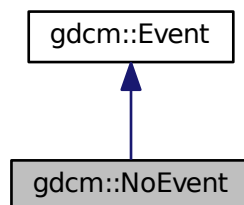
10.203 gdcM::NoEvent Class Reference

```
#include <gdcMEvent.h>
```

Inheritance diagram for gdcM::NoEvent:



Collaboration diagram for gdcM::NoEvent:



Additional Inherited Members

10.203.1 Detailed Description

Define some common GDCM events

The documentation for this class was generated from the following file:

- [gdcmEvent.h](#)

10.204 gdcm::network::NormalizedMessageFactory Class Reference

```
#include <gdcmNormalizedMessageFactory.h>
```

Static Public Member Functions

- static std::vector< [PresentationDataValue](#) > [ConstructNAction](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [PresentationDataValue](#) > [ConstructNCreate](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [PresentationDataValue](#) > [ConstructNDelete](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [PresentationDataValue](#) > [ConstructNEventReport](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [PresentationDataValue](#) > [ConstructNGet](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [PresentationDataValue](#) > [ConstructNSet](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)

10.204.1 Member Function Documentation

- 10.204.1.1 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNAction (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]
- 10.204.1.2 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNCreate (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]
- 10.204.1.3 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNDelete (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]
- 10.204.1.4 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNEventReport (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]
- 10.204.1.5 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNGet (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]
- 10.204.1.6 static std::vector<[PresentationDataValue](#)> gdcm::network::NormalizedMessageFactory::ConstructNSet (const [ULConnection](#) & *inConnection*, const [BaseQuery](#) * *inQuery*) [static]

The documentation for this class was generated from the following file:

- [gdcmNormalizedMessageFactory.h](#)

10.205 gdcm::NormalizedNetworkFunctions Class Reference

Normalized Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

```
#include <gdcmNormalizedNetworkFunctions.h>
```

Static Public Member Functions

- static [BaseQuery](#) * [ConstructQuery](#) (const std::string &sopInstanceUID, const [DataSet](#) &queryds, [ENQueryType](#) queryType=[eCreateMMPS](#))
- static bool [NAction](#) (const char *remote, uint16_t portno, const [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)
- static bool [NCreate](#) (const char *remote, uint16_t portno, [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)
- static bool [NDelete](#) (const char *remote, uint16_t portno, const [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)
- static bool [NEventReport](#) (const char *remote, uint16_t portno, const [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)
- static bool [NGet](#) (const char *remote, uint16_t portno, const [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)
- static bool [NSet](#) (const char *remote, uint16_t portno, const [BaseQuery](#) *query, std::vector< [DataSet](#) > &retDataSets, const char *aetitle, const char *call)

10.205.1 Detailed Description

Normalized Network Functions These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- N-EVENT-REPORT
- N-GET
- N-SET
- N-ACTION
- N-CREATE
- N-DELETE

10.205.2 Member Function Documentation

- 10.205.2.1 `static BaseQuery* gdcm::NormalizedNetworkFunctions::ConstructQuery (const std::string & sopInstanceUID, const DataSet & queryds, ENQueryType queryType = eCreateMMPS) [static]`
- 10.205.2.2 `static bool gdcm::NormalizedNetworkFunctions::NAction (const char * remote, uint16_t portno, const BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`
- 10.205.2.3 `static bool gdcm::NormalizedNetworkFunctions::NCreate (const char * remote, uint16_t portno, BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`
- 10.205.2.4 `static bool gdcm::NormalizedNetworkFunctions::NDelete (const char * remote, uint16_t portno, const BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`
- 10.205.2.5 `static bool gdcm::NormalizedNetworkFunctions::NEventReport (const char * remote, uint16_t portno, const BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`
- 10.205.2.6 `static bool gdcm::NormalizedNetworkFunctions::NGet (const char * remote, uint16_t portno, const BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`
- 10.205.2.7 `static bool gdcm::NormalizedNetworkFunctions::NSet (const char * remote, uint16_t portno, const BaseQuery * query, std::vector< DataSet > & retDataSets, const char * aetitle, const char * call) [static]`

The documentation for this class was generated from the following file:

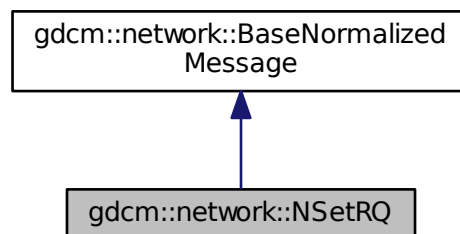
- [gdcmNormalizedNetworkFunctions.h](#)

10.206 gdcm::network::NSetRQ Class Reference

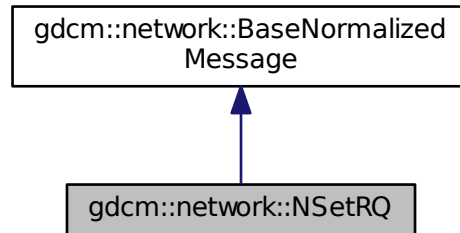
[NSetRQ](#) this file defines the messages for the nset action.

```
#include <gdcmNSetMessages.h>
```

Inheritance diagram for `gdcm::network::NSetRQ`:



Collaboration diagram for gdcm::network::NSetRQ:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)`

10.206.1 Detailed Description

[NSetRQ](#) this file defines the messages for the nset action.

10.206.2 Member Function Documentation

10.206.2.1 `std::vector<PresentationDataValue> gdcm::network::NSetRQ::ConstructPDV (const ULConnection &inConnection, const BaseQuery * inQuery) [virtual]`

Implements [gdcm::network::BaseNormalizedMessage](#).

The documentation for this class was generated from the following file:

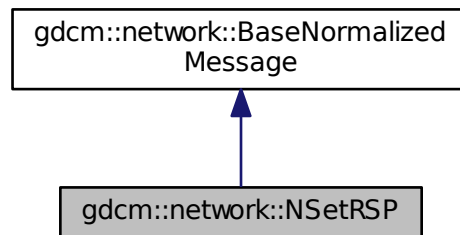
- [gdcmNSetMessages.h](#)

10.207 gdcm::network::NSetRSP Class Reference

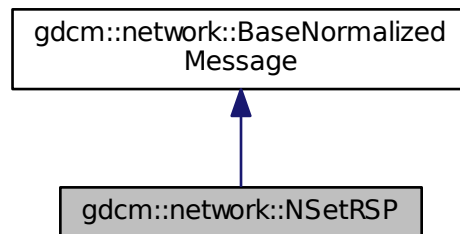
[NSetRSP](#) this file defines the messages for the nset action.

```
#include <gdcmNSetMessages.h>
```

Inheritance diagram for `gdcm::network::NSetRSP`:



Collaboration diagram for `gdcm::network::NSetRSP`:



Public Member Functions

- `std::vector< PresentationDataValue > ConstructPDVByDataSet` (const [DataSet](#) *inDataSet)

10.207.1 Detailed Description

[NSetRSP](#) this file defines the messages for the nset action.

10.207.2 Member Function Documentation

10.207.2.1 `std::vector<PresentationDataValue> gdcm::network::NSetRSP::ConstructPDVByDataSet (const DataSet * inDataSet)`

The documentation for this class was generated from the following file:

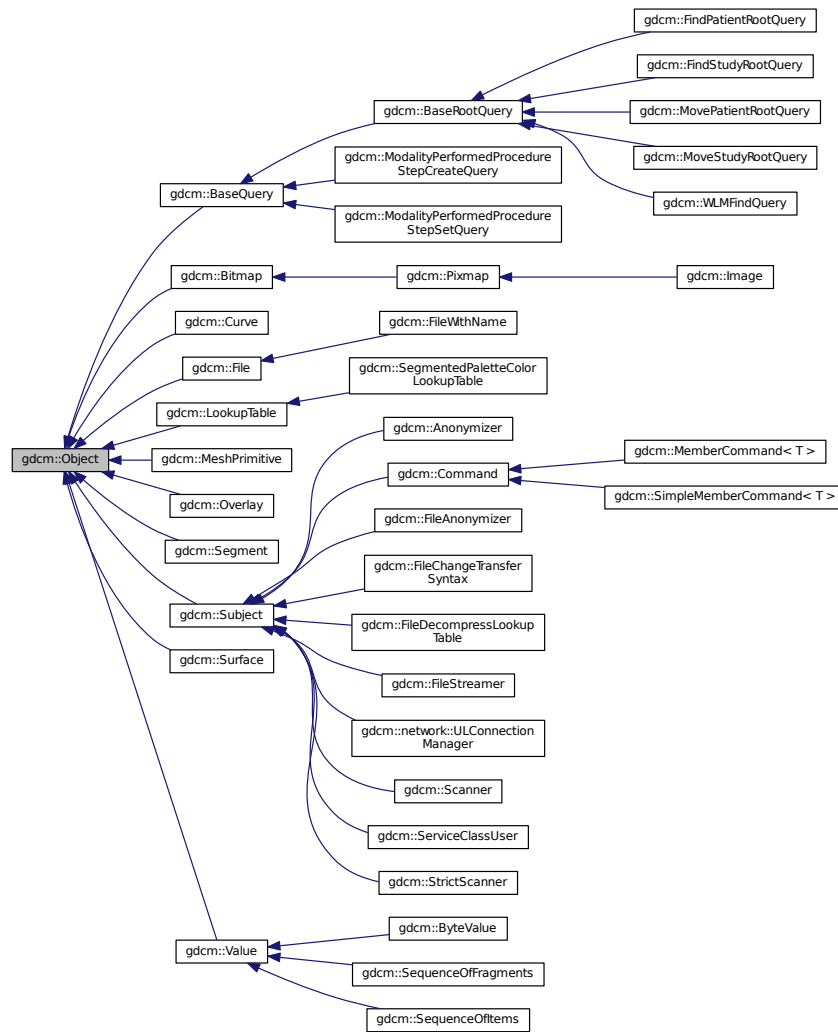
- [gdcmNSetMessages.h](#)

10.208 gdcm::Object Class Reference

Object.

```
#include <gdcmObject.h>
```

Inheritance diagram for `gdcm::Object`:



Public Member Functions

- [Object](#) ()
- [Object](#) (const [Object](#) &)
Special requirement for copy/cstor, assignment operator.
- virtual [~Object](#) ()
- void [operator=](#) (const [Object](#) &)
- virtual void [Print](#) (std::ostream &) const

Protected Member Functions

- void [Register](#) ()
- void [UnRegister](#) ()

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [Object](#) &obj)
- template<class ObjectType >
class [SmartPointer](#)

10.208.1 Detailed Description

[Object](#).

Note

main superclass for object that want to use [SmartPointer](#) invasive ref counting system

See also

[SmartPointer](#)

10.208.2 Constructor & Destructor Documentation

10.208.2.1 `gdcm::Object::Object ()` `[inline]`

10.208.2.2 `virtual gdcm::Object::~~Object ()` `[inline]`, `[virtual]`

10.208.2.3 `gdcm::Object::Object (const Object &)` `[inline]`

Special requirement for copy/cstor, assignment operator.

10.208.3 Member Function Documentation

10.208.3.1 void gdcm::Object::operator= (const Object &) [inline]

10.208.3.2 virtual void gdcm::Object::Print (std::ostream &) const [inline],[virtual]

Reimplemented in [gdcm::SequenceOfFragments](#), [gdcm::SequenceOfItems](#), [gdcm::ByteValue](#), [gdcm::Scanner](#), [gdcm::StrictScanner](#), [gdcm::Image](#), [gdcm::BaseQuery](#), [gdcm::Curve](#), [gdcm::Overlay](#), [gdcm::Bitmap](#), [gdcm::LookupTable](#), [gdcm::Pixmap](#), and [gdcm::SegmentedPaletteColorLookupTable](#).

Examples:

[ReadAndDumpDICOMDIR.cxx](#).

Referenced by `gdcm::operator<<()`.

10.208.3.3 void gdcm::Object::Register () [inline],[protected]

10.208.3.4 void gdcm::Object::UnRegister () [inline],[protected]

10.208.4 Friends And Related Function Documentation

10.208.4.1 std::ostream& operator<< (std::ostream & os, const Object & obj) [friend]

10.208.4.2 template<class ObjectType > friend class SmartPointer [friend]

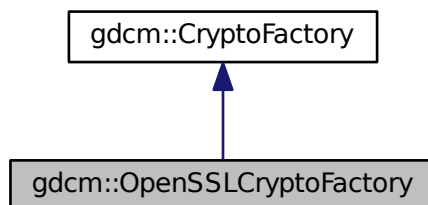
The documentation for this class was generated from the following file:

- [gdcmObject.h](#)

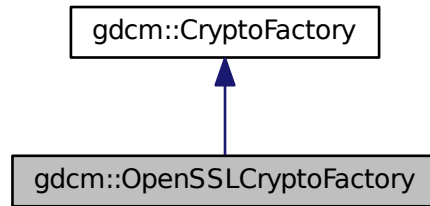
10.209 gdcm::OpenSSLCryptoFactory Class Reference

```
#include <gdcmOpenSSLCryptoFactory.h>
```

Inheritance diagram for gdcm::OpenSSLCryptoFactory:



Collaboration diagram for `gdcM::OpenSSLCryptoFactory`:



Public Member Functions

- [OpenSSLCryptoFactory](#) ([CryptoLib](#) id)
- [CryptographicMessageSyntax](#) * [CreateCMSProvider](#) ()

Protected Member Functions

- void [InitOpenSSL](#) ()

Additional Inherited Members

10.209.1 Constructor & Destructor Documentation

10.209.1.1 `gdcM::OpenSSLCryptoFactory::OpenSSLCryptoFactory (CryptoLib id)` [[inline](#)]

References [gdcMDebugMacro](#).

10.209.2 Member Function Documentation

10.209.2.1 `CryptographicMessageSyntax* gdcM::OpenSSLCryptoFactory::CreateCMSProvider ()` [[inline](#)],
[[virtual](#)]

Implements [gdcM::CryptoFactory](#).

10.209.2.2 `void gdcM::OpenSSLCryptoFactory::InitOpenSSL ()` [[protected](#)]

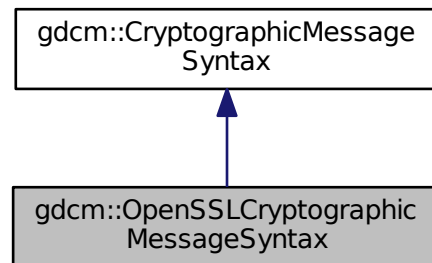
The documentation for this class was generated from the following file:

- [gdcMOpenSSLCryptoFactory.h](#)

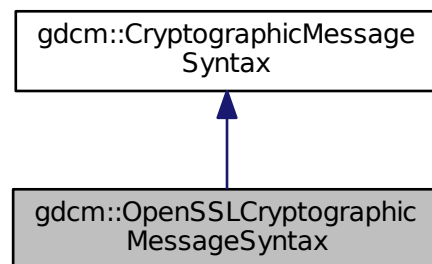
10.210 gdcM::OpenSSLCryptographicMessageSyntax Class Reference

```
#include <gdcMOpenSSLCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcM::OpenSSLCryptographicMessageSyntax:



Collaboration diagram for gdcM::OpenSSLCryptographicMessageSyntax:



Public Member Functions

- [OpenSSLCryptographicMessageSyntax](#) ()
- [~OpenSSLCryptographicMessageSyntax](#) ()
- bool [Decrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
decrypt content from a PKCS#7 envelopedData structure
- bool [Encrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
create a CMS envelopedData structure

- [CipherTypes](#) [GetCipherType](#) () const
- bool [ParseCertificateFile](#) (const char *filename)
- bool [ParseKeyFile](#) (const char *filename)
- void [SetCipherType](#) ([CipherTypes](#) type)
- bool [SetPassword](#) (const char *pass, size_t passLen)

Additional Inherited Members

10.210.1 Constructor & Destructor Documentation

10.210.1.1 `gdcmm::OpenSSLCryptographicMessageSyntax::OpenSSLCryptographicMessageSyntax ()`

10.210.1.2 `gdcmm::OpenSSLCryptographicMessageSyntax::~~OpenSSLCryptographicMessageSyntax ()`

10.210.2 Member Function Documentation

10.210.2.1 `bool gdcmm::OpenSSLCryptographicMessageSyntax::Decrypt (char * output, size_t & outlen, const char * array, size_t len) const` [virtual]

decrypt content from a PKCS#7 envelopedData structure

Implements [gdcmm::CryptographicMessageSyntax](#).

10.210.2.2 `bool gdcmm::OpenSSLCryptographicMessageSyntax::Encrypt (char * output, size_t & outlen, const char * array, size_t len) const` [virtual]

create a CMS envelopedData structure

Implements [gdcmm::CryptographicMessageSyntax](#).

10.210.2.3 `CipherTypes gdcmm::OpenSSLCryptographicMessageSyntax::GetCipherType () const` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.210.2.4 `bool gdcmm::OpenSSLCryptographicMessageSyntax::ParseCertificateFile (const char * filename)` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.210.2.5 `bool gdcmm::OpenSSLCryptographicMessageSyntax::ParseKeyFile (const char * filename)` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.210.2.6 void gdcM::OpenSSLCryptographicMessageSyntax::SetCipherType (CipherTypes *type*) [virtual]

Set Cipher [Type](#). Default is: AES256_CIPHER

Implements [gdcM::CryptographicMessageSyntax](#).

10.210.2.7 bool gdcM::OpenSSLCryptographicMessageSyntax::SetPassword (const char * *pass*, size_t *passLen*) [virtual]

Implements [gdcM::CryptographicMessageSyntax](#).

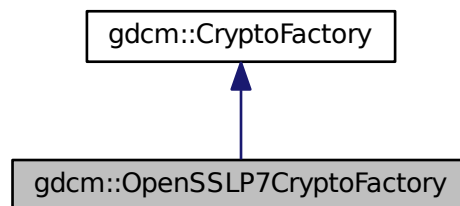
The documentation for this class was generated from the following file:

- [gdcMOpenSSLCryptographicMessageSyntax.h](#)

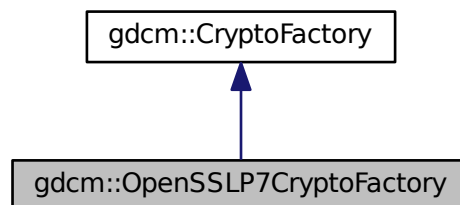
10.211 gdcM::OpenSSLP7CryptoFactory Class Reference

```
#include <gdcMOpenSSLP7CryptoFactory.h>
```

Inheritance diagram for gdcM::OpenSSLP7CryptoFactory:



Collaboration diagram for gdcM::OpenSSLP7CryptoFactory:



Public Member Functions

- [OpenSSLP7CryptoFactory](#) ([CryptoLib](#) id)
- [CryptographicMessageSyntax](#) * [CreateCMSProvider](#) ()

Additional Inherited Members

10.211.1 Constructor & Destructor Documentation

10.211.1.1 `gdcmm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory (CryptoLib id)` `[inline]`

References `gdcmmDebugMacro`.

10.211.2 Member Function Documentation

10.211.2.1 `CryptographicMessageSyntax* gdcmm::OpenSSLP7CryptoFactory::CreateCMSProvider ()` `[inline]`,
`[virtual]`

Implements [gdcmm::CryptoFactory](#).

The documentation for this class was generated from the following file:

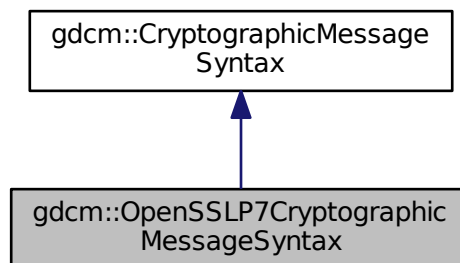
- [gdcmmOpenSSLP7CryptoFactory.h](#)

10.212 gdcmm::OpenSSLP7CryptographicMessageSyntax Class Reference

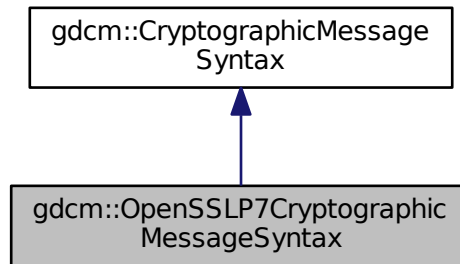
Class for [CryptographicMessageSyntax](#) encryption. This is just a simple wrapper around openssl! PKCS7_encrypt functionalities.

```
#include <gdcmmOpenSSLP7CryptographicMessageSyntax.h>
```

Inheritance diagram for `gdcmm::OpenSSLP7CryptographicMessageSyntax`:



Collaboration diagram for gdcmm::OpenSSL7CryptographicMessageSyntax:



Public Member Functions

- [OpenSSL7CryptographicMessageSyntax](#) ()
- [~OpenSSL7CryptographicMessageSyntax](#) ()
- bool [Decrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
decrypt content from a PKCS#7 envelopedData structure
- bool [Encrypt](#) (char *output, size_t &outlen, const char *array, size_t len) const
create a PKCS#7 envelopedData structure
- [CipherTypes](#) [GetCipherType](#) () const
- bool [ParseCertificateFile](#) (const char *filename)
- bool [ParseKeyFile](#) (const char *filename)
- void [SetCipherType](#) ([CipherTypes](#) type)
- bool [SetPassword](#) (const char *, size_t)

Additional Inherited Members

10.212.1 Detailed Description

Class for [CryptographicMessageSyntax](#) encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities.

See online documentation http://www.openssl.org/docs/crypto/PKCS7_encrypt.html

10.212.2 Constructor & Destructor Documentation

10.212.2.1 `gdcmm::OpenSSLP7CryptographicMessageSyntax::OpenSSLP7CryptographicMessageSyntax ()`

10.212.2.2 `gdcmm::OpenSSLP7CryptographicMessageSyntax::~~OpenSSLP7CryptographicMessageSyntax ()`

10.212.3 Member Function Documentation

10.212.3.1 `bool gdcmm::OpenSSLP7CryptographicMessageSyntax::Decrypt (char * output, size_t & outlen, const char * array, size_t len) const` [virtual]

decrypt content from a PKCS#7 envelopedData structure

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.2 `bool gdcmm::OpenSSLP7CryptographicMessageSyntax::Encrypt (char * output, size_t & outlen, const char * array, size_t len) const` [virtual]

create a PKCS#7 envelopedData structure

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.3 `CipherTypes gdcmm::OpenSSLP7CryptographicMessageSyntax::GetCipherType () const` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.4 `bool gdcmm::OpenSSLP7CryptographicMessageSyntax::ParseCertificateFile (const char * filename)` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.5 `bool gdcmm::OpenSSLP7CryptographicMessageSyntax::ParseKeyFile (const char * filename)` [virtual]

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.6 `void gdcmm::OpenSSLP7CryptographicMessageSyntax::SetCipherType (CipherTypes type)` [virtual]

Set Cipher [Type](#). Default is: AES256_CIPHER

Implements [gdcmm::CryptographicMessageSyntax](#).

10.212.3.7 `bool gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassword (const char *, size_t) [inline], [virtual]`

Implements [gdcm::CryptographicMessageSyntax](#).

References [gdcmWarningMacro](#).

The documentation for this class was generated from the following file:

- [gdcmOpenSSLP7CryptographicMessageSyntax.h](#)

10.213 gdcm::Orientation Class Reference

class to handle [Orientation](#)

```
#include <gdcmOrientation.h>
```

Public Types

- enum [OrientationType](#) {
[UNKNOWN](#),
[AXIAL](#),
[CORONAL](#),
[SAGITTAL](#),
[OBLIQUE](#) }

Public Member Functions

- [Orientation](#) ()
- [~Orientation](#) ()
- void [Print](#) (std::ostream &) const
Print.

Static Public Member Functions

- static const char * [GetLabel](#) ([OrientationType](#) type)
Return the label of an Orientation.
- static double [GetObliquityThresholdCosineValue](#) ()
- static [OrientationType](#) [GetType](#) (const double dircos[6])
- static void [SetObliquityThresholdCosineValue](#) (double val)
ObliquityThresholdCosineValue stuff.

Static Protected Member Functions

- static char [GetMajorAxisFromPatientRelativeDirectionCosine](#) (double x, double y, double z)

Friends

- `std::ostream & operator<< (std::ostream &_os, const Orientation &o)`

10.213.1 Detailed Description

class to handle [Orientation](#)

10.213.2 Member Enumeration Documentation

10.213.2.1 enum `gdcm::Orientation::OrientationType`

Enumerator

UNKNOWN

AXIAL

CORONAL

SAGITTAL

OBLIQUE

10.213.3 Constructor & Destructor Documentation

10.213.3.1 `gdcm::Orientation::Orientation ()`

10.213.3.2 `gdcm::Orientation::~~Orientation ()`

10.213.4 Member Function Documentation

10.213.4.1 `static const char* gdcm::Orientation::GetLabel (OrientationType type)` `[static]`

Return the label of an [Orientation](#).

Examples:

[FixOrientation.cxx](#).

10.213.4.2 `static char gdcm::Orientation::GetMajorAxisFromPatientRelativeDirectionCosine (double x, double y, double z)`
`[static], [protected]`

10.213.4.3 `static double gdcm::Orientation::GetObliquityThresholdCosineValue ()` `[static]`

10.213.4.4 `static OrientationType gdcm::Orientation::GetType (const double dircos[6])` `[static]`

Return the type of orientation from a direction cosines Input is an array of 6 double

Examples:

[FixOrientation.cxx](#).

10.213.4.5 `void gdcm::Orientation::Print (std::ostream &) const`

Print.

Referenced by `gdcm::operator<<()`.

10.213.4.6 `static void gdcm::Orientation::SetObliquityThresholdCosineValue (double val) [static]`

ObliquityThresholdCosineValue stuff.

10.213.5 Friends And Related Function Documentation

10.213.5.1 `std::ostream& operator<< (std::ostream &_os, const Orientation &o) [friend]`

The documentation for this class was generated from the following file:

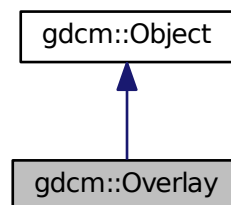
- [gdcmOrientation.h](#)

10.214 gdcm::Overlay Class Reference

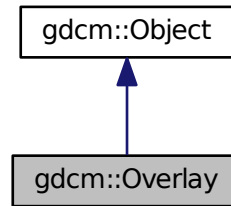
[Overlay](#) class.

```
#include <gdcmOverlay.h>
```

Inheritance diagram for `gdcm::Overlay`:



Collaboration diagram for `gdcm::Overlay`:



Public Types

- enum `OverlayType` {
`Invalid` = 0,
`Graphics` = 1,
`ROI` = 2 }

Public Member Functions

- `Overlay ()`
- `Overlay (Overlay const &ov)`
- `~Overlay ()`
- void `Decompress (std::ostream &os) const`
Decode the internal OverlayData (packed bits) into unpacked representation.
- unsigned short `GetBitPosition () const`
return bit position
- unsigned short `GetBitsAllocated () const`
return bits allocated
- unsigned short `GetColumns () const`
get columns
- const char * `GetDescription () const`
get description
- unsigned short `GetGroup () const`
Get Group number.
- const signed short * `GetOrigin () const`
get origin
- const `ByteValue` & `GetOverlayData () const`
- unsigned short `GetRows () const`
get rows
- const char * `GetType () const`
get type

- [OverlayType GetTypeAsEnum](#) () const
- bool [GetUnpackBuffer](#) (char *buffer, size_t len) const
- size_t [GetUnpackBufferLength](#) () const
- bool [GrabOverlayFromPixelData](#) ([DataSet](#) const &ds)
- bool [IsEmpty](#) () const
Return whether or not the [Overlay](#) is empty:
- bool [IsInPixelData](#) () const
return if the [Overlay](#) is stored in the pixel data or not
- void [IsInPixelData](#) (bool b)
Set whether or no the OverlayData is in the Pixel Data:
- bool [IsZero](#) () const
return true if all bits are set to 0
- [Overlay & operator=](#) ([Overlay](#) const &ov)
- void [Print](#) (std::ostream &) const
Print.
- void [SetBitPosition](#) (unsigned short bitposition)
set bit position
- void [SetBitsAllocated](#) (unsigned short bitsallocated)
set bits allocated
- void [SetColumns](#) (unsigned short columns)
set columns
- void [SetDescription](#) (const char *description)
set description
- void [SetFrameOrigin](#) (unsigned short frameorigin)
set frame origin
- void [SetGroup](#) (unsigned short group)
Set Group number.
- void [SetNumberOfFrames](#) (unsigned int numberofframes)
set number of frames
- void [SetOrigin](#) (const signed short origin[2])
set origin
- void [SetOverlay](#) (const char *array, size_t length)
set overlay from byte array + length
- void [SetRows](#) (unsigned short rows)
set rows
- void [SetType](#) (const char *type)
set type
- void [Update](#) (const [DataElement](#) &de)
Update overlay from data element de:

Static Public Member Functions

- static const char * [GetOverlayTypeAsString](#) ([OverlayType](#) ot)
- static [OverlayType GetOverlayTypeFromString](#) (const char *)

Additional Inherited Members

10.214.1 Detailed Description

[Overlay](#) class.

Note

see AreOverlaysInPixelData

Todo Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Example:

10.214.2 Member Enumeration Documentation

10.214.2.1 enum gdcm::Overlay::OverlayType

Enumerator

Invalid

Graphics

ROI

10.214.3 Constructor & Destructor Documentation

10.214.3.1 gdcm::Overlay::Overlay ()

10.214.3.2 gdcm::Overlay::~~Overlay ()

10.214.3.3 gdcm::Overlay::Overlay (Overlay const & ov)

10.214.4 Member Function Documentation

10.214.4.1 void gdcm::Overlay::Decompress (std::ostream & os) const

Decode the internal OverlayData (packed bits) into unpacked representation.

10.214.4.2 unsigned short gdcm::Overlay::GetBitPosition () const

return bit position

10.214.4.3 unsigned short gdcm::Overlay::GetBitsAllocated () const

return bits allocated

10.214.4.4 unsigned short gdcm::Overlay::GetColumns () const

get columns

10.214.4.5 const char* gdcm::Overlay::GetDescription () const

get description

10.214.4.6 unsigned short gdcm::Overlay::GetGroup () const

Get Group number.

10.214.4.7 const signed short* gdcm::Overlay::GetOrigin () const

get origin

10.214.4.8 const ByteValue& gdcm::Overlay::GetOverlayData () const

Return the [Overlay](#) Data as [ByteValue](#): Not thread safe

10.214.4.9 static const char* gdcm::Overlay::GetOverlayTypeAsString (OverlayType of) [static]

10.214.4.10 static OverlayType gdcm::Overlay::GetOverlayTypeFromString (const char *) [static]

10.214.4.11 unsigned short gdcm::Overlay::GetRows () const

get rows

10.214.4.12 const char* gdcm::Overlay::GetType () const

get type

10.214.4.13 **OverlayType** gdcm::Overlay::GetTypeAsEnum () const

10.214.4.14 **bool** gdcm::Overlay::GetUnpackBuffer (*char * buffer*, *size_t len*) const

Retrieve the unpack buffer for [Overlay](#). This is an error if the size if below [GetUnpackBufferLength\(\)](#)

10.214.4.15 **size_t** gdcm::Overlay::GetUnpackBufferLength () const

Retrieve the size of the buffer needed to hold the [Overlay](#) as specified by Col & Row parameters

10.214.4.16 **bool** gdcm::Overlay::GrabOverlayFromPixelData (*DataSet* const & *ds*)

10.214.4.17 **bool** gdcm::Overlay::IsEmpty () const

Return whether or not the [Overlay](#) is empty:

10.214.4.18 **bool** gdcm::Overlay::IsInPixelData () const

return if the [Overlay](#) is stored in the pixel data or not

10.214.4.19 **void** gdcm::Overlay::IsInPixelData (*bool b*)

Set whether or no the OverlayData is in the Pixel Data:

10.214.4.20 **bool** gdcm::Overlay::IsZero () const

return true if all bits are set to 0

10.214.4.21 **Overlay&** gdcm::Overlay::operator= (*Overlay* const & *ov*)

10.214.4.22 **void** gdcm::Overlay::Print (*std::ostream &*) const [virtual]

Print.

Reimplemented from [gdcm::Object](#).

10.214.4.23 **void** gdcm::Overlay::SetBitPosition (*unsigned short bitposition*)

set bit position

10.214.4.24 void gdcm::Overlay::SetBitsAllocated (unsigned short *bitsallocated*)

set bits allocated

10.214.4.25 void gdcm::Overlay::SetColumns (unsigned short *columns*)

set columns

10.214.4.26 void gdcm::Overlay::SetDescription (const char * *description*)

set description

10.214.4.27 void gdcm::Overlay::SetFrameOrigin (unsigned short *frameorigin*)

set frame origin

10.214.4.28 void gdcm::Overlay::SetGroup (unsigned short *group*)

Set Group number.

10.214.4.29 void gdcm::Overlay::SetNumberOfFrames (unsigned int *numberofframes*)

set number of frames

10.214.4.30 void gdcm::Overlay::SetOrigin (const signed short *origin*[2])

set origin

10.214.4.31 void gdcm::Overlay::SetOverlay (const char * *array*, size_t *length*)

set overlay from byte array + length

10.214.4.32 void gdcm::Overlay::SetRows (unsigned short *rows*)

set rows

10.214.4.33 void gdcm::Overlay::SetType (const char * *type*)

set type

10.214.4.34 void `gdcm::Overlay::Update` (const `DataElement` & *de*)

Update overlay from data element *de*:

The documentation for this class was generated from the following file:

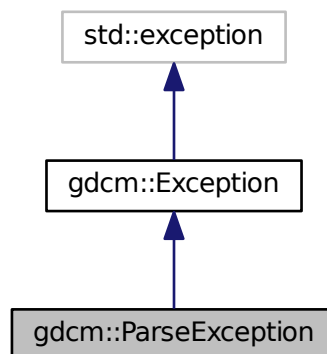
- [gdcmOverlay.h](#)

10.215 `gdcm::ParseException` Class Reference

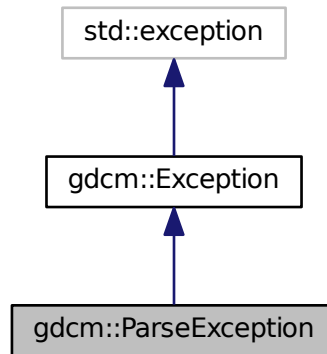
[ParseException](#) Standard exception handling object.

```
#include <gdcmParseException.h>
```

Inheritance diagram for `gdcm::ParseException`:



Collaboration diagram for gdcm::ParseException:



Public Member Functions

- [ParseException](#) ()
- virtual [~ParseException](#) () throw ()
- const [DataElement](#) & [GetLastElement](#) () const
- [ParseException](#) & [operator=](#) (const [ParseException](#) &orig)
- void [SetLastElement](#) ([DataElement](#) &de)

10.215.1 Detailed Description

[ParseException](#) Standard exception handling object.

10.215.2 Constructor & Destructor Documentation

10.215.2.1 `gdcm::ParseException::ParseException ()` `[inline]`

10.215.2.2 `virtual gdcm::ParseException::~~ParseException () throw ()` `[inline]`, `[virtual]`

10.215.3 Member Function Documentation

10.215.3.1 `const DataElement& gdcm::ParseException::GetLastElement () const` `[inline]`

10.215.3.2 `ParseException& gdcm::ParseException::operator= (const ParseException & orig)` `[inline]`

Assignment operator.

10.215.3.3 void `gdcm::ParseException::SetLastElement (DataElement & de)` `[inline]`

Equivalence operator.

Referenced by `gdcm::Fragment::ReadBacktrack()`, and `gdcm::Fragment::ReadValue()`.

The documentation for this class was generated from the following file:

- [gdcmParseException.h](#)

10.216 gdcm::Parser Class Reference

[Parser](#) ala XML_Parser from expat (SAX)

```
#include <gdcmParser.h>
```

Public Types

- typedef void(* [EndElementHandler](#)) (void *userData, const [Tag](#) &name)
- enum [ErrorType](#) {
[NoError](#),
[NoMemoryError](#),
[SyntaxError](#),
[NoElementsError](#),
[TagMismatchError](#),
[DuplicateAttributeError](#),
[JunkAfterDocElementError](#),
[UndefinedEntityError](#),
[UnexpectedStateError](#) }
- typedef void(* [StartElementHandler](#)) (void *userData, const [Tag](#) &tag, const char *atts[])

Public Member Functions

- [Parser](#) ()
- [~Parser](#) ()
- unsigned long [GetCurrentByteIndex](#) () const
- [ErrorType](#) [GetErrorCode](#) () const
- void * [GetUserData](#) () const
- bool [Parse](#) (const char *s, int len, bool isFinal)
- void [SetElementHandler](#) ([StartElementHandler](#) start, [EndElementHandler](#) end)
- void [SetUserData](#) (void *userData)

Static Public Member Functions

- static const char * [GetErrorString](#) ([ErrorType](#) const &err)

Protected Member Functions

- char * [GetBuffer](#) (int len)
- bool [ParseBuffer](#) (int len, bool isFinal)
- [ErrorType Process](#) ()

10.216.1 Detailed Description

[Parser](#) ala XML_Parser from expat (SAX)

Detailed description here

Note

Simple API for DICOM

10.216.2 Member Typedef Documentation

10.216.2.1 typedef void(* gdcm::Parser::EndElementHandler) (void *userData, const Tag &name)

10.216.2.2 typedef void(* gdcm::Parser::StartElementHandler) (void *userData, const Tag &tag, const char *atts[])

10.216.3 Member Enumeration Documentation

10.216.3.1 enum gdcm::Parser::ErrorType

Enumerator

NoError

NoMemoryError

SyntaxError

NoElementsError

TagMismatchError

DuplicateAttributeError

JunkAfterDocElementError

UndefinedEntityError

UnexpectedStateError

10.216.4 Constructor & Destructor Documentation

10.216.4.1 `gdcm::Parser::Parser ()` `[inline]`

10.216.4.2 `gdcm::Parser::~~Parser ()` `[inline]`

10.216.5 Member Function Documentation

10.216.5.1 `char* gdcm::Parser::GetBuffer (int len)` `[protected]`

10.216.5.2 `unsigned long gdcm::Parser::GetCurrentByteIndex ()` `const`

10.216.5.3 `ErrorType gdcm::Parser::GetErrorCode ()` `const`

10.216.5.4 `static const char* gdcm::Parser::GetErrorString (ErrorType const & err)` `[static]`

10.216.5.5 `void* gdcm::Parser::GetUserData ()` `const`

10.216.5.6 `bool gdcm::Parser::Parse (const char * s, int len, bool isFinal)`

10.216.5.7 `bool gdcm::Parser::ParseBuffer (int len, bool isFinal)` `[protected]`

10.216.5.8 `ErrorType gdcm::Parser::Process ()` `[protected]`

10.216.5.9 `void gdcm::Parser::SetElementHandler (StartElementHandler start, EndElementHandler end)`

10.216.5.10 `void gdcm::Parser::SetUserData (void * userData)`

The documentation for this class was generated from the following file:

- [gdcmParser.h](#)

10.217 gdcm::Patient Class Reference

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

```
#include <gdcmPatient.h>
```

Public Member Functions

- [Patient \(\)](#)

10.217.1 Detailed Description

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

10.217.2 Constructor & Destructor Documentation

10.217.2.1 gdcmm::Patient::Patient () [inline]

The documentation for this class was generated from the following file:

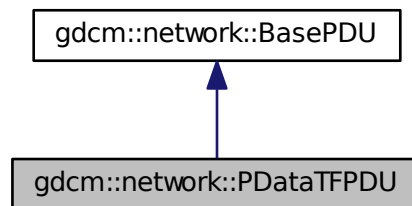
- [gdcmmPatient.h](#)

10.218 gdcmm::network::PDataTFPDU Class Reference

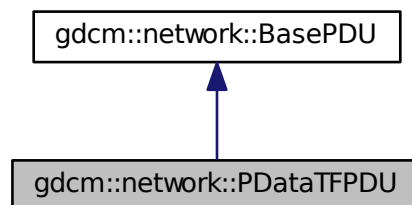
[PDataTFPDU Table](#) 9-22 P-DATA-TF PDU FIELDS.

```
#include <gdcmmPDataTFPDU.h>
```

Inheritance diagram for gdcmm::network::PDataTFPDU:



Collaboration diagram for gdcmm::network::PDataTFPDU:



Public Types

- typedef std::vector< [PresentationDataValue](#) >::size_type [SizeType](#)

Public Member Functions

- [PDataTFPDU](#) ()
- void [AddPresentationDataValue](#) ([PresentationDataValue](#) const &pdv)
- [SizeType](#) [GetNumberOfPresentationDataValues](#) () const
- [PresentationDataValue](#) const & [GetPresentationDataValue](#) ([SizeType](#) i) const
- bool [IsLastFragment](#) () const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

Protected Member Functions

- std::istream & [ReadInto](#) (std::istream &is, std::ostream &os)

10.218.1 Detailed Description

[PDataTFPDU](#) Table 9-22 P-DATA-TF PDU FIELDS.

10.218.2 Member Typedef Documentation

10.218.2.1 typedef std::vector<[PresentationDataValue](#)>::size_type [gdcm::network::PDataTFPDU::SizeType](#)

10.218.3 Constructor & Destructor Documentation

10.218.3.1 [gdcm::network::PDataTFPDU::PDataTFPDU](#) ()

10.218.4 Member Function Documentation

10.218.4.1 void [gdcm::network::PDataTFPDU::AddPresentationDataValue](#) ([PresentationDataValue](#) const & *pdv*)
[inline]

10.218.4.2 [SizeType](#) [gdcm::network::PDataTFPDU::GetNumberOfPresentationDataValues](#) () const [inline]

10.218.4.3 [PresentationDataValue](#) const& [gdcm::network::PDataTFPDU::GetPresentationDataValue](#) ([SizeType](#) *i*) const
[inline]

10.218.4.4 bool [gdcm::network::PDataTFPDU::IsLastFragment](#) () const [virtual]

Implements [gdcm::network::BasePDU](#).

10.218.4.5 void gdcm::network::PDataTFPDU::Print (std::ostream & *os*) const [virtual]

Implements [gdcm::network::BasePDU](#).

10.218.4.6 std::istream& gdcm::network::PDataTFPDU::Read (std::istream & *is*) [virtual]

Implements [gdcm::network::BasePDU](#).

10.218.4.7 std::istream& gdcm::network::PDataTFPDU::ReadInto (std::istream & *is*, std::ostream & *os*) [protected]

10.218.4.8 size_t gdcm::network::PDataTFPDU::Size () const [virtual]

Implements [gdcm::network::BasePDU](#).

10.218.4.9 const std::ostream& gdcm::network::PDataTFPDU::Write (std::ostream & *os*) const [virtual]

Implements [gdcm::network::BasePDU](#).

The documentation for this class was generated from the following file:

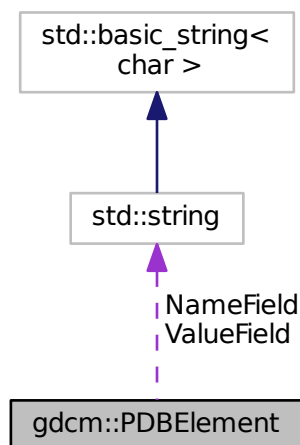
- [gdcmPDataTFPDU.h](#)

10.219 gdcm::PDBelement Class Reference

Class to represent a PDB [Element](#).

```
#include <gdcmPDBelement.h>
```

Collaboration diagram for gdcm::PDBelement:



Public Member Functions

- [PDBElement](#) ()
- const char * [GetName](#) () const
Set/Get Name.
- const char * [GetValue](#) () const
Set/Get Value.
- bool [operator==](#) (const [PDBElement](#) &de) const
- void [SetName](#) (const char *name)
- void [SetValue](#) (const char *value)

Protected Attributes

- std::string [NameField](#)
- std::string [ValueField](#)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [PDBElement](#) &val)

10.219.1 Detailed Description

Class to represent a PDB [Element](#).

See also

[PDBHeader](#)

10.219.2 Constructor & Destructor Documentation

10.219.2.1 `gdcmm::PDBElement::PDBElement ()` `[inline]`

References `gdcmm::operator<<()`.

10.219.3 Member Function Documentation

10.219.3.1 `const char* gdcmm::PDBElement::GetName ()` `const` `[inline]`

Set/Get Name.

10.219.3.2 `const char* gdcmm::PDBElement::GetValue ()` `const` `[inline]`

Set/Get [Value](#).

10.219.3.3 `bool gdcm::PDBElement::operator==(const PDBElement & de) const` `[inline]`

References `NameField`, and `ValueField`.

10.219.3.4 `void gdcm::PDBElement::SetName (const char * name)` `[inline]`

10.219.3.5 `void gdcm::PDBElement::SetValue (const char * value)` `[inline]`

10.219.4 Friends And Related Function Documentation

10.219.4.1 `std::ostream& operator<< (std::ostream & os, const PDBElement & val)` `[friend]`

10.219.5 Member Data Documentation

10.219.5.1 `std::string gdcm::PDBElement::NameField` `[protected]`

Referenced by `gdcm::operator<<()`, and `operator==(())`.

10.219.5.2 `std::string gdcm::PDBElement::ValueField` `[protected]`

Referenced by `gdcm::operator<<()`, and `operator==(())`.

The documentation for this class was generated from the following file:

- [gdcmPDBElement.h](#)

10.220 gdcm::PDBHeader Class Reference

Class for [PDBHeader](#).

```
#include <gdcmPDBHeader.h>
```

Public Member Functions

- [PDBHeader](#) ()
- [~PDBHeader](#) ()
- `bool FindPDBElementByName (const char *name)`
Return true if the PDB element matching name is found or not.
- `const PDBElement & GetPDBElementByName (const char *name)`
- `bool LoadFromDataElement (DataElement const &de)`
Load the PDB Header from a [DataElement](#) of a [DataSet](#).
- `void Print (std::ostream &os) const`
Print.

Static Public Member Functions

- static const [PrivateTag](#) & [GetPDBInfoTag](#) ()
Return the Private [Tag](#) where the PDB header is stored within a DICOM [DataSet](#).

Protected Member Functions

- const [PDBElement](#) & [GetPDBEEnd](#) () const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [PDBHeader](#) &d)

10.220.1 Detailed Description

Class for [PDBHeader](#).

GEMS MR [Image](#) have an [Attribute](#) (0025,1b,GEMS_SERS_01) which store the Acquisition parameter of the MR [Image](#). It is compressed and can therefore not be used as is. This class de-encapsulated the Protocol Data Block and allow users to query element by name.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.
: the API of this class might change.

See also

[CSAHeader](#)

10.220.2 Constructor & Destructor Documentation

10.220.2.1 `gdcm::PDBHeader::PDBHeader ()` [[inline](#)]

10.220.2.2 `gdcm::PDBHeader::~~PDBHeader ()` [[inline](#)]

10.220.3 Member Function Documentation

10.220.3.1 `bool gdcm::PDBHeader::FindPDBElementByName (const char * name)`

Return true if the PDB element matching name is found or not.

10.220.3.2 `const PDBElement& gdcm::PDBHeader::GetPDPEnd () const` [protected]

10.220.3.3 `const PDBElement& gdcm::PDBHeader::GetPDBElementByName (const char * name)`

Lookup in the PDB header if a PDB element match the name 'name':

Warning

Case Sensitive

10.220.3.4 `static const PrivateTag& gdcm::PDBHeader::GetPDBInfoTag ()` [static]

Return the Private [Tag](#) where the PDB header is stored within a DICOM [DataSet](#).

10.220.3.5 `bool gdcm::PDBHeader::LoadFromDataElement (DataElement const & de)`

Load the PDB Header from a [DataElement](#) of a [DataSet](#).

10.220.3.6 `void gdcm::PDBHeader::Print (std::ostream & os) const`

Print.

Referenced by `gdcm::operator<<()`.

10.220.4 Friends And Related Function Documentation

10.220.4.1 `std::ostream& operator<< (std::ostream & _os, const PDBHeader & d)` [friend]

The documentation for this class was generated from the following file:

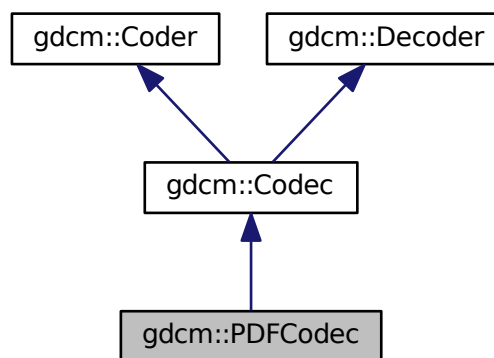
- [gdcmPDBHeader.h](#)

10.221 gdcm::PDFCodec Class Reference

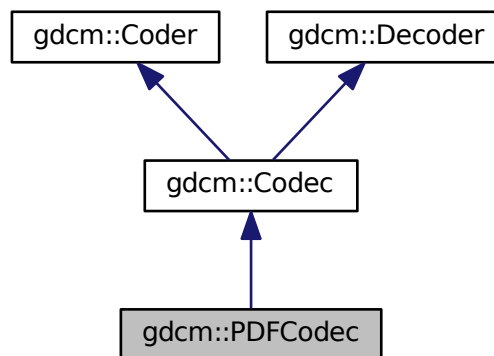
[PDFCodec](#) class.

```
#include <gdcmPDFCodec.h>
```

Inheritance diagram for gdcm::PDFCodec:



Collaboration diagram for gdcm::PDFCodec:



Public Member Functions

- [PDFCodec](#) ()
- [~PDFCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &) const
Return whether this decoder support this transfer syntax (can decode it)
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.

Additional Inherited Members

10.221.1 Detailed Description

[PDFCodec](#) class.

10.221.2 Constructor & Destructor Documentation

10.221.2.1 [gdcm::PDFCodec::PDFCodec](#) ()

10.221.2.2 [gdcm::PDFCodec::~~PDFCodec](#) ()

10.221.3 Member Function Documentation

10.221.3.1 bool [gdcm::PDFCodec::CanCode](#) ([TransferSyntax](#) const &) const [inline],[virtual]

Return whether this coder support this transfer syntax (can code it)

Implements [gdcm::Coder](#).

10.221.3.2 bool [gdcm::PDFCodec::CanDecode](#) ([TransferSyntax](#) const &) const [inline],[virtual]

Return whether this decoder support this transfer syntax (can decode it)

Implements [gdcm::Decoder](#).

10.221.3.3 bool [gdcm::PDFCodec::Decode](#) ([DataElement](#) const & , [DataElement](#) &) [virtual]

Decode.

Reimplemented from [gdcm::Decoder](#).

The documentation for this class was generated from the following file:

- [gdcmPDFCodec.h](#)

10.222 gdcm::network::PDUFactory Class Reference

[PDUFactory](#) basically, given an initial byte, construct the appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.

```
#include <gdcmPDUFactory.h>
```

Static Public Member Functions

- static [BasePDU](#) * [ConstructAbortPDU](#) ()
- static [BasePDU](#) * [ConstructPDU](#) (uint8_t itemtype)
- static [BasePDU](#) * [ConstructReleasePDU](#) ()
- static std::vector< [BasePDU](#) * > [CreateCEchoPDU](#) (const [ULConnection](#) &inConnection)
- static std::vector< [BasePDU](#) * > [CreateCFindPDU](#) (const [ULConnection](#) &inConnection, const [BaseRootQuery](#) *inRootQuery)
- static std::vector< [BasePDU](#) * > [CreateCMovePDU](#) (const [ULConnection](#) &inConnection, const [BaseRootQuery](#) *inRootQuery)
- static std::vector< [BasePDU](#) * > [CreateCStoreRQPDU](#) (const [ULConnection](#) &inConnection, const [File](#) &file, bool writeDataSet=true)
- static std::vector< [BasePDU](#) * > [CreateCStoreRSPDU](#) (const [DataSet](#) *inDataSet, const [BasePDU](#) *inPC)
- static std::vector< [BasePDU](#) * > [CreateNActionPDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [BasePDU](#) * > [CreateNCreatePDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [BasePDU](#) * > [CreateNDeletePDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [BasePDU](#) * > [CreateNEventReportPDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [BasePDU](#) * > [CreateNGetPDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static std::vector< [BasePDU](#) * > [CreateNSetPDU](#) (const [ULConnection](#) &inConnection, const [BaseQuery](#) *inQuery)
- static [EEventID](#) [DetermineEventByPDU](#) (const [BasePDU](#) *inPDU)
- static std::vector< [PresentationDataValue](#) > [GetPDVs](#) (const std::vector< [BasePDU](#) * > &inDataPDUs)

10.222.1 Detailed Description

[PDUFactory](#) basically, given an initial byte, construct the appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.

10.222.2 Member Function Documentation

- 10.222.2.1 static **BasePDU*** gdcm::network::PDUFactory::ConstructAbortPDU () [static]
- 10.222.2.2 static **BasePDU*** gdcm::network::PDUFactory::ConstructPDU (uint8_t *itemtype*) [static]
- 10.222.2.3 static **BasePDU*** gdcm::network::PDUFactory::ConstructReleasePDU () [static]
- 10.222.2.4 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateCEchoPDU (const ULConnection & *inConnection*) [static]
- 10.222.2.5 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateCFindPDU (const ULConnection & *inConnection*, const **BaseRootQuery** * *inRootQuery*) [static]
- 10.222.2.6 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateCMovePDU (const ULConnection & *inConnection*, const **BaseRootQuery** * *inRootQuery*) [static]
- 10.222.2.7 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateCStoreRQPDU (const ULConnection & *inConnection*, const File & *file*, bool *writeDataSet* = true) [static]
- 10.222.2.8 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateCStoreRSPPDU (const DataSet * *inDataSet*, const **BasePDU** * *inPC*) [static]
- 10.222.2.9 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNActionPDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.10 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNCreatePDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.11 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNDeletePDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.12 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNEventReportPDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.13 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNGetPDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.14 static std::vector<**BasePDU***> gdcm::network::PDUFactory::CreateNSetPDU (const ULConnection & *inConnection*, const **BaseQuery** * *inQuery*) [static]
- 10.222.2.15 static **EEventID** gdcm::network::PDUFactory::DetermineEventByPDU (const **BasePDU** * *inPDU*) [static]
- 10.222.2.16 static std::vector<**PresentationDataValue**> gdcm::network::PDUFactory::GetPDVs (const std::vector<**BasePDU** * > & *inDataPDUs*) [static]

The documentation for this class was generated from the following file:

- [gdcmPDUFactory.h](#)

10.223 gdcm::PersonName Class Reference

[PersonName](#) class.

```
#include <gdcmPersonName.h>
```

Public Member Functions

- unsigned int [GetMaxLength](#) () const
- unsigned int [GetNumberOfComponents](#) () const
- void [Print](#) (std::ostream &os) const
- void [SetBlob](#) (const std::vector< char > &v)
- void [SetComponents](#) (const char *comp1="", const char *comp2="", const char *comp3="", const char *comp4="", const char *comp5="")
- void [SetComponents](#) (const char *components[])

Public Attributes

- char [Component](#) [[MaxNumberOfComponents](#)][[MaxLength](#)+1]

Static Public Attributes

- static const unsigned int [MaxLength](#) = 64
- static const unsigned int [MaxNumberOfComponents](#) = 5
- static const char [Padding](#) = ' '
- static const char [Separator](#) = '^'

10.223.1 Detailed Description

[PersonName](#) class.

10.223.2 Member Function Documentation

10.223.2.1 unsigned int gdcm::PersonName::GetMaxLength () const [\[inline\]](#)

10.223.2.2 unsigned int gdcm::PersonName::GetNumberOfComponents () const [\[inline\]](#)

10.223.2.3 void gdcm::PersonName::Print (std::ostream & os) const [\[inline\]](#)

10.223.2.4 void gdcm::PersonName::SetBlob (const std::vector< char > & v) [\[inline\]](#)

10.223.2.5 void gdcm::PersonName::SetComponents (const char * *comp1* = "", const char * *comp2* = "", const char * *comp3* = "", const char * *comp4* = "", const char * *comp5* = "") [inline]

10.223.2.6 void gdcm::PersonName::SetComponents (const char * *components*[]) [inline]

10.223.3 Member Data Documentation

10.223.3.1 char gdcm::PersonName::Component[MaxNumberOfComponents][MaxLength+1]

10.223.3.2 const unsigned int gdcm::PersonName::MaxLength = 64 [static]

10.223.3.3 const unsigned int gdcm::PersonName::MaxNumberOfComponents = 5 [static]

10.223.3.4 const char gdcm::PersonName::Padding = ' ' [static]

10.223.3.5 const char gdcm::PersonName::Separator = '^' [static]

The documentation for this class was generated from the following file:

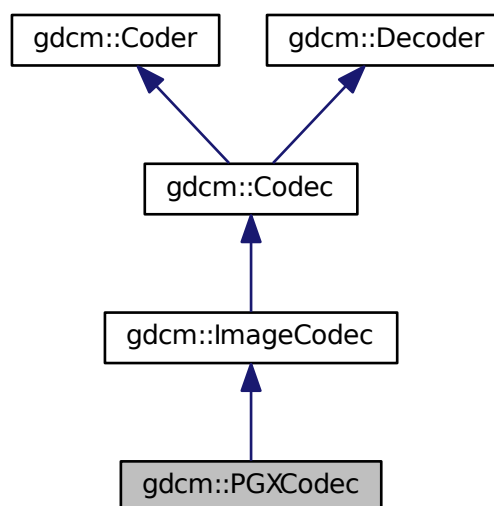
- [gdcmPersonName.h](#)

10.224 gdcm::PGXCodec Class Reference

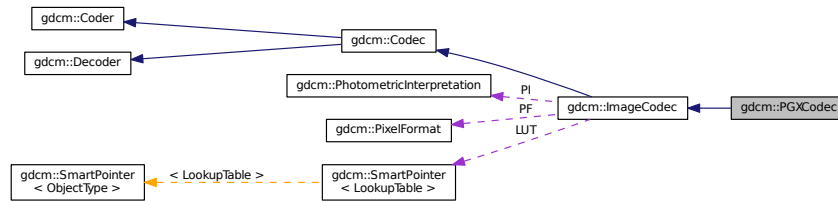
Class to do PGX See PGX as used in JPEG 2000 implementation and reference images.

```
#include <gdcmPGXCodec.h>
```

Inheritance diagram for gdcm::PGXCodec:



Collaboration diagram for `gdcm::PGXCodec`:



Public Member Functions

- [PGXCodec](#) ()
- [~PGXCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [Read](#) (const char *filename, [DataElement](#) &out) const
- bool [Write](#) (const char *filename, const [DataElement](#) &out) const

Additional Inherited Members

10.224.1 Detailed Description

Class to do PGX See PGX as used in JPEG 2000 implementation and reference images.

10.224.2 Constructor & Destructor Documentation

10.224.2.1 `gdcm::PGXCodec::PGXCodec ()`

10.224.2.2 `gdcm::PGXCodec::~~PGXCodec ()`

10.224.3 Member Function Documentation

10.224.3.1 `bool gdcm::PGXCodec::CanCode (TransferSyntax const &) const` `[virtual]`

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.224.3.2 `bool gdcm::PGXCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.224.3.3 `virtual ImageCodec* gdcm::PGXCodec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.224.3.4 `bool gdcm::PGXCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.224.3.5 `bool gdcm::PGXCodec::Read (const char * filename, DataElement & out) const`

10.224.3.6 `bool gdcm::PGXCodec::Write (const char * filename, const DataElement & out) const`

The documentation for this class was generated from the following file:

- [gdcmPGXCodec.h](#)

10.225 gdcm::PhotometricInterpretation Class Reference

Class to represent an [PhotometricInterpretation](#).

```
#include <gdcmPhotometricInterpretation.h>
```

Public Types

- enum [PType](#) {
[UNKNOWN](#) = 0,
[MONOCHROME1](#),
[MONOCHROME2](#),
[PALETTE_COLOR](#),
[RGB](#),
[HSV](#),
[ARGB](#),
[CMYK](#),
[YBR_FULL](#),
[YBR_FULL_422](#),
[YBR_PARTIAL_422](#),
[YBR_PARTIAL_420](#),
[YBR_ICT](#),
[YBR_RCT](#),
[PI_END](#) }

Public Member Functions

- [PhotometricInterpretation](#) ([PIType](#) pi=[UNKNOWN](#))
- unsigned short [GetSamplesPerPixel](#) () const
return the value for Sample Per Pixel associated with a particular Photometric Interpretation
- const char * [GetString](#) () const
- [PIType](#) [GetType](#) () const
- bool [IsLossless](#) () const
- bool [IsLossy](#) () const
- bool [IsSameColorSpace](#) ([PhotometricInterpretation](#) const &pi) const
- [operator PIType](#) () const

Static Public Member Functions

- static const char * [GetPIString](#) ([PIType](#) pi)
- static [PIType](#) [GetPIType](#) (const char *pi)
- static bool [IsRetired](#) ([PIType](#) pi)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [PhotometricInterpretation](#) &pi)

10.225.1 Detailed Description

Class to represent an [PhotometricInterpretation](#).

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [HelloVizWorld.cxx](#), and [iU22tomultisc.cxx](#).

10.225.2 Member Enumeration Documentation

10.225.2.1 enum gdcm::PhotometricInterpretation::PIType

Enumerator

UNKNOWN
MONOCHROME1
MONOCHROME2
PALETTE_COLOR
RGB
HSV
ARGB
CMYK
YBR_FULL
YBR_FULL_422
YBR_PARTIAL_422
YBR_PARTIAL_420
YBR_ICT
YBR_RCT
PI_END

10.225.3 Constructor & Destructor Documentation

10.225.3.1 `gdcm::PhotometricInterpretation::PhotometricInterpretation (PType pi = UNKNOWN)` `[inline]`

References `gdcm::operator<<()`.

10.225.4 Member Function Documentation

10.225.4.1 `static const char* gdcm::PhotometricInterpretation::GetPIString (PType pi)` `[static]`

Referenced by `gdcm::operator<<()`.

10.225.4.2 `static PType gdcm::PhotometricInterpretation::GetPType (const char * pi)` `[static]`

10.225.4.3 `unsigned short gdcm::PhotometricInterpretation::GetSamplesPerPixel () const`

return the value for Sample Per Pixel associated with a particular Photometric Interpretation

10.225.4.4 `const char* gdcm::PhotometricInterpretation::GetString () const`

10.225.4.5 `PType gdcm::PhotometricInterpretation::GetType () const` `[inline]`

10.225.4.6 `bool gdcm::PhotometricInterpretation::IsLossless () const`

10.225.4.7 `bool gdcm::PhotometricInterpretation::IsLossy () const`

10.225.4.8 `static bool gdcm::PhotometricInterpretation::IsRetired (PType pi)` `[static]`

10.225.4.9 `bool gdcm::PhotometricInterpretation::IsSameColorSpace (PhotometricInterpretation const & pi) const`

10.225.4.10 `gdcm::PhotometricInterpretation::operator PType () const` `[inline]`

10.225.5 Friends And Related Function Documentation

10.225.5.1 `std::ostream& operator<< (std::ostream & os, const PhotometricInterpretation & pi)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmPhotometricInterpretation.h](#)

10.226 gdcm::PixelFormat Class Reference

[PixelFormat](#).

```
#include <gdcmPixelFormat.h>
```

Public Types

- enum [ScalarType](#) {
[UINT8](#),
[INT8](#),
[UINT12](#),
[INT12](#),
[UINT16](#),
[INT16](#),
[UINT32](#),
[INT32](#),
[UINT64](#),
[INT64](#),
[FLOAT16](#),
[FLOAT32](#),
[FLOAT64](#),
[SINGLEBIT](#),
[UNKNOWN](#) }

Public Member Functions

- [PixelFormat](#) (unsigned short samplesperpixel=1, unsigned short bitsallocated=8, unsigned short bitsstored=8, unsigned short highbit=7, unsigned short pixelrepresentation=0)
- [PixelFormat](#) ([ScalarType](#) st)
- unsigned short [GetBitsAllocated](#) () const
BitsAllocated see [Tag](#) (0028,0100) US Bits Allocated.
- unsigned short [GetBitsStored](#) () const
BitsStored see [Tag](#) (0028,0101) US Bits Stored.
- unsigned short [GetHighBit](#) () const
HighBit see [Tag](#) (0028,0102) US High Bit.
- int64_t [GetMax](#) () const
return the max possible of the pixel
- int64_t [GetMin](#) () const
return the min possible of the pixel
- unsigned short [GetPixelRepresentation](#) () const
PixelRepresentation: 0 or 1, see [Tag](#) (0028,0103) US Pixel Representation.
- uint8_t [GetPixelSize](#) () const
- unsigned short [GetSamplesPerPixel](#) () const
- [ScalarType](#) [GetScalarType](#) () const
ScalarType does not take into account the sample per pixel.
- const char * [GetScalarTypeAsString](#) () const
- bool [IsCompatible](#) (const [TransferSyntax](#) &ts) const

- bool [IsValid](#) () const
return IsValid
- [operator ScalarType](#) () const
- bool [operator!=](#) (ScalarType st) const
- bool [operator!=](#) (const PixelFormat &pf) const
- bool [operator==](#) (ScalarType st) const
- bool [operator==](#) (const PixelFormat &pf) const
- void [Print](#) (std::ostream &os) const
Print.
- void [SetBitsAllocated](#) (unsigned short ba)
- void [SetBitsStored](#) (unsigned short bs)
- void [SetHighBit](#) (unsigned short hb)
- void [SetPixelRepresentation](#) (unsigned short pr)
- void [SetSamplesPerPixel](#) (unsigned short spp)
- void [SetScalarType](#) (ScalarType st)

Protected Member Functions

- bool [Validate](#) ()
When image with 24/24/23 was read, need to validate.

Friends

- class [Bitmap](#)
- std::ostream & [operator<<](#) (std::ostream &_os, const PixelFormat &pf)

10.226.1 Detailed Description

[PixelFormat](#).

Note

By default the Pixel [Type](#) will be instantiated with the following parameters:

- SamplesPerPixel : 1
- BitsAllocated : 8
- BitsStored : 8
- HighBit : 7
- PixelRepresentation : 0

Fundamentally [PixelFormat](#) is very close to what DICOM allows. It will be very hard to extend this class for the upcoming DICOM standard where Floating 32 and 64bits will be allowed.

It is also very hard for this class to fully support 64bits integer type (see GetMin / GetMax signature restricted to 64bits signed).

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [csa2img.cxx](#), [FixJAIBugJPEGLS.cxx](#), [GetJPEGSample← Precision.cxx](#), [iU22tomultisc.cxx](#), and [threadgdcm.cxx](#).

10.226.2 Member Enumeration Documentation

10.226.2.1 enum gdcm::PixelFormat::ScalarType

Enumerator

UINT8
INT8
UINT12
INT12
UINT16
INT16
UINT32
INT32
UINT64
INT64
FLOAT16
FLOAT32
FLOAT64
SINGLEBIT
UNKNOWN

10.226.3 Constructor & Destructor Documentation

10.226.3.1 `gdcm::PixelFormat::PixelFormat (unsigned short samplesperpixel = 1, unsigned short bitsallocated = 8, unsigned short bitsstored = 8, unsigned short highbit = 7, unsigned short pixelrepresentation = 0)` `[inline]`, `[explicit]`

10.226.3.2 `gdcm::PixelFormat::PixelFormat (ScalarType st)`

10.226.4 Member Function Documentation

10.226.4.1 `unsigned short gdcm::PixelFormat::GetBitsAllocated () const` `[inline]`

BitsAllocated see [Tag](#) (0028,0100) US Bits Allocated.

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.226.4.2 unsigned short gdcm::PixelFormat::GetBitsStored () const [inline]

BitsStored see [Tag](#) (0028,0101) US Bits Stored.

Examples:

[GetJPEGSamplePrecision.cxx](#).

10.226.4.3 unsigned short gdcm::PixelFormat::GetHighBit () const [inline]

HighBit see [Tag](#) (0028,0102) US High Bit.

10.226.4.4 int64_t gdcm::PixelFormat::GetMax () const

return the max possible of the pixel

10.226.4.5 int64_t gdcm::PixelFormat::GetMin () const

return the min possible of the pixel

10.226.4.6 unsigned short gdcm::PixelFormat::GetPixelRepresentation () const [inline]

PixelRepresentation: 0 or 1, see [Tag](#) (0028,0103) US Pixel Representation.

10.226.4.7 uint8_t gdcm::PixelFormat::GetPixelSize () const

return the size of the pixel This is the number of words it would take to store one pixel

Warning

the return value takes into account the SamplesPerPixel
in the rare case when BitsAllocated == 12, the function assume word padding and value returned will be identical
as if BitsAllocated == 16

Examples:

[threadgdcm.cxx](#).

10.226.4.8 `unsigned short gdcm::PixelFormat::GetSamplesPerPixel () const`

Samples Per Pixel see (0028,0002) US Samples Per Pixel DICOM - only allows 1, 3 and 4 as valid value. Other value are undefined behavior.

Examples:

[threadgdcm.cxx](#).

10.226.4.9 `ScalarType gdcm::PixelFormat::GetScalarType () const`

ScalarType does not take into account the sample per pixel.

10.226.4.10 `const char* gdcm::PixelFormat::GetScalarTypeAsString () const`

10.226.4.11 `bool gdcm::PixelFormat::IsCompatible (const TransferSyntax & ts) const`

10.226.4.12 `bool gdcm::PixelFormat::IsValid () const`

return IsValid

10.226.4.13 `gdcm::PixelFormat::operator ScalarType () const` `[inline]`

10.226.4.14 `bool gdcm::PixelFormat::operator!= (ScalarType st) const` `[inline]`

10.226.4.15 `bool gdcm::PixelFormat::operator!= (const PixelFormat & pf) const` `[inline]`

10.226.4.16 `bool gdcm::PixelFormat::operator== (ScalarType st) const` `[inline]`

10.226.4.17 `bool gdcm::PixelFormat::operator== (const PixelFormat & pf) const` `[inline]`

10.226.4.18 `void gdcm::PixelFormat::Print (std::ostream & os) const`

Print.

Referenced by `gdcm::operator<<()`.

10.226.4.19 void gdcm::PixelFormat::SetBitsAllocated (unsigned short *ba*) [inline]

10.226.4.20 void gdcm::PixelFormat::SetBitsStored (unsigned short *bs*) [inline]

10.226.4.21 void gdcm::PixelFormat::SetHighBit (unsigned short *hb*) [inline]

10.226.4.22 void gdcm::PixelFormat::SetPixelRepresentation (unsigned short *pr*) [inline]

10.226.4.23 void gdcm::PixelFormat::SetSamplesPerPixel (unsigned short *spp*) [inline]

Examples:

[CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), and [GenFakeImage.cxx](#).

References gdcmAssertMacro.

10.226.4.24 void gdcm::PixelFormat::SetScalarType (ScalarType *st*)

Set [PixelFormat](#) based only on the ScalarType

Warning

: You need to call SetScalarType *before* SetSamplesPerPixel

10.226.4.25 bool gdcm::PixelFormat::Validate () [protected]

When image with 24/24/23 was read, need to validate.

Referenced by gdcm::Bitmap::SetPixelFormat().

10.226.5 Friends And Related Function Documentation

10.226.5.1 friend class **Bitmap** [friend]

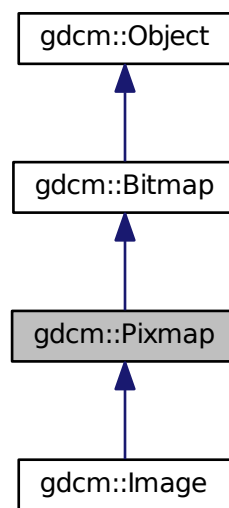
10.226.5.2 std::ostream& operator<< (std::ostream &_os, const PixelFormat &pf) [friend]

The documentation for this class was generated from the following file:

- [gdcmPixelFormat.h](#)

Bitmap class A bitmap based image. Used as parent for both IconImage and the main Pixel Data **Image** It does not contains any World Space information (IPP, IOP)

Inheritance diagram for gdcm::Pixmap:

[illegible]

Public Member Functions

- [Pixmap](#) ()
- [~Pixmap](#) ()
- bool [AreOverlaysInPixelData](#) () const
returns if Overlays are stored in the unused bit of the pixel data:
- [Curve](#) & [GetCurve](#) (size_t i=0)
Curve: group 50xx.
- const [Curve](#) & [GetCurve](#) (size_t i=0) const
- const [IconImage](#) & [GetIconImage](#) () const
Set/Get Icon Image.
- [IconImage](#) & [GetIconImage](#) ()
- size_t [GetNumberOfCurves](#) () const
- size_t [GetNumberOfOverlays](#) () const
- [Overlay](#) & [GetOverlay](#) (size_t i=0)
Overlay: group 60xx.
- const [Overlay](#) & [GetOverlay](#) (size_t i=0) const
- void [Print](#) (std::ostream &) const
- void [RemoveOverlay](#) (size_t i)
- void [SetIconImage](#) ([IconImage](#) const &ii)
- void [SetNumberOfCurves](#) (size_t n)
- void [SetNumberOfOverlays](#) (size_t n)

Protected Attributes

- std::vector< [Curve](#) > [Curves](#)
- [SmartPointer](#)< [IconImage](#) > [Icon](#)
- std::vector< [Overlay](#) > [Overlays](#)

Additional Inherited Members

10.227.1 Detailed Description

[Pixmap](#) class A bitmap based image. Used as parent for both [IconImage](#) and the main Pixel Data [Image](#) It does not contains any World Space information (IPP, IOP)

See also

[PixmapReader](#)

10.227.2 Constructor & Destructor Documentation

10.227.2.1 `gdcm::Pixmap::Pixmap ()`

10.227.2.2 `gdcm::Pixmap::~~Pixmap ()`

10.227.3 Member Function Documentation

10.227.3.1 `bool gdcm::Pixmap::AreOverlaysInPixelData () const` `[virtual]`

returns if Overlays are stored in the unused bit of the pixel data:

Reimplemented from [gdcm::Bitmap](#).

10.227.3.2 `Curve& gdcm::Pixmap::GetCurve (size_t i = 0)` `[inline]`

[Curve](#): group 50xx.

10.227.3.3 `const Curve& gdcm::Pixmap::GetCurve (size_t i = 0) const` `[inline]`

10.227.3.4 `const IconImage& gdcm::Pixmap::GetIconImage () const` `[inline]`

Set/Get Icon [Image](#).

10.227.3.5 `IconImage& gdcm::Pixmap::GetIconImage ()` `[inline]`

10.227.3.6 `size_t gdcm::Pixmap::GetNumberOfCurves () const` `[inline]`

10.227.3.7 `size_t gdcm::Pixmap::GetNumberOfOverlays () const` `[inline]`

10.227.3.8 `Overlay& gdcm::Pixmap::GetOverlay (size_t i = 0)` `[inline]`

[Overlay](#): group 60xx.

10.227.3.9 `const Overlay& gdcm::Pixmap::GetOverlay (size_t i = 0) const` `[inline]`

10.227.3.10 `void gdcm::Pixmap::Print (std::ostream &) const` `[virtual]`

Reimplemented from [gdcm::Bitmap](#).

10.227.3.11 void gdcm::Pixmap::RemoveOverlay (size_t *i*) [inline]

10.227.3.12 void gdcm::Pixmap::SetIconImage (IconImage const & *ii*) [inline]

10.227.3.13 void gdcm::Pixmap::SetNumberOfCurves (size_t *n*) [inline]

10.227.3.14 void gdcm::Pixmap::SetNumberOfOverlays (size_t *n*) [inline]

10.227.4 Member Data Documentation

10.227.4.1 std::vector<Curve> gdcm::Pixmap::Curves [protected]

10.227.4.2 SmartPointer<IconImage> gdcm::Pixmap::Icon [protected]

10.227.4.3 std::vector<Overlay> gdcm::Pixmap::Overlays [protected]

The documentation for this class was generated from the following file:

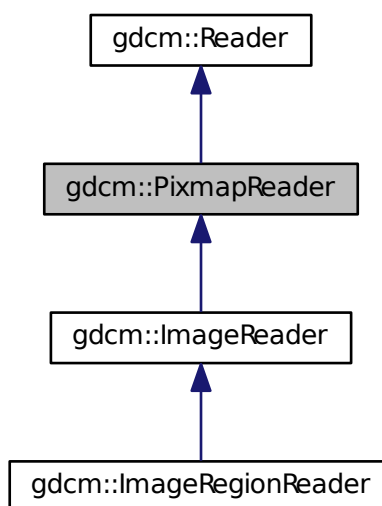
- [gdcmPixmap.h](#)

10.228 gdcm::PixmapReader Class Reference

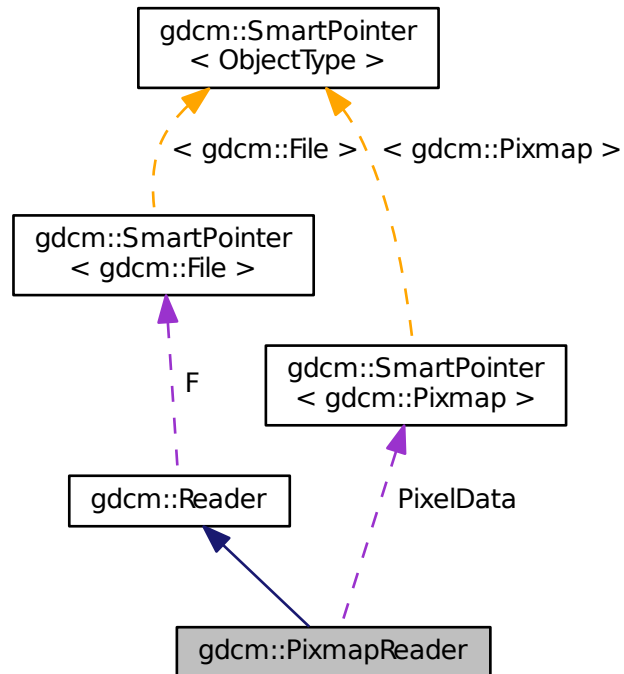
[PixmapReader](#).

```
#include <gdcmPixmapReader.h>
```

Inheritance diagram for gdcm::PixmapReader:



Collaboration diagram for `gdcm::PixmapReader`:



Public Member Functions

- [PixmapReader](#) ()
- virtual [~PixmapReader](#) ()
- const [Pixmap](#) & [GetPixmap](#) () const
Return the read image (need to call [Read\(\)](#) first)
- [Pixmap](#) & [GetPixmap](#) ()
- virtual bool [Read](#) ()

Protected Member Functions

- virtual bool [ReadACRNEMAIImage](#) ()
- virtual bool [ReadImage](#) ([MediaStorage](#) const &ms)
- bool [ReadImageInternal](#) ([MediaStorage](#) const &ms, bool handlepixeldata=true)

Protected Attributes

- [SmartPointer](#)< [Pixmap](#) > [PixelData](#)

10.228.1 Detailed Description

[PixmapReader](#).

Note

its role is to convert the DICOM [DataSet](#) into a [Pixmap](#) representation By default it is also loading the lookup table and overlay when found as they impact the rendering or the image

See PS 3.3-2008, [Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES](#) for the list of attribute that belong to what gdcm calls a '[Pixmap](#)'

Warning

the API `ReadUpToTag` and `ReadSelectedTag`

See also

[Pixmap](#)

10.228.2 Constructor & Destructor Documentation

10.228.2.1 `gdcm::PixmapReader::PixmapReader ()`

10.228.2.2 `virtual gdcm::PixmapReader::~~PixmapReader ()` `[virtual]`

10.228.3 Member Function Documentation

10.228.3.1 `const Pixmap& gdcm::PixmapReader::GetPixmap () const`

Return the read image (need to call [Read\(\)](#) first)

10.228.3.2 `Pixmap& gdcm::PixmapReader::GetPixmap ()`

10.228.3.3 `virtual bool gdcm::PixmapReader::Read ()` `[virtual]`

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an [Pixmap](#).

Reimplemented from [gdcm::Reader](#).

Reimplemented in [gdcm::ImageRegionReader](#), and [gdcm::ImageReader](#).

10.228.3.4 `virtual bool gdcm::PixmapReader::ReadACRNEMAIImage ()` [protected],[virtual]

Reimplemented in [gdcm::ImageReader](#).

10.228.3.5 `virtual bool gdcm::PixmapReader::ReadImage (MediaStorage const & ms)` [protected],[virtual]

Reimplemented in [gdcm::ImageReader](#).

10.228.3.6 `bool gdcm::PixmapReader::ReadImageInternal (MediaStorage const & ms, bool handlepixeldata = true)`
[protected]

10.228.4 Member Data Documentation

10.228.4.1 `SmartPointer<Pixmap> gdcm::PixmapReader::PixelData` [protected]

The documentation for this class was generated from the following file:

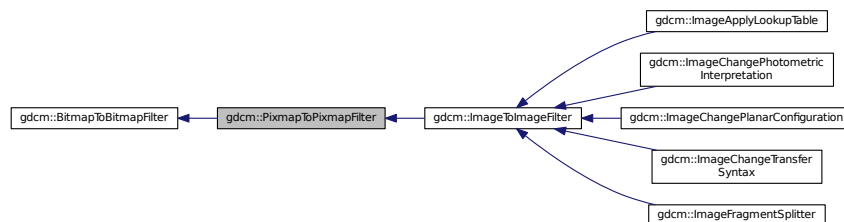
- [gdcmPixmapReader.h](#)

10.229 gdcm::PixmapToPixmapFilter Class Reference

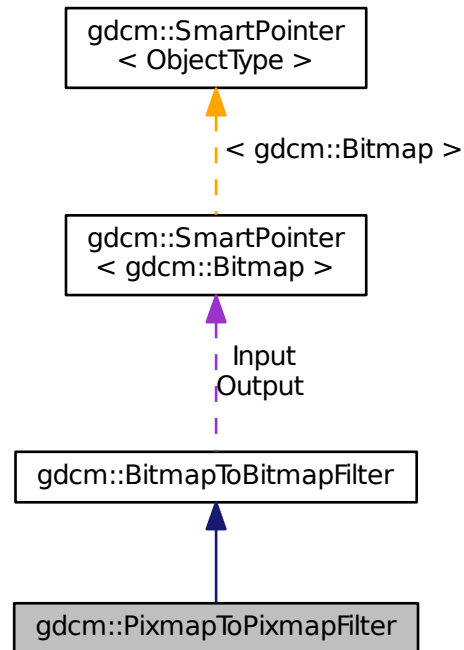
[PixmapToPixmapFilter](#) class Super class for all filter taking an image and producing an output image.

```
#include <gdcmPixmapToPixmapFilter.h>
```

Inheritance diagram for `gdcm::PixmapToPixmapFilter`:



Collaboration diagram for gdcm::PixmapToPixmapFilter:



Public Member Functions

- [PixmapToPixmapFilter](#) ()
- [~PixmapToPixmapFilter](#) ()
- [Pixmap](#) & [GetInput](#) ()
- const [Pixmap](#) & [GetOutput](#) () const
Get Output image.
- const [Pixmap](#) & [GetOutputAsPixmap](#) () const

Additional Inherited Members

10.229.1 Detailed Description

[PixmapToPixmapFilter](#) class Super class for all filter taking an image and producing an output image.

10.229.2 Constructor & Destructor Documentation

10.229.2.1 `gdcm::PixmapToPixmapFilter::PixmapToPixmapFilter ()`

10.229.2.2 `gdcm::PixmapToPixmapFilter::~~PixmapToPixmapFilter ()` `[inline]`

10.229.3 Member Function Documentation

10.229.3.1 `Pixmap& gdcm::PixmapToPixmapFilter::GetInput ()`

10.229.3.2 `const Pixmap& gdcm::PixmapToPixmapFilter::GetOutput () const`

Get Output image.

10.229.3.3 `const Pixmap& gdcm::PixmapToPixmapFilter::GetOutputAsPixmap () const`

The documentation for this class was generated from the following file:

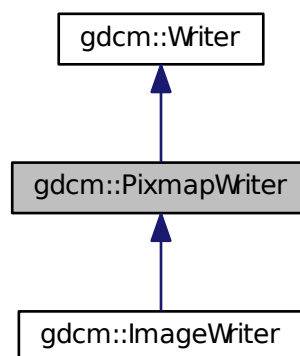
- [gdcmPixmapToPixmapFilter.h](#)

10.230 gdcm::PixmapWriter Class Reference

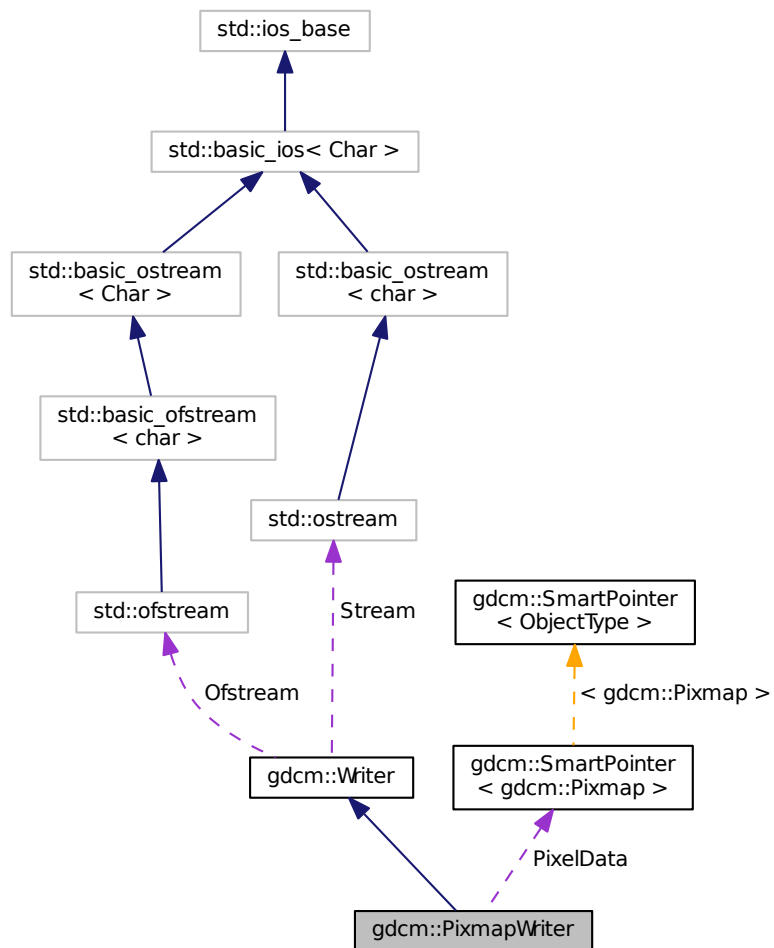
[PixmapWriter](#) This class will takes two inputs:

```
#include <gdcmPixmapWriter.h>
```

Inheritance diagram for `gdcm::PixmapWriter`:



Collaboration diagram for gdcm::PixmapWriter:



Public Member Functions

- `PixmapWriter ()`
- `~PixmapWriter ()`
- virtual const `Pixmap & GetImage () const`
- virtual `Pixmap & GetImage ()`
- const `Pixmap & GetPixmap () const`
- `Pixmap & GetPixmap ()`
- virtual void `SetImage (Pixmap const &img)`
- void `SetPixmap (Pixmap const &img)`
- bool `Write ()`

Write.

Protected Member Functions

- void [DolconImage](#) ([DataSet](#) &ds, [Pixmap](#) const &image)
- bool [PrepareWrite](#) ()
- bool [PrepareWrite](#) ([MediaStorage](#) const &refms)

Protected Attributes

- [SmartPointer](#)< [Pixmap](#) > [PixelData](#)

10.230.1 Detailed Description

[PixmapWriter](#) This class will takes two inputs:

1. The DICOM [DataSet](#)
2. The [Image](#) input It will override any info from the [Image](#) over the [DataSet](#).

For instance when one read in a lossy compressed image and write out as unencapsulated (ie implicitly lossless) then some attribute are definitely needed to mark this dataset as Lossy (typically 0028,2114)

10.230.2 Constructor & Destructor Documentation

10.230.2.1 `gdcm::PixmapWriter::PixmapWriter ()`

10.230.2.2 `gdcm::PixmapWriter::~~PixmapWriter ()`

10.230.3 Member Function Documentation

10.230.3.1 `void gdcm::PixmapWriter::DolconImage (DataSet & ds, Pixmap const & image)` `[protected]`

10.230.3.2 `virtual const Pixmap& gdcm::PixmapWriter::GetImage () const` `[inline], [virtual]`

Set/Get [Pixmap](#) to be written It will overwrite anything [Pixmap](#) infos found in [DataSet](#) (see parent class to see how to pass dataset)

Reimplemented in [gdcm::ImageWriter](#).

10.230.3.3 `virtual Pixmap& gdcm::PixmapWriter::GetImage ()` `[inline], [virtual]`

Reimplemented in [gdcm::ImageWriter](#).

10.230.3.4 `const Pixmap& gdcm::PixmapWriter::GetPixmap () const` `[inline]`

10.230.3.5 `Pixmap& gdcm::PixmapWriter::GetPixmap ()` `[inline]`

10.230.3.6 `bool gdcm::PixmapWriter::PrepareWrite ()` `[protected]`

10.230.3.7 `bool gdcm::PixmapWriter::PrepareWrite (MediaStorage const & refms)` `[protected]`

10.230.3.8 `virtual void gdcm::PixmapWriter::SetImage (Pixmap const & img)` `[virtual]`

Examples:

[CompressImage.cxx](#), [GenFakelImage.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), and [MergeTwoFiles.cxx](#).↵

10.230.3.9 `void gdcm::PixmapWriter::SetPixmap (Pixmap const & img)`

10.230.3.10 `bool gdcm::PixmapWriter::Write ()` `[virtual]`

Write.

Reimplemented from [gdcm::Writer](#).

10.230.4 Member Data Documentation

10.230.4.1 `SmartPointer<Pixmap> gdcm::PixmapWriter::PixelData` `[protected]`

The documentation for this class was generated from the following file:

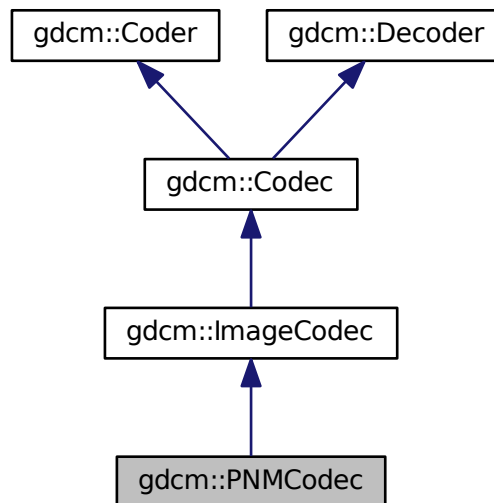
- [gdcmPixmapWriter.h](#)

10.231 gdcm::PNMCodec Class Reference

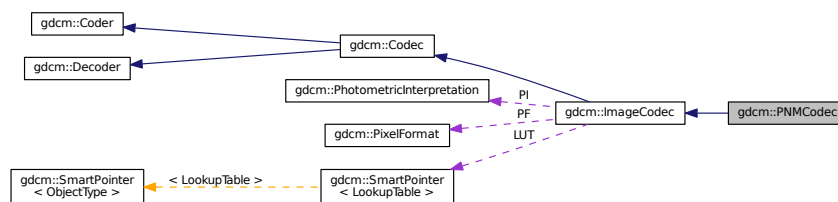
Class to do PNM PNM is the Portable anymap file format. The main web page can be found at: <http://netpbm.sourceforge.net/>.

```
#include <gdcmPNMCodec.h>
```

Inheritance diagram for gdcm::PNMCodec:



Collaboration diagram for gdcm::PNMCodec:



Public Member Functions

- [PNMCodec\(\)](#)
- [~PNMCodec\(\)](#)

- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- unsigned long [GetBufferLength](#) () const
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- bool [Read](#) (const char *filename, [DataElement](#) &out) const
- void [SetBufferLength](#) (unsigned long l)
- bool [Write](#) (const char *filename, const [DataElement](#) &out) const

Additional Inherited Members

10.231.1 Detailed Description

Class to do PNM PNM is the Portable anymap file format. The main web page can be found at: <http://netpbm.sourceforge.net/>.

Note

Only support P5 & P6 PNM file (binary grayscale and binary rgb)

Examples:

[ExtractIconFromFile.cxx](#).

10.231.2 Constructor & Destructor Documentation

10.231.2.1 `gdcm::PNMCodec::PNMCodec ()`

10.231.2.2 `gdcm::PNMCodec::~~PNMCodec ()`

10.231.3 Member Function Documentation

10.231.3.1 `bool gdcm::PNMCodec::CanCode (TransferSyntax const &) const` [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.231.3.2 `bool gdcm::PNMCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.231.3.3 `virtual ImageCodec* gdcM::PNMCodec::Clone () const` [virtual]

Implements [gdcM::ImageCodec](#).

10.231.3.4 `unsigned long gdcM::PNMCodec::GetBufferLength () const` [inline]

10.231.3.5 `bool gdcM::PNMCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.231.3.6 `bool gdcM::PNMCodec::Read (const char * filename, DataElement & out) const`

10.231.3.7 `void gdcM::PNMCodec::SetBufferLength (unsigned long l)` [inline]

10.231.3.8 `bool gdcM::PNMCodec::Write (const char * filename, const DataElement & out) const`

Examples:

[ExtractIconFromFile.cxx](#).

The documentation for this class was generated from the following file:

- [gdcM_PNMCodec.h](#)

10.232 gdcM::Preamble Class Reference

DICOM [Preamble](#) (Part 10)

```
#include <gdcM_Preamble.h>
```

Public Member Functions

- [Preamble](#) ()
- [Preamble](#) ([Preamble](#) const &)
- [~Preamble](#) ()
- void [Clear](#) ()
- void [Create](#) ()
- const char * [GetInternal](#) () const
- [VL GetLength](#) () const
- bool [IsEmpty](#) () const
- [Preamble](#) & [operator=](#) ([Preamble](#) const &)
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [Remove](#) ()
- void [Valid](#) ()
- std::ostream const & [Write](#) (std::ostream &os) const

Protected Member Functions

- bool [IsValid](#) () const

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Preamble](#) &_val)

10.232.1 Detailed Description

DICOM [Preamble](#) (Part 10)

10.232.2 Constructor & Destructor Documentation

10.232.2.1 `gdcm::Preamble::Preamble ()`

10.232.2.2 `gdcm::Preamble::~~Preamble ()`

10.232.2.3 `gdcm::Preamble::Preamble (Preamble const &)` `[inline]`

10.232.3 Member Function Documentation

10.232.3.1 `void gdcm::Preamble::Clear ()`

10.232.3.2 `void gdcm::Preamble::Create ()`

10.232.3.3 `const char* gdcm::Preamble::GetInternal () const` `[inline]`

10.232.3.4 `VL gdcm::Preamble::GetLength () const` `[inline]`

10.232.3.5 `bool gdcm::Preamble::IsEmpty () const` `[inline]`

10.232.3.6 `bool gdcm::Preamble::IsValid () const` `[inline],[protected]`

10.232.3.7 `Preamble& gdcm::Preamble::operator= (Preamble const &)` `[inline]`

10.232.3.8 `void gdcm::Preamble::Print (std::ostream & os) const`

10.232.3.9 `std::istream& gdcm::Preamble::Read (std::istream & is)`

10.232.3.10 `void gdcm::Preamble::Remove ()`

10.232.3.11 `void gdcm::Preamble::Valid ()`

10.232.3.12 `std::ostream const& gdcm::Preamble::Write (std::ostream & os) const`

10.232.4 Friends And Related Function Documentation

10.232.4.1 `std::ostream& operator<< (std::ostream &_os, const Preamble &_val)` `[friend]`

The documentation for this class was generated from the following file:

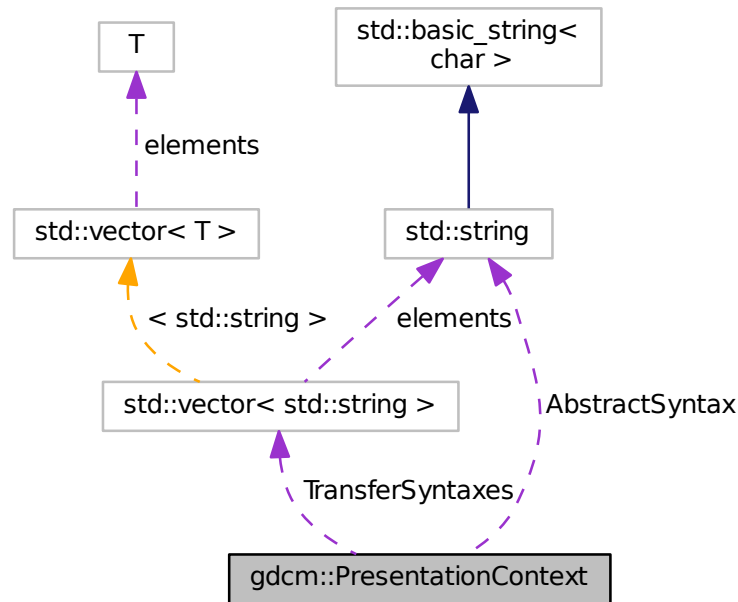
- [gdcmPreamble.h](#)

10.233 gdcm::PresentationContext Class Reference

[PresentationContext](#).

```
#include <gdcmPresentationContext.h>
```

Collaboration diagram for gdcm::PresentationContext:



Public Types

- typedef `TransferSyntaxArrayType::size_type` [SizeType](#)
- typedef `std::vector< std::string >` [TransferSyntaxArrayType](#)

Public Member Functions

- [PresentationContext](#) ()
- [PresentationContext](#) ([UIDs::TSName](#) asname, [UIDs::TSName](#) tsname=[UIDs::ImplicitVRLittleEndianDefault](#)↵
[TransferSyntaxforDICOM](#))
- void [AddTransferSyntax](#) (const char *tsstr)
- const char * [GetAbstractSyntax](#) () const
- [SizeType](#) [GetNumberOfTransferSyntaxes](#) () const
- [uint8_t](#) [GetPresentationContextID](#) () const
- const char * [GetTransferSyntax](#) ([SizeType](#) i) const
- bool [operator==](#) (const [PresentationContext](#) &pc) const
- void [Print](#) (std::ostream &os) const
- void [SetAbstractSyntax](#) (const char *absyn)
- void [SetPresentationContextID](#) ([uint8_t](#) id)

Protected Attributes

- std::string [AbstractSyntax](#)
- uint8_t [ID](#)
- std::vector< std::string > [TransferSyntaxes](#)

10.233.1 Detailed Description

[PresentationContext](#).

See also

[PresentationContextAC](#) [PresentationContextRQ](#)

10.233.2 Member Typedef Documentation

10.233.2.1 `typedef TransferSyntaxArrayType::size_type gdcm::PresentationContext::SizeType`

10.233.2.2 `typedef std::vector<std::string> gdcm::PresentationContext::TransferSyntaxArrayType`

10.233.3 Constructor & Destructor Documentation

10.233.3.1 `gdcm::PresentationContext::PresentationContext ()`

10.233.3.2 `gdcm::PresentationContext::PresentationContext (UIDs::TSName asname, UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)`

Initialize Presentation Context with AbstractSyntax set to asname and with a single [TransferSyntax](#) set to tsname (default to Implicit [VR](#) LittleEndian when not specified).

10.233.4 Member Function Documentation

10.233.4.1 `void gdcm::PresentationContext::AddTransferSyntax (const char * tsstr)`

10.233.4.2 `const char* gdcm::PresentationContext::GetAbstractSyntax () const` `[inline]`

10.233.4.3 `SizeType gdcm::PresentationContext::GetNumberOfTransferSyntaxes () const` `[inline]`

10.233.4.4 `uint8_t gdcm::PresentationContext::GetPresentationContextID () const`

10.233.4.5 `const char* gdcm::PresentationContext::GetTransferSyntax (SizeType i) const` `[inline]`

10.233.4.6 `bool gdcm::PresentationContext::operator== (const PresentationContext & pc) const` `[inline]`

References [AbstractSyntax](#), and [TransferSyntaxes](#).

10.233.4.7 void `gdcm::PresentationContext::Print` (`std::ostream & os`) const

10.233.4.8 void `gdcm::PresentationContext::SetAbstractSyntax` (`const char * absyn`) `[inline]`

10.233.4.9 void `gdcm::PresentationContext::SetPresentationContextID` (`uint8_t id`)

10.233.5 Member Data Documentation

10.233.5.1 `std::string` `gdcm::PresentationContext::AbstractSyntax` `[protected]`

Referenced by `operator==()`.

10.233.5.2 `uint8_t` `gdcm::PresentationContext::ID` `[protected]`

10.233.5.3 `std::vector<std::string>` `gdcm::PresentationContext::TransferSyntaxes` `[protected]`

Referenced by `operator==()`.

The documentation for this class was generated from the following file:

- [gdcmPresentationContext.h](#)

10.234 `gdcm::network::PresentationContextAC` Class Reference

[PresentationContextAC Table](#) 9-18 PRESENTATION CONTEXT ITEM FIELDS.

```
#include <gdcmPresentationContextAC.h>
```

Public Member Functions

- [PresentationContextAC](#) ()
- `uint8_t` [GetPresentationContextID](#) () const
- `uint8_t` [GetReason](#) () const
- [TransferSyntaxSub](#) const & [GetTransferSyntax](#) () const
- void [Print](#) (`std::ostream & os`) const
- `std::istream &` [Read](#) (`std::istream & is`)
- void [SetPresentationContextID](#) (`uint8_t id`)
- void [SetReason](#) (`uint8_t r`)
- void [SetTransferSyntax](#) ([TransferSyntaxSub](#) const & ts)
- `size_t` [Size](#) () const
- const `std::ostream &` [Write](#) (`std::ostream & os`) const

10.234.1 Detailed Description

[PresentationContextAC](#) Table 9-18 PRESENTATION CONTEXT ITEM FIELDS.

See also

[PresentationContext](#)

10.234.2 Constructor & Destructor Documentation

10.234.2.1 `gdcm::network::PresentationContextAC::PresentationContextAC ()`

10.234.3 Member Function Documentation

10.234.3.1 `uint8_t gdcm::network::PresentationContextAC::GetPresentationContextID () const` `[inline]`

10.234.3.2 `uint8_t gdcm::network::PresentationContextAC::GetReason () const` `[inline]`

10.234.3.3 `TransferSyntaxSub const& gdcm::network::PresentationContextAC::GetTransferSyntax () const` `[inline]`

10.234.3.4 `void gdcm::network::PresentationContextAC::Print (std::ostream & os) const`

10.234.3.5 `std::istream& gdcm::network::PresentationContextAC::Read (std::istream & is)`

10.234.3.6 `void gdcm::network::PresentationContextAC::SetPresentationContextID (uint8_t id)`

10.234.3.7 `void gdcm::network::PresentationContextAC::SetReason (uint8_t r)` `[inline]`

10.234.3.8 `void gdcm::network::PresentationContextAC::SetTransferSyntax (TransferSyntaxSub const & ts)`

10.234.3.9 `size_t gdcm::network::PresentationContextAC::Size () const`

10.234.3.10 `const std::ostream& gdcm::network::PresentationContextAC::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

- [gdcmPresentationContextAC.h](#)

10.235 gdcm::PresentationContextGenerator Class Reference

[PresentationContextGenerator](#) This class is responsible for generating the proper [PresentationContext](#) that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.

```
#include <gdcmPresentationContextGenerator.h>
```

Public Types

- typedef std::vector< [PresentationContext](#) > [PresentationContextArrayType](#)
- typedef [PresentationContextArrayType](#)::size_type [SizeType](#)

Public Member Functions

- [PresentationContextGenerator](#) ()
- bool [AddFromFile](#) (const [File](#) &file)
- bool [GenerateFromFilenames](#) (const [Directory::FilenamesType](#) &files)
- bool [GenerateFromUID](#) ([UIDs::TSName](#) asname)
Generate the [PresentationContext](#) array from a UID (eg. [VerificationSOPClass](#))
- [PresentationContextArrayType](#) const & [GetPresentationContexts](#) ()
- void [SetDefaultTransferSyntax](#) (const [TransferSyntax](#) &ts)
Not implemented for now. GDCM internally uses Implicit Little Endian.
- void [SetMergeModeToAbstractSyntax](#) ()
- void [SetMergeModeToTransferSyntax](#) ()

Protected Member Functions

- bool [AddPresentationContext](#) (const char *absyn, const char *ts)
- const char * [GetDefaultTransferSyntax](#) () const

10.235.1 Detailed Description

[PresentationContextGenerator](#) This class is responsible for generating the proper [PresentationContext](#) that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.

For example a [PresentationContext](#) will express that negotiation requires that CT [Image](#) Storage are send using JPEG Lossless, while US [Image](#) Storage are sent using RLE Transfer Syntax.

Two very different API are exposed one which will always default to little endian transfer syntax see [GenerateFromUID\(\)](#) This API is used for C-ECHO, C-FIND and C-MOVE (SCU). Another API: [GenerateFromFilenames\(\)](#) is used for C-STORE (SCU) as it will loop over all filenames argument to detect the actual encoding. and therefore find the proper encoding to be used.

Two modes are available. The default mode ([SetMergeModeToAbstractSyntax](#)) append [PresentationContext](#) (one [AbstractSyntax](#) and one [TransferSyntax](#)), as long a they are different. Eg MR [Image](#) Storage/JPEG2000 and MR [Image](#) Storage/JPEGLossless would be considered different. the other mode [SetMergeModeToTransferSyntax](#) merge any new [TransferSyntax](#) to the already existing [PresentationContext](#) in order to re-use the same [AbstractSyntax](#).

See also

[PresentationContext](#)

Examples:

[CStoreQtProgress.cxx](#).

10.235.2 Member Typedef Documentation

10.235.2.1 `typedef std::vector<PresentationContext> gdcm::PresentationContextGenerator::PresentationContextArrayType`

10.235.2.2 `typedef PresentationContextArrayType::size_type gdcm::PresentationContextGenerator::SizeType`

10.235.3 Constructor & Destructor Documentation

10.235.3.1 `gdcm::PresentationContextGenerator::PresentationContextGenerator ()`

10.235.4 Member Function Documentation

10.235.4.1 `bool gdcm::PresentationContextGenerator::AddFromFile (const File & file)`

Add a single [PresentationContext](#) from a single [File](#). Call multiple times when dealing with multiple files.

10.235.4.2 `bool gdcm::PresentationContextGenerator::AddPresentationContext (const char * absyn, const char * ts)`
[protected]

10.235.4.3 `bool gdcm::PresentationContextGenerator::GenerateFromFilenames (const Directory::FilenamesType & files)`

Generate the [PresentationContext](#) array from a File-Set. [File](#) specified needs to be valid DICOM files. Used for C-ST↔ORE operations

Examples:

[CStoreQtProgress.cxx](#).

10.235.4.4 `bool gdcm::PresentationContextGenerator::GenerateFromUID (UIDs::TSName asname)`

Generate the [PresentationContext](#) array from a UID (eg. VerificationSOPClass)

10.235.4.5 `const char* gdcm::PresentationContextGenerator::GetDefaultTransferSyntax () const` [protected]

10.235.4.6 `PresentationContextArrayType const& gdcm::PresentationContextGenerator::GetPresentationContexts ()`
[inline]

Examples:

[CStoreQtProgress.cxx](#).

10.235.4.7 void `gdcm::PresentationContextGenerator::SetDefaultTransferSyntax (const TransferSyntax & ts)`

Not implemented for now. GDCM internally uses Implicit Little Endian.

10.235.4.8 void `gdcm::PresentationContextGenerator::SetMergeModeToAbstractSyntax ()`

10.235.4.9 void `gdcm::PresentationContextGenerator::SetMergeModeToTransferSyntax ()`

The documentation for this class was generated from the following file:

- [gdcmPresentationContextGenerator.h](#)

10.236 `gdcm::network::PresentationContextRQ` Class Reference

[PresentationContextRQ](#) Table 9-13 PRESENTATION CONTEXT ITEM FIELDS.

```
#include <gdcmPresentationContextRQ.h>
```

Public Types

- typedef std::vector< [TransferSyntaxSub](#) >::size_type [SizeType](#)

Public Member Functions

- [PresentationContextRQ](#) ()
- [PresentationContextRQ](#) (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefault←
TransferSyntaxforDICOM)
- [PresentationContextRQ](#) (const [PresentationContext](#) &pc)
- void [AddTransferSyntax](#) ([TransferSyntaxSub](#) const &ts)
- [AbstractSyntax](#) const & [GetAbstractSyntax](#) () const
- [AbstractSyntax](#) & [GetAbstractSyntax](#) ()
- [SizeType](#) [GetNumberOfTransferSyntaxes](#) () const
- uint8_t [GetPresentationContextID](#) () const
- [TransferSyntaxSub](#) const & [GetTransferSyntax](#) ([SizeType](#) i) const
- [TransferSyntaxSub](#) & [GetTransferSyntax](#) ([SizeType](#) i)
- std::vector< [TransferSyntaxSub](#) > const & [GetTransferSyntaxes](#) () const
- bool [operator==](#) (const [PresentationContextRQ](#) &pc) const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetAbstractSyntax](#) ([AbstractSyntax](#) const &absyn)
- void [SetPresentationContextID](#) (uint8_t id)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.236.1 Detailed Description

[PresentationContextRQ](#) Table 9-13 PRESENTATION CONTEXT ITEM FIELDS.

See also

[PresentationContextAC](#)

10.236.2 Member Typedef Documentation

10.236.2.1 `typedef std::vector<TransferSyntaxSub>::size_type gdcm::network::PresentationContextRQ::SizeType`

10.236.3 Constructor & Destructor Documentation

10.236.3.1 `gdcm::network::PresentationContextRQ::PresentationContextRQ ()`

10.236.3.2 `gdcm::network::PresentationContextRQ::PresentationContextRQ (UIDs::TSName asname, UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)`

Initialize Presentation Context with [AbstractSyntax](#) set to *asname* and with a single [TransferSyntax](#) set to *tsname* (default to Implicit [VR](#) LittleEndian when not specified).

10.236.3.3 `gdcm::network::PresentationContextRQ::PresentationContextRQ (const PresentationContext & pc)`

10.236.4 Member Function Documentation

10.236.4.1 `void gdcm::network::PresentationContextRQ::AddTransferSyntax (TransferSyntaxSub const & ts)`

10.236.4.2 `AbstractSyntax const& gdcm::network::PresentationContextRQ::GetAbstractSyntax () const [inline]`

10.236.4.3 `AbstractSyntax& gdcm::network::PresentationContextRQ::GetAbstractSyntax () [inline]`

10.236.4.4 `SizeType gdcm::network::PresentationContextRQ::GetNumberOfTransferSyntaxes () const [inline]`

10.236.4.5 `uint8_t gdcm::network::PresentationContextRQ::GetPresentationContextID () const`

10.236.4.6 `TransferSyntaxSub const& gdcm::network::PresentationContextRQ::GetTransferSyntax (SizeType i) const [inline]`

10.236.4.7 `TransferSyntaxSub& gdcm::network::PresentationContextRQ::GetTransferSyntax (SizeType i) [inline]`

10.236.4.8 `std::vector<TransferSyntaxSub> const& gdcmm::network::PresentationContextRQ::GetTransferSyntaxes () const`
`[inline]`

10.236.4.9 `bool gdcmm::network::PresentationContextRQ::operator== (const PresentationContextRQ & pc) const`
`[inline]`

10.236.4.10 `void gdcmm::network::PresentationContextRQ::Print (std::ostream & os) const`

10.236.4.11 `std::istream& gdcmm::network::PresentationContextRQ::Read (std::istream & is)`

10.236.4.12 `void gdcmm::network::PresentationContextRQ::SetAbstractSyntax (AbstractSyntax const & absyn)`

10.236.4.13 `void gdcmm::network::PresentationContextRQ::SetPresentationContextID (uint8_t id)`

10.236.4.14 `size_t gdcmm::network::PresentationContextRQ::Size () const`

10.236.4.15 `const std::ostream& gdcmm::network::PresentationContextRQ::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

- [gdcmmPresentationContextRQ.h](#)

10.237 gdcmm::network::PresentationDataValue Class Reference

[PresentationDataValue](#) Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS.

```
#include <gdcmmPresentationDataValue.h>
```

Public Member Functions

- [PresentationDataValue](#) ()
- `const std::string & GetBlob () const`
- `bool GetIsCommand () const`
- `bool GetIsLastFragment () const`
- `uint8_t GetMessageHeader () const`
- `uint8_t GetPresentationContextID () const`
- `void Print (std::ostream &os) const`
- `std::istream & Read (std::istream &is)`
- `std::istream & ReadInto (std::istream &is, std::ostream &os)`
- `void SetBlob (const std::string &partialblob)`
- `void SetCommand (bool inCommand)`
- `void SetDataSet (const DataSet &ds)`
- `void SetLastFragment (bool inLast)`
- `void SetMessageHeader (uint8_t messageheader)`
- `void SetPresentationContextID (uint8_t id)`
- `size_t Size () const`
- `const std::ostream & Write (std::ostream &os) const`

Static Public Member Functions

- static [DataSet](#) [ConcatenatePDVBlobs](#) (const std::vector< [PresentationDataValue](#) > &inPDVs)
- static [DataSet](#) [ConcatenatePDVBlobsAsExplicit](#) (const std::vector< [PresentationDataValue](#) > &inPDVs)

10.237.1 Detailed Description

[PresentationDataValue](#) Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS.

10.237.2 Constructor & Destructor Documentation

10.237.2.1 `gdcm::network::PresentationDataValue::PresentationDataValue ()`

10.237.3 Member Function Documentation

10.237.3.1 `static DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobs (const std::vector< PresentationDataValue > & inPDVs) [static]`

Warning

[DataSet](#) will be read as Implicit Little Endian TS

10.237.3.2 `static DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobsAsExplicit (const std::vector< PresentationDataValue > & inPDVs) [static]`

10.237.3.3 `const std::string& gdcm::network::PresentationDataValue::GetBlob () const`

10.237.3.4 `bool gdcm::network::PresentationDataValue::GetIsCommand () const`

10.237.3.5 `bool gdcm::network::PresentationDataValue::GetIsLastFragment () const`

10.237.3.6 `uint8_t gdcm::network::PresentationDataValue::GetMessageHeader () const [inline]`

10.237.3.7 `uint8_t gdcm::network::PresentationDataValue::GetPresentationContextID () const [inline]`

10.237.3.8 `void gdcm::network::PresentationDataValue::Print (std::ostream & os) const`

10.237.3.9 `std::istream& gdcm::network::PresentationDataValue::Read (std::istream & is)`

10.237.3.10 `std::istream& gdcm::network::PresentationDataValue::ReadInto (std::istream & is, std::ostream & os)`

10.237.3.11 `void gdcm::network::PresentationDataValue::SetBlob (const std::string & partialblob)`

10.237.3.12 `void gdcm::network::PresentationDataValue::SetCommand (bool inCommand)`

10.237.3.13 `void gdcm::network::PresentationDataValue::SetDataSet (const DataSet & ds)`

Set [DataSet](#). Write [DataSet](#) in implicit.

Warning

size of dataset should be below maxpdu size

10.237.3.14 `void gdcmm::network::PresentationDataValue::SetLastFragment (bool inLast)`

10.237.3.15 `void gdcmm::network::PresentationDataValue::SetMessageHeader (uint8_t messageheader) [inline]`

10.237.3.16 `void gdcmm::network::PresentationDataValue::SetPresentationContextID (uint8_t id) [inline]`

10.237.3.17 `size_t gdcmm::network::PresentationDataValue::Size () const`

10.237.3.18 `const std::ostream& gdcmm::network::PresentationDataValue::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

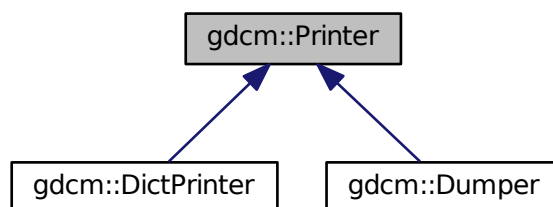
- [gdcmmPresentationDataValue.h](#)

10.238 gdcmm::Printer Class Reference

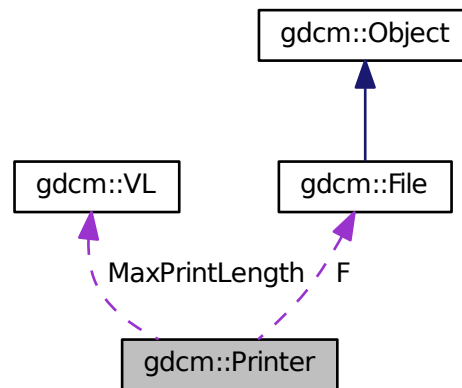
[Printer](#) class.

```
#include <gdcmmPrinter.h>
```

Inheritance diagram for gdcmm::Printer:



Collaboration diagram for gdcm::Printer:



Public Types

- enum [PrintStyles](#) {
[VERBOSE_STYLE](#) = 0,
[CONDENSED_STYLE](#),
[XML](#) }

Public Member Functions

- [Printer](#) ()
- [~Printer](#) ()
- [PrintStyles](#) [GetPrintStyle](#) () const
Get PrintStyle value.
- void [Print](#) (std::ostream &os)
Print.
- void [PrintDataSet](#) (const [DataSet](#) &ds, std::ostream &os, const std::string &s="")
Print an individual dataset.
- void [SetColor](#) (bool c)
Set color mode or not.
- void [SetFile](#) ([File](#) const &f)
Set file.
- void [SetStyle](#) ([PrintStyles](#) ps)
Set PrintStyle value.

Protected Member Functions

- [VR PrintDataElement](#) (std::ostream &os, const [Dicts](#) &dicts, const [DataSet](#) &ds, const [DataElement](#) &de, std::ostream &out, std::string const &indent)
- void [PrintSQ](#) (const [SequenceOfItems](#) *sqi, std::ostream &os, std::string const &indent)

Protected Attributes

- const [File](#) * [F](#)
- [VL MaxPrintLength](#)
- [PrintStyles](#) [PrintStyle](#)

10.238.1 Detailed Description

[Printer](#) class.

Examples:

[DumpToshibaDTI.cxx](#).

10.238.2 Member Enumeration Documentation

10.238.2.1 enum gdcm::Printer::PrintStyles

Enumerator

VERBOSE_STYLE
CONDENSED_STYLE
XML

10.238.3 Constructor & Destructor Documentation

10.238.3.1 gdcm::Printer::Printer ()

10.238.3.2 gdcm::Printer::~~Printer ()

10.238.4 Member Function Documentation

10.238.4.1 [PrintStyles](#) gdcm::Printer::GetPrintStyle () const [inline]

Get PrintStyle value.

10.238.4.2 void gdcm::Printer::Print (std::ostream & *os*)

Print.

Examples:

[DumpToshibaDTI.cxx](#).

10.238.4.3 VR gdcm::Printer::PrintDataElement (std::ostream & *os*, const Dicts & *dicts*, const DataSet & *ds*, const DataElement & *de*, std::ostream & *out*, std::string const & *indent*) [protected]

10.238.4.4 void gdcm::Printer::PrintDataSet (const DataSet & *ds*, std::ostream & *os*, const std::string & *s* = " ")

Print an individual dataset.

10.238.4.5 void gdcm::Printer::PrintSQ (const SequenceOfItems * *sqi*, std::ostream & *os*, std::string const & *indent*) [protected]

10.238.4.6 void gdcm::Printer::SetColor (bool *c*)

Set color mode or not.

Examples:

[DumpToshibaDTI.cxx](#).

10.238.4.7 void gdcm::Printer::SetFile (File const & *f*) [inline]

Set file.

Examples:

[DumpToshibaDTI.cxx](#).

10.238.4.8 void gdcm::Printer::SetStyle (PrintStyles *ps*) [inline]

Set PrintStyle value.

10.238.5 Member Data Documentation

10.238.5.1 `const File* gdcm::Printer::F` [protected]

10.238.5.2 `VL gdcm::Printer::MaxPrintLength` [protected]

10.238.5.3 `PrintStyles gdcm::Printer::PrintStyle` [protected]

The documentation for this class was generated from the following file:

- [gdcmPrinter.h](#)

10.239 gdcm::PrivateDict Class Reference

Private [Dict](#).

```
#include <gdcmDict.h>
```

Public Member Functions

- [PrivateDict](#) ()
- [~PrivateDict](#) ()
- void [AddDictEntry](#) (const [PrivateTag](#) &tag, const [DictEntry](#) &de)
- bool [FindDictEntry](#) (const [PrivateTag](#) &tag) const
- const [DictEntry](#) & [GetDictEntry](#) (const [PrivateTag](#) &tag) const
- bool [IsEmpty](#) () const
- void [PrintXML](#) () const
- bool [RemoveDictEntry](#) (const [PrivateTag](#) &tag)

Protected Member Functions

- void [LoadDefault](#) ()

Friends

- class [Dicts](#)
- std::ostream & [operator<<](#) (std::ostream &os, const [PrivateDict](#) &val)

10.239.1 Detailed Description

Private [Dict](#).

10.239.2 Constructor & Destructor Documentation

10.239.2.1 `gdcmm::PrivateDict::PrivateDict ()` `[inline]`

10.239.2.2 `gdcmm::PrivateDict::~~PrivateDict ()` `[inline]`

10.239.3 Member Function Documentation

10.239.3.1 `void gdcmm::PrivateDict::AddDictEntry (const PrivateTag & tag, const DictEntry & de)` `[inline]`

References `gdcmm::DictEntry::GetVM()`, `gdcmm::DictEntry::GetVR()`, `gdcmm::DictEntry::SetVR()`, and `gdcmm::VR::UN`.

10.239.3.2 `bool gdcmm::PrivateDict::FindDictEntry (const PrivateTag & tag) const` `[inline]`

10.239.3.3 `const DictEntry& gdcmm::PrivateDict::GetDictEntry (const PrivateTag & tag) const` `[inline]`

10.239.3.4 `bool gdcmm::PrivateDict::IsEmpty () const` `[inline]`

10.239.3.5 `void gdcmm::PrivateDict::LoadDefault ()` `[protected]`

10.239.3.6 `void gdcmm::PrivateDict::PrintXML () const` `[inline]`

References `gdcmm::Tag::GetElement()`, `gdcmm::Tag::GetGroup()`, `gdcmm::DictEntry::GetName()`, `gdcmm::PrivateTag::GetOwner()`, `gdcmm::DictEntry::GetVM()`, and `gdcmm::DictEntry::GetVR()`.

10.239.3.7 `bool gdcmm::PrivateDict::RemoveDictEntry (const PrivateTag & tag)` `[inline]`

Remove entry 'tag'. Return true on success (element was found and remove). return false if element was not found.

10.239.4 Friends And Related Function Documentation

10.239.4.1 `friend class Dicts` `[friend]`

10.239.4.2 `std::ostream& operator<< (std::ostream & os, const PrivateDict & val)` `[friend]`

The documentation for this class was generated from the following file:

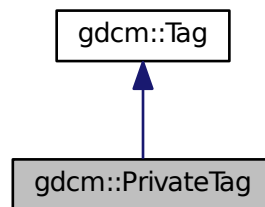
- [gdcmmDict.h](#)

10.240 gdcm::PrivateTag Class Reference

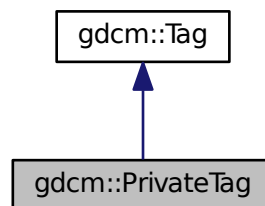
Class to represent a Private DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#), Owner)

```
#include <gdcmPrivateTag.h>
```

Inheritance diagram for gdcm::PrivateTag:



Collaboration diagram for gdcm::PrivateTag:



Public Member Functions

- [PrivateTag](#) (uint16_t group=0, uint16_t element=0, const char *owner="")
- [PrivateTag](#) ([Tag](#) const &t, const char *owner="")
- [DataElement](#) [GetAsDataElement](#) () const
- const char * [GetOwner](#) () const
- bool [operator<](#) (const [PrivateTag](#) &_val) const
- bool [ReadFromCommaSeparatedString](#) (const char *str)
- void [SetOwner](#) (const char *owner)

Friends

- `std::ostream & operator<< (std::ostream &_os, const PrivateTag &_val)`

10.240.1 Detailed Description

Class to represent a Private DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#), Owner)

Note

private tag have element value in: [0x10,0xff], for instance 0x0009,0x0000 is NOT a private tag

Examples:

[ChangePrivateTags.cxx](#), [csa2img.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ELSCINT1WaveToText.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [MrProtocol.cxx](#), [pmsct_rgb1.cxx](#), [PublicDict.cxx](#), [ReadGEMSSDO.cxx](#), and [rle2img.cxx](#).

10.240.2 Constructor & Destructor Documentation

10.240.2.1 `gdcm::PrivateTag::PrivateTag (uint16_t group = 0, uint16_t element = 0, const char * owner = " ") [inline]`

10.240.2.2 `gdcm::PrivateTag::PrivateTag (Tag const & t, const char * owner = " ") [inline]`

References `gdcm::Tag::GetElement()`.

10.240.3 Member Function Documentation

10.240.3.1 `DataElement gdcm::PrivateTag::GetAsDataElement () const`

10.240.3.2 `const char* gdcm::PrivateTag::GetOwner () const [inline]`

Examples:

[PublicDict.cxx](#).

Referenced by `gdcm::PrivateDict::PrintXML()`.

10.240.3.3 `bool gdcm::PrivateTag::operator< (const PrivateTag & _val) const`

10.240.3.4 `bool gdcm::PrivateTag::ReadFromCommaSeparatedString (const char * str)`

Read [PrivateTag](#) from a string. [Element](#) number will be truncated to 8bits. Eg: "1234,5678,GDCM" is private tag: (1234,78,"GDCM")

10.240.3.5 `void gdcM::PrivateTag::SetOwner (const char * owner) [inline]`

10.240.4 Friends And Related Function Documentation

10.240.4.1 `std::ostream& operator<< (std::ostream & _os, const PrivateTag & _val) [friend]`

The documentation for this class was generated from the following file:

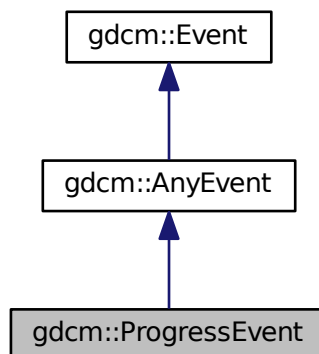
- [gdcMPrivateTag.h](#)

10.241 gdcM::ProgressEvent Class Reference

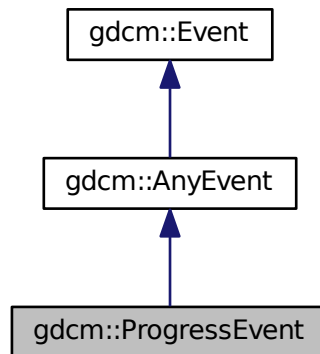
[ProgressEvent](#) Special type of event triggered during.

```
#include <gdcMProgressEvent.h>
```

Inheritance diagram for gdcM::ProgressEvent:



Collaboration diagram for gdcm::ProgressEvent:



Public Types

- typedef [ProgressEvent](#) Self
- typedef [AnyEvent](#) Superclass

Public Member Functions

- [ProgressEvent](#) (double p=0)
- [ProgressEvent](#) (const [Self](#) &s)
- virtual [~ProgressEvent](#) ()
- virtual bool [CheckEvent](#) (const ::gdcm::Event *e) const
- virtual const char * [GetEventName](#) () const
- double [GetProgress](#) () const
- virtual ::gdcm::Event * [MakeObject](#) () const
- void [SetProgress](#) (double p)

10.241.1 Detailed Description

[ProgressEvent](#) Special type of event triggered during.

See also

[AnyEvent](#)

10.241.2 Member Typedef Documentation

10.241.2.1 `typedef ProgressEvent gdcm::ProgressEvent::Self`

10.241.2.2 `typedef AnyEvent gdcm::ProgressEvent::Superclass`

10.241.3 Constructor & Destructor Documentation

10.241.3.1 `gdcm::ProgressEvent::ProgressEvent (double p = 0) [inline]`

10.241.3.2 `virtual gdcm::ProgressEvent::~~ProgressEvent () [inline],[virtual]`

10.241.3.3 `gdcm::ProgressEvent::ProgressEvent (const Self & s) [inline]`

10.241.4 Member Function Documentation

10.241.4.1 `virtual bool gdcm::ProgressEvent::CheckEvent (const ::gdcm::Event * e) const [inline],[virtual]`

10.241.4.2 `virtual const char* gdcm::ProgressEvent::GetEventName () const [inline],[virtual]`

Return the StringName associated with the event.

Implements [gdcm::Event](#).

10.241.4.3 `double gdcm::ProgressEvent::GetProgress () const [inline]`

10.241.4.4 `virtual ::gdcm::Event* gdcm::ProgressEvent::MakeObject () const [inline],[virtual]`

Create an [Event](#) of this type This method work as a Factory for creating events of each particular type.

Implements [gdcm::Event](#).

10.241.4.5 `void gdcm::ProgressEvent::SetProgress (double p) [inline]`

The documentation for this class was generated from the following file:

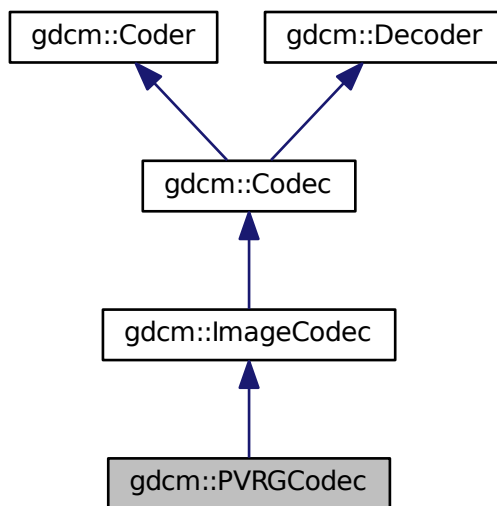
- [gdcmProgressEvent.h](#)

10.242 gdcm::PVRGCodec Class Reference

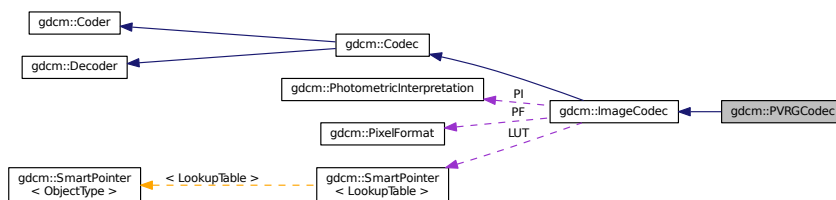
[PVRGCodec](#).

```
#include <gdcmPVRGCodec.h>
```

Inheritance diagram for gdcm::PVRGCodec:



Collaboration diagram for gdcm::PVRGCodec:



Public Member Functions

- [PVRGCodec](#) ()
- [~PVRGCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const

- *Return whether this coder support this transfer syntax (can code it)*
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
- *Return whether this decoder support this transfer syntax (can decode it)*
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)
- *Code.*
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
- *Decode.*
- void [SetLossyFlag](#) (bool l)

Additional Inherited Members

10.242.1 Detailed Description

[PVRGCodec](#).

Note

pvrq is a broken implementation of the JPEG standard. It is known to have a bug in the 16bits lossless implementation of the standard.

In an ideal world, you should not need this codec at all. But to support some broken file such as:

PHILIPS_Gyroscan-12-Jpeg_Extended_Process_2_4.dcm

we have to...

10.242.2 Constructor & Destructor Documentation

10.242.2.1 [gdcm::PVRGCodec::PVRGCodec](#) ()

10.242.2.2 [gdcm::PVRGCodec::~~PVRGCodec](#) ()

10.242.3 Member Function Documentation

10.242.3.1 bool [gdcm::PVRGCodec::CanCode](#) ([TransferSyntax](#) const &) const [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.242.3.2 bool [gdcm::PVRGCodec::CanDecode](#) ([TransferSyntax](#) const &) const [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.242.3.3 `virtual ImageCodec* gdcm::PVRGCodec::Clone () const` [virtual]

Implements [gdcm::ImageCodec](#).

10.242.3.4 `bool gdcm::PVRGCodec::Code (DataElement const & in_, DataElement & out_)` [virtual]

Code.

Reimplemented from [gdcm::Coder](#).

10.242.3.5 `bool gdcm::PVRGCodec::Decode (DataElement const &, DataElement &)` [virtual]

Decode.

Reimplemented from [gdcm::ImageCodec](#).

10.242.3.6 `void gdcm::PVRGCodec::SetLossyFlag (bool l)`

The documentation for this class was generated from the following file:

- [gdcmPVRGCodec.h](#)

10.243 gdcm::PythonFilter Class Reference

[PythonFilter](#) [PythonFilter](#) is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.

```
#include <gdcmPythonFilter.h>
```

Public Member Functions

- [PythonFilter](#) ()
- [~PythonFilter](#) ()
- [File](#) & [GetFile](#) ()
- const [File](#) & [GetFile](#) () const
- void [SetDicts](#) (const [Dicts](#) &dicts)
- void [SetFile](#) (const [File](#) &f)
- PyObject * [ToPyObject](#) (const [Tag](#) &t) const
- void [UseDictAlways](#) (bool)

10.243.1 Detailed Description

[PythonFilter](#) [PythonFilter](#) is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.

10.243.2 Constructor & Destructor Documentation

10.243.2.1 `gdcm::PythonFilter::PythonFilter ()`

10.243.2.2 `gdcm::PythonFilter::~~PythonFilter ()`

10.243.3 Member Function Documentation

10.243.3.1 `File& gdcm::PythonFilter::GetFile ()` `[inline]`

10.243.3.2 `const File& gdcm::PythonFilter::GetFile () const` `[inline]`

10.243.3.3 `void gdcm::PythonFilter::SetDicts (const Dicts & dicts)`

10.243.3.4 `void gdcm::PythonFilter::SetFile (const File & f)` `[inline]`

10.243.3.5 `PyObject* gdcm::PythonFilter::ToPyObject (const Tag & t) const`

10.243.3.6 `void gdcm::PythonFilter::UseDictAlways (bool)` `[inline]`

The documentation for this class was generated from the following file:

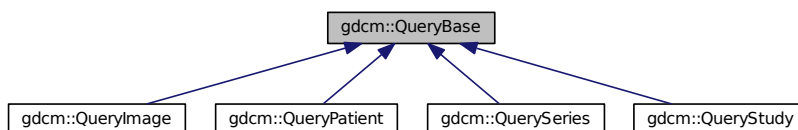
- [gdcmPythonFilter.h](#)

10.244 gdcm::QueryBase Class Reference

[QueryBase](#) contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE.

```
#include <gdcmQueryBase.h>
```

Inheritance diagram for `gdcm::QueryBase`:



Public Member Functions

- virtual [~QueryBase](#) ()
- std::vector< [Tag](#) > [GetAllRequiredTags](#) (const [ERootType](#) &inRootType) const
- std::vector< [Tag](#) > [GetAllTags](#) (const [ERootType](#) &inRootType) const
- virtual std::vector< [Tag](#) > [GetHierarchicalSearchTags](#) (const [ERootType](#) &inRootType) const =0
Return all Unique Key for a particular Query Root type (from the same level and above).
- virtual const char * [GetName](#) () const =0
- virtual std::vector< [Tag](#) > [GetOptionalTags](#) (const [ERootType](#) &inRootType) const =0
- virtual [DataElement](#) [GetQueryLevel](#) () const =0
- virtual std::vector< [Tag](#) > [GetRequiredTags](#) (const [ERootType](#) &inRootType) const =0
- virtual std::vector< [Tag](#) > [GetUniqueTags](#) (const [ERootType](#) &inRootType) const =0

10.244.1 Detailed Description

[QueryBase](#) contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE.

There are four levels of C-FIND and C-MOVE query:

- [Patient](#)
- [Study](#)
- [Series](#)
- [Image](#)

Each one has its own required and optional tags. This class provides an interface for getting those tags. This is an interface class.

See 3.4 C 6.1 and 3.4 C 6.2 for the patient and study root query types. These sections define the tags allowed by a particular query. The caller must pass in which root type they want, patient or study. A third root type, Modality Worklist Query, isn't yet supported.

This class (or rather it's derived classes) will be held in the RootQuery types. These query types actually make the dataset, and will use this dataset to list the required, unique, and optional tags for each type of query. This design is somewhat overly complicated, but is kept so that if we ever wanted to try to guess the query type from the given tags, we could do so.

10.244.2 Constructor & Destructor Documentation

10.244.2.1 virtual gdcmm::QueryBase::~~QueryBase () [inline],[virtual]

10.244.3 Member Function Documentation

10.244.3.1 std::vector<Tag> gdcmm::QueryBase::GetAllRequiredTags (const [ERootType](#) & *inRootType*) const

In order to validate a query dataset we need to check that there exists at least one required (or unique) key

10.244.3.2 `std::vector<Tag> gdcm::QueryBase::GetAllTags (const ERootType & inRootType) const`

In order to validate a query dataset, just check for the presence of a tag, not it's requirement level in the spec

10.244.3.3 `virtual std::vector<Tag> gdcm::QueryBase::GetHierachicalSearchTags (const ERootType & inRootType) const`
`[pure virtual]`

Return all Unique Key for a particular Query Root type (from the same level and above).

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

10.244.3.4 `virtual const char* gdcm::QueryBase::GetName () const` `[pure virtual]`

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

10.244.3.5 `virtual std::vector<Tag> gdcm::QueryBase::GetOptionalTags (const ERootType & inRootType) const` `[pure virtual]`

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

10.244.3.6 `virtual DataElement gdcm::QueryBase::GetQueryLevel () const` `[pure virtual]`

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

10.244.3.7 `virtual std::vector<Tag> gdcm::QueryBase::GetRequiredTags (const ERootType & inRootType) const` `[pure virtual]`

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

10.244.3.8 `virtual std::vector<Tag> gdcm::QueryBase::GetUniqueTags (const ERootType & inRootType) const` `[pure virtual]`

Implemented in [gdcm::QueryImage](#), [gdcm::QueryPatient](#), [gdcm::QuerySeries](#), and [gdcm::QueryStudy](#).

The documentation for this class was generated from the following file:

- [gdcmQueryBase.h](#)

10.245 gdcm::QueryFactory Class Reference

QueryFactory.h.

```
#include <gdcmQueryFactory.h>
```

Static Public Member Functions

- static [ECharSet](#) [GetCharacterFromCurrentLocale](#) ()
- static void [ListCharSets](#) (std::ostream &os)
List all possible CharSet.
- static [DataElement](#) [ProduceCharacterSetDataElement](#) (const std::vector< [ECharSet](#) > &inCharSetType)
- static [BaseQuery](#) * [ProduceQuery](#) (const std::string &sopInstanceUID, [ENQueryType](#) inQueryType)
- static [BaseRootQuery](#) * [ProduceQuery](#) ([ERootType](#) inRootType, [EQueryType](#) inQueryType, [EQueryLevel](#) inQueryLevel)

10.245.1 Detailed Description

QueryFactory.h.

Note

contains: a class to produce a query based off of user-entered information

Essentially, this class is used to construct a query based off of user input (typically from the command line; if in code directly, the query itself could just be instantiated)

In theory, could also be used as the interface to validate incoming datasets as belonging to a particular query style

10.245.2 Member Function Documentation

10.245.2.1 static [ECharSet](#) [gdcm::QueryFactory::GetCharacterFromCurrentLocale](#) () [static]

This function will return the corresponding [ECharSet](#) associated with the current locale of the running system (based on the value of `locale()`).

10.245.2.2 static void [gdcm::QueryFactory::ListCharSets](#) (std::ostream & os) [static]

List all possible CharSet.

10.245.2.3 **static DataElement** `gdcm::QueryFactory::ProduceCharacterSetDataElement (const std::vector< ECharSet > & inCharSetType)` [static]

This function will produce the appropriate dataelement given a list of charsets. The first charset will be used directly, while the second and subsequent will be prepended with "ISO2022 ". Redundant character sets are not permitted, so if they are encountered, they will just be skipped. if UTF8 or GB18030 is used, no subsequent character sets will be used if the vector passed in is empty, then the dataelement that's passed out will be empty and Latin1 is the presumed encoding

10.245.2.4 **static BaseQuery*** `gdcm::QueryFactory::ProduceQuery (const std::string & sopInstanceUID, ENQueryType inQueryType)` [static]

10.245.2.5 **static BaseRootQuery*** `gdcm::QueryFactory::ProduceQuery (ERootType inRootType, EQueryType inQueryType, EQueryLevel inQueryLevel)` [static]

this function will produce a query (basically, a wrapper to a dataset that can validate whether or not the query is a valid cfind/cmove query) and the level of the query (patient, study, series, image). If the user provides an invalid instantiation (ie, study root type, query level of patient), then the result is NULL.

The documentation for this class was generated from the following file:

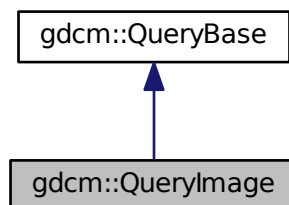
- [gdcmQueryFactory.h](#)

10.246 gdcm::QueryImage Class Reference

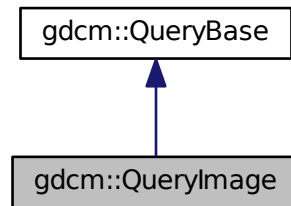
[QueryImage](#) contains: class to construct an image-based query for C-FIND and C-MOVE.

```
#include <gdcmQueryImage.h>
```

Inheritance diagram for `gdcm::QueryImage`:



Collaboration diagram for gdcm::QueryImage:



Public Member Functions

- `std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const`
Return all Unique Key for a particular Query Root type (from the same level and above).
- `const char * GetName () const`
- `std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const`
- `DataElement GetQueryLevel () const`
- `std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const`
- `std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const`

10.246.1 Detailed Description

[QueryImage](#) contains: class to construct an image-based query for C-FIND and C-MOVE.

10.246.2 Member Function Documentation

10.246.2.1 `std::vector<Tag> gdcm::QueryImage::GetHierachicalSearchTags (const ERootType & inRootType) const` `[virtual]`

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements [gdcm::QueryBase](#).

10.246.2.2 `const char* gdcm::QueryImage::GetName () const` `[virtual]`

Implements [gdcm::QueryBase](#).

10.246.2.3 `std::vector<Tag> gdcM::QueryImage::GetOptionalTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.246.2.4 `DataElement gdcM::QueryImage::GetQueryLevel () const` [virtual]

Implements [gdcM::QueryBase](#).

10.246.2.5 `std::vector<Tag> gdcM::QueryImage::GetRequiredTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.246.2.6 `std::vector<Tag> gdcM::QueryImage::GetUniqueTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

The documentation for this class was generated from the following file:

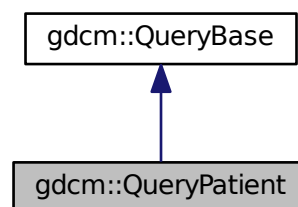
- [gdcMQueryImage.h](#)

10.247 gdcM::QueryPatient Class Reference

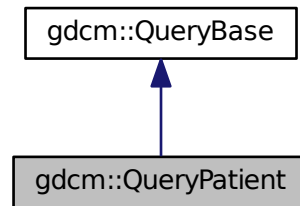
[QueryPatient](#) contains: class to construct a patient-based query for c-find and c-move.

```
#include <gdcMQueryPatient.h>
```

Inheritance diagram for gdcM::QueryPatient:



Collaboration diagram for gdcm::QueryPatient:



Public Member Functions

- `std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const`
Return all Unique Key for a particular Query Root type (from the same level and above).
- `const char * GetName () const`
- `std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const`
- `DataElement GetQueryLevel () const`
- `std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const`
- `std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const`

10.247.1 Detailed Description

[QueryPatient](#) contains: class to construct a patient-based query for c-find and c-move.

10.247.2 Member Function Documentation

10.247.2.1 `std::vector<Tag> gdcm::QueryPatient::GetHierachicalSearchTags (const ERootType & inRootType) const` `[virtual]`

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements [gdcm::QueryBase](#).

10.247.2.2 `const char* gdcm::QueryPatient::GetName () const` `[virtual]`

Implements [gdcm::QueryBase](#).

10.247.2.3 `std::vector<Tag> gdcM::QueryPatient::GetOptionalTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.247.2.4 `DataElement gdcM::QueryPatient::GetQueryLevel () const` [virtual]

Implements [gdcM::QueryBase](#).

10.247.2.5 `std::vector<Tag> gdcM::QueryPatient::GetRequiredTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.247.2.6 `std::vector<Tag> gdcM::QueryPatient::GetUniqueTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

The documentation for this class was generated from the following file:

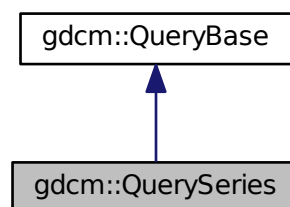
- [gdcMQueryPatient.h](#)

10.248 gdcM::QuerySeries Class Reference

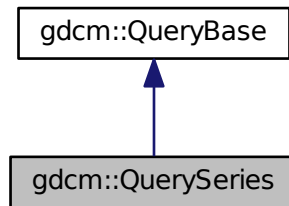
[QuerySeries](#) contains: class to construct a series-based query for c-find and c-move.

```
#include <gdcMQuerySeries.h>
```

Inheritance diagram for gdcM::QuerySeries:



Collaboration diagram for gdcm::QuerySeries:



Public Member Functions

- `std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const`
Return all Unique Key for a particular Query Root type (from the same level and above).
- `const char * GetName () const`
- `std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const`
- `DataElement GetQueryLevel () const`
- `std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const`
- `std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const`

10.248.1 Detailed Description

[QuerySeries](#) contains: class to construct a series-based query for c-find and c-move.

10.248.2 Member Function Documentation

10.248.2.1 `std::vector<Tag> gdcm::QuerySeries::GetHierachicalSearchTags (const ERootType & inRootType) const` `[virtual]`

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements [gdcm::QueryBase](#).

10.248.2.2 `const char* gdcm::QuerySeries::GetName () const` `[virtual]`

Implements [gdcm::QueryBase](#).

10.248.2.3 `std::vector<Tag> gdcM::QuerySeries::GetOptionalTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.248.2.4 `DataElement gdcM::QuerySeries::GetQueryLevel () const` [virtual]

Implements [gdcM::QueryBase](#).

10.248.2.5 `std::vector<Tag> gdcM::QuerySeries::GetRequiredTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.248.2.6 `std::vector<Tag> gdcM::QuerySeries::GetUniqueTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

The documentation for this class was generated from the following file:

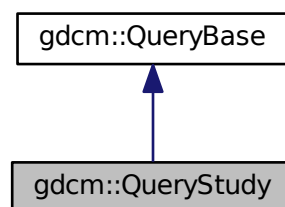
- [gdcMQuerySeries.h](#)

10.249 gdcM::QueryStudy Class Reference

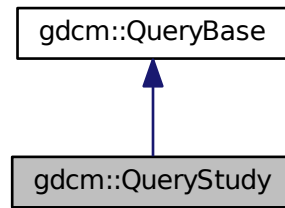
QueryStudy.h contains: class to construct a study-based query for C-FIND and C-MOVE.

```
#include <gdcMQueryStudy.h>
```

Inheritance diagram for gdcM::QueryStudy:



Collaboration diagram for gdcm::QueryStudy:



Public Member Functions

- `std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const`
Return all Unique Key for a particular Query Root type (from the same level and above).
- `const char * GetName () const`
- `std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const`
- `DataElement GetQueryLevel () const`
- `std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const`
- `std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const`

10.249.1 Detailed Description

QueryStudy.h contains: class to construct a study-based query for C-FIND and C-MOVE.

10.249.2 Member Function Documentation

10.249.2.1 `std::vector<Tag> gdcm::QueryStudy::GetHierachicalSearchTags (const ERootType & inRootType) const` `[virtual]`

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements [gdcm::QueryBase](#).

10.249.2.2 `const char* gdcm::QueryStudy::GetName () const` `[virtual]`

Implements [gdcm::QueryBase](#).

10.249.2.3 `std::vector<Tag> gdcM::QueryStudy::GetOptionalTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.249.2.4 `DataElement gdcM::QueryStudy::GetQueryLevel () const` [virtual]

Implements [gdcM::QueryBase](#).

10.249.2.5 `std::vector<Tag> gdcM::QueryStudy::GetRequiredTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

10.249.2.6 `std::vector<Tag> gdcM::QueryStudy::GetUniqueTags (const ERootType & inRootType) const` [virtual]

Implements [gdcM::QueryBase](#).

The documentation for this class was generated from the following file:

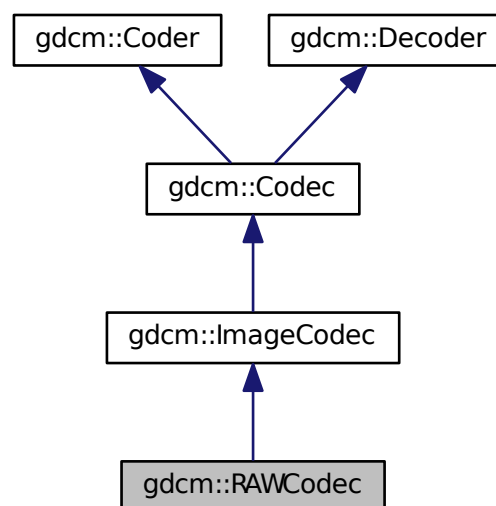
- [gdcMQueryStudy.h](#)

10.250 gdcM::RAWCodec Class Reference

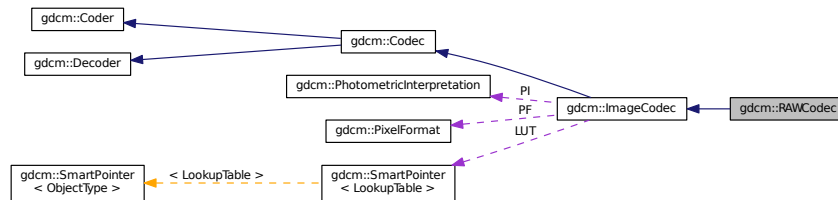
[RAWCodec](#) class.

```
#include <gdcMRAWCodec.h>
```

Inheritance diagram for `gdcM::RAWCodec`:



Collaboration diagram for gdcm::RAWCodec:



Public Member Functions

- [RAWCodec](#) ()
- [~RAWCodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)
Code.
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.
- bool [DecodeBytes](#) (const char *inBytes, size_t inBufferLength, char *outBytes, size_t inOutBufferLength)
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)

Protected Member Functions

- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)

Additional Inherited Members

10.250.1 Detailed Description

[RAWCodec](#) class.

10.250.2 Constructor & Destructor Documentation

10.250.2.1 [gdcm::RAWCodec::RAWCodec](#) ()

10.250.2.2 [gdcm::RAWCodec::~~RAWCodec](#) ()

10.250.3 Member Function Documentation

10.250.3.1 bool [gdcm::RAWCodec::CanCode](#) ([TransferSyntax](#) const &) const [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.250.3.2 `bool gdcM::RAWCodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcM::ImageCodec](#).

10.250.3.3 `virtual ImageCodec* gdcM::RAWCodec::Clone () const` [virtual]

Implements [gdcM::ImageCodec](#).

10.250.3.4 `bool gdcM::RAWCodec::Code (DataElement const & in_, DataElement & out_)` [virtual]

Code.

Reimplemented from [gdcM::Coder](#).

10.250.3.5 `bool gdcM::RAWCodec::Decode (DataElement const &, DataElement &)` [virtual]

Decode.

Reimplemented from [gdcM::ImageCodec](#).

10.250.3.6 `bool gdcM::RAWCodec::DecodeByStreams (std::istream & is, std::ostream & os)` [protected],[virtual]

Reimplemented from [gdcM::ImageCodec](#).

10.250.3.7 `bool gdcM::RAWCodec::DecodeBytes (const char * inBytes, size_t inBufferLength, char * outBytes, size_t inOutBufferLength)`

Used by the ImageStreamReader— converts a read in buffer into one with the proper encodings.

10.250.3.8 `bool gdcM::RAWCodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` [virtual]

Reimplemented from [gdcM::ImageCodec](#).

The documentation for this class was generated from the following file:

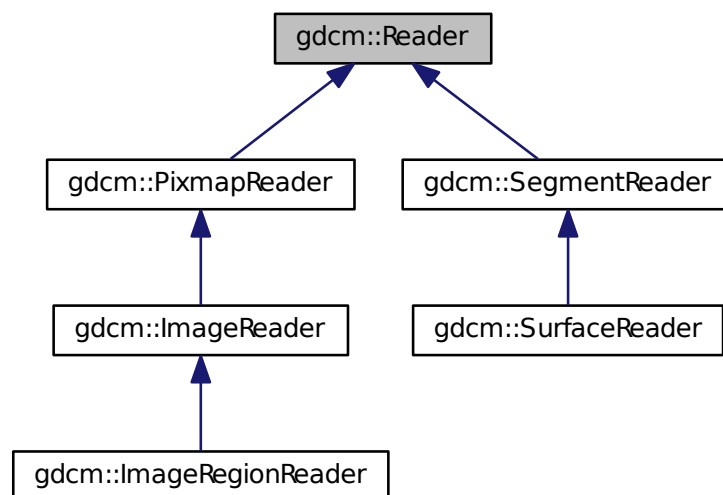
- [gdcMRAWCodec.h](#)

10.251 gdcm::Reader Class Reference

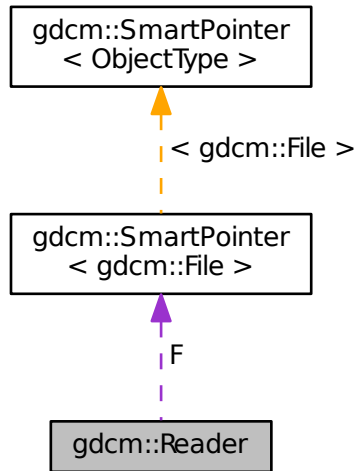
[Reader](#) ala DOM (Document [Object](#) Model)

```
#include <gdcmReader.h>
```

Inheritance diagram for gdcm::Reader:



Collaboration diagram for `gdcm::Reader`:



Public Member Functions

- [Reader](#) ()
- virtual [~Reader](#) ()
- bool [CanRead](#) () const
- const [File](#) & [GetFile](#) () const
Set/Get File.
- [File](#) & [GetFile](#) ()
Set/Get File.
- size_t [GetStreamCurrentPosition](#) () const
- virtual bool [Read](#) ()
Main function to read a file.
- bool [ReadSelectedPrivateTags](#) (std::set< [PrivateTag](#) > const &ptags, bool readvalues=true)
Will only read the specified selected private tags.
- bool [ReadSelectedTags](#) (std::set< [Tag](#) > const &tags, bool readvalues=true)
Will only read the specified selected tags.
- bool [ReadUpToTag](#) (const [Tag](#) &tag, std::set< [Tag](#) > const &skiptags=std::set< [Tag](#) >())
- void [SetFile](#) ([File](#) &file)
Set/Get File.
- void [SetFileName](#) (const char *filename_native)
- void [SetStream](#) (std::istream &input_stream)
Set the open-ed stream directly.

Protected Member Functions

- `std::istream * GetStreamPtr () const`
- `bool ReadDataSet ()`
- `bool ReadMetaInformation ()`
- `bool ReadPreamble ()`

Protected Attributes

- `SmartPointer< File > F`

Friends

- `class StreamImageReader`

10.251.1 Detailed Description

[Reader](#) ala DOM (Document [Object](#) Model)

This class is a non-validating reader, it will only performs well- formedness check only, and to some extent catch known error (non well-formed document).

Detailed description here

A [DataSet](#) DOES NOT contains group 0x0002 (see [FileMetaInformation](#))

This is really a [DataSet](#) reader. This will not make sure the dataset conform to any [IOD](#) at all. This is a completely different step. The reasoning was that user could control the [IOD](#) there lib would handle and thus we would not be able to read a [DataSet](#) if the [IOD](#) was not found Instead we separate the reading from the validation.

Note

From GDCM1.x. Users will realize that one feature is missing from this DOM implementation. In GDCM 1.x user used to be able to control the size of the [Value](#) to be read. By default it was 0xffff. The main author of GDCM2 thought this was too dangerous and harmful and therefore this feature did not make it into GDCM2

Warning

GDCM will not produce warning for unordered (non-alphabetical order).

See also

[Writer](#) [FileMetaInformation](#) [DataSet](#) [File](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CreateFakeRTDOSE.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [FixBrokenJ2K.cxx](#), [FixOrientation.cxx](#), [gdcmrtionplan.cxx](#), [gdcmrtplan.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [ReadUTF8QtDir.cxx](#), [rle2img.cxx](#), and [TestReader.cxx](#).

10.251.2 Constructor & Destructor Documentation

10.251.2.1 `gdcm::Reader::Reader ()`

10.251.2.2 `virtual gdcm::Reader::~~Reader ()` `[virtual]`

10.251.3 Member Function Documentation

10.251.3.1 `bool gdcm::Reader::CanRead () const`

Test whether this is a DICOM file

Warning

need to call either `SetFileName` or `SetStream` first

Examples:

[ReadUTF8QtDir.cxx](#).

10.251.3.2 `const File& gdcm::Reader::GetFile () const` `[inline]`

Set/Get [File](#).

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CompressImage.cxx](#), [CreateFakeRTDOSE.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMS↵
MovieGroup.cxx](#), [DumplImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCD↵
E.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [gdcmrtionplan.cxx](#), [gdcmrtplan.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.↵
cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [PatchFile.↵
cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicit↵
LengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [rle2img.cxx](#), and [TestReader.cxx](#).

10.251.3.3 `File& gdcm::Reader::GetFile ()` `[inline]`

Set/Get [File](#).

10.251.3.4 `size_t gdcm::Reader::GetStreamCurrentPosition () const`

For wrapped language. return type is compatible with [System::FileSize](#) return type Use native `std::streampos` / `std↵
::streamoff` directly from the stream from C++

10.251.3.5 `std::istream* gdcm::Reader::GetStreamPtr () const` `[inline],[protected]`

10.251.3.6 `virtual bool gdcm::Reader::Read ()` `[virtual]`

Main function to read a file.

Reimplemented in [gdcm::ImageRegionReader](#), [gdcm::PixmapReader](#), [gdcm::ImageReader](#), [gdcm::SegmentReader](#), and [gdcm::SurfaceReader](#).

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CreateFakeRTDOSE.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [FixBrokenJ2K.cxx](#), [FixOrientation.cxx](#), [gdcmrtionplan.cxx](#), [gdcmrtplan.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [rle2img.cxx](#), and [TestReader.cxx](#).

10.251.3.7 `bool gdcm::Reader::ReadDataSet ()` `[protected]`

10.251.3.8 `bool gdcm::Reader::ReadMetaInformation ()` `[protected]`

10.251.3.9 `bool gdcm::Reader::ReadPreamble ()` `[protected]`

10.251.3.10 `bool gdcm::Reader::ReadSelectedPrivateTags (std::set< PrivateTag > const & ptags, bool readvalues = true)`

Will only read the specified selected private tags.

10.251.3.11 `bool gdcm::Reader::ReadSelectedTags (std::set< Tag > const & tags, bool readvalues = true)`

Will only read the specified selected tags.

10.251.3.12 `bool gdcm::Reader::ReadUpToTag (const Tag & tag, std::set< Tag > const & skiptags = std::set< Tag > ())`

Will read only up to [Tag](#)

Parameters

<i>tag</i>	and skipping any tag specified in
<i>skiptags</i>	

10.251.3.13 `void gdcm::Reader::SetFile (File & file) [inline]`

Set/Get [File](#).

10.251.3.14 `void gdcm::Reader::SetFileName (const char * filename_native)`

Set the filename to open. This will create a `std::ifstream` internally See `SetStream` if you are dealing with different `std::istream` object

Examples:

[BasicImageAnonymizer.cs](#), [ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [CheckBigEndianBug.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CompressImage.cxx](#), [ConvertToQImage.cxx](#), [CreateFakeRTDOSE.cxx](#), [csa2img.cxx](#), [DiffFile.cxx](#), [DumpADAC.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpImageHeaderInfo.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [DuplicatePCDE.cxx](#), [ELSCINT1WaveToText.cxx](#), [ExtractEncryptedContent.cxx](#), [ExtractIconFromFile.cxx](#), [ExtractImageRegion.cs](#), [ExtractImageRegionWithLUT.cs](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [gdcmrtnplan.cxx](#), [gdcmrtpplan.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [MrProtocol.cxx](#), [NewSequence.cs](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [ReadGEMSSDO.cxx](#), [ReadMultiTimesException.cxx](#), [ReadUTF8QtDir.cxx](#), [rle2img.cxx](#), [SimplePrintPatientName.cs](#), [TestReader.cxx](#), and [threadgdcm.cxx](#).

10.251.3.15 `void gdcm::Reader::SetStream (std::istream & input_stream) [inline]`

Set the open-ed stream directly.

Examples:

[DumpToshibaDTI.cxx](#), and [ReadUTF8QtDir.cxx](#).

10.251.4 Friends And Related Function Documentation

10.251.4.1 `friend class StreamImageReader [friend]`

10.251.5 Member Data Documentation

10.251.5.1 `SmartPointer<File> gdcm::Reader::F [protected]`

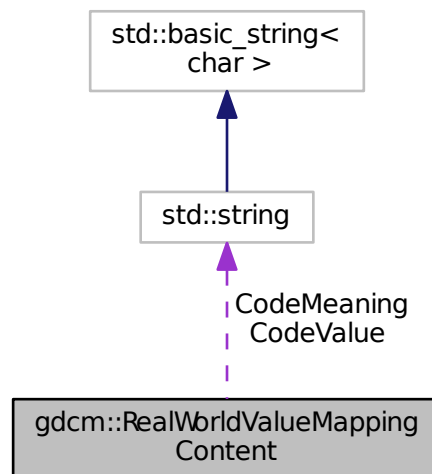
The documentation for this class was generated from the following file:

- [gdcmReader.h](#)

10.252 gdcm::RealWorldValueMappingContent Struct Reference

```
#include <gdcmImageHelper.h>
```

Collaboration diagram for gdcm::RealWorldValueMappingContent:



Public Attributes

- `std::string` [CodeMeaning](#)
- `std::string` [CodeValue](#)
- `double` [RealWorldValueIntercept](#)
- `double` [RealWorldValueSlope](#)

10.252.1 Member Data Documentation

10.252.1.1 `std::string` `gdcm::RealWorldValueMappingContent::CodeMeaning`

10.252.1.2 `std::string` `gdcm::RealWorldValueMappingContent::CodeValue`

10.252.1.3 `double` `gdcm::RealWorldValueMappingContent::RealWorldValueIntercept`

10.252.1.4 `double` `gdcm::RealWorldValueMappingContent::RealWorldValueSlope`

The documentation for this struct was generated from the following file:

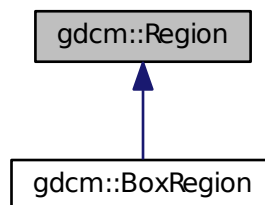
- [gdcmImageHelper.h](#)

10.253 gdcmm::Region Class Reference

Class for manipulation region.

```
#include <gdcmmRegion.h>
```

Inheritance diagram for gdcmm::Region:



Public Member Functions

- [Region](#) ()
- virtual [~Region](#) ()
- virtual size_t [Area](#) () const =0
compute the area
- virtual [Region](#) * [Clone](#) () const =0
- virtual [BoxRegion](#) [ComputeBoundingBox](#) ()=0
Return the Axis-Aligned minimum bounding box for all regions.
- virtual bool [Empty](#) () const =0
return whether this domain is empty:
- virtual bool [IsValid](#) () const =0
return whether this is valid domain
- virtual void [Print](#) (std::ostream &os=std::cout) const
Print.

10.253.1 Detailed Description

Class for manipulation region.

10.253.2 Constructor & Destructor Documentation

10.253.2.1 `gdcm::Region::Region ()`

10.253.2.2 `virtual gdcm::Region::~~Region ()` [virtual]

10.253.3 Member Function Documentation

10.253.3.1 `virtual size_t gdcm::Region::Area () const` [pure virtual]

compute the area

Implemented in [gdcm::BoxRegion](#).

10.253.3.2 `virtual Region* gdcm::Region::Clone () const` [pure virtual]

Implemented in [gdcm::BoxRegion](#).

10.253.3.3 `virtual BoxRegion gdcm::Region::ComputeBoundingBox ()` [pure virtual]

Return the Axis-Aligned minimum bounding box for all regions.

Implemented in [gdcm::BoxRegion](#).

10.253.3.4 `virtual bool gdcm::Region::Empty () const` [pure virtual]

return whether this domain is empty:

Implemented in [gdcm::BoxRegion](#).

10.253.3.5 `virtual bool gdcm::Region::IsValid () const` [pure virtual]

return whether this is valid domain

Implemented in [gdcm::BoxRegion](#).

10.253.3.6 `virtual void gdcm::Region::Print (std::ostream & os = std::cout) const` [virtual]

Print.

Reimplemented in [gdcm::BoxRegion](#).

Referenced by `gdcm::operator<<()`.

The documentation for this class was generated from the following file:

- [gdcmRegion.h](#)

10.254 gdcm::Rescaler Class Reference

Rescale class This class is meant to apply the linear transform of Stored Pixel [Value](#) to Real World [Value](#). This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel [Type](#) is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World [Value](#) will be 16 bits signed type.

```
#include <gdcmRescaler.h>
```

Public Member Functions

- [Rescaler](#) ()
- [~Rescaler](#) ()
- [PixelFormat::ScalarType ComputeInterceptSlopePixelFormat](#) ()
- [PixelFormat ComputePixelFormatFromMinMax](#) ()
- double [GetIntercept](#) () const
- double [GetSlope](#) () const
- bool [InverseRescale](#) (char *out, const char *in, size_t n)
Inverse transform.
- bool [Rescale](#) (char *out, const char *in, size_t n)
Direct transform.
- void [SetIntercept](#) (double i)
Set Intercept: used for both direct&inverse transformation.
- void [SetMinMaxForPixelFormat](#) (double min, double max)
- void [SetPixelFormat](#) ([PixelFormat](#) const &pf)
Set Pixel Format of input data.
- void [SetSlope](#) (double s)
Set Slope: user for both direct&inverse transformation.
- void [SetTargetPixelFormat](#) ([PixelFormat](#) const &targetst)
- void [SetUseTargetPixelFormat](#) (bool b)
Override default behavior of Rescale.

Protected Member Functions

- template<typename TIn >
void [InverseRescaleFunctionIntoBestFit](#) (char *out, const TIn *in, size_t n)
- template<typename TIn >
void [RescaleFunctionIntoBestFit](#) (char *out, const TIn *in, size_t n)

10.254.1 Detailed Description

Rescale class This class is meant to apply the linear transform of Stored Pixel [Value](#) to Real World [Value](#). This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel [Type](#) is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World [Value](#) will be 16 bits signed type.

In PET: the linear transform is generally floating point based. Since the dynamic range can be quite high, the Rescale Slope / Rescale Intercept can be changing throughout the [Series](#). So it is important to read all linear transform and deduce the best Pixel [Type](#) only at the end (when all the images to be read have been parsed).

Warning

Internally any time a floating point value is found either in the Rescale Slope or the Rescale Intercept it is assumed that the best matching output pixel type is FLOAT64 (in previous implementation it was FLOAT32). Because [VR:DS](#) is closer to a 64bits floating point type FLOAT64 is thus a best matching pixel type for the floating point transformation.

Example: Let say input is FLOAT64, and we want UINT16 as ouput, we would do:

```
Rescaler ir;
ir.SetIntercept( 0 );
ir.SetSlope( 5.6789 );
ir.SetPixelFormat( FLOAT64 );
ir.SetMinMaxForPixelType( ((PixelFormat)UINT16).GetMin(), ((PixelFormat)UINT16).GetMax() );
ir.InverseRescale(output,input,numberofbytes );
```

Note

handle floating point transformation back and forth to integer properly (no loss)

See also

[Unpacker12Bits](#)

10.254.2 Constructor & Destructor Documentation

10.254.2.1 `gdcm::Rescaler::Rescaler ()` [\[inline\]](#)

10.254.2.2 `gdcm::Rescaler::~~Rescaler ()` [\[inline\]](#)

10.254.3 Member Function Documentation

10.254.3.1 `PixelFormat::ScalarType gdcm::Rescaler::ComputeInterceptSlopePixelFormat ()`

Compute the Pixel Format of the output data Used for direct transformation

10.254.3.2 PixelFormat gdcm::Rescaler::ComputePixelTypeFromMinMax ()

Compute the Pixel Format of the output data Used for inverse transformation

10.254.3.3 double gdcm::Rescaler::GetIntercept () const [inline]

10.254.3.4 double gdcm::Rescaler::GetSlope () const [inline]

10.254.3.5 bool gdcm::Rescaler::InverseRescale (char * out, const char * in, size_t n)

Inverse transform.

10.254.3.6 template<typename TIn > void gdcm::Rescaler::InverseRescaleFunctionIntoBestFit (char * out, const TIn * in, size_t n) [protected]

10.254.3.7 bool gdcm::Rescaler::Rescale (char * out, const char * in, size_t n)

Direct transform.

10.254.3.8 template<typename TIn > void gdcm::Rescaler::RescaleFunctionIntoBestFit (char * out, const TIn * in, size_t n) [protected]

10.254.3.9 void gdcm::Rescaler::SetIntercept (double i) [inline]

Set Intercept: used for both direct&inverse transformation.

10.254.3.10 void gdcm::Rescaler::SetMinMaxForPixelType (double min, double max) [inline]

Set target interval for output data. A best match will be computed (if possible) Used for inverse transformation

10.254.3.11 void gdcm::Rescaler::SetPixelFormat (PixelFormat const & pf) [inline]

Set Pixel Format of input data.

10.254.3.12 void gdcm::Rescaler::SetSlope (double s) [inline]

Set Slope: user for both direct&inverse transformation.

10.254.3.13 void gdcm::Rescaler::SetTargetPixelType (PixelFormat const & *targetst*)

By default (when UseTargetPixelType is false), a best matching Target Pixel [Type](#) is computed. However user can override this auto selection by switching UseTargetPixelType:true and also specifying the specifix Target Pixel [Type](#)

10.254.3.14 void gdcm::Rescaler::SetUseTargetPixelType (bool *b*)

Override default behavior of Rescale.

The documentation for this class was generated from the following file:

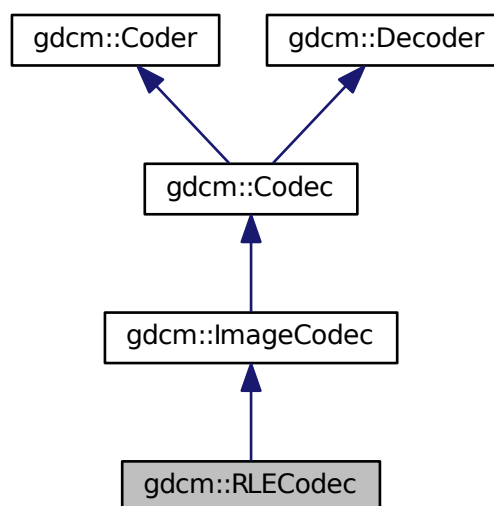
- [gdcmRescaler.h](#)

10.255 gdcm::RLECodec Class Reference

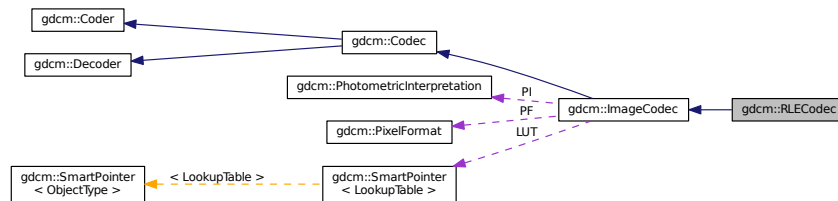
Class to do RLE.

```
#include <gdcmRLECodec.h>
```

Inheritance diagram for gdcm::RLECodec:



Collaboration diagram for `gdcm::RLECodec`:



Public Member Functions

- [RLECodec](#) ()
- [~RLECodec](#) ()
- bool [CanCode](#) ([TransferSyntax](#) const &ts) const
Return whether this coder support this transfer syntax (can code it)
- bool [CanDecode](#) ([TransferSyntax](#) const &ts) const
Return whether this decoder support this transfer syntax (can decode it)
- virtual [ImageCodec](#) * [Clone](#) () const
- bool [Code](#) ([DataElement](#) const &in, [DataElement](#) &out)
Code.
- bool [Decode](#) ([DataElement](#) const &is, [DataElement](#) &os)
Decode.
- unsigned long [GetBufferLength](#) () const
- bool [GetHeaderInfo](#) (std::istream &is, [TransferSyntax](#) &ts)
- void [SetBufferLength](#) (unsigned long l)
- void [SetLength](#) (unsigned long l)

Protected Member Functions

- bool [AppendFrameEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [AppendRowEncode](#) (std::ostream &out, const char *data, size_t datalen)
- bool [DecodeByStreams](#) (std::istream &is, std::ostream &os)
- bool [DecodeExtent](#) (char *buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream &is)
- bool [IsFrameEncoder](#) ()
- bool [IsRowEncoder](#) ()
- bool [StartEncode](#) (std::ostream &)
- bool [StopEncode](#) (std::ostream &)

Friends

- class [ImageRegionReader](#)

Additional Inherited Members

10.255.1 Detailed Description

Class to do RLE.

Note

ANSI X3.9 A.4.2 RLE Compression Annex G defines a RLE Compression Transfer Syntax. This transfer Syntax is identified by the UID value "1.2.840.10008.1.2.5". If the object allows multi-frame images in the pixel data field, then each frame shall be encoded separately. Each frame shall be encoded in one and only one [Fragment](#) (see PS 3.5.8.2).

10.255.2 Constructor & Destructor Documentation

10.255.2.1 `gdcm::RLECodec::RLECodec ()`

10.255.2.2 `gdcm::RLECodec::~~RLECodec ()`

10.255.3 Member Function Documentation

10.255.3.1 `bool gdcm::RLECodec::AppendFrameEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.255.3.2 `bool gdcm::RLECodec::AppendRowEncode (std::ostream & out, const char * data, size_t datalen)`
[protected], [virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.255.3.3 `bool gdcm::RLECodec::CanCode (TransferSyntax const &) const` [virtual]

Return whether this coder support this transfer syntax (can code it)

Reimplemented from [gdcm::ImageCodec](#).

10.255.3.4 `bool gdcm::RLECodec::CanDecode (TransferSyntax const &) const` [virtual]

Return whether this decoder support this transfer syntax (can decode it)

Reimplemented from [gdcm::ImageCodec](#).

10.255.3.5 `virtual ImageCodec* gdcM::RLECodec::Clone () const` `[virtual]`

Implements [gdcM::ImageCodec](#).

10.255.3.6 `bool gdcM::RLECodec::Code (DataElement const & in_, DataElement & out_)` `[virtual]`

Code.

Reimplemented from [gdcM::Coder](#).

10.255.3.7 `bool gdcM::RLECodec::Decode (DataElement const &, DataElement &)` `[virtual]`

Decode.

Reimplemented from [gdcM::ImageCodec](#).

10.255.3.8 `bool gdcM::RLECodec::DecodeByStreams (std::istream & is, std::ostream & os)` `[protected]`, `[virtual]`

Reimplemented from [gdcM::ImageCodec](#).

10.255.3.9 `bool gdcM::RLECodec::DecodeExtent (char * buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream & is)` `[protected]`

10.255.3.10 `unsigned long gdcM::RLECodec::GetBufferLength () const` `[inline]`

10.255.3.11 `bool gdcM::RLECodec::GetHeaderInfo (std::istream & is, TransferSyntax & ts)` `[virtual]`

Reimplemented from [gdcM::ImageCodec](#).

10.255.3.12 `bool gdcM::RLECodec::IsFrameEncoder ()` `[protected]`, `[virtual]`

Reimplemented from [gdcM::ImageCodec](#).

10.255.3.13 `bool gdcM::RLECodec::IsRowEncoder ()` `[protected]`, `[virtual]`

Reimplemented from [gdcM::ImageCodec](#).

10.255.3.14 void gdcm::RLECodec::SetBufferLength (unsigned long /) [inline]

10.255.3.15 void gdcm::RLECodec::SetLength (unsigned long /) [inline]

10.255.3.16 bool gdcm::RLECodec::StartEncode (std::ostream &) [protected],[virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.255.3.17 bool gdcm::RLECodec::StopEncode (std::ostream &) [protected],[virtual]

Reimplemented from [gdcm::ImageCodec](#).

10.255.4 Friends And Related Function Documentation

10.255.4.1 friend class ImageRegionReader [friend]

The documentation for this class was generated from the following file:

- [gdcmRLECodec.h](#)

10.256 gdcm::network::RoleSelectionSub Class Reference

[RoleSelectionSub](#) PS 3.7 [Table D.3-9](#) SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

```
#include <gdcmRoleSelectionSub.h>
```

Public Member Functions

- [RoleSelectionSub](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetTuple](#) (const char *uid, uint8_t scurole, uint8_t scprole)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.256.1 Detailed Description

[RoleSelectionSub](#) PS 3.7 [Table D.3-9](#) SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

10.256.2 Constructor & Destructor Documentation

10.256.2.1 `gdcmm::network::RoleSelectionSub::RoleSelectionSub ()`

10.256.3 Member Function Documentation

10.256.3.1 `void gdcmm::network::RoleSelectionSub::Print (std::ostream & os) const`

10.256.3.2 `std::istream& gdcmm::network::RoleSelectionSub::Read (std::istream & is)`

10.256.3.3 `void gdcmm::network::RoleSelectionSub::SetTuple (const char * uid, uint8_t scurole, uint8_t scprole)`

10.256.3.4 `size_t gdcmm::network::RoleSelectionSub::Size () const`

10.256.3.5 `const std::ostream& gdcmm::network::RoleSelectionSub::Write (std::ostream & os) const`

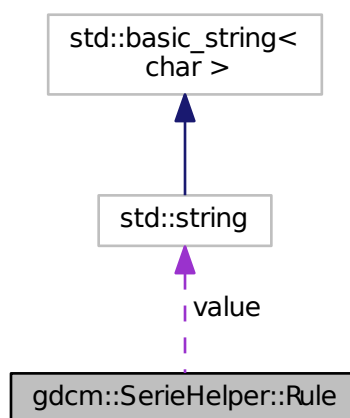
The documentation for this class was generated from the following file:

- [gdcmmRoleSelectionSub.h](#)

10.257 gdcmm::SerieHelper::Rule Struct Reference

```
#include <gdcmmSerieHelper.h>
```

Collaboration diagram for `gdcmm::SerieHelper::Rule`:



Public Attributes

- uint16_t [elem](#)
- uint16_t [group](#)
- int [op](#)
- std::string [value](#)

10.257.1 Member Data Documentation

10.257.1.1 uint16_t gdcm::SerieHelper::Rule::elem

10.257.1.2 uint16_t gdcm::SerieHelper::Rule::group

10.257.1.3 int gdcm::SerieHelper::Rule::op

10.257.1.4 std::string gdcm::SerieHelper::Rule::value

The documentation for this struct was generated from the following file:

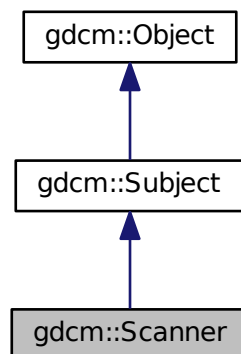
- [gdcmSerieHelper.h](#)

10.258 gdcm::Scanner Class Reference

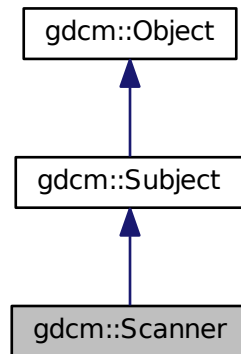
[Scanner](#) This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).

```
#include <gdcmScanner.h>
```

Inheritance diagram for gdcm::Scanner:



Collaboration diagram for `gdcm::Scanner`:



Classes

- struct [lststr](#)

Public Types

- typedef `MappingType::const_iterator` [ConstIterator](#)
- typedef `std::map< const char *, TagToValue, lststr >` [MappingType](#)
- typedef `std::map< Tag, const char * >` [TagToValue](#)
- typedef `TagToValue::value_type` [TagToValueValueType](#)
- typedef `std::set< std::string >` [ValuesType](#)

Public Member Functions

- [Scanner](#) ()
- [~Scanner](#) ()
- void [AddPrivateTag](#) ([PrivateTag](#) const &t)
- void [AddSkipTag](#) ([Tag](#) const &t)
Add a tag that will need to be skipped. Those are root level skip tags.
- void [AddTag](#) ([Tag](#) const &t)
Add a tag that will need to be read. Those are root level tags.
- [ConstIterator](#) [Begin](#) () const
- void [ClearSkipTags](#) ()
- void [ClearTags](#) ()
- [ConstIterator](#) [End](#) () const
- [Directory::FilenameType](#) [GetAllFileNamesFromTagToValue](#) ([Tag](#) const &t, const char *valuref) const
- const char * [GetFilenameFromTagToValue](#) ([Tag](#) const &t, const char *valuref) const

- [Directory::FilenamesType](#) const & [GetFilenames](#) () const
- [Directory::FilenamesType](#) [GetKeys](#) () const
- [TagToValue](#) const & [GetMapping](#) (const char *filename) const
Get the std::map mapping filenames to value for file 'filename'.
- [TagToValue](#) const & [GetMappingFromTagToValue](#) ([Tag](#) const &t, const char *value) const
See [GetFilenameFromTagToValue\(\)](#). This is simply [GetFilenameFromTagToValue](#) followed.
- [MappingType](#) const & [GetMappings](#) () const
Mappings are the mapping from a particular tag to the map, mapping filename to value:
- [Directory::FilenamesType](#) [GetOrderedValues](#) ([Tag](#) const &t) const
- const char * [GetValue](#) (const char *filename, [Tag](#) const &t) const
- [ValuesType](#) const & [GetValues](#) () const
Get all the values found (in lexicographic order)
- [ValuesType](#) [GetValues](#) ([Tag](#) const &t) const
Get all the values found (in lexicographic order) associated with [Tag](#) 't'.
- bool [IsKey](#) (const char *filename) const
- void [Print](#) (std::ostream &os) const
Print result.
- bool [Scan](#) ([Directory::FilenamesType](#) const &filenames)
Start the scan !

Static Public Member Functions

- static [SmartPointer](#)< [Scanner](#) > [New](#) ()
for wrapped language: instantiate a reference counted object

Protected Member Functions

- void [ProcessPublicTag](#) ([StringFilter](#) &sf, const char *filename)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Scanner](#) &s)

10.258.1 Detailed Description

[Scanner](#) This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of [StringFilter](#)

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a `std::set` of `std::string`. Then the address of the `cstring` underlying the `std::string` is used in the `std::map`.

This class implement the Subject/Observer pattern trigger the following events:

- [ProgressEvent](#)
- [StartEvent](#)
- [EndEvent](#)

Examples:

[DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.258.2 Member Typedef Documentation

10.258.2.1 `typedef MappingType::const_iterator gdcm::Scanner::ConstIterator`

10.258.2.2 `typedef std::map<const char *, TagToValue, Itstr> gdcm::Scanner::MappingType`

10.258.2.3 `typedef std::map<Tag, const char*> gdcm::Scanner::TagToValue`

struct to map a filename to a value Implementation note: all `std::map` in this class will be using `const char *` and not `std::string` since we are pointing to existing `std::string` (hold in a `std::vector`) this avoid an extra copy of the byte array. [Tag](#) are used as [Tag](#) class since `sizeof(tag) <= sizeof(pointer)`

10.258.2.4 `typedef TagToValue::value_type gdcm::Scanner::TagToValueValueType`

10.258.2.5 `typedef std::set< std::string > gdcm::Scanner::ValuesType`

10.258.3 Constructor & Destructor Documentation

10.258.3.1 `gdcm::Scanner::Scanner () [inline]`

10.258.3.2 `gdcm::Scanner::~~Scanner ()`

10.258.4 Member Function Documentation

10.258.4.1 `void gdcm::Scanner::AddPrivateTag (PrivateTag const & t)`

10.258.4.2 `void gdcm::Scanner::AddSkipTag (Tag const & t)`

Add a tag that will need to be skipped. Those are root level skip tags.

10.258.4.3 void gdcm::Scanner::AddTag (Tag const & t)

Add a tag that will need to be read. Those are root level tags.

Examples:

[DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.258.4.4 ConstIterator gdcm::Scanner::Begin () const [inline]

10.258.4.5 void gdcm::Scanner::ClearSkipTags ()

10.258.4.6 void gdcm::Scanner::ClearTags ()

10.258.4.7 ConstIterator gdcm::Scanner::End () const [inline]

10.258.4.8 Directory::FileNamesType gdcm::Scanner::GetAllFileNamesFromTagToValue (Tag const & t, const char * *valuref*) const

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valuref'

10.258.4.9 const char* gdcm::Scanner::GetFilenameFromTagToValue (Tag const & t, const char * *valuref*) const

Will loop over all files and return the first file where value match the reference value 'valuref'

10.258.4.10 Directory::FileNamesType const& gdcm::Scanner::GetFileNames () const [inline]

10.258.4.11 Directory::FileNamesType gdcm::Scanner::GetKeys () const

Return the list of filename that are key in the internal map, which means those filename were properly parsed

Examples:

[VolumeSorter.cxx](#).

10.258.4.12 TagToValue const& gdcm::Scanner::GetMapping (const char * *filename*) const

Get the std::map mapping filenames to value for file 'filename'.

Examples:

[DumpToSQLITE3.cxx](#).

10.258.4.13 **TagToValue** const& gdcm::Scanner::GetMappingFromTagToValue (Tag const & *t*, const char * *value*) const

See [GetFilenameFromTagToValue\(\)](#). This is simply GetFilenameFromTagToValue followed.

10.258.4.14 **MappingType** const& gdcm::Scanner::GetMappings () const [inline]

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.258.4.15 **Directory::FileNamesType** gdcm::Scanner::GetOrderedValues (Tag const & *t*) const

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.258.4.16 const char* gdcm::Scanner::GetValue (const char * *filename*, Tag const & *t*) const

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via [AddTag\(\)](#) prior to the [Scan\(\)](#) call !

10.258.4.17 **ValuesType** const& gdcm::Scanner::GetValues () const [inline]

Get all the values found (in lexicographic order)

Examples:

[SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.258.4.18 **ValuesType** gdcm::Scanner::GetValues (Tag const & *t*) const

Get all the values found (in lexicographic order) associated with Tag 't'.

10.258.4.19 bool gdcm::Scanner::IsKey (const char * *filename*) const

Check if filename is a key in the Mapping table. returns true only if file can be found, which means the file was indeed a DICOM file that could be processed

Examples:

[DumpToSQLITE3.cxx](#).

10.258.4.20 `static SmartPointer<Scanner> gdcm::Scanner::New ()` `[inline],[static]`

for wrapped language: instanciate a reference counted object

10.258.4.21 `void gdcm::Scanner::Print (std::ostream & os) const` `[virtual]`

Print result.

Reimplemented from [gdcm::Object](#).

Referenced by `gdcm::operator<<()`.

10.258.4.22 `void gdcm::Scanner::ProcessPublicTag (StringFilter & sf, const char * filename)` `[protected]`

10.258.4.23 `bool gdcm::Scanner::Scan (Directory::FileNamesType const & filenames)`

Start the scan !

Examples:

[DiscriminateVolume.cxx](#), [DumpToSQLITE3.cxx](#), [SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.258.5 Friends And Related Function Documentation

10.258.5.1 `std::ostream& operator<< (std::ostream & _os, const Scanner & s)` `[friend]`

The documentation for this class was generated from the following file:

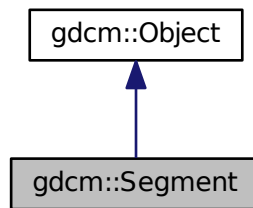
- [gdcmScanner.h](#)

10.259 gdcm::Segment Class Reference

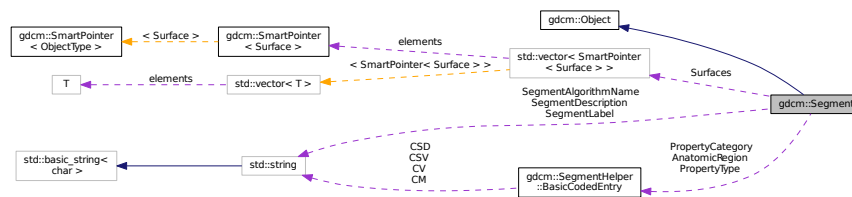
This class defines a segment. It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

```
#include <gdcmSegment.h>
```

Inheritance diagram for gdcm::Segment:



Collaboration diagram for gdcm::Segment:



Public Types

- enum `ALGOType` {
`MANUAL` = 0,
`AUTOMATIC`,
`ALGOType_END` }
- typedef `std::vector< SmartPointer< Surface > >` `SurfaceVector`

Public Member Functions

- [Segment](#) ()
- virtual [~Segment](#) ()
- void [AddSurface](#) ([SmartPointer](#)< [Surface](#) > surface)
- [SegmentHelper::BasicCodedEntry](#) const & [GetAnatomicRegion](#) () const
- [SegmentHelper::BasicCodedEntry](#) & [GetAnatomicRegion](#) ()
- [SegmentHelper::BasicCodedEntry](#) const & [GetPropertyCategory](#) () const
- [SegmentHelper::BasicCodedEntry](#) & [GetPropertyCategory](#) ()
- [SegmentHelper::BasicCodedEntry](#) const & [GetPropertyType](#) () const
- [SegmentHelper::BasicCodedEntry](#) & [GetPropertyType](#) ()
- const char * [GetSegmentAlgorithmName](#) () const
- [ALGOType](#) [GetSegmentAlgorithmType](#) () const
- const char * [GetSegmentDescription](#) () const
- const char * [GetSegmentLabel](#) () const
- unsigned short [GetSegmentNumber](#) () const
- [SmartPointer](#)< [Surface](#) > [GetSurface](#) (const unsigned int idx=0) const
- unsigned long [GetSurfaceCount](#) ()
- [SurfaceVector](#) const & [GetSurfaces](#) () const
- [SurfaceVector](#) & [GetSurfaces](#) ()
- void [SetAnatomicRegion](#) ([SegmentHelper::BasicCodedEntry](#) const &BSE)
- void [SetPropertyCategory](#) ([SegmentHelper::BasicCodedEntry](#) const &BSE)
- void [SetPropertyType](#) ([SegmentHelper::BasicCodedEntry](#) const &BSE)
- void [SetSegmentAlgorithmName](#) (const char *name)
- void [SetSegmentAlgorithmType](#) ([ALGOType](#) type)
- void [SetSegmentAlgorithmType](#) (const char *typeStr)
- void [SetSegmentDescription](#) (const char *description)
- void [SetSegmentLabel](#) (const char *label)
- void [SetSegmentNumber](#) (const unsigned short num)
- void [SetSurfaceCount](#) (const unsigned long nb)

Static Public Member Functions

- static [ALGOType](#) [GetALGOType](#) (const char *type)
- static const char * [GetALGOTypeString](#) ([ALGOType](#) type)

Protected Attributes

- [SegmentHelper::BasicCodedEntry](#) [AnatomicRegion](#)
- [SegmentHelper::BasicCodedEntry](#) [PropertyCategory](#)
- [SegmentHelper::BasicCodedEntry](#) [PropertyType](#)
- std::string [SegmentAlgorithmName](#)
- [ALGOType](#) [SegmentAlgorithmType](#)
- std::string [SegmentDescription](#)
- std::string [SegmentLabel](#)
- unsigned short [SegmentNumber](#)
- unsigned long [SurfaceCount](#)
- [SurfaceVector](#) [Surfaces](#)

Additional Inherited Members

10.259.1 Detailed Description

This class defines a segment. It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

See also

PS 3.3 C.8.20.2 and C.8.23

10.259.2 Member Typedef Documentation

10.259.2.1 `typedef std::vector< SmartPointer< Surface > > gdcmm::Segment::SurfaceVector`

10.259.3 Member Enumeration Documentation

10.259.3.1 `enum gdcmm::Segment::ALGOType`

Enumerator

MANUAL

AUTOMATIC

ALGOType_END

10.259.4 Constructor & Destructor Documentation

10.259.4.1 `gdcmm::Segment::Segment ()`

10.259.4.2 `virtual gdcmm::Segment::~~Segment ()` `[virtual]`

10.259.5 Member Function Documentation

10.259.5.1 `void gdcmm::Segment::AddSurface (SmartPointer< Surface > surface)`

10.259.5.2 `static ALGOType gdcmm::Segment::GetALGOType (const char * type)` `[static]`

10.259.5.3 `static const char* gdcmm::Segment::GetALGOTypeString (ALGOType type)` `[static]`

10.259.5.4 `SegmentHelper::BasicCodedEntry const& gdcmm::Segment::GetAnatomicRegion () const`

10.259.5.5 `SegmentHelper::BasicCodedEntry& gdcmm::Segment::GetAnatomicRegion ()`

- 10.259.5.6 `SegmentHelper::BasicCodedEntry const& gdcm::Segment::GetPropertyCategory () const`
- 10.259.5.7 `SegmentHelper::BasicCodedEntry& gdcm::Segment::GetPropertyCategory ()`
- 10.259.5.8 `SegmentHelper::BasicCodedEntry const& gdcm::Segment::GetPropertyType () const`
- 10.259.5.9 `SegmentHelper::BasicCodedEntry& gdcm::Segment::GetPropertyType ()`
- 10.259.5.10 `const char* gdcm::Segment::GetSegmentAlgorithmName () const`
- 10.259.5.11 `ALGOType gdcm::Segment::GetSegmentAlgorithmType () const`
- 10.259.5.12 `const char* gdcm::Segment::GetSegmentDescription () const`
- 10.259.5.13 `const char* gdcm::Segment::GetSegmentLabel () const`
- 10.259.5.14 `unsigned short gdcm::Segment::GetSegmentNumber () const`
- 10.259.5.15 `SmartPointer< Surface > gdcm::Segment::GetSurface (const unsigned int idx = 0) const`
- 10.259.5.16 `unsigned long gdcm::Segment::GetSurfaceCount ()`
- 10.259.5.17 `SurfaceVector const& gdcm::Segment::GetSurfaces () const`
- 10.259.5.18 `SurfaceVector& gdcm::Segment::GetSurfaces ()`
- 10.259.5.19 `void gdcm::Segment::SetAnatomicRegion (SegmentHelper::BasicCodedEntry const & BSE)`
- 10.259.5.20 `void gdcm::Segment::SetPropertyCategory (SegmentHelper::BasicCodedEntry const & BSE)`
- 10.259.5.21 `void gdcm::Segment::SetPropertyType (SegmentHelper::BasicCodedEntry const & BSE)`
- 10.259.5.22 `void gdcm::Segment::SetSegmentAlgorithmName (const char * name)`
- 10.259.5.23 `void gdcm::Segment::SetSegmentAlgorithmType (ALGOType type)`
- 10.259.5.24 `void gdcm::Segment::SetSegmentAlgorithmType (const char * typeStr)`
- 10.259.5.25 `void gdcm::Segment::SetSegmentDescription (const char * description)`
- 10.259.5.26 `void gdcm::Segment::SetSegmentLabel (const char * label)`

10.259.5.27 `void gdcm::Segment::SetSegmentNumber (const unsigned short num)`

10.259.5.28 `void gdcm::Segment::SetSurfaceCount (const unsigned long nb)`

10.259.6 Member Data Documentation

10.259.6.1 `SegmentHelper::BasicCodedEntry gdcm::Segment::AnatomicRegion` `[protected]`

10.259.6.2 `SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyCategory` `[protected]`

10.259.6.3 `SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyType` `[protected]`

10.259.6.4 `std::string gdcm::Segment::SegmentAlgorithmName` `[protected]`

10.259.6.5 `ALGOType gdcm::Segment::SegmentAlgorithmType` `[protected]`

10.259.6.6 `std::string gdcm::Segment::SegmentDescription` `[protected]`

10.259.6.7 `std::string gdcm::Segment::SegmentLabel` `[protected]`

10.259.6.8 `unsigned short gdcm::Segment::SegmentNumber` `[protected]`

10.259.6.9 `unsigned long gdcm::Segment::SurfaceCount` `[protected]`

10.259.6.10 `SurfaceVector gdcm::Segment::Surfaces` `[protected]`

The documentation for this class was generated from the following file:

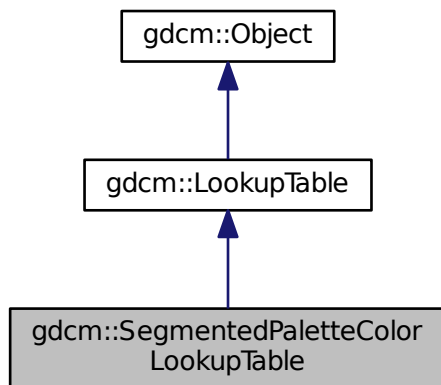
- [gdcmSegment.h](#)

10.260 gdcm::SegmentedPaletteColorLookupTable Class Reference

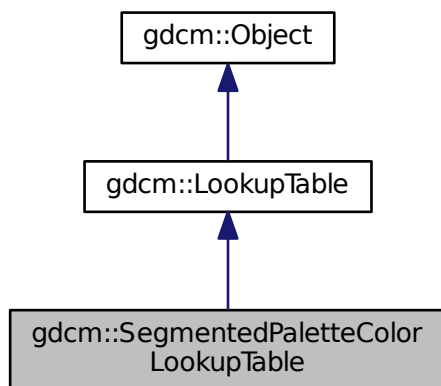
[SegmentedPaletteColorLookupTable](#) class.

```
#include <gdcmSegmentedPaletteColorLookupTable.h>
```

Inheritance diagram for gdcm::SegmentedPaletteColorLookupTable:



Collaboration diagram for gdcm::SegmentedPaletteColorLookupTable:



Public Member Functions

- [SegmentedPaletteColorLookupTable](#) ()
- [~SegmentedPaletteColorLookupTable](#) ()
- void [Print](#) (std::ostream &) const
- void [SetLUT](#) ([LookupTableType](#) type, const unsigned char *array, unsigned int length)
Initialize a [SegmentedPaletteColorLookupTable](#).

Additional Inherited Members

10.260.1 Detailed Description

[SegmentedPaletteColorLookupTable](#) class.

10.260.2 Constructor & Destructor Documentation

10.260.2.1 `gdcmm::SegmentedPaletteColorLookupTable::SegmentedPaletteColorLookupTable ()`

10.260.2.2 `gdcmm::SegmentedPaletteColorLookupTable::~~SegmentedPaletteColorLookupTable ()`

10.260.3 Member Function Documentation

10.260.3.1 `void gdcmm::SegmentedPaletteColorLookupTable::Print (std::ostream &) const` `[inline]`, `[virtual]`

Reimplemented from [gdcmm::LookupTable](#).

10.260.3.2 `void gdcmm::SegmentedPaletteColorLookupTable::SetLUT (LookupTableType type, const unsigned char * array, unsigned int length)` `[virtual]`

Initialize a [SegmentedPaletteColorLookupTable](#).

Reimplemented from [gdcmm::LookupTable](#).

The documentation for this class was generated from the following file:

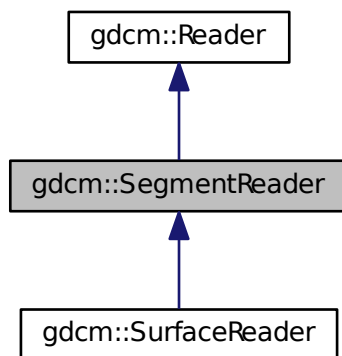
- [gdcmmSegmentedPaletteColorLookupTable.h](#)

10.261 gdcm::SegmentReader Class Reference

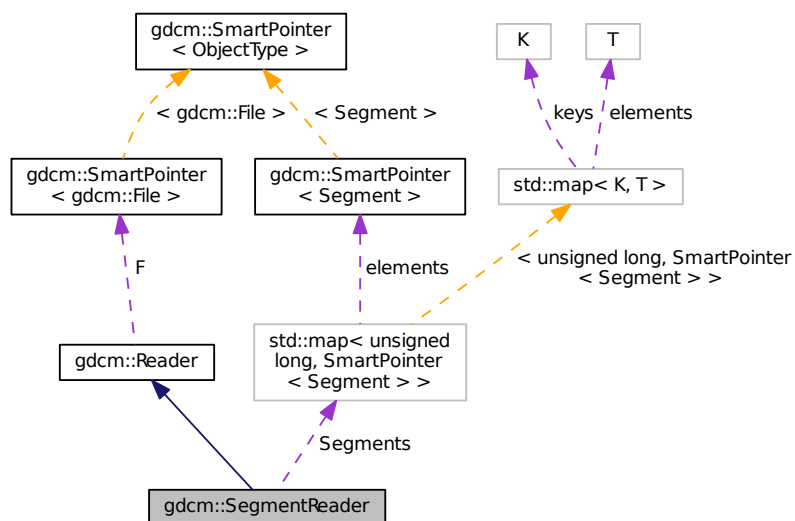
This class defines a segment reader. It reads attributes of group 0x0062.

```
#include <gdcmSegmentReader.h>
```

Inheritance diagram for gdcm::SegmentReader:



Collaboration diagram for gdcm::SegmentReader:



Public Types

- typedef std::vector< [SmartPointer](#)< [Segment](#) > > [SegmentVector](#)

Public Member Functions

- [SegmentReader](#) ()
- virtual [~SegmentReader](#) ()
- const [SegmentVector](#) [GetSegments](#) () const
- [SegmentVector](#) [GetSegments](#) ()
- virtual bool [Read](#) ()

Read.

Protected Types

- typedef std::map< unsigned long, [SmartPointer](#)< [Segment](#) > > [SegmentMap](#)

Protected Member Functions

- bool [ReadSegment](#) (const [Item](#) &segmentItem, const unsigned int idx)
- bool [ReadSegments](#) ()

Protected Attributes

- [SegmentMap](#) [Segments](#)

10.261.1 Detailed Description

This class defines a segment reader. It reads attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

10.261.2 Member Typedef Documentation

10.261.2.1 `typedef std::map< unsigned long, SmartPointer< Segment > > gdcM::SegmentReader::SegmentMap`
[protected]

10.261.2.2 `typedef std::vector< SmartPointer< Segment > > gdcM::SegmentReader::SegmentVector`

10.261.3 Constructor & Destructor Documentation

10.261.3.1 `gdcM::SegmentReader::SegmentReader ()`

10.261.3.2 `virtual gdcM::SegmentReader::~~SegmentReader ()` [virtual]

10.261.4 Member Function Documentation

10.261.4.1 `const SegmentVector gdcM::SegmentReader::GetSegments () const`

10.261.4.2 `SegmentVector gdcM::SegmentReader::GetSegments ()`

10.261.4.3 `virtual bool gdcM::SegmentReader::Read ()` [virtual]

Read.

Reimplemented from [gdcM::Reader](#).

Reimplemented in [gdcM::SurfaceReader](#).

10.261.4.4 `bool gdcM::SegmentReader::ReadSegment (const Item & segmentItem, const unsigned int idx)` [protected]

10.261.4.5 `bool gdcM::SegmentReader::ReadSegments ()` [protected]

10.261.5 Member Data Documentation

10.261.5.1 `SegmentMap gdcM::SegmentReader::Segments` [protected]

The documentation for this class was generated from the following file:

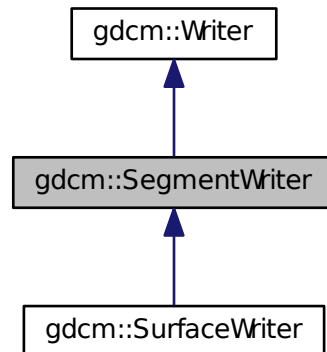
- [gdcMSegmentReader.h](#)

10.262 gdcm::SegmentWriter Class Reference

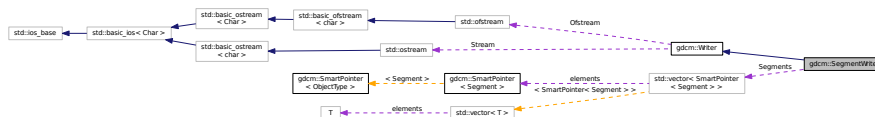
This class defines a segment writer. It writes attributes of group 0x0062.

```
#include <gdcmSegmentWriter.h>
```

Inheritance diagram for gdcm::SegmentWriter:



Collaboration diagram for gdcm::SegmentWriter:



Public Types

- typedef `std::vector< SmartPointer<Segment> >` `SegmentVector`

Public Member Functions

- `SegmentWriter ()`
- `virtual ~SegmentWriter ()`
- `void AddSegment (SmartPointer<Segment> segment)`
- `unsigned int GetNumberOfSegments () const`
- `SmartPointer<Segment> GetSegment (const unsigned int idx=0) const`
- `const SegmentVector & GetSegments () const`
- `SegmentVector & GetSegments ()`
- `void SetNumberOfSegments (const unsigned int size)`
- `void SetSegments (SegmentVector &segments)`
- `bool Write ()`

Write.

Protected Member Functions

- bool [PrepareWrite](#) ()

Protected Attributes

- [SegmentVector](#) [Segments](#)

10.262.1 Detailed Description

This class defines a segment writer. It writes attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

10.262.2 Member Typedef Documentation

10.262.2.1 `typedef std::vector< SmartPointer< Segment > > gdcm::SegmentWriter::SegmentVector`

10.262.3 Constructor & Destructor Documentation

10.262.3.1 `gdcm::SegmentWriter::SegmentWriter ()`

10.262.3.2 `virtual gdcm::SegmentWriter::~~SegmentWriter ()` `[virtual]`

10.262.4 Member Function Documentation

10.262.4.1 `void gdcm::SegmentWriter::AddSegment (SmartPointer< Segment > segment)`

10.262.4.2 `unsigned int gdcm::SegmentWriter::GetNumberOfSegments ()` `const`

10.262.4.3 `SmartPointer< Segment > gdcm::SegmentWriter::GetSegment (const unsigned int idx = 0)` `const`

10.262.4.4 `const SegmentVector& gdcm::SegmentWriter::GetSegments ()` `const`

10.262.4.5 `SegmentVector& gdcm::SegmentWriter::GetSegments ()`

10.262.4.6 `bool gdcm::SegmentWriter::PrepareWrite ()` `[protected]`

10.262.4.7 `void gdcm::SegmentWriter::SetNumberOfSegments (const unsigned int size)`

10.262.4.8 `void gdcm::SegmentWriter::SetSegments (SegmentVector & segments)`

10.262.4.9 `bool gdcm::SegmentWriter::Write ()` `[virtual]`

Write.

Reimplemented from [gdcm::Writer](#).

Reimplemented in [gdcm::SurfaceWriter](#).

10.262.5 Member Data Documentation

10.262.5.1 SegmentVector gdcmm::SegmentWriter::Segments [protected]

The documentation for this class was generated from the following file:

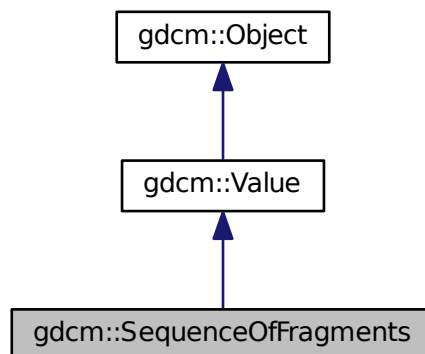
- [gdcmmSegmentWriter.h](#)

10.263 gdcmm::SequenceOfFragments Class Reference

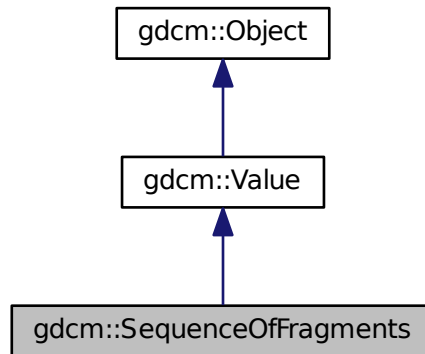
Class to represent a Sequence Of Fragments.

```
#include <gdcmmSequenceOfFragments.h>
```

Inheritance diagram for gdcmm::SequenceOfFragments:



Collaboration diagram for gdcm::SequenceOfFragments:



Public Types

- typedef `FragmentVector::const_iterator` [ConstIterator](#)
- typedef `std::vector< Fragment >` [FragmentVector](#)
- typedef `FragmentVector::iterator` [Iterator](#)
- typedef `FragmentVector::size_type` [SizeType](#)

Public Member Functions

- [SequenceOfFragments](#) ()
constructor (UndefinedLength by default)
- void [AddFragment](#) ([Fragment](#) const &item)
Appends a [Fragment](#) to the already added ones.
- [Iterator](#) [Begin](#) ()
- [ConstIterator](#) [Begin](#) () const
- void [Clear](#) ()
Clear.
- unsigned long [ComputeByteLength](#) () const
- [VL](#) [ComputeLength](#) () const
- [Iterator](#) [End](#) ()
- [ConstIterator](#) [End](#) () const
- bool [GetBuffer](#) (char *buffer, unsigned long length) const
- bool [GetFragBuffer](#) (unsigned int fragNb, char *buffer, unsigned long &length) const
- const [Fragment](#) & [GetFragment](#) ([SizeType](#) num) const
- [VL](#) [GetLength](#) () const
Returns the SQ length, as read from disk.
- [SizeType](#) [GetNumberOfFragments](#) () const
- const [BasicOffsetTable](#) & [GetTable](#) () const

- [BasicOffsetTable](#) & [GetTable](#) ()
- bool [operator==](#) (const [Value](#) &val) const
- void [Print](#) (std::ostream &os) const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool)
- void [SetLength](#) (VL length)
Sets the actual SQ length.
- template<typename TSwap >
std::ostream const & [Write](#) (std::ostream &os) const
- bool [WriteBuffer](#) (std::ostream &os) const

Static Public Member Functions

- static [SmartPointer](#)< [SequenceOfFragments](#) > [New](#) ()

Additional Inherited Members

10.263.1 Detailed Description

Class to represent a Sequence Of Fragments.

Todo I do not enforce that Sequence of Fragments ends with a SQ end del

Examples:

[FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), and [GetJPEGSamplePrecision.cxx](#).

10.263.2 Member Typedef Documentation

10.263.2.1 typedef FragmentVector::const_iterator gdcmm::SequenceOfFragments::ConstIterator

10.263.2.2 typedef std::vector<Fragment> gdcmm::SequenceOfFragments::FragmentVector

10.263.2.3 typedef FragmentVector::iterator gdcmm::SequenceOfFragments::Iterator

10.263.2.4 typedef FragmentVector::size_type gdcmm::SequenceOfFragments::SizeType

10.263.3 Constructor & Destructor Documentation

10.263.3.1 gdcmm::SequenceOfFragments::SequenceOfFragments () [inline]

constructor (UndefinedLength by default)

10.263.4 Member Function Documentation

10.263.4.1 void gdcm::SequenceOfFragments::AddFragment (**Fragment** const & *item*)

Appends a [Fragment](#) to the already added ones.

Examples:

[FixBrokenJ2K.cxx](#).

10.263.4.2 Iterator gdcm::SequenceOfFragments::Begin () [inline]

10.263.4.3 ConstIterator gdcm::SequenceOfFragments::Begin () const [inline]

10.263.4.4 void gdcm::SequenceOfFragments::Clear () [virtual]

Clear.

Implements [gdcm::Value](#).

10.263.4.5 unsigned long gdcm::SequenceOfFragments::ComputeByteLength () const

10.263.4.6 VL gdcm::SequenceOfFragments::ComputeLength () const

10.263.4.7 Iterator gdcm::SequenceOfFragments::End () [inline]

10.263.4.8 ConstIterator gdcm::SequenceOfFragments::End () const [inline]

10.263.4.9 bool gdcm::SequenceOfFragments::GetBuffer (char * *buffer*, unsigned long *length*) const

10.263.4.10 bool gdcm::SequenceOfFragments::GetFragBuffer (unsigned int *fragNb*, char * *buffer*, unsigned long & *length*) const

10.263.4.11 const **Fragment**& gdcm::SequenceOfFragments::GetFragment (**SizeType** *num*) const

Examples:

[FixBrokenJ2K.cxx](#), and [FixJAIBugJPEGLS.cxx](#).

10.263.4.12 VL gdcm::SequenceOfFragments::GetLength () const [inline],[virtual]

Returns the SQ length, as read from disk.

Implements [gdcm::Value](#).

10.263.4.13 **SizeType** `gdcM::SequenceOfFragments::GetNumberOfFragments () const`

Examples:

[FixJAIBugJPEGs.cxx](#).

10.263.4.14 **const BasicOffsetTable&** `gdcM::SequenceOfFragments::GetTable () const` `[inline]`

10.263.4.15 **BasicOffsetTable&** `gdcM::SequenceOfFragments::GetTable ()` `[inline]`

10.263.4.16 **static SmartPointer<SequenceOfFragments>** `gdcM::SequenceOfFragments::New ()` `[inline]`,
`[static]`

10.263.4.17 **bool** `gdcM::SequenceOfFragments::operator== (const Value & val) const` `[inline]`,`[virtual]`

Implements [gdcM::Value](#).

10.263.4.18 **void** `gdcM::SequenceOfFragments::Print (std::ostream & os) const` `[inline]`,`[virtual]`

Reimplemented from [gdcM::Object](#).

10.263.4.19 **template<typename TSwap >** `std::istream& gdcM::SequenceOfFragments::Read (std::istream & is, bool readvalues = true)` `[inline]`

10.263.4.20 **template<typename TSwap >** `std::istream& gdcM::SequenceOfFragments::ReadPreValue (std::istream & is)`
`[inline]`

References `gdcMDebugMacro`.

10.263.4.21 **template<typename TSwap >** `std::istream& gdcM::SequenceOfFragments::ReadValue (std::istream & is, bool)`
`[inline]`

References `gdcMAssertAlwaysMacro`, `gdcMDebugMacro`, `gdcMWarningMacro`, `gdcM::Tag::GetElement()`, `gdcM::Tag::GetGroup()`, `gdcM::ByteValue::GetLength()`, `gdcM::ByteValue::GetPointer()`, `gdcM::DataElement::GetTag()`, `gdcM::DataElement::GetVL()`, `gdcM::Fragment::Read()`, `gdcM::Fragment::ReadBacktrack()`, and `gdcM::Exception::what()`.

10.263.4.22 **void** `gdcM::SequenceOfFragments::SetLength (VL length)` `[inline]`,`[virtual]`

Sets the actual SQ length.

Implements [gdcM::Value](#).

10.263.4.23 `template<typename TSwap > std::ostream const& gdcm::SequenceOfFragments::Write (std::ostream & os) const`
`[inline]`

References `gdcm::VL::Write()`.

10.263.4.24 `bool gdcm::SequenceOfFragments::WriteBuffer (std::ostream & os) const`

Examples:

[GetJPEGSamplePrecision.cxx](#).

The documentation for this class was generated from the following file:

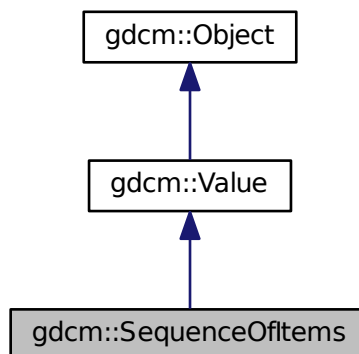
- [gdcmSequenceOfFragments.h](#)

10.264 gdcm::SequenceOfItems Class Reference

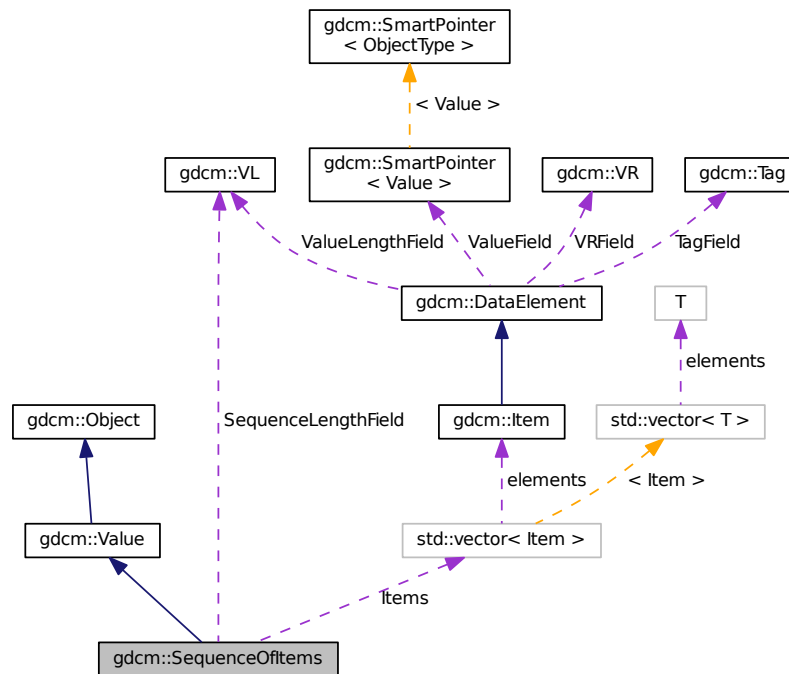
Class to represent a Sequence Of Items (value representation : SQ)

```
#include <gdcmSequenceOfItems.h>
```

Inheritance diagram for `gdcm::SequenceOfItems`:



Collaboration diagram for `gdcmm::SequenceOfItems`:



Public Types

- typedef `ItemVector::const_iterator` [ConstIterator](#)
- typedef `std::vector< Item >` [ItemVector](#)
- typedef `ItemVector::iterator` [Iterator](#)
- typedef `ItemVector::size_type` [SizeType](#)

Public Member Functions

- [SequenceOfItems](#) ()
constructor (UndefinedLength by default)
- void [AddItem](#) ([Item](#) const &item)
Appends an Item to the already added ones.
- [Item](#) & [AddNewUndefinedLengthItem](#) ()
Appends an Item to the already added ones.
- [Iterator](#) [Begin](#) ()
- [ConstIterator](#) [Begin](#) () const
- void [Clear](#) ()
remove all items within the sequence
- template<typename TDE >
[VL ComputeLength](#) () const

- [Iterator End](#) ()
- [ConstIterator End](#) () const
- bool [FindDataElement](#) (const [Tag](#) &t) const
- const [Item](#) & [GetItem](#) ([SizeType](#) position) const
- [Item](#) & [GetItem](#) ([SizeType](#) position)
- [VL GetLength](#) () const
Returns the SQ length, as read from disk.
- [SizeType GetNumberOfItems](#) () const
- bool [IsUndefinedLength](#) () const
return if [Value](#) Length if of undefined length
- [SequenceOfItems](#) & [operator=](#) (const [SequenceOfItems](#) &val)
- bool [operator==](#) (const [Value](#) &val) const
- void [Print](#) (std::ostream &os) const
- template<typename TDE , typename TSwap >
std::istream & [Read](#) (std::istream &is, bool readvalues=true)
- bool [RemoveItemByIndex](#) (const [SizeType](#) index)
- void [SetLength](#) ([VL](#) length)
Sets the actual SQ length.
- void [SetLengthToUndefined](#) ()
Properly set the Sequence of [Item](#) to be undefined length.
- void [SetNumberOfItems](#) ([SizeType](#) n)
- template<typename TDE , typename TSwap >
std::ostream const & [Write](#) (std::ostream &os) const

Static Public Member Functions

- static [SmartPointer](#)< [SequenceOfItems](#) > [New](#) ()

Public Attributes

- [ItemVector](#) [Items](#)
Vector of Sequence Items.
- [VL SequenceLengthField](#)
Total length of the Sequence (or 0xffffffff if undefined).

Additional Inherited Members

10.264.1 Detailed Description

Class to represent a Sequence Of Items (value representation : SQ)

- a [Value](#) Representation for Data Elements that contains a sequence of Data Sets.
- Sequence of [Item](#) allows for Nested Data Sets

See PS 3.5, 7.4.6 Data [Element Type](#) Within a Sequence

Note

SEQUENCE OF ITEMS (VALUE REPRESENTATION SQ) A [Value](#) Representation for Data Elements that contain a sequence of Data Sets. Sequence of Items allows for Nested Data Sets.

Examples:

[DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllIVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSequenceUltrasound.cxx](#), and [ReadExplicitLengthSQIVR.cxx](#).

10.264.2 Member Typedef Documentation

10.264.2.1 `typedef ItemVector::const_iterator gdcm::SequenceOfItems::ConstIterator`

10.264.2.2 `typedef std::vector< Item > gdcm::SequenceOfItems::ItemVector`

10.264.2.3 `typedef ItemVector::iterator gdcm::SequenceOfItems::Iterator`

10.264.2.4 `typedef ItemVector::size_type gdcm::SequenceOfItems::SizeType`

10.264.3 Constructor & Destructor Documentation

10.264.3.1 `gdcm::SequenceOfItems::SequenceOfItems () [inline]`

constructor (UndefinedLength by default)

10.264.4 Member Function Documentation

10.264.4.1 `void gdcm::SequenceOfItems::AddItem (Item const & item)`

Appends an [Item](#) to the already added ones.

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllIVR.cxx](#), [GenLongSeqs.cxx](#), and [GenSeqs.cxx](#).

10.264.4.2 `Item& gdcm::SequenceOfItems::AddNewUndefinedLengthItem ()`

Appends an [Item](#) to the already added ones.

10.264.4.3 **Iterator** gdcmm::SequenceOfItems::Begin () [inline]

10.264.4.4 **ConstIterator** gdcmm::SequenceOfItems::Begin () const [inline]

10.264.4.5 **void** gdcmm::SequenceOfItems::Clear () [virtual]

remove all items within the sequence

Implements [gdcmm::Value](#).

10.264.4.6 **template<typename TDE > VL** gdcmm::SequenceOfItems::ComputeLength () const

10.264.4.7 **Iterator** gdcmm::SequenceOfItems::End () [inline]

10.264.4.8 **ConstIterator** gdcmm::SequenceOfItems::End () const [inline]

10.264.4.9 **bool** gdcmm::SequenceOfItems::FindDataElement (const Tag & t) const

10.264.4.10 **const Item&** gdcmm::SequenceOfItems::GetItem (SizeType *position*) const

Examples:

[ChangeSequenceUltrasound.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ExtractEncryptedContent.cxx](#), [gdcmmrionplan.cxx](#), [gdcmmrtplan.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [LargeVRDSExplicit.cxx](#), and [ReadAndDumpDICOMDIR.cxx](#).

10.264.4.11 **Item&** gdcmm::SequenceOfItems::GetItem (SizeType *position*)

10.264.4.12 **VL** gdcmm::SequenceOfItems::GetLength () const [inline],[virtual]

Returns the SQ length, as read from disk.

Implements [gdcmm::Value](#).

10.264.4.13 **SizeType** gdcmm::SequenceOfItems::GetNumberOfItems () const [inline]

Examples:

[ChangeSequenceUltrasound.cxx](#), [DumpExamCard.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECHO.cxx](#), [DumpToshibaDTI.cxx](#), [ExtractEncryptedContent.cxx](#), [gdcmmrionplan.cxx](#), [gdcmmrtplan.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), and [LargeVRDSExplicit.cxx](#).

10.264.4.14 `bool gdcM::SequenceOfItems::IsUndefinedLength () const [inline]`

return if [Value](#) Length if of undefined length

10.264.4.15 `static SmartPointer<SequenceOfItems> gdcM::SequenceOfItems::New () [inline],[static]`

Examples:

[NewSequence.cs](#).

10.264.4.16 `SequenceOfItems& gdcM::SequenceOfItems::operator= (const SequenceOfItems & val) [inline]`

References [Items](#), and [SequenceLengthField](#).

10.264.4.17 `bool gdcM::SequenceOfItems::operator== (const Value & val) const [inline],[virtual]`

Implements [gdcM::Value](#).

References [Items](#), and [SequenceLengthField](#).

10.264.4.18 `void gdcM::SequenceOfItems::Print (std::ostream & os) const [inline],[virtual]`

Reimplemented from [gdcM::Object](#).

10.264.4.19 `template<typename TDE , typename TSwap > std::istream& gdcM::SequenceOfItems::Read (std::istream & is, bool readvalues = true) [inline]`

Examples:

[ReadExplicitLengthSQIVR.cxx](#).

References [gdcM::Item::Clear\(\)](#), [gdcMDebugMacro](#), [gdcMWarningMacro](#), [gdcM::Exception::GetDescription\(\)](#), [gdcM↔::Item::GetNestedDataSet\(\)](#), [gdcM::DataElement::GetTag\(\)](#), [gdcM::DataElement::GetVL\(\)](#), [gdcM::Item::Read\(\)](#), and [gdcM::DataSet::Size\(\)](#).

10.264.4.20 `bool gdcM::SequenceOfItems::RemoveItemByIndex (const SizeType index)`

Remove an [Item](#) as specified by its index, if index > size, false is returned Index starts at 1 not 0

10.264.4.21 void gdcm::SequenceOfItems::SetLength (VL *length*) [inline],[virtual]

Sets the actual SQ length.

Implements [gdcm::Value](#).

Examples:

[ReadExplicitLengthSQIVR.cxx](#).

10.264.4.22 void gdcm::SequenceOfItems::SetLengthToUndefined ()

Properly set the Sequence of [Item](#) to be undefined length.

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenLongSeqs.cxx](#), and [GenSeqs.cxx](#).

10.264.4.23 void gdcm::SequenceOfItems::SetNumberOfItems (SizeType *n*) [inline]

10.264.4.24 template<typename TDE , typename TSwap > std::ostream const& gdcm::SequenceOfItems::Write (std::ostream & *os*) const [inline]

References [gdcm::VL::Write\(\)](#), and [gdcm::Tag::Write\(\)](#).

10.264.5 Member Data Documentation

10.264.5.1 ItemVector gdcm::SequenceOfItems::Items

Vector of Sequence Items.

Referenced by [operator=\(\)](#), and [operator==\(\)](#).

10.264.5.2 VL gdcm::SequenceOfItems::SequenceLengthField

Total length of the Sequence (or 0xffffffff if undefined).

Referenced by [operator=\(\)](#), and [operator==\(\)](#).

The documentation for this class was generated from the following file:

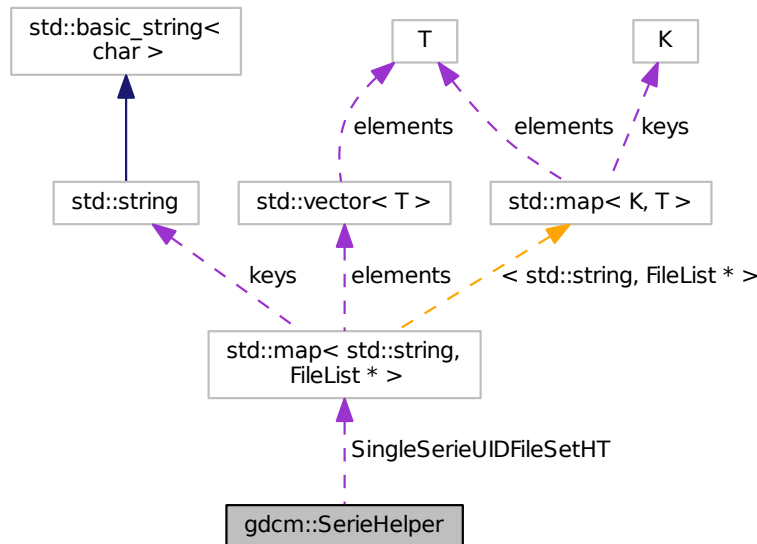
- [gdcmSequenceOfItems.h](#)

10.265 gdcm::SerieHelper Class Reference

[SerieHelper](#) DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

```
#include <gdcmSerieHelper.h>
```

Collaboration diagram for gdcm::SerieHelper:



Classes

- struct [Rule](#)

Public Member Functions

- [SerieHelper](#) ()
- [~SerieHelper](#) ()
- void [AddRestriction](#) (const std::string &tag)
- void [AddRestriction](#) (uint16_t group, uint16_t elem, std::string const &value, int op)
- void [Clear](#) ()
- void [CreateDefaultUniqueSeriesIdentifier](#) ()
- std::string [CreateUniqueSeriesIdentifier](#) ([File](#) *inFile)
- [FileList](#) * [GetFirstSingleSerieUIDFileSet](#) ()
- [FileList](#) * [GetNextSingleSerieUIDFileSet](#) ()
- void [OrderFileList](#) ([FileList](#) *fileSet)
- void [SetDirectory](#) (std::string const &dir, bool recursive=false)
- void [SetLoadMode](#) (int)
- void [SetUseSeriesDetails](#) (bool useSeriesDetails)

Protected Types

- typedef std::vector< [Rule](#) > [SerieRestrictions](#)
- typedef std::map< std::string, [FileList](#) * > [SingleSerieUIDFileSetmap](#)

Protected Member Functions

- bool [AddFile](#) ([FileWithName](#) &header)
- void [AddFileName](#) (std::string const &filename)
- void [AddRestriction](#) (const [Tag](#) &tag)
- bool [FileNameOrdering](#) ([FileList](#) *fileList)
- bool [ImagePositionPatientOrdering](#) ([FileList](#) *fileSet)
- bool [UserOrdering](#) ([FileList](#) *fileSet)

Protected Attributes

- SingleSerieUIDFileSetmap::iterator [ItFileSetHt](#)
- [SingleSerieUIDFileSetmap](#) [SingleSerieUIDFileSetHT](#)

10.265.1 Detailed Description

[SerieHelper](#) DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Instead see [ImageHelper](#) or [IPPSorter](#)

10.265.2 Member Typedef Documentation

10.265.2.1 typedef std::vector<[Rule](#)> [gdcm::SerieHelper::SerieRestrictions](#) [protected]

10.265.2.2 typedef std::map<std::string, [FileList](#) *> [gdcm::SerieHelper::SingleSerieUIDFileSetmap](#) [protected]

10.265.3 Constructor & Destructor Documentation

10.265.3.1 [gdcm::SerieHelper::SerieHelper](#) ()

10.265.3.2 [gdcm::SerieHelper::~~SerieHelper](#) ()

10.265.4 Member Function Documentation

10.265.4.1 bool [gdcm::SerieHelper::AddFile](#) ([FileWithName](#) & *header*) [protected]

- 10.265.4.2 void gdcM::SerieHelper::AddFileName (std::string const & *filename*) [protected]
- 10.265.4.3 void gdcM::SerieHelper::AddRestriction (const std::string & *tag*)
- 10.265.4.4 void gdcM::SerieHelper::AddRestriction (uint16_t *group*, uint16_t *elem*, std::string const & *value*, int *op*)
- 10.265.4.5 void gdcM::SerieHelper::AddRestriction (const Tag & *tag*) [protected]
- 10.265.4.6 void gdcM::SerieHelper::Clear ()
- 10.265.4.7 void gdcM::SerieHelper::CreateDefaultUniqueSeriesIdentifier ()
- 10.265.4.8 std::string gdcM::SerieHelper::CreateUniqueSeriesIdentifier (File * *inFile*)
- 10.265.4.9 bool gdcM::SerieHelper::FileNameOrdering (FileList * *fileList*) [protected]
- 10.265.4.10 FileList* gdcM::SerieHelper::GetFirstSingleSerieUIDFileSet ()
- 10.265.4.11 FileList* gdcM::SerieHelper::GetNextSingleSerieUIDFileSet ()
- 10.265.4.12 bool gdcM::SerieHelper::ImagePositionPatientOrdering (FileList * *fileSet*) [protected]
- 10.265.4.13 void gdcM::SerieHelper::OrderFileList (FileList * *fileSet*)
- 10.265.4.14 void gdcM::SerieHelper::SetDirectory (std::string const & *dir*, bool *recursive* = false)
- 10.265.4.15 void gdcM::SerieHelper::SetLoadMode (int) [inline]
- 10.265.4.16 void gdcM::SerieHelper::SetUseSeriesDetails (bool *useSeriesDetails*)
- 10.265.4.17 bool gdcM::SerieHelper::UserOrdering (FileList * *fileSet*) [protected]

10.265.5 Member Data Documentation

- 10.265.5.1 SingleSerieUIDFileSetmap::iterator gdcM::SerieHelper::ItFileSetHt [protected]
- 10.265.5.2 SingleSerieUIDFileSetmap gdcM::SerieHelper::SingleSerieUIDFileSetHT [protected]

The documentation for this class was generated from the following file:

- [gdcMSerieHelper.h](#)

10.266 gdcm::Series Class Reference

[Series.](#)

```
#include <gdcmSeries.h>
```

Public Member Functions

- [Series](#) ()

10.266.1 Detailed Description

[Series.](#)

10.266.2 Constructor & Destructor Documentation

10.266.2.1 `gdcm::Series::Series()` `[inline]`

The documentation for this class was generated from the following file:

- [gdcmSeries.h](#)

10.267 gdcm::network::ServiceClassApplicationInformation Class Reference

```
#include <gdcmServiceClassApplicationInformation.h>
```

Public Member Functions

- [ServiceClassApplicationInformation](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetTuple](#) (uint8_t levelofsupport, uint8_t levelofdigitalsig, uint8_t elementcoercion)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.267.1 Detailed Description

PS 3.4 [Table B.3-1](#) SERVICE-CLASS-APPLICATION-INFORMATION (A-ASSOCIATE-RQ)

10.267.2 Constructor & Destructor Documentation

10.267.2.1 `gdcm::network::ServiceClassApplicationInformation::ServiceClassApplicationInformation ()`

10.267.3 Member Function Documentation

10.267.3.1 `void gdcm::network::ServiceClassApplicationInformation::Print (std::ostream & os) const`

10.267.3.2 `std::istream& gdcm::network::ServiceClassApplicationInformation::Read (std::istream & is)`

10.267.3.3 `void gdcm::network::ServiceClassApplicationInformation::SetTuple (uint8_t levelofsupport, uint8_t levelofdigitalsig, uint8_t elementcoercion)`

10.267.3.4 `size_t gdcm::network::ServiceClassApplicationInformation::Size () const`

10.267.3.5 `const std::ostream& gdcm::network::ServiceClassApplicationInformation::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

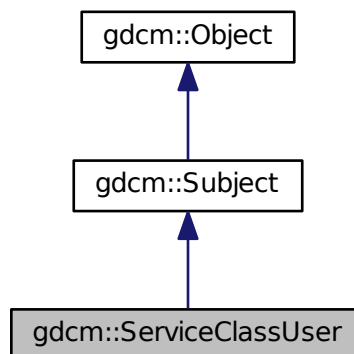
- [gdcmServiceClassApplicationInformation.h](#)

10.268 gdcm::ServiceClassUser Class Reference

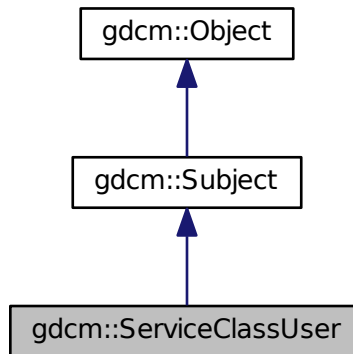
[ServiceClassUser](#).

```
#include <gdcmServiceClassUser.h>
```

Inheritance diagram for `gdcm::ServiceClassUser`:



Collaboration diagram for gdcm::ServiceClassUser:



Public Member Functions

- [ServiceClassUser](#) ()
- [~ServiceClassUser](#) ()
- const char * [GetAETitle](#) () const
- const char * [GetCalledAETitle](#) () const
- double [GetTimeout](#) () const
- bool [InitializeConnection](#) ()
- bool [IsPresentationContextAccepted](#) (const [PresentationContext](#) &pc) const
Return if the passed in presentation was accepted during association negotiation.
- bool [SendEcho](#) ()
C-ECHO.
- bool [SendFind](#) (const [BaseRootQuery](#) *query, std::vector< [DataSet](#) > &retDatasets)
C-FIND a query, return result are in retDatasets.
- bool [SendMove](#) (const [BaseRootQuery](#) *query, const char *outputdir)
Execute a C-MOVE, based on query, return files are written in outputdir.
- bool [SendMove](#) (const [BaseRootQuery](#) *query, std::vector< [DataSet](#) > &retDatasets)
Execute a C-MOVE, based on query, returned dataset are Implicit.
- bool [SendMove](#) (const [BaseRootQuery](#) *query, std::vector< [File](#) > &retFile)
Execute a C-MOVE, based on query, returned Files are stored in vector.
- bool [SendStore](#) (const char *filename)
Execute a C-STORE on file on disk, named filename.
- bool [SendStore](#) ([File](#) const &file)
- bool [SendStore](#) ([DataSet](#) const &ds)
Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.
- void [SetAETitle](#) (const char *aetitle)
set calling ae title
- void [SetCalledAETitle](#) (const char *aetitle)

set called ae title

- void [SetHostname](#) (const char *hostname)
Set the name of the called hostname (hostname or IP address)
- void [SetPort](#) (uint16_t port)
Set port of remote host (called application)
- void [SetPortSCP](#) (uint16_t portscp)
Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE)
- void [SetPresentationContexts](#) (std::vector< [PresentationContext](#) > const &pcs)
Set the Presentation Context used for the Association.
- void [SetTimeout](#) (double t)
set/get Timeout
- bool [StartAssociation](#) ()
Start the association. Need to call SetPresentationContexts before.
- bool [StopAssociation](#) ()
Stop the running association.

Static Public Member Functions

- static [SmartPointer](#)< [ServiceClassUser](#) > [New](#) ()
for wrapped language: instantiate a reference counted object

Additional Inherited Members

10.268.1 Detailed Description

[ServiceClassUser](#).

Examples:

[CStoreQtProgress.cxx](#).

10.268.2 Constructor & Destructor Documentation

10.268.2.1 `gdcm::ServiceClassUser::ServiceClassUser ()`

Construct a SCU with default:

- hostname = localhost
- port = 104

10.268.2.2 `gdcm::ServiceClassUser::~~ServiceClassUser ()`

10.268.3 Member Function Documentation

10.268.3.1 `const char* gdcm::ServiceClassUser::GetAETitle () const`

10.268.3.2 `const char* gdcm::ServiceClassUser::GetCalledAETitle () const`

10.268.3.3 `double gdcm::ServiceClassUser::GetTimeout () const`

10.268.3.4 `bool gdcm::ServiceClassUser::InitializeConnection ()`

Will try to connect This will setup the actual timeout used during the whole connection time. Need to call SetTimeout first

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.5 `bool gdcm::ServiceClassUser::IsPresentationContextAccepted (const PresentationContext & pc) const`

Return if the passed in presentation was accepted during association negotiation.

10.268.3.6 `static SmartPointer<ServiceClassUser> gdcm::ServiceClassUser::New () [inline],[static]`

for wrapped language: instanciate a reference counted object

10.268.3.7 `bool gdcm::ServiceClassUser::SendEcho ()`

C-ECHO.

10.268.3.8 `bool gdcm::ServiceClassUser::SendFind (const BaseRootQuery * query, std::vector< DataSet > & retDatasets)`

C-FIND a query, return result are in retDatasets.

10.268.3.9 `bool gdcm::ServiceClassUser::SendMove (const BaseRootQuery * query, const char * outputdir)`

Execute a C-MOVE, based on query, return files are written in outputdir.

```
10.268.3.10  bool gdcm::ServiceClassUser::SendMove ( const BaseRootQuery * query, std::vector< DataSet > & retDatasets )
```

Execute a C-MOVE, based on query, returned dataset are Implicit.

```
10.268.3.11  bool gdcm::ServiceClassUser::SendMove ( const BaseRootQuery * query, std::vector< File > & retFile )
```

Execute a C-MOVE, based on query, returned Files are stored in vector.

```
10.268.3.12  bool gdcm::ServiceClassUser::SendStore ( const char * filename )
```

Execute a C-STORE on file on disk, named filename.

Examples:

[CStoreQtProgress.cxx](#).

```
10.268.3.13  bool gdcm::ServiceClassUser::SendStore ( File const & file )
```

Execute a C-STORE on a [File](#), the transfer syntax used for the query is based on the file.

```
10.268.3.14  bool gdcm::ServiceClassUser::SendStore ( DataSet const & ds )
```

Execute a C-STORE on a [DataSet](#), the transfer syntax used will be Implicit.

```
10.268.3.15  void gdcm::ServiceClassUser::SetAETitle ( const char * aetitle )
```

set calling ae title

```
10.268.3.16  void gdcm::ServiceClassUser::SetCalledAETitle ( const char * aetitle )
```

set called ae title

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.17 void gdcm::ServiceClassUser::SetHostname (const char * *hostname*)

Set the name of the called hostname (hostname or IP address)

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.18 void gdcm::ServiceClassUser::SetPort (uint16_t *port*)

Set port of remote host (called application)

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.19 void gdcm::ServiceClassUser::SetPortSCP (uint16_t *portscp*)

Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE)

10.268.3.20 void gdcm::ServiceClassUser::SetPresentationContexts (std::vector< **PresentationContext** > const & *pcs*)

Set the Presentation Context used for the Association.

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.21 void gdcm::ServiceClassUser::SetTimeout (double *t*)

set/get Timeout

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.22 bool gdcm::ServiceClassUser::StartAssociation ()

Start the association. Need to call SetPresentationContexts before.

Examples:

[CStoreQtProgress.cxx](#).

10.268.3.23 `bool gdcm::ServiceClassUser::StopAssociation ()`

Stop the running association.

Examples:

[CStoreQtProgress.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmServiceClassUser.h](#)

10.269 gdcm::SHA1 Class Reference

Class for [SHA1](#).

```
#include <gdcmSHA1.h>
```

Public Member Functions

- [SHA1](#) ()
- [~SHA1](#) ()

Static Public Member Functions

- static bool [Compute](#) (const char *buffer, unsigned long buf_len, char digest_str[20 *2+1])
- static bool [ComputeFile](#) (const char *filename, char digest_str[20 *2+1])

10.269.1 Detailed Description

Class for [SHA1](#).

Warning

this class is able to pick from one implementation:

1. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

10.269.2 Constructor & Destructor Documentation

10.269.2.1 gdcm::SHA1::SHA1 ()

10.269.2.2 gdcm::SHA1::~~SHA1 ()

10.269.3 Member Function Documentation

10.269.3.1 static bool gdcm::SHA1::Compute (const char * *buffer*, unsigned long *buf_len*, char *digest_str*[20*2+1])
[static]

10.269.3.2 static bool gdcm::SHA1::ComputeFile (const char * *filename*, char *digest_str*[20*2+1]) [static]

The documentation for this class was generated from the following file:

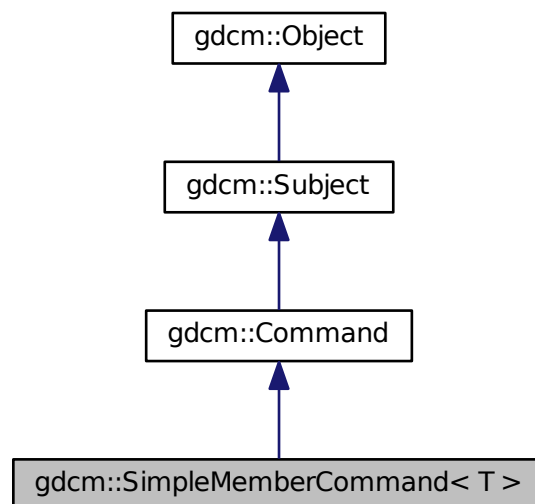
- [gdcmSHA1.h](#)

10.270 gdcm::SimpleMemberCommand< T > Class Template Reference

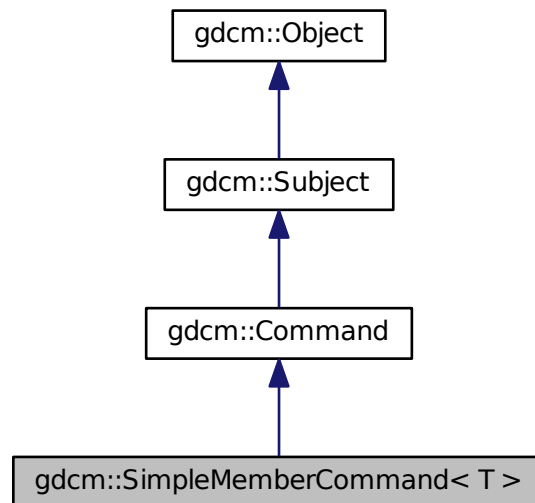
[Command](#) subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::SimpleMemberCommand< T >:



Collaboration diagram for `gdcm::SimpleMemberCommand< T >`:



Public Types

- typedef `SimpleMemberCommand Self`
- typedef `void(T::* TMemberFunctionPointer) ()`

Public Member Functions

- virtual void `Execute (Subject *, const Event &)`
- virtual void `Execute (const Subject *, const Event &)`
- void `SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)`

Static Public Member Functions

- static `SmartPointer< SimpleMemberCommand > New ()`

Protected Member Functions

- `SimpleMemberCommand ()`
- virtual `~SimpleMemberCommand ()`

Protected Attributes

- [TMemberFunctionPointer m_MemberFunction](#)
- `T * m_This`

10.270.1 Detailed Description

```
template<typename T>
class gdc::SimpleMemberCommand< T >
```

[Command](#) subclass that calls a pointer to a member function.

[SimpleMemberCommand](#) calls a pointer to a member function with no arguments.

10.270.2 Member Typedef Documentation

10.270.2.1 `template<typename T > typedef SimpleMemberCommand gdc::SimpleMemberCommand< T >::Self`

Standard class typedefs.

10.270.2.2 `template<typename T > typedef void(T::* gdc::SimpleMemberCommand< T >::TMemberFunctionPointer) ()`

A method callback.

10.270.3 Constructor & Destructor Documentation

10.270.3.1 `template<typename T > gdc::SimpleMemberCommand< T >::SimpleMemberCommand ()`
`[inline], [protected]`

10.270.3.2 `template<typename T > virtual gdc::SimpleMemberCommand< T >::~~SimpleMemberCommand ()`
`[inline], [protected], [virtual]`

10.270.4 Member Function Documentation

10.270.4.1 `template<typename T > virtual void gdc::SimpleMemberCommand< T >::Execute (Subject *, const Event &)` `[inline], [virtual]`

Invoke the callback function.

Implements [gdc::Command](#).

10.270.4.2 `template<typename T> virtual void gdcM::SimpleMemberCommand< T >::Execute (const Subject * caller, const Event & event) [inline],[virtual]`

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const [Object](#)

Implements [gdcM::Command](#).

10.270.4.3 `template<typename T> static SmartPointer<SimpleMemberCommand> gdcM::SimpleMemberCommand< T >::New () [inline],[static]`

Run-time type information (and related methods). Method for creation through the object factory.

10.270.4.4 `template<typename T> void gdcM::SimpleMemberCommand< T >::SetCallbackFunction (T * object, TMemberFunctionPointer memberFunction) [inline]`

Specify the callback function.

10.270.5 Member Data Documentation

10.270.5.1 `template<typename T> TMemberFunctionPointer gdcM::SimpleMemberCommand< T >::m_MemberFunction [protected]`

10.270.5.2 `template<typename T> T* gdcM::SimpleMemberCommand< T >::m_This [protected]`

The documentation for this class was generated from the following file:

- [gdcMCommand.h](#)

10.271 gdcM::SimpleSubjectWatcher Class Reference

[SimpleSubjectWatcher](#) This is a typical [Subject](#) Watcher class. It will observe all events.

```
#include <gdcMSimpleSubjectWatcher.h>
```

Public Member Functions

- [SimpleSubjectWatcher](#) ([Subject](#) *s, const char *comment="")
- virtual [~SimpleSubjectWatcher](#) ()

Protected Member Functions

- virtual void [EndFilter](#) ()
- virtual void [ShowAbort](#) ()
- virtual void [ShowAnonymization](#) ([Subject](#) *caller, const [Event](#) &evt)
- virtual void [ShowData](#) ([Subject](#) *caller, const [Event](#) &evt)
- virtual void [ShowDataSet](#) ([Subject](#) *caller, const [Event](#) &evt)
- virtual void [ShowFileName](#) ([Subject](#) *caller, const [Event](#) &evt)
- virtual void [ShowIteration](#) ()
- virtual void [ShowProgress](#) ([Subject](#) *caller, const [Event](#) &evt)
- virtual void [StartFilter](#) ()
- void [TestAbortOff](#) ()
- void [TestAbortOn](#) ()

10.271.1 Detailed Description

[SimpleSubjectWatcher](#) This is a typical [Subject](#) Watcher class. It will observe all events.

Examples:

[SimpleScanner.cxx](#).

10.271.2 Constructor & Destructor Documentation

10.271.2.1 `gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (Subject * s, const char * comment = " ")`

10.271.2.2 `virtual gdcm::SimpleSubjectWatcher::~SimpleSubjectWatcher ()` [virtual]

10.271.3 Member Function Documentation

10.271.3.1 `virtual void gdcm::SimpleSubjectWatcher::EndFilter ()` [protected], [virtual]

10.271.3.2 `virtual void gdcm::SimpleSubjectWatcher::ShowAbort ()` [protected], [virtual]

10.271.3.3 `virtual void gdcm::SimpleSubjectWatcher::ShowAnonymization (Subject * caller, const Event & evt)`
[protected], [virtual]

10.271.3.4 `virtual void gdcm::SimpleSubjectWatcher::ShowData (Subject * caller, const Event & evt)` [protected],
[virtual]

10.271.3.5 `virtual void gdcm::SimpleSubjectWatcher::ShowDataSet (Subject * caller, const Event & evt)` [protected],
[virtual]

10.271.3.6 `virtual void gdcm::SimpleSubjectWatcher::ShowFileName (Subject * caller, const Event & evt)` [protected],
[virtual]

Examples:

[SimpleScanner.cxx](#).

10.271.3.7 `virtual void gdcm::SimpleSubjectWatcher::ShowIteration () [protected], [virtual]`

10.271.3.8 `virtual void gdcm::SimpleSubjectWatcher::ShowProgress (Subject * caller, const Event & evt) [protected], [virtual]`

10.271.3.9 `virtual void gdcm::SimpleSubjectWatcher::StartFilter () [protected], [virtual]`

10.271.3.10 `void gdcm::SimpleSubjectWatcher::TestAbortOff () [protected]`

10.271.3.11 `void gdcm::SimpleSubjectWatcher::TestAbortOn () [protected]`

The documentation for this class was generated from the following file:

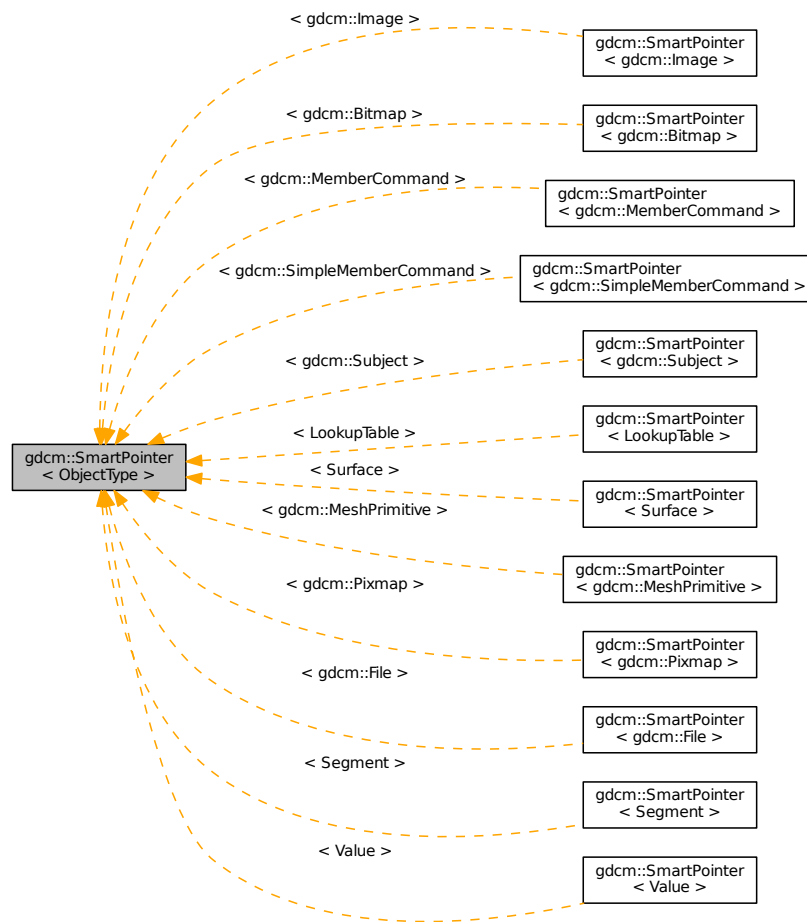
- [gdcmSimpleSubjectWatcher.h](#)

10.272 `gdcm::SmartPointer< ObjectType >` Class Template Reference

Class for Smart Pointer.

```
#include <gdcmObject.h>
```

Inheritance diagram for gdcm::SmartPointer< ObjectType >:



Public Member Functions

- `SmartPointer()`
- `SmartPointer(const SmartPointer< ObjectType > &p)`
- `SmartPointer(ObjectType *p)`
- `SmartPointer(ObjectType const &p)`
- `~SmartPointer()`
- `ObjectType * GetPointer() const`
Explicit function to retrieve the pointer.
- `operator ObjectType * () const`
Return pointer to object.
- `ObjectType & operator* () const`
- `ObjectType * operator-> () const`
Overload operator ->
- `SmartPointer & operator= (SmartPointer const &r)`

Overload operator assignment.

- `SmartPointer` & `operator=` (`ObjectType *r`)

Overload operator assignment.

- `SmartPointer` & `operator=` (`ObjectType const &r`)

10.272.1 Detailed Description

```
template<class ObjectType>
class gdcmm::SmartPointer< ObjectType >
```

Class for Smart Pointer.

Will only work for subclass of `gdcmm::Object` See `tr1/shared_ptr` for a more general approach (not invasive) `#include <tr1/memory>` { `shared_ptr<Bla> b(new Bla);` }

Note

Class partly based on post by Bill Hubauer: <http://groups.google.com/group/comp.lang.c++.msg/173ddc38a827a930>

See also

<http://www.davethehat.com/articles/smarterp.htm>

and `itk::SmartPointer`

Examples:

[ChangeSequenceUltrasound.cxx](#), [CStoreQtProgress.cxx](#), [DumpGEMSMovieGroup.cxx](#), [DumpPhilipsECH←O.cxx](#), [DumpToshibaDTI.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [gdcmmrtionplan.cxx](#), [gdcmmrtplan.cxx](#), [GenAllIVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLong←Seqs.cxx](#), [GenSeqs.cxx](#), [GetSubSequenceData.cxx](#), [LargeVRDSExplicit.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), and [SimpleScanner.cxx](#).

10.272.2 Constructor & Destructor Documentation

10.272.2.1 `template<class ObjectType> gdcmm::SmartPointer< ObjectType >::SmartPointer () [inline]`

10.272.2.2 `template<class ObjectType> gdcmm::SmartPointer< ObjectType >::SmartPointer (const SmartPointer< ObjectType > & p) [inline]`

10.272.2.3 `template<class ObjectType> gdcmm::SmartPointer< ObjectType >::SmartPointer (ObjectType * p) [inline]`

10.272.2.4 `template<class ObjectType> gdcmm::SmartPointer< ObjectType >::SmartPointer (ObjectType const & p) [inline]`

10.272.2.5 `template<class ObjectType> gdcmm::SmartPointer< ObjectType >::~~SmartPointer () [inline]`

10.272.3 Member Function Documentation

10.272.3.1 `template<class ObjectType> ObjectType* gdcmm::SmartPointer< ObjectType >::GetPointer () const [inline]`

Explicit function to retrieve the pointer.

10.272.3.2 `template<class ObjectType> gdcm::SmartPointer< ObjectType >::operator ObjectType * () const`
`[inline]`

Return pointer to object.

10.272.3.3 `template<class ObjectType> ObjectType& gdcm::SmartPointer< ObjectType >::operator* () const`
`[inline]`

10.272.3.4 `template<class ObjectType> ObjectType* gdcm::SmartPointer< ObjectType >::operator-> () const`
`[inline]`

Overload operator ->

10.272.3.5 `template<class ObjectType> SmartPointer& gdcm::SmartPointer< ObjectType >::operator= (SmartPointer< ObjectType > const & r)` `[inline]`

Overload operator assignment.

Referenced by `gdcm::SmartPointer< Value >::operator=()`.

10.272.3.6 `template<class ObjectType> SmartPointer& gdcm::SmartPointer< ObjectType >::operator= (ObjectType * r)`
`[inline]`

Overload operator assignment.

10.272.3.7 `template<class ObjectType> SmartPointer& gdcm::SmartPointer< ObjectType >::operator= (ObjectType const & r)` `[inline]`

The documentation for this class was generated from the following files:

- [gdcmObject.h](#)
- [gdcmSmartPointer.h](#)

10.273 gdcm::network::SOPClassExtendedNegociationSub Class Reference

[SOPClassExtendedNegociationSub](#) PS 3.7 [Table D.3-11](#) SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-ASSOCIATE-AC)

```
#include <gdcmSOPClassExtendedNegociationSub.h>
```

Public Member Functions

- [SOPClassExtendedNegociationSub](#) ()
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetTuple](#) (const char *uid, uint8_t levelofsupport=3, uint8_t levelofdigitalsig=0, uint8_t elementcoercion=2)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.273.1 Detailed Description

[SOPClassExtendedNegociationSub](#) PS 3.7 [Table D.3-11](#) SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-ASSOCIATE-AC)

10.273.2 Constructor & Destructor Documentation

10.273.2.1 `gdcm::network::SOPClassExtendedNegociationSub::SOPClassExtendedNegociationSub ()`

10.273.3 Member Function Documentation

10.273.3.1 `void gdcm::network::SOPClassExtendedNegociationSub::Print (std::ostream & os) const`

10.273.3.2 `std::istream& gdcm::network::SOPClassExtendedNegociationSub::Read (std::istream & is)`

10.273.3.3 `void gdcm::network::SOPClassExtendedNegociationSub::SetTuple (const char * uid, uint8_t levelofsupport = 3, uint8_t levelofdigitalsig = 0, uint8_t elementcoercion = 2)`

10.273.3.4 `size_t gdcm::network::SOPClassExtendedNegociationSub::Size () const`

10.273.3.5 `const std::ostream& gdcm::network::SOPClassExtendedNegociationSub::Write (std::ostream & os) const`

The documentation for this class was generated from the following file:

- [gdcmSOPClassExtendedNegociationSub.h](#)

10.274 gdcm::SOPClassUIDToIOD Class Reference

Class convert a class SOP Class UID into [IOD](#).

```
#include <gdcmSOPClassUIDToIOD.h>
```

Public Types

- typedef const char * [const](#)(SOPClassUIDToIODType)[2]

Static Public Member Functions

- static [const](#) char * [GetIOD](#) (UIDs const &uid)
- static [const](#) char * [GetIODFromSOPClassUID](#) ([const](#) char *sopclassuid)
- static unsigned int [GetNumberOfSOPClassToIOD](#) ()
Return the number of SOP Class UID listed internally.
- static [const](#) char * [GetSOPClassUIDFromIOD](#) ([const](#) char *iod)
- static SOPClassUIDToIODType & [GetSOPClassUIDToIOD](#) (unsigned int i)
- static SOPClassUIDToIODType * [GetSOPClassUIDToIODs](#) ()

10.274.1 Detailed Description

Class convert a class SOP Class UID into [IOD](#).

Reference PS 3.4 [Table](#) B.5-1 STANDARD SOP CLASSES

10.274.2 Member Typedef Documentation

10.274.2.1 typedef const char* gdcm::SOPClassUIDToIOD::const(SOPClassUIDToIODType)[2]

10.274.3 Member Function Documentation

10.274.3.1 static const char* gdcm::SOPClassUIDToIOD::GetIOD (UIDs const & uid) [static]

Return the associated [IOD](#) based on a SOP Class UID uid (there is a one-to-one mapping from SOP Class UID to matching [IOD](#))

Examples:

[GenerateStandardSOPClasses.cxx](#).

10.274.3.2 static const char* gdcm::SOPClassUIDToIOD::GetIODFromSOPClassUID (const char * sopclassuid) [static]

10.274.3.3 static unsigned int gdcm::SOPClassUIDToIOD::GetNumberOfSOPClassToIOD () [static]

Return the number of SOP Class UID listed internally.

10.274.3.4 `static const char* gdcm::SOPClassUIDToIOD::GetSOPClassUIDFromIOD (const char * iod)` [static]

10.274.3.5 `static SOPClassUIDToIODType& gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIOD (unsigned int i)` [static]

10.274.3.6 `static SOPClassUIDToIODType* gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIODs ()` [static]

The documentation for this class was generated from the following file:

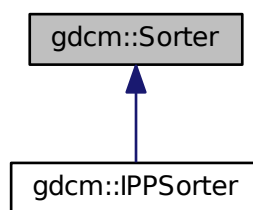
- [gdcmSOPClassUIDToIOD.h](#)

10.275 gdcm::Sorter Class Reference

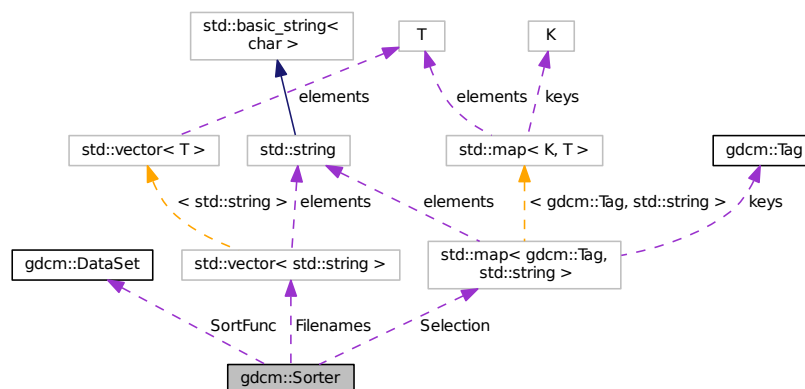
[Sorter](#) General class to do sorting using a custom function You simply need to provide a function of type: [Sorter::SortFunction](#).

```
#include <gdcmSorter.h>
```

Inheritance diagram for `gdcm::Sorter`:



Collaboration diagram for `gdcm::Sorter`:



Public Types

- typedef bool(* [SortFunction](#)) ([DataSet](#) const &, [DataSet](#) const &)
Set the sort function which compares one dataset to the other.

Public Member Functions

- [Sorter](#) ()
- virtual [~Sorter](#) ()
- bool [AddSelect](#) ([Tag](#) const &tag, const char *value)
UNSUPPORTED FOR NOW.
- const std::vector< std::string > & [GetFilenames](#) () const
- void [Print](#) (std::ostream &os) const
Print.
- void [SetSortFunction](#) ([SortFunction](#) f)
- virtual bool [Sort](#) (std::vector< std::string > const &filenames)
Typically the output of [Directory::GetFilenames\(\)](#)
- virtual bool [StableSort](#) (std::vector< std::string > const &filenames)

Protected Types

- typedef std::map< [Tag](#), std::string > [SelectionMap](#)

Protected Attributes

- std::vector< std::string > [Filenames](#)
- std::map< [Tag](#), std::string > [Selection](#)
- [SortFunction](#) [SortFunc](#)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Sorter](#) &s)

10.275.1 Detailed Description

[Sorter](#) General class to do sorting using a custom function You simply need to provide a function of type: [Sorter::SortFunction](#).

Warning

implementation details. For now there is no cache mechanism. Which means that everytime you call Sort, all files specified as input paramater are *read*

See also

[Scanner](#)

Examples:

[SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.275.2 Member Typedef Documentation

10.275.2.1 `typedef std::map<Tag,std::string> gdcm::Sorter::SelectionMap` `[protected]`

10.275.2.2 `typedef bool(* gdcm::Sorter::SortFunction) (DataSet const &, DataSet const &)`

Set the sort function which compares one dataset to the other.

10.275.3 Constructor & Destructor Documentation

10.275.3.1 `gdcm::Sorter::Sorter ()`

10.275.3.2 `virtual gdcm::Sorter::~~Sorter ()` `[virtual]`

10.275.4 Member Function Documentation

10.275.4.1 `bool gdcm::Sorter::AddSelect (Tag const & tag, const char * value)`

UNSUPPORTED FOR NOW.

10.275.4.2 `const std::vector<std::string>& gdcm::Sorter::GetFileNames () const` `[inline]`

Return the list of filenames as sorted by the specific algorithm used. Empty by default (before [Sort\(\)](#) is called)

Examples:

[Compute3DSpacing.cxx](#), [gdcmorthoplanes.cxx](#), [reslicesphere.cxx](#), [SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.275.4.3 `void gdcm::Sorter::Print (std::ostream & os) const`

Print.

Examples:

[gdcmorthoplanes.cxx](#), [SortImage.cxx](#), and [VolumeSorter.cxx](#).

Referenced by `gdcm::operator<<()`.

10.275.4.4 `void gdcm::Sorter::SetSortFunction (SortFunction f)`

Examples:

[SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.275.4.5 `virtual bool gdcm::Sorter::Sort (std::vector< std::string > const & filenames)` `[virtual]`

Typically the output of [Directory::GetFilenames\(\)](#)

Reimplemented in [gdcm::IPPSorter](#).

Examples:

[SortImage.cxx](#).

10.275.4.6 `virtual bool gdcm::Sorter::StableSort (std::vector< std::string > const & filenames)` `[virtual]`

Examples:

[SortImage.cxx](#), and [VolumeSorter.cxx](#).

10.275.5 Friends And Related Function Documentation

10.275.5.1 `std::ostream& operator<< (std::ostream & _os, const Sorter & s)` `[friend]`

10.275.6 Member Data Documentation

10.275.6.1 `std::vector<std::string> gdcm::Sorter::Filenames` `[protected]`

10.275.6.2 `std::map<Tag,std::string> gdcm::Sorter::Selection` `[protected]`

10.275.6.3 `SortFunction gdcm::Sorter::SortFunc` `[protected]`

The documentation for this class was generated from the following file:

- [gdcmSorter.h](#)

10.276 gdcm::Spacing Class Reference

Class for [Spacing](#).

```
#include <gdcmSpacing.h>
```

Public Types

- enum [SpacingType](#) {
 [DETECTOR](#) = 0,
 [MAGNIFIED](#),
 [CALIBRATED](#),
 [UNKNOWN](#) }

Public Member Functions

- [Spacing](#) ()
- [~Spacing](#) ()

Static Public Member Functions

- static [Attribute](#)< 0x28, 0x34 > [ComputePixelAspectRatioFromPixelSpacing](#) (const [Attribute](#)< 0x28, 0x30 > &pixelspacing)

10.276.1 Detailed Description

Class for [Spacing](#).

It all began with a mail to WG6:

Subject: Imager Pixel [Spacing](#) vs Pixel [Spacing](#) **Body:** [Apologies for the duplicate post, namely to David Clunie & OFFIS team]

I have been trying to understand CP-586 in the following two cases:

On the one hand:

- DISCIMG/IMAGES/CRIMAGE taken from <http://dclunie.com/images/pixelspacingtestimages.zip>

And on the other hand:

- http://gdcm.sourceforge.net/thingies/cr_pixelspacing.dcm

If I understand correctly the CP, one is required to use Pixel [Spacing](#) for measurement ('true size' print) instead of Imager Pixel [Spacing](#), since the two attributes are present and Pixel [Spacing](#) is different from Imager Pixel [Spacing](#).

If this is correct, then the test data DISCIMG/IMAGES/CRIMAGE is incorrect. If this is incorrect (ie. I need to use Imager Pixel [Spacing](#)), then the display of cr_pixelspacing.dcm for measurement will be incorrect.

Could someone please let me know what am I missing here? I could not find any information in any header that would allow me to differentiate those.

Thank you for your time,

Ref: <http://lists.nema.org/scripts/lyris.pl?sub=488573&id=400720477> See PS 3.3-2008, [Table C.7-11b](#) IMAGE PIXEL MACRO ATTRIBUTES

Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio values do not have a ratio of 1:1 and the physical pixel spacing is not specified by Pixel [Spacing](#) (0028,0030), or Imager Pixel [Spacing](#) (0018,1164) or Nominal Scanned Pixel [Spacing](#) (0018,2010), either for the entire [Image](#) or per-frame in a Functional Group [Macro](#). See C.7.6.3.1.7.

PS 3.3-2008 10.7.1.3 Pixel [Spacing Value](#) Order and Valid Values All pixel spacing related attributes shall have non-zero values, except when there is only a single row or column or pixel of data present, in which case the corresponding value may be zero.

Ref: http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing

10.276.2 Member Enumeration Documentation

10.276.2.1 enum gdcm::Spacing::SpacingType

Enumerator

DETECTOR
MAGNIFIED
CALIBRATED
UNKNOWN

10.276.3 Constructor & Destructor Documentation

10.276.3.1 gdcm::Spacing::Spacing ()

10.276.3.2 gdcm::Spacing::~~Spacing ()

10.276.4 Member Function Documentation

10.276.4.1 static Attribute<0x28,0x34> gdcm::Spacing::ComputePixelAspectRatioFromPixelSpacing (const Attribute< 0x28, 0x30 > & *pixelspacing*) [static]

The documentation for this class was generated from the following file:

- [gdcmSpacing.h](#)

10.277 gdcm::Spectroscopy Class Reference

[Spectroscopy](#) class.

```
#include <gdcmSpectroscopy.h>
```

Public Member Functions

- [Spectroscopy](#) ()

10.277.1 Detailed Description

[Spectroscopy](#) class.

10.277.2 Constructor & Destructor Documentation

10.277.2.1 `gdcm::Spectroscopy::Spectroscopy ()` `[inline]`

The documentation for this class was generated from the following file:

- [gdcmSpectroscopy.h](#)

10.278 `gdcm::SplitMosaicFilter` Class Reference

[SplitMosaicFilter](#) class Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA [Image](#) Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture.

```
#include <gdcmSplitMosaicFilter.h>
```

Public Member Functions

- [SplitMosaicFilter](#) ()
- [~SplitMosaicFilter](#) ()
- bool [ComputeMOSAICDimensions](#) (unsigned int dims[3])
- [File](#) & [GetFile](#) ()
- const [File](#) & [GetFile](#) () const
- const [Image](#) & [GetImage](#) () const
- [Image](#) & [GetImage](#) ()
- void [SetFile](#) (const [File](#) &f)
- void [SetImage](#) (const [Image](#) &image)
- bool [Split](#) ()

Split the SIEMENS MOSAIC image.

10.278.1 Detailed Description

[SplitMosaicFilter](#) class Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA [Image](#) Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture.

10.278.2 Constructor & Destructor Documentation

10.278.2.1 `gdcm::SplitMosaicFilter::SplitMosaicFilter ()`

10.278.2.2 `gdcm::SplitMosaicFilter::~~SplitMosaicFilter ()`

10.278.3 Member Function Documentation

10.278.3.1 `bool gdcm::SplitMosaicFilter::ComputeMOSAICDimensions (unsigned int dims[3])`

Compute the new dimensions according to private information stored in the MOSAIC header.

10.278.3.2 `File& gdcm::SplitMosaicFilter::GetFile () [inline]`

10.278.3.3 `const File& gdcm::SplitMosaicFilter::GetFile () const [inline]`

10.278.3.4 `const Image& gdcm::SplitMosaicFilter::GetImage () const [inline]`

10.278.3.5 `Image& gdcm::SplitMosaicFilter::GetImage () [inline]`

10.278.3.6 `void gdcm::SplitMosaicFilter::SetFile (const File & f) [inline]`

10.278.3.7 `void gdcm::SplitMosaicFilter::SetImage (const Image & image)`

10.278.3.8 `bool gdcm::SplitMosaicFilter::Split ()`

Split the SIEMENS MOSAIC image.

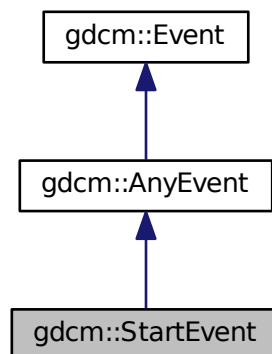
The documentation for this class was generated from the following file:

- [gdcmSplitMosaicFilter.h](#)

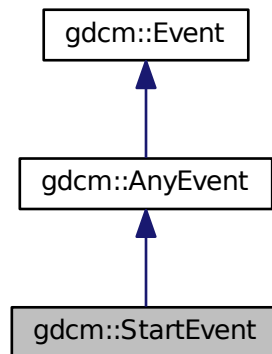
10.279 gdcm::StartEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::StartEvent:



Collaboration diagram for `gdcm::StartEvent`:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcmEvent.h](#)

10.280 `gdcm::static_assert_test< x >` Struct Template Reference

```
#include <gdcmStaticAssert.h>
```

The documentation for this struct was generated from the following file:

- [gdcmStaticAssert.h](#)

10.281 `gdcm::STATIC_ASSERTION_FAILURE< x >` Struct Template Reference

```
#include <gdcmStaticAssert.h>
```

The documentation for this struct was generated from the following file:

- [gdcmStaticAssert.h](#)

10.282 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Template Reference

```
#include <gdcmStaticAssert.h>
```

Public Types

- enum { [value](#) = 1 }

10.282.1 Member Enumeration Documentation

10.282.1.1 anonymous enum

Enumerator

value

The documentation for this struct was generated from the following file:

- [gdcmStaticAssert.h](#)

10.283 gdcm::StreamImageReader Class Reference

[StreamImageReader](#).

```
#include <gdcmStreamImageReader.h>
```

Public Member Functions

- [StreamImageReader](#) ()
- virtual [~StreamImageReader](#) ()
- bool [CanReadImage](#) () const
- void [DefinePixelExtent](#) (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t [DefineProperBufferLength](#) () const
- std::vector< unsigned int > [GetDimensionsValueForResolution](#) (unsigned int)
- [File](#) const & [GetFile](#) () const
- bool [Read](#) (char *inReadBuffer, const std::size_t &inBufferLength)
- virtual bool [ReadImageInformation](#) ()
- void [SetFileName](#) (const char *inFileName)
- void [SetStream](#) (std::istream &inStream)

10.283.1 Detailed Description

[StreamImageReader](#).

Note

its role is to convert the DICOM [DataSet](#) into a [Image](#) representation via an ITK streaming (ie, multithreaded) interface [Image](#) is different from [Pixmap](#) has it has a position and a direction in Space. Currently, this class is thread safe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

[Image](#)

Examples:

[StreamImageReaderTest.cxx](#).

10.283.2 Constructor & Destructor Documentation

10.283.2.1 `gdcm::StreamImageReader::StreamImageReader ()`

10.283.2.2 `virtual gdcm::StreamImageReader::~~StreamImageReader () [virtual]`

10.283.3 Member Function Documentation

10.283.3.1 `bool gdcm::StreamImageReader::CanReadImage () const`

Only RAW images are currently readable by the stream reader. As more streaming codecs are added, then this function will be updated to reflect those changes. Calling this function prior to reading will ensure that only streamable files are streamed. Make sure to call `ReadImageInformation` prior to calling this function.

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.2 `void gdcm::StreamImageReader::DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1)`

Defines an image extent for the `Read` function. DICOM states that an image can have no more than 2^{16} pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with `DefinePixelExtent(0, 100, 0, 1)`, regardless of pixel size or orientation.

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.3 `uint32_t gdcm::StreamImageReader::DefineProperBufferLength () const`

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. Call this function to determine the size of the `char*` buffer that will need to be passed in to `ReadImageSubregion()`. If the return is 0, then that means that the pixel extent was not defined prior

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.4 `std::vector<unsigned int> gdcm::StreamImageReader::GetDimensionsValueForResolution (unsigned int)`

10.283.3.5 `File const& gdcm::StreamImageReader::GetFile () const`

Returns the dataset read by `ReadImageInformation` Couple this with the [ImageHelper](#) to get statistics about the image, like pixel extent, to be able to initialize buffers for reading

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.6 `bool gdcm::StreamImageReader::Read (char * inReadBuffer, const std::size_t & inBufferLength)`

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from `char*` to `std::ostream` (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the `metainageio` in `itk` MUST have an extent defined, or else `Read` will return false. If no particular extent is required, use [ImageReader](#) instead.

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.7 `virtual bool gdcm::StreamImageReader::ReadImageInformation () [virtual]`

Set the spacing and dimension information for the set filename. returns false if the file is not initialized or not an image, with the pixel (7fe0,0010) tag.

Examples:

[StreamImageReaderTest.cxx](#).

10.283.3.8 void gdcm::StreamImageReader::SetFileName (const char * *inFileName*)

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal [Reader](#) class to be able to get non-pixel image information.

Examples:

[ExtractOneFrame.cs](#), and [StreamImageReaderTest.cxx](#).

10.283.3.9 void gdcm::StreamImageReader::SetStream (std::istream & *inStream*)

The documentation for this class was generated from the following file:

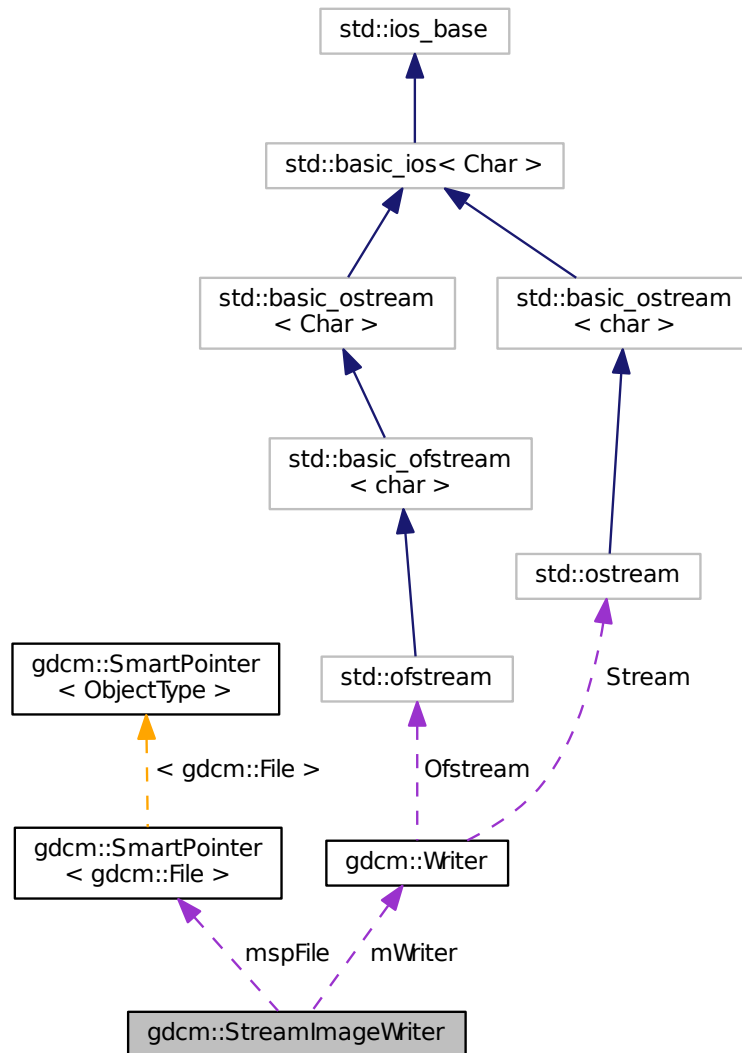
- [gdcmStreamImageReader.h](#)

10.284 gdcm::StreamImageWriter Class Reference

[StreamImageReader](#).

```
#include <gdcmStreamImageWriter.h>
```

Collaboration diagram for gdcm::StreamImageWriter:



Public Member Functions

- [StreamImageWriter](#) ()
- virtual [~StreamImageWriter](#) ()
- bool [CanWriteFile](#) () const
- void [DefinePixelExtent](#) (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t [DefineProperBufferLength](#) ()
- void [SetFile](#) (const [File](#) &inFile)
- void [SetFileName](#) (const char *inFileName)

- void [SetStream](#) (std::ostream &inStream)
- bool [Write](#) (void *inWriteBuffer, const std::size_t &inBufferLength)
- virtual bool [WriteImageInformation](#) ()

Protected Member Functions

- virtual bool [WriteImageSubregionRAW](#) (char *inWriteBuffer, const std::size_t &inBufferLength)
- int [WriteRawHeader](#) ([RAWCodec](#) *inCodec, std::ostream *inStream)

Protected Attributes

- int [mElementOffsets](#)
- int [mElementOffsets1](#)
- [SmartPointer](#)< [File](#) > [mspFile](#)
- [Writer](#) [mWriter](#)
- uint16_t [mXMax](#)
- uint16_t [mXMin](#)
- uint16_t [mYMax](#)
- uint16_t [mYMin](#)
- uint16_t [mZMax](#)
- uint16_t [mZMin](#)

10.284.1 Detailed Description

[StreamImageReader](#).

Note

its role is to convert the DICOM [DataSet](#) into a [Image](#) representation via an ITK streaming (ie, multithreaded) interface [Image](#) is different from [Pixmap](#) has it has a position and a direction in Space. Currently, this class is threadsafe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

[Image](#)

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.2 Constructor & Destructor Documentation

10.284.2.1 `gdcm::StreamImageWriter::StreamImageWriter ()`

10.284.2.2 `virtual gdcm::StreamImageWriter::~StreamImageWriter ()` [virtual]

10.284.3 Member Function Documentation

10.284.3.1 `bool gdcm::StreamImageWriter::CanWriteFile ()` const

This function determines if a file can even be written using the streaming writer unlike the reader, can be called before `WriteImageInformation`, but must be called after `SetFile`.

Examples:

[Extracting_All_Resolution.cxx](#), and [Fake_Image_Using_Stream_Image_Writer.cxx](#).

10.284.3.2 `void gdcm::StreamImageWriter::DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1)`

Defines an image extent for the `Read` function. DICOM states that an image can have no more than 2^{16} pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with `DefinePixelExtent(0, 100, 0, 1)`, regardless of pixel size or orientation. 15 nov 2010: added z dimension, defaults to being 1 plane large

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.3 `uint32_t gdcm::StreamImageWriter::DefineProperBufferLength ()`

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. If the return is 0, then that means that the pixel extent was not defined prior this return is for RAW inputs which are then encoded by the writer, but are used to ensure that the writer gets the proper buffer size

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.4 `void gdcm::StreamImageWriter::SetFile (const File & inFile)`

Set the image information to be written to disk that is everything but the pixel information: (7fe0,0010) PixelData

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.5 void gdcmm::StreamImageWriter::SetFileName (const char * *inFileName*)

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal [Reader](#) class to be able to get non-pixel image information.

10.284.3.6 void gdcmm::StreamImageWriter::SetStream (std::ostream & *inStream*)

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.7 bool gdcmm::StreamImageWriter::Write (void * *inWriteBuffer*, const std::size_t & *inBufferLength*)

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from void* to std::ostream (internally) fails
3. the given buffer isn't large enough to accomodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use [ImageReader](#) instead.

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.8 virtual bool gdcmm::StreamImageWriter::WriteImageInformation () [virtual]

Write the header information to disk, and a bunch of zeros for the actual pixel information. Of course, if we're doing a non-compressed format, that works but if it's compressed, we have to force the ordering of chunks that are written.

Examples:

[Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.284.3.9 virtual bool gdcmm::StreamImageWriter::WriteImageSubregionRAW (char * *inWriteBuffer*, const std::size_t & *inBufferLength*) [protected], [virtual]

Using the min, max, etc set by DefinePixelExtent, this will fill the given buffer. Make sure to call DefinePixelExtent and to initialize the buffer with the amount given by DefineProperBufferLength prior to calling this. reads by the RAW codec; other codecs are added once implemented

10.284.3.10 `int gdcm::StreamImageWriter::WriteRawHeader (RAWCodec * inCodec, std::ostream * inStream)`
[protected]

when writing a raw file, we know the full extent, and can just write the first 12 bytes out (the tag, the [VR](#), and the size) when we do compressed files, we'll do it in chunks, as described in 2009-3, part 5, Annex A, section 4. Pass the raw codec so that in the rare case of a bigendian explicit raw, the first 12 bytes written out should still be kosher. returns -1 if there's any failure, or the complete offset (12 bytes) if it works. Those 12 bytes are then added to the position in order to determine where to write.

10.284.4 Member Data Documentation

10.284.4.1 `int gdcm::StreamImageWriter::mElementOffsets` [protected]

The result of WriteRawHeader (or another header, when that's implemented) This result is saved so that the first N bytes aren't constantly being rewritten for each chunk that's passed in. For compressed data, the offset table will require rewrites of data.

10.284.4.2 `int gdcm::StreamImageWriter::mElementOffsets1` [protected]

10.284.4.3 `SmartPointer<File> gdcm::StreamImageWriter::mspFile` [protected]

10.284.4.4 `Writer gdcm::StreamImageWriter::mWriter` [protected]

10.284.4.5 `uint16_t gdcm::StreamImageWriter::mXMax` [protected]

10.284.4.6 `uint16_t gdcm::StreamImageWriter::mXMin` [protected]

10.284.4.7 `uint16_t gdcm::StreamImageWriter::mYMax` [protected]

10.284.4.8 `uint16_t gdcm::StreamImageWriter::mYMin` [protected]

10.284.4.9 `uint16_t gdcm::StreamImageWriter::mZMax` [protected]

10.284.4.10 `uint16_t gdcm::StreamImageWriter::mZMin` [protected]

The documentation for this class was generated from the following file:

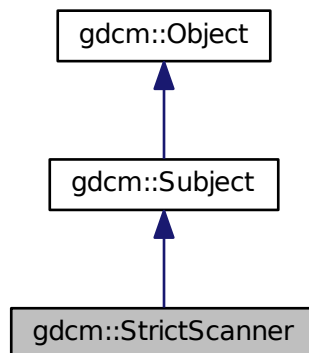
- [gdcmStreamImageWriter.h](#)

10.285 gdcM::StrictScanner Class Reference

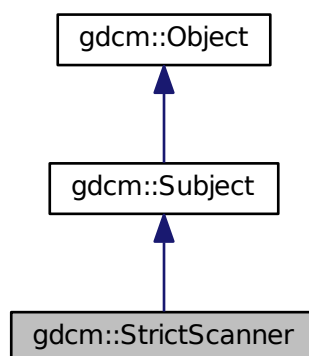
StrictScanner This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).

```
#include <gdcMStrictScanner.h>
```

Inheritance diagram for gdcM::StrictScanner:



Collaboration diagram for gdcM::StrictScanner:



Classes

- struct [ltstr](#)

Public Types

- typedef MappingType::const_iterator [ConstIterator](#)
- typedef std::map< const char *, [TagToValue](#), [Itstr](#) > [MappingType](#)
- typedef std::map< [Tag](#), const char * > [TagToValue](#)
- typedef TagToValue::value_type [TagToValueValueType](#)
- typedef std::set< std::string > [ValuesType](#)

Public Member Functions

- [StrictScanner](#) ()
- [~StrictScanner](#) ()
- void [AddPrivateTag](#) ([PrivateTag](#) const &t)
- void [AddSkipTag](#) ([Tag](#) const &t)
Add a tag that will need to be skipped. Those are root level skip tags.
- void [AddTag](#) ([Tag](#) const &t)
Add a tag that will need to be read. Those are root level skip tags.
- [ConstIterator](#) [Begin](#) () const
- void [ClearSkipTags](#) ()
- void [ClearTags](#) ()
- [ConstIterator](#) [End](#) () const
- [Directory::FilenamesType](#) [GetAllFilenamesFromTagToValue](#) ([Tag](#) const &t, const char *valueref) const
- const char * [GetFilenameFromTagToValue](#) ([Tag](#) const &t, const char *valueref) const
- [Directory::FilenamesType](#) const & [GetFilenames](#) () const
- [Directory::FilenamesType](#) [GetKeys](#) () const
- [TagToValue](#) const & [GetMapping](#) (const char *filename) const
Get the std::map mapping filenames to value for file 'filename'.
- [TagToValue](#) const & [GetMappingFromTagToValue](#) ([Tag](#) const &t, const char *value) const
See [GetFilenameFromTagToValue\(\)](#). This is simply [GetFilenameFromTagToValue](#) followed.
- [MappingType](#) const & [GetMappings](#) () const
Mappings are the mapping from a particular tag to the map, mapping filename to value:
- [Directory::FilenamesType](#) [GetOrderedValues](#) ([Tag](#) const &t) const
- const char * [GetValue](#) (const char *filename, [Tag](#) const &t) const
- [ValuesType](#) const & [GetValues](#) () const
Get all the values found (in lexicographic order)
- [ValuesType](#) [GetValues](#) ([Tag](#) const &t) const
Get all the values found (in lexicographic order) associated with [Tag](#) 't'.
- bool [IsKey](#) (const char *filename) const
- void [Print](#) (std::ostream &os) const
Print result.
- bool [Scan](#) ([Directory::FilenamesType](#) const &filenames)
Start the scan !

Static Public Member Functions

- static [SmartPointer](#)< [StrictScanner](#) > [New](#) ()
for wrapped language: instantiate a reference counted object

Protected Member Functions

- void [ProcessPublicTag](#) ([StringFilter](#) &sf, const char *filename)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [StrictScanner](#) &s)

10.285.1 Detailed Description

[StrictScanner](#) This filter is meant for quickly browsing a [FileSet](#) (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM [Attribute](#).

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of [StringFilter](#)

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- [ProgressEvent](#)
- [StartEvent](#)
- [EndEvent](#)

Examples:

[SimpleScanner.cxx](#).

10.285.2 Member Typedef Documentation

10.285.2.1 `typedef MappingType::const_iterator gdcm::StrictScanner::ConstIterator`

10.285.2.2 `typedef std::map<const char *, TagToValue, Itstr> gdcm::StrictScanner::MappingType`

10.285.2.3 `typedef std::map<Tag, const char*> gdcm::StrictScanner::TagToValue`

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. [Tag](#) are used as [Tag](#) class since sizeof(tag) <= sizeof(pointer)

10.285.2.4 `typedef TagToValue::value_type gdcm::StrictScanner::TagToValueValueType`

10.285.2.5 `typedef std::set< std::string > gdcm::StrictScanner::ValuesType`

10.285.3 Constructor & Destructor Documentation

10.285.3.1 `gdcm::StrictScanner::StrictScanner () [inline]`

10.285.3.2 `gdcm::StrictScanner::~~StrictScanner ()`

10.285.4 Member Function Documentation

10.285.4.1 `void gdcm::StrictScanner::AddPrivateTag (PrivateTag const & t)`

10.285.4.2 `void gdcm::StrictScanner::AddSkipTag (Tag const & t)`

Add a tag that will need to be skipped. Those are root level skip tags.

10.285.4.3 `void gdcm::StrictScanner::AddTag (Tag const & t)`

Add a tag that will need to be read. Those are root level skip tags.

Examples:

[SimpleScanner.cxx](#).

10.285.4.4 `ConstIterator gdcm::StrictScanner::Begin () const [inline]`

10.285.4.5 `void gdcm::StrictScanner::ClearSkipTags ()`

10.285.4.6 `void gdcm::StrictScanner::ClearTags ()`

10.285.4.7 `ConstIterator gdcm::StrictScanner::End () const [inline]`

10.285.4.8 `Directory::FileNamesType gdcm::StrictScanner::GetAllFileNamesFromTagToValue (Tag const & t, const char * valuref) const`

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valuref'

10.285.4.9 `const char* gdcm::StrictScanner::GetFilenameFromTagToValue (Tag const & t, const char * valuref) const`

Will loop over all files and return the first file where value match the reference value 'valuref'

10.285.4.10 **Directory::FileNamesType** const& gdcm::StrictScanner::GetFileNames () const [inline]

10.285.4.11 **Directory::FileNamesType** gdcm::StrictScanner::GetKeys () const

Return the list of filename that are key in the internal map, which means those filename were properly parsed

10.285.4.12 **TagToValue** const& gdcm::StrictScanner::GetMapping (const char * *filename*) const

Get the std::map mapping filenames to value for file 'filename'.

Examples:

[SimpleScanner.cxx](#).

10.285.4.13 **TagToValue** const& gdcm::StrictScanner::GetMappingFromTagToValue (Tag const & *t*, const char * *value*) const

See [GetFilenameFromTagToValue\(\)](#). This is simply GetFilenameFromTagToValue followed.

10.285.4.14 **MappingType** const& gdcm::StrictScanner::GetMappings () const [inline]

Mappings are the mapping from a particular tag to the map, mapping filename to value:

10.285.4.15 **Directory::FileNamesType** gdcm::StrictScanner::GetOrderedValues (Tag const & *t*) const

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

10.285.4.16 const char* gdcm::StrictScanner::GetValue (const char * *filename*, Tag const & *t*) const

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via [AddTag\(\)](#) prior to the [Scan\(\)](#) call !

10.285.4.17 **ValuesType** const& gdcm::StrictScanner::GetValues () const [inline]

Get all the values found (in lexicographic order)

10.285.4.18 **ValueType** gdcm::StrictScanner::GetValues (Tag const & t) const

Get all the values found (in lexicographic order) associated with [Tag](#) 't'.

10.285.4.19 **bool** gdcm::StrictScanner::IsKey (const char * filename) const

Check if filename is a key in the Mapping table. returns true only if file can be found, which means the file was indeed a DICOM file that could be processed

Examples:

[SimpleScanner.cxx](#).

10.285.4.20 **static SmartPointer<StrictScanner>** gdcm::StrictScanner::New () [inline],[static]

for wrapped language: instantiate a reference counted object

10.285.4.21 **void** gdcm::StrictScanner::Print (std::ostream & os) const [virtual]

Print result.

Reimplemented from [gdcm::Object](#).

Referenced by `gdcm::operator<<()`.

10.285.4.22 **void** gdcm::StrictScanner::ProcessPublicTag (StringFilter & sf, const char * filename) [protected]

10.285.4.23 **bool** gdcm::StrictScanner::Scan (Directory::FileNamesType const & filenames)

Start the scan !

Examples:

[SimpleScanner.cxx](#).

10.285.5 Friends And Related Function Documentation

10.285.5.1 **std::ostream&** operator<< (std::ostream & _os, const StrictScanner & s) [friend]

The documentation for this class was generated from the following file:

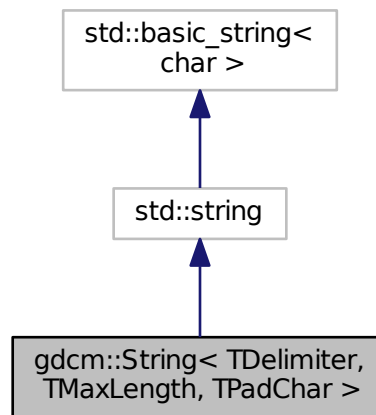
- [gdcmStrictScanner.h](#)

10.286 `gdcm::String< TDelimiter, TMaxLength, TPadChar >` Class Template Reference

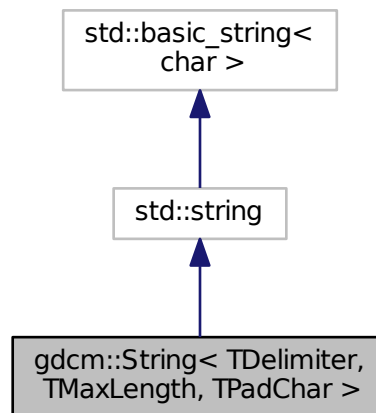
[String.](#)

```
#include <gdcmString.h>
```

Inheritance diagram for `gdcm::String< TDelimiter, TMaxLength, TPadChar >`:



Collaboration diagram for `gdcm::String< TDelimiter, TMaxLength, TPadChar >`:



Public Types

- typedef std::string::const_iterator [const_iterator](#)
- typedef std::string::const_reference [const_reference](#)
- typedef std::string::const_reverse_iterator [const_reverse_iterator](#)
- typedef std::string::difference_type [difference_type](#)
- typedef std::string::iterator [iterator](#)
- typedef std::string::pointer [pointer](#)
- typedef std::string::reference [reference](#)
- typedef std::string::reverse_iterator [reverse_iterator](#)
- typedef std::string::size_type [size_type](#)
- typedef std::string::value_type [value_type](#)

Public Member Functions

- [String](#) ()
String constructors.
- [String](#) (const [value_type](#) *s)
- [String](#) (const [value_type](#) *s, [size_type](#) n)
- [String](#) (const std::string &s, [size_type](#) pos=0, [size_type](#) n=npos)
- bool [IsValid](#) () const
return if string is valid
- [operator const char *](#) () const
WARNING: Trailing \0 might be lost in this operation:
- std::string [Trim](#) () const
- [gdcmm::String](#)< TDelimiter, TMaxLength, TPadChar > [Truncate](#) () const

Static Public Member Functions

- static std::string [Trim](#) (const char *input)

10.286.1 Detailed Description

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
class gdcmm::String< TDelimiter, TMaxLength, TPadChar >
```

[String](#).

Note

TDelimiter template parameter is used to separate multiple [String](#) (VM1 >) TMaxLength is only a hint. Noone actually respect the max length TPadChar is the string padding (0 or space)

10.286.2 Member Typedef Documentation

- 10.286.2.1 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::const_iterator gdcmm::String< TDelimiter, TMaxLength, TPadChar >::const_iterator`
- 10.286.2.2 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::const_reference gdcmm::String< TDelimiter, TMaxLength, TPadChar >::const_reference`
- 10.286.2.3 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::const_reverse_iterator gdcmm::String< TDelimiter, TMaxLength, TPadChar >::const_reverse_iterator`
- 10.286.2.4 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::difference_type gdcmm::String< TDelimiter, TMaxLength, TPadChar >::difference_type`
- 10.286.2.5 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::iterator gdcmm::String< TDelimiter, TMaxLength, TPadChar >::iterator`
- 10.286.2.6 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::pointer gdcmm::String< TDelimiter, TMaxLength, TPadChar >::pointer`
- 10.286.2.7 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::reference gdcmm::String< TDelimiter, TMaxLength, TPadChar >::reference`
- 10.286.2.8 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::reverse_iterator gdcmm::String< TDelimiter, TMaxLength, TPadChar >::reverse_iterator`
- 10.286.2.9 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::size_type gdcmm::String< TDelimiter, TMaxLength, TPadChar >::size_type`
- 10.286.2.10 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> typedef std::string::value_type gdcmm::String< TDelimiter, TMaxLength, TPadChar >::value_type`

10.286.3 Constructor & Destructor Documentation

- 10.286.3.1 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '> gdcmm::String< TDelimiter, TMaxLength, TPadChar >::String () [inline]`

[String](#) constructors.

10.286.3.2 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (const value_type * s) [inline]`

10.286.3.3 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (const value_type * s, size_type n) [inline]`

10.286.3.4 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (const std::string & s, size_type pos = 0, size_type n = npos) [inline]`

10.286.4 Member Function Documentation

10.286.4.1 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> bool gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid () const [inline]`

return if string is valid

Referenced by `gdcm::String< TDelimiter, TMaxLength, TPadChar >::Truncate()`.

10.286.4.2 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> gdcm::String< TDelimiter, TMaxLength, TPadChar >::operator const char * () const [inline]`

WARNING: Trailing \0 might be lost in this operation:

10.286.4.3 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim () const [inline]`

Trim function is required to return a `std::string` object, otherwise we could not create a `gdcm::String` object with an odd number of bytes...

10.286.4.4 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> static std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim (const char * input) [inline], [static]`

10.286.4.5 `template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = '> gdcm::String<TDelimiter, TMaxLength, TPadChar> gdcm::String< TDelimiter, TMaxLength, TPadChar >::Truncate () const [inline]`

References `gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid()`.

The documentation for this class was generated from the following file:

- [gdcmString.h](#)

10.287 gdcm::StringFilter Class Reference

[StringFilter](#) [StringFilter](#) is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.

```
#include <gdcmStringFilter.h>
```

Public Member Functions

- [StringFilter](#) ()
- [~StringFilter](#) ()
- bool [ExecuteQuery](#) (std::string const &query, std::string &value) const
- std::string [FromString](#) (const [Tag](#) &t, const char *value, [VL](#) const &vl)
- std::string [FromString](#) (const [Tag](#) &t, const char *value, size_t len)
Convert to string the char array defined by the pair (value,len)
- [File](#) & [GetFile](#) ()
- const [File](#) & [GetFile](#) () const
- void [SetDicts](#) (const [Dicts](#) &dicts)
Allow user to pass in there own dicts.
- void [SetFile](#) (const [File](#) &f)
Set/Get File.
- std::string [ToString](#) (const [DataElement](#) &de) const
- std::string [ToString](#) (const [Tag](#) &t) const
Directly from a Tag:
- std::pair< std::string, std::string > [ToStringPair](#) (const [DataElement](#) &de) const
- std::pair< std::string, std::string > [ToStringPair](#) (const [Tag](#) &t) const
Directly from a Tag:
- void [UseDictAlways](#) (bool)

Protected Member Functions

- bool [ExecuteQuery](#) (std::string const &query, [DataSet](#) const &ds, std::string &value) const
- std::pair< std::string, std::string > [ToStringPair](#) (const [Tag](#) &t, [DataSet](#) const &ds) const

10.287.1 Detailed Description

[StringFilter](#) [StringFilter](#) is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.

Examples:

[ReadAndPrintAttributes.cxx](#).

10.287.2 Constructor & Destructor Documentation

10.287.2.1 `gdcm::StringFilter::StringFilter ()`

10.287.2.2 `gdcm::StringFilter::~~StringFilter ()`

10.287.3 Member Function Documentation

10.287.3.1 `bool gdcm::StringFilter::ExecuteQuery (std::string const & query, std::string & value) const`

Execute the XPATH query to find a value (as string) return false when attribute is not found (or an error in the XPATH query) You need to make sure that your XPATH query is syntatically correct

10.287.3.2 `bool gdcm::StringFilter::ExecuteQuery (std::string const & query, DataSet const & ds, std::string & value) const`
[protected]

10.287.3.3 `std::string gdcm::StringFilter::FromString (const Tag & t, const char * value, VL const & vl)`

10.287.3.4 `std::string gdcm::StringFilter::FromString (const Tag & t, const char * value, size_t len)`

Convert to string the char array defined by the pair (value,len)

10.287.3.5 `File& gdcm::StringFilter::GetFile ()` [inline]

10.287.3.6 `const File& gdcm::StringFilter::GetFile () const` [inline]

10.287.3.7 `void gdcm::StringFilter::SetDicts (const Dicts & dicts)`

Allow user to pass in there own dicts.

10.287.3.8 `void gdcm::StringFilter::SetFile (const File & f)` [inline]

Set/Get [File](#).

Examples:

[ReadAndPrintAttributes.cxx](#), and [SimplePrintPatientName.cs](#).

10.287.3.9 `std::string gdcM::StringFilter::ToString (const DataElement & de) const`

Convert to string the [ByteValue](#) contained in a [DataElement](#). The [DataElement](#) must be coming from the actual [DataSet](#) associated with [File](#) (see [SetFile](#)).

Examples:

[ReadAndPrintAttributes.cxx](#).

10.287.3.10 `std::string gdcM::StringFilter::ToString (const Tag & t) const`

Directly from a [Tag](#):

10.287.3.11 `std::pair<std::string, std::string> gdcM::StringFilter::ToStringPair (const DataElement & de) const`

Convert to string the [ByteValue](#) contained in a [DataElement](#) the returned elements are: pair.first : the name as found in the dictionary of [DataElement](#) pair.second : the value encoded into a string (US,UL...) are properly converted

Examples:

[ReadAndPrintAttributes.cxx](#).

10.287.3.12 `std::pair<std::string, std::string> gdcM::StringFilter::ToStringPair (const Tag & t) const`

Directly from a [Tag](#):

10.287.3.13 `std::pair<std::string, std::string> gdcM::StringFilter::ToStringPair (const Tag & t, DataSet const & ds) const`
[protected]

10.287.3.14 `void gdcM::StringFilter::UseDictAlways (bool)` [inline]

References [GDCM_LEGACY](#).

The documentation for this class was generated from the following file:

- [gdcMStringFilter.h](#)

10.288 gdcM::Study Class Reference

[Study](#).

```
#include <gdcMStudy.h>
```

Public Member Functions

- [Study\(\)](#)

10.288.1 Detailed Description

[Study.](#)

10.288.2 Constructor & Destructor Documentation

10.288.2.1 `gdcm::Study::Study()` `[inline]`

The documentation for this class was generated from the following file:

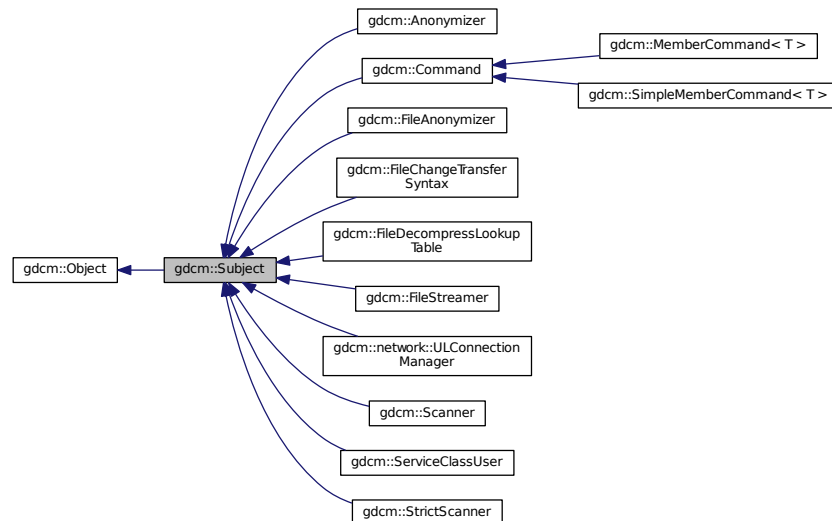
- [gdcmStudy.h](#)

10.289 gdcm::Subject Class Reference

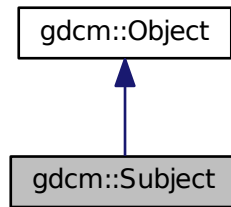
[Subject.](#)

```
#include <gdcmSubject.h>
```

Inheritance diagram for `gdcm::Subject`:



Collaboration diagram for `gdcm::Subject`:



Public Member Functions

- [Subject](#) ()
- [~Subject](#) ()
- unsigned long [AddObserver](#) (const [Event](#) &event, [Command](#) *)
- unsigned long [AddObserver](#) (const [Event](#) &event, [Command](#) *) const
- [Command](#) * [GetCommand](#) (unsigned long tag)
- bool [HasObserver](#) (const [Event](#) &event) const
- void [InvokeEvent](#) (const [Event](#) &)
- void [InvokeEvent](#) (const [Event](#) &) const
- void [RemoveAllObservers](#) ()
- void [RemoveObserver](#) (unsigned long tag)

Additional Inherited Members

10.289.1 Detailed Description

[Subject](#).

See also

[Command](#) [Event](#)

Examples:

[SimpleScanner.cxx](#).

10.289.2 Constructor & Destructor Documentation

10.289.2.1 `gdcm::Subject::Subject ()`

10.289.2.2 `gdcm::Subject::~~Subject ()`

10.289.3 Member Function Documentation

10.289.3.1 `unsigned long gdcm::Subject::AddObserver (const Event & event, Command *)`

Allow people to add/remove/invoke observers (callbacks) to any GDCM object. This is an implementation of the subject/observer design pattern. An observer is added by specifying an event to respond to and an [gdcm::Command](#) to execute. It returns an unsigned long tag which can be used later to remove the event or retrieve the command. The memory for the [Command](#) becomes the responsibility of this object, so don't pass the same instance of a command to two different objects

10.289.3.2 `unsigned long gdcm::Subject::AddObserver (const Event & event, Command *) const`

10.289.3.3 `Command* gdcm::Subject::GetCommand (unsigned long tag)`

Get the command associated with the given tag. NOTE: This returns a pointer to a [Command](#), but it is safe to assign this to a `Command::Pointer`. Since [Command](#) inherits from `LightObject`, at this point in the code, only a pointer or a reference to the [Command](#) can be used.

10.289.3.4 `bool gdcm::Subject::HasObserver (const Event & event) const`

Return true if an observer is registered for this event.

10.289.3.5 `void gdcm::Subject::InvokeEvent (const Event &)`

Call Execute on all the Commands observing this event id.

10.289.3.6 `void gdcm::Subject::InvokeEvent (const Event &) const`

Call Execute on all the Commands observing this event id. The actions triggered by this call doesn't modify this object.

10.289.3.7 `void gdcm::Subject::RemoveAllObservers ()`

Remove all observers .

10.289.3.8 void `gdcm::Subject::RemoveObserver` (unsigned long *tag*)

Remove the observer with this tag value.

The documentation for this class was generated from the following file:

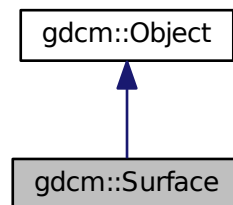
- [gdcmSubject.h](#)

10.290 `gdcm::Surface` Class Reference

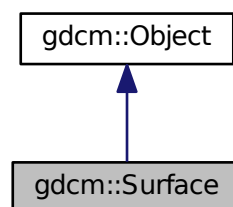
This class defines a SURFACE IE. This members are taken from required surface mesh module attributes.

```
#include <gdcmSurface.h>
```

Inheritance diagram for `gdcm::Surface`:



Collaboration diagram for `gdcm::Surface`:



Public Types

- enum [STATES](#) {
[NO](#) = 0,
[YES](#),
[UNKNOWN](#),
[STATES_END](#) }
- enum [VIEWType](#) {
[SURFACE](#) = 0,
[WIREFRAME](#),
[POINTS](#),
[VIEWType_END](#) }

Enumeration for Recommended Presentation [Type](#).

Public Member Functions

- [Surface](#) ()
- virtual [~Surface](#) ()
- [SegmentHelper::BasicCodedEntry](#) const & [GetAlgorithmFamily](#) () const
- [SegmentHelper::BasicCodedEntry](#) & [GetAlgorithmFamily](#) ()
- const char * [GetAlgorithmName](#) () const
- const char * [GetAlgorithmVersion](#) () const
- const float * [GetAxisOfRotation](#) () const
- const float * [GetCenterOfRotation](#) () const
- [STATES](#) [GetFiniteVolume](#) () const
- [STATES](#) [GetManifold](#) () const
- float [GetMaximumPointDistance](#) () const
- float [GetMeanPointDistance](#) () const
- [MeshPrimitive](#) const & [GetMeshPrimitive](#) () const
- [MeshPrimitive](#) & [GetMeshPrimitive](#) ()
- unsigned long [GetNumberOfSurfacePoints](#) () const
- unsigned long [GetNumberOfVectors](#) () const
- const [DataElement](#) & [GetPointCoordinatesData](#) () const
- [DataElement](#) & [GetPointCoordinatesData](#) ()
- const float * [GetPointPositionAccuracy](#) () const
- const float * [GetPointsBoundingBoxCoordinates](#) () const
- [SegmentHelper::BasicCodedEntry](#) const & [GetProcessingAlgorithm](#) () const
- [SegmentHelper::BasicCodedEntry](#) & [GetProcessingAlgorithm](#) ()
- const unsigned short * [GetRecommendedDisplayCIELabValue](#) () const
- unsigned short [GetRecommendedDisplayCIELabValue](#) (const unsigned int idx) const
- unsigned short [GetRecommendedDisplayGrayscaleValue](#) () const
- float [GetRecommendedPresentationOpacity](#) () const
- [VIEWType](#) [GetRecommendedPresentationType](#) () const
- const char * [GetSurfaceComments](#) () const
- unsigned long [GetSurfaceNumber](#) () const
- bool [GetSurfaceProcessing](#) () const
- const char * [GetSurfaceProcessingDescription](#) () const
- float [GetSurfaceProcessingRatio](#) () const
- const float * [GetVectorAccuracy](#) () const
- const [DataElement](#) & [GetVectorCoordinateData](#) () const

- [DataElement](#) & [GetVectorCoordinateData](#) ()
- unsigned short [GetVectorDimensionality](#) () const
- void [SetAlgorithmFamily](#) ([SegmentHelper::BasicCodedEntry](#) const &BSE)
- void [SetAlgorithmName](#) (const char *str)
- void [SetAlgorithmVersion](#) (const char *str)
- void [SetAxisOfRotation](#) (const float *axis)
- void [SetCenterOfRotation](#) (const float *center)
- void [SetFiniteVolume](#) ([STATES](#) state)
- void [SetManifold](#) ([STATES](#) state)
- void [SetMaximumPointDistance](#) (float maximum)
- void [SetMeanPointDistance](#) (float average)
- void [SetMeshPrimitive](#) ([MeshPrimitive](#) &mp)
- void [SetNumberOfSurfacePoints](#) (const unsigned long nb)
- void [SetNumberOfVectors](#) (const unsigned long nb)
- void [SetPointCoordinatesData](#) ([DataElement](#) const &de)
- void [SetPointPositionAccuracy](#) (const float *accuracies)
- void [SetPointsBoundingBoxCoordinates](#) (const float *coordinates)
- void [SetProcessingAlgorithm](#) ([SegmentHelper::BasicCodedEntry](#) const &BSE)
- void [SetRecommendedDisplayCIELabValue](#) (const unsigned short vl[3])
- void [SetRecommendedDisplayCIELabValue](#) (const unsigned short vl, const unsigned int idx=0)
- void [SetRecommendedDisplayCIELabValue](#) (const std::vector< unsigned short > &vl)
- void [SetRecommendedDisplayGrayscaleValue](#) (const unsigned short vl)
- void [SetRecommendedPresentationOpacity](#) (const float opacity)
- void [SetRecommendedPresentationType](#) ([VIEWType](#) type)
- void [SetSurfaceComments](#) (const char *comment)
- void [SetSurfaceNumber](#) (const unsigned long nb)
- void [SetSurfaceProcessing](#) (bool b)
- void [SetSurfaceProcessingDescription](#) (const char *description)
- void [SetSurfaceProcessingRatio](#) (const float ratio)
- void [SetVectorAccuracy](#) (const float *accuracy)
- void [SetVectorCoordinateData](#) ([DataElement](#) const &de)
- void [SetVectorDimensionality](#) (const unsigned short dim)

Static Public Member Functions

- static [STATES](#) [GetSTATES](#) (const char *state)
- static const char * [GetSTATESString](#) ([STATES](#) state)
- static [VIEWType](#) [GetVIEWType](#) (const char *type)
- static const char * [GetVIEWTypeString](#) ([VIEWType](#) type)

Additional Inherited Members

10.290.1 Detailed Description

This class defines a SURFACE IE. This members are taken from required surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

10.290.2 Member Enumeration Documentation

10.290.2.1 enum gdcm::Surface::STATES

Enumerator

NO
YES
UNKNOWN
STATES_END

10.290.2.2 enum gdcm::Surface::VIEWType

Enumeration for Recommended Presentation [Type](#).

See also

Tag(0x0066, 0x000D) and PS 3.3 C.27.1.1.3

Enumerator

SURFACE
WIREFRAME
POINTS
VIEWType_END

10.290.3 Constructor & Destructor Documentation

10.290.3.1 gdcm::Surface::Surface ()

10.290.3.2 virtual gdcm::Surface::~~Surface () [virtual]

10.290.4 Member Function Documentation

10.290.4.1 SegmentHelper::BasicCodedEntry const& gdcm::Surface::GetAlgorithmFamily () const

10.290.4.2 SegmentHelper::BasicCodedEntry& gdcm::Surface::GetAlgorithmFamily ()

10.290.4.3 const char* gdcm::Surface::GetAlgorithmName () const

10.290.4.4 const char* gdcm::Surface::GetAlgorithmVersion () const

10.290.4.5 const float* gdcm::Surface::GetAxisOfRotation () const

Note

Pointer is null if undefined

10.290.4.6 `const float* gdcm::Surface::GetCenterOfRotation () const`

Note

Pointer is null if undefined

10.290.4.7 **STATES** `gdcm::Surface::GetFiniteVolume () const`

10.290.4.8 **STATES** `gdcm::Surface::GetManifold () const`

10.290.4.9 `float gdcm::Surface::GetMaximumPointDistance () const`

10.290.4.10 `float gdcm::Surface::GetMeanPointDistance () const`

10.290.4.11 **MeshPrimitive** `const& gdcm::Surface::GetMeshPrimitive () const`

10.290.4.12 **MeshPrimitive&** `gdcm::Surface::GetMeshPrimitive ()`

10.290.4.13 `unsigned long gdcm::Surface::GetNumberOfSurfacePoints () const`

10.290.4.14 `unsigned long gdcm::Surface::GetNumberOfVectors () const`

10.290.4.15 `const DataElement& gdcm::Surface::GetPointCoordinatesData () const`

10.290.4.16 **DataElement&** `gdcm::Surface::GetPointCoordinatesData ()`

10.290.4.17 `const float* gdcm::Surface::GetPointPositionAccuracy () const`

Note

Pointer is null if undefined

10.290.4.18 `const float* gdcm::Surface::GetPointsBoundingBoxCoordinates () const`

Note

Pointer is null if undefined

- 10.290.4.19 `SegmentHelper::BasicCodedEntry const& gdcm::Surface::GetProcessingAlgorithm () const`
- 10.290.4.20 `SegmentHelper::BasicCodedEntry& gdcm::Surface::GetProcessingAlgorithm ()`
- 10.290.4.21 `const unsigned short* gdcm::Surface::GetRecommendedDisplayCIELabValue () const`
- 10.290.4.22 `unsigned short gdcm::Surface::GetRecommendedDisplayCIELabValue (const unsigned int idx) const`
- 10.290.4.23 `unsigned short gdcm::Surface::GetRecommendedDisplayGrayscaleValue () const`
- 10.290.4.24 `float gdcm::Surface::GetRecommendedPresentationOpacity () const`
- 10.290.4.25 `VIEWType gdcm::Surface::GetRecommendedPresentationType () const`
- 10.290.4.26 `static STATES gdcm::Surface::GetSTATES (const char * state) [static]`
- 10.290.4.27 `static const char* gdcm::Surface::GetSTATESString (STATES state) [static]`
- 10.290.4.28 `const char* gdcm::Surface::GetSurfaceComments () const`
- 10.290.4.29 `unsigned long gdcm::Surface::GetSurfaceNumber () const`
- 10.290.4.30 `bool gdcm::Surface::GetSurfaceProcessing () const`
- 10.290.4.31 `const char* gdcm::Surface::GetSurfaceProcessingDescription () const`
- 10.290.4.32 `float gdcm::Surface::GetSurfaceProcessingRatio () const`
- 10.290.4.33 `const float* gdcm::Surface::GetVectorAccuracy () const`
- 10.290.4.34 `const DataElement& gdcm::Surface::GetVectorCoordinateData () const`
- 10.290.4.35 `DataElement& gdcm::Surface::GetVectorCoordinateData ()`
- 10.290.4.36 `unsigned short gdcm::Surface::GetVectorDimensionality () const`
- 10.290.4.37 `static VIEWType gdcm::Surface::GetVIEWType (const char * type) [static]`
- 10.290.4.38 `static const char* gdcm::Surface::GetVIEWTypeString (VIEWType type) [static]`
- 10.290.4.39 `void gdcm::Surface::SetAlgorithmFamily (SegmentHelper::BasicCodedEntry const & BSE)`

- 10.290.4.40 void gdcM::Surface::SetAlgorithmName (const char * *str*)
- 10.290.4.41 void gdcM::Surface::SetAlgorithmVersion (const char * *str*)
- 10.290.4.42 void gdcM::Surface::SetAxisOfRotation (const float * *axis*)
- 10.290.4.43 void gdcM::Surface::SetCenterOfRotation (const float * *center*)
- 10.290.4.44 void gdcM::Surface::SetFiniteVolume (STATES *state*)
- 10.290.4.45 void gdcM::Surface::SetManifold (STATES *state*)
- 10.290.4.46 void gdcM::Surface::SetMaximumPointDistance (float *maximum*)
- 10.290.4.47 void gdcM::Surface::SetMeanPointDistance (float *average*)
- 10.290.4.48 void gdcM::Surface::SetMeshPrimitive (MeshPrimitive & *mp*)
- 10.290.4.49 void gdcM::Surface::SetNumberOfSurfacePoints (const unsigned long *nb*)
- 10.290.4.50 void gdcM::Surface::SetNumberOfVectors (const unsigned long *nb*)
- 10.290.4.51 void gdcM::Surface::SetPointCoordinatesData (DataElement const & *de*)
- 10.290.4.52 void gdcM::Surface::SetPointPositionAccuracy (const float * *accuracies*)
- 10.290.4.53 void gdcM::Surface::SetPointsBoundingBoxCoordinates (const float * *coordinates*)
- 10.290.4.54 void gdcM::Surface::SetProcessingAlgorithm (SegmentHelper::BasicCodedEntry const & *BSE*)
- 10.290.4.55 void gdcM::Surface::SetRecommendedDisplayCIELabValue (const unsigned short *vl[3]*)
- 10.290.4.56 void gdcM::Surface::SetRecommendedDisplayCIELabValue (const unsigned short *vl*, const unsigned int *idx* = 0)
- 10.290.4.57 void gdcM::Surface::SetRecommendedDisplayCIELabValue (const std::vector< unsigned short > & *vl*)
- 10.290.4.58 void gdcM::Surface::SetRecommendedDisplayGrayscaleValue (const unsigned short *vl*)
- 10.290.4.59 void gdcM::Surface::SetRecommendedPresentationOpacity (const float *opacity*)
- 10.290.4.60 void gdcM::Surface::SetRecommendedPresentationType (VIEWType *type*)

- 10.290.4.61 void gdcm::Surface::SetSurfaceComments (const char * *comment*)
- 10.290.4.62 void gdcm::Surface::SetSurfaceNumber (const unsigned long *nb*)
- 10.290.4.63 void gdcm::Surface::SetSurfaceProcessing (bool *b*)
- 10.290.4.64 void gdcm::Surface::SetSurfaceProcessingDescription (const char * *description*)
- 10.290.4.65 void gdcm::Surface::SetSurfaceProcessingRatio (const float *ratio*)
- 10.290.4.66 void gdcm::Surface::SetVectorAccuracy (const float * *accuracy*)
- 10.290.4.67 void gdcm::Surface::SetVectorCoordinateData (DataElement const & *de*)
- 10.290.4.68 void gdcm::Surface::SetVectorDimensionality (const unsigned short *dim*)

The documentation for this class was generated from the following file:

- [gdcmSurface.h](#)

10.291 gdcm::SurfaceHelper Class Reference

[SurfaceHelper](#) Helper class for [Surface](#) object.

```
#include <gdcmSurfaceHelper.h>
```

Public Types

- typedef std::vector< unsigned short > [ColorArray](#)

Static Public Member Functions

- template<typename T , typename U >
static std::vector< T > [RecommendedDisplayCIELabToRGB](#) (const [ColorArray](#) &CIELab, const U range←
Max=255)
Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename U >
static std::vector< float > [RecommendedDisplayCIELabToRGB](#) (const [ColorArray](#) &CIELab, const U range←
Max=255)
Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T , typename U >
static [ColorArray](#) [RGBToRecommendedDisplayCIELab](#) (const std::vector< T > &RGB, const U rangeMax=255)
Convert a RGB color into DICOM CIE-Lab (ready to write).
- template<typename T , typename U >
static unsigned short [RGBToRecommendedDisplayGrayscale](#) (const std::vector< T > &RGB, const U range←
Max=255)
Convert a RGB color into DICOM grayscale (ready to write).

10.291.1 Detailed Description

[SurfaceHelper](#) Helper class for [Surface](#) object.

10.291.2 Member Typedef Documentation

10.291.2.1 `typedef std::vector< unsigned short > gdcm::SurfaceHelper::ColorArray`

10.291.3 Member Function Documentation

10.291.3.1 `template<typename T , typename U > std::vector< T > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (const ColorArray & CIELab, const U rangeMax = 255) [static]`

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

<i>CIELab</i>	DICOM CIE-Lab array.
<i>rangeMax</i>	Max value of the RGB range.

Template Parameters

<i>T</i>	Type of CIELab components.
<i>U</i>	Type of rangeMax value.

10.291.3.2 `template<typename U > std::vector< float > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (const ColorArray & CIELab, const U rangeMax = 255) [static]`

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

<i>CIELab</i>	DICOM CIE-Lab array.
<i>rangeMax</i>	Max value of the RGB range.

Template Parameters

<i>U</i>	Type of rangeMax value.
----------	-------------------------

10.291.3.3 `template<typename T , typename U > SurfaceHelper::ColorArray gdcm::SurfaceHelper::RGBToRecommendedDisplayCIELab (const std::vector< T > & RGB, const U rangeMax = 255) [static]`

Convert a RGB color into DICOM CIE-Lab (ready to write).

See also

PS 3.3 C.10.7.1.1

Parameters

<i>RGB</i>	RGB array.
<i>rangeMax</i>	Max value of the RGB range.

Template Parameters

<i>T</i>	Type of RGB components.
<i>U</i>	Type of rangeMax value.

10.291.3.4 `template<typename T , typename U > unsigned short gdcm::SurfaceHelper::RGBToRecommendedDisplayGrayscale (const std::vector< T > & RGB, const U rangeMax = 255) [static]`

Convert a RGB color into DICOM grayscale (ready to write).

See also

PS 3.3 C.27.1 tag(0062,000C)

Parameters

<i>RGB</i>	RGB array.
<i>rangeMax</i>	Max value of the RGB range.

Template Parameters

<i>T</i>	Type of RGB components.
<i>U</i>	Type of rangeMax value.

The documentation for this class was generated from the following file:

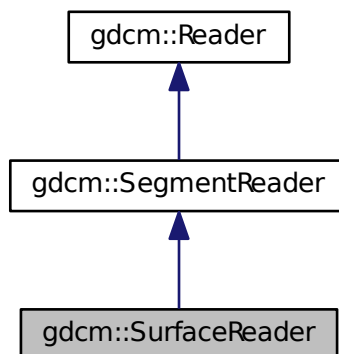
- [gdcmSurfaceHelper.h](#)

10.292 gdcm::SurfaceReader Class Reference

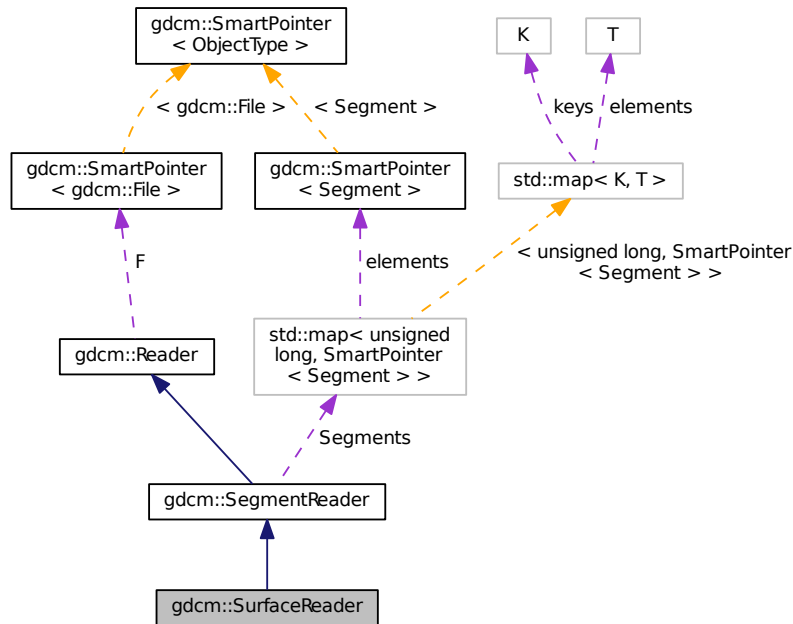
This class defines a SURFACE IE reader. It reads surface mesh module attributes.

```
#include <gdcmSurfaceReader.h>
```

Inheritance diagram for gdcm::SurfaceReader:



Collaboration diagram for gdcm::SurfaceReader:



Public Member Functions

- [SurfaceReader](#) ()
- virtual [~SurfaceReader](#) ()
- unsigned long [GetNumberOfSurfaces](#) () const
- virtual bool [Read](#) ()

Read.

Protected Member Functions

- bool [ReadPointMacro](#) ([SmartPointer< Surface >](#) surface, const [DataSet](#) &surfaceDS)
- bool [ReadSurface](#) (const [Item](#) &surfaceItem, const unsigned long idx)
- bool [ReadSurfaces](#) ()

Additional Inherited Members

10.292.1 Detailed Description

This class defines a SURFACE IE reader. It reads surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

10.292.2 Constructor & Destructor Documentation

10.292.2.1 `gdcm::SurfaceReader::SurfaceReader ()`

10.292.2.2 `virtual gdcm::SurfaceReader::~~SurfaceReader ()` [virtual]

10.292.3 Member Function Documentation

10.292.3.1 `unsigned long gdcm::SurfaceReader::GetNumberOfSurfaces ()` const

10.292.3.2 `virtual bool gdcm::SurfaceReader::Read ()` [virtual]

Read.

Reimplemented from [gdcm::SegmentReader](#).

10.292.3.3 `bool gdcm::SurfaceReader::ReadPointMacro (SmartPointer< Surface > surface, const DataSet & surfaceDS)`
[protected]

10.292.3.4 `bool gdcm::SurfaceReader::ReadSurface (const Item & surfaceltem, const unsigned long idx)` [protected]

10.292.3.5 `bool gdcm::SurfaceReader::ReadSurfaces ()` [protected]

The documentation for this class was generated from the following file:

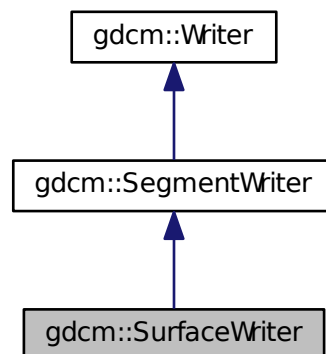
- [gdcmSurfaceReader.h](#)

10.293 gdcm::SurfaceWriter Class Reference

This class defines a SURFACE IE writer. It writes surface mesh module attributes.

```
#include <gdcmSurfaceWriter.h>
```

Inheritance diagram for `gdcm::SurfaceWriter`:



[illegible]

- `SurfaceWriter ()`
- `virtual ~SurfaceWriter ()`
- `unsigned long GetNumberOfSurfaces ()`
- `void SetNumberOfSurfaces (const unsigned long nb)`
- `bool Write ()`

Generated by Doxygen

10.293.2 Constructor & Destructor Documentation

10.293.2.1 `gdcm::SurfaceWriter::SurfaceWriter ()`

10.293.2.2 `virtual gdcm::SurfaceWriter::~~SurfaceWriter ()` `[virtual]`

10.293.3 Member Function Documentation

10.293.3.1 `void gdcm::SurfaceWriter::ComputeNumberOfSurfaces ()` `[protected]`

10.293.3.2 `unsigned long gdcm::SurfaceWriter::GetNumberOfSurfaces ()`

10.293.3.3 `bool gdcm::SurfaceWriter::PrepareWrite ()` `[protected]`

10.293.3.4 `bool gdcm::SurfaceWriter::PrepareWritePointMacro (SmartPointer< Surface > surface, DataSet & surfaceDS, const TransferSyntax & ts)` `[protected]`

10.293.3.5 `void gdcm::SurfaceWriter::SetNumberOfSurfaces (const unsigned long nb)`

10.293.3.6 `bool gdcm::SurfaceWriter::Write ()` `[virtual]`

Write.

Reimplemented from [gdcm::SegmentWriter](#).

10.293.4 Member Data Documentation

10.293.4.1 `unsigned long gdcm::SurfaceWriter::NumberOfSurfaces` `[protected]`

The documentation for this class was generated from the following file:

- [gdcmSurfaceWriter.h](#)

10.294 gdcm::SwapCode Class Reference

[SwapCode](#) representation.

```
#include <gdcmSwapCode.h>
```


Public Types

- enum [SwapCodeType](#) {
 [Unknown](#) = 0,
 [LittleEndian](#) = 1234,
 [BigEndian](#) = 4321,
 [BadLittleEndian](#) = 3412,
 [BadBigEndian](#) = 2143 }

Public Member Functions

- [SwapCode](#) ([SwapCodeType](#) sc=[Unknown](#))
- [operator SwapCode::SwapCodeType](#) () const

Static Public Member Functions

- static const char * [GetSwapCodeString](#) ([SwapCode](#) const &sc)

Static Protected Member Functions

- static int [GetIndex](#) ([SwapCode](#) const &sc)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [SwapCode](#) &sc)

10.294.1 Detailed Description

[SwapCode](#) representation.

Examples:

[TestByteSwap.cxx](#).

10.294.2 Member Enumeration Documentation

10.294.2.1 enum gdcm::SwapCode::SwapCodeType

Enumerator

Unknown

LittleEndian

BigEndian

BadLittleEndian

BadBigEndian

10.294.3 Constructor & Destructor Documentation

10.294.3.1 `gdcm::SwapCode::SwapCode (SwapCodeType sc = Unknown)` `[inline]`

References `gdcm::operator<<()`.

10.294.4 Member Function Documentation

10.294.4.1 `static int gdcm::SwapCode::GetIndex (SwapCode const & sc)` `[static]`, `[protected]`

10.294.4.2 `static const char* gdcm::SwapCode::GetSwapCodeString (SwapCode const & sc)` `[static]`

Referenced by `gdcm::operator<<()`.

10.294.4.3 `gdcm::SwapCode::operator SwapCode::SwapCodeType () const` `[inline]`

10.294.5 Friends And Related Function Documentation

10.294.5.1 `std::ostream& operator<< (std::ostream & os, const SwapCode & sc)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmSwapCode.h](#)

10.295 gdcm::SwapperDoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- `template<typename T >`
static T [Swap](#) (T val)
- `template<typename T >`
static void [SwapArray](#) (T *array, size_t n)

10.295.1 Member Function Documentation

10.295.1.1 `template<typename T> static T gdcm::SwapperDoOp::Swap (T val) [static]`

10.295.1.2 `template<typename T> static void gdcm::SwapperDoOp::SwapArray (T * array, size_t n) [inline], [static]`

The documentation for this class was generated from the following file:

- [gdcmSwapper.h](#)

10.296 gdcm::SwapperNoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- `template<typename T> static T Swap (T val)`
- `template<typename T> static void SwapArray (T *, size_t)`

10.296.1 Detailed Description

Examples:

[ReadExplicitLengthSQIVR.cxx](#).

10.296.2 Member Function Documentation

10.296.2.1 `template<typename T> static T gdcm::SwapperNoOp::Swap (T val) [inline], [static]`

10.296.2.2 `template<typename T> static void gdcm::SwapperNoOp::SwapArray (T *, size_t) [inline], [static]`

The documentation for this class was generated from the following file:

- [gdcmSwapper.h](#)

10.297 gdcm::System Class Reference

Class to do system operation.

```
#include <gdcmSystem.h>
```

Static Public Member Functions

- static bool [DeleteDirectory](#) (const char *source)
remove a directory named source
- static size_t [EncodeBytes](#) (char *out, const unsigned char *data, int size)
- static bool [FileExists](#) (const char *filename)
Check whether the specified file exist on the sytem.
- static bool [FileIsDirectory](#) (const char *name)
Check whether the file specified is a directory:
- static bool [FileIsSymlink](#) (const char *name)
Check whether name is a symlink.
- static size_t [FileSize](#) (const char *filename)
- static time_t [FileTime](#) (const char *filename)
- static bool [FormatDateTime](#) (char date[22], time_t t, long milliseconds=0)
- static bool [GetCurrentDateTime](#) (char date[22])
- static const char * [GetCurrentModuleFileName](#) ()
- static const char * [GetCurrentProcessFileName](#) ()
- static const char * [GetCurrentResourcesDirectory](#) ()
- static const char * [GetCWD](#) ()
- static bool [GetHostName](#) (char hostname[255])
- static const char * [GetLastError](#) ()
Return the last error.
- static const char * [GetLocaleCharset](#) ()
return locale charmap
- static const char * [GetTimezoneOffsetFromUTC](#) ()
- static bool [MakeDirectory](#) (const char *path)
Create a directory name path.
- static bool [ParseDateTime](#) (time_t &timep, const char date[22])
Parse a date stored as ASCII text into a time_t structured (discard millisecond if any)
- static bool [ParseDateTime](#) (time_t &timep, long &milliseconds, const char date[22])
- static bool [RemoveFile](#) (const char *source)
remove a file named source
- static int [StrCaseCmp](#) (const char *s1, const char *s2)
consistent func for C99 spec of strcasecmp/strncasecmp
- static int [StrNCaseCmp](#) (const char *s1, const char *s2, size_t n)
- static char * [StrSep](#) (char **stringp, const char *delim)
- static char * [StrTokR](#) (char *ptr, const char *sep, char **end)
strtok_r

Static Protected Member Functions

- static bool [GetPermissions](#) (const char *file, unsigned short &mode)
NOT THREAD SAFE.
- static bool [SetPermissions](#) (const char *file, unsigned short mode)

10.297.1 Detailed Description

Class to do system operation.

OS independent functionalities

10.297.2 Member Function Documentation

10.297.2.1 `static bool gdcm::System::DeleteDirectory (const char * source)` `[static]`

remove a directory named source

10.297.2.2 `static size_t gdcm::System::EncodeBytes (char * out, const unsigned char * data, int size)` `[static]`

Used internally by the [UIDGenerator](#) class to convert a uuid tape to a DICOM [VR:UI](#) type

10.297.2.3 `static bool gdcm::System::FileExists (const char * filename)` `[static]`

Check whether the specified file exist on the sytem.

Examples:

[EncapsulateFileInRawData.cxx](#), [gdcmorthoplanes.cxx](#), and [MagnifyFile.cxx](#).

10.297.2.4 `static bool gdcm::System::FileIsDirectory (const char * name)` `[static]`

Check whether the file specified is a directory:

Examples:

[gdcmorthoplanes.cxx](#), and [threadgdcm.cxx](#).

10.297.2.5 `static bool gdcm::System::FileIsSymlink (const char * name)` `[static]`

Check whether name is a symlink.

10.297.2.6 `static size_t gdcm::System::FileSize (const char * filename) [static]`

Return the filesize. 0 if file does not exist.

Warning

you need to use FileExists to differentiate between empty file and missing file.
for very large size file and on system where size_t is not appropriate to store off_t value the function will return 0.

Examples:

[CheckBigEndianBug.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [EncapsulateFileInRawData.cxx](#), and [SimpleScanner.cxx](#).

10.297.2.7 `static time_t gdcm::System::FileTime (const char * filename) [static]`

Return the time of last modification of file 0 if the file does not exist

10.297.2.8 `static bool gdcm::System::FormatDateTime (char date[22], time_t t, long milliseconds = 0) [static]`

format as ASCII text a time_t with milliseconds See [VR::DT](#) from DICOM PS 3.5 milliseconds is in the range [0, 999999]

10.297.2.9 `static bool gdcm::System::GetCurrentDateTime (char date[22]) [static]`

Return the current data time, and format it as ASCII text. This is simply a call to `gettimeofday` + `FormatDateTime`, since WIN32 do not have an implementation for `gettimeofday`, this is more portable. The call `time(0)` is not precise for our resolution

10.297.2.10 `static const char* gdcm::System::GetCurrentModuleFileName () [static]`

Return the directory the current module is located: NOT THREAD SAFE

10.297.2.11 `static const char* gdcm::System::GetCurrentProcessFileName () [static]`

Return the directory the current process (executable) is located: NOT THREAD SAFE

10.297.2.12 `static const char* gdcm::System::GetCurrentResourcesDirectory () [static]`

On some system (Apple) return the path to the current bundled 'Resources' directory NOT THREAD SAFE

10.297.2.13 `static const char* gdcmm::System::GetCWD () [static]`

Return current working directory Warning: if current working path is too long (>2048 bytes) the call will fail and call will return NULL NOT THREAD SAFE

10.297.2.14 `static bool gdcmm::System::GetHostName (char hostname[255]) [static]`

Retrieve the hostname, only the first 255 byte are copied. This may come handy to specify the Station Name

10.297.2.15 `static const char* gdcmm::System::GetLastError () [static]`

Return the last error.

10.297.2.16 `static const char* gdcmm::System::GetLocaleCharset () [static]`

return locale charmap

10.297.2.17 `static bool gdcmm::System::GetPermissions (const char * file, unsigned short & mode) [static],
[protected]`

NOT THREAD SAFE.

10.297.2.18 `static const char* gdcmm::System::GetTimezoneOffsetFromUTC () [static]`

Return the value for Timezone Offset From UTC as string.

Warning

not thread safe

10.297.2.19 `static bool gdcmm::System::MakeDirectory (const char * path) [static]`

Create a directory name path.

10.297.2.20 `static bool gdcmm::System::ParseDateTime (time_t & timep, const char date[22]) [static]`

Parse a date stored as ASCII text into a time_t structured (discard millisecond if any)

10.297.2.21 `static bool gdcm::System::ParseDateTime (time_t & timep, long & milliseconds, const char date[22]) [static]`

Parse a date stored as ASCII text into a time_t structured and millisecond

See also

[FormatDateTime](#)

10.297.2.22 `static bool gdcm::System::RemoveFile (const char * source) [static]`

remove a file named source

10.297.2.23 `static bool gdcm::System::SetPermissions (const char * file, unsigned short mode) [static],
[protected]`

10.297.2.24 `static int gdcm::System::StrCaseCmp (const char * s1, const char * s2) [static]`

consistent func for C99 spec of strcasecmp/strncasecmp

10.297.2.25 `static int gdcm::System::StrNCaseCmp (const char * s1, const char * s2, size_t n) [static]`

Precondition

`n != 0`

10.297.2.26 `static char* gdcm::System::StrSep (char ** stringp, const char * delim) [static]`

strsep param stringp is passed by pointer, it may be modified, you'll need to make a copy, in case you want to free the memory pointed at

10.297.2.27 `static char* gdcm::System::StrTokR (char * ptr, const char * sep, char ** end) [static]`

strtok_r

The documentation for this class was generated from the following file:

- [gdcmSystem.h](#)

10.298 gdcm::Table Class Reference

[Table](#).

```
#include <gdcmTable.h>
```


Public Types

- typedef std::map< [Tag](#), [TableEntry](#) > [MapTableEntry](#)

Public Member Functions

- [Table](#) ()
- [~Table](#) ()
- const [TableEntry](#) & [GetTableEntry](#) (const [Tag](#) &tag) const
- void [InsertEntry](#) ([Tag](#) const &tag, [TableEntry](#) const &te)

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Table](#) &_val)

10.298.1 Detailed Description

[Table](#).

10.298.2 Member Typedef Documentation

10.298.2.1 typedef std::map<[Tag](#), [TableEntry](#)> [gdcm::Table::MapTableEntry](#)

10.298.3 Constructor & Destructor Documentation

10.298.3.1 [gdcm::Table::Table](#) () [\[inline\]](#)

Referenced by [GetTableEntry\(\)](#).

10.298.3.2 [gdcm::Table::~~Table](#) () [\[inline\]](#)

References [operator<<](#).

10.298.4 Member Function Documentation

10.298.4.1 const [TableEntry](#)& [gdcm::Table::GetTableEntry](#) (const [Tag](#) & *tag*) const [\[inline\]](#)

References [Table\(\)](#).

10.298.4.2 void gdcM::Table::InsertEntry (Tag const & tag, TableEntry const & te) [inline]

10.298.5 Friends And Related Function Documentation

10.298.5.1 std::ostream& operator<< (std::ostream &_os, const Table &_val) [friend]

Referenced by ~Table().

The documentation for this class was generated from the following file:

- [gdcMTable.h](#)

10.299 gdcM::TableEntry Class Reference

[TableEntry](#).

```
#include <gdcMTableEntry.h>
```

Public Member Functions

- [TableEntry](#) (const char *attribute=0, [Type](#) const &type=[Type](#)(), const char *des=0)
- [~TableEntry](#) ()

10.299.1 Detailed Description

[TableEntry](#).

10.299.2 Constructor & Destructor Documentation

10.299.2.1 gdcM::TableEntry::TableEntry (const char * attribute = 0, [Type](#) const & type = [Type](#)() , const char * des = 0)
[inline]

10.299.2.2 gdcM::TableEntry::~~TableEntry () [inline]

The documentation for this class was generated from the following file:

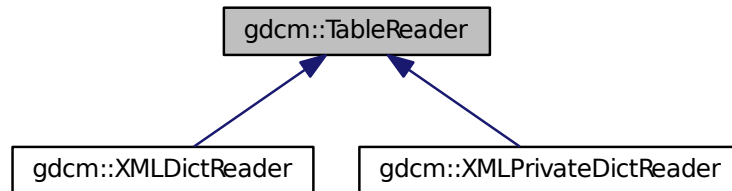
- [gdcMTableEntry.h](#)

10.300 gdcmm::TableReader Class Reference

Class for representing a [TableReader](#).

```
#include <gdcmmTableReader.h>
```

Inheritance diagram for gdcmm::TableReader:



Public Member Functions

- [TableReader](#) (Defs &defs)
- virtual [~TableReader](#) ()
- virtual void [CharacterDataHandler](#) (const char *data, int length)
- virtual void [EndElement](#) (const char *name)
- const Defs & [GetDefs](#) () const
- const char * [GetFilename](#) ()
- void [HandleIOD](#) (const char **atts)
- void [HandleIODEntry](#) (const char **atts)
- void [HandleMacro](#) (const char **atts)
- void [HandleMacroEntry](#) (const char **atts)
- void [HandleMacroEntryDescription](#) (const char **atts)
- void [HandleModule](#) (const char **atts)
- void [HandleModuleEntry](#) (const char **atts)
- void [HandleModuleEntryDescription](#) (const char **atts)
- void [HandleModuleInclude](#) (const char **atts)
- int [Read](#) ()
- void [SetFilename](#) (const char *filename)
- virtual void [StartElement](#) (const char *name, const char **atts)

10.300.1 Detailed Description

Class for representing a [TableReader](#).

Note

This class is an empty shell meant to be derived

10.300.2 Constructor & Destructor Documentation

10.300.2.1 `gdcmm::TableReader::TableReader (Defs & defs)` [inline]

10.300.2.2 `virtual gdcmm::TableReader::~~TableReader ()` [inline],[virtual]

10.300.3 Member Function Documentation

10.300.3.1 `virtual void gdcmm::TableReader::CharacterDataHandler (const char * data, int length)` [virtual]

Reimplemented in [gdcmm::XMLDictReader](#), and [gdcmm::XMLPrivateDictReader](#).

10.300.3.2 `virtual void gdcmm::TableReader::EndElement (const char * name)` [virtual]

Reimplemented in [gdcmm::XMLDictReader](#), and [gdcmm::XMLPrivateDictReader](#).

10.300.3.3 `const Defs& gdcmm::TableReader::GetDefs () const` [inline]

10.300.3.4 `const char* gdcmm::TableReader::GetFilename ()` [inline]

10.300.3.5 `void gdcmm::TableReader::HandleIOD (const char ** atts)`

10.300.3.6 `void gdcmm::TableReader::HandleIODEntry (const char ** atts)`

10.300.3.7 `void gdcmm::TableReader::HandleMacro (const char ** atts)`

10.300.3.8 `void gdcmm::TableReader::HandleMacroEntry (const char ** atts)`

10.300.3.9 `void gdcmm::TableReader::HandleMacroEntryDescription (const char ** atts)`

10.300.3.10 `void gdcmm::TableReader::HandleModule (const char ** atts)`

10.300.3.11 `void gdcmm::TableReader::HandleModuleEntry (const char ** atts)`

10.300.3.12 `void gdcmm::TableReader::HandleModuleEntryDescription (const char ** atts)`

10.300.3.13 `void gdcmm::TableReader::HandleModuleInclude (const char ** atts)`

10.300.3.14 `int gdcmm::TableReader::Read ()`

10.300.3.15 `void gdcmm::TableReader::SetFilename (const char * filename)` [inline]

10.300.3.16 `virtual void gdcmm::TableReader::StartElement (const char * name, const char ** atts)` [virtual]

Reimplemented in [gdcmm::XMLDictReader](#), and [gdcmm::XMLPrivateDictReader](#).

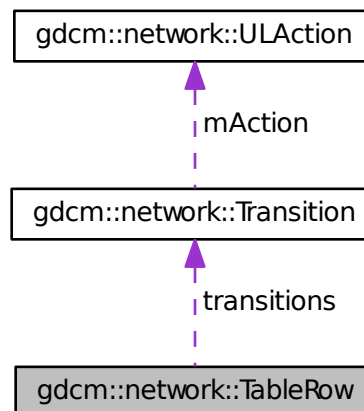
The documentation for this class was generated from the following file:

- [gdcmmTableReader.h](#)

10.301 gdcmm::network::TableRow Class Reference

```
#include <gdcmmULTransitionTable.h>
```

Collaboration diagram for gdcmm::network::TableRow:



Public Member Functions

- [TableRow](#) ()
- [~TableRow](#) ()

Public Attributes

- [Transition](#) * [transitions](#) [[cMaxStateID](#)]

10.301.1 Constructor & Destructor Documentation

10.301.1.1 gdcmm::network::TableRow::TableRow () [inline]

References gdcmm::network::cMaxStateID.

10.301.1.2 gdcmm::network::TableRow::~~TableRow () [inline]

References gdcmm::network::cMaxStateID.

10.301.2 Member Data Documentation

10.301.2.1 Transition* gdcm::network::TableRow::transitions[cMaxStateID]

The documentation for this class was generated from the following file:

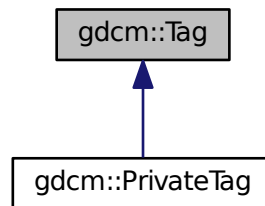
- [gdcmULTransitionTable.h](#)

10.302 gdcm::Tag Class Reference

Class to represent a DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#)). Basically an uint32_t which can also be expressed as two uint16_t (group and element)

```
#include <gdcmTag.h>
```

Inheritance diagram for gdcm::Tag:



Public Member Functions

- [Tag](#) (uint16_t group, uint16_t element)
*Constructor with 2*uint16_t.*
- [Tag](#) (uint32_t tag=0)
*Constructor with 1*uint32_t Prefer the ctor that takes two uint16_t.*
- [Tag](#) (const [Tag](#) &_val)
- uint16_t [GetElement](#) () const
Returns the 'Element number' of the given Tag.
- uint32_t [GetElementTag](#) () const
Returns the full tag value of the given Tag.
- uint16_t [GetGroup](#) () const
Returns the 'Group number' of the given Tag.
- uint32_t [GetLength](#) () const
return the length of tag (read: size on disk)

- [Tag GetPrivateCreator](#) () const
Return the Private Creator Data [Element](#) tag of a private data element.
- bool [IsGroupLength](#) () const
return whether the tag correspond to a group length tag:
- bool [IsGroupXX](#) (const [Tag](#) &t) const
e.g 6002,3000 belong to groupXX: 6000,3000
- bool [IsIllegal](#) () const
return if the tag is considered to be an illegal tag
- bool [IsPrivate](#) () const
- bool [IsPrivateCreator](#) () const
- bool [IsPublic](#) () const
- bool [operator!=](#) (const [Tag](#) &_val) const
- bool [operator<](#) (const [Tag](#) &_val) const
- bool [operator<=](#) (const [Tag](#) &t2) const
- [Tag](#) & [operator=](#) (const [Tag](#) &_val)
- bool [operator==](#) (const [Tag](#) &_val) const
- const uint16_t & [operator\[\]](#) (const unsigned int &_id) const
Returns the Group or [Element](#) of the given [Tag](#), depending on id (0/1)
- uint16_t & [operator\[\]](#) (const unsigned int &_id)
Returns the Group or [Element](#) of the given [Tag](#), depending on id (0/1)
- std::string [PrintAsContinuousString](#) () const
- std::string [PrintAsContinuousUpperCaseString](#) () const
Same as [PrintAsContinuousString](#), but hexadecimal [a-f] are printed using upper case.
- std::string [PrintAsPipeSeparatedString](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
Read a tag from binary representation.
- bool [ReadFromCommaSeparatedString](#) (const char *str)
- bool [ReadFromContinuousString](#) (const char *str)
- bool [ReadFromPipeSeparatedString](#) (const char *str)
- void [SetElement](#) (uint16_t element)
Sets the '[Element](#) number' of the given [Tag](#).
- void [SetElementTag](#) (uint16_t group, uint16_t element)
Sets the 'Group number' & '[Element](#) number' of the given [Tag](#).
- void [SetElementTag](#) (uint32_t tag)
Sets the full tag value of the given [Tag](#).
- void [SetGroup](#) (uint16_t group)
Sets the 'Group number' of the given [Tag](#).
- void [SetPrivateCreator](#) ([Tag](#) const &t)
Set private creator:
- template<typename TSwap >
const std::ostream & [Write](#) (std::ostream &os) const
Write a tag in binary rep.

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [Tag](#) &_val)
- std::istream & [operator>>](#) (std::istream &_is, [Tag](#) &_val)

10.302.1 Detailed Description

Class to represent a DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#)). Basically an `uint32_t` which can also be expressed as two `uint16_t` (group and element)

Note

DATA ELEMENT TAG: A unique identifier for a Data [Element](#) composed of an ordered pair of numbers (a Group Number followed by an [Element](#) Number). GROUP NUMBER: The first number in the ordered pair of numbers that makes up a Data [Element Tag](#). ELEMENT NUMBER: The second number in the ordered pair of numbers that makes up a Data [Element Tag](#).

Examples:

[ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [DumpToSQLITE3.cxx](#), [DuplicatePCDE.cxx](#), [EncapsulateFileInRawData.cxx](#), [ExtractEncryptedContent.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [gdcmrtonplan.cxx](#), [gdcmrtpplan.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetJPEGSamplePrecision.cxx](#), [GetSequenceUltrasound.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [PublicDict.cxx](#), [ReadAndDumpDICOMDIR.cxx](#), [ReadAndPrintAttributes.cxx](#), [ReadExplicitLengthSQIVR.cxx](#), [rle2img.cxx](#), [SimpleScanner.cxx](#), [SortImage.cxx](#), [StreamImageReaderTest.cxx](#), [TraverseModules.cxx](#), and [VolumeSorter.cxx](#).

10.302.2 Constructor & Destructor Documentation

10.302.2.1 `gdcm::Tag::Tag (uint16_t group, uint16_t element) [inline]`

Constructor with 2*`uint16_t`.

10.302.2.2 `gdcm::Tag::Tag (uint32_t tag = 0) [inline]`

Constructor with 1*`uint32_t` Prefer the ctor that takes two `uint16_t`.

References `gdcm::operator<<()`, and `gdcm::operator>>()`.

10.302.2.3 `gdcm::Tag::Tag (const Tag &_val) [inline]`

References `tag`.

10.302.3 Member Function Documentation

10.302.3.1 `uint16_t gdcm::Tag::GetElement () const [inline]`

Returns the 'Element number' of the given [Tag](#).

Examples:

[DuplicatePCDE.cxx](#), and [PublicDict.cxx](#).

Referenced by `gdcm::DataSet::ComputeGroupLength()`, `IsGroupXX()`, `gdcm::PrivateDict::PrintXML()`, `gdcm::PrivateTag::PrivateTag()`, `gdcm::SequenceOfFragments::ReadValue()`, and `SetPrivateCreator()`.

10.302.3.2 uint32_t gdcm::Tag::GetElementTag () const [inline]

Returns the full tag value of the given [Tag](#).

10.302.3.3 uint16_t gdcm::Tag::GetGroup () const [inline]

Returns the 'Group number' of the given [Tag](#).

Examples:

[DuplicatePCDE.cxx](#), and [GenAllVR.cxx](#).

Referenced by `gdcm::DataSet::ComputeGroupLength()`, `gdcm::CommandDataSet::Insert()`, `gdcm::FileMetaInformation::Insert()`, `gdcm::DataSet::Insert()`, `IsGroupXX()`, `gdcm::PrivateDict::PrintXML()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement()`, `gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement()`, and `SetPrivateCreator()`.

10.302.3.4 uint32_t gdcm::Tag::GetLength () const [inline]

return the length of tag (read: size on disk)

10.302.3.5 Tag gdcm::Tag::GetPrivateCreator () const [inline]

Return the Private Creator Data [Element](#) tag of a private data element.

References `SetElement()`.

10.302.3.6 bool gdcm::Tag::IsGroupLength () const [inline]

return whether the tag correspond to a group length tag:

10.302.3.7 bool gdcm::Tag::IsGroupXX (const Tag & t) const [inline]

e.g 6002,3000 belong to groupXX: 6000,3000

References `GetElement()`, `GetGroup()`, and `IsPrivate()`.

10.302.3.8 bool gdcm::Tag::IsIllegal () const [inline]

return if the tag is considered to be an illegal tag

10.302.3.9 `bool gdcM::Tag::IsPrivate () const [inline]`

PRIVATE DATA ELEMENT: Additional Data [Element](#), defined by an implementor, to communicate information that is not contained in Standard Data Elements. Private Data elements have odd Group Numbers.

Examples:

[DuplicatePCDE.cxx](#).

Referenced by `IsGroupXX()`, and `SetPrivateCreator()`.

10.302.3.10 `bool gdcM::Tag::IsPrivateCreator () const [inline]`

Returns if tag is a Private Creator (xxxx,00yy), where xxxx is odd number and yy in [0x10,0xFF]

Examples:

[DuplicatePCDE.cxx](#).

10.302.3.11 `bool gdcM::Tag::IsPublic () const [inline]`

STANDARD DATA ELEMENT: A Data [Element](#) defined in the DICOM Standard, and therefore listed in the DICOM Data [Element](#) Dictionary in PS 3.6. Is the [Tag](#) from the Public dict...well the implementation is buggy it does not prove the element is indeed in the dict...

10.302.3.12 `bool gdcM::Tag::operator!= (const Tag & _val) const [inline]`

References tag.

10.302.3.13 `bool gdcM::Tag::operator< (const Tag & _val) const [inline]`

DICOM Standard expects the Data [Element](#) to be sorted by Tags All other comparison can be constructed from this one and operator ==

References tag, and tags.

10.302.3.14 `bool gdcM::Tag::operator<= (const Tag & t2) const [inline]`

10.302.3.15 `Tag& gdcM::Tag::operator= (const Tag & _val) [inline]`

References tag.

10.302.3.16 `bool gdcmm::Tag::operator==(const Tag &_val) const [inline]`

References tag.

10.302.3.17 `const uint16_t& gdcmm::Tag::operator[] (const unsigned int &_id) const [inline]`

Returns the Group or [Element](#) of the given [Tag](#), depending on id (0/1)

10.302.3.18 `uint16_t& gdcmm::Tag::operator[] (const unsigned int &_id) [inline]`

Returns the Group or [Element](#) of the given [Tag](#), depending on id (0/1)

10.302.3.19 `std::string gdcmm::Tag::PrintAsContinuousString () const`

Print tag value with no separating comma: eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

10.302.3.20 `std::string gdcmm::Tag::PrintAsContinuousUpperCaseString () const`

Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.

10.302.3.21 `std::string gdcmm::Tag::PrintAsPipeSeparatedString () const`

Print as a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

[ReadFromPipeSeparatedString](#)

10.302.3.22 `template<typename TSwap> std::istream& gdcmm::Tag::Read (std::istream &is) [inline]`

Read a tag from binary representation.

10.302.3.23 `bool gdcmm::Tag::ReadFromCommaSeparatedString (const char * str)`

Read from a comma separated string. This is a highly user oriented function, the string should be formatted as↵: 1234,5678 to specify the tag (0x1234,0x5678) The notation comes from the DICOM standard, and is handy to use from a command line program

10.302.3.24 `bool gdcm::Tag::ReadFromContinuousString (const char * str)`

Read From XML formatted tag value eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

10.302.3.25 `bool gdcm::Tag::ReadFromPipeSeparatedString (const char * str)`

Read from a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

[ReadFromCommaSeparatedString](#)

10.302.3.26 `void gdcm::Tag::SetElement (uint16_t element) [inline]`

Sets the '[Element](#) number' of the given [Tag](#).

Examples:

[DuplicatePCDE.cxx](#), and [PublicDict.cxx](#).

Referenced by `GetPrivateCreator()`, and `gdcm::operator>>()`.

10.302.3.27 `void gdcm::Tag::SetElementTag (uint16_t group, uint16_t element) [inline]`

Sets the 'Group number' & '[Element](#) number' of the given [Tag](#).

10.302.3.28 `void gdcm::Tag::SetElementTag (uint32_t tag) [inline]`

Sets the full tag value of the given [Tag](#).

10.302.3.29 `void gdcm::Tag::SetGroup (uint16_t group) [inline]`

Sets the 'Group number' of the given [Tag](#).

Referenced by `gdcm::operator>>()`.

10.302.3.30 `void gdcm::Tag::SetPrivateCreator (Tag const & t) [inline]`

Set private creator:

Examples:

[DuplicatePCDE.cxx](#).

References `GetElement()`, `GetGroup()`, and `IsPrivate()`.

10.302.3.31 `template<typename TSwap > const std::ostream& gdcm::Tag::Write (std::ostream & os) const [inline]`

Write a tag in binary rep.

Referenced by `gdcm::SequenceOfItems::Write()`, and `gdcm::Item::Write()`.

10.302.4 Friends And Related Function Documentation

10.302.4.1 `std::ostream& operator<< (std::ostream & _os, const Tag & _val) [friend]`

10.302.4.2 `std::istream& operator>> (std::istream & _is, Tag & _val) [friend]`

10.302.5 Member Data Documentation

10.302.5.1 `char gdcm::Tag::bytes[4]`

10.302.5.2 `uint32_t gdcm::Tag::tag`

Referenced by `operator!=()`, `operator<()`, `operator=()`, `operator==(())`, and `Tag()`.

10.302.5.3 `uint16_t gdcm::Tag::tags[2]`

Referenced by `operator<()`.

The documentation for this class was generated from the following file:

- [gdcmTag.h](#)

10.303 gdcm::TagPath Class Reference

class to handle a path of tag.

```
#include <gdcmTagPath.h>
```

Public Member Functions

- [TagPath](#) ()
- [~TagPath](#) ()
- bool [ConstructFromString](#) (const char *path)
- bool [ConstructFromTagList](#) ([Tag](#) const *l, unsigned int n)
Construct from a list of tags.
- void [Print](#) (std::ostream &) const
- bool [Push](#) ([Tag](#) const &t)
- bool [Push](#) (unsigned int itemnum)

Static Public Member Functions

- static bool [IsValid](#) (const char *path)
Return if path is valid or not.

10.303.1 Detailed Description

class to handle a path of tag.

Any Resemblance to Existing XPath is Purely Coincidental [ftp://medical.nema.org/medical/dicom/supps/sup118←_pc.pdf](ftp://medical.nema.org/medical/dicom/supps/sup118/_pc.pdf)

10.303.2 Constructor & Destructor Documentation

10.303.2.1 `gdcm::TagPath::TagPath ()`

10.303.2.2 `gdcm::TagPath::~~TagPath ()`

10.303.3 Member Function Documentation

10.303.3.1 `bool gdcm::TagPath::ConstructFromString (const char * path)`

"/0018,0018/"... No space allowed, comma is use to separate tag group from tag element and slash is used to separate tag return false if invalid

10.303.3.2 `bool gdcm::TagPath::ConstructFromTagList (Tag const * l, unsigned int n)`

Construct from a list of tags.

10.303.3.3 `static bool gdcm::TagPath::IsValid (const char * path)` `[static]`

Return if path is valid or not.

10.303.3.4 void gdcm::TagPath::Print (std::ostream &) const

10.303.3.5 bool gdcm::TagPath::Push (Tag const & t)

10.303.3.6 bool gdcm::TagPath::Push (unsigned int *itemnum*)

The documentation for this class was generated from the following file:

- [gdcmTagPath.h](#)

10.304 gdcm::Testing Class Reference

class for testing

```
#include <gdcmTesting.h>
```

Public Types

- typedef const char *const (* [MD5DataImagesType](#))[2]
- typedef const char *const (* [MediaStorageDataFilesType](#))[2]
return the table that map the media storage (as string) of a filename (gdcmData)

Public Member Functions

- [Testing](#) ()
- [~Testing](#) ()
- void [Print](#) (std::ostream &os=std::cout)
Print.

Static Public Member Functions

- static bool [ComputeFileMD5](#) (const char *filename, char digest_str[33])
- static bool [ComputeMD5](#) (const char *buffer, unsigned long buf_len, char digest_str[33])
- static const char * [GetDataExtraRoot](#) ()
Return the GDCM DATA EXTRA ROOT.
- static const char * [GetDataRoot](#) ()
Return the GDCM DATA ROOT.
- static const char * [GetFileName](#) (unsigned int file)
- static const char *const * [GetFileNames](#) ()
return the table of fullpath to gdcmData DICOM files:
- static int [GetLossyFlagFromFile](#) (const char *filepath)
- static const char *const * [GetMD5DataImage](#) (unsigned int file)
- static [MD5DataImagesType](#) [GetMD5DataImages](#) ()

- static const char * [GetMD5FromBrokenFile](#) (const char *filepath)
- static const char * [GetMD5FromFile](#) (const char *filepath)
- static const char *const * [GetMediaStorageDataFile](#) (unsigned int file)
- static [MediaStorageDataFilesType](#) [GetMediaStorageDataFiles](#) ()
- static const char * [GetMediaStorageFromFile](#) (const char *filepath)
- static unsigned int [GetNumberOfFileNames](#) ()
- static unsigned int [GetNumberOfMD5DataImages](#) ()
- static unsigned int [GetNumberOfMediaStorageDataFiles](#) ()
- static const char * [GetPixelSpacingDataRoot](#) ()

Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset)

- static std::streamoff [GetSelectedPrivateGroupOffsetFromFile](#) (const char *filepath)
- static std::streamoff [GetSelectedTagsOffsetFromFile](#) (const char *filepath)
- static const char * [GetSourceDirectory](#) ()
- static std::streamoff [GetStreamOffsetFromFile](#) (const char *filepath)
- static const char * [GetTempDirectory](#) (const char *subdir=0)
- static const wchar_t * [GetTempDirectoryW](#) (const wchar_t *subdir=0)
NOT THREAD SAFE.
- static const char * [GetTempFilename](#) (const char *filename, const char *subdir=0)
NOT THREAD SAFE.
- static const wchar_t * [GetTempFilenameW](#) (const wchar_t *filename, const wchar_t *subdir=0)
NOT THREAD SAFE.

10.304.1 Detailed Description

class for testing

this class is used for the nightly regression system for GDCM It makes heavily use of md5 computation

See also

[gdcm::MD5](#) class for md5 computation

10.304.2 Member Typedef Documentation

10.304.2.1 typedef const char* const(* gdcm::Testing::MD5DataImagesType)[2]

return the table that map the md5 (as in md5sum) of the Pixel Data associated to a filename

10.304.2.2 typedef const char* const(* gdcm::Testing::MediaStorageDataFilesType)[2]

return the table that map the media storage (as string) of a filename (gdcmData)

10.304.3 Constructor & Destructor Documentation

10.304.3.1 `gdcmm::Testing::Testing ()` `[inline]`

10.304.3.2 `gdcmm::Testing::~~Testing ()` `[inline]`

10.304.4 Member Function Documentation

10.304.4.1 `static bool gdcmm::Testing::ComputeFileMD5 (const char * filename, char digest_str[33])` `[static]`

Examples:

[MetalImageMD5Activiz.cs](#).

10.304.4.2 `static bool gdcmm::Testing::ComputeMD5 (const char * buffer, unsigned long buf_len, char digest_str[33])` `[static]`

MD5 stuff digest_str needs to be at least : strlen = [2*16+1]; string will be \0 padded. (md5 are 32 bytes long) [Testing](#) is not meant to be shipped with an installed GDCM release, always prefer the [gdcmm::MD5](#) API when doing md5 computation.

10.304.4.3 `static const char* gdcmm::Testing::GetDataExtraRoot ()` `[static]`

Return the GDCM DATA EXTRA ROOT.

Examples:

[DiscriminateVolume.cxx](#), [reslicesphere.cxx](#), and [VolumeSorter.cxx](#).

10.304.4.4 `static const char* gdcmm::Testing::GetDataRoot ()` `[static]`

Return the GDCM DATA ROOT.

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), and [MagnifyFile.cxx](#).

10.304.4.5 `static const char* gdcmm::Testing::GetFileName (unsigned int file)` `[static]`

Examples:

[MetalImageMD5Activiz.cs](#).

10.304.4.6 `static const char* const* gdcm::Testing::GetFileNames () [static]`

return the table of fullpath to gdcmData DICOM files:

Examples:

[TestReader.cxx](#).

10.304.4.7 `static int gdcm::Testing::GetLossyFlagFromFile (const char * filepath) [static]`

Return the lossy flag of the given filename -1 -> Error 0 -> Lossless 1 -> Lossy

10.304.4.8 `static const char* const* gdcm::Testing::GetMD5DataImage (unsigned int file) [static]`

10.304.4.9 `static MD5DataImagesType gdcm::Testing::GetMD5DataImages () [static]`

10.304.4.10 `static const char* gdcm::Testing::GetMD5FromBrokenFile (const char * filepath) [static]`

Return what should have been the md5 of file 'filepath' This is based on current GDCM implementation to decipher a broken DICOM file.

10.304.4.11 `static const char* gdcm::Testing::GetMD5FromFile (const char * filepath) [static]`

10.304.4.12 `static const char* const* gdcm::Testing::GetMediaStorageDataFile (unsigned int file) [static]`

10.304.4.13 `static MediaStorageDataFilesType gdcm::Testing::GetMediaStorageDataFiles () [static]`

10.304.4.14 `static const char* gdcm::Testing::GetMediaStorageFromFile (const char * filepath) [static]`

Examples:

[MetaImageMD5Activiz.cs](#), and [TestReader.cxx](#).

10.304.4.15 `static unsigned int gdcm::Testing::GetNumberOfFileNames () [static]`

Examples:

[MetaImageMD5Activiz.cs](#).

10.304.4.16 `static unsigned int gdcmm::Testing::GetNumberOfMD5DataImages () [static]`

10.304.4.17 `static unsigned int gdcmm::Testing::GetNumberOfMediaStorageDataFiles () [static]`

10.304.4.18 `static const char* gdcmm::Testing::GetPixelSpacingDataRoot () [static]`

Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset)

10.304.4.19 `static std::streamoff gdcmm::Testing::GetSelectedPrivateGroupOffsetFromFile (const char * filepath) [static]`

Return the offset just after private attribute (0009,0010,"GEMS_IDEN_01") if found. Otherwise the offset of the next attribute -1 if not found

10.304.4.20 `static std::streamoff gdcmm::Testing::GetSelectedTagsOffsetFromFile (const char * filepath) [static]`

Return the offset just after Pixel Data Length (7fe0,0000) if found. Otherwise the offset of the very first pixel cell in Pixel Data -1 if not found

10.304.4.21 `static const char* gdcmm::Testing::GetSourceDirectory () [static]`

Examples:

[BasicAnonymizer.cs](#), and [ClinicalTrialIdentificationWorkflow.cs](#).

10.304.4.22 `static std::streamoff gdcmm::Testing::GetStreamOffsetFromFile (const char * filepath) [static]`

Return the offset of the very first pixel cell in the PixelData -1 if not found

10.304.4.23 `static const char* gdcmm::Testing::GetTempDirectory (const char * subdir = 0) [static]`

NOT THREAD SAFE Returns the temp directory as used in testing needing to output data:

Examples:

[MetaImageMD5Activiz.cs](#).

10.304.4.24 `static const wchar_t* gdcmm::Testing::GetTempDirectoryW (const wchar_t * subdir = 0) [static]`

NOT THREAD SAFE.

10.304.4.25 `static const char* gdcM::Testing::GetTempFilename (const char * filename, const char * subdir = 0)` [static]

NOT THREAD SAFE.

Examples:

[MetalImageMD5Activiz.cs](#).

10.304.4.26 `static const wchar_t* gdcM::Testing::GetTempFilenameW (const wchar_t * filename, const wchar_t * subdir = 0)`
[static]

NOT THREAD SAFE.

10.304.4.27 `void gdcM::Testing::Print (std::ostream & os = std::cout)`

Print.

The documentation for this class was generated from the following file:

- [gdcMTesting.h](#)

10.305 gdcM::Trace Class Reference

[Trace](#).

```
#include <gdcMTrace.h>
```

Public Member Functions

- [Trace](#) ()
- [~Trace](#) ()

Static Public Member Functions

- static void [DebugOff](#) ()
- static void [DebugOn](#) ()
- static void [ErrorOff](#) ()
- static void [ErrorOn](#) ()
- static bool [GetDebugFlag](#) ()
- static std::ostream & [GetDebugStream](#) ()
- static bool [GetErrorFlag](#) ()
- static std::ostream & [GetErrorStream](#) ()
- static std::ostream & [GetStream](#) ()
- static bool [GetWarningFlag](#) ()
- static std::ostream & [GetWarningStream](#) ()
- static void [SetDebug](#) (bool debug)
Turn debug messages on (default: false)
- static void [SetDebugStream](#) (std::ostream &os)
Explicitly set the stream which receive Debug messages:
- static void [SetError](#) (bool debug)
Turn error messages on (default: true)
- static void [SetErrorStream](#) (std::ostream &os)
Explicitly set the stream which receive Error messages:
- static void [SetStream](#) (std::ostream &os)
- static void [SetStreamToFile](#) (const char *filename)
- static void [SetWarning](#) (bool debug)
Turn warning messages on (default: true)
- static void [SetWarningStream](#) (std::ostream &os)
Explicitly set the stream which receive Warning messages:
- static void [WarningOff](#) ()
- static void [WarningOn](#) ()

10.305.1 Detailed Description

[Trace](#).

Debug / Warning and Error are encapsulated in this class by default the [Trace](#) class will redirect any debug/warning/error to std::cerr. Unless SetStream was specified with another (open) stream or SetStreamToFile was specified to a writable file on the system.

Warning

All string messages are removed during compilation time when compiled with CMAKE_BUILD_TYPE being set to either:

- Release
- MinSizeRel It is recommended to compile with RelWithDebInfo and/or Debug during prototyping of applications.

10.305.2 Constructor & Destructor Documentation

10.305.2.1 `gdcm::Trace::Trace ()`

10.305.2.2 `gdcm::Trace::~~Trace ()`

10.305.3 Member Function Documentation

10.305.3.1 `static void gdcm::Trace::DebugOff ()` `[static]`

Examples:

[MetImageMD5Activiz.cs](#), and [TestReader.cxx](#).

10.305.3.2 `static void gdcm::Trace::DebugOn ()` `[static]`

Examples:

[CreateFakePET.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

10.305.3.3 `static void gdcm::Trace::ErrorOff ()` `[static]`

Examples:

[MetImageMD5Activiz.cs](#).

10.305.3.4 `static void gdcm::Trace::ErrorOn ()` `[static]`

10.305.3.5 `static bool gdcm::Trace::GetDebugFlag ()` `[static]`

10.305.3.6 `static std::ostream& gdcm::Trace::GetDebugStream ()` `[static]`

10.305.3.7 `static bool gdcm::Trace::GetErrorFlag ()` `[static]`

10.305.3.8 `static std::ostream& gdcm::Trace::GetErrorStream ()` `[static]`

10.305.3.9 `static std::ostream& gdcm::Trace::GetStream ()` `[static]`

10.305.3.10 `static bool gdcm::Trace::GetWarningFlag ()` `[static]`

10.305.3.11 `static std::ostream& gdcm::Trace::GetWarningStream ()` `[static]`

10.305.3.12 `static void gdcm::Trace::SetDebug (bool debug)` `[static]`

Turn debug messages on (default: false)

Examples:

[DumpToSQLITE3.cxx](#).

10.305.3.13 `static void gdcmm::Trace::SetDebugStream (std::ostream & os) [static]`

Explicitly set the stream which receive Debug messages:

10.305.3.14 `static void gdcmm::Trace::SetError (bool debug) [static]`

Turn error messages on (default: true)

10.305.3.15 `static void gdcmm::Trace::SetErrorStream (std::ostream & os) [static]`

Explicitly set the stream which receive Error messages:

Examples:

[CStoreQtProgress.cxx](#).

10.305.3.16 `static void gdcmm::Trace::SetStream (std::ostream & os) [static]`

Explicitly set the ostream for [gdcmm::Trace](#) to report to This will set the DebugStream, WarningStream and ErrorStream at once:

10.305.3.17 `static void gdcmm::Trace::SetStreamToFile (const char * filename) [static]`

Explicitly set the filename for [gdcmm::Trace](#) to report to The file will be created (it will not append to existing file)

10.305.3.18 `static void gdcmm::Trace::SetWarning (bool debug) [static]`

Turn warning messages on (default: true)

Examples:

[DumpToSQLITE3.cxx](#).

10.305.3.19 `static void gdcmm::Trace::SetWarningStream (std::ostream & os) [static]`

Explicitly set the stream which receive Warning messages:

10.305.3.20 `static void gdcm::Trace::WarningOff () [static]`

Examples:

[MetalImageMD5Activiz.cs](#), and [TestReader.cxx](#).

10.305.3.21 `static void gdcm::Trace::WarningOn () [static]`

Examples:

[Fake_Image_Using_Stream_Image_Writer.cxx](#), and [StreamImageReaderTest.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmTrace.h](#)

10.306 `gdcm::TransferSyntax` Class Reference

Class to manipulate Transfer Syntax.

```
#include <gdcmTransferSyntax.h>
```

Public Types

- enum [NegociatedType](#) {
 [Unknown](#) = 0,
 [Explicit](#),
 [Implicit](#) }

- enum [TSType](#) {
 [ImplicitVRLittleEndian](#) = 0,
 [ImplicitVRBigEndianPrivateGE](#),
 [ExplicitVRLittleEndian](#),
 [DeflatedExplicitVRLittleEndian](#),
 [ExplicitVRBigEndian](#),
 [JPEGBaselineProcess1](#),
 [JPEGExtendedProcess2_4](#),
 [JPEGExtendedProcess3_5](#),
 [JPEGSpectralSelectionProcess6_8](#),
 [JPEGFullProgressionProcess10_12](#),
 [JPEGLosslessProcess14](#),
 [JPEGLosslessProcess14_1](#),
 [JPEGLSLossless](#),
 [JPEGLSNearLossless](#),
 [JPEG2000Lossless](#),
 [JPEG2000](#),
 [JPEG2000Part2Lossless](#),
 [JPEG2000Part2](#),
 [RLELossless](#),
 [MPEG2MainProfile](#),
 [ImplicitVRBigEndianACRNEMA](#),
 [CT_private_ELE](#),
 [JPIPReferenced](#),
 [MPEG2MainProfileHighLevel](#),
 [MPEG4AVCH264HighProfileLevel4_1](#),
 [MPEG4AVCH264BDcompatibleHighProfileLevel4_1](#),
 [TS_END](#) }

Public Member Functions

- [TransferSyntax](#) ([TSType](#) type=[ImplicitVRLittleEndian](#))
- [CanStoreLossy](#) () const
- [NegociatedType](#) [GetNegociatedType](#) () const
- const char * [GetString](#) () const
- [SwapCode](#) [GetSwapCode](#) () const
- [IsEncapsulated](#) () const
- [IsEncoded](#) () const
- [IsExplicit](#) () const
- [IsImplicit](#) () const
- [IsLossless](#) () const
- [IsLossy](#) () const
- [IsValid](#) () const
- [operator TSType](#) () const

Static Public Member Functions

- static const char * [GetTSString](#) ([TSType](#) ts)
- static [TSType](#) [GetTSType](#) (const char *str)

Friends

- `std::ostream & operator<< (std::ostream &os, const TransferSyntax &ts)`

10.306.1 Detailed Description

Class to manipulate Transfer Syntax.

Note

TRANSFER SYNTAX (Standard and Private): A set of encoding rules that allow Application Entities to unambiguously negotiate the encoding techniques (e.g., Data [Element](#) structure, byte ordering, compression) they are able to support, thereby allowing these Application Entities to communicate.

Todo : The implementation is completely retarded -> see [gdcm::UIDs](#) for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Need a notion of Private Syntax. As defined in PS 3.5. Section 9.2

See also

[UIDs](#)

Examples:

[GetJPEGSamplePrecision.cxx](#), [LargeVRDSExplicit.cxx](#), and [MakeTemplate.cxx](#).

10.306.2 Member Enumeration Documentation

10.306.2.1 enum `gdcm::TransferSyntax::NegociatedType`

Enumerator

Unknown

Explicit

Implicit

10.306.2.2 enum gdcm::TransferSyntax::TSType

Enumerator

ImplicitVRLittleEndian
ImplicitVRBigEndianPrivateGE
ExplicitVRLittleEndian
DeflatedExplicitVRLittleEndian
ExplicitVRBigEndian
JPEGBaselineProcess1
JPEGExtendedProcess2_4
JPEGExtendedProcess3_5
JPEGSpectralSelectionProcess6_8
JPEGFullProgressionProcess10_12
JPEGLosslessProcess14
JPEGLosslessProcess14_1
JPEGLSLossless
JPEGLSNearLossless
JPEG2000Lossless
JPEG2000
JPEG2000Part2Lossless
JPEG2000Part2
RLELossless
MPEG2MainProfile
ImplicitVRBigEndianACRNEMA
CT_private_ELE
JPIPReferenced
MPEG2MainProfileHighLevel
MPEG4AVCH264HighProfileLevel4_1
MPEG4AVCH264BDcompatibleHighProfileLevel4_1
TS_END

10.306.3 Constructor & Destructor Documentation

10.306.3.1 gdcm::TransferSyntax::TransferSyntax (TSType type = ImplicitVRLittleEndian) [inline]

10.306.4 Member Function Documentation

10.306.4.1 bool gdcm::TransferSyntax::CanStoreLossy () const

return true if TransFer Syntax Allow storing of Lossy Pixel Data

10.306.4.2 **NegotiatedType** gdcm::TransferSyntax::GetNegociatedType () const

10.306.4.3 const char* gdcm::TransferSyntax::GetString () const [inline]

References GetTSString(), and gdcm::operator<<().

10.306.4.4 **SwapCode** gdcm::TransferSyntax::GetSwapCode () const

Deprecated Return the [SwapCode](#) associated with the Transfer Syntax. Be careful with the special GE private syntax the [DataSet](#) is written in little endian but the Pixel Data is in Big Endian.

10.306.4.5 static const char* gdcm::TransferSyntax::GetTSString (TSType ts) [static]

Examples:

[LargeVRDSExplicit.cxx](#).

Referenced by GetString(), and gdcm::operator<<().

10.306.4.6 static TSType gdcm::TransferSyntax::GetTSType (const char * str) [static]

10.306.4.7 bool gdcm::TransferSyntax::IsEncapsulated () const

Examples:

[ExtractIconFromFile.cxx](#).

10.306.4.8 bool gdcm::TransferSyntax::IsEncoded () const

10.306.4.9 bool gdcm::TransferSyntax::IsExplicit () const

10.306.4.10 bool gdcm::TransferSyntax::IsImplicit () const

10.306.4.11 bool gdcm::TransferSyntax::IsLossless () const

Return true if the transfer syntax algorithm is a lossless algorithm

10.306.4.12 bool gdcm::TransferSyntax::IsLossy () const

Return true if the transfer syntax algorithm is a lossy algorithm

10.306.4.13 `bool gdcm::TransferSyntax::IsValid () const [inline]`

10.306.4.14 `gdcm::TransferSyntax::operator TSType () const [inline]`

10.306.5 Friends And Related Function Documentation

10.306.5.1 `std::ostream& operator<< (std::ostream & os, const TransferSyntax & ts) [friend]`

The documentation for this class was generated from the following file:

- [gdcmTransferSyntax.h](#)

10.307 gdcm::network::TransferSyntaxSub Class Reference

[TransferSyntaxSub](#) Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS.

```
#include <gdcmTransferSyntaxSub.h>
```

Public Member Functions

- [TransferSyntaxSub](#) ()
- const char * [GetName](#) () const
- bool [operator==](#) (const [TransferSyntaxSub](#) &ts) const
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- void [SetName](#) (const char *name)
- void [SetNameFromUID](#) (UIDs::TSName tsname)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.307.1 Detailed Description

[TransferSyntaxSub](#) Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS.

TODO what is the goal of :

[Table](#) 9-19 TRANSFER SYNTAX SUB-ITEM FIELDS

10.307.2 Constructor & Destructor Documentation

10.307.2.1 `gdcm::network::TransferSyntaxSub::TransferSyntaxSub ()`

10.307.3 Member Function Documentation

10.307.3.1 `const char* gdcm::network::TransferSyntaxSub::GetName () const` `[inline]`

References `Print()`, `Read()`, `SetNameFromUID()`, `Size()`, and `Write()`.

10.307.3.2 `bool gdcm::network::TransferSyntaxSub::operator== (const TransferSyntaxSub & ts) const` `[inline]`

10.307.3.3 `void gdcm::network::TransferSyntaxSub::Print (std::ostream & os) const`

Referenced by `GetName()`.

10.307.3.4 `std::istream& gdcm::network::TransferSyntaxSub::Read (std::istream & is)`

Referenced by `GetName()`.

10.307.3.5 `void gdcm::network::TransferSyntaxSub::SetName (const char * name)`

10.307.3.6 `void gdcm::network::TransferSyntaxSub::SetNameFromUID (UIDs::TSName tsname)`

Referenced by `GetName()`.

10.307.3.7 `size_t gdcm::network::TransferSyntaxSub::Size () const`

Referenced by `GetName()`.

10.307.3.8 `const std::ostream& gdcm::network::TransferSyntaxSub::Write (std::ostream & os) const`

Referenced by `GetName()`.

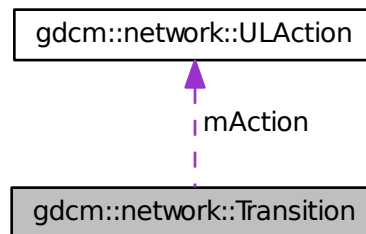
The documentation for this class was generated from the following file:

- [gdcmTransferSyntaxSub.h](#)

10.308 gdcm::network::Transition Struct Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::Transition:



Public Member Functions

- [Transition](#) ()
- [Transition](#) (int inEndState, [ULAction](#) *inAction)
- [~Transition](#) ()

Static Public Member Functions

- static [Transition](#) * [MakeNew](#) (int inEndState, [ULAction](#) *inAction)

Public Attributes

- [ULAction](#) * [mAction](#)
- int [mEnd](#)

10.308.1 Constructor & Destructor Documentation

10.308.1.1 gdcm::network::Transition::Transition () [inline]

References `gdcm::network::eStaDoesNotExist`.

Referenced by `MakeNew()`.

10.308.1.2 `gdcm::network::Transition::~~Transition ()` `[inline]`

References `mAction`.

10.308.1.3 `gdcm::network::Transition::Transition (int inEndState, ULAction * inAction)` `[inline]`

10.308.2 Member Function Documentation

10.308.2.1 `static Transition* gdcm::network::Transition::MakeNew (int inEndState, ULAction * inAction)` `[inline]`,
`[static]`

References `Transition()`.

10.308.3 Member Data Documentation

10.308.3.1 `ULAction* gdcm::network::Transition::mAction`

Referenced by `~Transition()`.

10.308.3.2 `int gdcm::network::Transition::mEnd`

The documentation for this struct was generated from the following file:

- [gdcmULTransitionTable.h](#)

10.309 gdcm::Type Class Reference

[Type](#).

```
#include <gdcmType.h>
```

Public Types

- enum [TypeType](#) {
 [T1](#) = 0,
 [T1C](#),
 [T2](#),
 [T2C](#),
 [T3](#),
 [UNKNOWN](#) }

Public Member Functions

- [Type](#) ([TypeType](#) type=[UNKNOWN](#))
- [operator TypeType](#) () const

Static Public Member Functions

- static const char * [GetTypeString](#) ([TypeType](#) type)
- static [TypeType](#) [GetTypeType](#) (const char *type)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [Type](#) &vr)

10.309.1 Detailed Description

[Type](#).

Note

PS 3.5 7.4 DATA ELEMENT TYPE 7.4.1 TYPE 1 REQUIRED DATA ELEMENTS 7.4.2 TYPE 1C CONDITIONAL DATA ELEMENTS 7.4.3 TYPE 2 REQUIRED DATA ELEMENTS 7.4.4 TYPE 2C CONDITIONAL DATA ELEMENTS 7.4.5 TYPE 3 OPTIONAL DATA ELEMENTS

The intent of [Type](#) 2 Data Elements is to allow a zero length to be conveyed when the operator or application does not know its value or has a specific reason for not specifying its value. It is the intent that the device should support these Data Elements.

Examples:

[TraverseModules.cxx](#).

10.309.2 Member Enumeration Documentation

10.309.2.1 enum gdcmm::Type::TypeType

Enumerator

T1
T1C
T2
T2C
T3
UNKNOWN

10.309.3 Constructor & Destructor Documentation

10.309.3.1 `gdcmm::Type::Type (TypeType type = UNKNOWN)` `[inline]`

10.309.4 Member Function Documentation

10.309.4.1 `static const char* gdcmm::Type::GetTypeString (TypeType type)` `[static]`

Referenced by `gdcmm::operator<<()`.

10.309.4.2 `static TypeType gdcmm::Type::GetTypeType (const char * type)` `[static]`

Referenced by `gdcmm::ModuleEntry::ModuleEntry()`.

10.309.4.3 `gdcmm::Type::operator TypeType ()const` `[inline]`

References `gdcmm::operator<<()`.

10.309.5 Friends And Related Function Documentation

10.309.5.1 `std::ostream& operator<< (std::ostream & os, const Type & vr)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmmType.h](#)

10.310 gdcmm::UI Struct Reference

```
#include <gdcmmVR.h>
```

Public Attributes

- char [Internal](#) [64+1]

Friends

- std::ostream & [operator<<](#) (std::ostream &_os, const [UI](#) &_val)

10.310.1 Friends And Related Function Documentation

10.310.1.1 `std::ostream& operator<< (std::ostream &_os, const UI &_val)` [[friend](#)]

10.310.2 Member Data Documentation

10.310.2.1 `char gdcm::UI::Internal[64+1]`

Referenced by `gdcm::operator<<()`.

The documentation for this struct was generated from the following file:

- [gdcmVR.h](#)

10.311 gdcm::UIDGenerator Class Reference

Class for generating unique UID.

```
#include <gdcmUIDGenerator.h>
```

Public Member Functions

- [UIDGenerator](#) ()
By default the root of a UID is a GDCM Root...
- `const char *` [Generate](#) ()

Static Public Member Functions

- `static const char *` [GetGDCMUID](#) ()
Return the default (GDCM) root UID:
- `static const char *` [GetRoot](#) ()
- `static bool` [IsValid](#) (const char *uid)
- `static void` [SetRoot](#) (const char *root)

Static Protected Member Functions

- `static bool` [GenerateUUID](#) (unsigned char *uuid_data)

10.311.1 Detailed Description

Class for generating unique UID.

Note

bla [Usage](#): When constructing a [Series](#) or [Study](#) UID, user *has* to keep around the UID, otherwise the UID Generator will simply forget the value and create a new UID.

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_↵_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GetSubSequence_↵Data.cxx](#), [StreamImageReaderTest.cxx](#), and [uid_unique.cxx](#).

10.311.2 Constructor & Destructor Documentation

10.311.2.1 `gdcm::UIDGenerator::UIDGenerator () [inline]`

By default the root of a UID is a GDCM Root...

10.311.3 Member Function Documentation

10.311.3.1 `const char* gdcm::UIDGenerator::Generate ()`

Internally uses a `std::string`, so two calls have the same pointer ! save into a `std::string` In summary do not write code like that: `const char *uid1 = uid.Generate(); const char *uid2 = uid.Generate();` since `uid1 == uid2`

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_↵_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GetSubSequence_↵Data.cxx](#), [StreamImageReaderTest.cxx](#), and [uid_unique.cxx](#).

10.311.3.2 `static bool gdcm::UIDGenerator::GenerateUUID (unsigned char * uuid_data) [static], [protected]`

10.311.3.3 `static const char* gdcm::UIDGenerator::GetGDCMUID () [static]`

Return the default (GDCM) root UID:

10.311.3.4 `static const char* gdcm::UIDGenerator::GetRoot () [static]`

Examples:

[ClinicalTrialIdentificationWorkflow.cs](#), [ReformatFile.cs](#), and [StandardizeFiles.cs](#).

10.311.3.5 static bool gdcm::UIDGenerator::IsValid (const char * uid) [static]

Find out if the string is a valid UID or not

Todo : Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

10.311.3.6 static void gdcm::UIDGenerator::SetRoot (const char * root) [static]

The current implementation in GDCM make use of the UUID implementation (RFC 4122) and has been successfully been tested for a root of size 26 bytes. Any longer root should work (the [Generate\(\)](#) function will return a string), but will truncate the high bits of the 128bits UUID until the generated string fits on 64 bits. The authors disclaims any responsablility for guaranteeing uniqueness of [UIDs](#) when the root is longer than 26 bytes.

Examples:

[ClinicalTrialIdentificationWorkflow.cs](#), [ReformatFile.cs](#), [StandardizeFiles.cs](#), and [uid_unique.cxx](#).

The documentation for this class was generated from the following file:

- [gdcmUIDGenerator.h](#)

10.312 gdcm::UIDs Class Reference

all known uids

```
#include <gdcmUIDs.h>
```

Public Types

- typedef const char *const (* [TransferSyntaxStringsType](#))[2]

```

• enum TSName {
    VerificationSOPClass = 1,
    ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2,
    ExplicitVRLittleEndian = 3,
    DeflatedExplicitVRLittleEndian = 4,
    ExplicitVRBigEndian = 5,
    JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6,
    JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7,
    JPEGExtendedProcess35Retired = 8,
    JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9,
    JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10,
    JPEGFullProgressionNonHierarchicalProcess1012Retired = 11,
    JPEGFullProgressionNonHierarchicalProcess1113Retired = 12,
    JPEGLosslessNonHierarchicalProcess14 = 13,
    JPEGLosslessNonHierarchicalProcess15Retired = 14,
    JPEGExtendedHierarchicalProcess1618Retired = 15,
    JPEGExtendedHierarchicalProcess1719Retired = 16,
    JPEGSpectralSelectionHierarchicalProcess2022Retired = 17,
    JPEGSpectralSelectionHierarchicalProcess2123Retired = 18,
    JPEGFullProgressionHierarchicalProcess2426Retired = 19,
    JPEGFullProgressionHierarchicalProcess2527Retired = 20,
    JPEGLosslessHierarchicalProcess28Retired = 21,
    JPEGLosslessHierarchicalProcess29Retired = 22,
    JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLossless↵

```

JPEGImageCompression = 23,
JPEGLSLosslessImageCompression = 24,
JPEGLSLossyNearLosslessImageCompression = 25,
JPEG2000ImageCompressionLosslessOnly = 26,
JPEG2000ImageCompression = 27,
JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28,
JPEG2000Part2MulticomponentImageCompression = 29,
JPIPReferenced = 30,
JPIPReferencedDeflate = 31,
MPEG2MainProfileMainLevel = 32,
RLELossless = 33,
RFC2557MIMEencapsulation = 34,
XMLEncoding = 35,
MediaStorageDirectoryStorage = 36,
TalairachBrainAtlasFrameofReference = 37,
SPM2T1FrameofReference = 38,
SPM2T2FrameofReference = 39,
SPM2PDFFrameofReference = 40,
SPM2EPIFrameofReference = 41,
SPM2FILT1FrameofReference = 42,
SPM2PETFrameofReference = 43,
SPM2TRANSMFrameofReference = 44,
SPM2SPECTFrameofReference = 45,
SPM2GRAYFrameofReference = 46,
SPM2WHITEFrameofReference = 47,
SPM2CSFFFrameofReference = 48,
SPM2BRAINMASKFrameofReference = 49,
SPM2AVG305T1FrameofReference = 50,
SPM2AVG152T1FrameofReference = 51,
SPM2AVG152T2FrameofReference = 52,
SPM2AVG152PDFFrameofReference = 53,
SPM2SINGLESUBJT1FrameofReference = 54,
ICBM452T1FrameofReference = 55,
ICBMSingleSubjectMRIFrameofReference = 56,
BasicStudyContentNotificationSOPClassRetired = 57,
StorageCommitmentPushModelSOPClass = 58,
StorageCommitmentPushModelSOPInstance = 59,
StorageCommitmentPullModelSOPClassRetired = 60,
StorageCommitmentPullModelSOPInstanceRetired = 61,
ProceduralEventLoggingSOPClass = 62,
ProceduralEventLoggingSOPInstance = 63,
SubstanceAdministrationLoggingSOPClass = 64,
SubstanceAdministrationLoggingSOPInstance = 65,
DICOMUIDRegistry = 66,
DICOMControlledTerminology = 67,
DICOMApplicationContextName = 68,
DetachedPatientManagementSOPClassRetired = 69,
DetachedPatientManagementMetaSOPClassRetired = 70,
DetachedVisitManagementSOPClassRetired = 71,
DetachedStudyManagementSOPClassRetired = 72,
StudyComponentManagementSOPClassRetired = 73,
ModalityPerformedProcedureStepSOPClass = 74,
ModalityPerformedProcedureStepRetrieveSOPClass = 75,
ModalityPerformedProcedureStepNotificationSOPClass = 76,
DetachedResultsManagementSOPClassRetired = 77,
DetachedResultsManagementMetaSOPClassRetired = 78,
DetachedStudyManagementMetaSOPClassRetired = 79,
DetachedInterpretationManagementSOPClassRetired = 80,
StorageServiceClass = 81,
BasicFilmSessionSOPClass = 82,

[BreastTomosynthesisImageStorage](#) }

• enum [TSType](#) {


```
uid_1_2_840_10008_1_1 = 1,  
uid_1_2_840_10008_1_2 = 2,  
uid_1_2_840_10008_1_2_1 = 3,  
uid_1_2_840_10008_1_2_1_99 = 4,  
uid_1_2_840_10008_1_2_2 = 5,  
uid_1_2_840_10008_1_2_4_50 = 6,  
uid_1_2_840_10008_1_2_4_51 = 7,  
uid_1_2_840_10008_1_2_4_52 = 8,  
uid_1_2_840_10008_1_2_4_53 = 9,  
uid_1_2_840_10008_1_2_4_54 = 10,  
uid_1_2_840_10008_1_2_4_55 = 11,  
uid_1_2_840_10008_1_2_4_56 = 12,  
uid_1_2_840_10008_1_2_4_57 = 13,  
uid_1_2_840_10008_1_2_4_58 = 14,  
uid_1_2_840_10008_1_2_4_59 = 15,  
uid_1_2_840_10008_1_2_4_60 = 16,  
uid_1_2_840_10008_1_2_4_61 = 17,  
uid_1_2_840_10008_1_2_4_62 = 18,  
uid_1_2_840_10008_1_2_4_63 = 19,  
uid_1_2_840_10008_1_2_4_64 = 20,  
uid_1_2_840_10008_1_2_4_65 = 21,  
uid_1_2_840_10008_1_2_4_66 = 22,  
uid_1_2_840_10008_1_2_4_70 = 23,  
uid_1_2_840_10008_1_2_4_80 = 24,  
uid_1_2_840_10008_1_2_4_81 = 25,  
uid_1_2_840_10008_1_2_4_90 = 26,  
uid_1_2_840_10008_1_2_4_91 = 27,  
uid_1_2_840_10008_1_2_4_92 = 28,  
uid_1_2_840_10008_1_2_4_93 = 29,  
uid_1_2_840_10008_1_2_4_94 = 30,  
uid_1_2_840_10008_1_2_4_95 = 31,  
uid_1_2_840_10008_1_2_4_100 = 32,  
uid_1_2_840_10008_1_2_5 = 33,  
uid_1_2_840_10008_1_2_6_1 = 34,  
uid_1_2_840_10008_1_2_6_2 = 35,  
uid_1_2_840_10008_1_3_10 = 36,  
uid_1_2_840_10008_1_4_1_1 = 37,  
uid_1_2_840_10008_1_4_1_2 = 38,  
uid_1_2_840_10008_1_4_1_3 = 39,  
uid_1_2_840_10008_1_4_1_4 = 40,  
uid_1_2_840_10008_1_4_1_5 = 41,  
uid_1_2_840_10008_1_4_1_6 = 42,  
uid_1_2_840_10008_1_4_1_7 = 43,  
uid_1_2_840_10008_1_4_1_8 = 44,  
uid_1_2_840_10008_1_4_1_9 = 45,  
uid_1_2_840_10008_1_4_1_10 = 46,  
uid_1_2_840_10008_1_4_1_11 = 47,  
uid_1_2_840_10008_1_4_1_12 = 48,  
uid_1_2_840_10008_1_4_1_13 = 49,  
uid_1_2_840_10008_1_4_1_14 = 50,  
uid_1_2_840_10008_1_4_1_15 = 51,  
uid_1_2_840_10008_1_4_1_16 = 52,  
uid_1_2_840_10008_1_4_1_17 = 53,  
uid_1_2_840_10008_1_4_1_18 = 54,  
uid_1_2_840_10008_1_4_2_1 = 55,  
uid_1_2_840_10008_1_4_2_2 = 56,  
uid_1_2_840_10008_1_9 = 57,  
uid_1_2_840_10008_1_20_1 = 58,  
uid_1_2_840_10008_1_20_1_1 = 59,  
uid_1_2_840_10008_1_20_2 = 60,
```

```
uid_1_2_840_10008_1_2_4_103 }
```

Public Member Functions

- const char * [GetName](#) () const
- const char * [GetString](#) () const
- [operator TSType](#) () const
- bool [SetFromUID](#) (const char *str)

Static Public Member Functions

- static unsigned int [GetNumberOfTransferSyntaxStrings](#) ()
- static const char *const * [GetTransferSyntaxString](#) (unsigned int ts)
- static [TransferSyntaxStringsType](#) [GetTransferSyntaxStrings](#) ()
- static const char * [GetUIDName](#) (unsigned int ts)
- static const char * [GetUIDString](#) (unsigned int ts)

10.312.1 Detailed Description

all known uids

Examples:

[GenerateStandardSOPClasses.cxx](#).

10.312.2 Member Typedef Documentation

10.312.2.1 `typedef const char* const(* gdcmm::UIDs::TransferSyntaxStringsType)[2]`

10.312.3 Member Enumeration Documentation

10.312.3.1 `enum gdcmm::UIDs::TSName`

Enumerator

VerificationSOPClass

ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM

ExplicitVRLittleEndian

DeflatedExplicitVRLittleEndian

ExplicitVRBigEndian

JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression

JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only

JPEGExtendedProcess35Retired

JPEGSpectralSelectionNonHierarchicalProcess68Retired

JPEGSpectralSelectionNonHierarchicalProcess79Retired
JPEGFullProgressionNonHierarchicalProcess1012Retired
JPEGFullProgressionNonHierarchicalProcess1113Retired
JPEGLosslessNonHierarchicalProcess14
JPEGLosslessNonHierarchicalProcess15Retired
JPEGExtendedHierarchicalProcess1618Retired
JPEGExtendedHierarchicalProcess1719Retired
JPEGSpectralSelectionHierarchicalProcess2022Retired
JPEGSpectralSelectionHierarchicalProcess2123Retired
JPEGFullProgressionHierarchicalProcess2426Retired
JPEGFullProgressionHierarchicalProcess2527Retired
JPEGLosslessHierarchicalProcess28Retired
JPEGLosslessHierarchicalProcess29Retired
JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImage

JPEGLSLosslessImageCompression
JPEGLSLossyNearLosslessImageCompression
JPEG2000ImageCompressionLosslessOnly
JPEG2000ImageCompression
JPEG2000Part2MulticomponentImageCompressionLosslessOnly
JPEG2000Part2MulticomponentImageCompression
JPIPReferenced
JPIPReferencedDeflate
MPEG2MainProfileMainLevel
RLELossless
RFC2557MIMEencapsulation
XMLEncoding
MediaStorageDirectoryStorage
TalairachBrainAtlasFrameofReference
SPM2T1FrameofReference
SPM2T2FrameofReference
SPM2PDFFrameofReference
SPM2EPIFrameofReference
SPM2FILT1FrameofReference
SPM2PETFrameofReference
SPM2TRANSMFrameofReference
SPM2SPECTFrameofReference
SPM2GRAYFrameofReference
SPM2WHITEFrameofReference
SPM2CSFFFrameofReference
SPM2BRAINMASKFrameofReference
SPM2AVG305T1FrameofReference

SPM2AVG152T1FrameofReference
SPM2AVG152T2FrameofReference
SPM2AVG152PDFFrameofReference
SPM2SINGLESUBJT1FrameofReference
ICBM452T1FrameofReference
ICBMSingleSubjectMRIFrameofReference
BasicStudyContentNotificationSOPClassRetired
StorageCommitmentPushModelSOPClass
StorageCommitmentPushModelSOPInstance
StorageCommitmentPullModelSOPClassRetired
StorageCommitmentPullModelSOPInstanceRetired
ProceduralEventLoggingSOPClass
ProceduralEventLoggingSOPInstance
SubstanceAdministrationLoggingSOPClass
SubstanceAdministrationLoggingSOPInstance
DICOMUIDRegistry
DICOMControlledTerminology
DICOMApplicationContextName
DetachedPatientManagementSOPClassRetired
DetachedPatientManagementMetaSOPClassRetired
DetachedVisitManagementSOPClassRetired
DetachedStudyManagementSOPClassRetired
StudyComponentManagementSOPClassRetired
ModalityPerformedProcedureStepSOPClass
ModalityPerformedProcedureStepRetrieveSOPClass
ModalityPerformedProcedureStepNotificationSOPClass
DetachedResultsManagementSOPClassRetired
DetachedResultsManagementMetaSOPClassRetired
DetachedStudyManagementMetaSOPClassRetired
DetachedInterpretationManagementSOPClassRetired
StorageServiceClass
BasicFilmSessionSOPClass
BasicFilmBoxSOPClass
BasicGrayscaleImageBoxSOPClass
BasicColorImageBoxSOPClass
ReferencedImageBoxSOPClassRetired
BasicGrayscalePrintManagementMetaSOPClass
ReferencedGrayscalePrintManagementMetaSOPClassRetired
PrintJobSOPClass
BasicAnnotationBoxSOPClass
PrinterSOPClass
PrinterConfigurationRetrievalSOPClass

PrinterSOPInstance
PrinterConfigurationRetrievalSOPInstance
BasicColorPrintManagementMetaSOPClass
ReferencedColorPrintManagementMetaSOPClassRetired
VOILUTBoxSOPClass
PresentationLUTSOPClass
ImageOverlayBoxSOPClassRetired
BasicPrintImageOverlayBoxSOPClassRetired
PrintQueueSOPInstanceRetired
PrintQueueManagementSOPClassRetired
StoredPrintStorageSOPClassRetired
HardcopyGrayscaleImageStorageSOPClassRetired
HardcopyColorImageStorageSOPClassRetired
PullPrintRequestSOPClassRetired
PullStoredPrintManagementMetaSOPClassRetired
MediaCreationManagementSOPClassUID
ComputedRadiographyImageStorage
DigitalXRayImageStorageForPresentation
DigitalXRayImageStorageForProcessing
DigitalMammographyXRayImageStorageForPresentation
DigitalMammographyXRayImageStorageForProcessing
DigitalIntraoralXRayImageStorageForPresentation
DigitalIntraoralXRayImageStorageForProcessing
CTImageStorage
EnhancedCTImageStorage
UltrasoundMultiframeImageStorageRetired
UltrasoundMultiframeImageStorage
MRImageStorage
EnhancedMRImageStorage
MRSpectroscopyStorage
NuclearMedicineImageStorageRetired
UltrasoundImageStorageRetired
UltrasoundImageStorage
SecondaryCaptureImageStorage
MultiframeSingleBitSecondaryCaptureImageStorage
MultiframeGrayscaleByteSecondaryCaptureImageStorage
MultiframeGrayscaleWordSecondaryCaptureImageStorage
MultiframeTrueColorSecondaryCaptureImageStorage
StandaloneOverlayStorageRetired
StandaloneCurveStorageRetired
WaveformStorageTrialRetired
GeneralECGWaveformStorage

AmbulatoryECGWaveformStorage
HemodynamicWaveformStorage
CardiacElectrophysiologyWaveformStorage
BasicVoiceAudioWaveformStorage
StandaloneModalityLUTStorageRetired
StandaloneVOILUTStorageRetired
GrayscaleSoftcopyPresentationStateStorageSOPClass
ColorSoftcopyPresentationStateStorageSOPClass
PseudoColorSoftcopyPresentationStateStorageSOPClass
BlendingSoftcopyPresentationStateStorageSOPClass
XRayAngiographicImageStorage
EnhancedXAImageStorage
XRayRadiofluoroscopicImageStorage
EnhancedXRFImageStorage
XRay3DAngiographicImageStorage
XRay3DCraniofacialImageStorage
XRayAngiographicBiPlaneImageStorageRetired
NuclearMedicineImageStorage
RawDataStorage
SpatialRegistrationStorage
SpatialFiducialsStorage
DeformableSpatialRegistrationStorage
SegmentationStorage
RealWorldValueMappingStorage
VLImageStorageTrialRetired
VLMultiframeImageStorageTrialRetired
VLEndoscopicImageStorage
VideoEndoscopicImageStorage
VLMicroscopicImageStorage
VideoMicroscopicImageStorage
VLSlideCoordinatesMicroscopicImageStorage
VLPhotographicImageStorage
VideoPhotographicImageStorage
OphthalmicPhotography8BitImageStorage
OphthalmicPhotography16BitImageStorage
StereometricRelationshipStorage
OphthalmicTomographyImageStorage
TextSRStorageTrialRetired
AudioSRStorageTrialRetired
DetailSRStorageTrialRetired
ComprehensiveSRStorageTrialRetired
BasicTextSRStorage

EnhancedSRStorage
ComprehensiveSRStorage
ProcedureLogStorage
MammographyCADSRStorage
KeyObjectSelectionDocumentStorage
ChestCADSRStorage
XRayRadiationDoseSRStorage
EncapsulatedPDFStorage
EncapsulatedCDASStorage
PositronEmissionTomographyImageStorage
StandalonePETCurveStorageRetired
RTImageStorage
RTDoseStorage
RTStructureSetStorage
RTBeamsTreatmentRecordStorage
RTPlanStorage
RTBrachyTreatmentRecordStorage
RTTreatmentSummaryRecordStorage
RTIonPlanStorage
RTIonBeamsTreatmentRecordStorage
PatientRootQueryRetrieveInformationModelFIND
PatientRootQueryRetrieveInformationModelMOVE
PatientRootQueryRetrieveInformationModelGET
StudyRootQueryRetrieveInformationModelFIND
StudyRootQueryRetrieveInformationModelMOVE
StudyRootQueryRetrieveInformationModelGET
PatientStudyOnlyQueryRetrieveInformationModelFINDRetired
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired
PatientStudyOnlyQueryRetrieveInformationModelGETRetired
ModalityWorklistInformationModelFIND
GeneralPurposeWorklistInformationModelFIND
GeneralPurposeScheduledProcedureStepSOPClass
GeneralPurposePerformedProcedureStepSOPClass
GeneralPurposeWorklistManagementMetaSOPClass
InstanceAvailabilityNotificationSOPClass
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft
RTConventionalMachineVerificationSupplement74FrozenDraft
RTIonMachineVerificationSupplement74FrozenDraft
UnifiedWorklistandProcedureStepServiceClass
UnifiedProcedureStepPushSOPClass
UnifiedProcedureStepWatchSOPClass
UnifiedProcedureStepPullSOPClass

UnifiedProcedureStepEventSOPClass
UnifiedWorklistandProcedureStepSOPInstance
GeneralRelevantPatientInformationQuery
BreastImagingRelevantPatientInformationQuery
CardiacRelevantPatientInformationQuery
HangingProtocolStorage
HangingProtocolInformationModelFIND
HangingProtocolInformationModelMOVE
ProductCharacteristicsQuerySOPClass
SubstanceApprovalQuerySOPClass
dicomDeviceName
dicomDescription
dicomManufacturer
dicomManufacturerModelName
dicomSoftwareVersion
dicomVendorData
dicomAETitle
dicomNetworkConnectionReference
dicomApplicationCluster
dicomAssociationInitiator
dicomAssociationAcceptor
dicomHostname
dicomPort
dicomSOPClass
dicomTransferRole
dicomTransferSyntax
dicomPrimaryDeviceType
dicomRelatedDeviceReference
dicomPreferredCalledAETitle
dicomTLSCyphersuite
dicomAuthorizedNodeCertificateReference
dicomThisNodeCertificateReference
dicomInstalled
dicomStationName
dicomDeviceSerialNumber
dicomInstitutionName
dicomInstitutionAddress
dicomInstitutionDepartmentName
dicomIssuerOfPatientID
dicomPreferredCallingAETitle
dicomSupportedCharacterSet
dicomConfigurationRoot

dicomDevicesRoot
dicomUniqueAETitlesRegistryRoot
dicomDevice
dicomNetworkAE
dicomNetworkConnection
dicomUniqueAETitle
dicomTransferCapability
VLWholeSlideMicroscopyImageStorage
EnhancedUSVolumeStorage
SurfaceSegmentationStorage
BreastTomosynthesisImageStorage

10.312.3.2 enum gdcmm::UIDs::TSType

Enumerator

uid_1_2_840_10008_1_1
uid_1_2_840_10008_1_2
uid_1_2_840_10008_1_2_1
uid_1_2_840_10008_1_2_1_99
uid_1_2_840_10008_1_2_2
uid_1_2_840_10008_1_2_4_50
uid_1_2_840_10008_1_2_4_51
uid_1_2_840_10008_1_2_4_52
uid_1_2_840_10008_1_2_4_53
uid_1_2_840_10008_1_2_4_54
uid_1_2_840_10008_1_2_4_55
uid_1_2_840_10008_1_2_4_56
uid_1_2_840_10008_1_2_4_57
uid_1_2_840_10008_1_2_4_58
uid_1_2_840_10008_1_2_4_59
uid_1_2_840_10008_1_2_4_60
uid_1_2_840_10008_1_2_4_61
uid_1_2_840_10008_1_2_4_62
uid_1_2_840_10008_1_2_4_63
uid_1_2_840_10008_1_2_4_64
uid_1_2_840_10008_1_2_4_65
uid_1_2_840_10008_1_2_4_66
uid_1_2_840_10008_1_2_4_70
uid_1_2_840_10008_1_2_4_80
uid_1_2_840_10008_1_2_4_81
uid_1_2_840_10008_1_2_4_90

uid_1_2_840_10008_1_2_4_91
uid_1_2_840_10008_1_2_4_92
uid_1_2_840_10008_1_2_4_93
uid_1_2_840_10008_1_2_4_94
uid_1_2_840_10008_1_2_4_95
uid_1_2_840_10008_1_2_4_100
uid_1_2_840_10008_1_2_5
uid_1_2_840_10008_1_2_6_1
uid_1_2_840_10008_1_2_6_2
uid_1_2_840_10008_1_3_10
uid_1_2_840_10008_1_4_1_1
uid_1_2_840_10008_1_4_1_2
uid_1_2_840_10008_1_4_1_3
uid_1_2_840_10008_1_4_1_4
uid_1_2_840_10008_1_4_1_5
uid_1_2_840_10008_1_4_1_6
uid_1_2_840_10008_1_4_1_7
uid_1_2_840_10008_1_4_1_8
uid_1_2_840_10008_1_4_1_9
uid_1_2_840_10008_1_4_1_10
uid_1_2_840_10008_1_4_1_11
uid_1_2_840_10008_1_4_1_12
uid_1_2_840_10008_1_4_1_13
uid_1_2_840_10008_1_4_1_14
uid_1_2_840_10008_1_4_1_15
uid_1_2_840_10008_1_4_1_16
uid_1_2_840_10008_1_4_1_17
uid_1_2_840_10008_1_4_1_18
uid_1_2_840_10008_1_4_2_1
uid_1_2_840_10008_1_4_2_2
uid_1_2_840_10008_1_9
uid_1_2_840_10008_1_20_1
uid_1_2_840_10008_1_20_1_1
uid_1_2_840_10008_1_20_2
uid_1_2_840_10008_1_20_2_1
uid_1_2_840_10008_1_40
uid_1_2_840_10008_1_40_1
uid_1_2_840_10008_1_42
uid_1_2_840_10008_1_42_1
uid_1_2_840_10008_2_6_1
uid_1_2_840_10008_2_16_4
uid_1_2_840_10008_3_1_1_1

uid_1_2_840_10008_3_1_2_1_1
uid_1_2_840_10008_3_1_2_1_4
uid_1_2_840_10008_3_1_2_2_1
uid_1_2_840_10008_3_1_2_3_1
uid_1_2_840_10008_3_1_2_3_2
uid_1_2_840_10008_3_1_2_3_3
uid_1_2_840_10008_3_1_2_3_4
uid_1_2_840_10008_3_1_2_3_5
uid_1_2_840_10008_3_1_2_5_1
uid_1_2_840_10008_3_1_2_5_4
uid_1_2_840_10008_3_1_2_5_5
uid_1_2_840_10008_3_1_2_6_1
uid_1_2_840_10008_4_2
uid_1_2_840_10008_5_1_1_1
uid_1_2_840_10008_5_1_1_2
uid_1_2_840_10008_5_1_1_4
uid_1_2_840_10008_5_1_1_4_1
uid_1_2_840_10008_5_1_1_4_2
uid_1_2_840_10008_5_1_1_9
uid_1_2_840_10008_5_1_1_9_1
uid_1_2_840_10008_5_1_1_14
uid_1_2_840_10008_5_1_1_15
uid_1_2_840_10008_5_1_1_16
uid_1_2_840_10008_5_1_1_16_376
uid_1_2_840_10008_5_1_1_17
uid_1_2_840_10008_5_1_1_17_376
uid_1_2_840_10008_5_1_1_18
uid_1_2_840_10008_5_1_1_18_1
uid_1_2_840_10008_5_1_1_22
uid_1_2_840_10008_5_1_1_23
uid_1_2_840_10008_5_1_1_24
uid_1_2_840_10008_5_1_1_24_1
uid_1_2_840_10008_5_1_1_25
uid_1_2_840_10008_5_1_1_26
uid_1_2_840_10008_5_1_1_27
uid_1_2_840_10008_5_1_1_29
uid_1_2_840_10008_5_1_1_30
uid_1_2_840_10008_5_1_1_31
uid_1_2_840_10008_5_1_1_32
uid_1_2_840_10008_5_1_1_33
uid_1_2_840_10008_5_1_4_1_1_1
uid_1_2_840_10008_5_1_4_1_1_1_1

uid_1_2_840_10008_5_1_4_1_1_1_1
uid_1_2_840_10008_5_1_4_1_1_1_2
uid_1_2_840_10008_5_1_4_1_1_1_2_1
uid_1_2_840_10008_5_1_4_1_1_1_3
uid_1_2_840_10008_5_1_4_1_1_1_3_1
uid_1_2_840_10008_5_1_4_1_1_2
uid_1_2_840_10008_5_1_4_1_1_2_1
uid_1_2_840_10008_5_1_4_1_1_3
uid_1_2_840_10008_5_1_4_1_1_3_1
uid_1_2_840_10008_5_1_4_1_1_4
uid_1_2_840_10008_5_1_4_1_1_4_1
uid_1_2_840_10008_5_1_4_1_1_4_2
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uid_1_2_840_10008_5_1_4_1_1_6
uid_1_2_840_10008_5_1_4_1_1_6_1
uid_1_2_840_10008_5_1_4_1_1_7
uid_1_2_840_10008_5_1_4_1_1_7_1
uid_1_2_840_10008_5_1_4_1_1_7_2
uid_1_2_840_10008_5_1_4_1_1_7_3
uid_1_2_840_10008_5_1_4_1_1_7_4
uid_1_2_840_10008_5_1_4_1_1_8
uid_1_2_840_10008_5_1_4_1_1_9
uid_1_2_840_10008_5_1_4_1_1_9_1
uid_1_2_840_10008_5_1_4_1_1_9_1_1
uid_1_2_840_10008_5_1_4_1_1_9_1_2
uid_1_2_840_10008_5_1_4_1_1_9_1_3
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uid_1_2_840_10008_5_1_4_1_1_9_3_1
uid_1_2_840_10008_5_1_4_1_1_9_4_1
uid_1_2_840_10008_5_1_4_1_1_10
uid_1_2_840_10008_5_1_4_1_1_11
uid_1_2_840_10008_5_1_4_1_1_11_1
uid_1_2_840_10008_5_1_4_1_1_11_2
uid_1_2_840_10008_5_1_4_1_1_11_3
uid_1_2_840_10008_5_1_4_1_1_11_4
uid_1_2_840_10008_5_1_4_1_1_12_1
uid_1_2_840_10008_5_1_4_1_1_12_1_1
uid_1_2_840_10008_5_1_4_1_1_12_2
uid_1_2_840_10008_5_1_4_1_1_12_2_1
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uid_1_2_840_10008_5_1_4_1_1_13_1_2
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uid_1_2_840_10008_5_1_4_1_1_66_3
uid_1_2_840_10008_5_1_4_1_1_66_4
uid_1_2_840_10008_5_1_4_1_1_67
uid_1_2_840_10008_5_1_4_1_1_77_1
uid_1_2_840_10008_5_1_4_1_1_77_2
uid_1_2_840_10008_5_1_4_1_1_77_1_1
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1
uid_1_2_840_10008_5_1_4_1_1_77_1_2
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1
uid_1_2_840_10008_5_1_4_1_1_77_1_3
uid_1_2_840_10008_5_1_4_1_1_77_1_4
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2
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uid_1_2_840_10008_5_1_4_1_1_77_1_5_4
uid_1_2_840_10008_5_1_4_1_1_88_1
uid_1_2_840_10008_5_1_4_1_1_88_2
uid_1_2_840_10008_5_1_4_1_1_88_3
uid_1_2_840_10008_5_1_4_1_1_88_4
uid_1_2_840_10008_5_1_4_1_1_88_11
uid_1_2_840_10008_5_1_4_1_1_88_22
uid_1_2_840_10008_5_1_4_1_1_88_33
uid_1_2_840_10008_5_1_4_1_1_88_40
uid_1_2_840_10008_5_1_4_1_1_88_50
uid_1_2_840_10008_5_1_4_1_1_88_59
uid_1_2_840_10008_5_1_4_1_1_88_65
uid_1_2_840_10008_5_1_4_1_1_88_67
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uid_1_2_840_10008_5_1_4_1_1_104_2
uid_1_2_840_10008_5_1_4_1_1_128
uid_1_2_840_10008_5_1_4_1_1_129
uid_1_2_840_10008_5_1_4_1_1_481_1
uid_1_2_840_10008_5_1_4_1_1_481_2
uid_1_2_840_10008_5_1_4_1_1_481_3
uid_1_2_840_10008_5_1_4_1_1_481_4
uid_1_2_840_10008_5_1_4_1_1_481_5
uid_1_2_840_10008_5_1_4_1_1_481_6

uid_1_2_840_10008_5_1_4_1_1_481_7
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uid_1_2_840_10008_5_1_4_32_1
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uid_1_2_840_10008_5_1_4_32
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uid_1_2_840_10008_5_1_4_34_4_3
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uid_1_2_840_10008_5_1_4_37_3
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uid_1_2_840_10008_5_1_4_38_2
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uid_1_2_840_10008_15_0_3_12
uid_1_2_840_10008_15_0_3_13
uid_1_2_840_10008_15_0_3_14
uid_1_2_840_10008_15_0_3_15
uid_1_2_840_10008_15_0_3_16
uid_1_2_840_10008_15_0_3_17
uid_1_2_840_10008_15_0_3_18
uid_1_2_840_10008_15_0_3_19
uid_1_2_840_10008_15_0_3_20
uid_1_2_840_10008_15_0_3_21
uid_1_2_840_10008_15_0_3_22
uid_1_2_840_10008_15_0_3_23
uid_1_2_840_10008_15_0_3_24
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uid_1_2_840_10008_15_0_3_27
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uid_1_2_840_10008_15_0_3_30
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uid_1_2_840_10008_15_0_4_6
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uid_1_2_840_10008_5_1_4_1_1_6_2
uid_1_2_840_10008_5_1_4_1_1_66_5
uid_1_2_840_10008_5_1_4_1_1_13_1_3
uid_1_2_840_10008_1_2_4_101
uid_1_2_840_10008_1_2_4_102
uid_1_2_840_10008_1_2_4_103

10.312.4 Member Function Documentation

10.312.4.1 `const char* gdcm::UIDs::GetName () const`

When object is Initialize function return the well known name associated with uid return NULL when not initialized

Examples:

[GenerateStandardSOPClasses.cxx](#).

Referenced by `gdcm::operator<<()`.

10.312.4.2 `static unsigned int gdcm::UIDs::GetNumberOfTransferSyntaxStrings () [static]`

10.312.4.3 `const char* gdcm::UIDs::GetString () const`

When object is Initialize function return the uid return NULL when not initialized

Examples:

[GenerateStandardSOPClasses.cxx](#).

Referenced by `gdcm::operator<<()`.

10.312.4.4 `static const char* const* gdcm::UIDs::GetTransferSyntaxString (unsigned int ts) [static]`

10.312.4.5 `static TransferSyntaxStringsType gdcm::UIDs::GetTransferSyntaxStrings () [static]`

10.312.4.6 `static const char* gdcm::UIDs::GetUIDName (unsigned int ts) [static]`

10.312.4.7 `static const char* gdcm::UIDs::GetUIDString (unsigned int ts) [static]`

10.312.4.8 `gdcm::UIDs::operator TSType () const [inline]`

10.312.4.9 `bool gdcm::UIDs::SetFromUID (const char * str)`

Initialize object from a string (a uid number) return false on error, and internal state is set to 0

Examples:

[GenerateStandardSOPClasses.cxx](#).

The documentation for this class was generated from the following file:

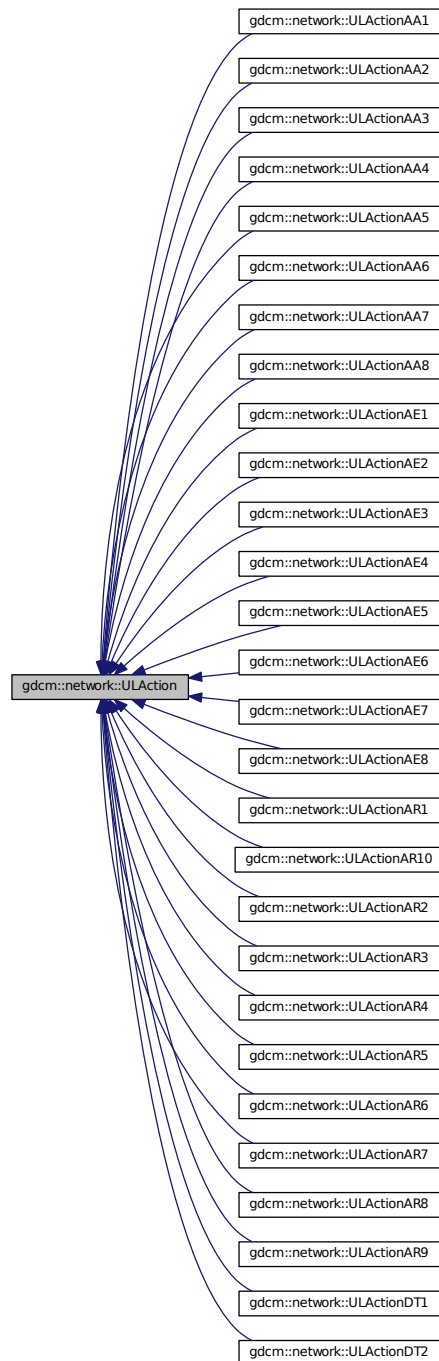
- [gdcmUIDs.h](#)

10.313 gdcm::network::ULAction Class Reference

ULAction A [ULConnection](#) in a given ULState can perform certain ULActions. This base class provides the interface for running those ULActions on a given [ULConnection](#).

```
#include <gdcmULAction.h>
```

Inheritance diagram for `gdc::network::ULAction`:



Public Member Functions

- [ULAction\(\)](#)

- virtual `~ULAction()`
- virtual `EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaiting, ForEvent, EEventID &outRaisedEvent)=0`

10.313.1 Detailed Description

`ULAction` A `ULConnection` in a given `ULState` can perform certain `ULActions`. This base class provides the interface for running those `ULActions` on a given `ULConnection`.

Essentially, the `ULConnectionManager` will take this object, determined from the current `ULState` of the `ULConnection`, and pass the `ULConnection` object to the `ULAction`. The `ULAction` will then invoke whatever necessary commands are required by a given action.

The result of a `ULAction` is a `ULEvent` (ie, what happened as a result of the action).

This `ULEvent` is passed to the `ULState`, so that the transition to the next state can occur.

Actions are associated with Payloads— be those filestreams, AETitles to establish connections, whatever. The actual parameters that the user will pass via an action will come through a Payload object, which should, in itself, be some `gdcmm`-based object (but not all objects can be payloads; sending a single dataelement as a payload isn't meaningful). As such, each action has its own particular payload.

For the sake of keeping files together, both the particular payload class and the action class will be defined in the same header file. Payloads should JUST be data (or streams), NO METHODS.

Some actions perform changes that should raise events on the local system, and some actions perform changes that will require waiting for events from the remote system.

Therefore, this base action has been modified so that those events are set by each action. When the event loop runs an action, it will then test to see if a local event was raised by the action, and if so, perform the appropriate subsequent action. If the action requires waiting for a response from the remote system, then the event loop will sit there (presumably with the ARTIM timer running) and wait for a response from the remote system. Once a response is obtained, then the rest of the state transitions can happen.

10.313.2 Constructor & Destructor Documentation

10.313.2.1 `gdcmm::network::ULAction::ULAction () [inline]`

10.313.2.2 `virtual gdcmm::network::ULAction::~~ULAction () [inline], [virtual]`

References `PerformAction()`.

10.313.3 Member Function Documentation

10.313.3.1 `virtual EStateID gdcmm::network::ULAction::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [pure virtual]

Implemented in [gdcmm::network::ULActionAR10](#), [gdcmm::network::ULActionAR9](#), [gdcmm::network::ULActionAE8](#), [gdcmm::network::ULActionAA8](#), [gdcmm::network::ULActionAR8](#), [gdcmm::network::ULActionAE7](#), [gdcmm::network::ULActionAA7](#), [gdcmm::network::ULActionAR7](#), [gdcmm::network::ULActionAE6](#), [gdcmm::network::ULActionAA6](#), [gdcmm::network::ULActionAR6](#), [gdcmm::network::ULActionAA5](#), [gdcmm::network::ULActionAE5](#), [gdcmm::network::ULActionAR5](#), [gdcmm::network::ULActionAA4](#), [gdcmm::network::ULActionAE4](#), [gdcmm::network::ULActionAR4](#), [gdcmm::network::ULActionAA3](#), [gdcmm::network::ULActionAE3](#), [gdcmm::network::ULActionAR3](#), [gdcmm::network::ULActionAA2](#), [gdcmm::network::ULActionAE2](#), [gdcmm::network::ULActionAR2](#), [gdcmm::network::ULActionDT2](#), [gdcmm::network::ULActionAA1](#), [gdcmm::network::ULActionAE1](#), [gdcmm::network::ULActionAR1](#), and [gdcmm::network::ULActionDT1](#).

Referenced by `~ULAction()`.

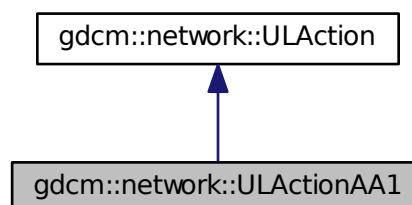
The documentation for this class was generated from the following file:

- [gdcmmULAction.h](#)

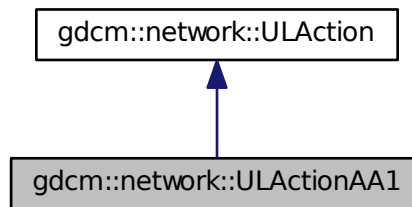
10.314 gdcmm::network::ULActionAA1 Class Reference

```
#include <gdcmmULActionAA.h>
```

Inheritance diagram for `gdcmm::network::ULActionAA1`:



Collaboration diagram for gdcmm::network::ULActionAA1:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.314.1 Member Function Documentation

10.314.1.1 **EStateID** `gdcmm::network::ULActionAA1::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` `[virtual]`

Implements [gdcmm::network::ULAction](#).

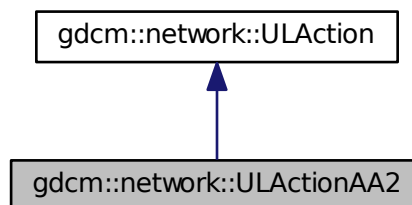
The documentation for this class was generated from the following file:

- [gdcmmULActionAA.h](#)

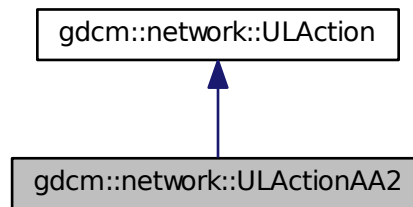
10.315 gdcmm::network::ULActionAA2 Class Reference

```
#include <gdcmmULActionAA.h>
```

Inheritance diagram for gdcmm::network::ULActionAA2:



Collaboration diagram for `gdcn::network::ULActionAA2`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.315.1 Member Function Documentation

10.315.1.1 **EStateID** `gdcn::network::ULActionAA2::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcn::network::ULAction](#).

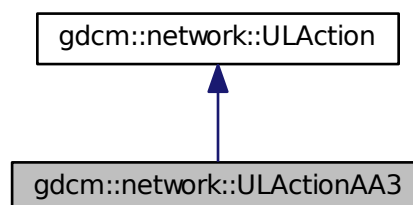
The documentation for this class was generated from the following file:

- [gdcnULActionAA.h](#)

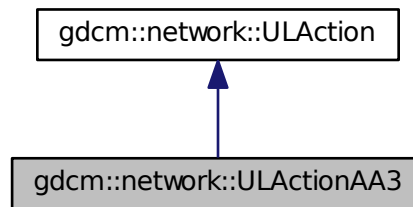
10.316 gdcn::network::ULActionAA3 Class Reference

```
#include <gdcnULActionAA.h>
```

Inheritance diagram for `gdcn::network::ULActionAA3`:



Collaboration diagram for gdcmm::network::ULActionAA3:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.316.1 Member Function Documentation

10.316.1.1 **EStateID** `gdcmm::network::ULActionAA3::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

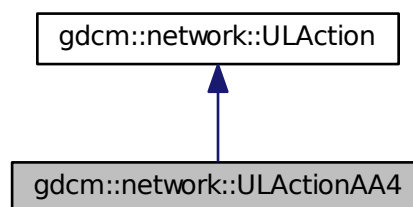
The documentation for this class was generated from the following file:

- [gdcmmULActionAA.h](#)

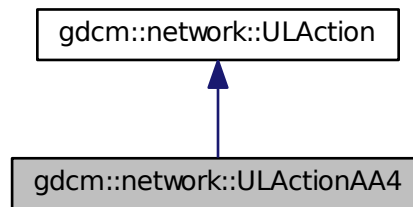
10.317 gdcmm::network::ULActionAA4 Class Reference

```
#include <gdcmmULActionAA.h>
```

Inheritance diagram for gdcmm::network::ULActionAA4:



Collaboration diagram for `gdcn::network::ULActionAA4`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.317.1 Member Function Documentation

10.317.1.1 [EStateID gdcn::network::ULActionAA4::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

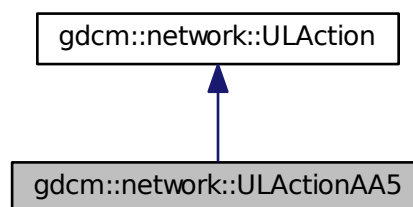
The documentation for this class was generated from the following file:

- [gdcnULActionAA.h](#)

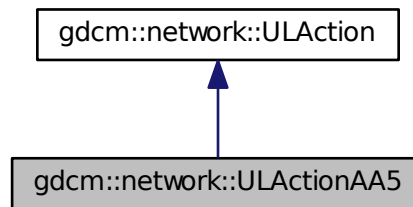
10.318 gdcn::network::ULActionAA5 Class Reference

```
#include <gdcnULActionAA.h>
```

Inheritance diagram for `gdcn::network::ULActionAA5`:



Collaboration diagram for gdcmm::network::ULActionAA5:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.318.1 Member Function Documentation

10.318.1.1 **EStateID** `gdcmm::network::ULActionAA5::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

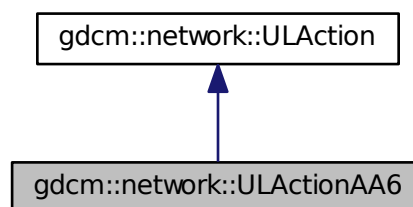
The documentation for this class was generated from the following file:

- [gdcmmULActionAA.h](#)

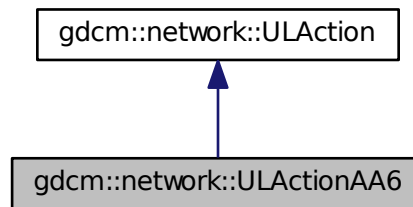
10.319 gdcmm::network::ULActionAA6 Class Reference

```
#include <gdcmmULActionAA.h>
```

Inheritance diagram for gdcmm::network::ULActionAA6:



Collaboration diagram for `gdcn::network::ULActionAA6`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.319.1 Member Function Documentation

10.319.1.1 [EStateID gdcn::network::ULActionAA6::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

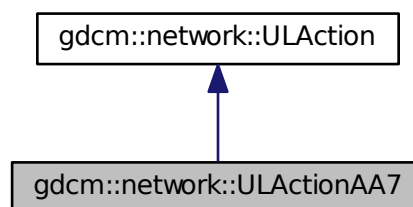
The documentation for this class was generated from the following file:

- [gdcnULActionAA.h](#)

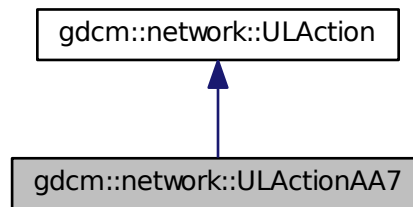
10.320 gdcn::network::ULActionAA7 Class Reference

```
#include <gdcnULActionAA.h>
```

Inheritance diagram for `gdcn::network::ULActionAA7`:



Collaboration diagram for gdcmm::network::ULActionAA7:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.320.1 Member Function Documentation

10.320.1.1 **EStateID** `gdcmm::network::ULActionAA7::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

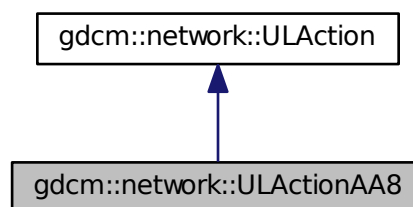
The documentation for this class was generated from the following file:

- [gdcmmULActionAA.h](#)

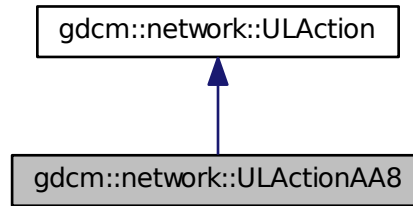
10.321 gdcmm::network::ULActionAA8 Class Reference

```
#include <gdcmmULActionAA.h>
```

Inheritance diagram for gdcmm::network::ULActionAA8:



Collaboration diagram for `gdcn::network::ULActionAA8`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.321.1 Member Function Documentation

10.321.1.1 [EStateID gdcn::network::ULActionAA8::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

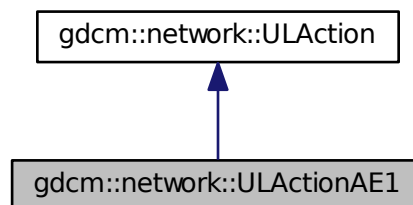
The documentation for this class was generated from the following file:

- [gdcnULActionAA.h](#)

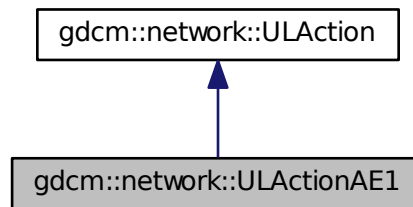
10.322 gdcn::network::ULActionAE1 Class Reference

```
#include <gdcnULActionAE.h>
```

Inheritance diagram for `gdcn::network::ULActionAE1`:



Collaboration diagram for gdcmm::network::ULActionAE1:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.322.1 Member Function Documentation

10.322.1.1 **EStateID** `gdcmm::network::ULActionAE1::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

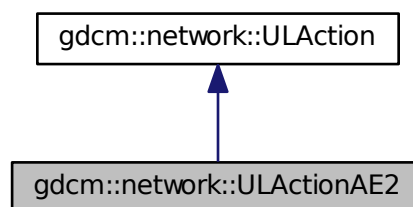
The documentation for this class was generated from the following file:

- [gdcmmULActionAE.h](#)

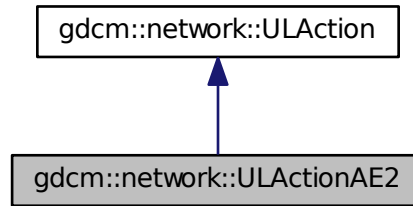
10.323 gdcmm::network::ULActionAE2 Class Reference

```
#include <gdcmmULActionAE.h>
```

Inheritance diagram for gdcmm::network::ULActionAE2:



Collaboration diagram for `gdcn::network::ULActionAE2`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.323.1 Member Function Documentation

10.323.1.1 [EStateID gdcn::network::ULActionAE2::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

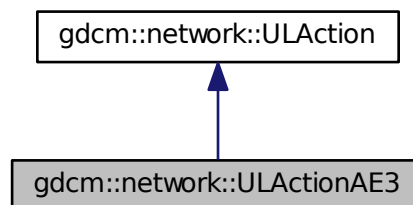
The documentation for this class was generated from the following file:

- [gdcnULActionAE.h](#)

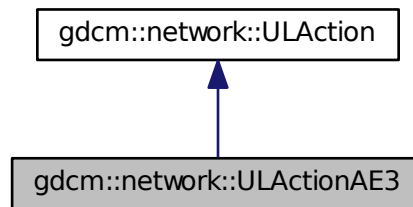
10.324 gdcn::network::ULActionAE3 Class Reference

```
#include <gdcnULActionAE.h>
```

Inheritance diagram for `gdcn::network::ULActionAE3`:



Collaboration diagram for gdcm::network::ULActionAE3:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.324.1 Member Function Documentation

10.324.1.1 **EStateID** `gdcm::network::ULActionAE3::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcm::network::ULAction](#).

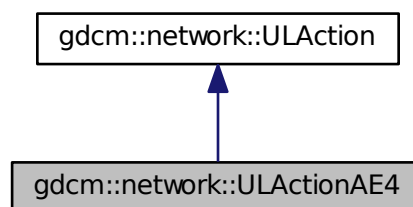
The documentation for this class was generated from the following file:

- [gdcmULActionAE.h](#)

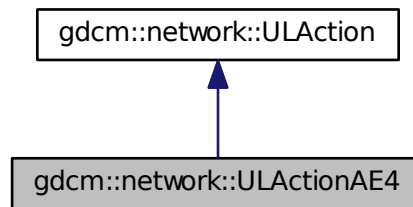
10.325 gdcm::network::ULActionAE4 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE4:



Collaboration diagram for `gdcmm::network::ULActionAE4`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.325.1 Member Function Documentation

10.325.1.1 `EStateID gdcmm::network::ULActionAE4::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements [gdcmm::network::ULAction](#).

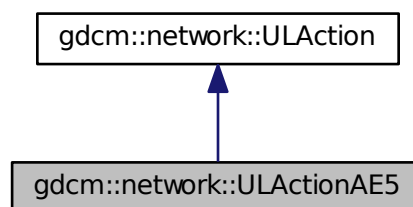
The documentation for this class was generated from the following file:

- [gdcmmULActionAE.h](#)

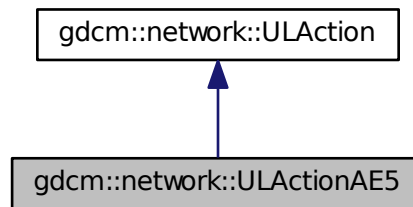
10.326 gdcmm::network::ULActionAE5 Class Reference

```
#include <gdcmmULActionAE.h>
```

Inheritance diagram for `gdcmm::network::ULActionAE5`:



Collaboration diagram for gdcmm::network::ULActionAE5:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.326.1 Member Function Documentation

10.326.1.1 `EStateID gdcmm::network::ULActionAE5::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements [gdcmm::network::ULAction](#).

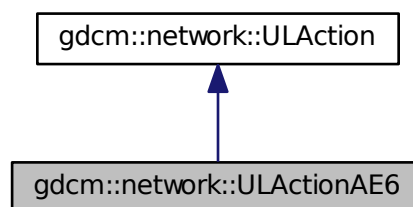
The documentation for this class was generated from the following file:

- [gdcmmULActionAE.h](#)

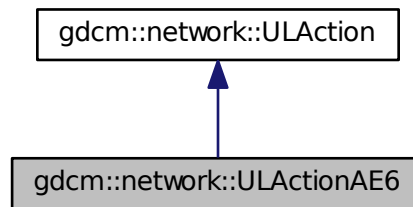
10.327 gdcmm::network::ULActionAE6 Class Reference

```
#include <gdcmmULActionAE.h>
```

Inheritance diagram for gdcmm::network::ULActionAE6:



Collaboration diagram for `gdcm::network::ULActionAE6`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.327.1 Member Function Documentation

10.327.1.1 `EStateID gdcm::network::ULActionAE6::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements [gdcm::network::ULAction](#).

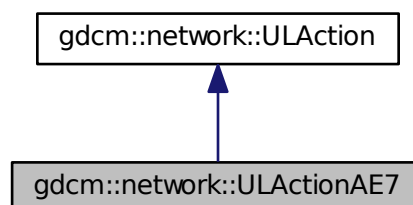
The documentation for this class was generated from the following file:

- [gdcmULActionAE.h](#)

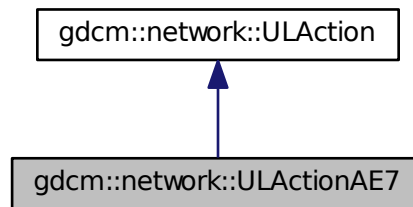
10.328 gdcm::network::ULActionAE7 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for `gdcm::network::ULActionAE7`:



Collaboration diagram for gdcmm::network::ULActionAE7:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.328.1 Member Function Documentation

10.328.1.1 `EStateID gdcmm::network::ULActionAE7::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements [gdcmm::network::ULAction](#).

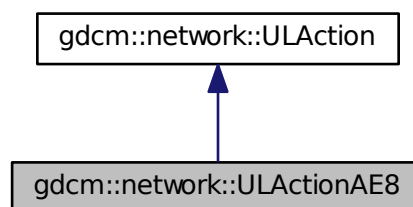
The documentation for this class was generated from the following file:

- [gdcmmULActionAE.h](#)

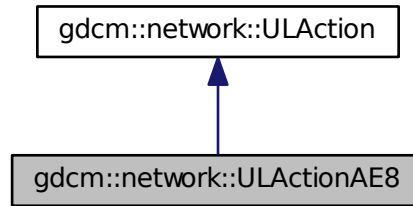
10.329 gdcmm::network::ULActionAE8 Class Reference

```
#include <gdcmmULActionAE.h>
```

Inheritance diagram for gdcmm::network::ULActionAE8:



Collaboration diagram for `gdcn::network::ULActionAE8`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.329.1 Member Function Documentation

10.329.1.1 [EStateID gdcn::network::ULActionAE8::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

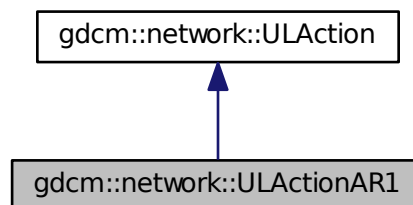
The documentation for this class was generated from the following file:

- [gdcnULActionAE.h](#)

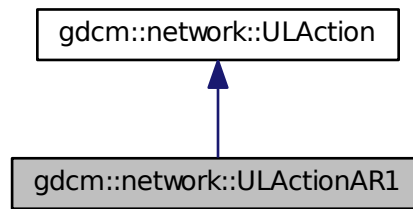
10.330 gdcn::network::ULActionAR1 Class Reference

```
#include <gdcnULActionAR.h>
```

Inheritance diagram for `gdcn::network::ULActionAR1`:



Collaboration diagram for gdcmm::network::ULActionAR1:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.330.1 Member Function Documentation

10.330.1.1 [EStateID](#) `gdcmm::network::ULActionAR1::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

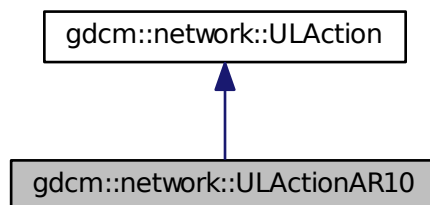
The documentation for this class was generated from the following file:

- [gdcmmULActionAR.h](#)

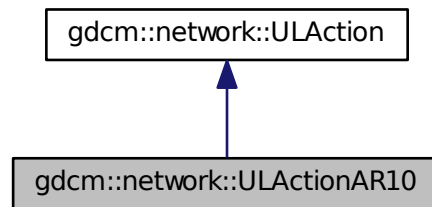
10.331 gdcmm::network::ULActionAR10 Class Reference

```
#include <gdcmmULActionAR.h>
```

Inheritance diagram for gdcmm::network::ULActionAR10:



Collaboration diagram for `gdcm::network::ULActionAR10`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.331.1 Member Function Documentation

10.331.1.1 [EStateID](#) `gdcm::network::ULActionAR10::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` `[virtual]`

Implements [gdcm::network::ULAction](#).

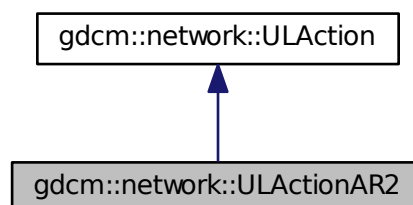
The documentation for this class was generated from the following file:

- [gdcmULActionAR.h](#)

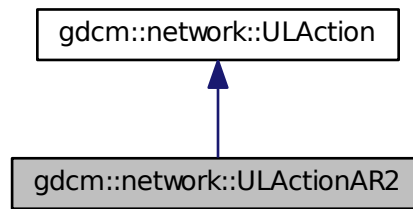
10.332 `gdcm::network::ULActionAR2` Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for `gdcm::network::ULActionAR2`:



Collaboration diagram for gdcmm::network::ULActionAR2:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.332.1 Member Function Documentation

10.332.1.1 **EStateID** `gdcmm::network::ULActionAR2::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

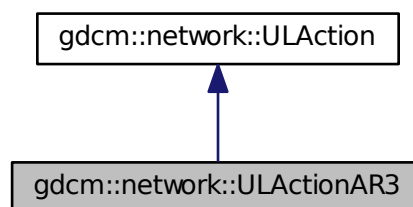
The documentation for this class was generated from the following file:

- [gdcmmULActionAR.h](#)

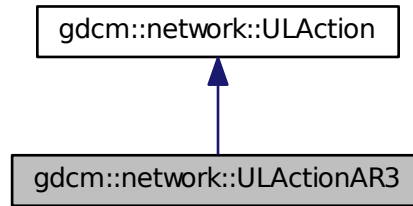
10.333 gdcmm::network::ULActionAR3 Class Reference

```
#include <gdcmmULActionAR.h>
```

Inheritance diagram for gdcmm::network::ULActionAR3:



Collaboration diagram for `gdcn::network::ULActionAR3`:



Public Member Functions

- `EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent)`

10.333.1 Member Function Documentation

10.333.1.1 `EStateID gdcn::network::ULActionAR3::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements `gdcn::network::ULAction`.

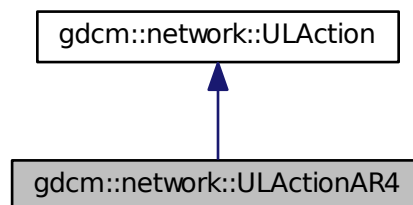
The documentation for this class was generated from the following file:

- `gdcnULActionAR.h`

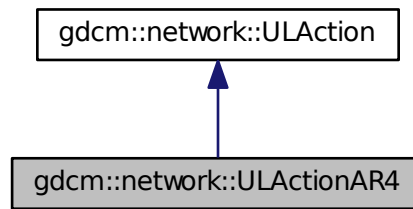
10.334 gdcn::network::ULActionAR4 Class Reference

```
#include <gdcnULActionAR.h>
```

Inheritance diagram for `gdcn::network::ULActionAR4`:



Collaboration diagram for gdcmm::network::ULActionAR4:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.334.1 Member Function Documentation

10.334.1.1 [EStateID](#) `gdcmm::network::ULActionAR4::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

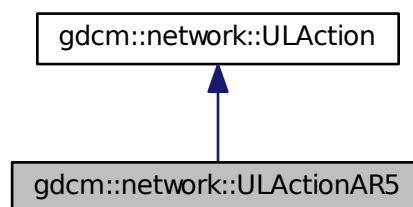
The documentation for this class was generated from the following file:

- [gdcmmULActionAR.h](#)

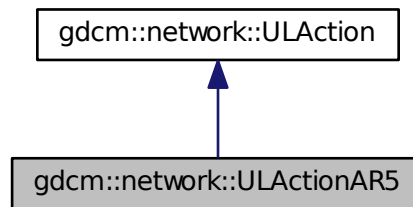
10.335 gdcmm::network::ULActionAR5 Class Reference

```
#include <gdcmmULActionAR.h>
```

Inheritance diagram for gdcmm::network::ULActionAR5:



Collaboration diagram for `gdcmm::network::ULActionAR5`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.335.1 Member Function Documentation

10.335.1.1 **EStateID** `gdcmm::network::ULActionAR5::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

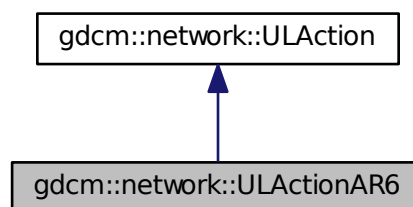
The documentation for this class was generated from the following file:

- [gdcmmULActionAR.h](#)

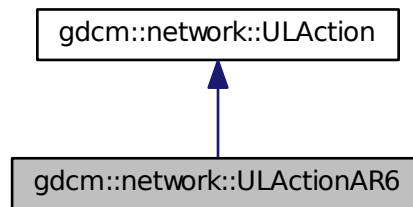
10.336 gdcmm::network::ULActionAR6 Class Reference

```
#include <gdcmmULActionAR.h>
```

Inheritance diagram for `gdcmm::network::ULActionAR6`:



Collaboration diagram for gdcm::network::ULActionAR6:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.336.1 Member Function Documentation

10.336.1.1 **EStateID** `gdcm::network::ULActionAR6::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcm::network::ULAction](#).

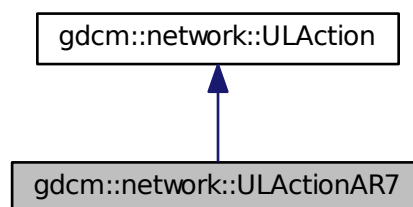
The documentation for this class was generated from the following file:

- [gdcmULActionAR.h](#)

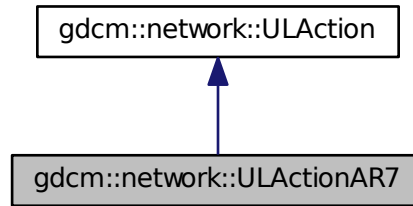
10.337 gdcm::network::ULActionAR7 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR7:



Collaboration diagram for `gdcn::network::ULActionAR7`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.337.1 Member Function Documentation

10.337.1.1 **EStateID** `gdcn::network::ULActionAR7::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcn::network::ULAction](#).

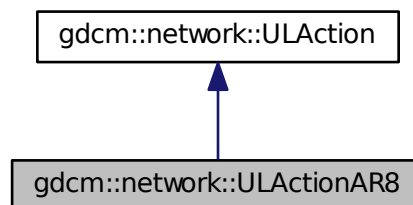
The documentation for this class was generated from the following file:

- [gdcnULActionAR.h](#)

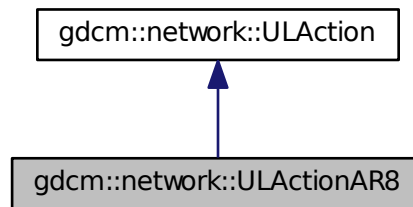
10.338 gdcn::network::ULActionAR8 Class Reference

```
#include <gdcnULActionAR.h>
```

Inheritance diagram for `gdcn::network::ULActionAR8`:



Collaboration diagram for gdcmm::network::ULActionAR8:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.338.1 Member Function Documentation

10.338.1.1 **EStateID** `gdcmm::network::ULActionAR8::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcmm::network::ULAction](#).

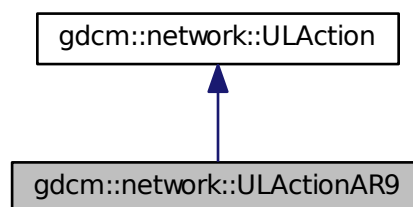
The documentation for this class was generated from the following file:

- [gdcmmULActionAR.h](#)

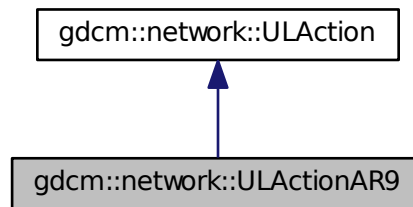
10.339 gdcmm::network::ULActionAR9 Class Reference

```
#include <gdcmmULActionAR.h>
```

Inheritance diagram for gdcmm::network::ULActionAR9:



Collaboration diagram for `gdcn::network::ULActionAR9`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.339.1 Member Function Documentation

10.339.1.1 [EStateID gdcn::network::ULActionAR9::PerformAction](#) ([Subject](#) * s, [ULEvent](#) & *inEvent*, [ULConnection](#) & *inConnection*, bool & *outWaitingForEvent*, [EEventID](#) & *outRaisedEvent*) [virtual]

Implements [gdcn::network::ULAction](#).

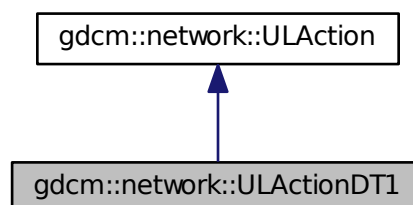
The documentation for this class was generated from the following file:

- [gdcnULActionAR.h](#)

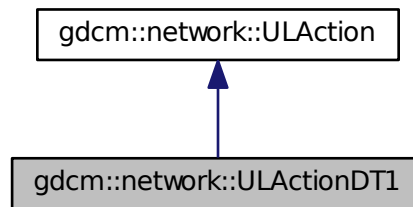
10.340 gdcn::network::ULActionDT1 Class Reference

```
#include <gdcnULActionDT.h>
```

Inheritance diagram for `gdcn::network::ULActionDT1`:



Collaboration diagram for gdcn::network::ULActionDT1:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.340.1 Member Function Documentation

10.340.1.1 **EStateID** `gdcn::network::ULActionDT1::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent)` [virtual]

Implements [gdcn::network::ULAction](#).

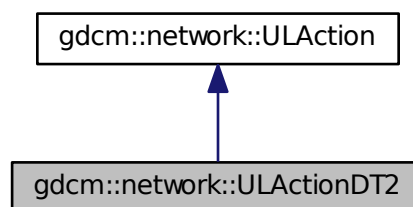
The documentation for this class was generated from the following file:

- [gdcnULActionDT.h](#)

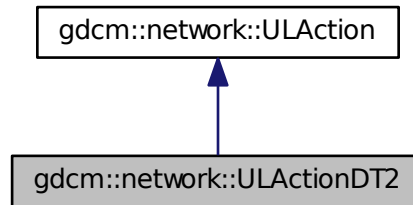
10.341 gdcn::network::ULActionDT2 Class Reference

```
#include <gdcnULActionDT.h>
```

Inheritance diagram for gdcn::network::ULActionDT2:



Collaboration diagram for `gdcm::network::ULActionDT2`:



Public Member Functions

- [EStateID PerformAction](#) ([Subject](#) *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EEventID](#) &outRaisedEvent)

10.341.1 Member Function Documentation

10.341.1.1 `EStateID gdcm::network::ULActionDT2::PerformAction (Subject * s, ULEvent & inEvent, ULConnection & inConnection, bool & outWaitingForEvent, EEventID & outRaisedEvent) [virtual]`

Implements [gdcm::network::ULAction](#).

The documentation for this class was generated from the following file:

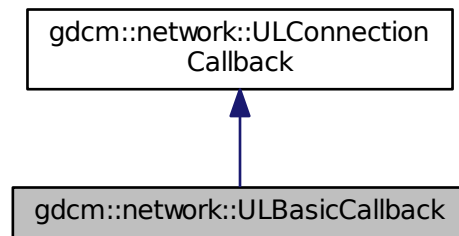
- [gdcmULActionDT.h](#)

10.342 gdcm::network::ULBasicCallback Class Reference

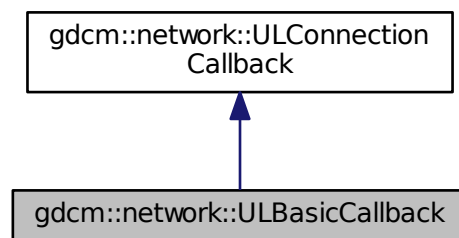
[ULBasicCallback](#) This is the most basic of callbacks for how the [ULConnectionManager](#) handles incoming datasets. DataSets are just concatenated to the `mDataSets` vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the [ULConnectionManager](#).

```
#include <gdcmULBasicCallback.h>
```


Inheritance diagram for gdcm::network::ULBasicCallback:



Collaboration diagram for gdcm::network::ULBasicCallback:



Public Member Functions

- [ULBasicCallback](#) ()
- virtual [~ULBasicCallback](#) ()
- std::vector< [DataSet](#) > const & [GetDataSets](#) () const
- std::vector< [DataSet](#) > const & [GetResponses](#) () const
- virtual void [HandleDataSet](#) (const [DataSet](#) &inDataSet)
- virtual void [HandleResponse](#) (const [DataSet](#) &inDataSet)

Additional Inherited Members

10.342.1 Detailed Description

[ULBasicCallback](#) This is the most basic of callbacks for how the [ULConnectionManager](#) handles incoming datasets. DataSets are just concatenated to the mDataSets vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the [ULConnectionManager](#).

10.342.2 Constructor & Destructor Documentation

10.342.2.1 `gdcm::network::ULBasicCallback::ULBasicCallback ()` `[inline]`

10.342.2.2 `virtual gdcm::network::ULBasicCallback::~~ULBasicCallback ()` `[inline]`, `[virtual]`

10.342.3 Member Function Documentation

10.342.3.1 `std::vector<DataSet> const& gdcm::network::ULBasicCallback::GetDataSets () const`

10.342.3.2 `std::vector<DataSet> const& gdcm::network::ULBasicCallback::GetResponses () const`

10.342.3.3 `virtual void gdcm::network::ULBasicCallback::HandleDataSet (const DataSet & inDataSet)` `[virtual]`

Implements [gdcm::network::ULConnectionCallback](#).

10.342.3.4 `virtual void gdcm::network::ULBasicCallback::HandleResponse (const DataSet & inDataSet)` `[virtual]`

Implements [gdcm::network::ULConnectionCallback](#).

The documentation for this class was generated from the following file:

- [gdcmULBasicCallback.h](#)

10.343 gdcm::network::ULConnection Class Reference

[ULConnection](#) This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

```
#include <gdcmULConnection.h>
```

Public Member Functions

- [ULConnection](#) (const [ULConnectionInfo](#) &inUserInformation)
- virtual [~ULConnection](#) ()
- void [AddAcceptedPresentationContext](#) (const [PresentationContextAC](#) &inPC)
- [PresentationContextRQ](#) [FindContext](#) (const [DataElement](#) &de) const
- std::vector< [PresentationContextAC](#) > const & [GetAcceptedPresentationContexts](#) () const
- std::vector< [PresentationContextAC](#) > & [GetAcceptedPresentationContexts](#) ()
- const [ULConnectionInfo](#) & [GetConnectionInfo](#) () const
- uint32_t [GetMaxPDUSize](#) () const
- const [PresentationContextAC](#) * [GetPresentationContextACByID](#) (uint8_t id) const
- uint8_t [GetPresentationContextIDFromPresentationContext](#) ([PresentationContextRQ](#) const &pc) const
return 0 upon error
- const [PresentationContextRQ](#) * [GetPresentationContextRQByID](#) (uint8_t id) const
- std::vector< [PresentationContextRQ](#) > const & [GetPresentationContexts](#) () const
- std::iostream * [GetProtocol](#) ()
- [EStateID](#) [GetState](#) () const
- [ARTIMTimer](#) & [GetTimer](#) ()
- bool [InitializeConnection](#) ()
used to establish scu connections
- bool [InitializeIncomingConnection](#) ()
used to establish scp connections
- void [SetMaxPDUSize](#) (uint32_t inSize)
- void [SetPresentationContexts](#) (const std::vector< [PresentationContextRQ](#) > &inContexts)
- void [SetPresentationContexts](#) (const std::vector< [PresentationContext](#) > &inContexts)
- void [SetState](#) (const [EStateID](#) &inState)
- void [StopProtocol](#) ()

Friends

- class [ULActionAE6](#)
- class [ULConnectionManager](#)

10.343.1 Detailed Description

[ULConnection](#) This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

The [ULConnectionManager](#) tells the [ULConnection](#) what data can actually be sent.

This class is done this way so that it can be eventually be replaced with a [ULSecureConnection](#), if such a protocol is warranted, so that all data that passes through can be managed through a secure connection. For now, this class provides a simple pass-through mechanism to the socket itself.

So, for instance, a gdcmm object will be passes to this object, and it will then get passed along the connection, if that connection is in the proper state to do so.

For right now, this class is not directly intended to be inherited from, but the potential for future [ULSecureConnection](#) warrants the addition, rather than having everything be managed from within the [ULConnectionManager](#) (or this class) without a wrapper.

10.343.2 Constructor & Destructor Documentation

10.343.2.1 `gdcm::network::ULConnection::ULConnection (const ULConnectionInfo & inUserInfo)`

10.343.2.2 `virtual gdcm::network::ULConnection::~~ULConnection () [virtual]`

10.343.3 Member Function Documentation

10.343.3.1 `void gdcm::network::ULConnection::AddAcceptedPresentationContext (const PresentationContextAC & inPC)`

10.343.3.2 `PresentationContextRQ gdcm::network::ULConnection::FindContext (const DataElement & de) const`

10.343.3.3 `std::vector<PresentationContextAC> const& gdcm::network::ULConnection::GetAcceptedPresentationContexts () const`

10.343.3.4 `std::vector<PresentationContextAC>& gdcm::network::ULConnection::GetAcceptedPresentationContexts ()`

10.343.3.5 `const ULConnectionInfo& gdcm::network::ULConnection::GetConnectionInfo () const`

10.343.3.6 `uint32_t gdcm::network::ULConnection::GetMaxPDUSize () const`

10.343.3.7 `const PresentationContextAC* gdcm::network::ULConnection::GetPresentationContextACByID (uint8_t id) const`

10.343.3.8 `uint8_t gdcm::network::ULConnection::GetPresentationContextIDFromPresentationContext (PresentationContextRQ const & pc) const`

return 0 upon error

10.343.3.9 `const PresentationContextRQ* gdcm::network::ULConnection::GetPresentationContextRQByID (uint8_t id) const`

10.343.3.10 `std::vector<PresentationContextRQ> const& gdcm::network::ULConnection::GetPresentationContexts () const`

10.343.3.11 `std::iostream* gdcm::network::ULConnection::GetProtocol ()`

10.343.3.12 `EStateID gdcm::network::ULConnection::GetState () const`

10.343.3.13 `ARTIMTimer& gdcm::network::ULConnection::GetTimer ()`

10.343.3.14 `bool gdcm::network::ULConnection::InitializeConnection ()`

used to establish scu connections

10.343.3.15 `bool gdcm::network::ULConnection::InitializeIncomingConnection ()`

used to establish scp connections

10.343.3.16 `void gdcm::network::ULConnection::SetMaxPDUSize (uint32_t inSize)`

10.343.3.17 `void gdcm::network::ULConnection::SetPresentationContexts (const std::vector< PresentationContextRQ > & inContexts)`

10.343.3.18 `void gdcm::network::ULConnection::SetPresentationContexts (const std::vector< PresentationContext > & inContexts)`

10.343.3.19 `void gdcm::network::ULConnection::SetState (const EStateID & inState)`

10.343.3.20 `void gdcm::network::ULConnection::StopProtocol ()`

10.343.4 Friends And Related Function Documentation

10.343.4.1 `friend class ULActionAE6 [friend]`

10.343.4.2 `friend class ULConnectionManager [friend]`

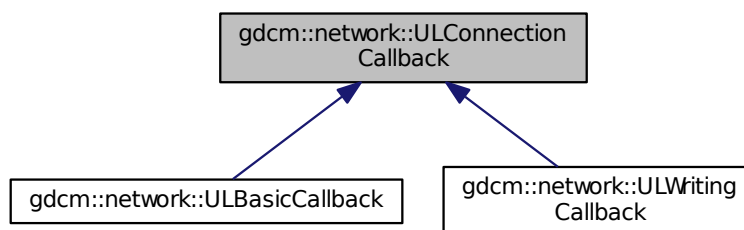
The documentation for this class was generated from the following file:

- [gdcmULConnection.h](#)

10.344 gdcm::network::ULConnectionCallback Class Reference

```
#include <gdcmULConnectionCallback.h>
```

Inheritance diagram for gdcm::network::ULConnectionCallback:



Public Member Functions

- [ULConnectionCallback](#) ()
- virtual [~ULConnectionCallback](#) ()
- bool [DataSetHandles](#) () const
- virtual void [HandleDataSet](#) (const [DataSet](#) &inDataSet)=0
- virtual void [HandleResponse](#) (const [DataSet](#) &inDataSet)=0
- void [ResetHandledDataSet](#) ()
- void [SetImplicitFlag](#) (const bool imp)

Protected Member Functions

- void [DataSetHandled](#) ()

Protected Attributes

- bool [mImplicit](#)

10.344.1 Detailed Description

When a dataset comes back from a query/move/etc, the result can either be stored entirely in memory, or could be stored on disk. This class provides a mechanism to indicate what the [ULConnectionManager](#) should do with datasets that are produced through query results. The [ULConnectionManager](#) will call the [HandleDataSet](#) function during the course of receiving datasets. Particular implementations should fill in what that function does, including updating progress, etc. NOTE: since cmove requires that multiple event loops be employed, the callback function MUST set `mHandledDataSet` to true. otherwise, the cmove event loop handler will not know data was received, and proceed to end the loop prematurely.

10.344.2 Constructor & Destructor Documentation

10.344.2.1 `gdcmm::network::ULConnectionCallback::ULConnectionCallback () [inline]`

10.344.2.2 `virtual gdcmm::network::ULConnectionCallback::~~ULConnectionCallback () [inline], [virtual]`

10.344.3 Member Function Documentation

10.344.3.1 `void gdcmm::network::ULConnectionCallback::DataSetHandled () [inline], [protected]`

10.344.3.2 `bool gdcmm::network::ULConnectionCallback::DataSetHandles () const [inline]`

10.344.3.3 `virtual void gdcmm::network::ULConnectionCallback::HandleDataSet (const DataSet & inDataSet) [pure virtual]`

Implemented in [gdcmm::network::ULBasicCallback](#), and [gdcmm::network::ULWritingCallback](#).

10.344.3.4 `virtual void gdcm::network::ULConnectionCallback::HandleResponse (const DataSet & inDataSet)` [pure virtual]

Implemented in [gdcm::network::ULBasicCallback](#), and [gdcm::network::ULWritingCallback](#).

10.344.3.5 `void gdcm::network::ULConnectionCallback::ResetHandledDataSet ()` [inline]

10.344.3.6 `void gdcm::network::ULConnectionCallback::SetImplicitFlag (const bool imp)` [inline]

10.344.4 Member Data Documentation

10.344.4.1 `bool gdcm::network::ULConnectionCallback::mImplicit` [protected]

The documentation for this class was generated from the following file:

- [gdcmULConnectionCallback.h](#)

10.345 gdcm::network::ULConnectionInfo Class Reference

[ULConnectionInfo](#) this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

```
#include <gdcmULConnectionInfo.h>
```

Public Member Functions

- [ULConnectionInfo](#) ()
- const char * [GetCalledAETitle](#) () const
- std::string [GetCalledComputerName](#) () const
- unsigned long [GetCalledIPAddress](#) () const
- int [GetCalledIPPort](#) () const
- const char * [GetCallingAETitle](#) () const
- unsigned long [GetMaxPDULength](#) () const
- bool [Initialize](#) ([UserInformation](#) const &inUserInformation, const char *inCalledAETitle, const char *inCallingAETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)
- void [SetMaxPDULength](#) (unsigned long inMaxPDULength)

10.345.1 Detailed Description

[ULConnectionInfo](#) this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

10.345.2 Constructor & Destructor Documentation

10.345.2.1 `gdcm::network::ULConnectionInfo::ULConnectionInfo ()`

10.345.3 Member Function Documentation

10.345.3.1 `const char* gdcm::network::ULConnectionInfo::GetCalledAETitle () const`

10.345.3.2 `std::string gdcm::network::ULConnectionInfo::GetCalledComputerName () const`

10.345.3.3 `unsigned long gdcm::network::ULConnectionInfo::GetCalledIPAddress () const`

10.345.3.4 `int gdcm::network::ULConnectionInfo::GetCalledIPPort () const`

10.345.3.5 `const char* gdcm::network::ULConnectionInfo::GetCallingAETitle () const`

10.345.3.6 `unsigned long gdcm::network::ULConnectionInfo::GetMaxPDULength () const`

10.345.3.7 `bool gdcm::network::ULConnectionInfo::Initialize (UserInformation const & inUserInformation, const char * inCalledAETitle, const char * inCallingAETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)`

10.345.3.8 `void gdcm::network::ULConnectionInfo::SetMaxPDULength (unsigned long inMaxPDULength)`

The documentation for this class was generated from the following file:

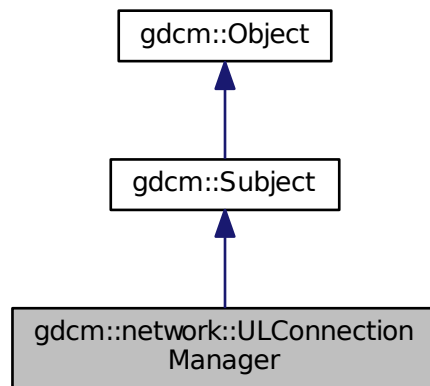
- [gdcmULConnectionInfo.h](#)

10.346 gdcm::network::ULConnectionManager Class Reference

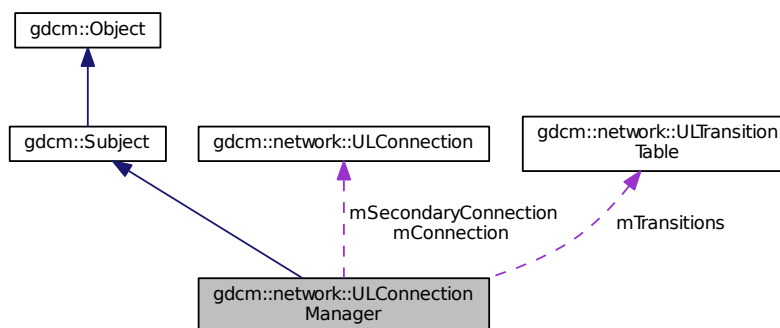
[ULConnectionManager](#) The [ULConnectionManager](#) performs actions on the [ULConnection](#) given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

```
#include <gdcmULConnectionManager.h>
```


Inheritance diagram for gdcmm::network::ULConnectionManager:



Collaboration diagram for gdcmm::network::ULConnectionManager:



Public Member Functions

- [ULConnectionManager](#) ()
- virtual [~ULConnectionManager](#) ()
- bool [BreakConnection](#) (const double &inTimeout)
- void [BreakConnectionNow](#) ()
- bool [EstablishConnection](#) (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< [PresentationContext](#) > const &pcVector)

- bool [EstablishConnectionMove](#) (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, uint16_t inReturnPort, std::vector< [PresentationContext](#) > const &pcVector)
- std::vector< [PresentationDataValue](#) > [SendEcho](#) ()
- std::vector< [DataSet](#) > [SendFind](#) (const [BaseRootQuery](#) *inRootQuery)
- void [SendFind](#) (const [BaseRootQuery](#) *inRootQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendMove](#) (const [BaseRootQuery](#) *inRootQuery)
- bool [SendMove](#) (const [BaseRootQuery](#) *inRootQuery, [ULConnectionCallback](#) *inCallback)
return false upon error
- std::vector< [DataSet](#) > [SendNAction](#) (const [BaseQuery](#) *inQuery)
- void [SendNAction](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendNCreate](#) (const [BaseQuery](#) *inQuery)
- void [SendNCreate](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendNDelete](#) (const [BaseQuery](#) *inQuery)
- void [SendNDelete](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendNEventReport](#) (const [BaseQuery](#) *inQuery)
- void [SendNEventReport](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendNGet](#) (const [BaseQuery](#) *inQuery)
- void [SendNGet](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendNSet](#) (const [BaseQuery](#) *inQuery)
- void [SendNSet](#) (const [BaseQuery](#) *inQuery, [ULConnectionCallback](#) *inCallback)
- std::vector< [DataSet](#) > [SendStore](#) (const [File](#) &file, std::istream *pStream=NULL, std::streampos dataSetOffset=0)
- void [SendStore](#) (const [File](#) &file, [ULConnectionCallback](#) *inCallback, std::istream *pStream=NULL, std::streampos dataSetOffset=0)
callback based API

Protected Member Functions

- [ULConnectionManager](#) (const [ULConnectionManager](#) &inCM)
- [EStateID RunEventLoop](#) ([ULEvent](#) &inEvent, [ULConnection](#) *inWhichConnection, [ULConnectionCallback](#) *inCallback, const bool &startWaiting)
- [EStateID RunMoveEventLoop](#) ([ULEvent](#) &inEvent, [ULConnectionCallback](#) *inCallback)

Protected Attributes

- [ULConnection](#) * mConnection
- [ULConnection](#) * mSecondaryConnection
- [ULTransitionTable](#) mTransitions

10.346.1 Detailed Description

[ULConnectionManager](#) The [ULConnectionManager](#) performs actions on the [ULConnection](#) given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

Its inputs are [ULEvents](#), and it performs [ULActions](#).

10.346.2 Constructor & Destructor Documentation

10.346.2.1 `gdcmm::network::ULConnectionManager::ULConnectionManager (const ULConnectionManager & inCM)`
[protected]

10.346.2.2 `gdcmm::network::ULConnectionManager::ULConnectionManager ()`

10.346.2.3 `virtual gdcmm::network::ULConnectionManager::~~ULConnectionManager ()` [virtual]

10.346.3 Member Function Documentation

10.346.3.1 `bool gdcmm::network::ULConnectionManager::BreakConnection (const double & inTimeout)`

10.346.3.2 `void gdcmm::network::ULConnectionManager::BreakConnectionNow ()`

10.346.3.3 `bool gdcmm::network::ULConnectionManager::EstablishConnection (const std::string & inAETitle, const std::string & inConnectAETitle, const std::string & inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< PresentationContext > const & pcVector)`

returns true if a connection of the given AETitle (ie, 'this' program) is able to connect to the given AETitle and Port in a certain amount of time providing the connection type will establish the proper exchange syntax with a server; if a different functionality is required, a different connection should be established. returns false if the connection type is 'move'— have to give a return port for move to work as specified.

10.346.3.4 `bool gdcmm::network::ULConnectionManager::EstablishConnectionMove (const std::string & inAETitle, const std::string & inConnectAETitle, const std::string & inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, uint16_t inReturnPort, std::vector< PresentationContext > const & pcVector)`

returns true for above reasons, but contains the special 'move' port

10.346.3.5 `EStateID gdcmm::network::ULConnectionManager::RunEventLoop (ULEvent & inEvent, ULConnection * inWhichConnection, ULConnectionCallback * inCallback, const bool & startWaiting)` [protected]

10.346.3.6 `EStateID gdcmm::network::ULConnectionManager::RunMoveEventLoop (ULEvent & inEvent, ULConnectionCallback * inCallback)` [protected]

10.346.3.7 `std::vector<PresentationDataValue> gdcmm::network::ULConnectionManager::SendEcho ()`

10.346.3.8 `std::vector<DataSet> gdcmm::network::ULConnectionManager::SendFind (const BaseRootQuery * inRootQuery)`

10.346.3.9 `void gdcmm::network::ULConnectionManager::SendFind (const BaseRootQuery * inRootQuery, ULConnectionCallback * inCallback)`

10.346.3.10 `std::vector<DataSet> gdcmm::network::ULConnectionManager::SendMove (const BaseRootQuery * inRootQuery)`

10.346.3.11 `bool gdcmm::network::ULConnectionManager::SendMove (const BaseRootQuery * inRootQuery, ULConnectionCallback * inCallback)`

return false upon error

- 10.346.3.12 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNAction (const BaseQuery * inQuery)`
- 10.346.3.13 `void gdcm::network::ULConnectionManager::SendNAction (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.14 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNCreate (const BaseQuery * inQuery)`
- 10.346.3.15 `void gdcm::network::ULConnectionManager::SendNCreate (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.16 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNDelete (const BaseQuery * inQuery)`
- 10.346.3.17 `void gdcm::network::ULConnectionManager::SendNDelete (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.18 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNEventReport (const BaseQuery * inQuery)`
- 10.346.3.19 `void gdcm::network::ULConnectionManager::SendNEventReport (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.20 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNGet (const BaseQuery * inQuery)`
- 10.346.3.21 `void gdcm::network::ULConnectionManager::SendNGet (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.22 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendNSet (const BaseQuery * inQuery)`
- 10.346.3.23 `void gdcm::network::ULConnectionManager::SendNSet (const BaseQuery * inQuery, ULConnectionCallback * inCallback)`
- 10.346.3.24 `std::vector<DataSet> gdcm::network::ULConnectionManager::SendStore (const File & file, std::istream * pStream = NULL, std::streampos dataSetOffset = 0)`
- 10.346.3.25 `void gdcm::network::ULConnectionManager::SendStore (const File & file, ULConnectionCallback * inCallback, std::istream * pStream = NULL, std::streampos dataSetOffset = 0)`

callback based API

10.346.4 Member Data Documentation

- 10.346.4.1 `ULConnection* gdcm::network::ULConnectionManager::mConnection` [protected]
- 10.346.4.2 `ULConnection* gdcm::network::ULConnectionManager::mSecondaryConnection` [protected]
- 10.346.4.3 `ULTransitionTable gdcm::network::ULConnectionManager::mTransitions` [protected]

The documentation for this class was generated from the following file:

- [gdcmULConnectionManager.h](#)

10.347 gdcm::network::ULEvent Class Reference

[ULEvent](#) base class for network events.

```
#include <gdcmULEvent.h>
```

Public Member Functions

- [ULEvent](#) (const [EEventID](#) &inEventID, std::vector< [BasePDU](#) * > inBasePDU, std::istream *iStream=NULL, std::streampos posDataSet=0)
- [ULEvent](#) (const [EEventID](#) &inEventID, [BasePDU](#) *inBasePDU, std::istream *iStream=NULL, std::streampos posDataSet=0)
- [~ULEvent](#) ()
- std::streampos [GetDataSetPos](#) () const
- [EEventID](#) [GetEvent](#) () const
- std::istream * [GetStream](#) () const
- std::vector< [BasePDU](#) * > const & [GetPDUs](#) () const
- void [SetEvent](#) (const [EEventID](#) &inEvent)
- void [SetPDU](#) (std::vector< [BasePDU](#) * > const &inPDU)

10.347.1 Detailed Description

[ULEvent](#) base class for network events.

An event consists of the event ID and the data associated with that event.

Note that once a PDU is created, it is now the responsibility of the associated event to destroy it!

10.347.2 Constructor & Destructor Documentation

10.347.2.1 `gdcm::network::ULEvent::ULEvent (const EEventID &inEventID, std::vector< BasePDU * > inBasePDU, std::istream * iStream = NULL, std::streampos posDataSet = 0) [inline]`

10.347.2.2 `gdcm::network::ULEvent::ULEvent (const EEventID &inEventID, BasePDU * inBasePDU, std::istream * iStream = NULL, std::streampos posDataSet = 0) [inline]`

10.347.2.3 `gdcm::network::ULEvent::~~ULEvent () [inline]`

10.347.3 Member Function Documentation

10.347.3.1 `std::streampos gdcm::network::ULEvent::GetDataSetPos () const [inline]`

10.347.3.2 `EEventID gdcm::network::ULEvent::GetEvent () const [inline]`

10.347.3.3 `std::istream* gdcm::network::ULEvent::GetStream () const [inline]`

10.347.3.4 `std::vector<BasePDU*> const& gdcm::network::ULEvent::GetPDUs () const [inline]`

10.347.3.5 `void gdcm::network::ULEvent::SetEvent (const EEventID &inEvent) [inline]`

10.347.3.6 `void gdcm::network::ULEvent::SetPDU (std::vector< BasePDU * > const &inPDU) [inline]`

The documentation for this class was generated from the following file:

- [gdcmULEvent.h](#)

10.348 gdcmm::network::ULTransitionTable Class Reference

[ULTransitionTable](#) The transition table of all the ULEvents, new ULActions, and ULStates.

```
#include <gdcmmULTransitionTable.h>
```

Public Member Functions

- [ULTransitionTable](#) ()
- void [HandleEvent](#) (Subject *s, [ULEvent](#) &inEvent, [ULConnection](#) &inConnection, bool &outWaitingForEvent, [EventID](#) &outRaisedEvent) const
- void [PrintTable](#) () const

10.348.1 Detailed Description

[ULTransitionTable](#) The transition table of all the ULEvents, new ULActions, and ULStates.

Based roughly on the solutions in player2.cpp in the boost examples and this so question: <http://stackoverflow.com/questions/1647631/c-state-machine-design>.

The transition table is constructed of TableRows. Each row is based on an event, and an event handler in the TransitionTable object takes a given event, and then finds the given row.

Then, given the current state of the connection, determines the appropriate action to take and then the state to transition to next.

10.348.2 Constructor & Destructor Documentation

10.348.2.1 gdcmm::network::ULTransitionTable::ULTransitionTable ()

10.348.3 Member Function Documentation

10.348.3.1 void gdcmm::network::ULTransitionTable::HandleEvent (Subject * s, [ULEvent](#) & inEvent, [ULConnection](#) & inConnection, bool & outWaitingForEvent, [EventID](#) & outRaisedEvent) const

10.348.3.2 void gdcmm::network::ULTransitionTable::PrintTable () const

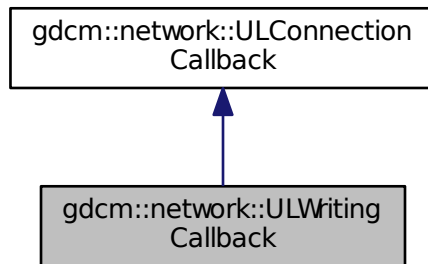
The documentation for this class was generated from the following file:

- [gdcmmULTransitionTable.h](#)

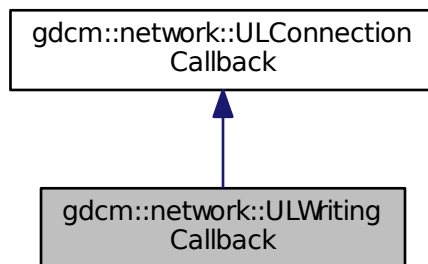
10.349 gdcm::network::ULWritingCallback Class Reference

```
#include <gdcmULWritingCallback.h>
```

Inheritance diagram for gdcm::network::ULWritingCallback:



Collaboration diagram for gdcm::network::ULWritingCallback:



Public Member Functions

- [ULWritingCallback](#) ()
- virtual [~ULWritingCallback](#) ()
- virtual void [HandleDataSet](#) (const [DataSet](#) &inDataSet)
- virtual void [HandleResponse](#) (const [DataSet](#) &inDataSet)
- void [SetDirectory](#) (const std::string &inDirectoryName)

provide the directory into which all files are written.

Additional Inherited Members

10.349.1 Constructor & Destructor Documentation

10.349.1.1 `gdcm::network::ULWritingCallback::ULWritingCallback ()` `[inline]`

10.349.1.2 `virtual gdcm::network::ULWritingCallback::~~ULWritingCallback ()` `[inline]`, `[virtual]`

10.349.2 Member Function Documentation

10.349.2.1 `virtual void gdcm::network::ULWritingCallback::HandleDataSet (const DataSet & inDataSet)` `[virtual]`

Implements [gdcm::network::ULConnectionCallback](#).

10.349.2.2 `virtual void gdcm::network::ULWritingCallback::HandleResponse (const DataSet & inDataSet)` `[virtual]`

Implements [gdcm::network::ULConnectionCallback](#).

10.349.2.3 `void gdcm::network::ULWritingCallback::SetDirectory (const std::string & inDirectoryName)` `[inline]`

provide the directory into which all files are written.

The documentation for this class was generated from the following file:

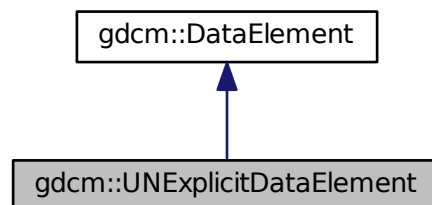
- [gdcmULWritingCallback.h](#)

10.350 gdcm::UNExplicitDataElement Class Reference

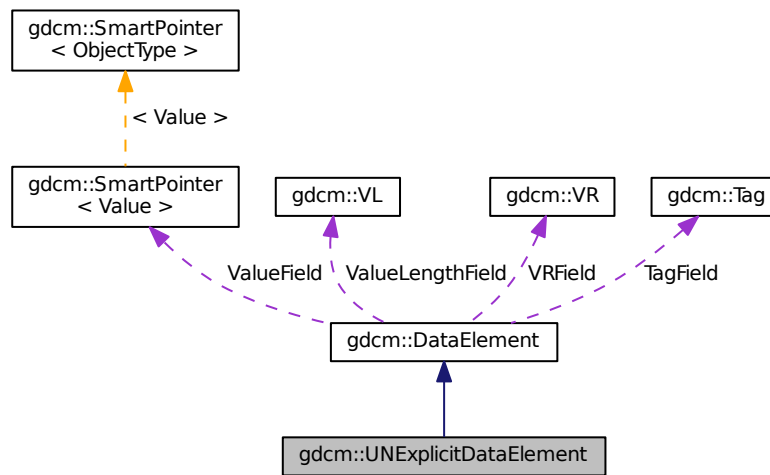
Class to read/write a [DataElement](#) as UNExplicit Data [Element](#).

```
#include <gdcmUNExplicitDataElement.h>
```

Inheritance diagram for `gdcm::UNExplicitDataElement`:



Collaboration diagram for gdcm::UNExplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length)

Additional Inherited Members

10.350.1 Detailed Description

Class to read/write a [DataElement](#) as UNExplicit Data [Element](#).

Note

bla

10.350.2 Member Function Documentation

10.350.2.1 `VL gdcM::UNExplicitDataElement::GetLength () const`

10.350.2.2 `template<typename TSwap > std::istream& gdcM::UNExplicitDataElement::Read (std::istream & is)`

10.350.2.3 `template<typename TSwap > std::istream& gdcM::UNExplicitDataElement::ReadPreValue (std::istream & is)`

10.350.2.4 `template<typename TSwap > std::istream& gdcM::UNExplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.350.2.5 `template<typename TSwap > std::istream& gdcM::UNExplicitDataElement::ReadWithLength (std::istream & is, VL & length)`

The documentation for this class was generated from the following file:

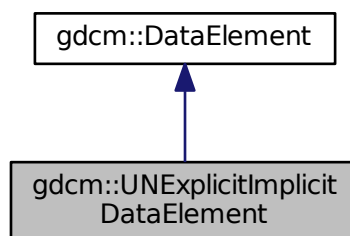
- [gdcMUNExplicitDataElement.h](#)

10.351 gdcM::UNExplicitImplicitDataElement Class Reference

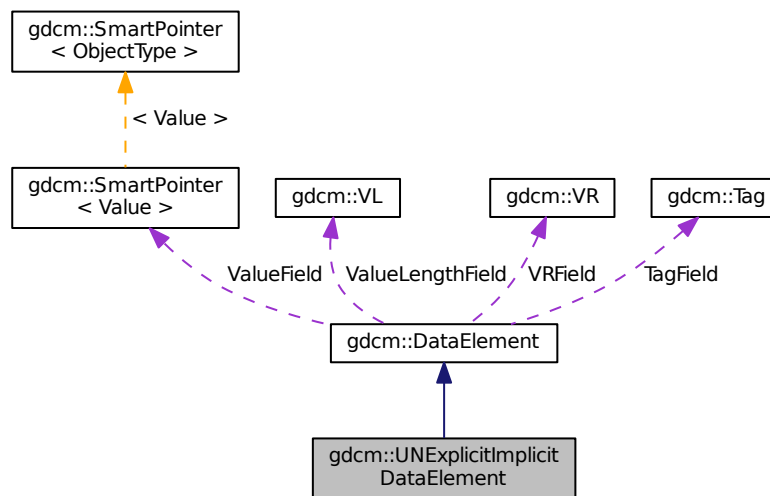
Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#) This class gather two known bugs:

```
#include <gdcMUNExplicitImplicitDataElement.h>
```

Inheritance diagram for gdcM::UNExplicitImplicitDataElement:



Collaboration diagram for gdcm::UNExplicitImplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is)

Additional Inherited Members

10.351.1 Detailed Description

Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#) This class gather two known bugs:

1. GDCM 1.2.0 would rewrite [VR](#)=UN [Value](#) Length on 2 bytes instead of 4 bytes
2. GDCM 1.2.0 would also rewrite [DataElement](#) as Implicit when the [VR](#) would not be known this would only happen in some very rare cases. gdcm 2.X design could handle bug #1 or #2 exclusively, this class can now handle file which have both issues. See: [gdcmData/TherAlysGDCM120Bug.dcm](#)

10.351.2 Member Function Documentation

10.351.2.1 VL `gdcm::UNExplicitImplicitDataElement::GetLength () const`

10.351.2.2 `template<typename TSwap > std::istream& gdcm::UNExplicitImplicitDataElement::Read (std::istream & is)`

10.351.2.3 `template<typename TSwap > std::istream& gdcm::UNExplicitImplicitDataElement::ReadPreValue (std::istream & is)`

10.351.2.4 `template<typename TSwap > std::istream& gdcm::UNExplicitImplicitDataElement::ReadValue (std::istream & is)`

The documentation for this class was generated from the following file:

- [gdcmUNExplicitImplicitDataElement.h](#)

10.352 gdcm::Unpacker12Bits Class Reference

Pack/Unpack 12 bits pixel into 16bits.

```
#include <gdcmUnpacker12Bits.h>
```

Static Public Member Functions

- static bool [Pack](#) (char *out, const char *in, size_t n)
- static bool [Unpack](#) (char *out, const char *in, size_t n)

10.352.1 Detailed Description

Pack/Unpack 12 bits pixel into 16bits.

- You can only pack an even number of 16bits, which means a multiple of 4 (expressed in bytes)
- You can only unpack a multiple of 3 bytes

This class has no purpose in general purpose DICOM implementation. However to be able to cope with some early ACR-NEMA file generated by a well-known private vendor, one would need to unpack 12bits Stored Pixel [Value](#) into a more standard 16bits Stored Pixel [Value](#).

See also

[Rescaler](#)

10.352.2 Member Function Documentation

10.352.2.1 static bool gdcm::Unpacker12Bits::Pack (char * *out*, const char * *in*, size_t *n*) [static]

Pack an array of 16bits where all values are 12bits into a pack form. *n* is the length in bytes of array *in*, *out* will be a fake 8bits array of size $(n / 2) * 3$

10.352.2.2 static bool gdcm::Unpacker12Bits::Unpack (char * *out*, const char * *in*, size_t *n*) [static]

Unpack an array of 'packed' 12bits data into a more conventional 16bits array. *n* is the length in bytes of array *in*, *out* will be a 16bits array of size $(n / 3) * 2$

The documentation for this class was generated from the following file:

- [gdcmUnpacker12Bits.h](#)

10.353 gdcm::Usage Class Reference

[Usage.](#)

```
#include <gdcmUsage.h>
```

Public Types

- enum [UsageType](#) {
 [Mandatory](#),
 [Conditional](#),
 [UserOption](#),
 [Invalid](#) }

Public Member Functions

- [Usage](#) ([UsageType](#) type=[Invalid](#))
- [operator UsageType](#) () const

Static Public Member Functions

- static const char * [GetUsageString](#) ([UsageType](#) type)
- static [UsageType](#) [GetUsageType](#) (const char *type)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [Usage](#) &vr)

10.353.1 Detailed Description

Usage.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MAN←
DATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C.

A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

10.353.2 Member Enumeration Documentation

10.353.2.1 enum gdcmm::Usage::UsageType

Enumerator

Mandatory
Conditional
UserOption
Invalid

10.353.3 Constructor & Destructor Documentation

10.353.3.1 gdcmm::Usage::Usage (UsageType type = Invalid) [inline]

10.353.4 Member Function Documentation

10.353.4.1 static const char* gdcmm::Usage::GetUsageString (UsageType type) [static]

Referenced by gdcmm::operator<<().

10.353.4.2 static UsageType gdcm::Usage::GetUsageType (const char * *type*) [static]

10.353.4.3 gdcm::Usage::operator UsageType () const [inline]

References gdcm::operator<<().

10.353.5 Friends And Related Function Documentation

10.353.5.1 std::ostream& operator<< (std::ostream & *os*, const Usage & *vr*) [friend]

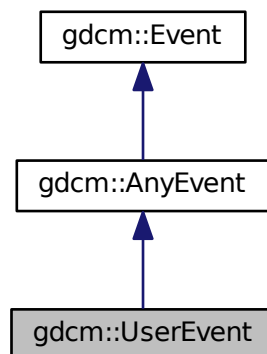
The documentation for this class was generated from the following file:

- [gdcmUsage.h](#)

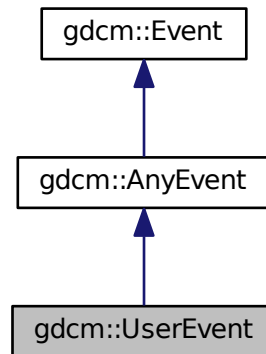
10.354 gdcm::UserEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::UserEvent:



Collaboration diagram for gdcM::UserEvent:



Additional Inherited Members

The documentation for this class was generated from the following file:

- [gdcMEvent.h](#)

10.355 gdcM::network::UserInfo Class Reference

[UserInfo](#) Table 9-16 USER INFORMATION ITEM FIELDS.

```
#include <gdcMUserInfo.h>
```

Public Member Functions

- [UserInfo](#) ()
- [~UserInfo](#) ()
- void [AddRoleSelectionSub](#) ([RoleSelectionSub](#) const &r)
- void [AddSOPClassExtendedNegociationSub](#) ([SOPClassExtendedNegociationSub](#) const &s)
- const [MaximumLengthSub](#) & [GetMaximumLengthSub](#) () const
- [MaximumLengthSub](#) & [GetMaximumLengthSub](#) ()
- [UserInfo](#) & [operator=](#) (const [UserInfo](#) &)
- void [Print](#) (std::ostream &os) const
- std::istream & [Read](#) (std::istream &is)
- size_t [Size](#) () const
- const std::ostream & [Write](#) (std::ostream &os) const

10.355.1 Detailed Description

[UserInformation Table](#) 9-16 USER INFORMATION ITEM FIELDS.

TODO what is the goal of :

[Table](#) 9-20 USER INFORMATION ITEM FIELDS

10.355.2 Constructor & Destructor Documentation

10.355.2.1 `gdcmm::network::UserInformation::UserInformation ()`

Referenced by `GetMaximumLengthSub()`.

10.355.2.2 `gdcmm::network::UserInformation::~~UserInformation ()`

10.355.3 Member Function Documentation

10.355.3.1 `void gdcmm::network::UserInformation::AddRoleSelectionSub (RoleSelectionSub const & r)`

Referenced by `GetMaximumLengthSub()`.

10.355.3.2 `void gdcmm::network::UserInformation::AddSOPClassExtendedNegociationSub (SOPClassExtendedNegociationSub const & s)`

Referenced by `GetMaximumLengthSub()`.

10.355.3.3 `const MaximumLengthSub& gdcmm::network::UserInformation::GetMaximumLengthSub () const [inline]`

10.355.3.4 `MaximumLengthSub& gdcmm::network::UserInformation::GetMaximumLengthSub () [inline]`

References `AddRoleSelectionSub()`, `AddSOPClassExtendedNegociationSub()`, `operator=()`, and `UserInformation()`.

10.355.3.5 `UserInformation& gdcmm::network::UserInformation::operator= (const UserInformation &)`

Referenced by `GetMaximumLengthSub()`.

10.355.3.6 void gdcmm::network::UserInformation::Print (std::ostream & os) const

10.355.3.7 std::istream& gdcmm::network::UserInformation::Read (std::istream & is)

10.355.3.8 size_t gdcmm::network::UserInformation::Size () const

10.355.3.9 const std::ostream& gdcmm::network::UserInformation::Write (std::ostream & os) const

The documentation for this class was generated from the following file:

- [gdcmmUserInformation.h](#)

10.356 gdcmm::UUIDGenerator Class Reference

Class for generating unique UUID generate DCE 1.1 uid.

```
#include <gdcmmUUIDGenerator.h>
```

Public Member Functions

- const char * [Generate](#) ()

Static Public Member Functions

- static bool [IsValid](#) (const char *uid)
Find out if the string is a valid UUID or not.

10.356.1 Detailed Description

Class for generating unique UUID generate DCE 1.1 uid.

10.356.2 Member Function Documentation

10.356.2.1 const char* gdcmm::UUIDGenerator::Generate ()

Return the generated uuid NOT THREAD SAFE

10.356.2.2 static bool gdcm::UUIDGenerator::IsValid (const char * uid) [static]

Find out if the string is a valid UUID or not.

The documentation for this class was generated from the following file:

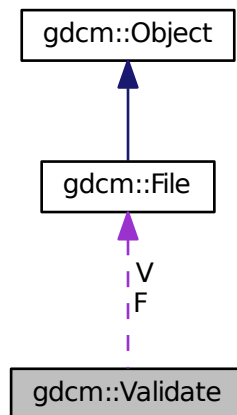
- [gdcmUUIDGenerator.h](#)

10.357 gdcm::Validate Class Reference

[Validate](#) class.

```
#include <gdcmValidate.h>
```

Collaboration diagram for gdcm::Validate:



Public Member Functions

- [Validate](#) ()
- [~Validate](#) ()
- const [File](#) & [GetValidatedFile](#) ()
- void [SetFile](#) ([File](#) const &f)
- void [Validation](#) ()

Protected Attributes

- const [File](#) * [F](#)
- [File](#) [V](#)

10.357.1 Detailed Description

[Validate](#) class.

10.357.2 Constructor & Destructor Documentation

10.357.2.1 `gdcm::Validate::Validate ()`

10.357.2.2 `gdcm::Validate::~~Validate ()`

10.357.3 Member Function Documentation

10.357.3.1 `const File& gdcm::Validate::GetValidatedFile ()` `[inline]`

10.357.3.2 `void gdcm::Validate::SetFile (File const & f)` `[inline]`

10.357.3.3 `void gdcm::Validate::Validation ()`

10.357.4 Member Data Documentation

10.357.4.1 `const File* gdcm::Validate::F` `[protected]`

10.357.4.2 `File gdcm::Validate::V` `[protected]`

The documentation for this class was generated from the following file:

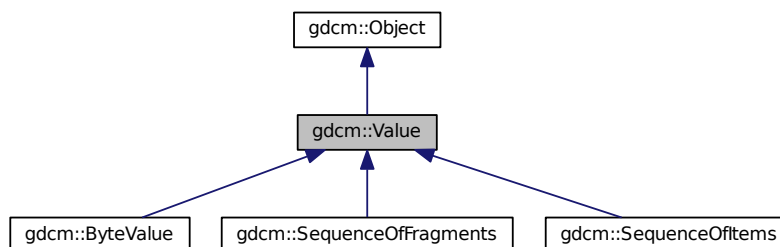
- [gdcmValidate.h](#)

10.358 gdcm::Value Class Reference

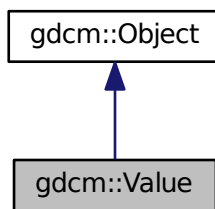
Class to represent the value of a Data [Element](#).

```
#include <gdcmValue.h>
```

Inheritance diagram for `gdcm::Value`:



Collaboration diagram for gdcm::Value:



Public Member Functions

- [Value](#) ()
- [~Value](#) ()
- virtual void [Clear](#) ()=0
- virtual [VL GetLength](#) () const =0
- virtual bool [operator==](#) (const [Value](#) &val) const =0
- virtual void [SetLength](#) ([VL](#) l)=0

Protected Member Functions

- virtual void [SetLengthOnly](#) ([VL](#) l)

Friends

- class [DataElement](#)

10.358.1 Detailed Description

Class to represent the value of a Data [Element](#).

Note

VALUE: A component of a [Value](#) Field. A [Value](#) Field may consist of one or more of these components.

10.358.2 Constructor & Destructor Documentation

10.358.2.1 `gdcm::Value::Value ()` `[inline]`

10.358.2.2 `gdcm::Value::~~Value ()` `[inline]`

References `gdcm::operator==()`.

10.358.3 Member Function Documentation

10.358.3.1 `virtual void gdcm::Value::Clear () [pure virtual]`

Implemented in [gdcm::ByteValue](#), [gdcm::SequenceOfItems](#), and [gdcm::SequenceOfFragments](#).

10.358.3.2 `virtual VL gdcm::Value::GetLength () const [pure virtual]`

Implemented in [gdcm::ByteValue](#), [gdcm::SequenceOfItems](#), and [gdcm::SequenceOfFragments](#).

Referenced by `gdcm::DataSet::InsertDataElement()`, and `gdcm::DataElement::SetValue()`.

10.358.3.3 `virtual bool gdcm::Value::operator== (const Value & val) const [pure virtual]`

Implemented in [gdcm::SequenceOfFragments](#), [gdcm::SequenceOfItems](#), and [gdcm::ByteValue](#).

10.358.3.4 `virtual void gdcm::Value::SetLength (VL /) [pure virtual]`

Implemented in [gdcm::ByteValue](#), [gdcm::SequenceOfItems](#), and [gdcm::SequenceOfFragments](#).

10.358.3.5 `virtual void gdcm::Value::SetLengthOnly (VL /) [protected],[virtual]`

Reimplemented in [gdcm::ByteValue](#).

10.358.4 Friends And Related Function Documentation

10.358.4.1 `friend class DataElement [friend]`

The documentation for this class was generated from the following file:

- [gdcmValue.h](#)

10.359 `gdcm::ValueIO< TDE, TSwap, TType >` Class Template Reference

Class to dispatch template calls.

```
#include <gdcmValueIO.h>
```

Static Public Member Functions

- static std::istream & [Read](#) (std::istream &is, [Value](#) &v, bool readvalues)
- static const std::ostream & [Write](#) (std::ostream &os, const [Value](#) &v)

10.359.1 Detailed Description

```
template<typename TDE, typename TSwap, typename TType = uint8_t>
class gdcm::ValueIO< TDE, TSwap, TType >
```

Class to dispatch template calls.

10.359.2 Member Function Documentation

10.359.2.1 `template<typename TDE , typename TSwap , typename TType = uint8_t> static std::istream& gdcm::ValueIO< TDE, TSwap, TType >::Read (std::istream & is, Value & v, bool readvalues) [static]`

10.359.2.2 `template<typename TDE , typename TSwap , typename TType = uint8_t> static const std::ostream& gdcm::ValueIO< TDE, TSwap, TType >::Write (std::ostream & os, const Value & v) [static]`

The documentation for this class was generated from the following file:

- [gdcmValueIO.h](#)

10.360 gdcm::Version Class Reference

major/minor and build version

```
#include <gdcmVersion.h>
```

Public Member Functions

- [Version](#) ()
- [~Version](#) ()
- void [Print](#) (std::ostream &os=std::cout) const

Static Public Member Functions

- static int [GetBuildVersion](#) ()
- static int [GetMajorVersion](#) ()
- static int [GetMinorVersion](#) ()
- static const char * [GetVersion](#) ()

Friends

- `std::ostream & operator<< (std::ostream &_os, const Version &v)`

10.360.1 Detailed Description

major/minor and build version

10.360.2 Constructor & Destructor Documentation

10.360.2.1 `gdcmm::Version::Version ()` `[inline]`

10.360.2.2 `gdcmm::Version::~~Version ()` `[inline]`

10.360.3 Member Function Documentation

10.360.3.1 `static int gdcmm::Version::GetBuildVersion ()` `[static]`

10.360.3.2 `static int gdcmm::Version::GetMajorVersion ()` `[static]`

10.360.3.3 `static int gdcmm::Version::GetMinorVersion ()` `[static]`

10.360.3.4 `static const char* gdcmm::Version::GetVersion ()` `[static]`

10.360.3.5 `void gdcmm::Version::Print (std::ostream & os = std::cout) const`

Referenced by `gdcmm::operator<<()`.

10.360.4 Friends And Related Function Documentation

10.360.4.1 `std::ostream& operator<< (std::ostream &_os, const Version & v)` `[friend]`

The documentation for this class was generated from the following file:

- [gdcmmVersion.h](#)

10.361 gdcmm::VL Class Reference

[Value](#) Length.

```
#include <gdcmmVL.h>
```


Public Types

- typedef uint32_t [Type](#)

Public Member Functions

- [VL](#) (uint32_t vl=0)
- [VL GetLength](#) () const
- bool [IsOdd](#) () const
Return whether or not the [VL](#) is odd or not.
- bool [IsUndefined](#) () const
- [operator uint32_t](#) () const
- [VL & operator++](#) ()
- [VL operator++](#) (int)
- [VL & operator+=](#) ([VL](#) const &vl)
+= operator
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [Read16](#) (std::istream &is)
- void [SetToUndefined](#) ()
- template<typename TSwap >
const std::ostream & [Write](#) (std::ostream &os) const
- template<typename TSwap >
const std::ostream & [Write16](#) (std::ostream &os) const

Static Public Member Functions

- static uint16_t [GetVL16Max](#) ()
- static uint32_t [GetVL32Max](#) ()

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [VL](#) &vl)

10.361.1 Detailed Description

[Value](#) Length.

Warning

this is a 4bytes value ! Do not try to use it for 2bytes value length

Examples:

[rle2img.cxx](#).

10.361.2 Member Typedef Documentation

10.361.2.1 `typedef uint32_t gdcm::VL::Type`

10.361.3 Constructor & Destructor Documentation

10.361.3.1 `gdcm::VL::VL (uint32_t v/ = 0) [inline]`

10.361.4 Member Function Documentation

10.361.4.1 `VL gdcm::VL::GetLength () const [inline]`

References `gdcm::operator<<()`.

Referenced by `gdcm::FileMetaInformation::GetFullLength()`, and `gdcm::Item::Write()`.

10.361.4.2 `static uint16_t gdcm::VL::GetVL16Max () [inline],[static]`

10.361.4.3 `static uint32_t gdcm::VL::GetVL32Max () [inline],[static]`

10.361.4.4 `bool gdcm::VL::IsOdd () const [inline]`

Return whether or not the [VL](#) is odd or not.

10.361.4.5 `bool gdcm::VL::IsUndefined () const [inline]`

10.361.4.6 `gdcm::VL::operator uint32_t () const [inline]`

10.361.4.7 `VL& gdcm::VL::operator++ () [inline]`

10.361.4.8 `VL gdcm::VL::operator++ (int) [inline]`

10.361.4.9 `VL& gdcm::VL::operator+=(VL const & v/) [inline]`

`+=` operator

10.361.4.10 `template<typename TSwap > std::istream& gdcm::VL::Read (std::istream & is) [inline]`

10.361.4.11 `template<typename TSwap > std::istream& gdcm::VL::Read16 (std::istream & is) [inline]`

10.361.4.12 `void gdcm::VL::SetToUndefined () [inline]`

10.361.4.13 `template<typename TSwap > const std::ostream& gdcm::VL::Write (std::ostream & os) const [inline]`

Referenced by `gdcm::Fragment::Write()`, `gdcm::SequenceOfItems::Write()`, `gdcm::Item::Write()`, and `gdcm::SequenceOfFragments::Write()`.

```
10.361.4.14  template<typename TSwap > const std::ostream& gdcm::VL::Write16 ( std::ostream & os ) const  [inline]
```

10.361.5 Friends And Related Function Documentation

```
10.361.5.1  std::ostream& operator<< ( std::ostream & os, const VL & vl )  [friend]
```

The documentation for this class was generated from the following file:

- [gdcmVL.h](#)

10.362 gdcm::VM Class Reference

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

```
#include <gdcmVM.h>
```

Public Types

- enum [VMType](#) {
 - [VM0](#) = 0,
 - [VM1](#) = 1,
 - [VM2](#) = 2,
 - [VM3](#) = 4,
 - [VM4](#) = 8,
 - [VM5](#) = 16,
 - [VM6](#) = 32,
 - [VM8](#) = 64,
 - [VM9](#) = 128,
 - [VM10](#) = 256,
 - [VM12](#) = 512,
 - [VM16](#) = 1024,
 - [VM18](#) = 2048,
 - [VM24](#) = 4096,
 - [VM28](#) = 8192,
 - [VM32](#) = 16384,
 - [VM35](#) = 32768,
 - [VM99](#) = 65536,
 - [VM256](#) = 131072,
 - [VM1_2](#) = [VM1](#) | [VM2](#),
 - [VM1_3](#) = [VM1](#) | [VM2](#) | [VM3](#),
 - [VM1_4](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#),
 - [VM1_5](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#),
 - [VM1_8](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#),
 - [VM1_32](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#) | [VM9](#) | [VM16](#) | [VM24](#) | [VM32](#),
 - [VM1_99](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#) | [VM9](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM99](#),
 - [VM1_n](#) = [VM1](#) | [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#) | [VM9](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM99](#) | [VM256](#),
 - [VM2_2n](#) = [VM2](#) | [VM4](#) | [VM6](#) | [VM8](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM256](#),
 - [VM2_n](#) = [VM2](#) | [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#) | [VM9](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM99](#) | [VM256](#),
 - [VM3_4](#) = [VM3](#) | [VM4](#),
 - [VM3_3n](#) = [VM3](#) | [VM6](#) | [VM9](#) | [VM24](#) | [VM99](#) | [VM256](#),
 - [VM3_n](#) = [VM3](#) | [VM4](#) | [VM5](#) | [VM6](#) | [VM8](#) | [VM9](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM99](#) | [VM256](#),
 - [VM4_4n](#) = [VM4](#) | [VM16](#) | [VM24](#) | [VM32](#) | [VM256](#),
 - [VM6_6n](#) = [VM6](#) | [VM12](#) | [VM18](#) | [VM24](#),
 - [VM7_7n](#),
 - [VM30_30n](#),
 - [VM47_47n](#),
 - [VM_END](#) = [VM1_n](#) + 1 }

Public Member Functions

- [VM](#) ([VMType](#) type=[VM0](#))
- bool [Compatible](#) ([VM](#) const &vm) const
- unsigned int [GetLength](#) () const
- operator [VMType](#) () const

Static Public Member Functions

- static unsigned int [GetNumberOfElementsFromArray](#) (const char *array, unsigned int length)

- static const char * [GetVMString](#) ([VMType](#) vm)
- static [VMType](#) [GetVMType](#) (const char *vm)
- static [VMType](#) [GetVMTypeFromLength](#) (unsigned int length, unsigned int size)
- static bool [IsValid](#) (int vm1, [VMType](#) vm2)

Static Protected Member Functions

- static unsigned int [GetIndex](#) ([VMType](#) vm)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [VM](#) &vm)

10.362.1 Detailed Description

[Value](#) Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

Some private dict define some more: 4-4n 1-4 1-5 256 9 3-4

even more:

7-7n 10 18 12 35 47_47n 30_30n 28

6-6n

10.362.2 Member Enumeration Documentation

10.362.2.1 enum gdcm::VM::VMType

Enumerator

VM0

VM1

VM2

VM3

VM4

VM5

VM6

VM8

VM9

VM10

VM12

VM16

VM18
VM24
VM28
VM32
VM35
VM99
VM256
VM1_2
VM1_3
VM1_4
VM1_5
VM1_8
VM1_32
VM1_99
VM1_n
VM2_2n
VM2_n
VM3_4
VM3_3n
VM3_n
VM4_4n
VM6_6n
VM7_7n
VM30_30n
VM47_47n
VM_END

10.362.3 Constructor & Destructor Documentation

10.362.3.1 `gdcmm::VM::VM (VMType type = VM0)` `[inline]`

10.362.4 Member Function Documentation

10.362.4.1 `bool gdcmm::VM::Compatible (VM const & vm) const`

WARNING: Implementation deficiency The Compatible function is poorly implemented, the reference vm should be coming from the dictionary, while the passed in value is the value guess from the file.

10.362.4.2 `static unsigned int gdcm::VM::GetIndex (VMType vm) [static], [protected]`

10.362.4.3 `unsigned int gdcm::VM::GetLength () const`

10.362.4.4 `static unsigned int gdcm::VM::GetNumberOfElementsFromArray (const char * array, unsigned int length) [static]`

10.362.4.5 `static const char* gdcm::VM::GetVMString (VMType vm) [static]`

Return the string as written in the official DICOM dict from a custom enum type

Referenced by `gdcm::operator<<()`.

10.362.4.6 `static VMType gdcm::VM::GetVMType (const char * vm) [static]`

10.362.4.7 `static VMType gdcm::VM::GetVMTypeFromLength (unsigned int length, unsigned int size) [static]`

10.362.4.8 `static bool gdcm::VM::IsValid (int vm1, VMType vm2) [static]`

Check if *vm1* is valid compare to *vm2*, i.e *vm1* is element of *vm2* *vm1* is typically deduce from counting in a ValueField

10.362.4.9 `gdcm::VM::operator VMType () const [inline]`

References `gdcm::operator<<()`.

10.362.5 Friends And Related Function Documentation

10.362.5.1 `std::ostream& operator<< (std::ostream & os, const VM & vm) [friend]`

The documentation for this class was generated from the following file:

- [gdcmVM.h](#)

10.363 gdcm::VMToLength< T > Struct Template Reference

```
#include <gdcmVM.h>
```

The documentation for this struct was generated from the following file:

- [gdcmVM.h](#)

10.364 gdcm::VR Class Reference

VR class This is adapted from DICOM standard The biggest difference is the INVALID **VR** and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict.

```
#include <gdcmVR.h>
```

Public Types

- enum **VRType** {
INVALID = 0,
AE = 1,
AS = 2,
AT = 4,
CS = 8,
DA = 16,
DS = 32,
DT = 64,
FD = 128,
FL = 256,
IS = 512,
LO = 1024,
LT = 2048,
OB = 4096,
OD = 134217728,
OF = 8192,
OW = 16384,
PN = 32768,
SH = 65536,
SL = 131072,
SQ = 262144,
SS = 524288,
ST = 1048576,
TM = 2097152,
UI = 4194304,
UL = 8388608,
UN = 16777216,
US = 33554432,
UT = 67108864,
OB_OW = OB | OW,
US_SS = US | SS,
US_SS_OW = US | SS | OW,
VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI | UL | US,
VL32 = OB | OW | OD | OF | SQ | UN | UT,
VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UI | UT,
VRBINARY = AT | FL | FD | OB | OD | OF | OW | SL | SQ | SS | UL | UN | US,
VR_VM1 = AS | LT | ST | UT | SQ | OF | OD | OW | OB | UN,
VRALL = VRASCII | VRBINARY,
VR_END = UT+1 }

Public Member Functions

- [VR](#) ([VRType](#) vr=INVALID)
- bool [Compatible](#) ([VR](#) const &vr) const
- int [GetLength](#) () const
- unsigned int [GetSize](#) () const
- unsigned int [GetSizeof](#) () const
- bool [IsDual](#) () const
- bool [IsVRFile](#) () const
- [operator VRType](#) () const
- std::istream & [Read](#) (std::istream &is)
- const std::ostream & [Write](#) (std::ostream &os) const

Static Public Member Functions

- static bool [CanDisplay](#) ([VRType](#) vr)
- static uint32_t [GetLength](#) ([VRType](#) vr)
- static const char * [GetVRString](#) ([VRType](#) vr)
- static const char * [GetVRStringFromFile](#) ([VRType](#) vr)
- static [VRType](#) [GetVRType](#) (const char *vr)
- static [VRType](#) [GetVRTypeFromFile](#) (const char *vr)
- static bool [IsASCII](#) ([VRType](#) vr)
- static bool [IsASCII2](#) ([VRType](#) vr)
- static bool [IsBinary](#) ([VRType](#) vr)
- static bool [IsBinary2](#) ([VRType](#) vr)
- static bool [IsSwap](#) (const char *vr)
- static bool [IsValid](#) (const char *vr)
- static bool [IsValid](#) (const char *vr1, [VRType](#) vr2)

Friends

- std::ostream & [operator<<](#) (std::ostream &os, const [VR](#) &vr)

10.364.1 Detailed Description

[VR](#) class This is adapted from DICOM standard The biggest difference is the INVALID [VR](#) and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict.

Note

VALUE REPRESENTATION ([VR](#)) Specifies the data type and format of the Value(s) contained in the [Value](#) Field of a Data [Element](#). VALUE REPRESENTATION FIELD: The field where the [Value](#) Representation of a Data [Element](#) is stored in the encoding of a Data [Element](#) structure with explicit [VR](#).

Examples:

[GenAllVR.cxx](#), and [GenFakeIdentifyFile.cxx](#).

10.364.2 Member Enumeration Documentation

10.364.2.1 enum gdcm::VR::VRType

Enumerator

INVALID
AE
AS
AT
CS
DA
DS
DT
FD
FL
IS
LO
LT
OB
OD
OF
OW
PN
SH
SL
SQ
SS
ST
TM
UI
UL
UN
US
UT
OB_OW
US_SS
US_SS_OW
VL16
VL32
VRASCII
VRBINARY
VR_VM1
VRALL
VR_END

Examples:

[NewSequence.cs](#).

10.364.3 Constructor & Destructor Documentation

10.364.3.1 `gdcm::VR::VR (VRType vr = INVALID) [inline]`

10.364.4 Member Function Documentation

10.364.4.1 `static bool gdcm::VR::CanDisplay (VRType vr) [static]`

10.364.4.2 `bool gdcm::VR::Compatible (VR const & vr) const`

10.364.4.3 `int gdcm::VR::GetLength () const [inline]`

10.364.4.4 `static uint32_t gdcm::VR::GetLength (VRType vr) [inline], [static]`

10.364.4.5 `unsigned int gdcm::VR::GetSize () const [inline]`

References `US_SS`, and `VRTypeTemplateCase`.

10.364.4.6 `unsigned int gdcm::VR::GetSizeof () const`

10.364.4.7 `static const char* gdcm::VR::GetVRString (VRType vr) [static]`

Referenced by `gdcm::operator<<()`.

10.364.4.8 `static const char* gdcm::VR::GetVRStringFromFile (VRType vr) [static]`

10.364.4.9 `static VRType gdcm::VR::GetVRType (const char * vr) [static]`

10.364.4.10 `static VRType gdcm::VR::GetVRTypeFromFile (const char * vr) [static]`

10.364.4.11 `static bool gdcm::VR::IsASCII (VRType vr) [static]`

10.364.4.12 `static bool gdcm::VR::IsASCII2 (VRType vr) [static]`

10.364.4.13 `static bool gdcm::VR::IsBinary (VRType vr) [static]`

10.364.4.14 `static bool gdcm::VR::IsBinary2 (VRType vr) [static]`

10.364.4.15 `bool gdcm::VR::IsDual () const`

10.364.4.16 `static bool gdcm::VR::IsSwap (const char * vr) [static]`

10.364.4.17 `static bool gdcm::VR::IsValid (const char * vr) [static]`

10.364.4.18 `static bool gdcm::VR::IsValid (const char * vr1, VRType vr2) [static]`

10.364.4.19 `bool gdcm::VR::IsVRFile () const`

Referenced by `gdcm::DataElement::SetVR()`.

10.364.4.20 `gdcm::VR::operator VRType () const` `[inline]`

10.364.4.21 `std::istream& gdcm::VR::Read (std::istream & is)` `[inline]`

References `gdcmDebugMacro`, `INVALID`, and `VR_END`.

10.364.4.22 `const std::ostream& gdcm::VR::Write (std::ostream & os) const` `[inline]`

References `gdcmAssertAlwaysMacro`, `INVALID`, and `gdcm::operator<<()`.

10.364.5 Friends And Related Function Documentation

10.364.5.1 `std::ostream& operator<< (std::ostream & os, const VR & vr)` `[friend]`

The documentation for this class was generated from the following file:

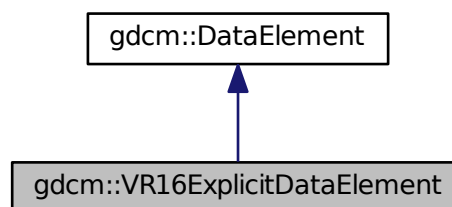
- [gdcmVR.h](#)

10.365 gdcm::VR16ExplicitDataElement Class Reference

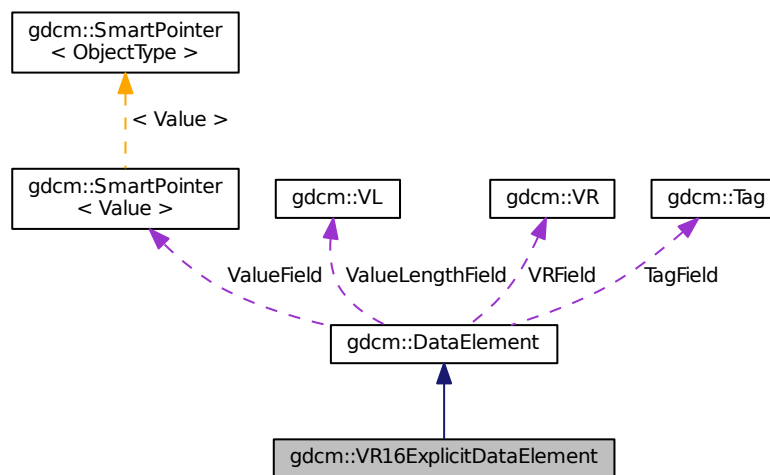
Class to read/write a [DataElement](#) as Explicit Data [Element](#).

```
#include <gdcmVR16ExplicitDataElement.h>
```

Inheritance diagram for `gdcm::VR16ExplicitDataElement`:



Collaboration diagram for gdcm::VR16ExplicitDataElement:



Public Member Functions

- [VL GetLength](#) () const
- template<typename TSwap >
std::istream & [Read](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadPreValue](#) (std::istream &is)
- template<typename TSwap >
std::istream & [ReadValue](#) (std::istream &is, bool readvalues=true)
- template<typename TSwap >
std::istream & [ReadWithLength](#) (std::istream &is, [VL](#) &length)

Additional Inherited Members

10.365.1 Detailed Description

Class to read/write a [DataElement](#) as Explicit Data [Element](#).

Note

This class support 16 bits when finding an unkown [VR](#): For instance: Siemens_CT_Sensation64_has_VR_RT.dcm

10.365.2 Member Function Documentation

10.365.2.1 `VL gdcm::VR16ExplicitDataElement::GetLength () const`

10.365.2.2 `template<typename TSwap > std::istream& gdcm::VR16ExplicitDataElement::Read (std::istream & is)`

10.365.2.3 `template<typename TSwap > std::istream& gdcm::VR16ExplicitDataElement::ReadPreValue (std::istream & is)`

10.365.2.4 `template<typename TSwap > std::istream& gdcm::VR16ExplicitDataElement::ReadValue (std::istream & is, bool readvalues = true)`

10.365.2.5 `template<typename TSwap > std::istream& gdcm::VR16ExplicitDataElement::ReadWithLength (std::istream & is, VL & length)`

The documentation for this class was generated from the following file:

- [gdcmVR16ExplicitDataElement.h](#)

10.366 gdcm::VRToEncoding< T > Struct Template Reference

```
#include <gdcmVR.h>
```

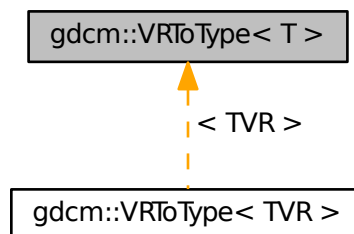
The documentation for this struct was generated from the following file:

- [gdcmVR.h](#)

10.367 gdcm::VRToType< T > Struct Template Reference

```
#include <gdcmVR.h>
```

Inheritance diagram for `gdcm::VRToType< T >`:



10.367.1 Detailed Description

```
template<int T>
struct gdcm::VRToType< T >
```

Examples:

[DumpGEMSMovieGroup.cxx](#).

The documentation for this struct was generated from the following file:

- [gdcmVR.h](#)

10.368 gdcm::VRVLSIZE< T > Class Template Reference

```
#include <gdcmAttribute.h>
```

The documentation for this class was generated from the following file:

- [gdcmAttribute.h](#)

10.369 gdcm::VRVLSIZE< 0 > Class Template Reference

```
#include <gdcmAttribute.h>
```

Static Public Member Functions

- static uint16_t [Read](#) (std::istream &_is)
- static void [Write](#) (std::ostream &os)

10.369.1 Member Function Documentation

10.369.1.1 static uint16_t gdcm::VRVLSIZE< 0 >::Read (std::istream &_is) [inline],[static]

10.369.1.2 static void gdcm::VRVLSIZE< 0 >::Write (std::ostream & os) [inline],[static]

The documentation for this class was generated from the following file:

- [gdcmAttribute.h](#)

10.370 `gdcm::VRVLSize< 1 >` Class Template Reference

```
#include <gdcmAttribute.h>
```

Static Public Member Functions

- static `uint32_t Read` (`std::istream &_is`)
- static void `Write` (`std::ostream &os`)

10.370.1 Member Function Documentation

10.370.1.1 static `uint32_t gdcm::VRVLSize< 1 >::Read (std::istream &_is)` `[inline]`, `[static]`

10.370.1.2 static void `gdcm::VRVLSize< 1 >::Write (std::ostream &os)` `[inline]`, `[static]`

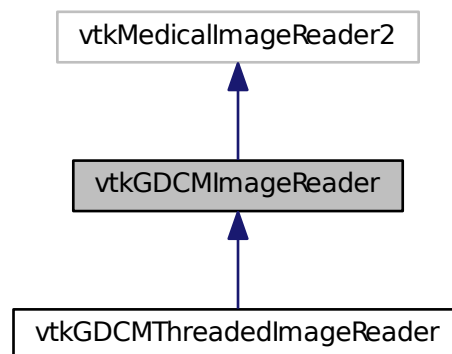
The documentation for this class was generated from the following file:

- [gdcmAttribute.h](#)

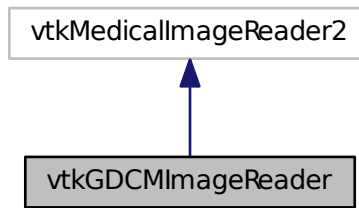
10.371 `vtkGDCMImageReader` Class Reference

```
#include <vtkGDCMImageReader.h>
```

Inheritance diagram for `vtkGDCMImageReader`:



Collaboration diagram for vtkGDCMImageReader:



Public Member Functions

- virtual int [CanReadFile](#) (const char *fname)
- virtual const char * [GetDescriptiveName](#) ()
- virtual const char * [GetFileExtensions](#) ()
- vtkImageData * [GetIconImage](#) ()
- vtkImageData * [GetOverlay](#) (int i)
- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetCurve](#) (vtkPolyData *pd)
- virtual void [SetFileNames](#) (vtkStringArray *)
- virtual void [SetMedicalImageProperties](#) (vtkMedicalImageProperties *pd)
- [vtkBooleanMacro](#) (LoadOverlays, int)
- [vtkBooleanMacro](#) (LoadIconImage, int)
- [vtkBooleanMacro](#) (LossyFlag, int)
- [vtkBooleanMacro](#) (ApplyLookupTable, int)
- int [vtkBooleanMacro](#) (ApplyYBRToRGB, int)
- [vtkGetMacro](#) (LoadOverlays, int)
- [vtkGetMacro](#) (LoadIconImage, int)
- [vtkGetMacro](#) (LossyFlag, int)
- [vtkGetMacro](#) (NumberOfOverlays, int)
- [vtkGetMacro](#) (NumberOfIconImages, int)
- [vtkGetMacro](#) (ApplyLookupTable, int)
- [vtkGetMacro](#) (ApplyYBRToRGB, int) [vtkSetMacro](#)(ApplyYBRToRGB
- [vtkGetMacro](#) (ImageFormat, int)
- [vtkGetMacro](#) (PlanarConfiguration, int)
- [vtkGetMacro](#) (Shift, double)
- [vtkGetMacro](#) (Scale, double)
- [vtkGetObjectMacro](#) (DirectionCosines, vtkMatrix4x4)
- [vtkGetObjectMacro](#) (MedicalImageProperties, vtkMedicalImageProperties)
- [vtkGetObjectMacro](#) (FileNames, vtkStringArray)
- [vtkGetObjectMacro](#) (Curve, vtkPolyData)
- [vtkGetVector3Macro](#) (ImagePositionPatient, double)
- [vtkGetVector6Macro](#) (ImageOrientationPatient, double)
- [vtkSetMacro](#) (LoadOverlays, int)

- [vtkSetMacro](#) ([LoadIconImage](#), int)
- [vtkSetMacro](#) ([LossyFlag](#), int)
- [vtkSetMacro](#) ([ApplyLookupTable](#), int)
- [vtkTypeMacro](#) ([vtkGDCMImageReader](#), [vtkMedicalImageReader2](#))

Static Public Member Functions

- static [vtkGDCMImageReader](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMImageReader](#) ()
- [~vtkGDCMImageReader](#) ()
- void [ExecuteData](#) ([vtkDataObject](#) *out)
- void [ExecuteInformation](#) ()
- void [FillMedicalImageInformation](#) (const [gdcm::ImageReader](#) &reader)
- int [LoadSingleFile](#) (const char *filename, char *pointer, unsigned long &outlen)
- int [RequestDataCompat](#) ()
- int [RequestInformationCompat](#) ()
- void [SetFilePattern](#) (const char *)
- void [SetFilePrefix](#) (const char *)
- [vtkGetStringMacro](#) (FilePrefix)
- [vtkGetStringMacro](#) (FilePattern)
- [vtkSetVector6Macro](#) ([ImageOrientationPatient](#), double)

Protected Attributes

- int [ApplyInverseVideo](#)
- int [ApplyLookupTable](#)
- int [ApplyPlanarConfiguration](#)
- int [ApplyShiftScale](#)
- int [ApplyYBRToRGB](#)
- [vtkPolyData](#) * [Curve](#)
- [vtkMatrix4x4](#) * [DirectionCosines](#)
- [vtkStringArray](#) * [FileNames](#)
- int [ForceRescale](#)
- int [IconDataScalarType](#)
- int [IconImageDataExtent](#) [6]
- int [IconNumberOfScalarComponents](#)
- int [ImageFormat](#)
- double [ImageOrientationPatient](#) [6]
- double [ImagePositionPatient](#) [3]
- int [LoadIconImage](#)
- int [LoadOverlays](#)
- int [LossyFlag](#)
- [vtkMedicalImageProperties](#) * [MedicalImageProperties](#)
- int [NumberOfIconImages](#)
- int [NumberOfOverlays](#)
- int [PlanarConfiguration](#)
- double [Scale](#)
- double [Shift](#)

10.371.1 Detailed Description

Examples:

[AWTMedical3.java](#), [Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [gdcmmorthoplanes.cxx](#), [gdcmreslice.cxx](#), [gdcmttexture.cxx](#), [gdcmvolume.cxx](#), [HelloActiviz.cs](#), [HelloActiviz2.cs](#), [HelloActiviz3.cs](#), [HelloActiviz4.cs](#), [HelloActiviz5.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld.java](#), [MagnifyFile.cxx](#), [MetaImageMD5Activiz.cs](#), [MIPViewer.java](#), [MPRViewer.java](#), [MPRViewer2.java](#), [offscreenimage.cxx](#), [ReadSeriesIntoVTK.java](#), [RefCounting.cs](#), and [reslicesphere.cxx](#).

10.371.2 Constructor & Destructor Documentation

10.371.2.1 `vtkGDCMImageReader::vtkGDCMImageReader ()` [protected]

Examples:

[HelloActiviz2.cs](#).

10.371.2.2 `vtkGDCMImageReader::~~vtkGDCMImageReader ()` [protected]

10.371.3 Member Function Documentation

10.371.3.1 `virtual int vtkGDCMImageReader::CanReadFile (const char * fname)` [virtual]

Examples:

[MetaImageMD5Activiz.cs](#).

10.371.3.2 `void vtkGDCMImageReader::ExecuteData (vtkDataObject * out)` [protected]

10.371.3.3 `void vtkGDCMImageReader::ExecuteInformation ()` [protected]

10.371.3.4 `void vtkGDCMImageReader::FillMedicalImageInformation (const gdcm::ImageReader & reader)` [protected]

10.371.3.5 `virtual const char* vtkGDCMImageReader::GetDescriptiveName ()` [inline],[virtual]

10.371.3.6 `virtual const char* vtkGDCMImageReader::GetFileExtensions ()` [inline],[virtual]

10.371.3.7 `vtkImageData* vtkGDCMImageReader::GetIconImage ()`

10.371.3.8 `vtkImageData* vtkGDCMImageReader::GetOverlay (int i)`

10.371.3.9 `int vtkGDCMImageReader::LoadSingleFile (const char * filename, char * pointer, unsigned long & outlen)` [protected]

10.371.3.10 `static vtkGDCMImageReader* vtkGDCMImageReader::New ()` [static]

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [gdcmmorthoplanes.cxx](#), [gdcmreslice.cxx](#), [gdcmttexture.cxx](#), [gdcmvolume.cxx](#), [HelloActiviz.cs](#), [HelloActiviz3.cs](#), [HelloActiviz4.cs](#), [HelloActiviz5.cs](#), [HelloVTKWorld.cs](#), [MagnifyFile.cxx](#), [MetaImageMD5Activiz.cs](#), [offscreenimage.cxx](#), [RefCounting.cs](#), and [reslicesphere.cxx](#).

10.371.3.11 `virtual void vtkGDCMImageReader::PrintSelf (ostream & os, vtkIndent indent)` [virtual]

Reimplemented in [vtkGDCMThreadedImageReader](#).

10.371.3.12 `int vtkGDCMImageReader::RequestDataCompat ()` [protected]

10.371.3.13 `int vtkGDCMImageReader::RequestInformationCompat ()` [protected]

10.371.3.14 `virtual void vtkGDCMImageReader::SetCurve (vtkPolyData * pd)` [virtual]

10.371.3.15 `virtual void vtkGDCMImageReader::SetFileNames (vtkStringArray *)` [virtual]

Examples:

[gdcmmorphoplanes.cxx](#), [HelloActiviz3.cs](#), [HelloActiviz4.cs](#), [HelloActiviz5.cs](#), [MIPViewer.java](#), [MPRViewer.java](#), [MPRViewer2.java](#), and [ReadSeriesIntoVTK.java](#).

10.371.3.16 `void vtkGDCMImageReader::SetFilePattern (const char *)` [inline],[protected]

10.371.3.17 `void vtkGDCMImageReader::SetFilePrefix (const char *)` [inline],[protected]

10.371.3.18 `virtual void vtkGDCMImageReader::SetMedicalImageProperties (vtkMedicalImageProperties * pd)` [virtual]

10.371.3.19 `vtkGDCMImageReader::vtkBooleanMacro (LoadOverlays , int)`

10.371.3.20 `vtkGDCMImageReader::vtkBooleanMacro (LoadIconImage , int)`

10.371.3.21 `vtkGDCMImageReader::vtkBooleanMacro (LossyFlag , int)`

10.371.3.22 `vtkGDCMImageReader::vtkBooleanMacro (ApplyLookupTable , int)`

10.371.3.23 `int vtkGDCMImageReader::vtkBooleanMacro (ApplyYBRToRGB , int)`

10.371.3.24 `vtkGDCMImageReader::vtkGetMacro (LoadOverlays , int)`

10.371.3.25 `vtkGDCMImageReader::vtkGetMacro (LoadIconImage , int)`

10.371.3.26 `vtkGDCMImageReader::vtkGetMacro (LossyFlag , int)`

10.371.3.27 `vtkGDCMImageReader::vtkGetMacro (NumberOfOverlays , int)`

- 10.371.3.28 `vtkGDCMImageReader::vtkGetMacro (NumberOfIconImages , int)`
- 10.371.3.29 `vtkGDCMImageReader::vtkGetMacro (ApplyLookupTable , int)`
- 10.371.3.30 `vtkGDCMImageReader::vtkGetMacro (ApplyYBRToRGB , int)`
- 10.371.3.31 `vtkGDCMImageReader::vtkGetMacro (ImageFormat , int)`
- 10.371.3.32 `vtkGDCMImageReader::vtkGetMacro (PlanarConfiguration , int)`
- 10.371.3.33 `vtkGDCMImageReader::vtkGetMacro (Shift , double)`
- 10.371.3.34 `vtkGDCMImageReader::vtkGetMacro (Scale , double)`
- 10.371.3.35 `vtkGDCMImageReader::vtkGetObjectMacro (DirectionCosines , vtkMatrix4x4)`
- 10.371.3.36 `vtkGDCMImageReader::vtkGetObjectMacro (MedicalImageProperties , vtkMedicalImageProperties)`
- 10.371.3.37 `vtkGDCMImageReader::vtkGetObjectMacro (FileNames , vtkStringArray)`
- 10.371.3.38 `vtkGDCMImageReader::vtkGetObjectMacro (Curve , vtkPolyData)`
- 10.371.3.39 `vtkGDCMImageReader::vtkGetStringMacro (FilePrefix) [protected]`
- 10.371.3.40 `vtkGDCMImageReader::vtkGetStringMacro (FilePattern) [protected]`
- 10.371.3.41 `vtkGDCMImageReader::vtkGetVector3Macro (ImagePositionPatient , double)`
- 10.371.3.42 `vtkGDCMImageReader::vtkGetVector6Macro (ImageOrientationPatient , double)`
- 10.371.3.43 `vtkGDCMImageReader::vtkSetMacro (LoadOverlays , int)`
- 10.371.3.44 `vtkGDCMImageReader::vtkSetMacro (LoadIconImage , int)`
- 10.371.3.45 `vtkGDCMImageReader::vtkSetMacro (LossyFlag , int)`
- 10.371.3.46 `vtkGDCMImageReader::vtkSetMacro (ApplyLookupTable , int)`
- 10.371.3.47 `vtkGDCMImageReader::vtkSetVector6Macro (ImageOrientationPatient , double) [protected]`
- 10.371.3.48 `vtkGDCMImageReader::vtkTypeMacro (vtkGDCMImageReader , vtkMedicalImageReader2)`

10.371.4 Member Data Documentation

- 10.371.4.1 `int vtkGDCMImageReader::ApplyInverseVideo` [protected]
- 10.371.4.2 `int vtkGDCMImageReader::ApplyLookupTable` [protected]
- 10.371.4.3 `int vtkGDCMImageReader::ApplyPlanarConfiguration` [protected]
- 10.371.4.4 `int vtkGDCMImageReader::ApplyShiftScale` [protected]
- 10.371.4.5 `int vtkGDCMImageReader::ApplyYBRToRGB` [protected]
- 10.371.4.6 `vtkPolyData* vtkGDCMImageReader::Curve` [protected]
- 10.371.4.7 `vtkMatrix4x4* vtkGDCMImageReader::DirectionCosines` [protected]
- 10.371.4.8 `vtkStringArray* vtkGDCMImageReader::FileNames` [protected]
- 10.371.4.9 `int vtkGDCMImageReader::ForceRescale` [protected]
- 10.371.4.10 `int vtkGDCMImageReader::IconDataScalarType` [protected]
- 10.371.4.11 `int vtkGDCMImageReader::IconImageDataExtent[6]` [protected]
- 10.371.4.12 `int vtkGDCMImageReader::IconNumberOfScalarComponents` [protected]
- 10.371.4.13 `int vtkGDCMImageReader::ImageFormat` [protected]
- 10.371.4.14 `double vtkGDCMImageReader::ImageOrientationPatient[6]` [protected]
- 10.371.4.15 `double vtkGDCMImageReader::ImagePositionPatient[3]` [protected]
- 10.371.4.16 `int vtkGDCMImageReader::LoadIconImage` [protected]
- 10.371.4.17 `int vtkGDCMImageReader::LoadOverlays` [protected]
- 10.371.4.18 `int vtkGDCMImageReader::LossyFlag` [protected]
- 10.371.4.19 `vtkMedicalImageProperties* vtkGDCMImageReader::MedicalImageProperties` [protected]
- 10.371.4.20 `int vtkGDCMImageReader::NumberOfIconImages` [protected]
- 10.371.4.21 `int vtkGDCMImageReader::NumberOfOverlays` [protected]
- 10.371.4.22 `int vtkGDCMImageReader::PlanarConfiguration` [protected]
- 10.371.4.23 `double vtkGDCMImageReader::Scale` [protected]
- 10.371.4.24 `double vtkGDCMImageReader::Shift` [protected]

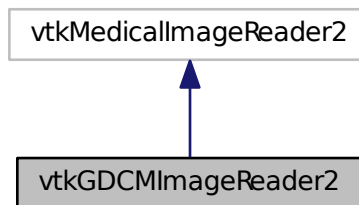
The documentation for this class was generated from the following file:

- [vtkGDCMImageReader.h](#)

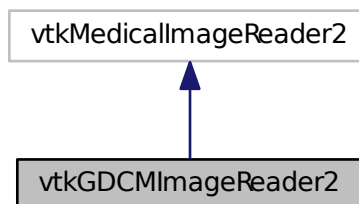
10.372 vtkGDCMImageReader2 Class Reference

```
#include <vtkGDCMImageReader2.h>
```

Inheritance diagram for vtkGDCMImageReader2:



Collaboration diagram for vtkGDCMImageReader2:



Public Member Functions

- virtual int [CanReadFile](#) (const char *fname)
- virtual const char * [GetDescriptiveName](#) ()
- virtual const char * [GetFileExtensions](#) ()
- vtkImageData * [GetIconImage](#) ()
- vtkAlgorithmOutput * [GetIconImagePort](#) ()
- vtkImageData * [GetOverlay](#) (int i)
- vtkAlgorithmOutput * [GetOverlayPort](#) (int index)
- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetCurve](#) (vtkPolyData *pd)
- virtual void [SetMedicalImageProperties](#) (vtkMedicalImageProperties *pd)

- [vtkBooleanMacro](#) ([LoadOverlays](#), int)
- [vtkBooleanMacro](#) ([LoadIconImage](#), int)
- [vtkBooleanMacro](#) ([LossyFlag](#), int)
- [vtkBooleanMacro](#) ([ApplyLookupTable](#), int)
- int [vtkBooleanMacro](#) ([ApplyYBRToRGB](#), int)
- [vtkGetMacro](#) ([LoadOverlays](#), int)
- [vtkGetMacro](#) ([LoadIconImage](#), int)
- [vtkGetMacro](#) ([LossyFlag](#), int)
- [vtkGetMacro](#) ([NumberOfOverlays](#), int)
- [vtkGetMacro](#) ([NumberOfIconImages](#), int)
- [vtkGetMacro](#) ([ApplyLookupTable](#), int)
- [vtkGetMacro](#) ([ApplyYBRToRGB](#), int) [vtkSetMacro](#)([ApplyYBRToRGB](#)
- [vtkGetMacro](#) ([ImageFormat](#), int)
- [vtkGetMacro](#) ([PlanarConfiguration](#), int)
- [vtkGetMacro](#) ([Shift](#), double)
- [vtkGetMacro](#) ([Scale](#), double)
- [vtkGetObjectMacro](#) ([DirectionCosines](#), [vtkMatrix4x4](#))
- [vtkGetObjectMacro](#) ([Curve](#), [vtkPolyData](#))
- [vtkGetVector3Macro](#) ([ImagePositionPatient](#), double)
- [vtkGetVector6Macro](#) ([ImageOrientationPatient](#), double)
- [vtkSetMacro](#) ([LoadOverlays](#), int)
- [vtkSetMacro](#) ([LoadIconImage](#), int)
- [vtkSetMacro](#) ([LossyFlag](#), int)
- [vtkSetMacro](#) ([ApplyLookupTable](#), int)
- [vtkTypeMacro](#) ([vtkGDCMImageReader2](#), [vtkMedicalImageReader2](#))

Static Public Member Functions

- static [vtkGDCMImageReader2](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMImageReader2](#) ()
- [~vtkGDCMImageReader2](#) ()
- void [FillMedicalImageInformation](#) (const [gdcm::ImageReader](#) &reader)
- int [LoadSingleFile](#) (const char *filename, char *pointer, unsigned long &outlen)
- int [ProcessRequest](#) ([vtkInformation](#) *request, [vtkInformationVector](#) **inputVector, [vtkInformationVector](#) *output←
Vector)
- int [RequestData](#) ([vtkInformation](#) *request, [vtkInformationVector](#) **inputVector, [vtkInformationVector](#) *output←
Vector)
- int [RequestDataCompat](#) ()
- int [RequestInformation](#) ([vtkInformation](#) *request, [vtkInformationVector](#) **inputVector, [vtkInformationVector](#) *outputVector)
- int [RequestInformationCompat](#) ()
- void [SetFilePattern](#) (const char *)
- void [SetFilePrefix](#) (const char *)
- [vtkGetStringMacro](#) ([FilePrefix](#))
- [vtkGetStringMacro](#) ([FilePattern](#))
- [vtkSetVector6Macro](#) ([ImageOrientationPatient](#), double)

Protected Attributes

- int [ApplyInverseVideo](#)
- int [ApplyLookupTable](#)
- int [ApplyPlanarConfiguration](#)
- int [ApplyShiftScale](#)
- int [ApplyYBRToRGB](#)
- vtkPolyData * [Curve](#)
- vtkMatrix4x4 * [DirectionCosines](#)
- int [ForceRescale](#)
- int [IconDataScalarType](#)
- int [IconImageDataExtent](#) [6]
- int [IconNumberOfScalarComponents](#)
- int [ImageFormat](#)
- double [ImageOrientationPatient](#) [6]
- double [ImagePositionPatient](#) [3]
- int [LoadIconImage](#)
- int [LoadOverlays](#)
- int [LossyFlag](#)
- int [NumberOfIconImages](#)
- int [NumberOfOverlays](#)
- int [PlanarConfiguration](#)
- double [Scale](#)
- double [Shift](#)

10.372.1 Detailed Description

Examples:

[Compute3DSpacing.cxx](#).

10.372.2 Constructor & Destructor Documentation

10.372.2.1 `vtkGDCMImageReader2::vtkGDCMImageReader2 ()` [protected]

10.372.2.2 `vtkGDCMImageReader2::~~vtkGDCMImageReader2 ()` [protected]

10.372.3 Member Function Documentation

10.372.3.1 `virtual int vtkGDCMImageReader2::CanReadFile (const char * fname)` [virtual]

10.372.3.2 `void vtkGDCMImageReader2::FillMedicalImageInformation (const gdcm::ImageReader & reader)`
[protected]

10.372.3.3 `virtual const char* vtkGDCMImageReader2::GetDescriptiveName ()` [inline],[virtual]

- 10.372.3.4 `virtual const char* vtkGDCMImageReader2::GetFileExtensions ()` `[inline],[virtual]`
- 10.372.3.5 `vtkImageData* vtkGDCMImageReader2::GetIconImage ()`
- 10.372.3.6 `vtkAlgorithmOutput* vtkGDCMImageReader2::GetIconImagePort ()`
- 10.372.3.7 `vtkImageData* vtkGDCMImageReader2::GetOverlay (int i)`
- 10.372.3.8 `vtkAlgorithmOutput* vtkGDCMImageReader2::GetOverlayPort (int index)`
- 10.372.3.9 `int vtkGDCMImageReader2::LoadSingleFile (const char * filename, char * pointer, unsigned long & outlen)`
`[protected]`
- 10.372.3.10 `static vtkGDCMImageReader2* vtkGDCMImageReader2::New ()` `[static]`

Examples:

[Compute3DSpacing.cxx](#).

- 10.372.3.11 `virtual void vtkGDCMImageReader2::PrintSelf (ostream & os, vtkIndent indent)` `[virtual]`
- 10.372.3.12 `int vtkGDCMImageReader2::ProcessRequest (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector)` `[protected]`
- 10.372.3.13 `int vtkGDCMImageReader2::RequestData (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector)` `[protected]`
- 10.372.3.14 `int vtkGDCMImageReader2::RequestDataCompat ()` `[protected]`
- 10.372.3.15 `int vtkGDCMImageReader2::RequestInformation (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector)` `[protected]`
- 10.372.3.16 `int vtkGDCMImageReader2::RequestInformationCompat ()` `[protected]`
- 10.372.3.17 `virtual void vtkGDCMImageReader2::SetCurve (vtkPolyData * pd)` `[virtual]`
- 10.372.3.18 `void vtkGDCMImageReader2::SetFilePattern (const char *)` `[inline],[protected]`
- 10.372.3.19 `void vtkGDCMImageReader2::SetFilePrefix (const char *)` `[inline],[protected]`
- 10.372.3.20 `virtual void vtkGDCMImageReader2::SetMedicalImageProperties (vtkMedicalImageProperties * pd)` `[virtual]`
- 10.372.3.21 `vtkGDCMImageReader2::vtkBooleanMacro (LoadOverlays , int)`

- 10.372.3.22 `vtkGDCMImageReader2::vtkBooleanMacro (LoadIconImage , int)`
- 10.372.3.23 `vtkGDCMImageReader2::vtkBooleanMacro (LossyFlag , int)`
- 10.372.3.24 `vtkGDCMImageReader2::vtkBooleanMacro (ApplyLookupTable , int)`
- 10.372.3.25 `int vtkGDCMImageReader2::vtkBooleanMacro (ApplyYBRToRGB , int)`
- 10.372.3.26 `vtkGDCMImageReader2::vtkGetMacro (LoadOverlays , int)`
- 10.372.3.27 `vtkGDCMImageReader2::vtkGetMacro (LoadIconImage , int)`
- 10.372.3.28 `vtkGDCMImageReader2::vtkGetMacro (LossyFlag , int)`
- 10.372.3.29 `vtkGDCMImageReader2::vtkGetMacro (NumberOfOverlays , int)`
- 10.372.3.30 `vtkGDCMImageReader2::vtkGetMacro (NumberOfIconImages , int)`
- 10.372.3.31 `vtkGDCMImageReader2::vtkGetMacro (ApplyLookupTable , int)`
- 10.372.3.32 `vtkGDCMImageReader2::vtkGetMacro (ApplyYBRToRGB , int)`
- 10.372.3.33 `vtkGDCMImageReader2::vtkGetMacro (ImageFormat , int)`
- 10.372.3.34 `vtkGDCMImageReader2::vtkGetMacro (PlanarConfiguration , int)`
- 10.372.3.35 `vtkGDCMImageReader2::vtkGetMacro (Shift , double)`
- 10.372.3.36 `vtkGDCMImageReader2::vtkGetMacro (Scale , double)`
- 10.372.3.37 `vtkGDCMImageReader2::vtkGetObjectMacro (DirectionCosines , vtkMatrix4x4)`
- 10.372.3.38 `vtkGDCMImageReader2::vtkGetObjectMacro (Curve , vtkPolyData)`
- 10.372.3.39 `vtkGDCMImageReader2::vtkGetStringMacro (FilePrefix)` [protected]
- 10.372.3.40 `vtkGDCMImageReader2::vtkGetStringMacro (FilePattern)` [protected]
- 10.372.3.41 `vtkGDCMImageReader2::vtkGetVector3Macro (ImagePositionPatient , double)`
- 10.372.3.42 `vtkGDCMImageReader2::vtkGetVector6Macro (ImageOrientationPatient , double)`

- 10.372.3.43 `vtkGDCMImageReader2::vtkSetMacro (LoadOverlays , int)`
- 10.372.3.44 `vtkGDCMImageReader2::vtkSetMacro (LoadIconImage , int)`
- 10.372.3.45 `vtkGDCMImageReader2::vtkSetMacro (LossyFlag , int)`
- 10.372.3.46 `vtkGDCMImageReader2::vtkSetMacro (ApplyLookupTable , int)`
- 10.372.3.47 `vtkGDCMImageReader2::vtkSetVector6Macro (ImageOrientationPatient , double)` [protected]
- 10.372.3.48 `vtkGDCMImageReader2::vtkTypeMacro (vtkGDCMImageReader2 , vtkMedicalImageReader2)`

10.372.4 Member Data Documentation

- 10.372.4.1 `int vtkGDCMImageReader2::ApplyInverseVideo` [protected]
- 10.372.4.2 `int vtkGDCMImageReader2::ApplyLookupTable` [protected]
- 10.372.4.3 `int vtkGDCMImageReader2::ApplyPlanarConfiguration` [protected]
- 10.372.4.4 `int vtkGDCMImageReader2::ApplyShiftScale` [protected]
- 10.372.4.5 `int vtkGDCMImageReader2::ApplyYBRToRGB` [protected]
- 10.372.4.6 `vtkPolyData* vtkGDCMImageReader2::Curve` [protected]
- 10.372.4.7 `vtkMatrix4x4* vtkGDCMImageReader2::DirectionCosines` [protected]
- 10.372.4.8 `int vtkGDCMImageReader2::ForceRescale` [protected]
- 10.372.4.9 `int vtkGDCMImageReader2::IconDataScalarType` [protected]
- 10.372.4.10 `int vtkGDCMImageReader2::IconImageDataExtent[6]` [protected]
- 10.372.4.11 `int vtkGDCMImageReader2::IconNumberOfScalarComponents` [protected]
- 10.372.4.12 `int vtkGDCMImageReader2::ImageFormat` [protected]
- 10.372.4.13 `double vtkGDCMImageReader2::ImageOrientationPatient[6]` [protected]
- 10.372.4.14 `double vtkGDCMImageReader2::ImagePositionPatient[3]` [protected]

10.372.4.15 int vtkGDCMImageReader2::LoadIconImage [protected]

10.372.4.16 int vtkGDCMImageReader2::LoadOverlays [protected]

10.372.4.17 int vtkGDCMImageReader2::LossyFlag [protected]

10.372.4.18 int vtkGDCMImageReader2::NumberOfIconImages [protected]

10.372.4.19 int vtkGDCMImageReader2::NumberOfOverlays [protected]

10.372.4.20 int vtkGDCMImageReader2::PlanarConfiguration [protected]

10.372.4.21 double vtkGDCMImageReader2::Scale [protected]

10.372.4.22 double vtkGDCMImageReader2::Shift [protected]

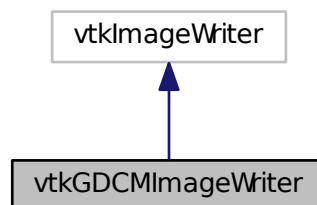
The documentation for this class was generated from the following file:

- [vtkGDCMImageReader2.h](#)

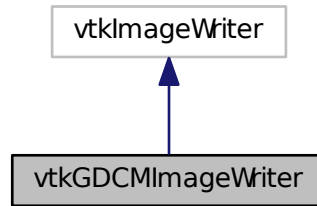
10.373 vtkGDCMImageWriter Class Reference

```
#include <vtkGDCMImageWriter.h>
```

Inheritance diagram for vtkGDCMImageWriter:



Collaboration diagram for vtkGDCMImageWriter:



Public Types

- enum [CompressionTypes](#) {
[NO_COMPRESSION](#) = 0,
[JPEG_COMPRESSION](#),
[JPEG2000_COMPRESSION](#),
[JPEGLS_COMPRESSION](#),
[RLE_COMPRESSION](#) }

Public Member Functions

- virtual const char * [GetDescriptiveName](#) ()
- virtual const char * [GetFileExtensions](#) ()
- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetDirectionCosines](#) (vtkMatrix4x4 *matrix)
- virtual void [SetDirectionCosinesFromImageOrientationPatient](#) (const double dircos[6])
- virtual void [SetFileNames](#) (vtkStringArray *)
- virtual void [SetMedicalImageProperties](#) (vtkMedicalImageProperties *)
- [vtkBooleanMacro](#) (LossyFlag, int)
- [vtkBooleanMacro](#) (FileLowerLeft, int)
- [vtkGetMacro](#) (LossyFlag, int)
- [vtkGetMacro](#) (Shift, double)
- [vtkGetMacro](#) (Scale, double)
- [vtkGetMacro](#) (ImageFormat, int)
- [vtkGetMacro](#) (FileLowerLeft, int)
- [vtkGetMacro](#) (PlanarConfiguration, int)
- [vtkGetMacro](#) (CompressionType, int)
- [vtkGetObjectMacro](#) (MedicalImageProperties, vtkMedicalImageProperties)
- [vtkGetObjectMacro](#) (FileNames, vtkStringArray)
- [vtkGetObjectMacro](#) (DirectionCosines, vtkMatrix4x4)
- [vtkGetStringMacro](#) (StudyUID)
- [vtkGetStringMacro](#) (SeriesUID)
- [vtkSetMacro](#) (LossyFlag, int)

- [vtkSetMacro](#) (Shift, double)
- [vtkSetMacro](#) (Scale, double)
- [vtkSetMacro](#) (ImageFormat, int)
- [vtkSetMacro](#) (FileLowerLeft, int)
- [vtkSetMacro](#) (PlanarConfiguration, int)
- [vtkSetMacro](#) (CompressionType, int)
- [vtkSetStringMacro](#) (StudyUID)
- [vtkSetStringMacro](#) (SeriesUID)
- [vtkTypeMacro](#) ([vtkGDCMImageWriter](#), [vtkImageWriter](#))
- virtual void [Write](#) ()

Static Public Member Functions

- static [vtkGDCMImageWriter](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMImageWriter](#) ()
- [~vtkGDCMImageWriter](#) ()
- virtual char * [GetFileName](#) ()
- int [WriteGDCMData](#) ([vtkImageData](#) *data, int timeStep)
- void [WriteSlice](#) ([vtkImageData](#) *data)

10.373.1 Detailed Description

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [CreateFakePET.cxx](#), [CreateFakeRTDOSE.cxx](#), [gdcmorthoplanes.cxx](#), [HelloActiviz.cs](#), [HelloActiviz2.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld.java](#), [HelloVTKWorld2.cs](#), [MagnifyFile.cxx](#), and [RefCounting.cs](#).

10.373.2 Member Enumeration Documentation

10.373.2.1 enum [vtkGDCMImageWriter::CompressionTypes](#)

Enumerator

NO_COMPRESSION
JPEG_COMPRESSION
JPEG2000_COMPRESSION
JPEGLS_COMPRESSION
RLE_COMPRESSION

10.373.3 Constructor & Destructor Documentation

10.373.3.1 `vtkGDCMImageWriter::vtkGDCMImageWriter ()` [protected]

10.373.3.2 `vtkGDCMImageWriter::~~vtkGDCMImageWriter ()` [protected]

10.373.4 Member Function Documentation

10.373.4.1 `virtual const char* vtkGDCMImageWriter::GetDescriptiveName ()` [inline],[virtual]

10.373.4.2 `virtual const char* vtkGDCMImageWriter::GetFileExtensions ()` [inline],[virtual]

10.373.4.3 `virtual char* vtkGDCMImageWriter::GetFileName ()` [protected],[virtual]

10.373.4.4 `static vtkGDCMImageWriter* vtkGDCMImageWriter::New ()` [static]

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [CreateFakePET.cxx](#), [CreateFakeRTDOSE.cxx](#), [gdcmorphoplanes.cxx](#), [HelloActiviz.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld2.cs](#), [MagnifyFile.cxx](#), and [RefCounting.cs](#).

10.373.4.5 `virtual void vtkGDCMImageWriter::PrintSelf (ostream & os, vtkIndent indent)` [virtual]

10.373.4.6 `virtual void vtkGDCMImageWriter::SetDirectionCosines (vtkMatrix4x4 * matrix)` [virtual]

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [gdcmorphoplanes.cxx](#), [HelloActiviz2.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld.java](#), and [MagnifyFile.cxx](#).

10.373.4.7 `virtual void vtkGDCMImageWriter::SetDirectionCosinesFromImageOrientationPatient (const double dircos[6])` [virtual]

10.373.4.8 `virtual void vtkGDCMImageWriter::SetFileNames (vtkStringArray *)` [virtual]

Examples:

[ConvertMultiFrameToSingleFrame.cxx](#), and [CreateFakePET.cxx](#).

10.373.4.9 virtual void vtkGDCMImageWriter::SetMedicalImageProperties (vtkMedicalImageProperties *) [virtual]

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [gdcmmorthoplanes.cxx](#), [HelloActiviz.cs](#), [HelloActiviz2.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld.java](#), and [MagnifyFile.cxx](#).

10.373.4.10 vtkGDCMImageWriter::vtkBooleanMacro (LossyFlag , int)

10.373.4.11 vtkGDCMImageWriter::vtkBooleanMacro (FileLowerLeft , int)

10.373.4.12 vtkGDCMImageWriter::vtkGetMacro (LossyFlag , int)

10.373.4.13 vtkGDCMImageWriter::vtkGetMacro (Shift , double)

10.373.4.14 vtkGDCMImageWriter::vtkGetMacro (Scale , double)

10.373.4.15 vtkGDCMImageWriter::vtkGetMacro (ImageFormat , int)

10.373.4.16 vtkGDCMImageWriter::vtkGetMacro (FileLowerLeft , int)

10.373.4.17 vtkGDCMImageWriter::vtkGetMacro (PlanarConfiguration , int)

10.373.4.18 vtkGDCMImageWriter::vtkGetMacro (CompressionType , int)

10.373.4.19 vtkGDCMImageWriter::vtkGetObjectMacro (MedicalImageProperties , vtkMedicalImageProperties)

10.373.4.20 vtkGDCMImageWriter::vtkGetObjectMacro (FileNames , vtkStringArray)

10.373.4.21 vtkGDCMImageWriter::vtkGetObjectMacro (DirectionCosines , vtkMatrix4x4)

10.373.4.22 vtkGDCMImageWriter::vtkGetStringMacro (StudyUID)

10.373.4.23 vtkGDCMImageWriter::vtkGetStringMacro (SeriesUID)

10.373.4.24 vtkGDCMImageWriter::vtkSetMacro (LossyFlag , int)

10.373.4.25 vtkGDCMImageWriter::vtkSetMacro (Shift , double)

10.373.4.26 vtkGDCMImageWriter::vtkSetMacro (Scale , double)

10.373.4.27 vtkGDCMImageWriter::vtkSetMacro (ImageFormat , int)

```

10.373.4.28  vtkGDCMImageWriter::vtkSetMacro ( FileLowerLeft , int )
10.373.4.29  vtkGDCMImageWriter::vtkSetMacro ( PlanarConfiguration , int )
10.373.4.30  vtkGDCMImageWriter::vtkSetMacro ( CompressionType , int )
10.373.4.31  vtkGDCMImageWriter::vtkSetStringMacro ( StudyUID )
10.373.4.32  vtkGDCMImageWriter::vtkSetStringMacro ( SeriesUID )
10.373.4.33  vtkGDCMImageWriter::vtkTypeMacro ( vtkGDCMImageWriter , vtkImageWriter )
10.373.4.34  virtual void vtkGDCMImageWriter::Write ( ) [virtual]

```

Examples:

[Convert16BitsTo8Bits.cxx](#), [ConvertMultiFrameToSingleFrame.cxx](#), [ConvertRGBToLuminance.cxx](#), [ConvertSingleBitTo8Bits.cxx](#), [CreateFakePET.cxx](#), [CreateFakeRTDOSE.cxx](#), [gdcmorphoplanes.cxx](#), [HelloActiviz.cs](#), [HelloActiviz2.cs](#), [HelloVTKWorld.cs](#), [HelloVTKWorld.java](#), [HelloVTKWorld2.cs](#), and [MagnifyFile.cxx](#).

```

10.373.4.35  int vtkGDCMImageWriter::WriteGDCMData ( vtkImageData * data, int timeStep ) [protected]
10.373.4.36  void vtkGDCMImageWriter::WriteSlice ( vtkImageData * data ) [protected]

```

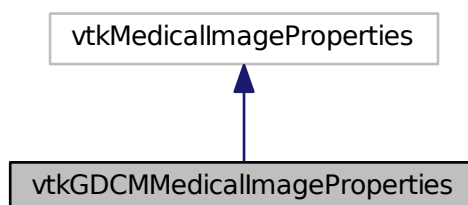
The documentation for this class was generated from the following file:

- [vtkGDCMImageWriter.h](#)

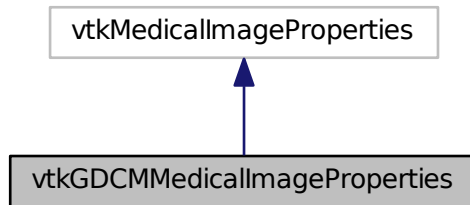
10.374 vtkGDCMMedicalImageProperties Class Reference

```
#include <vtkGDCMMedicalImageProperties.h>
```

Inheritance diagram for vtkGDCMMedicalImageProperties:



Collaboration diagram for vtkGDCMMedicalImageProperties:



Public Member Functions

- virtual void [Clear](#) ()
- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkTypeMacro](#) ([vtkGDCMMedicalImageProperties](#), vtkMedicalImageProperties)

Static Public Member Functions

- static [vtkGDCMMedicalImageProperties](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMMedicalImageProperties](#) ()
- [~vtkGDCMMedicalImageProperties](#) ()
- [gdcmm::File](#) const & [GetFile](#) (unsigned int t)
- void [PushBackFile](#) ([gdcmm::File](#) const &f)

Friends

- class [vtkGDCMImageReader](#)
- class [vtkGDCMImageReader2](#)
- class [vtkGDCMImageWriter](#)

10.374.1 Constructor & Destructor Documentation

10.374.1.1 `vtkGDCMMedicalImageProperties::vtkGDCMMedicalImageProperties ()` `[protected]`

10.374.1.2 `vtkGDCMMedicalImageProperties::~~vtkGDCMMedicalImageProperties ()` `[protected]`

10.374.2 Member Function Documentation

10.374.2.1 `virtual void vtkGDCMMedicalImageProperties::Clear ()` `[virtual]`

10.374.2.2 `gdcmm::File const& vtkGDCMMedicalImageProperties::GetFile (unsigned int f)` `[protected]`

10.374.2.3 `static vtkGDCMMedicalImageProperties* vtkGDCMMedicalImageProperties::New ()` `[static]`

10.374.2.4 `void vtkGDCMMedicalImageProperties::PrintSelf (ostream & os, vtkIndent indent)`

10.374.2.5 `void vtkGDCMMedicalImageProperties::PushBackFile (gdcmm::File const & f)` `[protected]`

10.374.2.6 `vtkGDCMMedicalImageProperties::vtkTypeMacro (vtkGDCMMedicalImageProperties , vtkMedicalImageProperties)`

10.374.3 Friends And Related Function Documentation

10.374.3.1 `friend class vtkGDCMImageReader` `[friend]`

10.374.3.2 `friend class vtkGDCMImageReader2` `[friend]`

10.374.3.3 `friend class vtkGDCMImageWriter` `[friend]`

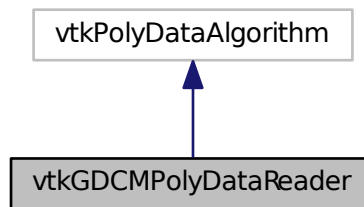
The documentation for this class was generated from the following file:

- [vtkGDCMMedicalImageProperties.h](#)

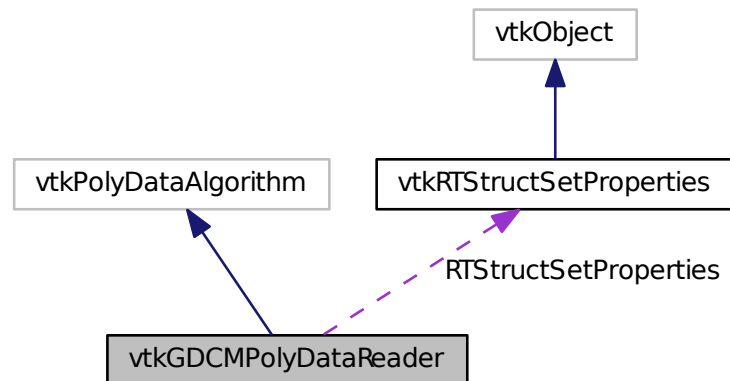
10.375 vtkGDCMPolyDataReader Class Reference

```
#include <vtkGDCMPolyDataReader.h>
```

Inheritance diagram for vtkGDCMPolyDataReader:



Collaboration diagram for vtkGDCMPolyDataReader:



Public Member Functions

- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkGetObjectMacro](#) ([MedicalImageProperties](#), vtkMedicalImageProperties)
- [vtkGetObjectMacro](#) ([RTStructSetProperties](#), [vtkRTStructSetProperties](#))
- [vtkGetStringMacro](#) ([FileName](#))
- [vtkSetStringMacro](#) ([FileName](#))
- [vtkTypeMacro](#) ([vtkGDCMPolyDataReader](#), vtkPolyDataAlgorithm)

Static Public Member Functions

- static [vtkGDCMPolyDataReader](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMPolyDataReader](#) ()
- [~vtkGDCMPolyDataReader](#) ()
- void [FillMedicalImageInformation](#) (const [gdcm::Reader](#) &reader)
- int [RequestData](#) (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- int [RequestData_HemodynamicWaveformStorage](#) ([gdcm::Reader](#) const &reader, vtkInformationVector *outputVector)
- int [RequestData_RTStructureSetStorage](#) ([gdcm::Reader](#) const &reader, vtkInformationVector *outputVector)
- int [RequestInformation](#) (vtkInformation *vtkNotUsed(request), vtkInformationVector **vtkNotUsed(inputVector), vtkInformationVector *outputVector)
- int [RequestInformation_HemodynamicWaveformStorage](#) ([gdcm::Reader](#) const &reader)
- int [RequestInformation_RTStructureSetStorage](#) ([gdcm::Reader](#) const &reader)

Protected Attributes

- char * [FileName](#)
- vtkMedicalImageProperties * [MedicalImageProperties](#)
- [vtkRTStructSetProperties](#) * [RTStructSetProperties](#)

10.375.1 Detailed Description

Examples:

[gdcmscene.cxx](#), [GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.375.2 Constructor & Destructor Documentation

10.375.2.1 [vtkGDCMPolyDataReader::vtkGDCMPolyDataReader](#) () [protected]

10.375.2.2 [vtkGDCMPolyDataReader::~~vtkGDCMPolyDataReader](#) () [protected]

10.375.3 Member Function Documentation

10.375.3.1 void [vtkGDCMPolyDataReader::FillMedicalImageInformation](#) (const [gdcm::Reader](#) & *reader*) [protected]

10.375.3.2 static [vtkGDCMPolyDataReader*](#) [vtkGDCMPolyDataReader::New](#) () [static]

Examples:

[gdcmscene.cxx](#), [GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

- 10.375.3.3 `virtual void vtkGDCMPolyDataReader::PrintSelf (ostream & os, vtkIndent indent)` [virtual]
- 10.375.3.4 `int vtkGDCMPolyDataReader::RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)` [protected]
- 10.375.3.5 `int vtkGDCMPolyDataReader::RequestData_HemodynamicWaveformStorage (gdcm::Reader const & reader, vtkInformationVector * outputVector)` [protected]
- 10.375.3.6 `int vtkGDCMPolyDataReader::RequestData_RTStructureSetStorage (gdcm::Reader const & reader, vtkInformationVector * outputVector)` [protected]
- 10.375.3.7 `int vtkGDCMPolyDataReader::RequestInformation (vtkInformation * vtkNotUsedrequest, vtkInformationVector **, vtkNotUsedinputVector, vtkInformationVector * outputVector)` [protected]
- 10.375.3.8 `int vtkGDCMPolyDataReader::RequestInformation_HemodynamicWaveformStorage (gdcm::Reader const & reader)` [protected]
- 10.375.3.9 `int vtkGDCMPolyDataReader::RequestInformation_RTStructureSetStorage (gdcm::Reader const & reader)` [protected]
- 10.375.3.10 `vtkGDCMPolyDataReader::vtkGetObjectMacro (MedicalImageProperties , vtkMedicalImageProperties)`
- 10.375.3.11 `vtkGDCMPolyDataReader::vtkGetObjectMacro (RTStructSetProperties , vtkRTStructSetProperties)`
- 10.375.3.12 `vtkGDCMPolyDataReader::vtkGetStringMacro (FileName)`
- 10.375.3.13 `vtkGDCMPolyDataReader::vtkSetStringMacro (FileName)`
- 10.375.3.14 `vtkGDCMPolyDataReader::vtkTypeMacro (vtkGDCMPolyDataReader , vtkPolyDataAlgorithm)`

10.375.4 Member Data Documentation

- 10.375.4.1 `char* vtkGDCMPolyDataReader::FileName` [protected]
- 10.375.4.2 `vtkMedicalImageProperties* vtkGDCMPolyDataReader::MedicalImageProperties` [protected]
- 10.375.4.3 `vtkRTStructSetProperties* vtkGDCMPolyDataReader::RTStructSetProperties` [protected]

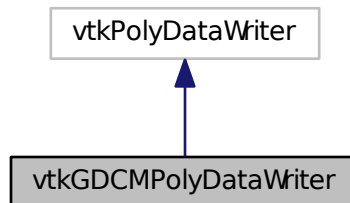
The documentation for this class was generated from the following file:

- [vtkGDCMPolyDataReader.h](#)

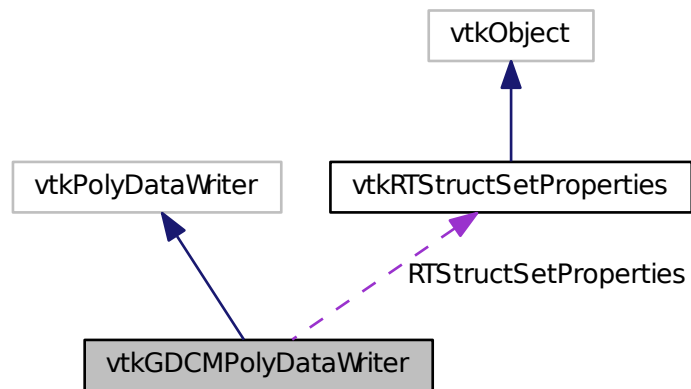
10.376 vtkGDCMPolyDataWriter Class Reference

```
#include <vtkGDCMPolyDataWriter.h>
```

Inheritance diagram for vtkGDCMPolyDataWriter:



Collaboration diagram for vtkGDCMPolyDataWriter:



Public Member Functions

- void [InitializeRTStructSet](#) (vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtkStringArray *inROINames, vtkStringArray *inROIAlgorithmName, vtkStringArray *inROIType)
- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetMedicalImageProperties](#) (vtkMedicalImageProperties *pd)
- void [SetNumberOfInputPorts](#) (int n)
- virtual void [SetRTStructSetProperties](#) (vtkRTStructSetProperties *pd)
- [vtkTypeMacro](#) (vtkGDCMPolyDataWriter, vtkPolyDataWriter)

Static Public Member Functions

- static [vtkGDCMPolyDataWriter](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMPolyDataWriter](#) ()
- [~vtkGDCMPolyDataWriter](#) ()
- void [WriteData](#) ()
- void [WriteRTSTRUCTData](#) ([gdcmm::File](#) &file, int num)
- void [WriteRTSTRUCTInfo](#) ([gdcmm::File](#) &file)

Protected Attributes

- [vtkMedicalImageProperties](#) * [MedicalImageProperties](#)
- [vtkRTStructSetProperties](#) * [RTStructSetProperties](#)

10.376.1 Detailed Description

Examples:

[GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.376.2 Constructor & Destructor Documentation

10.376.2.1 `vtkGDCMPolyDataWriter::vtkGDCMPolyDataWriter ()` [protected]

10.376.2.2 `vtkGDCMPolyDataWriter::~~vtkGDCMPolyDataWriter ()` [protected]

10.376.3 Member Function Documentation

10.376.3.1 `void vtkGDCMPolyDataWriter::InitializeRTStructSet (vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtkStringArray * inROINames, vtkStringArray * inROIAlgorithmName, vtkStringArray * inROIType)`

Examples:

[GenerateRTSTRUCT.cxx](#).

10.376.3.2 `static vtkGDCMPolyDataWriter* vtkGDCMPolyDataWriter::New ()` [static]

Examples:

[GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.376.3.3 virtual void vtkGDCMPolyDataWriter::PrintSelf (ostream & *os*, vtkIndent *indent*) [virtual]

10.376.3.4 virtual void vtkGDCMPolyDataWriter::SetMedicalImageProperties (vtkMedicalImageProperties * *pd*) [virtual]

Examples:

[GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.376.3.5 void vtkGDCMPolyDataWriter::SetNumberOfInputPorts (int *n*)

Examples:

[GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.376.3.6 virtual void vtkGDCMPolyDataWriter::SetRTStructSetProperties (vtkRTStructSetProperties * *pd*) [virtual]

Examples:

[GenerateRTSTRUCT.cxx](#), and [rtstructapp.cxx](#).

10.376.3.7 vtkGDCMPolyDataWriter::vtkTypeMacro (vtkGDCMPolyDataWriter , vtkPolyDataWriter)

10.376.3.8 void vtkGDCMPolyDataWriter::WriteData () [protected]

10.376.3.9 void vtkGDCMPolyDataWriter::WriteRTSTRUCTData (gdcm::File & *file*, int *num*) [protected]

10.376.3.10 void vtkGDCMPolyDataWriter::WriteRTSTRUCTInfo (gdcm::File & *file*) [protected]

10.376.4 Member Data Documentation

10.376.4.1 vtkMedicalImageProperties* vtkGDCMPolyDataWriter::MedicalImageProperties [protected]

10.376.4.2 vtkRTStructSetProperties* vtkGDCMPolyDataWriter::RTStructSetProperties [protected]

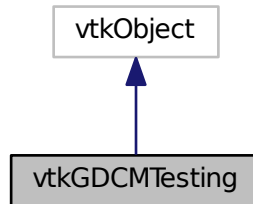
The documentation for this class was generated from the following file:

- [vtkGDCMPolyDataWriter.h](#)

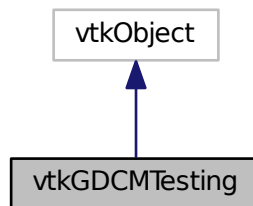
10.377 vtkGDCMTesting Class Reference

```
#include <vtkGDCMTesting.h>
```

Inheritance diagram for vtkGDCMTesting:



Collaboration diagram for vtkGDCMTesting:



Public Types

- typedef const char *const (* [MD5MetalImagesType](#))[3]

Public Member Functions

- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkTypeMacro](#) ([vtkGDCMTesting](#), vtkObject)

Static Public Member Functions

- static const char * [GetGDCMDataRoot](#) ()
- static const char *const * [GetMD5MetaImage](#) (unsigned int file)
- static const char * [GetMHDMD5FromFile](#) (const char *filepath)
- static unsigned int [GetNumberOfMD5MetaImages](#) ()
- static const char * [GetRAWMD5FromFile](#) (const char *filepath)
- static const char * [GetVTKDataRoot](#) ()
- static [vtkGDCMTesting](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMTesting](#) ()
- [~vtkGDCMTesting](#) ()

10.377.1 Detailed Description

Examples:

[HelloActiviz5.cs](#), [HelloVTKWorld2.cs](#), [MetaImageMD5Activiz.cs](#), [ReadSeriesIntoVTK.java](#), and [RefCounting.cs](#).

10.377.2 Member Typedef Documentation

10.377.2.1 typedef const char* const(* [vtkGDCMTesting::MD5MetaImagesType](#))[3]

10.377.3 Constructor & Destructor Documentation

10.377.3.1 [vtkGDCMTesting::vtkGDCMTesting](#) () [protected]

10.377.3.2 [vtkGDCMTesting::~~vtkGDCMTesting](#) () [protected]

10.377.4 Member Function Documentation

10.377.4.1 static const char* [vtkGDCMTesting::GetGDCMDataRoot](#) () [static]

Examples:

[HelloActiviz5.cs](#), and [ReadSeriesIntoVTK.java](#).

10.377.4.2 static const char* const* [vtkGDCMTesting::GetMD5MetaImage](#) (unsigned int *file*) [static]

10.377.4.3 static const char* [vtkGDCMTesting::GetMHDMD5FromFile](#) (const char * *filepath*) [static]

Examples:

[MetaImageMD5Activiz.cs](#).

10.377.4.4 `static unsigned int vtkGDCMTesting::GetNumberOfMD5Metalmages () [static]`

10.377.4.5 `static const char* vtkGDCMTesting::GetRAWMD5FromFile (const char * filepath) [static]`

Examples:

[MetalmageMD5Activiz.cs](#).

10.377.4.6 `static const char* vtkGDCMTesting::GetVTKDataRoot () [static]`

Examples:

[HelloActiviz5.cs](#), and [HelloVTKWorld2.cs](#).

10.377.4.7 `static vtkGDCMTesting* vtkGDCMTesting::New () [static]`

Examples:

[RefCounting.cs](#).

10.377.4.8 `void vtkGDCMTesting::PrintSelf (ostream & os, vtkIndent indent)`

10.377.4.9 `vtkGDCMTesting::vtkTypeMacro (vtkGDCMTesting , vtkObject)`

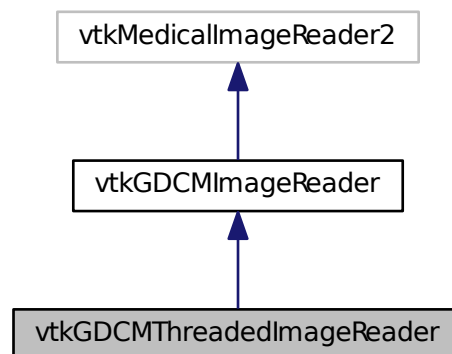
The documentation for this class was generated from the following file:

- [vtkGDCMTesting.h](#)

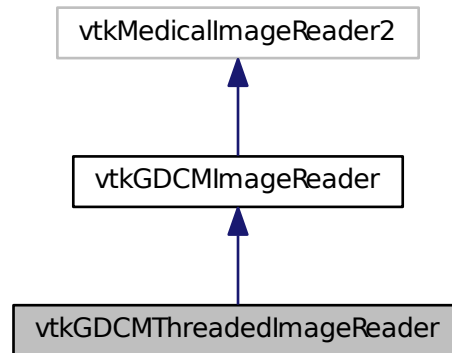
10.378 vtkGDCMThreadedImageReader Class Reference

```
#include <vtkGDCMThreadedImageReader.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader:



Collaboration diagram for `vtkGDCMThreadedImageReader`:



Public Member Functions

- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkBooleanMacro](#) (UseShiftScale, int)
- [vtkGetMacro](#) (UseShiftScale, int)
- [vtkSetMacro](#) (Shift, double)
- [vtkSetMacro](#) (Scale, double)
- [vtkSetMacro](#) (UseShiftScale, int)
- [vtkTypeMacro](#) (vtkGDCMThreadedImageReader, vtkGDCMImageReader)

Static Public Member Functions

- static [vtkGDCMThreadedImageReader](#) * [New](#) ()

Protected Member Functions

- [vtkGDCMThreadedImageReader](#) ()
- [~vtkGDCMThreadedImageReader](#) ()
- void [ExecuteData](#) (vtkDataObject *out)
- void [ExecuteInformation](#) ()
- void [ReadFiles](#) (unsigned int nfiles, const char *filenames[])
- void [RequestDataCompat](#) ()

Additional Inherited Members

10.378.1 Constructor & Destructor Documentation

10.378.1.1 `vtkGDCMThreadedImageReader::vtkGDCMThreadedImageReader ()` [protected]

10.378.1.2 `vtkGDCMThreadedImageReader::~~vtkGDCMThreadedImageReader ()` [protected]

10.378.2 Member Function Documentation

10.378.2.1 `void vtkGDCMThreadedImageReader::ExecuteData (vtkDataObject * out)` [protected]

10.378.2.2 `void vtkGDCMThreadedImageReader::ExecuteInformation ()` [protected]

10.378.2.3 `static vtkGDCMThreadedImageReader* vtkGDCMThreadedImageReader::New ()` [static]

10.378.2.4 `virtual void vtkGDCMThreadedImageReader::PrintSelf (ostream & os, vtkIndent indent)` [virtual]

Reimplemented from [vtkGDCMImageReader](#).

10.378.2.5 `void vtkGDCMThreadedImageReader::ReadFiles (unsigned int nfiles, const char * filenames[])` [protected]

10.378.2.6 `void vtkGDCMThreadedImageReader::RequestDataCompat ()` [protected]

10.378.2.7 `vtkGDCMThreadedImageReader::vtkBooleanMacro (UseShiftScale , int)`

10.378.2.8 `vtkGDCMThreadedImageReader::vtkGetMacro (UseShiftScale , int)`

10.378.2.9 `vtkGDCMThreadedImageReader::vtkSetMacro (Shift , double)`

10.378.2.10 `vtkGDCMThreadedImageReader::vtkSetMacro (Scale , double)`

10.378.2.11 `vtkGDCMThreadedImageReader::vtkSetMacro (UseShiftScale , int)`

10.378.2.12 `vtkGDCMThreadedImageReader::vtkTypeMacro (vtkGDCMThreadedImageReader , vtkGDCMImageReader)`

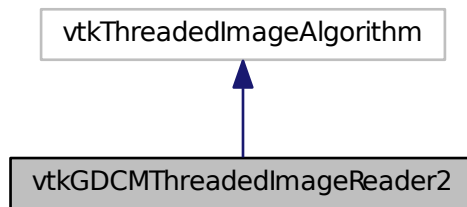
The documentation for this class was generated from the following file:

- [vtkGDCMThreadedImageReader.h](#)

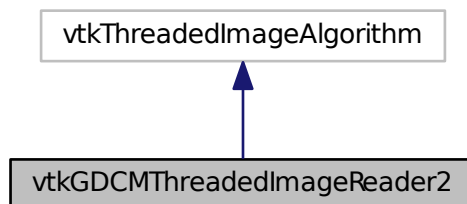
10.379 vtkGDCMThreadedImageReader2 Class Reference

```
#include <vtkGDCMThreadedImageReader2.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader2:



Collaboration diagram for vtkGDCMThreadedImageReader2:



Public Member Functions

- virtual const char * [GetFileName](#) (int i=0)
- virtual void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetFileName](#) (const char *filename)
- virtual void [SetFileNames](#) (vtkStringArray *)
- int [SplitExtent](#) (int splitExt[6], int startExt[6], int num, int total)
- [vtkBooleanMacro](#) (FileLowerLeft, int)
- [vtkBooleanMacro](#) (LoadOverlays, int)
- [vtkBooleanMacro](#) (UseShiftScale, int)
- [vtkGetMacro](#) (FileLowerLeft, int)
- [vtkGetMacro](#) (NumberOfOverlays, int)

- [vtkGetMacro](#) (DataScalarType, int)
- [vtkGetMacro](#) (NumberOfScalarComponents, int)
- [vtkGetMacro](#) (LoadOverlays, int)
- [vtkGetMacro](#) (Shift, double)
- [vtkGetMacro](#) (Scale, double)
- [vtkGetMacro](#) (UseShiftScale, int)
- [vtkGetObjectMacro](#) (FileNames, vtkStringArray)
- [vtkGetVector3Macro](#) (DataOrigin, double)
- [vtkGetVector3Macro](#) (DataSpacing, double)
- [vtkGetVector6Macro](#) (DataExtent, int)
- [vtkSetMacro](#) (FileLowerLeft, int)
- [vtkSetMacro](#) (DataScalarType, int)
- [vtkSetMacro](#) (NumberOfScalarComponents, int)
- [vtkSetMacro](#) (LoadOverlays, int)
- [vtkSetMacro](#) (Shift, double)
- [vtkSetMacro](#) (Scale, double)
- [vtkSetMacro](#) (UseShiftScale, int)
- [vtkSetVector3Macro](#) (DataOrigin, double)
- [vtkSetVector3Macro](#) (DataSpacing, double)
- [vtkSetVector6Macro](#) (DataExtent, int)
- [vtkTypeMacro](#) (vtkGDCMThreadedImageReader2, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static [vtkGDCMThreadedImageReader2 * New](#) ()

Protected Member Functions

- [vtkGDCMThreadedImageReader2](#) ()
- [~vtkGDCMThreadedImageReader2](#) ()
- int [RequestInformation](#) (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- void [ThreadedRequestData](#) (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int outExt[6], int id)

10.379.1 Constructor & Destructor Documentation

10.379.1.1 [vtkGDCMThreadedImageReader2::vtkGDCMThreadedImageReader2](#) () `[protected]`

10.379.1.2 [vtkGDCMThreadedImageReader2::~~vtkGDCMThreadedImageReader2](#) () `[protected]`

10.379.2 Member Function Documentation

10.379.2.1 [virtual const char* vtkGDCMThreadedImageReader2::GetFileName](#) (int *i* = 0) `[virtual]`

- 10.379.2.2 static vtkGDCMThreadedImageReader2* vtkGDCMThreadedImageReader2::New () [static]
- 10.379.2.3 virtual void vtkGDCMThreadedImageReader2::PrintSelf (ostream & os, vtkIndent indent) [virtual]
- 10.379.2.4 int vtkGDCMThreadedImageReader2::RequestInformation (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector) [protected]
- 10.379.2.5 virtual void vtkGDCMThreadedImageReader2::SetFileName (const char * filename) [virtual]
- 10.379.2.6 virtual void vtkGDCMThreadedImageReader2::SetFileNames (vtkStringArray *) [virtual]
- 10.379.2.7 int vtkGDCMThreadedImageReader2::SplitExtent (int splitExt[6], int startExt[6], int num, int total)
- 10.379.2.8 void vtkGDCMThreadedImageReader2::ThreadedRequestData (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector, vtkImageData *** inData, vtkImageData ** outData, int outExt[6], int id) [protected]
- 10.379.2.9 vtkGDCMThreadedImageReader2::vtkBooleanMacro (FileLowerLeft , int)
- 10.379.2.10 vtkGDCMThreadedImageReader2::vtkBooleanMacro (LoadOverlays , int)
- 10.379.2.11 vtkGDCMThreadedImageReader2::vtkBooleanMacro (UseShiftScale , int)
- 10.379.2.12 vtkGDCMThreadedImageReader2::vtkGetMacro (FileLowerLeft , int)
- 10.379.2.13 vtkGDCMThreadedImageReader2::vtkGetMacro (NumberOfOverlays , int)
- 10.379.2.14 vtkGDCMThreadedImageReader2::vtkGetMacro (DataScalarType , int)
- 10.379.2.15 vtkGDCMThreadedImageReader2::vtkGetMacro (NumberOfScalarComponents , int)
- 10.379.2.16 vtkGDCMThreadedImageReader2::vtkGetMacro (LoadOverlays , int)
- 10.379.2.17 vtkGDCMThreadedImageReader2::vtkGetMacro (Shift , double)
- 10.379.2.18 vtkGDCMThreadedImageReader2::vtkGetMacro (Scale , double)
- 10.379.2.19 vtkGDCMThreadedImageReader2::vtkGetMacro (UseShiftScale , int)
- 10.379.2.20 vtkGDCMThreadedImageReader2::vtkGetObjectMacro (FileNames , vtkStringArray)
- 10.379.2.21 vtkGDCMThreadedImageReader2::vtkGetVector3Macro (DataOrigin , double)

- 10.379.2.22 `vtkGDCMThreadedImageReader2::vtkGetVector3Macro (DataSpacing , double)`
- 10.379.2.23 `vtkGDCMThreadedImageReader2::vtkGetVector6Macro (DataExtent , int)`
- 10.379.2.24 `vtkGDCMThreadedImageReader2::vtkSetMacro (FileLowerLeft , int)`
- 10.379.2.25 `vtkGDCMThreadedImageReader2::vtkSetMacro (DataScalarType , int)`
- 10.379.2.26 `vtkGDCMThreadedImageReader2::vtkSetMacro (NumberOfScalarComponents , int)`
- 10.379.2.27 `vtkGDCMThreadedImageReader2::vtkSetMacro (LoadOverlays , int)`
- 10.379.2.28 `vtkGDCMThreadedImageReader2::vtkSetMacro (Shift , double)`
- 10.379.2.29 `vtkGDCMThreadedImageReader2::vtkSetMacro (Scale , double)`
- 10.379.2.30 `vtkGDCMThreadedImageReader2::vtkSetMacro (UseShiftScale , int)`
- 10.379.2.31 `vtkGDCMThreadedImageReader2::vtkSetVector3Macro (DataOrigin , double)`
- 10.379.2.32 `vtkGDCMThreadedImageReader2::vtkSetVector3Macro (DataSpacing , double)`
- 10.379.2.33 `vtkGDCMThreadedImageReader2::vtkSetVector6Macro (DataExtent , int)`
- 10.379.2.34 `vtkGDCMThreadedImageReader2::vtkTypeMacro (vtkGDCMThreadedImageReader2 ,
vtkThreadedImageAlgorithm)`

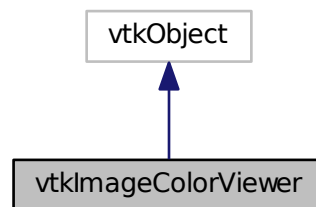
The documentation for this class was generated from the following file:

- [vtkGDCMThreadedImageReader2.h](#)

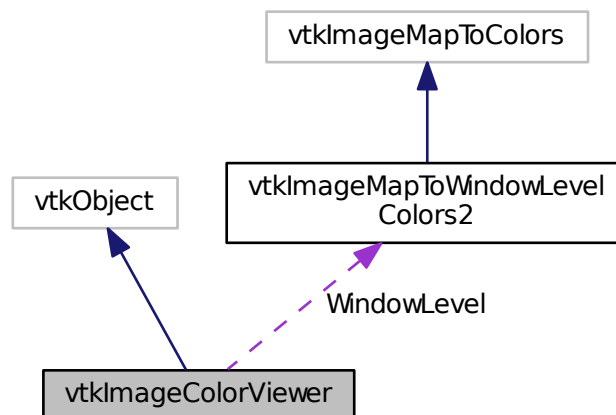
10.380 vtkImageColorViewer Class Reference

```
#include <vtkImageColorViewer.h>
```

Inheritance diagram for vtkImageColorViewer:



Collaboration diagram for vtkImageColorViewer:



Public Types

- enum {
 SLICE_ORIENTATION_YZ = 0,
 SLICE_ORIENTATION_XZ = 1,
 SLICE_ORIENTATION_XY = 2 }

Public Member Functions

- virtual void [AddInput](#) (vtkImageData *input)
- virtual void [AddInputConnection](#) (vtkAlgorithmOutput *input)
- virtual double [GetColorLevel](#) ()
- virtual double [GetColorWindow](#) ()
- virtual vtkImageData * [GetInput](#) ()
- virtual int [GetOffScreenRendering](#) ()
- double [GetOverlayVisibility](#) ()
- virtual int * [GetPosition](#) ()
- virtual int * [GetSize](#) ()
- virtual int [GetSliceMax](#) ()
- virtual int [GetSliceMin](#) ()
- virtual void [GetSliceRange](#) (int range[2])
- virtual void [GetSliceRange](#) (int &min, int &max)
- virtual int * [GetSliceRange](#) ()
- virtual const char * [GetWindowName](#) ()
- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [Render](#) (void)
- virtual void [SetColorLevel](#) (double s)
- virtual void [SetColorWindow](#) (double s)
- virtual void [SetDisplayId](#) (void *a)
- virtual void [SetInput](#) (vtkImageData *in)
- virtual void [SetInputConnection](#) (vtkAlgorithmOutput *input)
- virtual void [SetOffScreenRendering](#) (int)
- void [SetOverlayVisibility](#) (double vis)
- virtual void [SetParentId](#) (void *a)
- virtual void [SetPosition](#) (int a, int b)
- virtual void [SetPosition](#) (int a[2])
- virtual void [SetRenderer](#) (vtkRenderer *arg)
- virtual void [SetRenderWindow](#) (vtkRenderWindow *arg)
- virtual void [SetSize](#) (int a, int b)
- virtual void [SetSize](#) (int a[2])
- virtual void [SetSlice](#) (int s)
- virtual void [SetSliceOrientation](#) (int orientation)
- virtual void [SetSliceOrientationToXY](#) ()
- virtual void [SetSliceOrientationToXZ](#) ()
- virtual void [SetSliceOrientationToYZ](#) ()
- virtual void [SetupInteractor](#) (vtkRenderWindowInteractor *)
- virtual void [SetWindowId](#) (void *a)
- virtual void [UpdateDisplayExtent](#) ()
- [VTK_LEGACY](#) (int GetWholeZMin())
- [VTK_LEGACY](#) (int GetWholeZMax())
- [VTK_LEGACY](#) (int GetZSlice())
- [VTK_LEGACY](#) (void SetZSlice(int))
- [vtkBooleanMacro](#) (OffScreenRendering, int)
- [vtkGetMacro](#) (SliceOrientation, int)
- [vtkGetMacro](#) (Slice, int)
- [vtkGetObjectMacro](#) (RenderWindow, vtkRenderWindow)
- [vtkGetObjectMacro](#) (Renderer, vtkRenderer)
- [vtkGetObjectMacro](#) (ImageActor, vtkImageActor)
- [vtkGetObjectMacro](#) (WindowLevel, vtkImageMapToWindowLevelColors2)
- [vtkGetObjectMacro](#) (InteractorStyle, vtkInteractorStyleImage)
- [vtkTypeMacro](#) (vtkImageColorViewer, vtkObject)

Static Public Member Functions

- static [vtkImageColorViewer](#) * [New](#) ()

Protected Member Functions

- [vtkImageColorViewer](#) ()
- [~vtkImageColorViewer](#) ()
- virtual void [InstallPipeline](#) ()
- virtual void [UnInstallPipeline](#) ()
- virtual void [UpdateOrientation](#) ()

Protected Attributes

- int [FirstRender](#)
- vtkImageActor * [ImageActor](#)
- vtkRenderWindowInteractor * [Interactor](#)
- vtkInteractorStyleImage * [InteractorStyle](#)
- vtkImageActor * [OverlayImageActor](#)
- vtkRenderer * [Renderer](#)
- vtkRenderWindow * [RenderWindow](#)
- int [Slice](#)
- int [SliceOrientation](#)
- [vtkImageMapToWindowLevelColors2](#) * [WindowLevel](#)

Friends

- class [vtkImageColorViewerCallback](#)

10.380.1 Detailed Description

Examples:

[gdcmrtonplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.2 Member Enumeration Documentation

10.380.2.1 anonymous enum

Enumerator

SLICE_ORIENTATION_YZ
SLICE_ORIENTATION_XZ
SLICE_ORIENTATION_XY

10.380.3 Constructor & Destructor Documentation

10.380.3.1 `vtkImageColorViewer::vtkImageColorViewer ()` [protected]

10.380.3.2 `vtkImageColorViewer::~~vtkImageColorViewer ()` [protected]

10.380.4 Member Function Documentation

10.380.4.1 `virtual void vtkImageColorViewer::AddInput (vtkImageData * input)` [virtual]

10.380.4.2 `virtual void vtkImageColorViewer::AddInputConnection (vtkAlgorithmOutput * input)` [virtual]

10.380.4.3 `virtual double vtkImageColorViewer::GetColorLevel ()` [virtual]

10.380.4.4 `virtual double vtkImageColorViewer::GetColorWindow ()` [virtual]

10.380.4.5 `virtual vtkImageData* vtkImageColorViewer::GetInput ()` [virtual]

10.380.4.6 `virtual int vtkImageColorViewer::GetOffScreenRendering ()` [virtual]

10.380.4.7 `double vtkImageColorViewer::GetOverlayVisibility ()`

10.380.4.8 `virtual int* vtkImageColorViewer::GetPosition ()` [virtual]

10.380.4.9 `virtual int* vtkImageColorViewer::GetSize ()` [virtual]

10.380.4.10 `virtual int vtkImageColorViewer::GetSliceMax ()` [virtual]

10.380.4.11 `virtual int vtkImageColorViewer::GetSliceMin ()` [virtual]

10.380.4.12 `virtual void vtkImageColorViewer::GetSliceRange (int range[2])` [inline],[virtual]

10.380.4.13 `virtual void vtkImageColorViewer::GetSliceRange (int & min, int & max)` [virtual]

10.380.4.14 `virtual int* vtkImageColorViewer::GetSliceRange ()` [virtual]

10.380.4.15 `virtual const char* vtkImageColorViewer::GetWindowName ()` [virtual]

10.380.4.16 `virtual void vtkImageColorViewer::InstallPipeline ()` [protected],[virtual]

10.380.4.17 `static vtkImageColorViewer* vtkImageColorViewer::New ()` [static]

Examples:

[gdcmrtonplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.4.18 `void vtkImageColorViewer::PrintSelf (ostream & os, vtkIndent indent)`

10.380.4.19 `virtual void vtkImageColorViewer::Render (void)` [virtual]

Examples:

[gdcmrptionplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.4.20 `virtual void vtkImageColorViewer::SetColorLevel (double s)` [virtual]

10.380.4.21 `virtual void vtkImageColorViewer::SetColorWindow (double s)` [virtual]

10.380.4.22 `virtual void vtkImageColorViewer::SetDisplayId (void * a)` [virtual]

10.380.4.23 `virtual void vtkImageColorViewer::SetInput (vtkImageData * in)` [virtual]

Examples:

[gdcmrptionplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.4.24 `virtual void vtkImageColorViewer::SetInputConnection (vtkAlgorithmOutput * input)` [virtual]

10.380.4.25 `virtual void vtkImageColorViewer::SetOffScreenRendering (int)` [virtual]

10.380.4.26 `void vtkImageColorViewer::SetOverlayVisibility (double vis)`

10.380.4.27 `virtual void vtkImageColorViewer::SetParentId (void * a)` [virtual]

10.380.4.28 `virtual void vtkImageColorViewer::SetPosition (int a, int b)` [virtual]

10.380.4.29 `virtual void vtkImageColorViewer::SetPosition (int a[2])` [inline],[virtual]

References `SetPosition()`.

Referenced by `SetPosition()`.

10.380.4.30 `virtual void vtkImageColorViewer::SetRenderer (vtkRenderer * arg)` [virtual]

10.380.4.31 `virtual void vtkImageColorViewer::SetRenderWindow (vtkRenderWindow * arg)` [virtual]

10.380.4.32 `virtual void vtkImageColorViewer::SetSize (int a, int b)` [virtual]

Examples:

[gdcmrptionplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.4.33 `virtual void vtkImageColorViewer::SetSize (int a[2])` `[inline],[virtual]`

References `SetSize()`.

Referenced by `SetSize()`.

10.380.4.34 `virtual void vtkImageColorViewer::SetSlice (int s)` `[virtual]`

10.380.4.35 `virtual void vtkImageColorViewer::SetSliceOrientation (int orientation)` `[virtual]`

10.380.4.36 `virtual void vtkImageColorViewer::SetSliceOrientationToXY ()` `[inline],[virtual]`

References `SLICE_ORIENTATION_XY`.

10.380.4.37 `virtual void vtkImageColorViewer::SetSliceOrientationToXZ ()` `[inline],[virtual]`

References `SLICE_ORIENTATION_XZ`.

10.380.4.38 `virtual void vtkImageColorViewer::SetSliceOrientationToYZ ()` `[inline],[virtual]`

References `SLICE_ORIENTATION_YZ`.

10.380.4.39 `virtual void vtkImageColorViewer::SetupInteractor (vtkRenderWindowInteractor *)` `[virtual]`

Examples:

[gdcmrionplan.cxx](#), and [gdcmrtpplan.cxx](#).

10.380.4.40 `virtual void vtkImageColorViewer::SetWindowId (void * a)` `[virtual]`

10.380.4.41 `virtual void vtkImageColorViewer::UninstallPipeline ()` `[protected],[virtual]`

10.380.4.42 `virtual void vtkImageColorViewer::UpdateDisplayExtent ()` `[virtual]`

10.380.4.43 `virtual void vtkImageColorViewer::UpdateOrientation ()` `[protected],[virtual]`

10.380.4.44 `vtkImageColorViewer::VTK_LEGACY (int GetWholeZMin())`

10.380.4.45 `vtkImageColorViewer::VTK_LEGACY (int GetWholeZMax())`

- 10.380.4.46 `vtkImageColorViewer::VTK_LEGACY (int GetZSlice())`
- 10.380.4.47 `vtkImageColorViewer::VTK_LEGACY (void SetZSliceint)`
- 10.380.4.48 `vtkImageColorViewer::vtkBooleanMacro (OffScreenRendering , int)`
- 10.380.4.49 `vtkImageColorViewer::vtkGetMacro (SliceOrientation , int)`
- 10.380.4.50 `vtkImageColorViewer::vtkGetMacro (Slice , int)`
- 10.380.4.51 `vtkImageColorViewer::vtkGetObjectMacro (RenderWindow , vtkRenderWindow)`
- 10.380.4.52 `vtkImageColorViewer::vtkGetObjectMacro (Renderer , vtkRenderer)`
- 10.380.4.53 `vtkImageColorViewer::vtkGetObjectMacro (ImageActor , vtkImageActor)`
- 10.380.4.54 `vtkImageColorViewer::vtkGetObjectMacro (WindowLevel , vtkImageMapToWindowLevelColors2)`
- 10.380.4.55 `vtkImageColorViewer::vtkGetObjectMacro (InteractorStyle , vtkInteractorStyleImage)`
- 10.380.4.56 `vtkImageColorViewer::vtkTypeMacro (vtkImageColorViewer , vtkObject)`

10.380.5 Friends And Related Function Documentation

- 10.380.5.1 `friend class vtkImageColorViewerCallback` [friend]

10.380.6 Member Data Documentation

- 10.380.6.1 `int vtkImageColorViewer::FirstRender` [protected]
- 10.380.6.2 `vtkImageActor* vtkImageColorViewer::ImageActor` [protected]
- 10.380.6.3 `vtkRenderWindowInteractor* vtkImageColorViewer::Interactor` [protected]
- 10.380.6.4 `vtkInteractorStyleImage* vtkImageColorViewer::InteractorStyle` [protected]
- 10.380.6.5 `vtkImageActor* vtkImageColorViewer::OverlayImageActor` [protected]
- 10.380.6.6 `vtkRenderer* vtkImageColorViewer::Renderer` [protected]
- 10.380.6.7 `vtkRenderWindow* vtkImageColorViewer::RenderWindow` [protected]
- 10.380.6.8 `int vtkImageColorViewer::Slice` [protected]
- 10.380.6.9 `int vtkImageColorViewer::SliceOrientation` [protected]
- 10.380.6.10 `vtkImageMapToWindowLevelColors2* vtkImageColorViewer::WindowLevel` [protected]

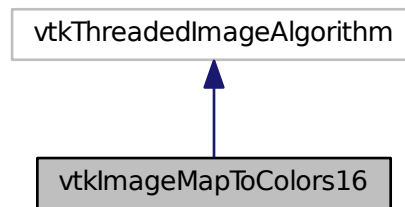
The documentation for this class was generated from the following file:

- [vtkImageColorViewer.h](#)

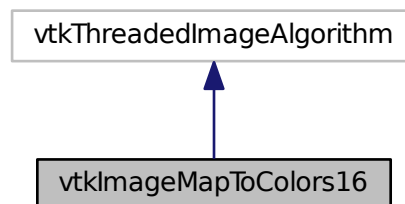
10.381 vtkImageMapToColors16 Class Reference

```
#include <vtkImageMapToColors16.h>
```

Inheritance diagram for vtkImageMapToColors16:



Collaboration diagram for vtkImageMapToColors16:



Public Member Functions

- virtual unsigned long [GetMTime](#) ()
- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- virtual void [SetLookupTable](#) (vtkScalarsToColors *)
- void [SetOutputFormatToLuminance](#) ()
- void [SetOutputFormatToLuminanceAlpha](#) ()
- void [SetOutputFormatToRGB](#) ()
- void [SetOutputFormatToRGBA](#) ()
- [vtkBooleanMacro](#) ([PassAlphaToOutput](#), int)
- [vtkGetMacro](#) ([OutputFormat](#), int)
- [vtkGetMacro](#) ([ActiveComponent](#), int)

- [vtkGetMacro](#) ([PassAlphaToOutput](#), int)
- [vtkGetObjectMacro](#) ([LookupTable](#), [vtkScalarsToColors](#))
- [vtkSetMacro](#) ([OutputFormat](#), int)
- [vtkSetMacro](#) ([ActiveComponent](#), int)
- [vtkSetMacro](#) ([PassAlphaToOutput](#), int)
- [vtkTypeMacro](#) ([vtkImageMapToColors16](#), [vtkThreadedImageAlgorithm](#))

Static Public Member Functions

- static [vtkImageMapToColors16](#) * [New](#) ()

Protected Member Functions

- [vtkImageMapToColors16](#) ()
- [~vtkImageMapToColors16](#) ()
- virtual int [RequestData](#) ([vtkInformation](#) *request, [vtkInformationVector](#) **inputVector, [vtkInformationVector](#) *outputVector)
- virtual int [RequestInformation](#) ([vtkInformation](#) *, [vtkInformationVector](#) **, [vtkInformationVector](#) *)
- void [ThreadedRequestData](#) ([vtkInformation](#) *request, [vtkInformationVector](#) **inputVector, [vtkInformationVector](#) *outputVector, [vtkImageData](#) ***inData, [vtkImageData](#) **outData, int extent[6], int id)

Protected Attributes

- int [ActiveComponent](#)
- int [DataWasPassed](#)
- [vtkScalarsToColors](#) * [LookupTable](#)
- int [OutputFormat](#)
- int [PassAlphaToOutput](#)

10.381.1 Constructor & Destructor Documentation

10.381.1.1 [vtkImageMapToColors16::vtkImageMapToColors16](#) () [[protected](#)]

10.381.1.2 [vtkImageMapToColors16::~~vtkImageMapToColors16](#) () [[protected](#)]

10.381.2 Member Function Documentation

10.381.2.1 virtual unsigned long [vtkImageMapToColors16::GetMTime](#) () [[virtual](#)]

10.381.2.2 static [vtkImageMapToColors16](#)* [vtkImageMapToColors16::New](#) () [[static](#)]

10.381.2.3 void [vtkImageMapToColors16::PrintSelf](#) (ostream & os, [vtkIndent](#) indent)

- 10.381.2.4 `virtual int vtkImageMapToColors16::RequestData (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector)` [protected],[virtual]
- 10.381.2.5 `virtual int vtkImageMapToColors16::RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)` [protected],[virtual]
- 10.381.2.6 `virtual void vtkImageMapToColors16::SetLookupTable (vtkScalarsToColors *)` [virtual]
- 10.381.2.7 `void vtkImageMapToColors16::SetOutputFormatToLuminance ()` [inline]
- 10.381.2.8 `void vtkImageMapToColors16::SetOutputFormatToLuminanceAlpha ()` [inline]
- 10.381.2.9 `void vtkImageMapToColors16::SetOutputFormatToRGB ()` [inline]
- 10.381.2.10 `void vtkImageMapToColors16::SetOutputFormatToRGBA ()` [inline]
- 10.381.2.11 `void vtkImageMapToColors16::ThreadedRequestData (vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector, vtkImageData *** inData, vtkImageData ** outData, int extent[6], int id)` [protected]
- 10.381.2.12 `vtkImageMapToColors16::vtkBooleanMacro (PassAlphaToOutput , int)`
- 10.381.2.13 `vtkImageMapToColors16::vtkGetMacro (OutputFormat , int)`
- 10.381.2.14 `vtkImageMapToColors16::vtkGetMacro (ActiveComponent , int)`
- 10.381.2.15 `vtkImageMapToColors16::vtkGetMacro (PassAlphaToOutput , int)`
- 10.381.2.16 `vtkImageMapToColors16::vtkGetObjectMacro (LookupTable , vtkScalarsToColors)`
- 10.381.2.17 `vtkImageMapToColors16::vtkSetMacro (OutputFormat , int)`
- 10.381.2.18 `vtkImageMapToColors16::vtkSetMacro (ActiveComponent , int)`
- 10.381.2.19 `vtkImageMapToColors16::vtkSetMacro (PassAlphaToOutput , int)`
- 10.381.2.20 `vtkImageMapToColors16::vtkTypeMacro (vtkImageMapToColors16 , vtkThreadedImageAlgorithm)`

10.381.3 Member Data Documentation

- 10.381.3.1 `int vtkImageMapToColors16::ActiveComponent` [protected]
- 10.381.3.2 `int vtkImageMapToColors16::DataWasPassed` [protected]
- 10.381.3.3 `vtkScalarsToColors* vtkImageMapToColors16::LookupTable` [protected]
- 10.381.3.4 `int vtkImageMapToColors16::OutputFormat` [protected]
- 10.381.3.5 `int vtkImageMapToColors16::PassAlphaToOutput` [protected]

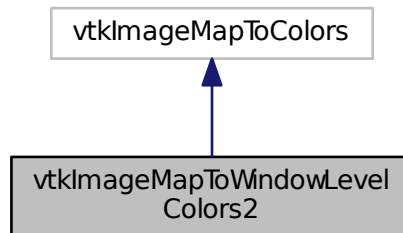
The documentation for this class was generated from the following file:

- [vtkImageMapToColors16.h](#)

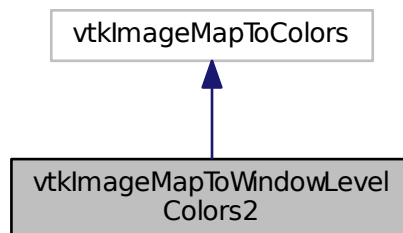
10.382 vtkImageMapToWindowLevelColors2 Class Reference

```
#include <vtkImageMapToWindowLevelColors2.h>
```

Inheritance diagram for vtkImageMapToWindowLevelColors2:



Collaboration diagram for vtkImageMapToWindowLevelColors2:



Public Member Functions

- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkGetMacro](#) (Window, double)
- [vtkGetMacro](#) (Level, double)
- [vtkSetMacro](#) (Window, double)
- [vtkSetMacro](#) (Level, double)
- [vtkTypeMacro](#) (vtkImageMapToWindowLevelColors2, vtkImageMapToColors)

Static Public Member Functions

- static [vtkImageMapToWindowLevelColors2](#) * [New](#) ()

Protected Member Functions

- [vtkImageMapToWindowLevelColors2](#) ()
- [~vtkImageMapToWindowLevelColors2](#) ()
- virtual int [RequestData](#) (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int [RequestInformation](#) (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void [ThreadedRequestData](#) (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- double [Level](#)
- double [Window](#)

10.382.1 Constructor & Destructor Documentation

10.382.1.1 [vtkImageMapToWindowLevelColors2::vtkImageMapToWindowLevelColors2 \(\)](#) [protected]

10.382.1.2 [vtkImageMapToWindowLevelColors2::~~vtkImageMapToWindowLevelColors2 \(\)](#) [protected]

10.382.2 Member Function Documentation

10.382.2.1 [static vtkImageMapToWindowLevelColors2* vtkImageMapToWindowLevelColors2::New \(\)](#) [static]

10.382.2.2 [void vtkImageMapToWindowLevelColors2::PrintSelf \(ostream & os, vtkIndent indent \)](#)

10.382.2.3 [virtual int vtkImageMapToWindowLevelColors2::RequestData \(vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector \)](#) [protected], [virtual]

10.382.2.4 [virtual int vtkImageMapToWindowLevelColors2::RequestInformation \(vtkInformation *, vtkInformationVector **, vtkInformationVector * \)](#) [protected], [virtual]

10.382.2.5 [void vtkImageMapToWindowLevelColors2::ThreadedRequestData \(vtkInformation * request, vtkInformationVector ** inputVector, vtkInformationVector * outputVector, vtkImageData *** inData, vtkImageData ** outData, int extent\[6\], int id \)](#) [protected]

10.382.2.6 [vtkImageMapToWindowLevelColors2::vtkGetMacro \(Window , double \)](#)

10.382.2.7 `vtkImageMapToWindowLevelColors2::vtkGetMacro (Level , double)`

10.382.2.8 `vtkImageMapToWindowLevelColors2::vtkSetMacro (Window , double)`

10.382.2.9 `vtkImageMapToWindowLevelColors2::vtkSetMacro (Level , double)`

10.382.2.10 `vtkImageMapToWindowLevelColors2::vtkTypeMacro (vtkImageMapToWindowLevelColors2 ,
vtkImageMapToColors)`

10.382.3 Member Data Documentation

10.382.3.1 `double vtkImageMapToWindowLevelColors2::Level` `[protected]`

10.382.3.2 `double vtkImageMapToWindowLevelColors2::Window` `[protected]`

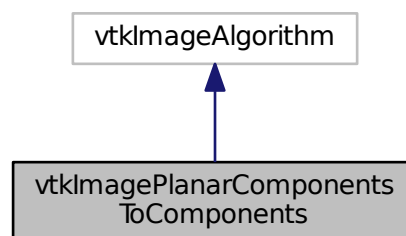
The documentation for this class was generated from the following file:

- [vtkImageMapToWindowLevelColors2.h](#)

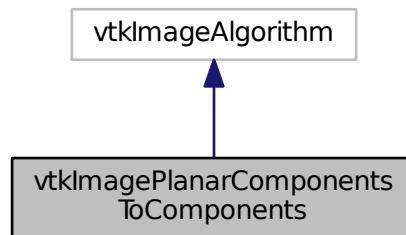
10.383 vtkImagePlanarComponentsToComponents Class Reference

```
#include <vtkImagePlanarComponentsToComponents.h>
```

Inheritance diagram for `vtkImagePlanarComponentsToComponents`:



Collaboration diagram for vtkImagePlanarComponentsToComponents:



Public Member Functions

- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkTypeMacro](#) ([vtkImagePlanarComponentsToComponents](#), vtkImageAlgorithm)

Static Public Member Functions

- static [vtkImagePlanarComponentsToComponents](#) * [New](#) ()

Protected Member Functions

- [vtkImagePlanarComponentsToComponents](#) ()
- [~vtkImagePlanarComponentsToComponents](#) ()
- virtual int [RequestData](#) (vtkInformation *, vtkInformationVector **, vtkInformationVector *)

10.383.1 Constructor & Destructor Documentation

10.383.1.1 `vtkImagePlanarComponentsToComponents::vtkImagePlanarComponentsToComponents ()` [protected]

10.383.1.2 `vtkImagePlanarComponentsToComponents::~~vtkImagePlanarComponentsToComponents ()` [inline], [protected]

10.383.2 Member Function Documentation

10.383.2.1 `static vtkImagePlanarComponentsToComponents* vtkImagePlanarComponentsToComponents::New ()` [static]

10.383.2.2 `void vtkImagePlanarComponentsToComponents::PrintSelf (ostream & os, vtkIndent indent)`

10.383.2.3 `virtual int vtkImagePlanarComponentsToComponents::RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)` [protected],[virtual]

10.383.2.4 `vtkImagePlanarComponentsToComponents::vtkTypeMacro (vtkImagePlanarComponentsToComponents , vtkImageAlgorithm)`

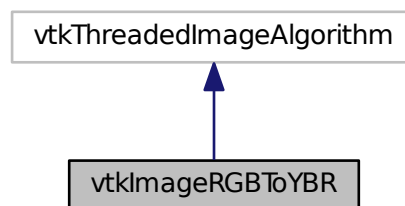
The documentation for this class was generated from the following file:

- [vtkImagePlanarComponentsToComponents.h](#)

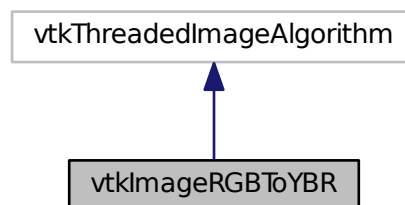
10.384 vtkImageRGBToYBR Class Reference

```
#include <vtkImageRGBToYBR.h>
```

Inheritance diagram for vtkImageRGBToYBR:



Collaboration diagram for vtkImageRGBToYBR:



Public Member Functions

- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkTypeMacro](#) (vtkImageRGBToYBR, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static [vtkImageRGBToYBR * New](#) ()

Protected Member Functions

- [vtkImageRGBToYBR](#) ()
- [~vtkImageRGBToYBR](#) ()
- void [ThreadedExecute](#) (vtkImageData *inData, vtkImageData *outData, int ext[6], int id)

10.384.1 Constructor & Destructor Documentation

10.384.1.1 [vtkImageRGBToYBR::vtkImageRGBToYBR \(\)](#) [protected]

10.384.1.2 [vtkImageRGBToYBR::~~vtkImageRGBToYBR \(\)](#) [inline], [protected]

10.384.2 Member Function Documentation

10.384.2.1 [static vtkImageRGBToYBR* vtkImageRGBToYBR::New \(\)](#) [static]

10.384.2.2 [void vtkImageRGBToYBR::PrintSelf \(ostream & os, vtkIndent indent \)](#)

10.384.2.3 [void vtkImageRGBToYBR::ThreadedExecute \(vtkImageData * inData, vtkImageData * outData, int ext\[6\], int id \)](#)
[protected]

10.384.2.4 [vtkImageRGBToYBR::vtkTypeMacro \(vtkImageRGBToYBR , vtkThreadedImageAlgorithm \)](#)

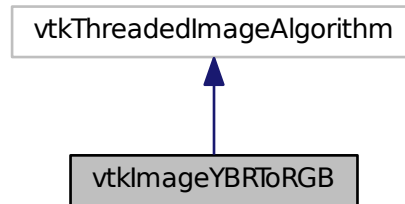
The documentation for this class was generated from the following file:

- [vtkImageRGBToYBR.h](#)

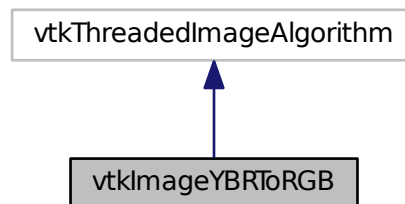
10.385 vtkImageYBRToRGB Class Reference

```
#include <vtkImageYBRToRGB.h>
```

Inheritance diagram for vtkImageYBRToRGB:



Collaboration diagram for vtkImageYBRToRGB:



Public Member Functions

- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkTypeMacro](#) ([vtkImageYBRToRGB](#), vtkThreadedImageAlgorithm)

Static Public Member Functions

- static [vtkImageYBRToRGB * New](#) ()

Protected Member Functions

- [vtkImageYBRToRGB](#) ()
- [~vtkImageYBRToRGB](#) ()
- void [ThreadedExecute](#) (vtkImageData *inData, vtkImageData *outData, int ext[6], int id)

10.385.1 Constructor & Destructor Documentation

10.385.1.1 `vtkImageYBRToRGB::vtkImageYBRToRGB ()` [protected]

10.385.1.2 `vtkImageYBRToRGB::~~vtkImageYBRToRGB ()` [inline], [protected]

10.385.2 Member Function Documentation

10.385.2.1 `static vtkImageYBRToRGB* vtkImageYBRToRGB::New ()` [static]

10.385.2.2 `void vtkImageYBRToRGB::PrintSelf (ostream & os, vtkIndent indent)`

10.385.2.3 `void vtkImageYBRToRGB::ThreadedExecute (vtkImageData * inData, vtkImageData * outData, int ext[6], int id)`
[protected]

10.385.2.4 `vtkImageYBRToRGB::vtkTypeMacro (vtkImageYBRToRGB , vtkThreadedImageAlgorithm)`

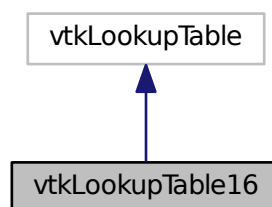
The documentation for this class was generated from the following file:

- [vtkImageYBRToRGB.h](#)

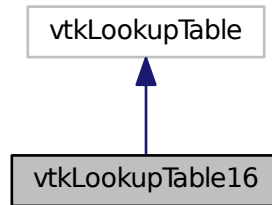
10.386 vtkLookupTable16 Class Reference

```
#include <vtkLookupTable16.h>
```

Inheritance diagram for vtkLookupTable16:



Collaboration diagram for vtkLookupTable16:



Public Member Functions

- void [Build](#) ()
- unsigned short * [GetPointer](#) (const vtkIdType id)
- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- void [SetNumberOfTableValues](#) (vtkIdType number)
- [vtkTypeMacro](#) ([vtkLookupTable16](#), vtkLookupTable)
- unsigned char * [WritePointer](#) (const vtkIdType id, const int number)

Static Public Member Functions

- static [vtkLookupTable16](#) * [New](#) ()

Protected Member Functions

- [vtkLookupTable16](#) (int size=256, int ext=256)
- [~vtkLookupTable16](#) ()
- void [MapScalarsThroughTable2](#) (void *input, unsigned char *output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)

Protected Attributes

- vtkUnsignedShortArray * [Table16](#)

10.386.1 Constructor & Destructor Documentation

10.386.1.1 `vtkLookupTable16::vtkLookupTable16 (int size = 256, int ext = 256)` `[protected]`

10.386.1.2 `vtkLookupTable16::~~vtkLookupTable16 ()` `[protected]`

10.386.2 Member Function Documentation

10.386.2.1 `void vtkLookupTable16::Build ()`

10.386.2.2 `unsigned short* vtkLookupTable16::GetPointer (const vtkIdType id)` `[inline]`

10.386.2.3 `void vtkLookupTable16::MapScalarsThroughTable2 (void * input, unsigned char * output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)` `[protected]`

10.386.2.4 `static vtkLookupTable16* vtkLookupTable16::New ()` `[static]`

10.386.2.5 `void vtkLookupTable16::PrintSelf (ostream & os, vtkIndent indent)`

10.386.2.6 `void vtkLookupTable16::SetNumberOfTableValues (vtkIdType number)`

10.386.2.7 `vtkLookupTable16::vtkTypeMacro (vtkLookupTable16 , vtkLookupTable)`

10.386.2.8 `unsigned char * vtkLookupTable16::WritePointer (const vtkIdType id, const int number)` `[inline]`

10.386.3 Member Data Documentation

10.386.3.1 `vtkUnsignedShortArray* vtkLookupTable16::Table16` `[protected]`

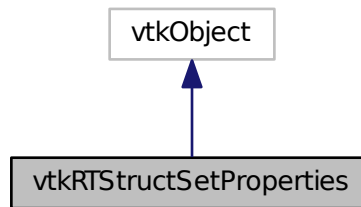
The documentation for this class was generated from the following file:

- [vtkLookupTable16.h](#)

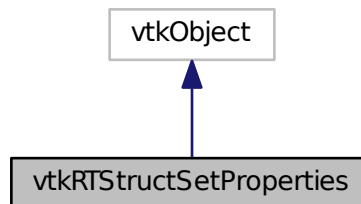
10.387 vtkRTStructSetProperties Class Reference

```
#include <vtkRTStructSetProperties.h>
```

Inheritance diagram for vtkRTStructSetProperties:



Collaboration diagram for vtkRTStructSetProperties:



Public Member Functions

- void [AddContourReferencedFrameOfReference](#) (vtkIdType pdnum, const char *classuid, const char *instanceuid)
- void [AddReferencedFrameOfReference](#) (const char *classuid, const char *instanceuid)
- void [AddStructureSetROI](#) (int roinumber, const char *reframerefid, const char *roiname, const char *ROI↔
GenerationAlgorithm, const char *ROIDescription=0)
- void [AddStructureSetROIObservation](#) (int refnumber, int observationnumber, const char *rtroiinterpretedtype,
const char *roiinterpreter, const char *roiobservationlabel=0)
- virtual void [Clear](#) ()
- virtual void [DeepCopy](#) (vtkRTStructSetProperties *p)
- const char * [GetContourReferencedFrameOfReferenceClassUID](#) (vtkIdType pdnum, vtkIdType id)
- const char * [GetContourReferencedFrameOfReferenceInstanceUID](#) (vtkIdType pdnum, vtkIdType id)

- vtkIdType [GetNumberOfContourReferencedFrameOfReferences](#) ()
- vtkIdType [GetNumberOfContourReferencedFrameOfReferences](#) (vtkIdType pdnum)
- vtkIdType [GetNumberOfReferencedFrameOfReferences](#) ()
- vtkIdType [GetNumberOfStructureSetROIs](#) ()
- const char * [GetReferencedFrameOfReferenceClassUID](#) (vtkIdType id)
- const char * [GetReferencedFrameOfReferenceInstanceUID](#) (vtkIdType id)
- int [GetStructureSetObservationNumber](#) (vtkIdType id)
- const char * [GetStructureSetROIDescription](#) (vtkIdType id)
- const char * [GetStructureSetROIGenerationAlgorithm](#) (vtkIdType)
- const char * [GetStructureSetROIName](#) (vtkIdType)
- int [GetStructureSetROINumber](#) (vtkIdType id)
- const char * [GetStructureSetROIObservationLabel](#) (vtkIdType id)
- const char * [GetStructureSetROIRefFrameRefUID](#) (vtkIdType)
- const char * [GetStructureSetRTROIInterpretedType](#) (vtkIdType id)
- void [PrintSelf](#) (ostream &os, vtkIndent indent)
- [vtkGetStringMacro](#) (StructureSetLabel)
- [vtkGetStringMacro](#) (StructureSetName)
- [vtkGetStringMacro](#) (StructureSetDate)
- [vtkGetStringMacro](#) (StructureSetTime)
- [vtkGetStringMacro](#) (SOPInstanceUID)
- [vtkGetStringMacro](#) (StudyInstanceUID)
- [vtkGetStringMacro](#) (SeriesInstanceUID)
- [vtkGetStringMacro](#) (ReferenceSeriesInstanceUID)
- [vtkGetStringMacro](#) (ReferenceFrameOfReferenceUID)
- [vtkSetStringMacro](#) (StructureSetLabel)
- [vtkSetStringMacro](#) (StructureSetName)
- [vtkSetStringMacro](#) (StructureSetDate)
- [vtkSetStringMacro](#) (StructureSetTime)
- [vtkSetStringMacro](#) (SOPInstanceUID)
- [vtkSetStringMacro](#) (StudyInstanceUID)
- [vtkSetStringMacro](#) (SeriesInstanceUID)
- [vtkSetStringMacro](#) (ReferenceSeriesInstanceUID)
- [vtkSetStringMacro](#) (ReferenceFrameOfReferenceUID)
- [vtkTypeMacro](#) (vtkRTStructSetProperties, vtkObject)

Static Public Member Functions

- static [vtkRTStructSetProperties * New](#) ()

Protected Member Functions

- [vtkRTStructSetProperties](#) ()
- [~vtkRTStructSetProperties](#) ()

Protected Attributes

- vtkRTStructSetPropertiesInternals * [Internals](#)
- char * [ReferenceFrameOfReferenceUID](#)
- char * [ReferenceSeriesInstanceUID](#)
- char * [SeriesInstanceUID](#)
- char * [SOPInstanceUID](#)
- char * [StructureSetDate](#)
- char * [StructureSetLabel](#)
- char * [StructureSetName](#)
- char * [StructureSetTime](#)
- char * [StudyInstanceUID](#)

10.387.1 Detailed Description

Examples:

[GenerateRTSTRUCT.cxx](#).

10.387.2 Constructor & Destructor Documentation

10.387.2.1 `vtkRTStructSetProperties::vtkRTStructSetProperties ()` [protected]

10.387.2.2 `vtkRTStructSetProperties::~~vtkRTStructSetProperties ()` [protected]

10.387.3 Member Function Documentation

10.387.3.1 `void vtkRTStructSetProperties::AddContourReferencedFrameOfReference (vtkIdType pdnum, const char * classuid, const char * instanceuid)`

10.387.3.2 `void vtkRTStructSetProperties::AddReferencedFrameOfReference (const char * classuid, const char * instanceuid)`

10.387.3.3 `void vtkRTStructSetProperties::AddStructureSetROI (int roinumber, const char * refframerefid, const char * roiname, const char * ROIGenerationAlgorithm, const char * ROIDescription = 0)`

10.387.3.4 `void vtkRTStructSetProperties::AddStructureSetROIObservation (int refnumber, int observationnumber, const char * rtroiinterpretedtype, const char * roiinterpreter, const char * roiobservationlabel = 0)`

10.387.3.5 `virtual void vtkRTStructSetProperties::Clear ()` [virtual]

10.387.3.6 `virtual void vtkRTStructSetProperties::DeepCopy (vtkRTStructSetProperties * p)` [virtual]

10.387.3.7 `const char* vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceClassUID (vtkIdType pdnum, vtkIdType id)`

- 10.387.3.8 `const char* vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceInstanceUID (vtkIdType pdnum,
vtkIdType id)`
- 10.387.3.9 `vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences ()`
- 10.387.3.10 `vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences (vtkIdType pdnum)`
- 10.387.3.11 `vtkIdType vtkRTStructSetProperties::GetNumberOfReferencedFrameOfReferences ()`
- 10.387.3.12 `vtkIdType vtkRTStructSetProperties::GetNumberOfStructureSetROIs ()`
- 10.387.3.13 `const char* vtkRTStructSetProperties::GetReferencedFrameOfReferenceClassUID (vtkIdType id)`
- 10.387.3.14 `const char* vtkRTStructSetProperties::GetReferencedFrameOfReferenceInstanceUID (vtkIdType id)`
- 10.387.3.15 `int vtkRTStructSetProperties::GetStructureSetObservationNumber (vtkIdType id)`
- 10.387.3.16 `const char* vtkRTStructSetProperties::GetStructureSetROIDescription (vtkIdType id)`
- 10.387.3.17 `const char* vtkRTStructSetProperties::GetStructureSetROIGenerationAlgorithm (vtkIdType)`
- 10.387.3.18 `const char* vtkRTStructSetProperties::GetStructureSetROIName (vtkIdType)`
- 10.387.3.19 `int vtkRTStructSetProperties::GetStructureSetROINumber (vtkIdType id)`
- 10.387.3.20 `const char* vtkRTStructSetProperties::GetStructureSetROIObservationLabel (vtkIdType id)`
- 10.387.3.21 `const char* vtkRTStructSetProperties::GetStructureSetROIRefFrameRefUID (vtkIdType)`
- 10.387.3.22 `const char* vtkRTStructSetProperties::GetStructureSetRTROIInterpretedType (vtkIdType id)`
- 10.387.3.23 `static vtkRTStructSetProperties* vtkRTStructSetProperties::New () [static]`

Examples:

[GenerateRTSTRUCT.cxx](#).

- 10.387.3.24 `void vtkRTStructSetProperties::PrintSelf (ostream & os, vtkIndent indent)`
- 10.387.3.25 `vtkRTStructSetProperties::vtkGetStringMacro (StructureSetLabel)`
- 10.387.3.26 `vtkRTStructSetProperties::vtkGetStringMacro (StructureSetName)`
- 10.387.3.27 `vtkRTStructSetProperties::vtkGetStringMacro (StructureSetDate)`
- 10.387.3.28 `vtkRTStructSetProperties::vtkGetStringMacro (StructureSetTime)`
- 10.387.3.29 `vtkRTStructSetProperties::vtkGetStringMacro (SOPInstanceUID)`
- 10.387.3.30 `vtkRTStructSetProperties::vtkGetStringMacro (StudyInstanceUID)`
- 10.387.3.31 `vtkRTStructSetProperties::vtkGetStringMacro (SeriesInstanceUID)`
- 10.387.3.32 `vtkRTStructSetProperties::vtkGetStringMacro (ReferenceSeriesInstanceUID)`
- 10.387.3.33 `vtkRTStructSetProperties::vtkGetStringMacro (ReferenceFrameOfReferenceUID)`
- 10.387.3.34 `vtkRTStructSetProperties::vtkSetStringMacro (StructureSetLabel)`
- 10.387.3.35 `vtkRTStructSetProperties::vtkSetStringMacro (StructureSetName)`
- 10.387.3.36 `vtkRTStructSetProperties::vtkSetStringMacro (StructureSetDate)`
- 10.387.3.37 `vtkRTStructSetProperties::vtkSetStringMacro (StructureSetTime)`
- 10.387.3.38 `vtkRTStructSetProperties::vtkSetStringMacro (SOPInstanceUID)`
- 10.387.3.39 `vtkRTStructSetProperties::vtkSetStringMacro (StudyInstanceUID)`
- 10.387.3.40 `vtkRTStructSetProperties::vtkSetStringMacro (SeriesInstanceUID)`
- 10.387.3.41 `vtkRTStructSetProperties::vtkSetStringMacro (ReferenceSeriesInstanceUID)`
- 10.387.3.42 `vtkRTStructSetProperties::vtkSetStringMacro (ReferenceFrameOfReferenceUID)`
- 10.387.3.43 `vtkRTStructSetProperties::vtkTypeMacro (vtkRTStructSetProperties , vtkObject)`

10.387.4 Member Data Documentation

10.387.4.1 `vtkRTStructSetPropertiesInternals*` `vtkRTStructSetProperties::Internals` [protected]

10.387.4.2 `char*` `vtkRTStructSetProperties::ReferenceFrameOfReferenceUID` [protected]

10.387.4.3 `char*` `vtkRTStructSetProperties::ReferenceSeriesInstanceUID` [protected]

10.387.4.4 `char*` `vtkRTStructSetProperties::SeriesInstanceUID` [protected]

10.387.4.5 `char*` `vtkRTStructSetProperties::SOPInstanceUID` [protected]

10.387.4.6 `char*` `vtkRTStructSetProperties::StructureSetDate` [protected]

10.387.4.7 `char*` `vtkRTStructSetProperties::StructureSetLabel` [protected]

10.387.4.8 `char*` `vtkRTStructSetProperties::StructureSetName` [protected]

10.387.4.9 `char*` `vtkRTStructSetProperties::StructureSetTime` [protected]

10.387.4.10 `char*` `vtkRTStructSetProperties::StudyInstanceUID` [protected]

The documentation for this class was generated from the following file:

- [vtkRTStructSetProperties.h](#)

10.388 gdcm::Waveform Class Reference

[Waveform](#) class.

```
#include <gdcmWaveform.h>
```

Public Member Functions

- [Waveform](#) ()

10.388.1 Detailed Description

[Waveform](#) class.

10.388.2 Constructor & Destructor Documentation

10.388.2.1 `gdcm::Waveform::Waveform ()` `[inline]`

The documentation for this class was generated from the following file:

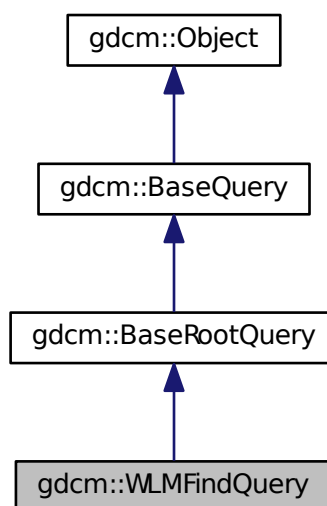
- [gdcmWaveform.h](#)

10.389 `gdcm::WLMFindQuery` Class Reference

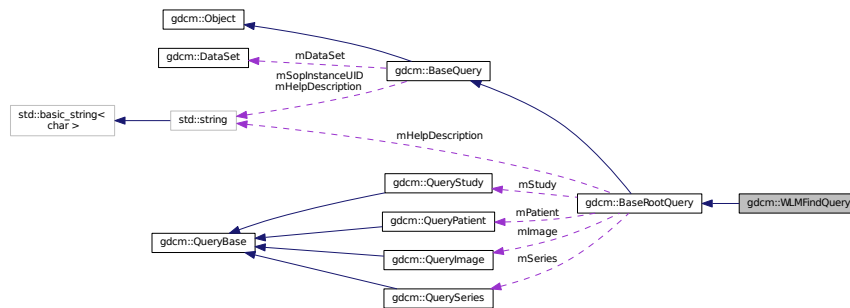
PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.

```
#include <gdcmWLMFindQuery.h>
```

Inheritance diagram for `gdcm::WLMFindQuery`:



Collaboration diagram for gdcm::WLMFindQuery:



Public Member Functions

- [WLMFindQuery](#) ()
- [UIDs::TSName GetAbstractSyntaxUID](#) () const
- [std::vector< Tag > GetTagListByLevel](#) (const [EQueryLevel](#) &inQueryLevel)
- void [InitializeDataSet](#) (const [EQueryLevel](#) &inQueryLevel)
- bool [ValidateQuery](#) (bool inStrict=true) const

Protected Member Functions

- [DataSet GetValidDataSet](#) () const

Friends

- class [QueryFactory](#)

Additional Inherited Members

10.389.1 Detailed Description

PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.

10.389.2 Constructor & Destructor Documentation

10.389.2.1 `gdcm::WLMFindQuery::WLMFindQuery ()`

10.389.3 Member Function Documentation

10.389.3.1 `UIDs::TSName gdcm::WLMFindQuery::GetAbstractSyntaxUID () const` `[virtual]`

Implements [gdcm::BaseQuery](#).

10.389.3.2 `std::vector<Tag> gdcm::WLMFindQuery::GetTagListByLevel (const EQueryLevel & inQueryLevel)`
`[virtual]`

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements [gdcm::BaseRootQuery](#).

10.389.3.3 `DataSet gdcm::WLMFindQuery::GetValidDataSet () const` `[protected]`

10.389.3.4 `void gdcm::WLMFindQuery::InitializeDataSet (const EQueryLevel & inQueryLevel)` `[virtual]`

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcm4chee

Implements [gdcm::BaseRootQuery](#).

10.389.3.5 `bool gdcm::WLMFindQuery::ValidateQuery (bool inStrict=true) const` `[virtual]`

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements [gdcm::BaseRootQuery](#).

10.389.4 Friends And Related Function Documentation

10.389.4.1 `friend class QueryFactory` `[friend]`

The documentation for this class was generated from the following file:

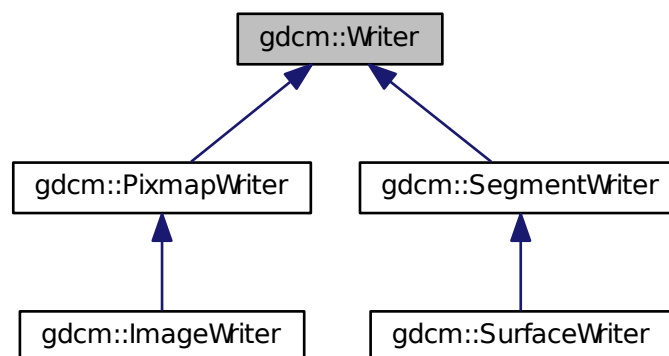
- [gdcmWLMFindQuery.h](#)

10.390 gdcm::Writer Class Reference

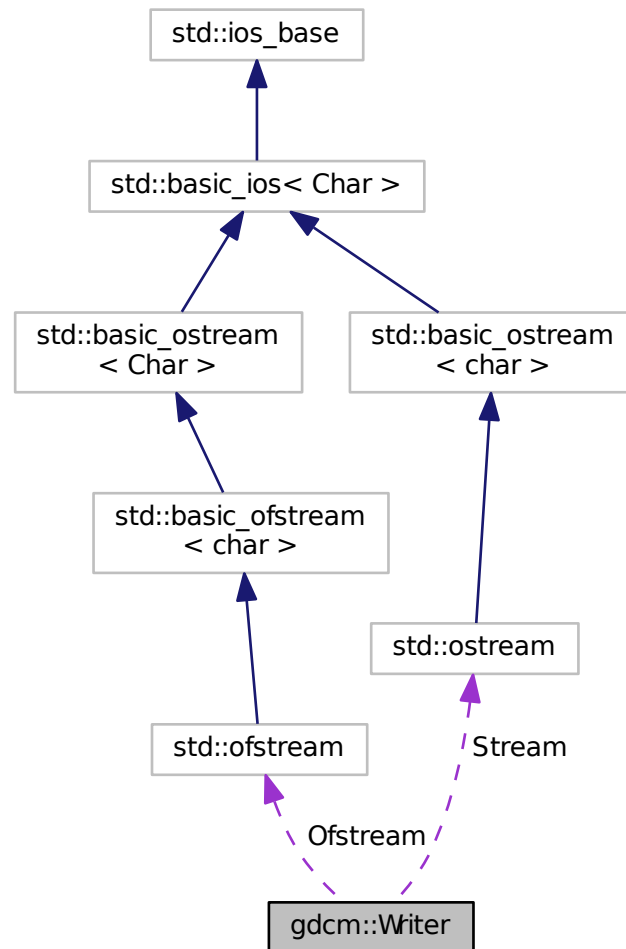
[Writer](#) ala DOM (Document [Object](#) Model) This class is a non-validating writer, it will only performs well- formedness check only.

```
#include <gdcmWriter.h>
```

Inheritance diagram for gdcm::Writer:



Collaboration diagram for `gdcm::Writer`:



Public Member Functions

- [Writer](#) ()
- virtual [~Writer](#) ()
- void [CheckFileMetaInformationOff](#) ()
- void [CheckFileMetaInformationOn](#) ()
- [File](#) & [GetFile](#) ()
- void [SetCheckFileMetaInformation](#) (bool b)
Undocumented function, do not use (= leave default)
- void [SetFile](#) (const [File](#) &f)
Set/Get the DICOM file ([DataSet](#) + Header)

- void [SetFileName](#) (const char *filename_native)
Set the filename of DICOM file to write.
- void [SetStream](#) (std::ostream &output_stream)
Set user ostream buffer.
- virtual bool [Write](#) ()
Main function to tell the writer to write.

Protected Member Functions

- std::ostream * [GetStreamPtr](#) () const
- void [SetWriteDataSetOnly](#) (bool b)

Protected Attributes

- std::ofstream * [Ofstream](#)
- std::ostream * [Stream](#)

Friends

- class [StreamImageWriter](#)

10.390.1 Detailed Description

[Writer](#) ala DOM (Document [Object](#) Model) This class is a non-validating writer, it will only performs well- formedness check only.

Detailed description here To avoid GDCM being yet another broken DICOM lib we try to be user level and avoid writing illegal stuff (odd length, non-zero value for [Item](#) start/end length ...) Therefore you cannot (well unless you are really smart) write DICOM with even length tag. All the checks are consider basics:

- Correct Meta Information Header (see [gdcm::FileMetaInformation](#))
- Zero value for [Item](#) Length (0xfffe, 0xe00d/0xe0dd)
- Even length for any elements
- Alphabetical order for elements (garanteed by design of internals)
- 32bits [VR](#) will be rewritten with 00

Warning

[gdcm::Writer](#) cannot write a [DataSet](#) if no SOP Instance UID (0008,0018) is found, unless a [DICOMDIR](#) is being written out

See also

[Reader DataSet File](#)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [DuplicatePCDE.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [HelloWorld.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

10.390.2 Constructor & Destructor Documentation

10.390.2.1 `gdcm::Writer::Writer ()`

10.390.2.2 `virtual gdcm::Writer::~~Writer ()` `[virtual]`

10.390.3 Member Function Documentation

10.390.3.1 `void gdcm::Writer::CheckFileMetaInformationOff ()` `[inline]`

Examples:

[CreateFakeRTDOSE.cxx](#), [FixBrokenJ2K.cxx](#), and [HelloWorld.cxx](#).

10.390.3.2 `void gdcm::Writer::CheckFileMetaInformationOn ()` `[inline]`

10.390.3.3 `File& gdcm::Writer::GetFile ()` `[inline]`

Examples:

[CreateJPIPDataSet.cxx](#), [EncapsulateFileInRawData.cxx](#), [Extracting_All_Resolution.cxx](#), [Fake_Image_Using_Stream_Image_Writer.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GetSubSequenceData.cxx](#), [iU22tomultisc.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), [rle2img.cxx](#), and [StreamImageReaderTest.cxx](#).

10.390.3.4 `std::ostream* gdcm::Writer::GetStreamPtr () const` `[inline]`, `[protected]`

10.390.3.5 `void gdcm::Writer::SetCheckFileMetaInformation (bool b)` `[inline]`

Undocumented function, do not use (= leave default)

Examples:

[GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), and [PatchFile.cxx](#).

10.390.3.6 `void gdcm::Writer::SetFile (const File & f)` `[inline]`

Set/Get the DICOM file ([DataSet](#) + Header)

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CompressImage.cxx](#), [CreateFakeRTDOSE.cxx](#), [DuplicatePCDE.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [HelloWorld.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [NewSequence.cs](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), and [rle2img.cxx](#).

10.390.3.7 void `gdcm::Writer::SetFileName` (const char * *filename_native*)

Set the filename of DICOM file to write:

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CompressImage.cxx](#), [CreateARGBImage.cxx](#), [CreateCMYKImage.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [csa2img.cxx](#), [DuplicatePCDE.cxx](#), [EncapsulateFileInRawData.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenFakeImage.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [GetSubSequenceData.cxx](#), [HelloVizWorld.cxx](#), [HelloWorld.cxx](#), [iU22tomultisc.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [MergeTwoFiles.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), and [rle2img.cxx](#).

10.390.3.8 void `gdcm::Writer::SetStream` (std::ostream & *output_stream*) [inline]

Set user ostream buffer.

10.390.3.9 void `gdcm::Writer::SetWriteDataSetOnly` (bool *b*) [inline],[protected]

10.390.3.10 virtual bool `gdcm::Writer::Write` () [virtual]

Main function to tell the writer to write.

Reimplemented in [gdcm::PixmapWriter](#), [gdcm::ImageWriter](#), [gdcm::SurfaceWriter](#), and [gdcm::SegmentWriter](#).

Examples:

[ChangePrivateTags.cxx](#), [ChangeSequenceUltrasound.cxx](#), [ClinicalTrialAnnotate.cxx](#), [CreateFakeRTDOSE.cxx](#), [CreateJPIPDataSet.cxx](#), [DuplicatePCDE.cxx](#), [EncapsulateFileInRawData.cxx](#), [FixBrokenJ2K.cxx](#), [FixJAIBugJPEGLS.cxx](#), [FixOrientation.cxx](#), [GenAllVR.cxx](#), [GenFakeIdentifyFile.cxx](#), [GenLongSeqs.cxx](#), [GenSeqs.cxx](#), [HelloWorld.cxx](#), [LargeVRDSExplicit.cxx](#), [MakeTemplate.cxx](#), [PatchFile.cxx](#), [pmsct_rgb1.cxx](#), [QIDO-RS.cxx](#), and [rle2img.cxx](#).

10.390.4 Friends And Related Function Documentation

10.390.4.1 friend class `StreamImageWriter` [friend]

10.390.5 Member Data Documentation

10.390.5.1 std::ofstream* `gdcm::Writer::Ofstream` [protected]

10.390.5.2 std::ostream* `gdcm::Writer::Stream` [protected]

The documentation for this class was generated from the following file:

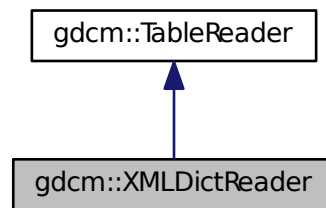
- [gdcmWriter.h](#)

10.391 gdcm::XMLDictReader Class Reference

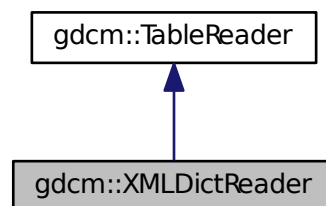
Class for representing a [XMLDictReader](#).

```
#include <gdcmXMLDictReader.h>
```

Inheritance diagram for gdcm::XMLDictReader:



Collaboration diagram for gdcm::XMLDictReader:



Public Member Functions

- [XMLDictReader](#) ()
- [~XMLDictReader](#) ()
- void [CharacterDataHandler](#) (const char *data, int length)
- void [EndElement](#) (const char *name)
- const [Dict](#) & [GetDict](#) ()
- void [StartElement](#) (const char *name, const char **atts)

Protected Member Functions

- void [HandleDescription](#) (const char **atts)
- void [HandleEntry](#) (const char **atts)

10.391.1 Detailed Description

Class for representing a [XMLDictReader](#).

Note

bla Will read the DICOMV3.xml file

10.391.2 Constructor & Destructor Documentation

10.391.2.1 `gdcM::XMLDictReader::XMLDictReader ()`

10.391.2.2 `gdcM::XMLDictReader::~XMLDictReader ()` `[inline]`

10.391.3 Member Function Documentation

10.391.3.1 `void gdcM::XMLDictReader::CharacterDataHandler (const char * data, int length)` `[virtual]`

Reimplemented from [gdcM::TableReader](#).

10.391.3.2 `void gdcM::XMLDictReader::EndElement (const char * name)` `[virtual]`

Reimplemented from [gdcM::TableReader](#).

10.391.3.3 `const Dict& gdcM::XMLDictReader::GetDict ()` `[inline]`

10.391.3.4 `void gdcM::XMLDictReader::HandleDescription (const char ** atts)` `[protected]`

10.391.3.5 `void gdcM::XMLDictReader::HandleEntry (const char ** atts)` `[protected]`

10.391.3.6 `void gdcM::XMLDictReader::StartElement (const char * name, const char ** atts)` `[virtual]`

Reimplemented from [gdcM::TableReader](#).

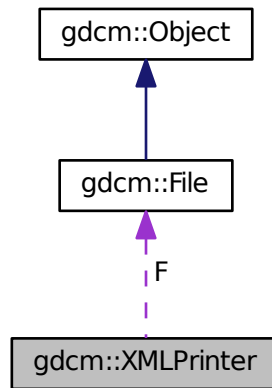
The documentation for this class was generated from the following file:

- [gdcMXMLDictReader.h](#)

10.392 gdcml::XMLPrinter Class Reference

```
#include <gdcmlXMLPrinter.h>
```

Collaboration diagram for gdcml::XMLPrinter:



Public Types

- enum [PrintStyles](#) {
[OnlyUUID](#) = 0,
[LOADBULKDATA](#) = 1 }

Public Member Functions

- [XMLPrinter](#) ()
- virtual [~XMLPrinter](#) ()
- [PrintStyles](#) [GetPrintStyle](#) () const
- virtual void [HandleBulkData](#) (const char *uuid, const [TransferSyntax](#) &ts, const char *bulkdata, size_t bulklen)
- void [Print](#) (std::ostream &os)
- void [PrintDataSet](#) (const [DataSet](#) &ds, const [TransferSyntax](#) &ts, std::ostream &os)
- void [SetFile](#) ([File](#) const &f)
- void [SetStyle](#) ([PrintStyles](#) ps)

Protected Member Functions

- [VR PrintDataElement](#) (std::ostream &os, const [Dicts](#) &dicts, const [DataSet](#) &ds, const [DataElement](#) &de, const [TransferSyntax](#) &ts)
- void [PrintSQ](#) (const [SequenceOfItems](#) *sqi, const [TransferSyntax](#) &ts, std::ostream &os)

Protected Attributes

- const [File](#) * **F**
- [PrintStyles](#) **PrintStyle**

10.392.1 Member Enumeration Documentation

10.392.1.1 enum gdcm::XMLPrinter::PrintStyles

Enumerator

OnlyUUID
LOADBULKDATA

10.392.2 Constructor & Destructor Documentation

10.392.2.1 gdcm::XMLPrinter::XMLPrinter ()

10.392.2.2 virtual gdcm::XMLPrinter::~~XMLPrinter () [virtual]

10.392.3 Member Function Documentation

10.392.3.1 PrintStyles gdcm::XMLPrinter::GetPrintStyle () const [inline]

10.392.3.2 virtual void gdcm::XMLPrinter::HandleBulkData (const char * *uuid*, const TransferSyntax & *ts*, const char * *bulkdata*, size_t *bulklen*) [virtual]

Virtual function mechanism to allow application programmer to override the default mechanism for BulkData handling. By default GDCM will simply discard the BulkData and only write the UUID

10.392.3.3 void gdcm::XMLPrinter::Print (std::ostream & *os*)

10.392.3.4 VR gdcm::XMLPrinter::PrintDataElement (std::ostream & *os*, const Dicts & *dicts*, const DataSet & *ds*, const DataElement & *de*, const TransferSyntax & *ts*) [protected]

10.392.3.5 void gdcm::XMLPrinter::PrintDataSet (const DataSet & *ds*, const TransferSyntax & *ts*, std::ostream & *os*)

10.392.3.6 void gdcm::XMLPrinter::PrintSQ (const SequenceOfItems * *sqi*, const TransferSyntax & *ts*, std::ostream & *os*) [protected]

10.392.3.7 void gdcm::XMLPrinter::SetFile (File const & *f*) [inline]

10.392.3.8 void gdcm::XMLPrinter::SetStyle (PrintStyles *ps*) [inline]

10.392.4 Member Data Documentation

10.392.4.1 const File* gdcm::XMLPrinter::F [protected]

10.392.4.2 PrintStyles gdcm::XMLPrinter::PrintStyle [protected]

The documentation for this class was generated from the following file:

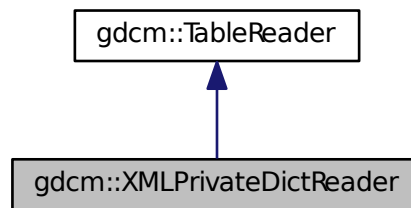
- [gdcmXMLPrinter.h](#)

10.393 gdcm::XMLPrivateDictReader Class Reference

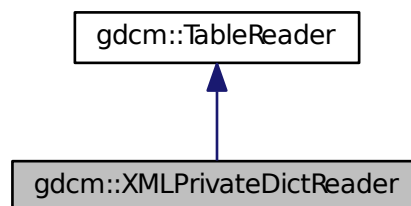
Class for representing a [XMLPrivateDictReader](#).

```
#include <gdcmXMLPrivateDictReader.h>
```

Inheritance diagram for gdcm::XMLPrivateDictReader:



Collaboration diagram for gdcm::XMLPrivateDictReader:



Public Member Functions

- [XMLPrivateDictReader](#) ()
- [~XMLPrivateDictReader](#) ()
- void [CharacterDataHandler](#) (const char *data, int length)
- void [EndElement](#) (const char *name)
- const [PrivateDict](#) & [GetPrivateDict](#) ()
- void [StartElement](#) (const char *name, const char **atts)

Protected Member Functions

- void [HandleDescription](#) (const char **atts)
- void [HandleEntry](#) (const char **atts)

10.393.1 Detailed Description

Class for representing a [XMLPrivateDictReader](#).

Note

bla Will read the Private.xml file

10.393.2 Constructor & Destructor Documentation

10.393.2.1 `gdcm::XMLPrivateDictReader::XMLPrivateDictReader ()`

10.393.2.2 `gdcm::XMLPrivateDictReader::~~XMLPrivateDictReader ()` `[inline]`

10.393.3 Member Function Documentation

10.393.3.1 `void gdcm::XMLPrivateDictReader::CharacterDataHandler (const char * data, int length)` `[virtual]`

Reimplemented from [gdcm::TableReader](#).

10.393.3.2 `void gdcm::XMLPrivateDictReader::EndElement (const char * name)` `[virtual]`

Reimplemented from [gdcm::TableReader](#).

10.393.3.3 `const PrivateDict& gdcm::XMLPrivateDictReader::GetPrivateDict ()` `[inline]`

10.393.3.4 `void gdcm::XMLPrivateDictReader::HandleDescription (const char ** atts)` `[protected]`

10.393.3.5 `void gdcm::XMLPrivateDictReader::HandleEntry (const char ** atts)` `[protected]`

10.393.3.6 `void gdcm::XMLPrivateDictReader::StartElement (const char * name, const char ** atts)` `[virtual]`

Reimplemented from [gdcm::TableReader](#).

The documentation for this class was generated from the following file:

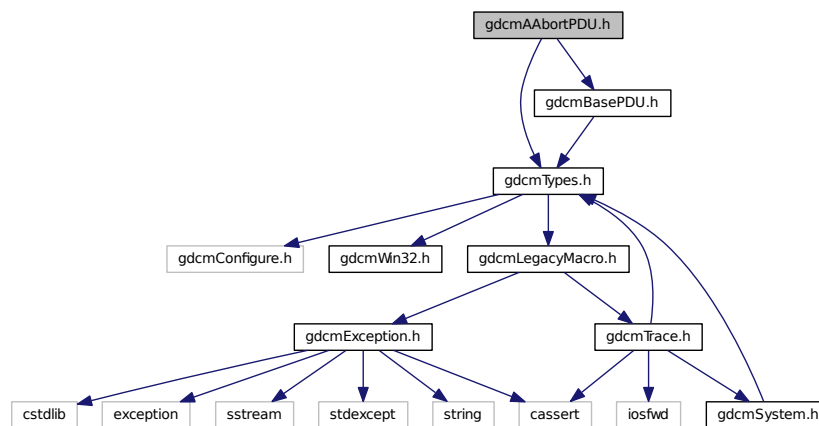
- [gdcmXMLPrivateDictReader.h](#)

Chapter 11

File Documentation

11.1 gdcmAAbortPDU.h File Reference

```
#include "gdcmTypes.h"  
#include "gdcmBasePDU.h"  
Include dependency graph for gdcmAAbortPDU.h:
```



Classes

- class `gdcm::network::AAbortPDU`
AAbortPDU Table 9-26 A-ABORT PDU FIELDS.

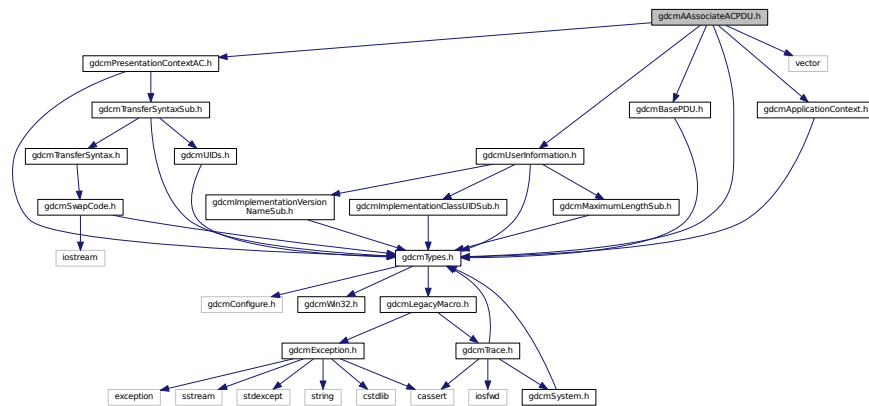
Namespaces

- `gdcm`
- `gdcm::network`

11.2 gdcmAAssociateACPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmAAssociateACPDU.h:



Classes

- class [gdcm::network::AAssociateACPDU](#)
[AAssociateACPDU](#) Table 9-17 ASSOCIATE-AC PDU fields.

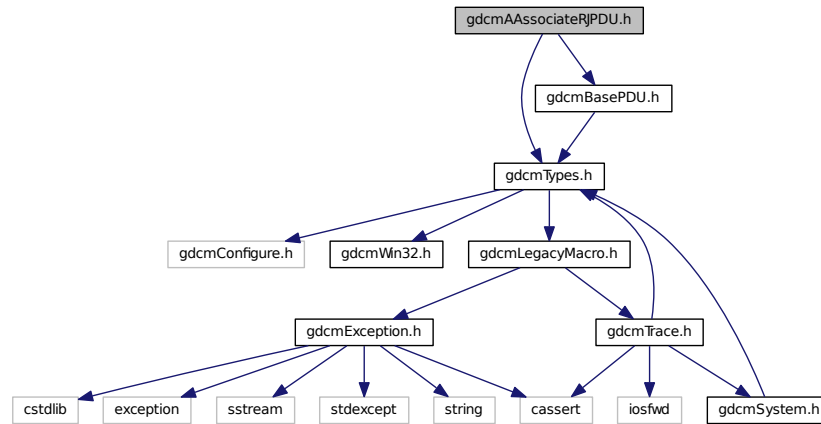
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.3 gdcmAAssociateRJPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRJPDU.h:



Classes

- class [gdcm::network::AAssociateRJPDU](#)
[AAssociateRJPDU](#) Table 9-21 ASSOCIATE-RJ PDU FIELDS.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

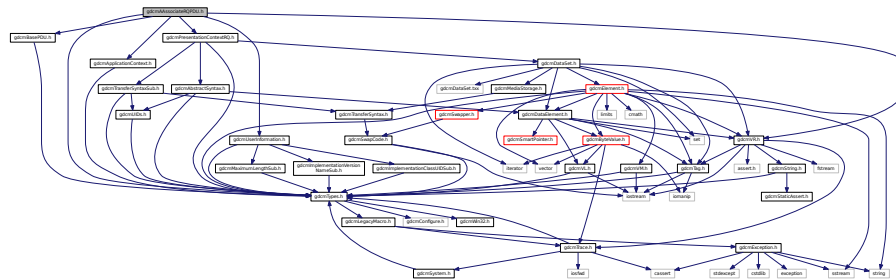
11.4 gdcmAAssociateRQPDU.h File Reference

```

#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmUserInfo.h"
#include "gdcmBasePDU.h"

```

Include dependency graph for gdcmAAssociateRQPDU.h:



Classes

- class [gdcm::network::AAssociateRQPDU](#)
AAssociateRQPDU Table 9-11 ASSOCIATE-RQ PDU fields.

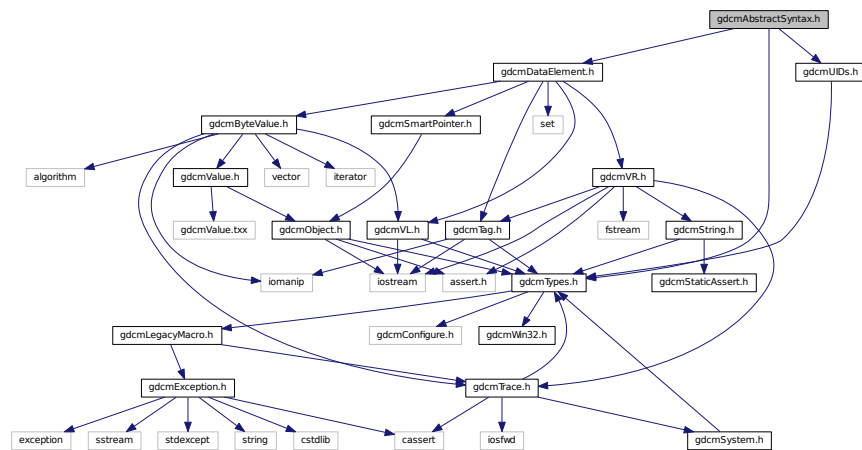
Namespaces

- [gdcm](#)
- [gdcm::network](#)

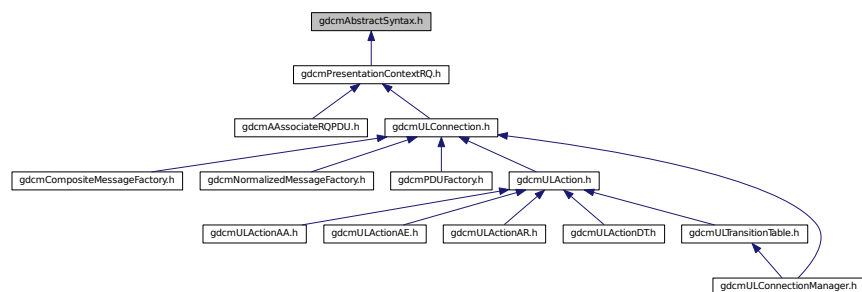
11.5 gdcmAbstractSyntax.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include "gdcmDataElement.h"
```

Include dependency graph for `gdcmAbstractSyntax.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::AbstractSyntax](#)
[AbstractSyntax Table](#) 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS.

Namespaces

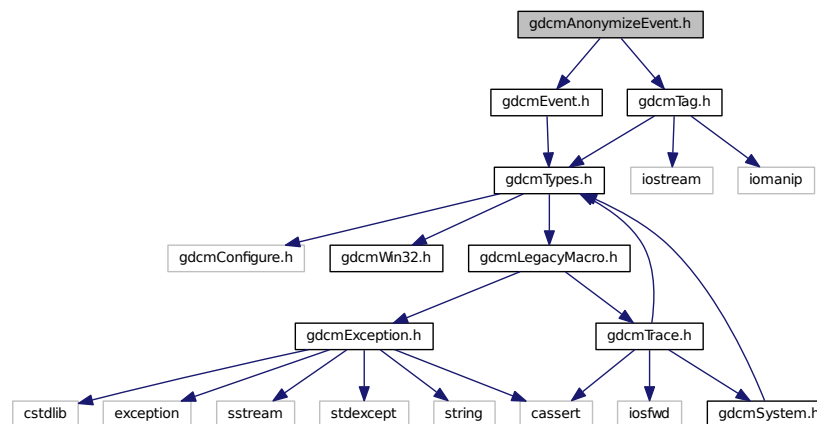
- [gdcm](#)
- [gdcm::network](#)

11.6 gdcmAnonymizeEvent.h File Reference

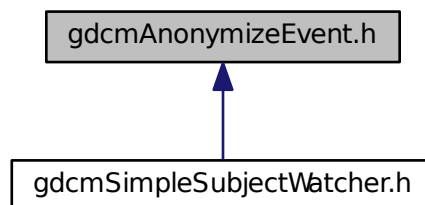
```
#include "gdcmEvent.h"
```

```
#include "gdcmTag.h"
```

Include dependency graph for gdcmAnonymizeEvent.h:



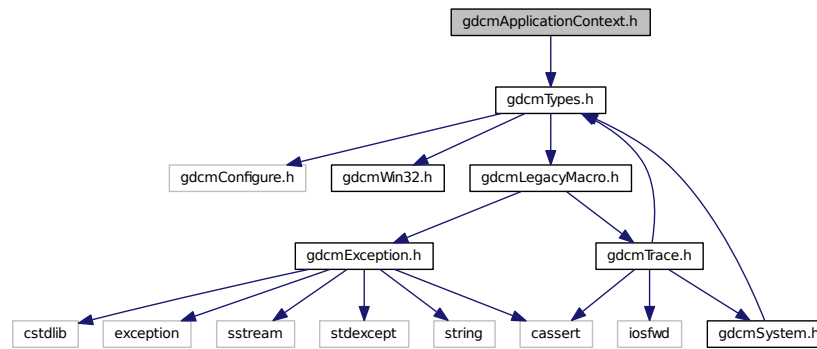
This graph shows which files directly or indirectly include this file:



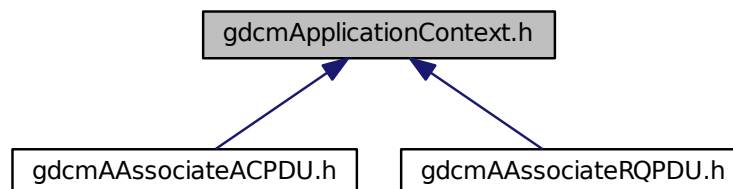
11.8 gdcmApplicationContext.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmApplicationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::network::ApplicationContext`
ApplicationContext Table 9-12 APPLICATION CONTEXT ITEM FIELDS.

Namespaces

- `gdcm`
- `gdcm::network`

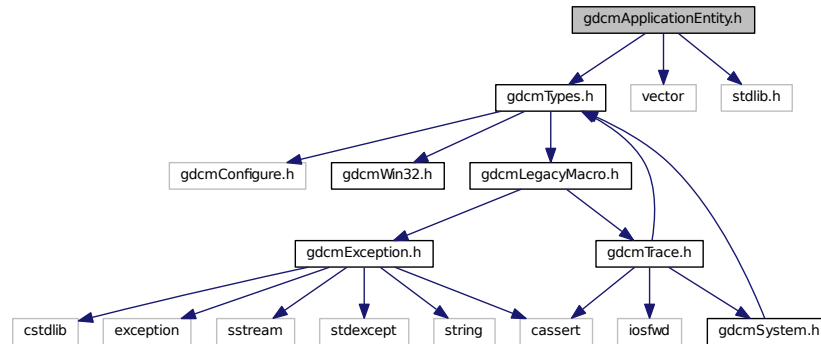
11.9 gdcmApplicationEntity.h File Reference

```
#include "gdcmTypes.h"
```

```
#include <vector>
```

```
#include <stdlib.h>
```

Include dependency graph for gdcmApplicationEntity.h:



Classes

- class `gdcm::ApplicationEntity`
ApplicationEntity.

Namespaces

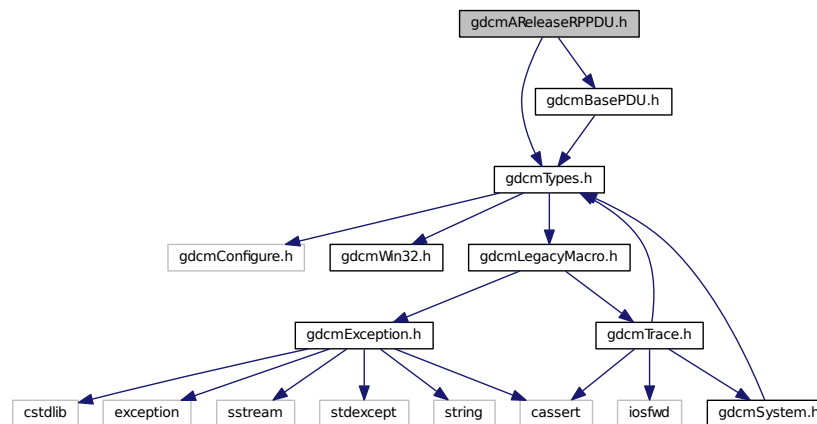
- `gdcm`

11.10 gdcmAReleaseRPPDU.h File Reference

```
#include "gdcmTypes.h"
```

```
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRPPDU.h:



Classes

- class `gdcm::network::AReleaseRPPDU`

AReleaseRPPDU Table 9-25 A-RELEASE-RP PDU fields.

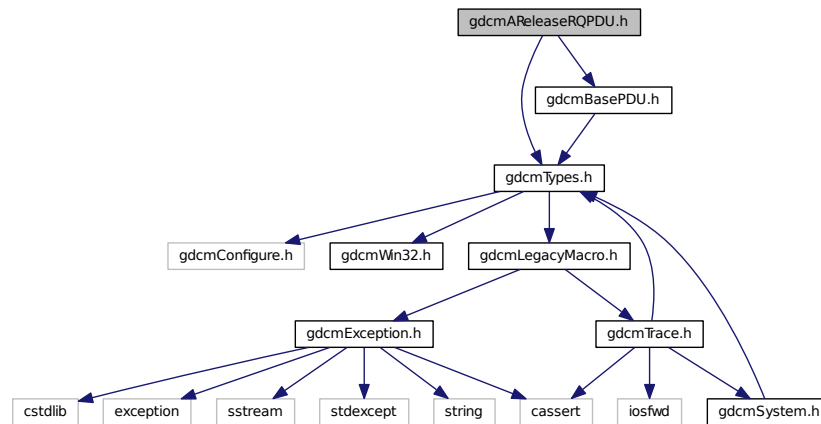
Namespaces

- `gdcm`
- `gdcm::network`

11.11 gdcmAReleaseRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for `gdcmAReleaseRQPDU.h`:



Classes

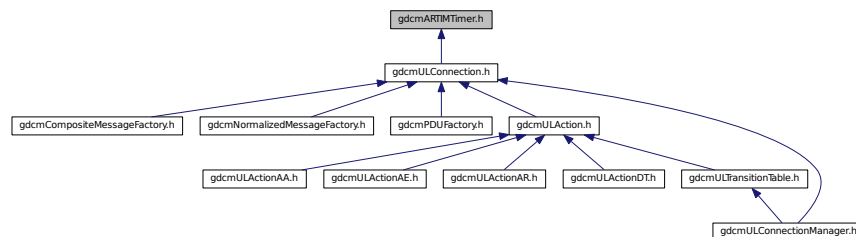
- class [gdcm::network::AReleaseRQPDU](#)
[AReleaseRQPDU](#) Table 9-24 A-RELEASE-RQ PDU FIELDS.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.12 gdcmARTIMTimer.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::ARTIMTimer](#)
ARTIMTimer This file contains the code for the ARTIM timer.

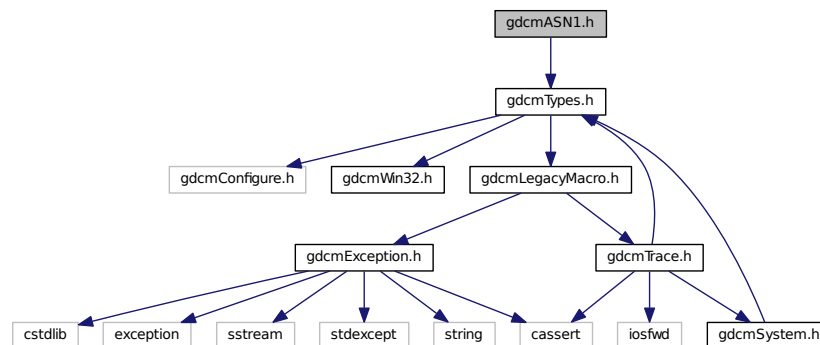
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.13 gdcmASN1.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmASN1.h:



Classes

- class [gdcm::ASN1](#)
Class for ASN1.

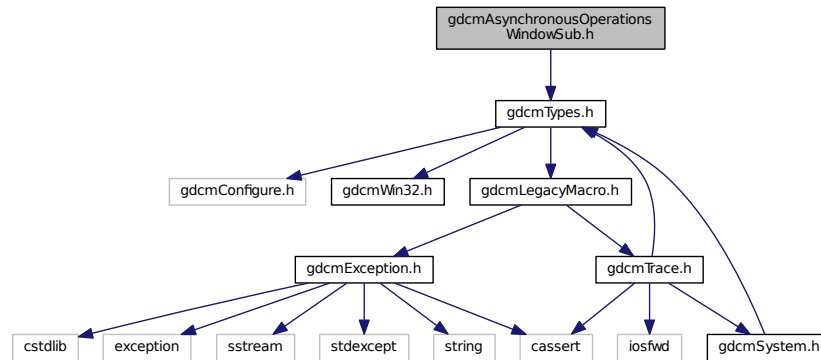
Namespaces

- [gdcm](#)

11.14 gdcmAsynchronousOperationsWindowSub.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmAsynchronousOperationsWindowSub.h:



Classes

- class [gdcm::network::AsynchronousOperationsWindowSub](#)

AsynchronousOperationsWindowSub PS 3.7 Table D.3-7 ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM FILE↔
LDS (A-ASSOCIATE-RQ)

Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.15 gdcmAttribute.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTagToType.h"
#include "gdcmVM.h"
#include "gdcmElement.h"
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmStaticAssert.h"
#include <string>
#include <vector>
#include <sstream>
```

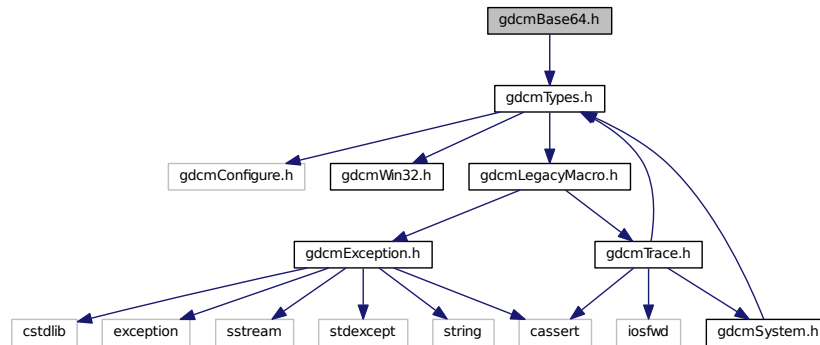

[illegible]

```
graph BT; gdcmspacing[gdcmspacing.h] --> gdcmaattribute[gdcmaattribute.h];
```

- class `gdcmm::Attribute< Group, Element, TVR, VM >`
Attribute class This class use template metaprograming tricks to let the user know when the template instanciation does not match the public dictionary.
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM1 >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM1_3 >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM2_2n >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM2_n >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM3_3n >`
- class `gdcmm::Attribute< Group, Element, TVR, VM::VM3_n >`
- class `gdcmm::VRVLSize< T >`
- class `gdcmm::VRVLSize< 0 >`
- class `gdcmm::VRVLSize< 1 >`

- **gdcm**

Include dependency graph for gdcmbase64.h:



Classes

- class `gdcm::Base64`
Class for Base64.

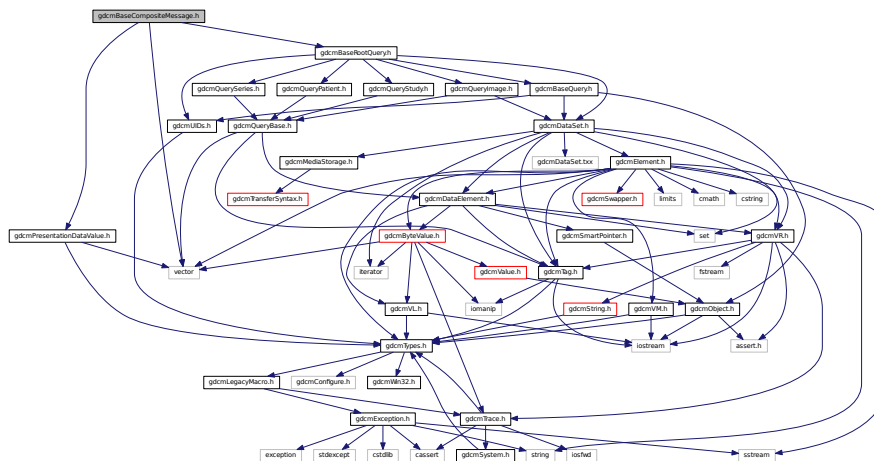
Namespaces

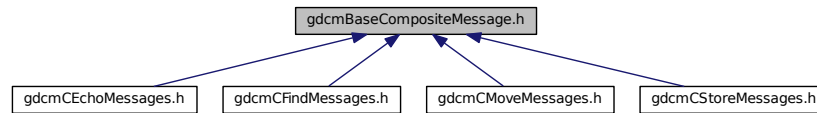
- **gdcm**

11.18 gdcmBaseCompositeMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseRootQuery.h"
#include <vector>
```

Include dependency graph for `gdcmBaseCompositeMessage.h`:





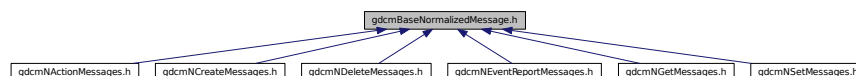
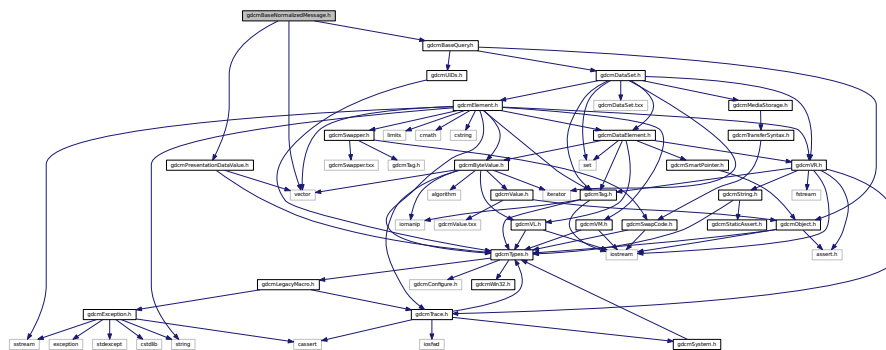
- BaseCompositeMessage** The Composite events

BaseCompositeMessage The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

- `gdc`
- `gdc::network`

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseQuery.h"
#include <vector>
```

Include dependency graph for `gdcmBaseNormalizedMessage.h`:



Classes

- class [gdcm::network::BaseNormalizedMessage](#)

[BaseNormalizedMessage](#) The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

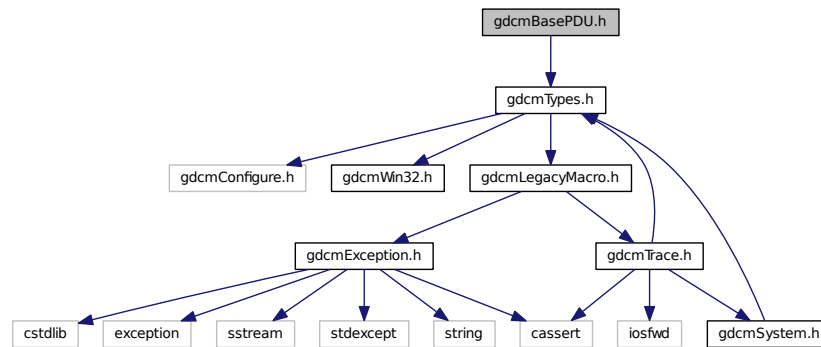
Namespaces

- [gdcm](#)
- [gdcm::network](#)

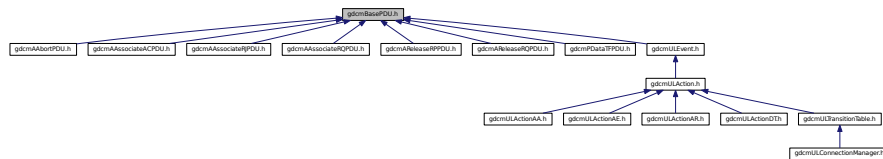
11.20 gdcmBasePDU.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmBasePDU.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::BasePDU](#)

[BasePDU](#) base class for PDUs.

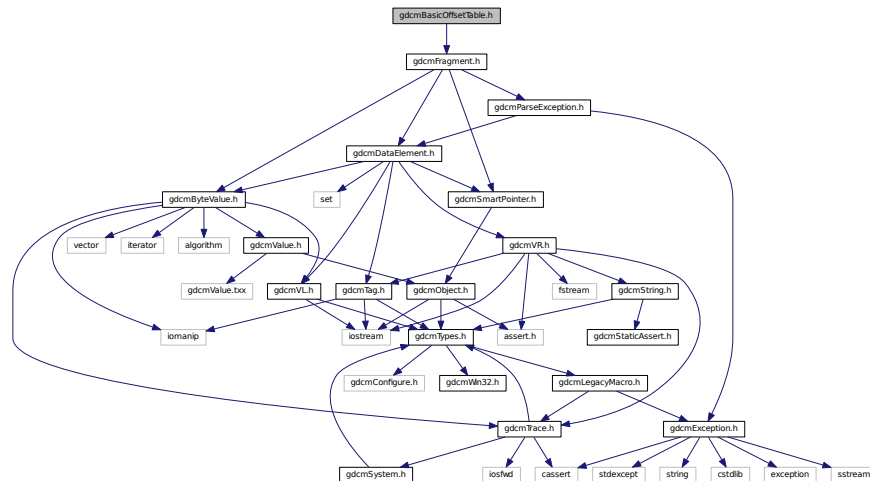
Enumerations

- enum `gdcm::EQueryLevel` {
`gdcm::ePatient` = 0,
`gdcm::eStudy` = 1,
`gdcm::eSeries` = 2,
`gdcm::eImage` = 3 }
- enum `gdcm::EQueryType` {
`gdcm::eFind` = 0,
`gdcm::eMove`,
`gdcm::eWLMFind` }

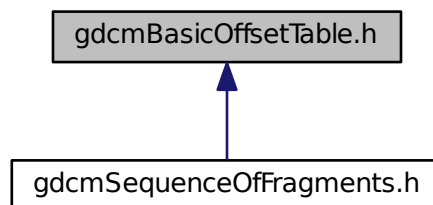
11.23 gdcmBasicOffsetTable.h File Reference

```
#include "gdcmFragment.h"
```

Include dependency graph for `gdcmBasicOffsetTable.h`:



This graph shows which files directly or indirectly include this file:



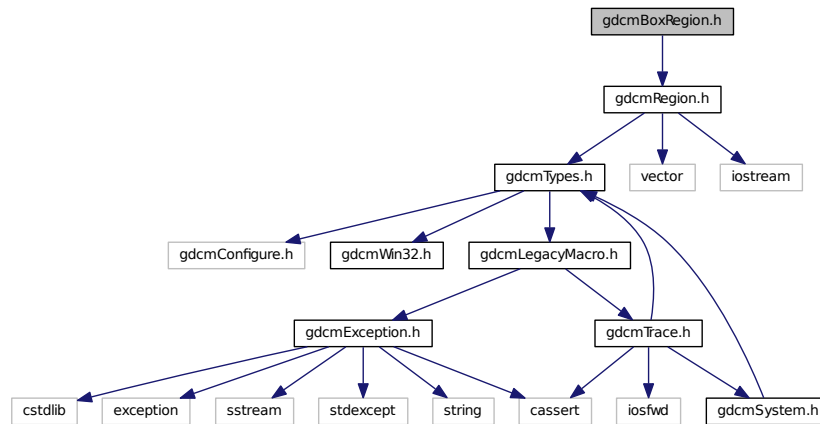
Namespaces

- [gdcm](#)

11.26 gdcmBoxRegion.h File Reference

```
#include "gdcmRegion.h"
```

Include dependency graph for gdcmBoxRegion.h:



Classes

- class [gdcm::BoxRegion](#)

Class for manipulation box region This is a very simple implementation of the [Region](#) class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

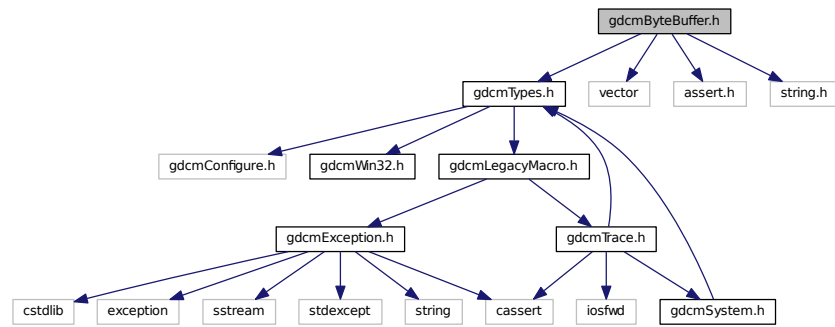
Namespaces

- [gdcm](#)

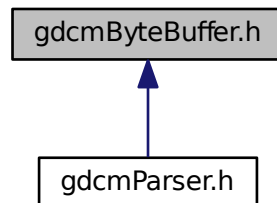
11.27 gdcmByteBuffer.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <assert.h>
#include <string.h>
```

Include dependency graph for `gdcmByteBuffer.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::ByteBuffer`
ByteBuffer.

Namespaces

- `gdcm`

Classes

- class [gdcm::ByteSwapFilter](#)
ByteSwapFilter In place byte-swapping of a dataset *FIXME: FL status ??*

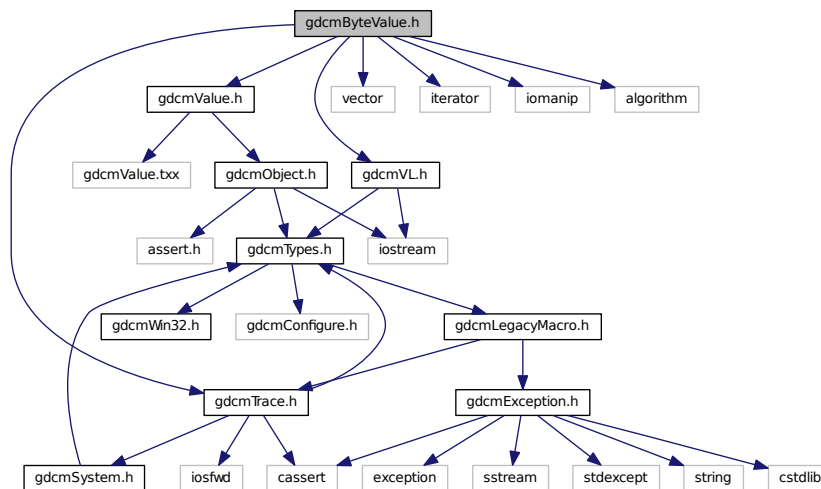
Namespaces

- [gdcm](#)

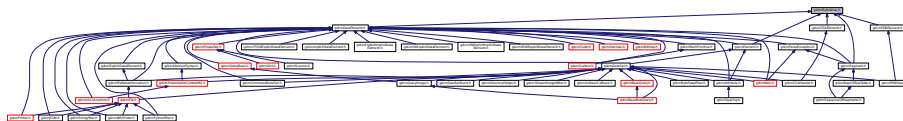
11.30 gdcmByteValue.h File Reference

```
#include "gdcmValue.h"
#include "gdcmTrace.h"
#include "gdcmVL.h"
#include <vector>
#include <iterator>
#include <iomanip>
#include <algorithm>
```

Include dependency graph for gdcmByteValue.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::ByteValue](#)
Class to represent binary value (array of bytes)

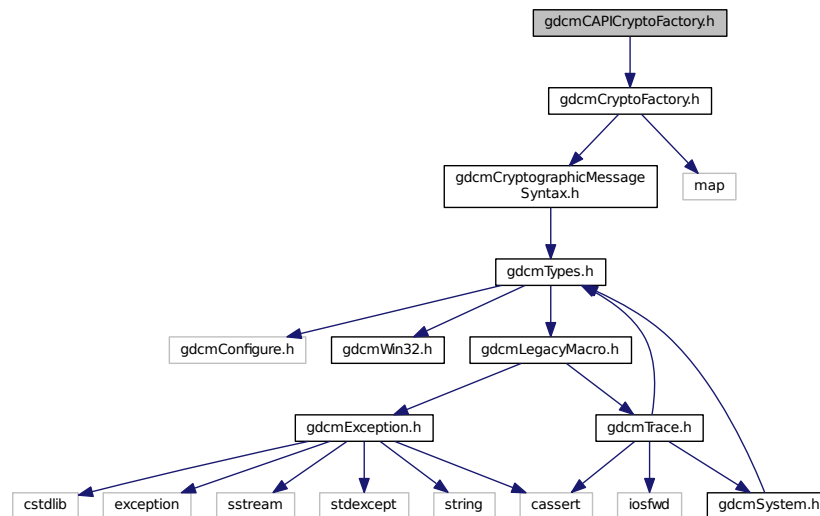
Namespaces

- [gdcm](#)

11.31 gdcmCAPICryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
```

Include dependency graph for gdcmCAPICryptoFactory.h:



Classes

- class [gdcm::CAPICryptoFactory](#)

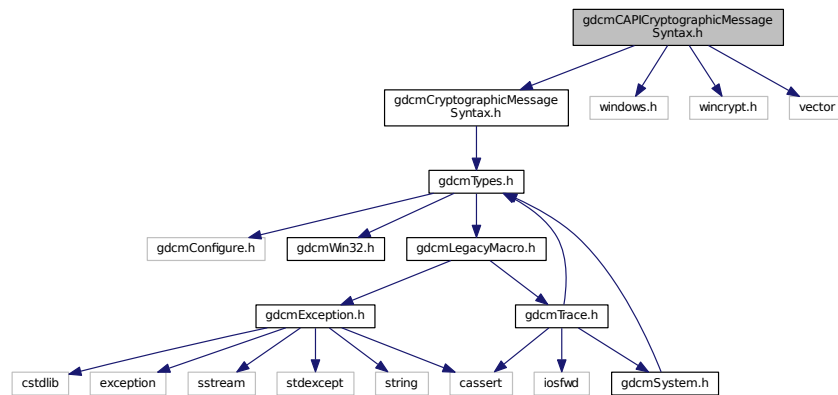
Namespaces

- [gdcm](#)

11.32 gdcmCAPICryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <windows.h>
#include <wincrypt.h>
#include <vector>
```

Include dependency graph for gdcmCAPICryptographicMessageSyntax.h:



Classes

- class [gdcm::CAPICryptographicMessageSyntax](#)

Namespaces

- [gdcm](#)

11.33 gdcmCEchoMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
```


[illegible]

- class `gdcm::network::CEchoRQ`
CEchoRQ this file defines the messages for the cecho action.
- class `gdcm::network::CEchoRSP`
CEchoRSP this file defines the messages for the cecho action.

- `gdc`
- `gdc::network`

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

[illegible]

The diagram illustrates a complex dependency graph for glibc headers. The nodes are organized into several layers, with arrows indicating the direction of dependencies. Key features include:

- Highlighted Nodes:** Several headers are enclosed in red rectangular boxes, likely indicating headers that are part of a specific build configuration or are critical to the system's functionality. These include `glibcTransferSyntax.h`, `glibcValue.h`, `glibcException.h`, and `glibcBasePostQuery.h`.
- Dependency Structure:** The graph shows a hierarchical relationship where many lower-level headers (like `glibcAssert.h`, `glibcSystem.h`) serve as prerequisites for more complex ones (like `glibcPresentationDataValue.h`).
- Central Hub:** Headers like `glibcElement.h` and `glibcQueryBase.h` appear to be central hubs, with numerous arrows pointing to them from other parts of the graph.
- Peripheral Modules:** Some headers represent peripheral modules or interfaces, such as `glibcMediaStorage` and `glibcTransferSyntax.h`.

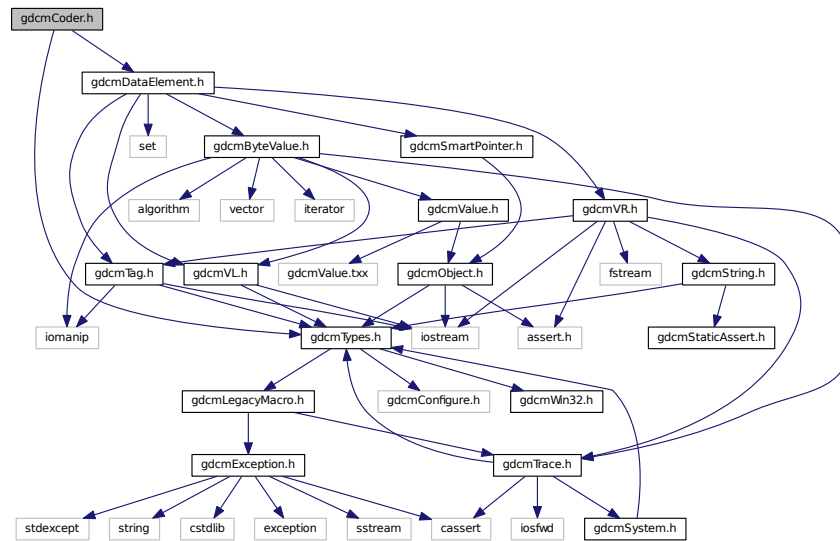
The overall structure suggests a highly interconnected set of components, typical of a large, multi-featured library like glibc.

- class `gdcm::network::CMoveCancelRq`
- class `gdcm::network::CMoveRQ`
`CMoveRQ` this file defines the messages for the `cmove` action.
- class `gdcm::network::CMoveRSP`
`CMoveRSP` this file defines the messages for the `cmove` action.

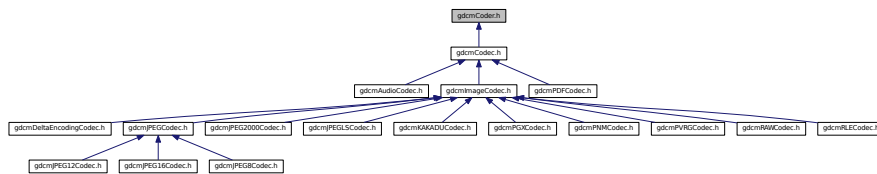
- `gdcm`
- `gdcm::network`

```
#include "gdcmCoder.h"
#include "gdcmDecoder.h"
```


Include dependency graph for gdcmlCoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Coder`
Coder.

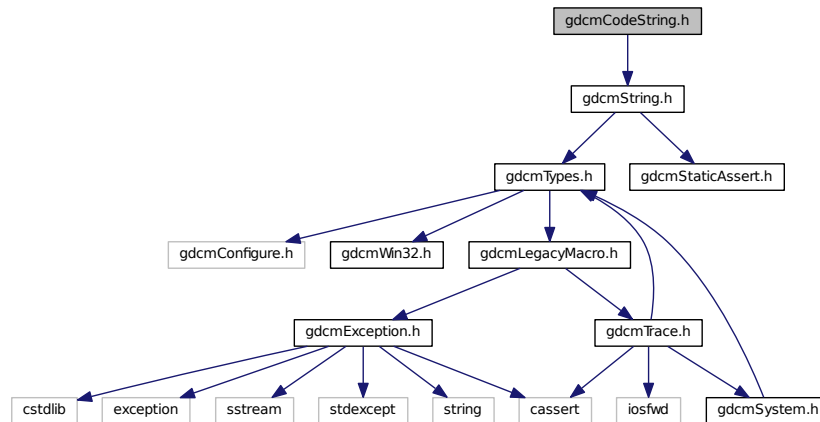
Namespaces

- **gdcm**

11.38 gdcmCodeString.h File Reference

```
#include "gdcmString.h"
```

Include dependency graph for gdcmCodeString.h:



Classes

- class [gdcm::CodeString](#)

[CodeString](#) This is an implementation of DICOM [VR](#): CS The ctor will properly Trim so that operator== is correct.

Namespaces

- [gdcm](#)

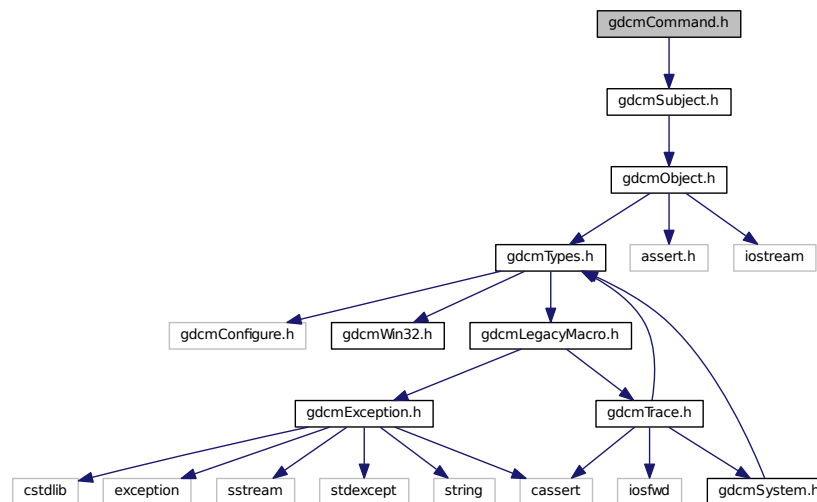
Functions

- bool [gdcm::operator!=](#) (const CodeString &ref, const CodeString &cs)
- std::ostream & [gdcm::operator<<](#) (std::ostream &os, const CodeString &str)
- bool [gdcm::operator==](#) (const CodeString &ref, const CodeString &cs)

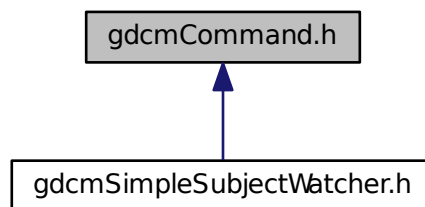
11.39 gdcmCommand.h File Reference

```
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCommand.h:



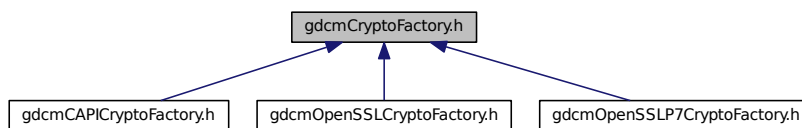
This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Command`
Command superclass for callback/observer methods.
- class `gdcm::MemberCommand< T >`
Command subclass that calls a pointer to a member function.
- class `gdcm::SimpleMemberCommand< T >`
Command subclass that calls a pointer to a member function.

This graph shows which files directly or indirectly include this file:



Classes

- class `gdcrypto::CryptoFactory`
Class to do handle the crypto factory.

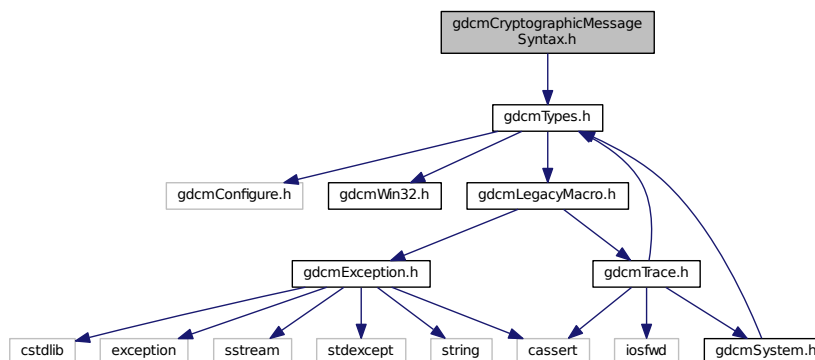
Namespaces

- `gdcrypto`

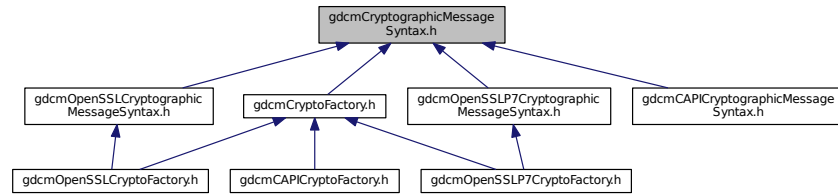
11.46 gdcryptographicMessageSyntax.h File Reference

```
#include "gdcryptoTypes.h"
```

Include dependency graph for `gdcryptographicMessageSyntax.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcms::CryptographicMessageSyntax](#)

Namespaces

- [gdcms](#)

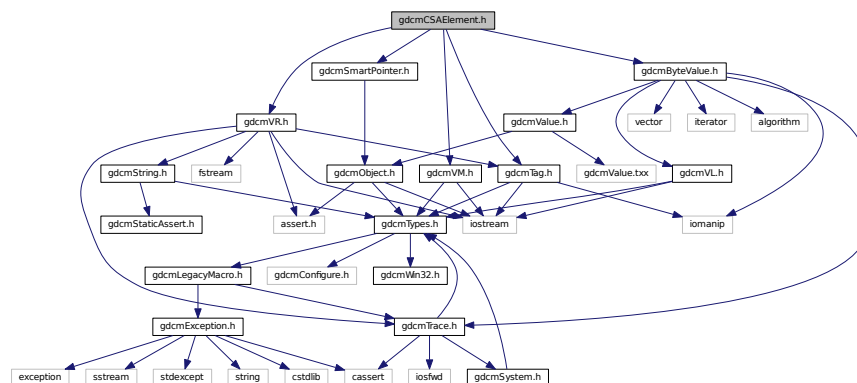
11.47 gdcmsCAElement.h File Reference

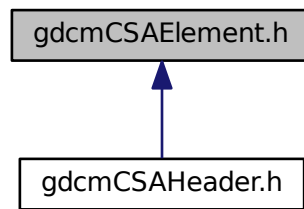
```

#include "gdcmsTag.h"
#include "gdcmsVM.h"
#include "gdcmsVR.h"
#include "gdcmsByteValue.h"
#include "gdcmsSmartPointer.h"

```

Include dependency graph for gdcmsCAElement.h:



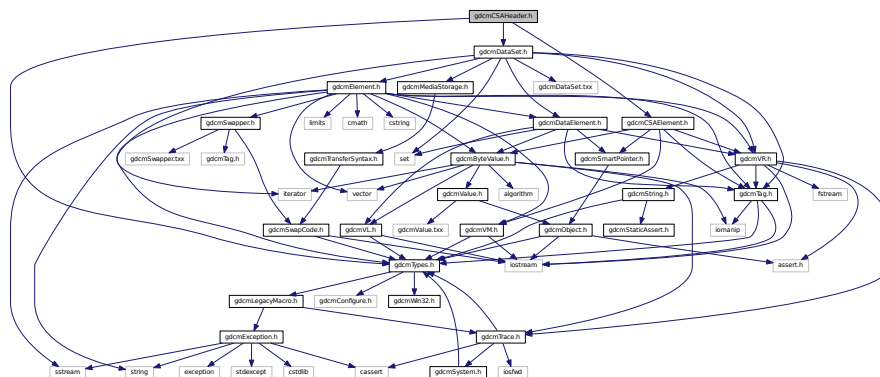


- class `gdcm::CSAElement`
Class to represent a CSA `Element`.

- **gdcm**

- `std::ostream & gdcm::operator<< (std::ostream &os, const CSAElement &val)`

```
#include "gdcTypes.h"
#include "gdcDataSet.h"
#include "gdcCSAElement.h"
Include dependency graph for gdcCSAHeader.h:
```



Classes

- class [gdcm::CSAHeader](#)
Class for [CSAHeader](#).

Namespaces

- [gdcm](#)

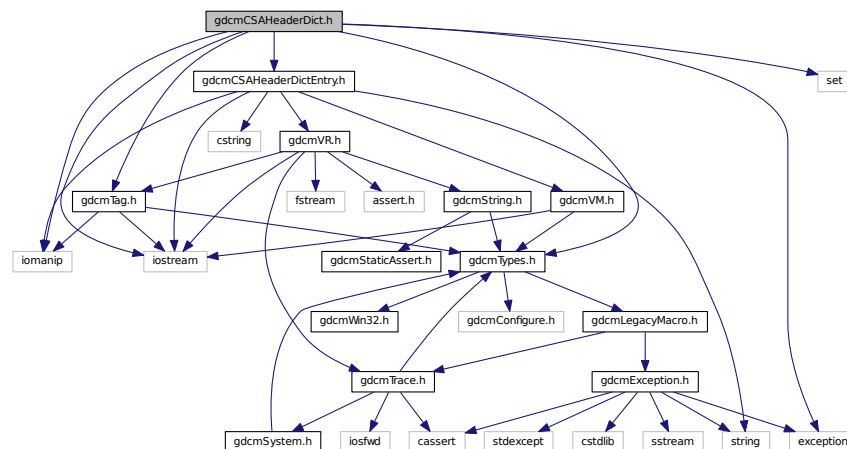
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeader &d)`

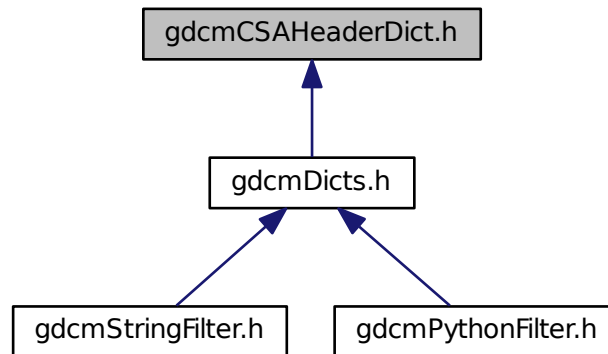
11.49 gdcmCSAHeaderDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmCSAHeaderDictEntry.h"
#include <iostream>
#include <iomanip>
#include <set>
#include <exception>
```

Include dependency graph for gdcmCSAHeaderDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::CSAHeaderDict](#)
Class to represent a map of [CSAHeaderDictEntry](#).
- class [gdcm::CSAHeaderDictException](#)

Namespaces

- [gdcm](#)

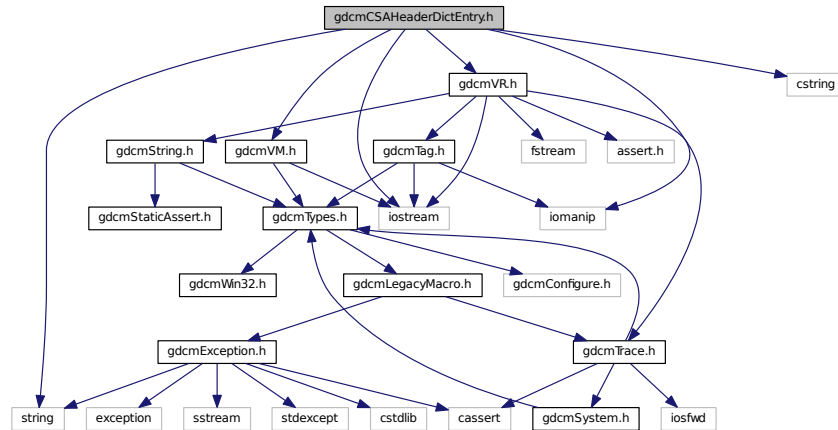
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDict &val)`

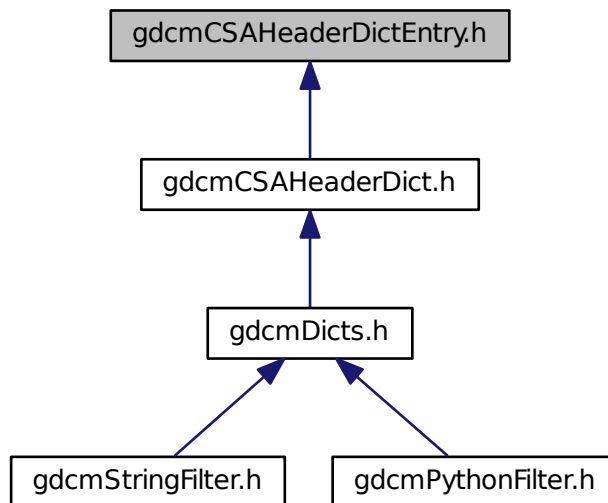
11.50 gdcmCSAHeaderDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
#include <cstring>
```


Include dependency graph for gdcmCSAHeaderDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

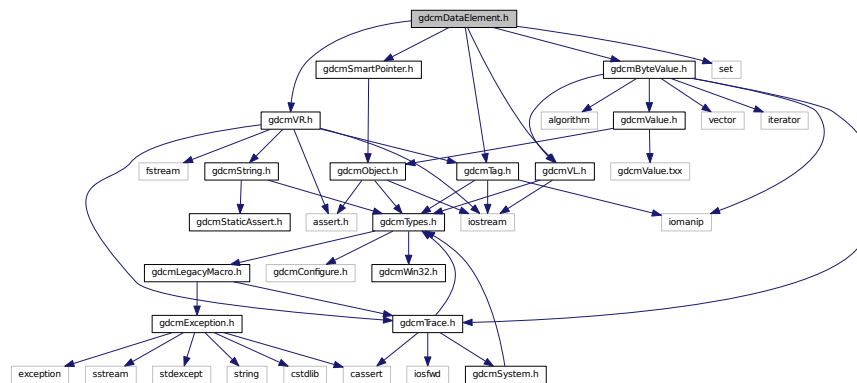
- class [gdcm::CSAHeaderDictEntry](#)

Class to represent an Entry in the [Dict](#). Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from [gdcm::Tag](#) to the needed information.

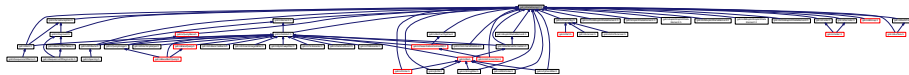
11.53 gdcmDataElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVL.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include <set>
```

Include dependency graph for gdcmDataElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::DataElement](#)
Class to represent a Data [Element](#) either Implicit or Explicit.

Namespaces

- [gdcm](#)

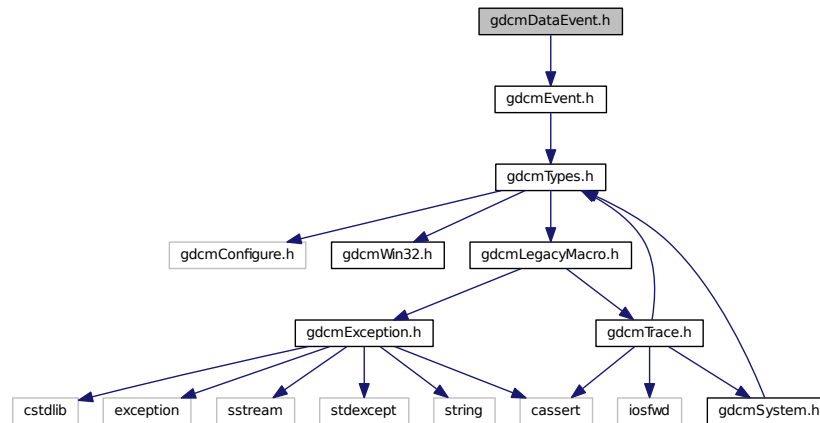
Functions

- bool [gdcm::operator!=](#) (const DataElement &lhs, const DataElement &rhs)
- std::ostream & [gdcm::operator<<](#) (std::ostream &os, const DataElement &val)

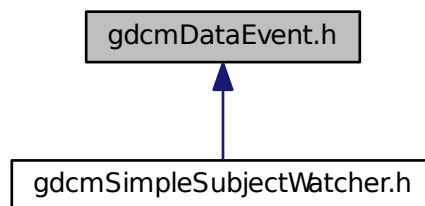
11.54 gdcmDataEvent.h File Reference

```
#include "gdcmEvent.h"
```

Include dependency graph for gdcmDataEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::DataEvent`
DataEvent.

Namespaces

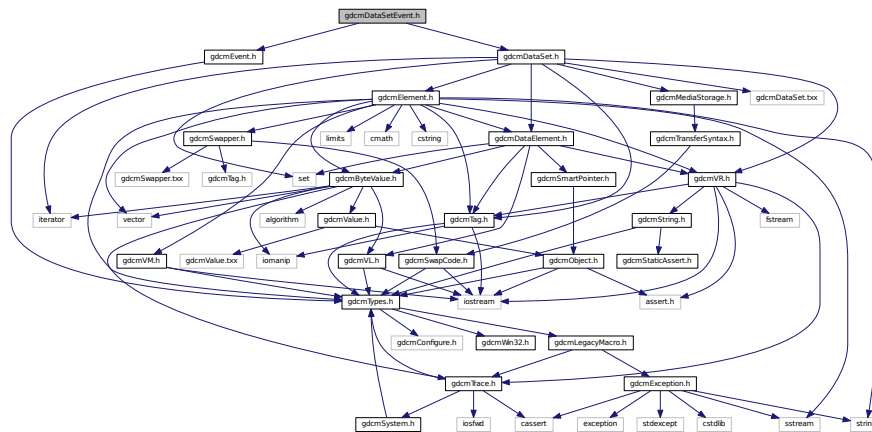
- `gdcm`

11.56 gdcmDataSetEvent.h File Reference

```
#include "gdcmEvent.h"
```

```
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDataSetEvent.h:



Classes

- class [gdcm::DataSetEvent](#)

DataSetEvent Special type of event triggered during the *DataSet* store/move process.

Namespaces

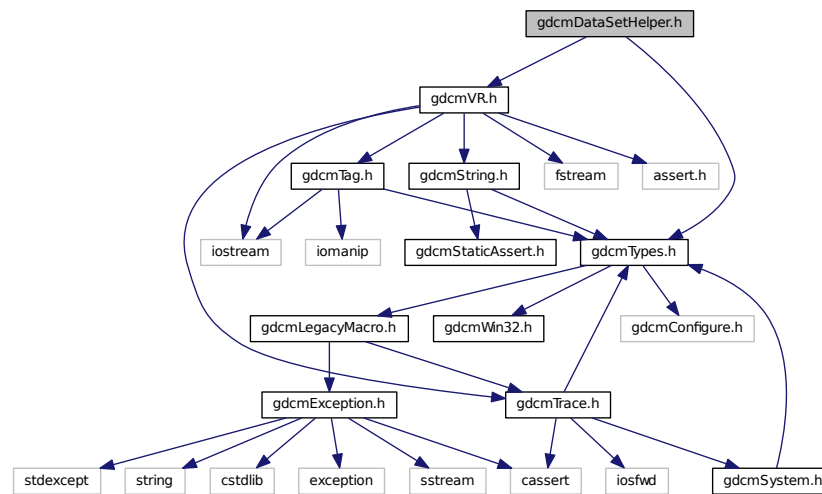
- [gdcm](#)

11.57 gdcmDataSetHelper.h File Reference

```
#include "gdcmTypes.h"
```

```
#include "gdcmVR.h"
```

Include dependency graph for `gdcmDataSetHelper.h`:



Classes

- class [gdcm::DataSetHelper](#)
DataSetHelper (internal class, not intended for user level)

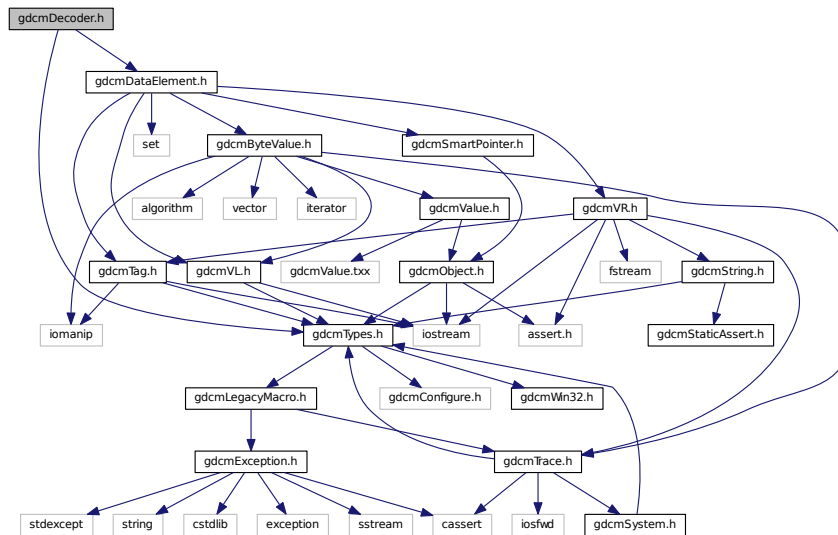
Namespaces

- [gdcm](#)

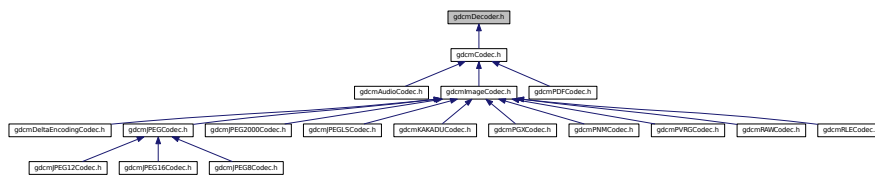
11.58 gdcmDecoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```


Include dependency graph for gdcmDecoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Decoder](#)
Decoder.

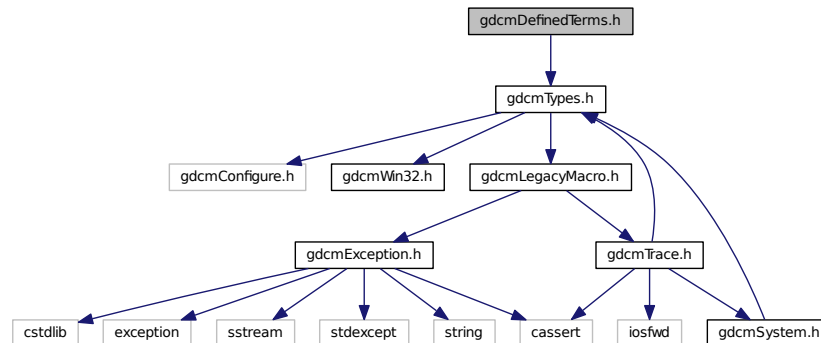
Namespaces

- [gdcm](#)

11.59 gdcmDefinedTerms.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmDefinedTerms.h:



Classes

- class [gdcm::DefinedTerms](#)

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data [Element](#) with Defined Terms that does not contain a [Value](#) equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation [Type ID](#) (4008,0210) is an example of a Data [Element](#) having Defined Terms. It is defined to have a [Value](#) that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data [Element](#) has Defined Terms other Interpretation [Type IDs](#) may be defined by the implementor.

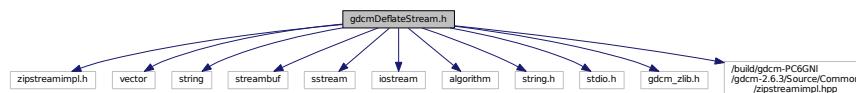
Namespaces

- [gdcm](#)

11.60 gdcmDeflateStream.h File Reference

```
#include "zipstreamimpl.h"
```

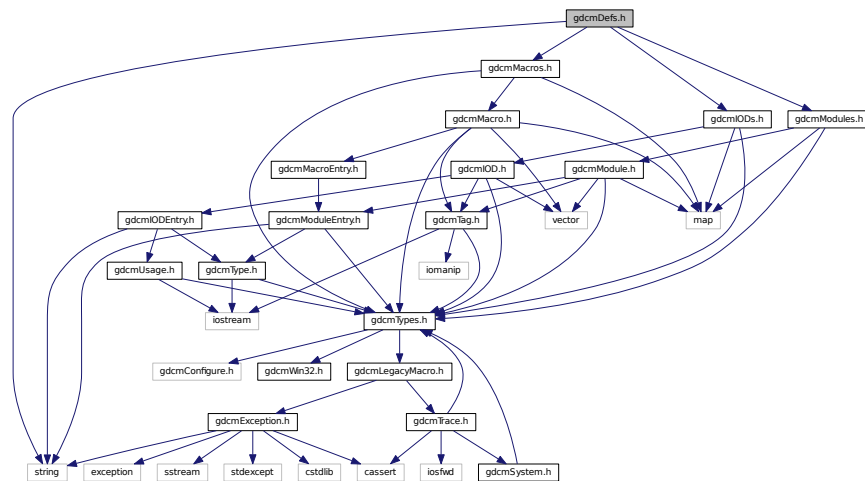
Include dependency graph for gdcmDeflateStream.h:



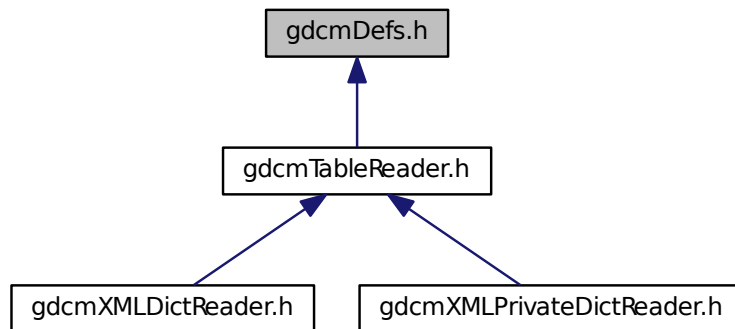
11.61 gdcDefs.h File Reference

```
#include "gdcmModules.h"
#include "gdcmMacros.h"
#include "gdcmIODs.h"
#include <string>
```

Include dependency graph for gdcDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Defs](#)

FIXME I do not like the name 'Defs'.

Classes

- class [gdcm::Dict](#)
Class to represent a map of [DictEntry](#).
- class [gdcm::PrivateDict](#)
Private [Dict](#).

Namespaces

- [gdcm](#)

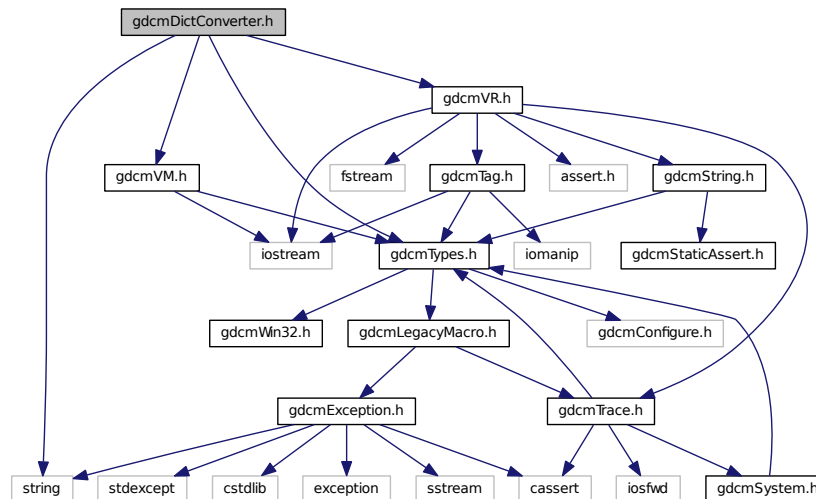
Functions

- std::ostream & [gdcm::operator<<](#) (std::ostream &os, const Dict &val)
- std::ostream & [gdcm::operator<<](#) (std::ostream &os, const PrivateDict &val)

11.66 gdcmDictConverter.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
```

Include dependency graph for gdcmDictConverter.h:



Classes

- class [gdcm::DictConverter](#)
Class to convert a .dic file into something else:

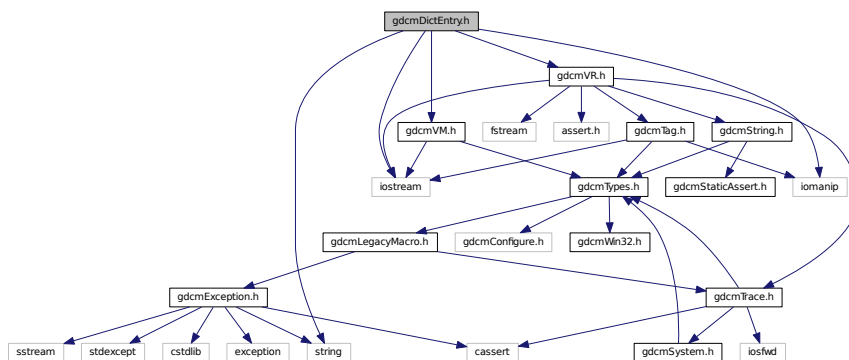
Namespaces

- [gdcm](#)

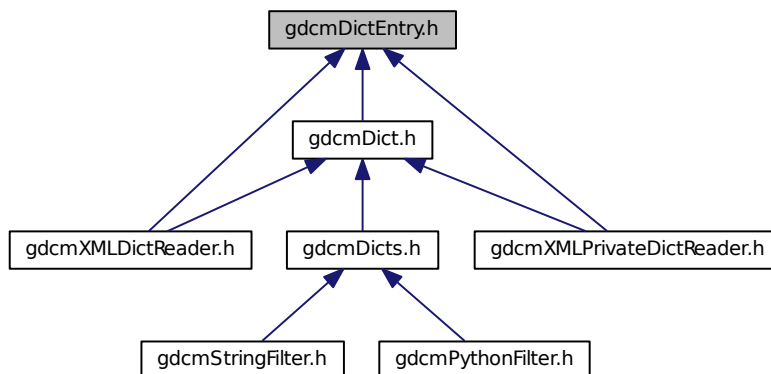
11.67 gdcmDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmDictEntry.h:



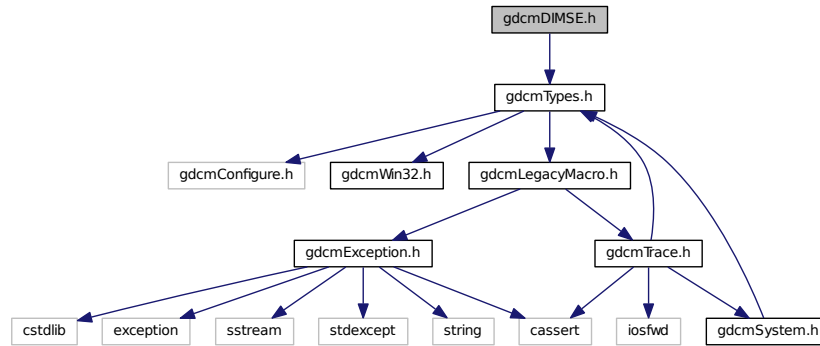
This graph shows which files directly or indirectly include this file:



11.70 gdcmDIMSE.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmDIMSE.h:



Classes

- class [gdcm::network::CEchoRQ](#)

[CEchoRQ](#) this file defines the messages for the cecho action.

- class [gdcm::network::CEchoRSP](#)

[CEchoRSP](#) this file defines the messages for the cecho action.

- class [gdcm::network::CFind](#)

- class [gdcm::network::DIMSE](#)

*[DIMSE](#) PS 3.7 - 2009 Annex E [Command Dictionary \(Normative\)](#) E.1 REGISTRY OF DICOM COMMAND ELEMENTS
[Table E.1-1 COMMAND FIELDS \(PART 1\)](#)*

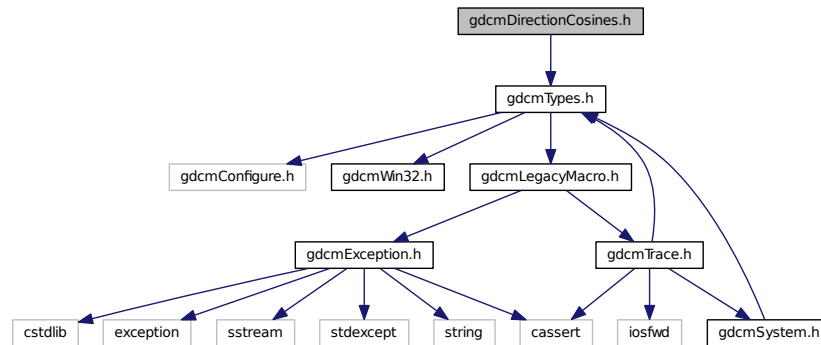
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.71 gdcmDirectionCosines.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for `gdcmdirDirectionCosines.h`:



Classes

- class [gdcmdir::DirectionCosines](#)
class to handle *DirectionCosines*

Namespaces

- [gdcmdir](#)

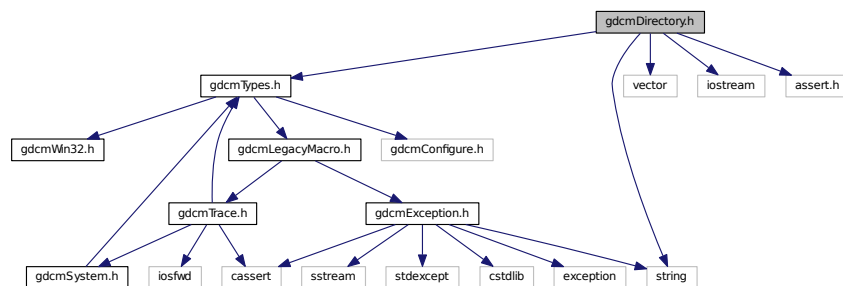
11.72 gdcmdirDirectory.h File Reference

```

#include "gdcmdirTypes.h"
#include <string>
#include <vector>
#include <iostream>
#include <assert.h>

```

Include dependency graph for `gdcmdirDirectory.h`:



Classes

- class [gdcm::DirectoryHelper](#)

DirectoryHelper this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts.

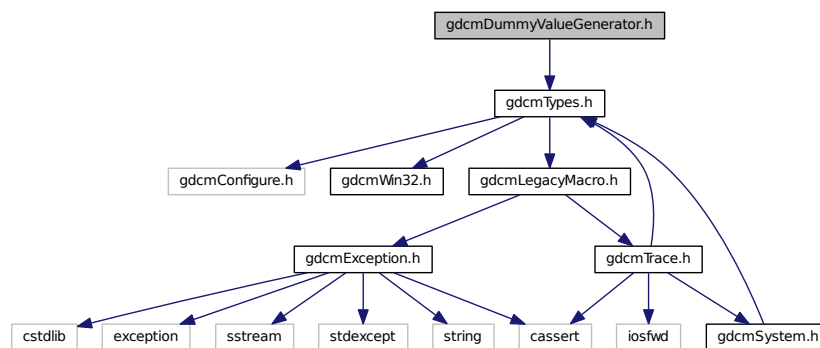
Namespaces

- [gdcm](#)

11.74 gdcmDummyValueGenerator.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmDummyValueGenerator.h:



Classes

- class [gdcm::DummyValueGenerator](#)

Class for generating dummy value.

Namespaces

- [gdcm](#)

Macros

- #define VRDS16ILLEGAL

Functions

- ignore_char const `gdcmm::backslash` ("\\")
- `std::istream & gdcmm::operator>>` (`std::istream &in`, ignore_char const &ic)
- `template<typename Float >`
`std::string gdcmm::to_string` (Float data)

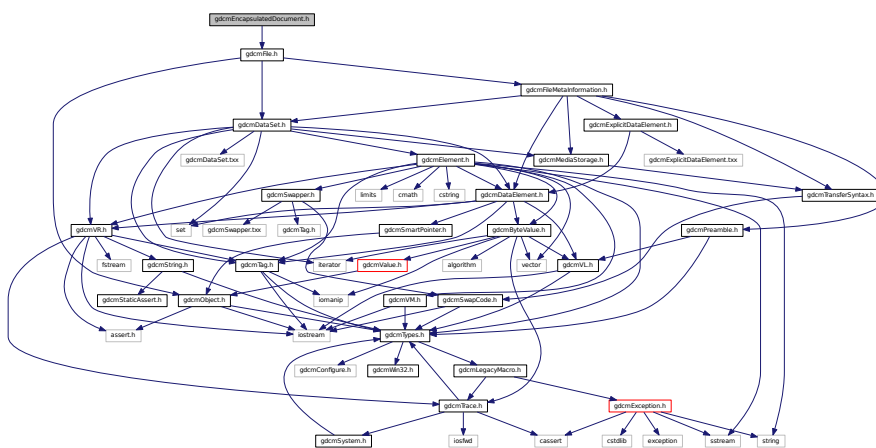
11.76.1 Macro Definition Documentation

```
11.76.1.1  #define VRDS16ILLEGAL
```

11.77 gdcMEncapsulatedDocument.h File Reference

```
#include "gdcmFile.h"
```

Include dependency graph for gdcmEncapsulatedDocument.h:



Classes

- class `gdcm::EncapsulatedDocument`
EncapsulatedDocument.

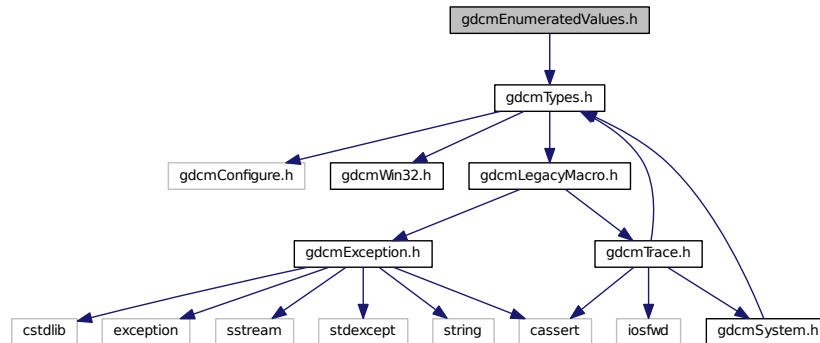
Namespaces

- **gdcm**

11.78 gdcmEnumeratedValues.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmEnumeratedValues.h:



Classes

- class [gdcm::EnumeratedValues](#)

Element. A Data [Element](#) with Enumerated Values that does not have a [Value](#) equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

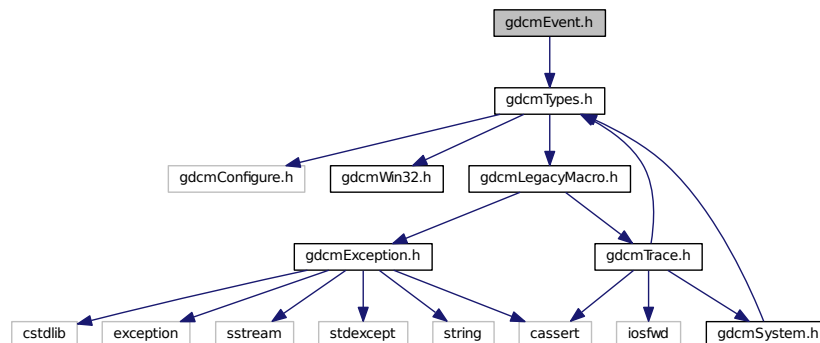
Namespaces

- [gdcm](#)

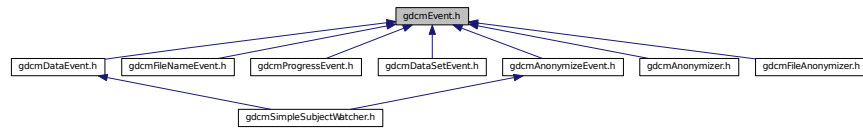
11.79 gdcmEvent.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::AbortEvent](#)
- class [gdcm::AnyEvent](#)
- class [gdcm::EndEvent](#)
- class [gdcm::Event](#)
superclass for callback/observer methods
- class [gdcm::ExitEvent](#)
- class [gdcm::InitializeEvent](#)
- class [gdcm::IterationEvent](#)
- class [gdcm::ModifiedEvent](#)
- class [gdcm::NoEvent](#)
- class [gdcm::StartEvent](#)
- class [gdcm::UserEvent](#)

Namespaces

- [gdcm](#)

Macros

- `#define gdcmEventMacro(classname, super)`

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, Event &e)`
Generic inserter operator for [Event](#) and its subclasses.

11.79.1 Macro Definition Documentation

11.79.1.1 #define gdcmEventMacro(classname, super)

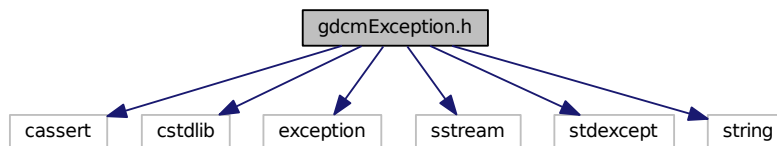
Value:

```
\
class classname : public super { \
public: \
    typedef classname Self; \
    typedef super Superclass; \
    classname() {} \
    virtual ~classname() {} \
    virtual const char * GetEventName() const { return #classname; } \
    virtual bool CheckEvent(const ::gdcm::Event* e) const \
    { return dynamic_cast<const Self*>(e) ? true : false; } \
    virtual ::gdcm::Event* MakeObject() const \
    { return new Self; } \
    classname(const Self&s) : super(s){}; \
private: \
    void operator=(const Self&); \
}
```

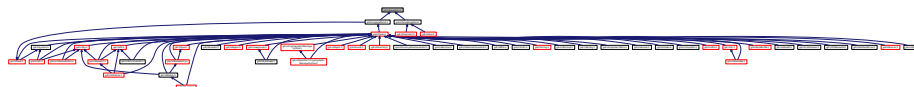
11.80 gdcmException.h File Reference

```
#include <cassert>
#include <cstdlib>
#include <exception>
#include <sstream>
#include <stdexcept>
#include <string>
```

Include dependency graph for gdcmException.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Exception](#)
Exception.

Namespaces

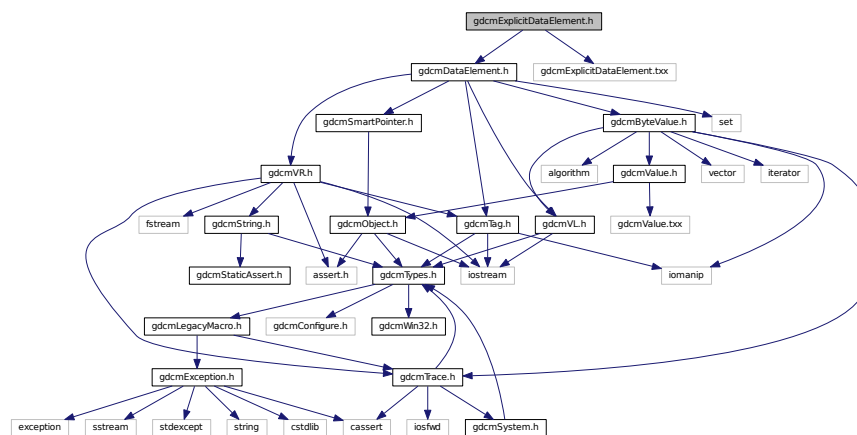
- [gdcm](#)

11.81 gdcmExplicitDataElement.h File Reference

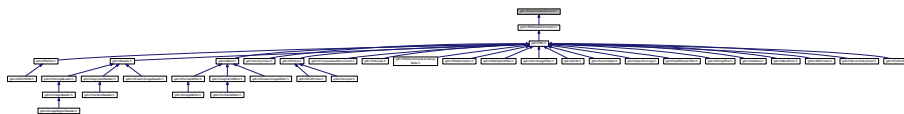
```
#include "gdcmDataElement.h"
```

```
#include "gdcmExplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitDataElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::ExplicitDataElement](#)
Class to read/write a *DataElement* as Explicit Data *Element*.

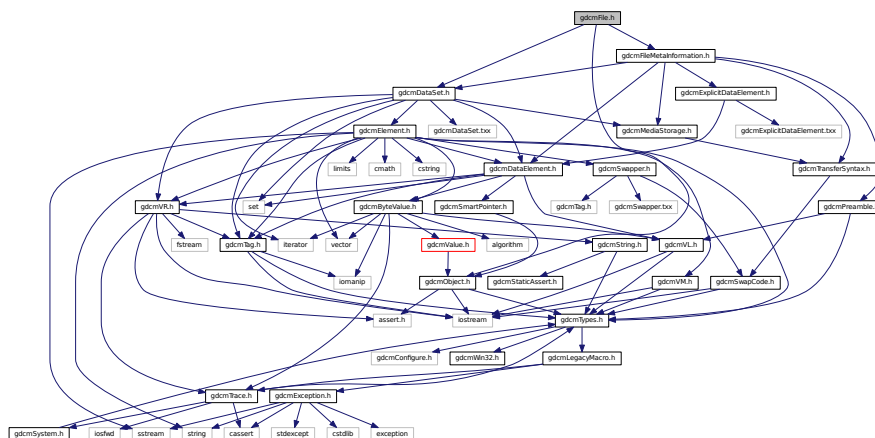
Namespaces

- [gdcm](#)

- class `gdcm::Fiducials`
Fiducials.

- **gdcm**

```
#include "gdcmObject.h"
#include "gdcmDataSet.h"
#include "gdcmFileMetaInformation.h"
Include dependency graph for gdcmFile.h:
```

[illegible]

- class `gdcm::File`

a DICOM [File](#) See PS 3.10 [File](#): A [File](#) is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the [File](#). Files are identified by a unique [File](#) ID and may be written, read and/or deleted.

Namespaces

- [gdcm](#)

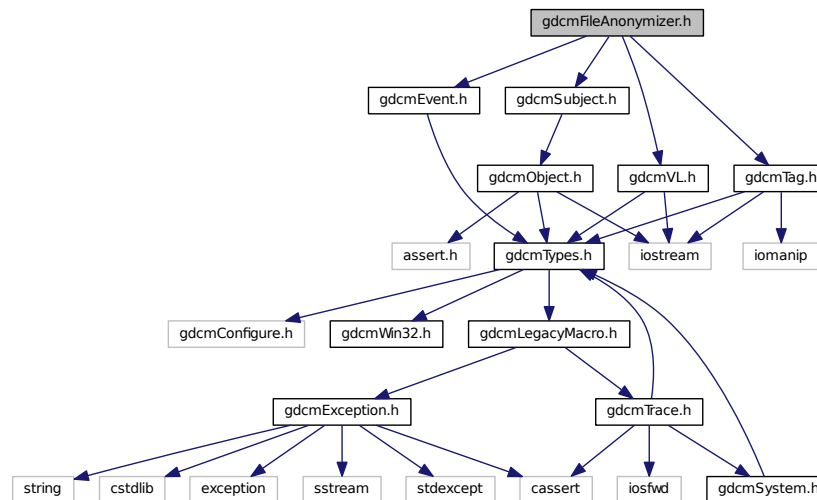
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const File &val)`

11.85 gdcmFileAnonymizer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmTag.h"
#include "gdcmVL.h"
```

Include dependency graph for `gdcmFileAnonymizer.h`:



Classes

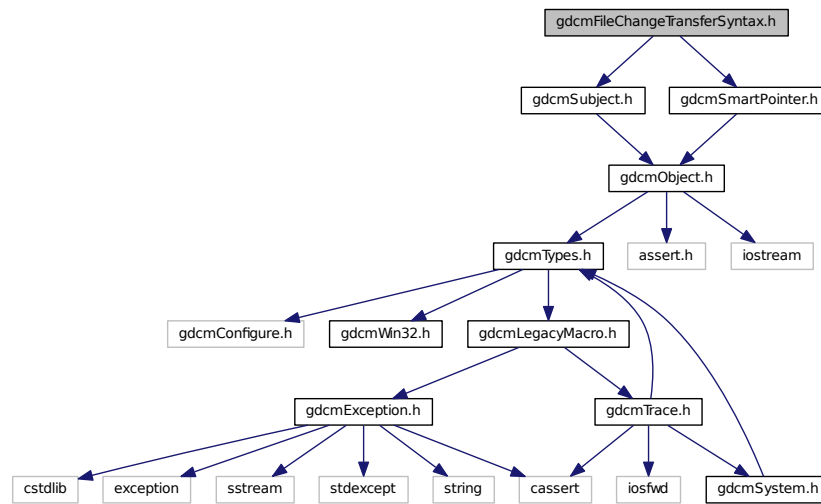
- class `gdcm::FileAnonymizer`
FileAnonymizer.

Namespaces

- [gdcm](#)

11.86 gdcmFileChangeTransferSyntax.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
Include dependency graph for gdcmFileChangeTransferSyntax.h:
```



Classes

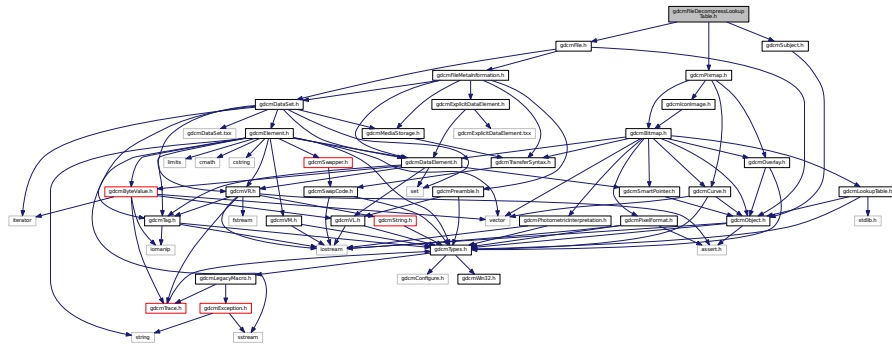
- class `gdcm::FileChangeTransferSyntax`
FileChangeTransferSyntax.

Namespaces

- `gdcm`

11.87 gdcmFileDecompressLookupTable.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmFile.h"
#include "gdcmPixmap.h"
```



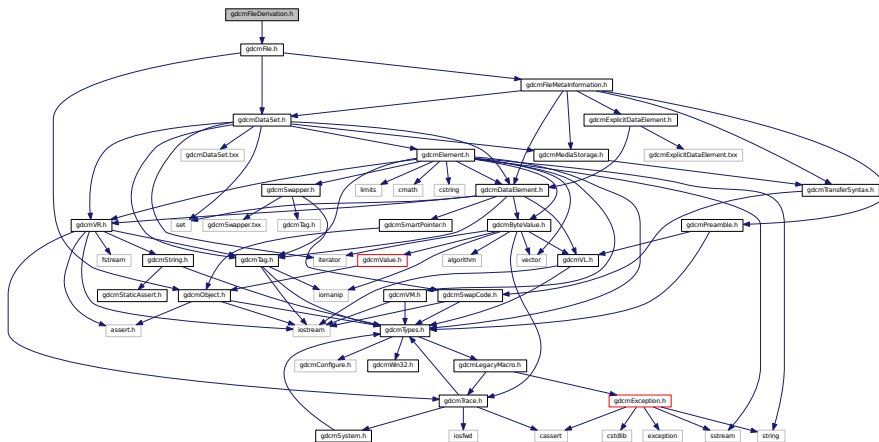
- class `gdcm::FileDecompressLookupTable`

FileDecompressLookupTable class It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a *PhotometricInterpretation*=RGB image.

- **gdcm**

```
#include "gdcmFile.h"
```

Include dependency graph for `gdcMFileDerivation.h`:



Classes

- class `gdcm::FileDerivation`

FileDerivation class See PS 3.16 - 2008 For the list of Code *Value* that can be used for in Derivation Code Sequence.

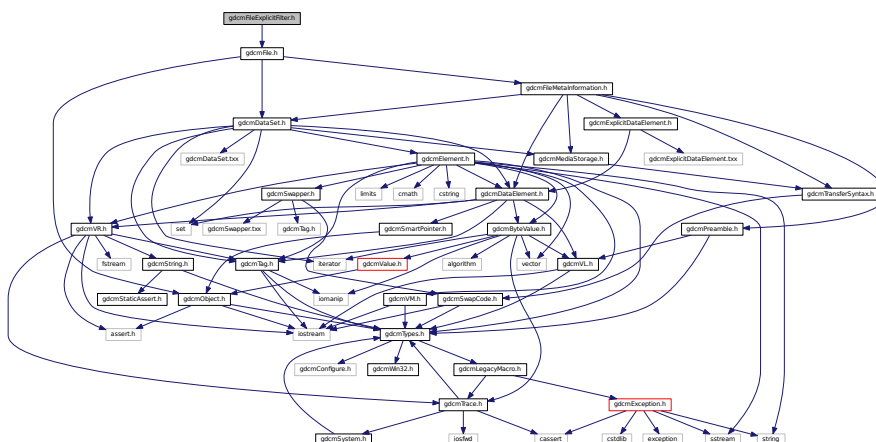
Namespaces

- **gdcm**

11.89 gdcmFileExplicitFilter.h File Reference

```
#include "gdcmFile.h"
```

Include dependency graph for `gdcmFileExplicitFilter.h`:



Classes

- class `gdcm::FileExplicitFilter`

***FileExplicitFilter** class* After changing a file from Implicit to Explicit representation (see [ImageChangeTransferSyntax](#)) one operation is to make sure the **VR** of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the **VR** is not stored directly in the file.

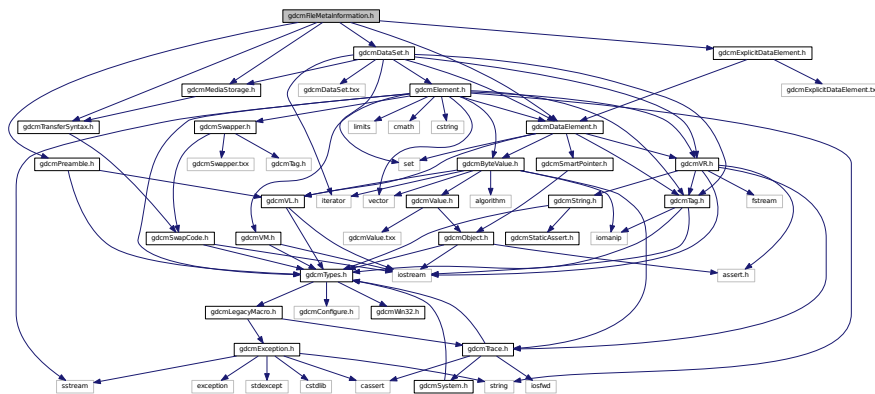
Namespaces

- **gdcm**

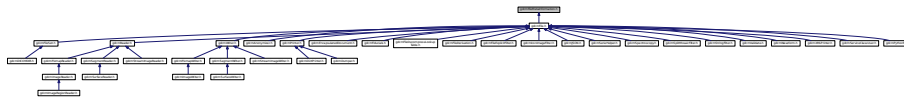
11.90 gdcmFileMetaInformation.h File Reference

```
#include "gdcmPreamble.h"
#include "gdcmDataSet.h"
#include "gdcmDataElement.h"
#include "gdcmMediaStorage.h"
#include "gdcmTransferSyntax.h"
#include "gdcmExplicitDataElement.h"
```

Include dependency graph for gdcmFileMetaInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::FileMetaInformation](#)
Class to represent a *File Meta Information*.

Namespaces

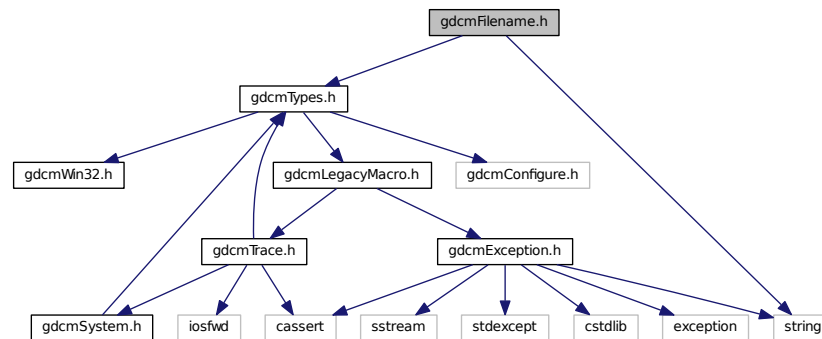
- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const FileMetaInformation &val)`

11.91 gdcmFilename.h File Reference

```
#include "gdcmTypes.h"
#include <string>
Include dependency graph for gdcmFilename.h:
```



Classes

- class [gdcm::Filename](#)
Class to manipulate file name's.

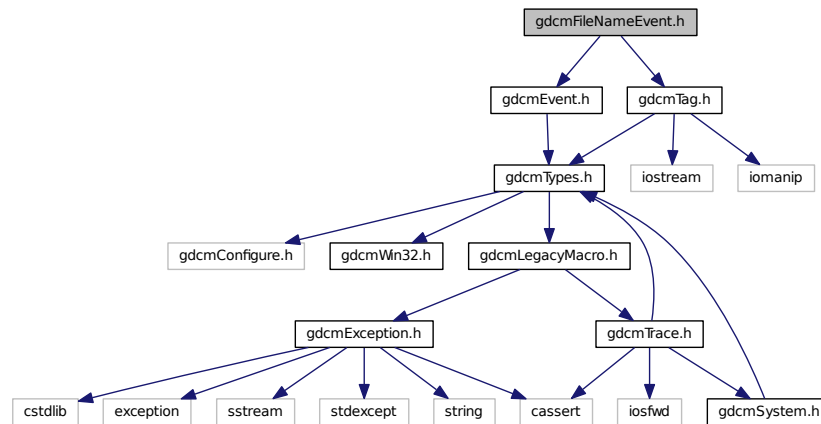
Namespaces

- [gdcm](#)

11.92 gdcmFileNameEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for `gdcmFileNameEvent.h`:



Classes

- class [gdcm::FileNameEvent](#)
FileNameEvent Special type of event triggered during processing of *FileSet*.

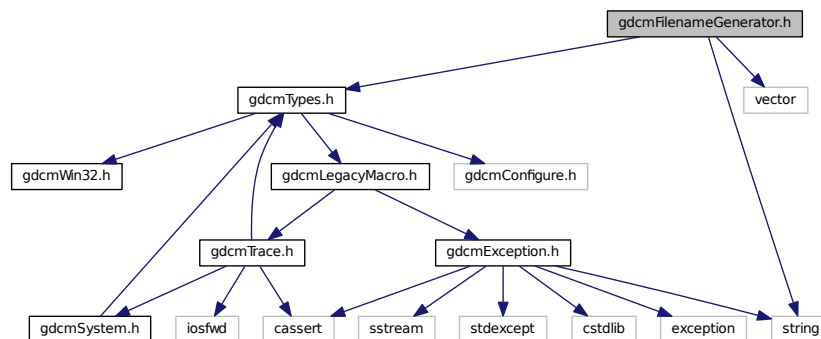
Namespaces

- [gdcm](#)

11.93 gdcmFilenameGenerator.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
```

Include dependency graph for `gdcmFilenameGenerator.h`:



Classes

- class `gdcm::FilenameGenerator`
FilenameGenerator.

Namespaces

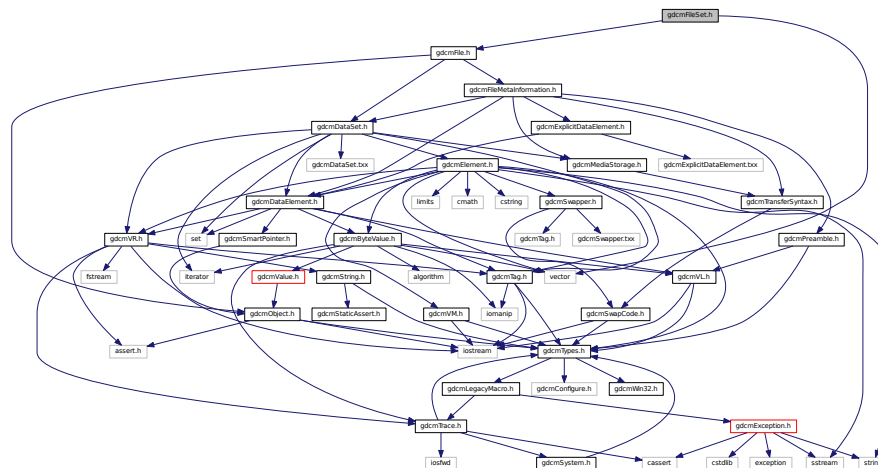
- **gdcm**

11.94 gdcmFileSet.h File Reference

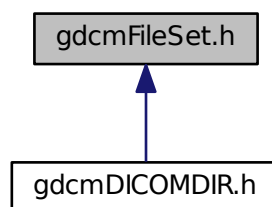
```
#include "gdcmFile.h"
```

```
#include <vector>
```

Include dependency graph for gdcMFileSet.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::FileSet](#)

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which [File](#) IDs are unique.

Namespaces

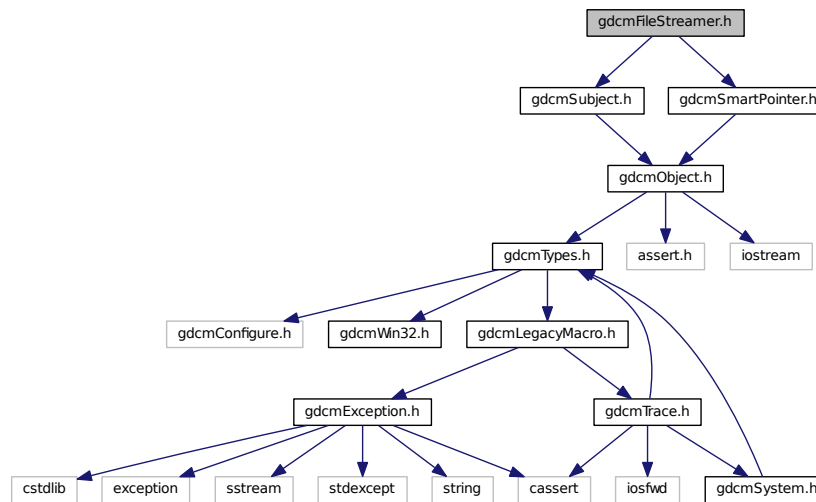
- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const FileSet &f)`

11.95 gdcmFileStreamer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
Include dependency graph for gdcmFileStreamer.h:
```



Classes

- class [gdcm::FileStreamer](#)

[FileStreamer](#) This class let a user create a massive DICOM [DataSet](#) from a template DICOM file, by appending chunks of data.

- **gdcm**


```
graph TD; gdcmFragment.h[gdcmFragment.h]; gdcmBasicOffsetTable.h[gdcmBasicOffsetTable.h]; gdcmSequenceOfFragments.h[gdcmSequenceOfFragments.h]; gdcmBasicOffsetTable.h --> gdcmFragment.h; gdcmSequenceOfFragments.h --> gdcmFragment.h; gdcmSequenceOfFragments.h --> gdcmBasicOffsetTable.h;
```

- class `gdcm::Fragment`
Class to represent a `Fragment`.

- **gdcm**

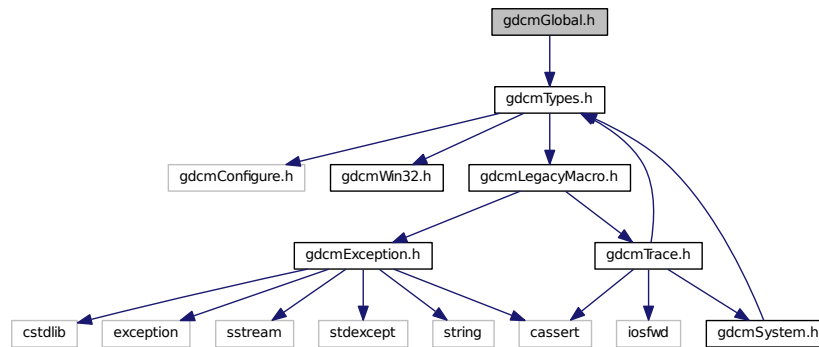
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Fragment &val)`

11.99 gdcmGlobal.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for `gdcmGlobal.h`:



Classes

- class `gdcm::Global`
Global.

Namespaces

- `gdcm`

Functions

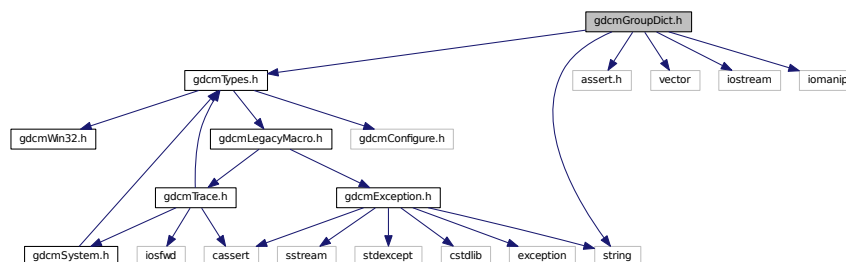
- `std::ostream & gdcm::operator<< (std::ostream &os, const Global &g)`

Variables

- static Global `gdcm::GlobalInstance`

11.100 gdcmGroupDict.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
#include <vector>
#include <string>
#include <iostream>
#include <iomanip>
Include dependency graph for gdcmGroupDict.h:
```



Classes

- class [gdcm::GroupDict](#)

Class to represent the mapping from group number to its abbreviation and name.

Namespaces

- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const GroupDict &_val)`

11.101 gdcmIconImage.h File Reference

```
#include "gdcmBitmap.h"
```


- class `gdcm::IconImageFilter`

Namespaces

- **gdcm**

```
#include "gdcmPixmap.h"
#include "gdcmIconImage.h"
```


Classes

- class `gdcm::Image`

Image This is the container for an *Image* in the general sense. From this container you should be able to request information like:

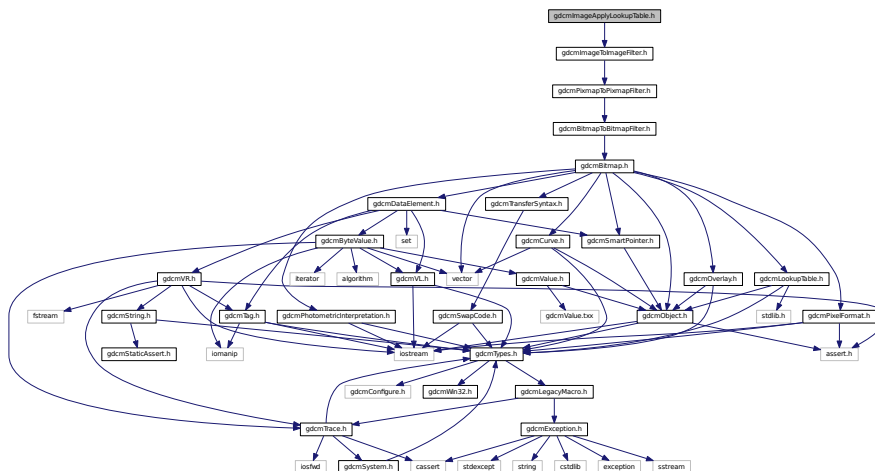
Namespaces

- **gdcm**

11.105 gdcmlImageApplyLookupTable.h File Reference

```
#include "gdcmImageToImageFilter.h"
```

Include dependency graph for gdcmlImageApplyLookupTable.h:



Classes

- class `gdcm::ImageApplyLookupTable`

ImageApplyLookupTable class It applies the LUT the **PixelData** (only **PALETTE_COLOR** images) Output will be a **PhotometricInterpretation=RGB** image.

Namespaces

- **gdcm**

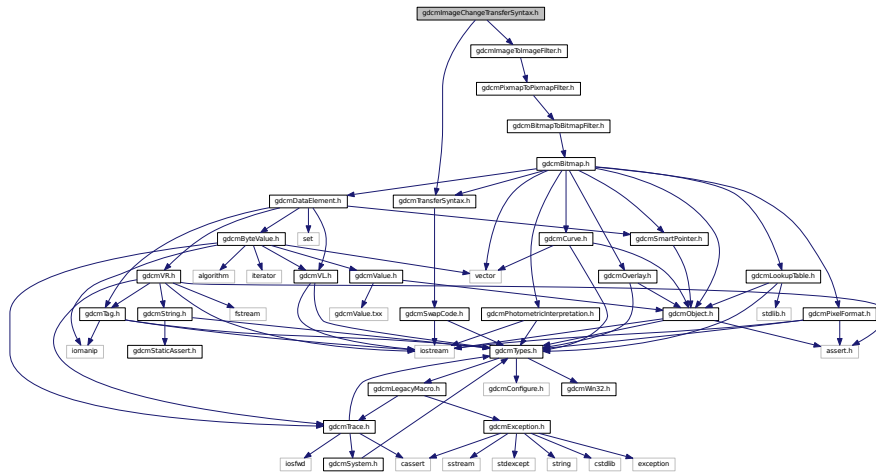
- class `gdcm::ImageChangePlanarConfiguration`

Namespaces

- gdc

```
#include "gdcmImageToImageFilter.h"
#include "gdcmTransferSyntax.h"
```

Include dependency graph for `gdcmImageChangeTransferSyntax.h`:



Classes

- class `gdcm::ImageChangeTransferSyntax`

ImageChangeTransferSyntax class Class to change the transfer syntax of an input DICOM.

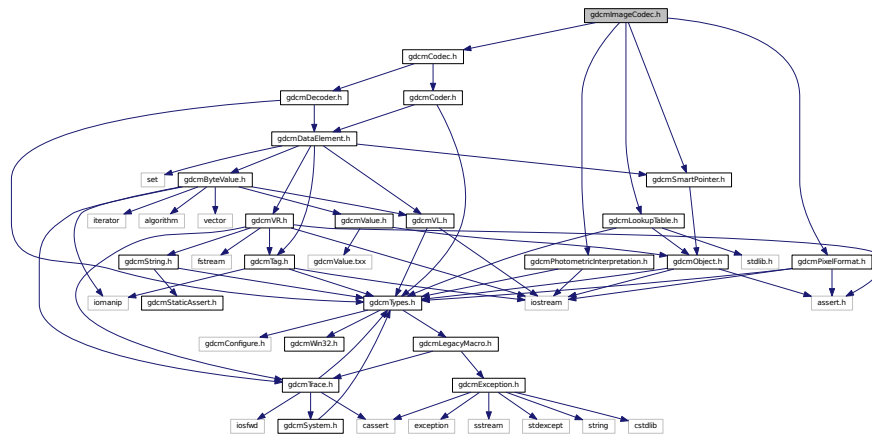
Namespaces

- `gdcm`

11.109 gdcmImageCodec.h File Reference

```
#include "gdcmCodec.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmLookupTable.h"
#include "gdcmSmartPointer.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmImageCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

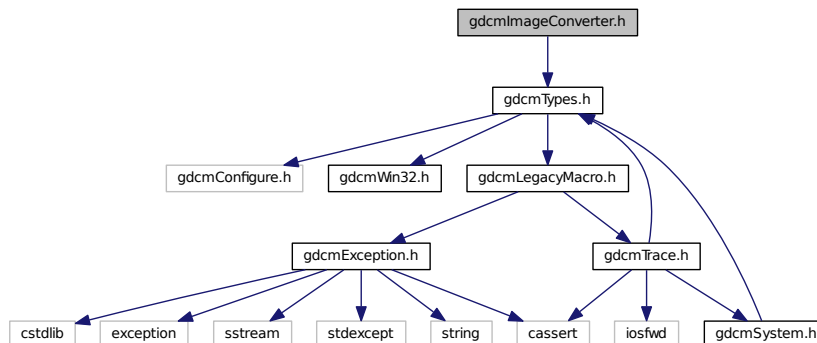
- class [gdcm::ImageCodec](#)
ImageCodec.

Namespaces

- [gdcm](#)

11.110 gdcmImageConverter.h File Reference

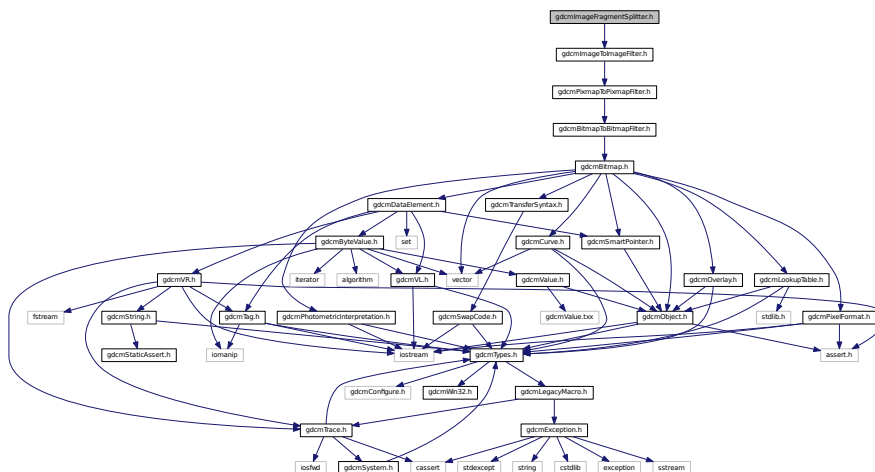
```
#include "gdcmTypes.h"
```



- class `gdcm::ImageConverter`
Image Converter.

- **gdcm**

```
#include "gdcmImageToImageFilter.h"
Include dependency graph for gdcmImageFragmentSplitter.h:
```



Classes

- class [gdcm::ImageFragmentSplitter](#)
ImageFragmentSplitter class For single frame image, DICOM standard allow splitting the frame into multiple fragments.

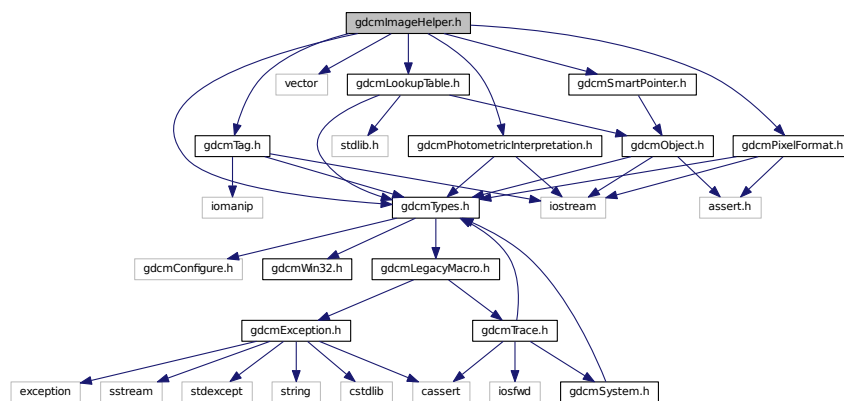
Namespaces

- [gdcm](#)

11.112 gdcmImageHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include <vector>
#include "gdcmPixelFormat.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmSmartPointer.h"
#include "gdcmLookupTable.h"
```

Include dependency graph for gdcmImageHelper.h:

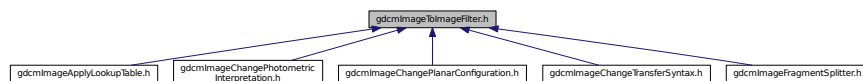
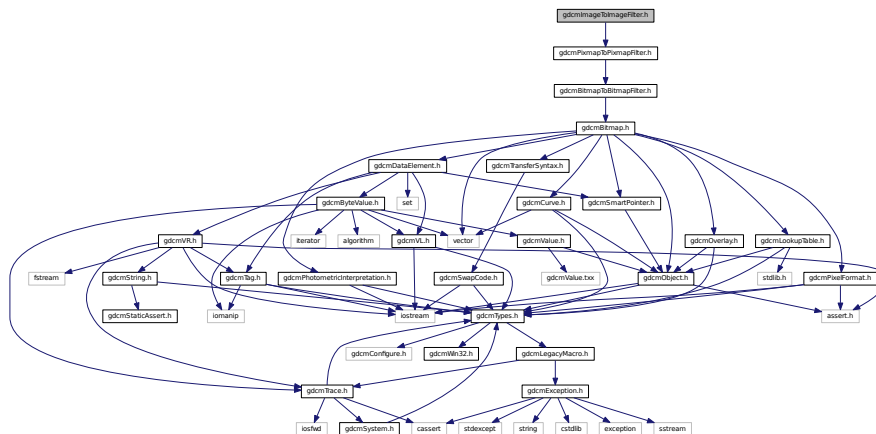


Classes

- class [gdcm::ImageHelper](#)
ImageHelper (internal class, not intended for user level)
- struct [gdcm::RealWorldValueMappingContent](#)

Namespaces

- [gdcm](#)



- class `gdcm::ImageToImageFilter`
ImageToImageFilter class Super class for all filter taking an image and producing an output image.

- `gdcm`

```
#include "gdcmPixmapWriter.h"
#include "gdcmImage.h"
```

[illegible]

- class `gdcm::ImageWriter`
ImageWriter.

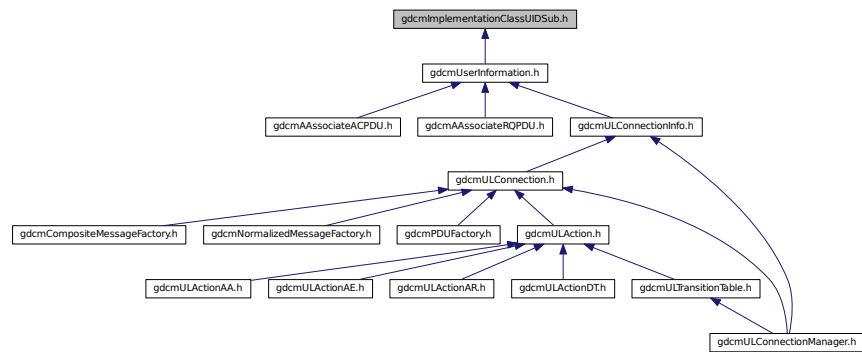
- **gdcm**

```
#include "gdcmTypes.h"
```

```

graph TD
    A[gdcmImplementationClassUIDSub.h] --> B[gdcTypes.h]
    B --> C[gdcmConfigure.h]
    B --> D[gdcmWin32.h]
    B --> E[gdcmLegacyMacro.h]
    E --> F[gdcException.h]
    E --> G[gdcTrace.h]
    F --> H[cstdlib]
    F --> I[exception]
    F --> J[sstream]
    F --> K[stdexcept]
    F --> L[string]
    F --> M[cassert]
    F --> N[iosfwd]
    F --> O[gdcSystem.h]
    G --> N
    G --> O
    O --> N
  
```

This graph shows which files directly or indirectly include this file:



Classes

- class [gdcml::network::ImplementationClassUIDSub](#)
[ImplementationClassUIDSub](#) PS 3.7 Table D-3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIAT↔E-RQ)

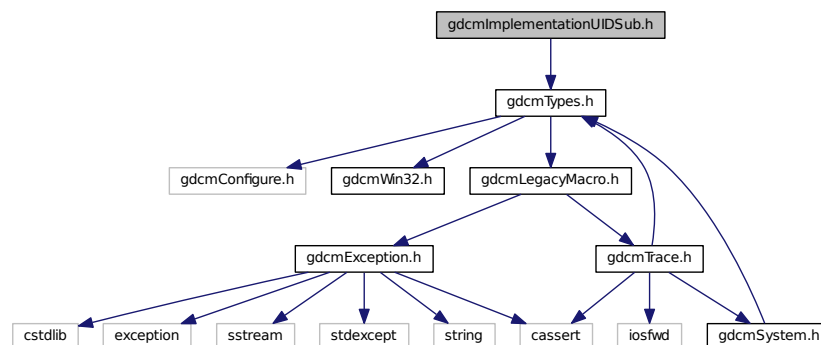
Namespaces

- [gdcml](#)
- [gdcml::network](#)

11.118 gdcmlImplementationUIDSub.h File Reference

```
#include "gdcmlTypes.h"
```

Include dependency graph for gdcmlImplementationUIDSub.h:



Classes

- class [gdcm::network::ImplementationUIDSub](#)
ImplementationUIDSub Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

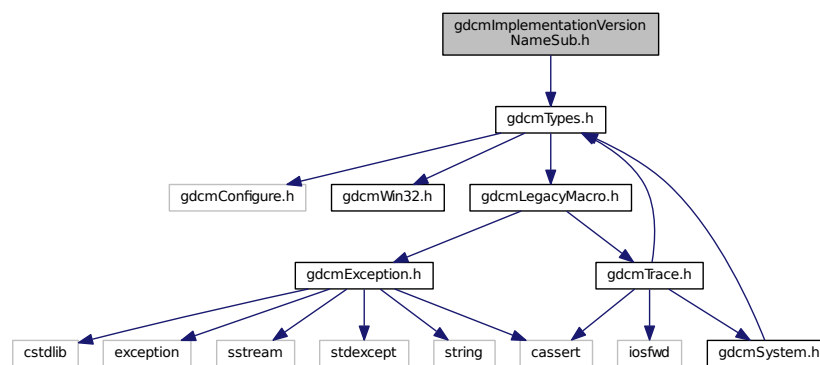
Namespaces

- [gdcm](#)
- [gdcm::network](#)

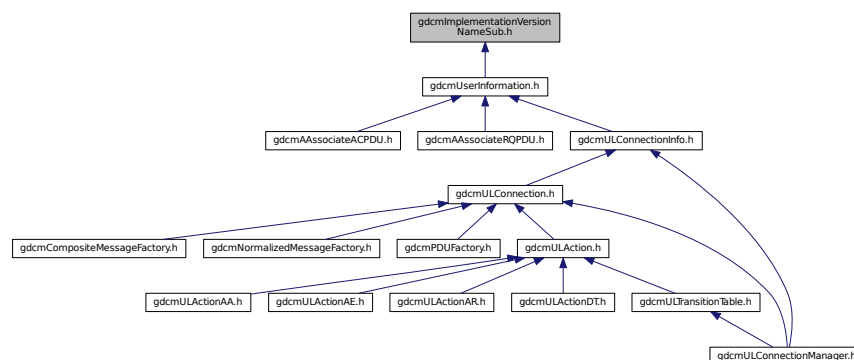
11.119 gdcmImplementationVersionNameSub.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmImplementationVersionNameSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::ImplementationVersionNameSub](#)

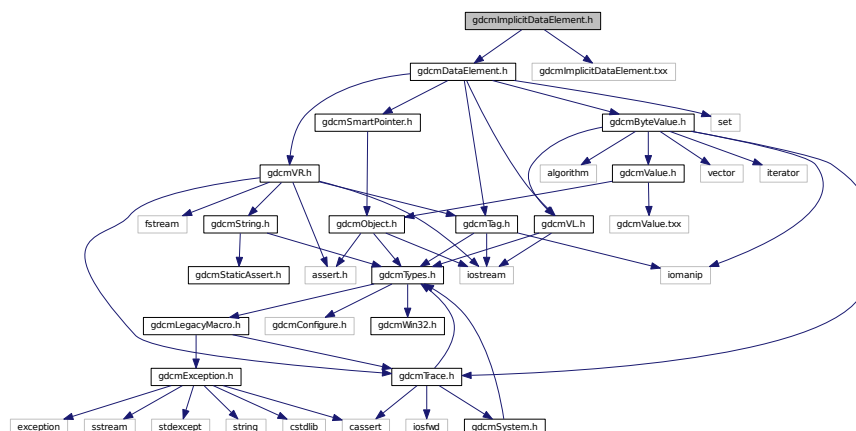
ImplementationVersionNameSub Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.120 gdcmImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmImplicitDataElement.txx"
Include dependency graph for gdcmImplicitDataElement.h:
```



Classes

- class [gdcm::ImplicitDataElement](#)

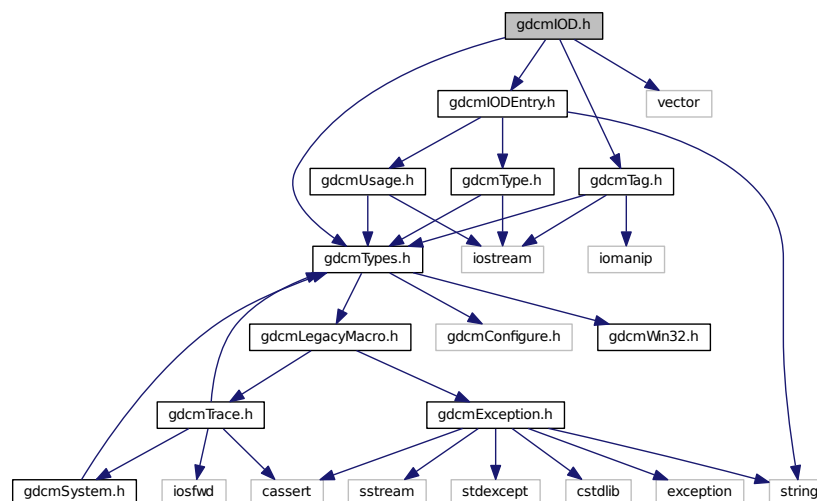
Class to represent an Implicit VR Data Element.

Namespaces

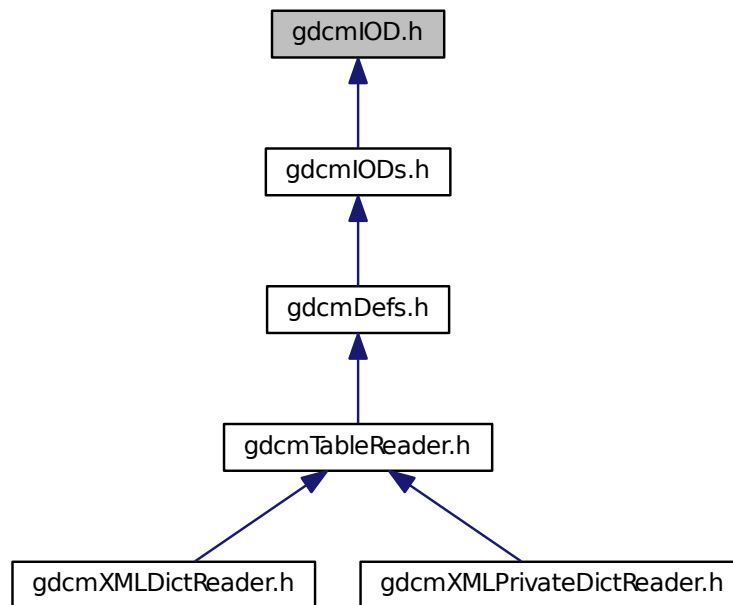
- [gdcm](#)

11.121 gdcmIOD.h File Reference

```
#include "gdcmTypes.h"  
#include "gdcmTag.h"  
#include "gdcmIODEntry.h"  
#include <vector>  
Include dependency graph for gdcmIOD.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcml::IOD](#)
Class for representing a [IOD](#).

Namespaces

- [gdcml](#)

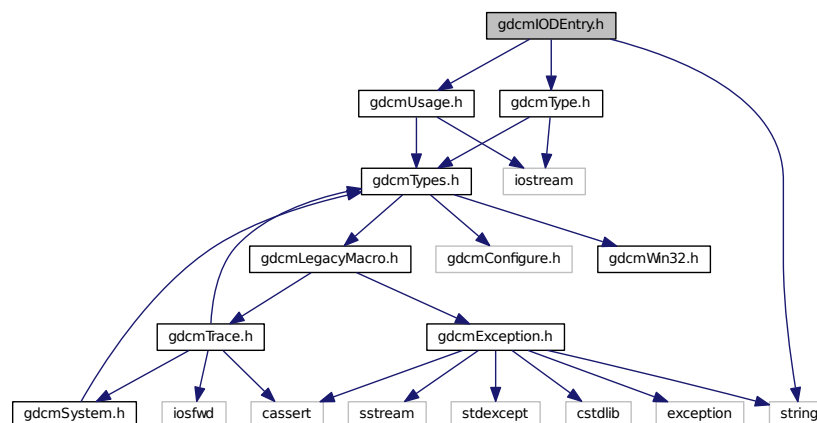
Functions

- `std::ostream & gdcml::operator<< (std::ostream &_os, const IOD &_val)`

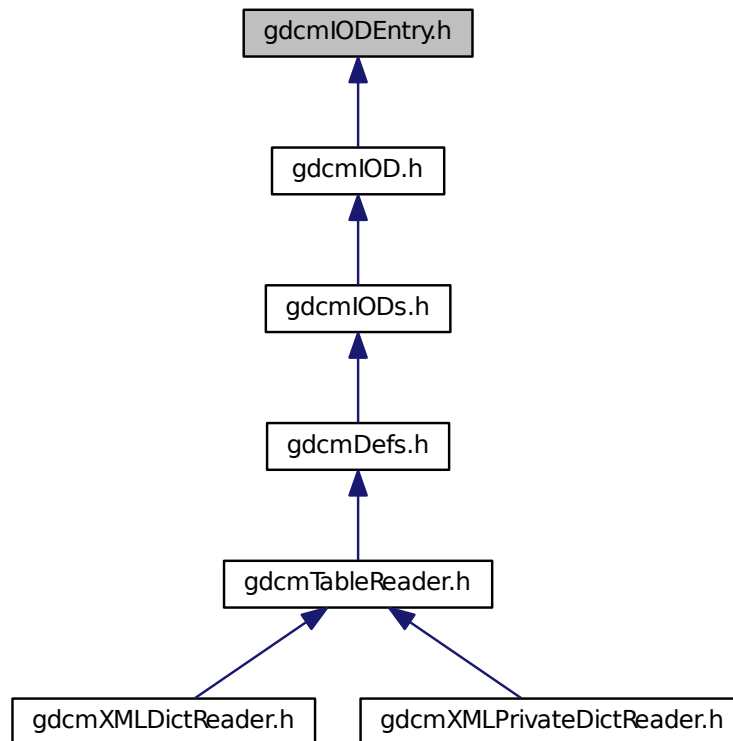
11.122 gdcmIODEntry.h File Reference

```
#include "gdcmUsage.h"  
#include "gdcmType.h"  
#include <string>
```

Include dependency graph for gdcmIODEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcml::IODEntry](#)
Class for representing a [IODEntry](#).

Namespaces

- [gdcml](#)

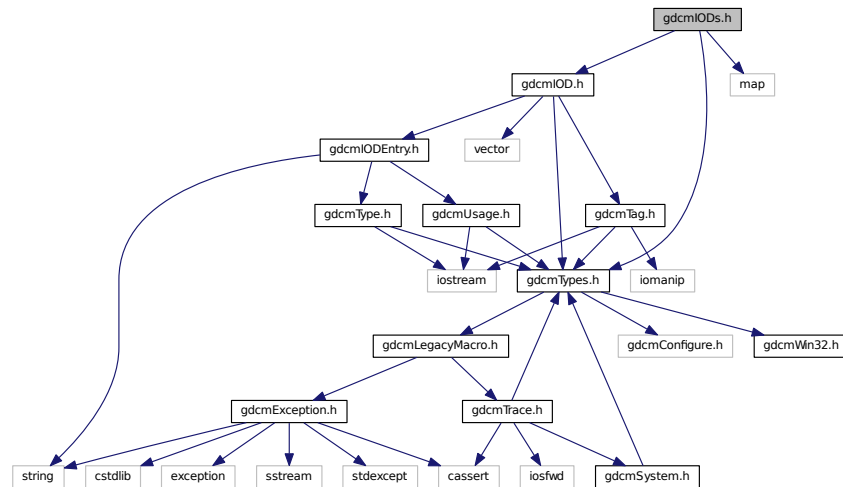
Functions

- `std::ostream & gdcml::operator<< (std::ostream &_os, const IODEntry &_val)`

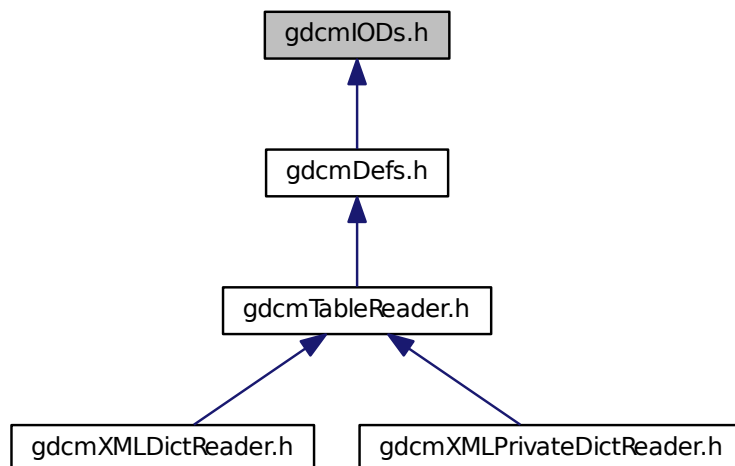
11.123 gdcmIODs.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmIOD.h"
#include <map>
```

Include dependency graph for gdcmIODs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::IODs](#)
Class for representing a *IODs*.

Namespaces

- [gdcm](#)

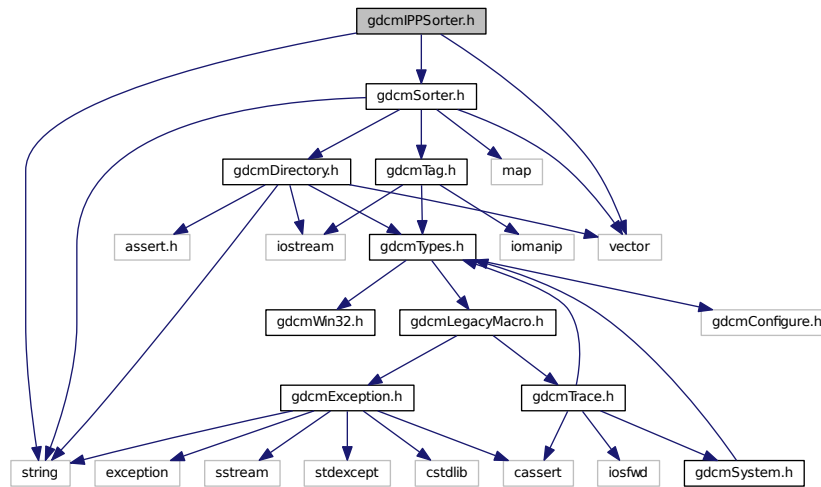
Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const IODs &_val)`

11.124 gdcmIPPSorter.h File Reference

```
#include "gdcmSorter.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmIPPSorter.h:



Classes

- class [gdcm::IPPSorter](#)
IPPSorter Implement a simple *Image* Position (*Patient*) sorter, along the *Image Orientation* (*Patient*) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

Namespaces

- [gdcm](#)

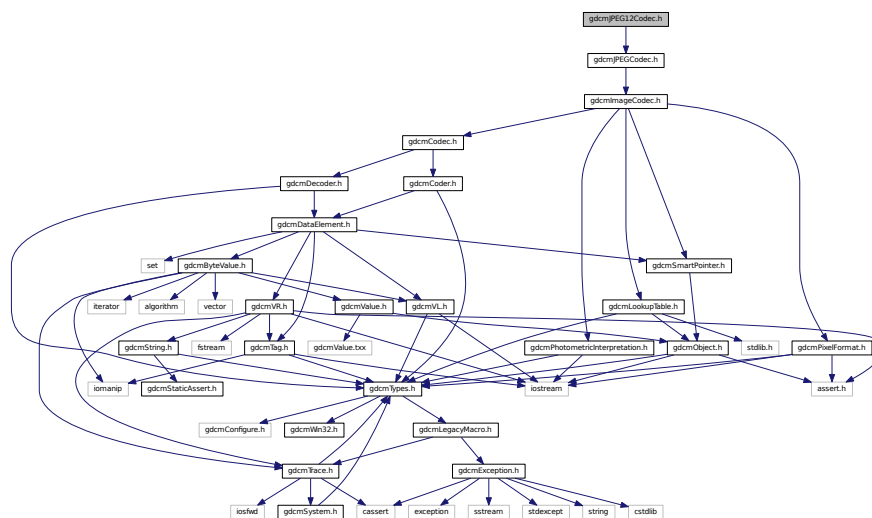
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Item &val)`

11.126 gdcmJPEG12Codec.h File Reference

```
#include "gdcmJPEGCodec.h"
```

Include dependency graph for `gdcmJPEG12Codec.h`:



Classes

- class [gdcm::JPEG12Codec](#)
Class to do JPEG 12bits (lossy & lossless)

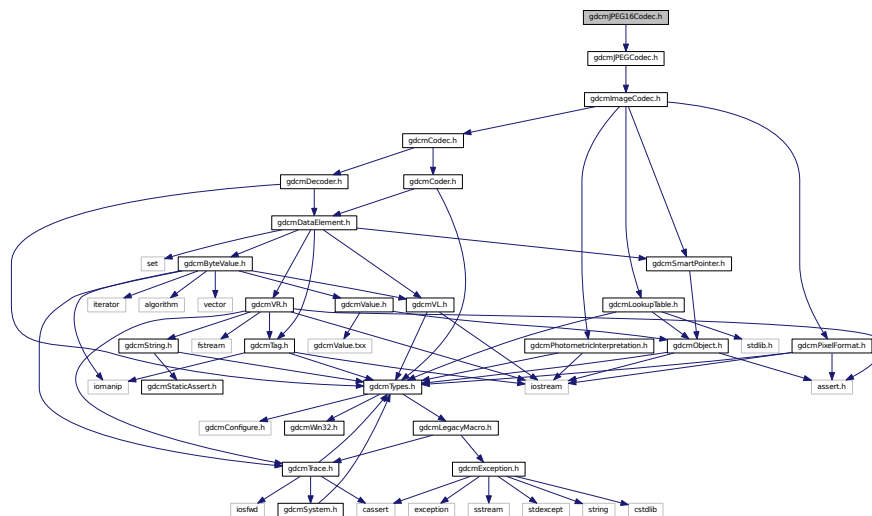
Namespaces

- [gdcm](#)

11.127 gdcmJPEG16Codec.h File Reference

```
#include "gdcmJPEGCodec.h"
```

Include dependency graph for gdcmJPEG16Codec.h:



Classes

- class [gdcm::JPEG16Codec](#)
Class to do JPEG 16bits (lossless)

Namespaces

- [gdcm](#)

11.128 gdcmJPEG2000Codec.h File Reference

```
#include "gdcmImageCodec.h"
```

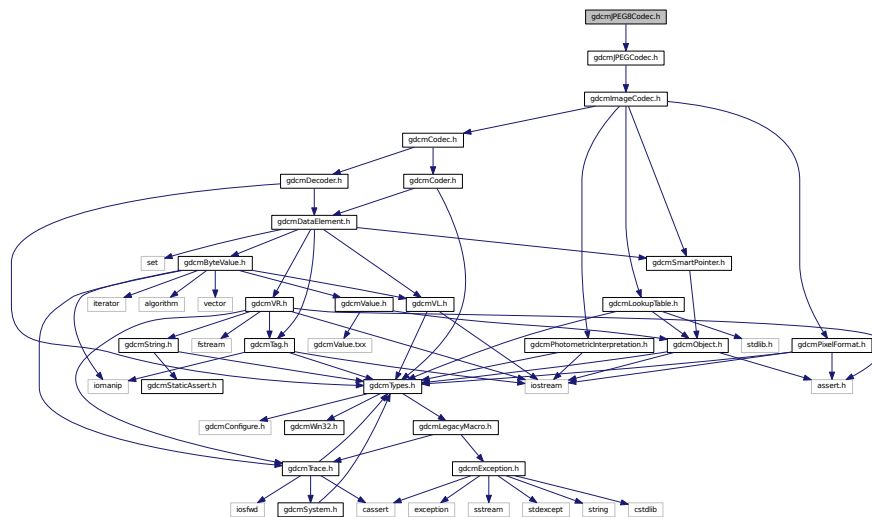
[illegible]

- class `gdcm::JPEG2000Codec`
Class to do JPEG 2000.

- gdc

```
#include "gdcmJPEGCodec.h"
```


Include dependency graph for gdcmJPEG8Codec.h:



Classes

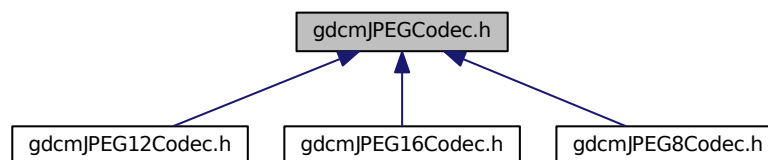
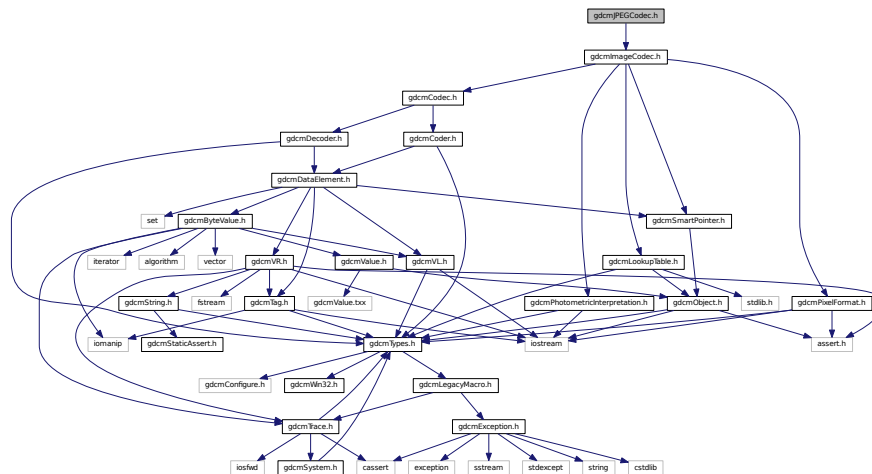
- class [gdcm::JPEG8Codec](#)
Class to do JPEG 8bits (lossy & lossless)

Namespaces

- [gdcm](#)

11.130 gdcmJPEGCodec.h File Reference

```
#include "gdcmImageCodec.h"
```



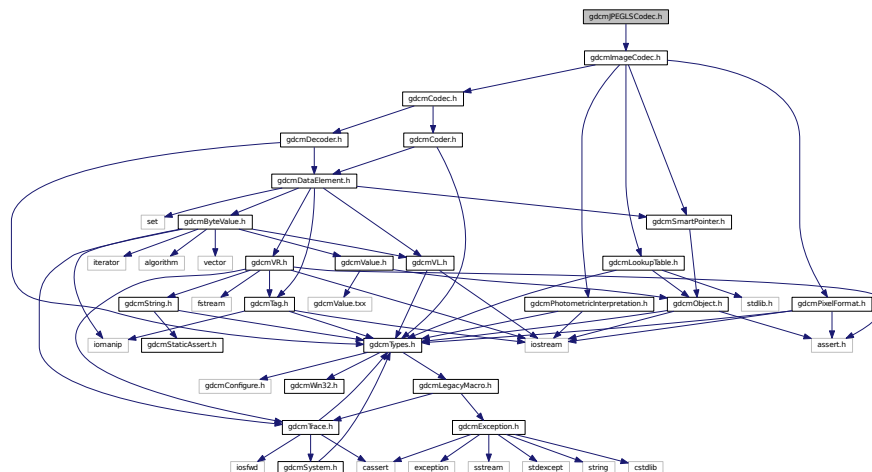
- IPEG_codec Class to c

-

11.131 gdcmJPEGLSCodec.h File Reference

```
#include "gdcmImageCodec.h"
```

Include dependency graph for gdcmJPEGLSCodec.h:



Classes

- class [gdcm::JPEGLSCodec](#)
JPEG-LS.

Namespaces

- [gdcm](#)

11.132 gdcmJSON.h File Reference

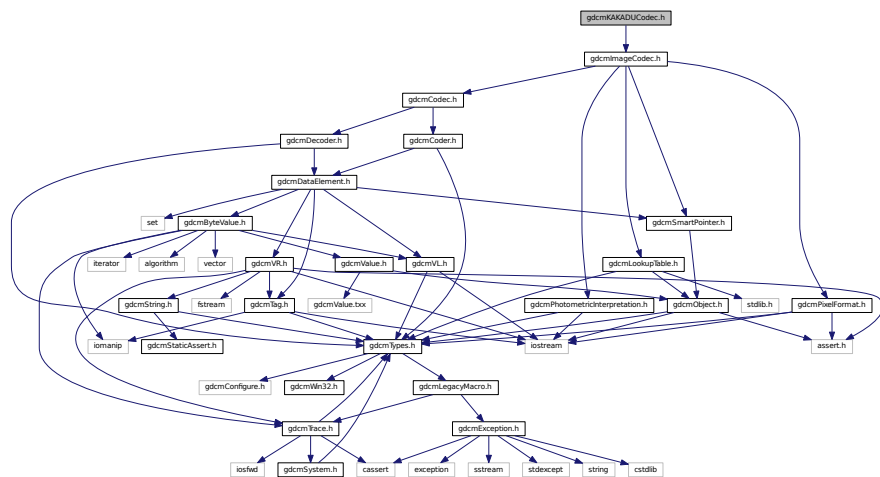
```
#include "gdcmFile.h"
```

```
#include "gdcmDataElement.h"
```

- class `gdcm::JSON`

- `gdcm`

```
#include "gdcmImageCodec.h"
Include dependency graph for gdcmKAKADUCodec.h:
```



Classes

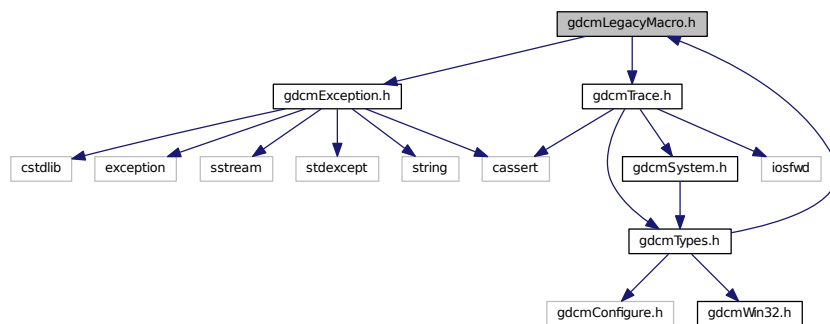
- class [gdcm::KAKADUCodec](#)
KAKADUCodec.

Namespaces

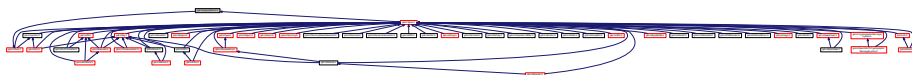
- [gdcm](#)

11.134 gdcmLegacyMacro.h File Reference

```
#include "gdcmException.h"
#include "gdcmTrace.h"
Include dependency graph for gdcmLegacyMacro.h:
```



This graph shows which files directly or indirectly include this file:



Macros

- #define [GDCM_LEGACY](#)(method) method;
- #define [GDCM_LEGACY_BODY](#)(method, version) [gdcmWarningMacro](#)(#method " was deprecated for " version " and will be removed in a future version.")
- #define [GDCM_LEGACY_REPLACED_BODY](#)(method, version, replace) [gdcmWarningMacro](#)(#method " was deprecated for " version " and will be removed in a future version. Use " #replace " instead.")

11.134.1 Macro Definition Documentation

11.134.1.1 `#define GDCM_LEGACY(method) method;`

Referenced by `gdcm::StringFilter::UseDictAlways()`.

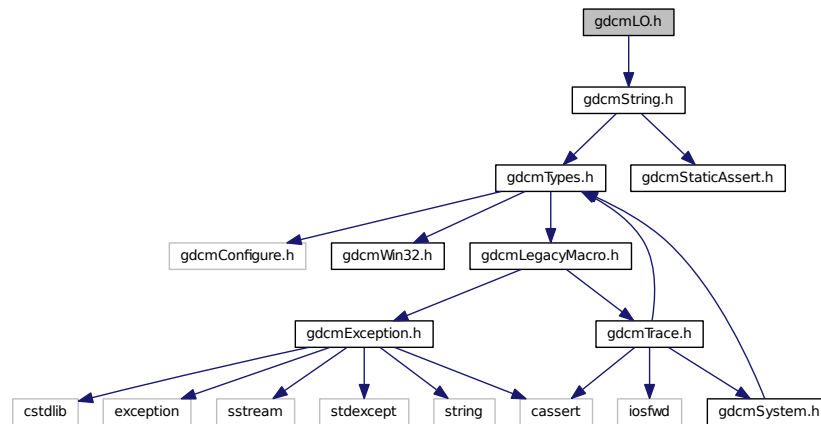
11.134.1.2 `#define GDCM_LEGACY_BODY(method, version) gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")`

11.134.1.3 `#define GDCM_LEGACY_REPLACED_BODY(method, version, replace) gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version. Use " #replace " instead.")`

11.135 gdcmLO.h File Reference

`#include "gdcmString.h"`

Include dependency graph for `gdcmLO.h`:



Classes

- class `gdcm::LO`
`LO`.

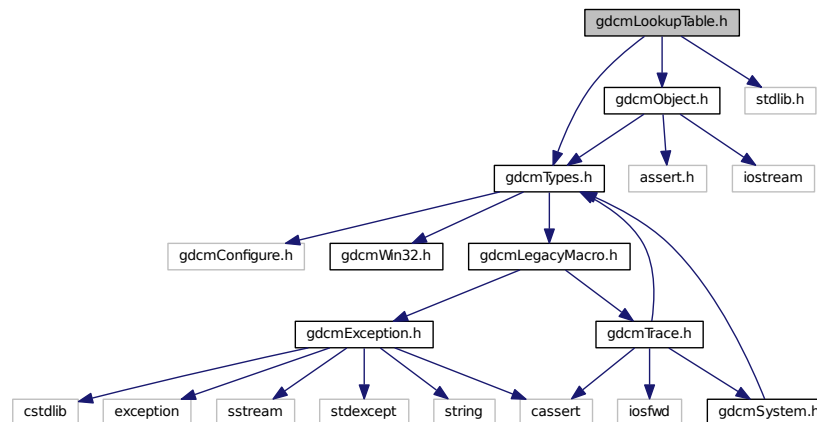
Namespaces

- `gdcm`

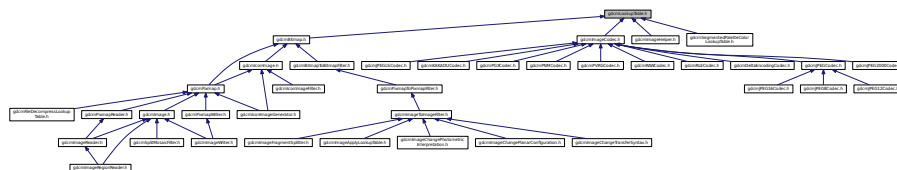
11.136 gdcmLookupTable.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <stdlib.h>
```

Include dependency graph for gdcmLookupTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::LookupTable](#)
LookupTable class.

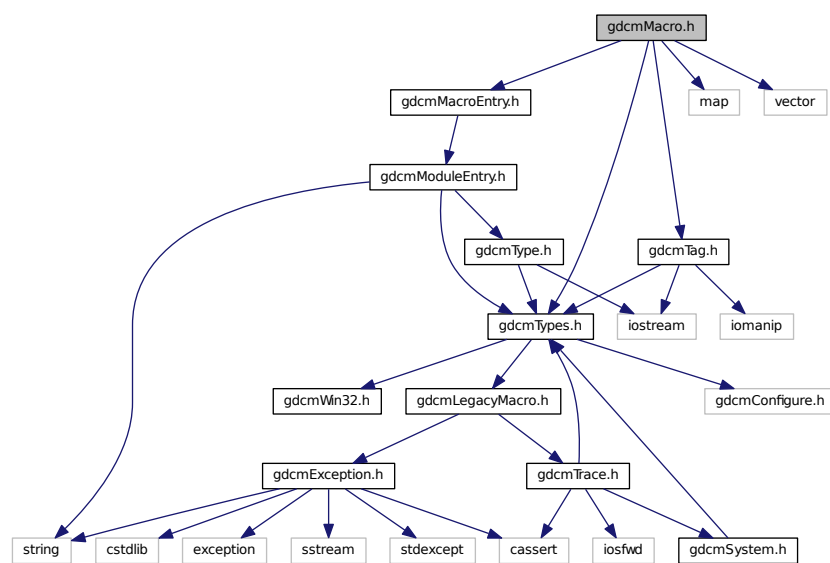
Namespaces

- [gdcm](#)

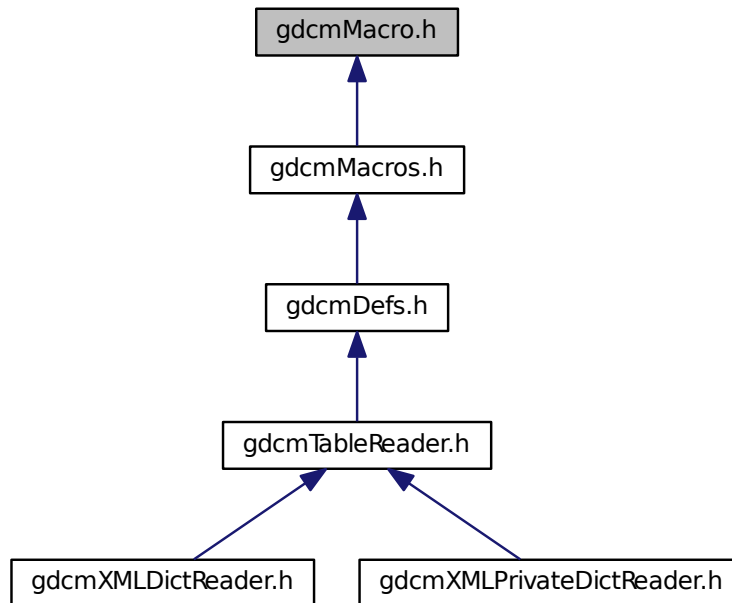
11.137 gdcmMacro.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmMacroEntry.h"
#include <map>
#include <vector>
```

Include dependency graph for gdcmMacro.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Macro](#)
Class for representing a [Macro](#).

Namespaces

- [gdcm](#)

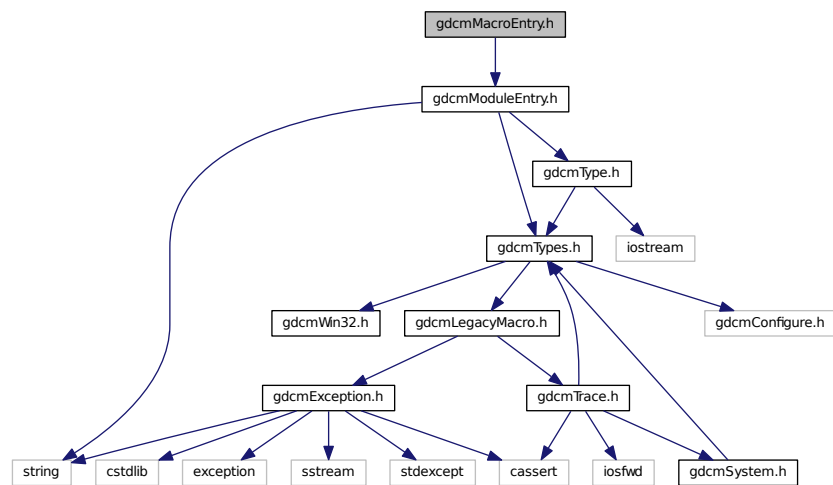
Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const Macro &_val)`

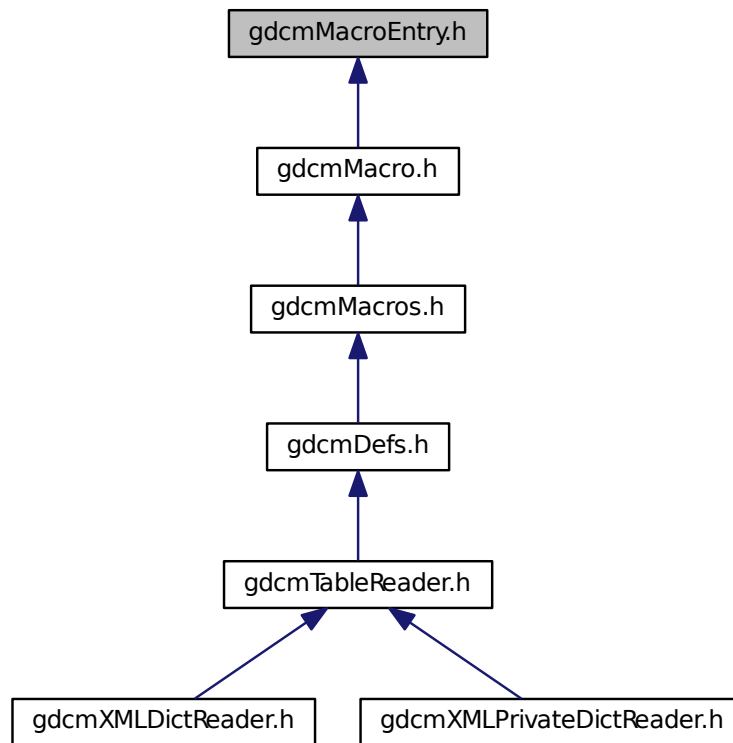
11.138 gdcmMacroEntry.h File Reference

```
#include "gdcmModuleEntry.h"
```

Include dependency graph for gdcmMacroEntry.h:



This graph shows which files directly or indirectly include this file:



Macros

- `#define GDCMMACROENTRY_H`

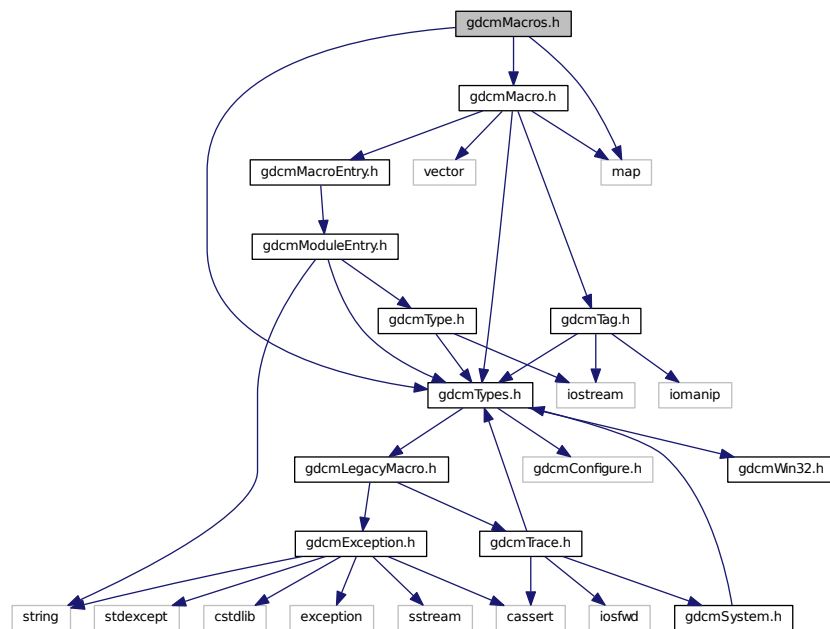
11.138.1 Macro Definition Documentation

11.138.1.1 `#define GDCMMACROENTRY_H`

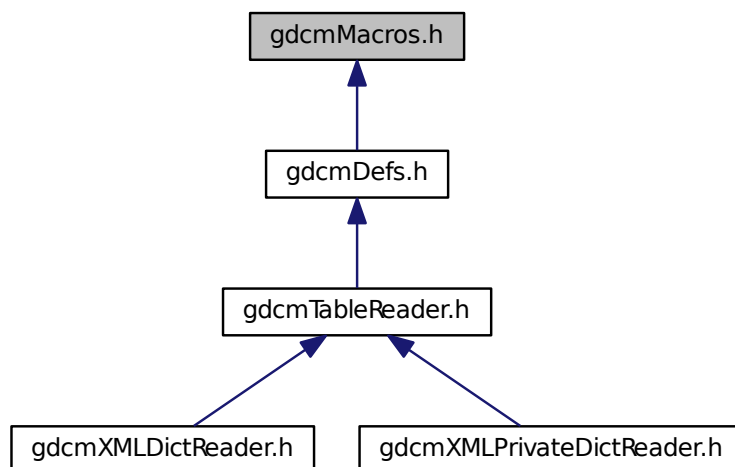
11.139 gdcmMacros.h File Reference

```
#include "gdcmTypes.h"  
#include "gdcmMacro.h"  
#include <map>
```

Include dependency graph for `gdcmMacros.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Macros](#)
Class for representing a [Modules](#).

Namespaces

- [gdcm](#)

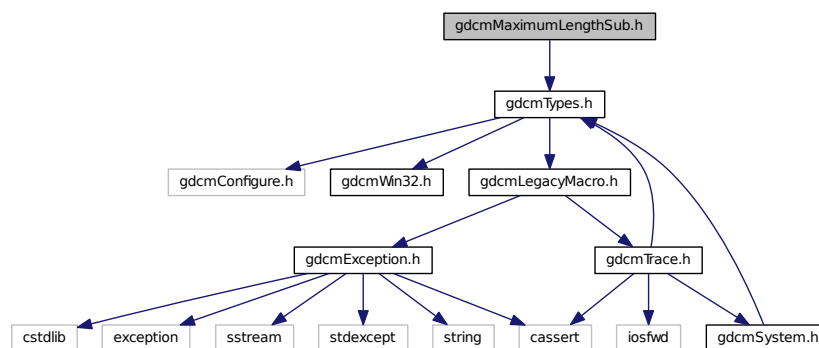
Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const Macros &_val)`

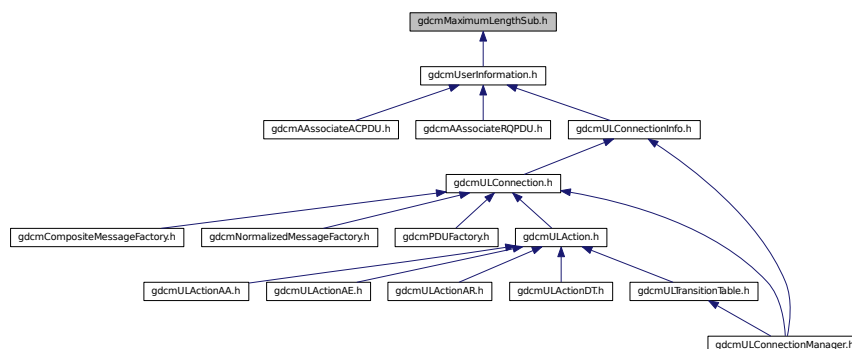
11.140 gdcmMaximumLengthSub.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmMaximumLengthSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::MaximumLengthSub](#)

[MaximumLengthSub](#) Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

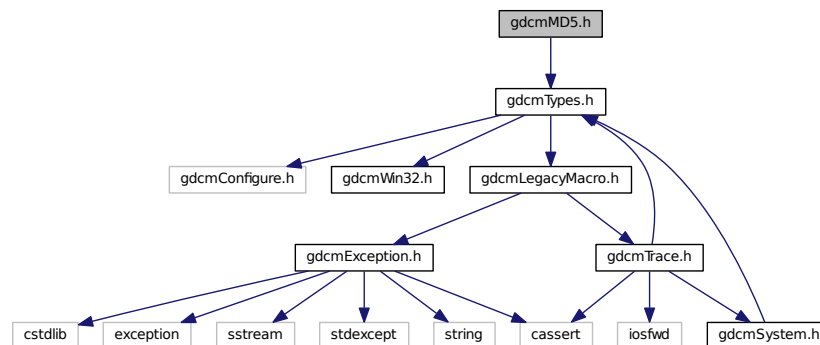
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.141 gdcmMD5.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmMD5.h:



Classes

- class [gdcm::MD5](#)

Class for [MD5](#).

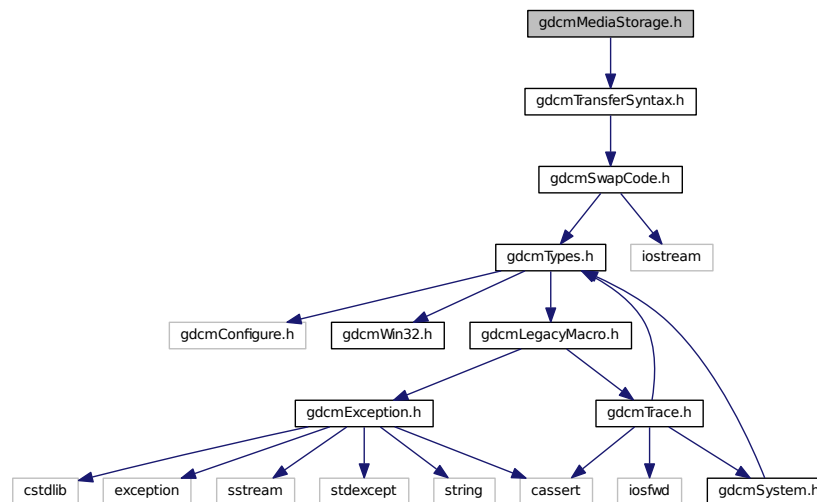
Namespaces

- [gdcm](#)

11.142 gdcmMediaStorage.h File Reference

```
#include "gdcmTransferSyntax.h"
```

Include dependency graph for gdcmMediaStorage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::MediaStorage`
MediaStorage.

Namespaces

- `gdcm`

Functions

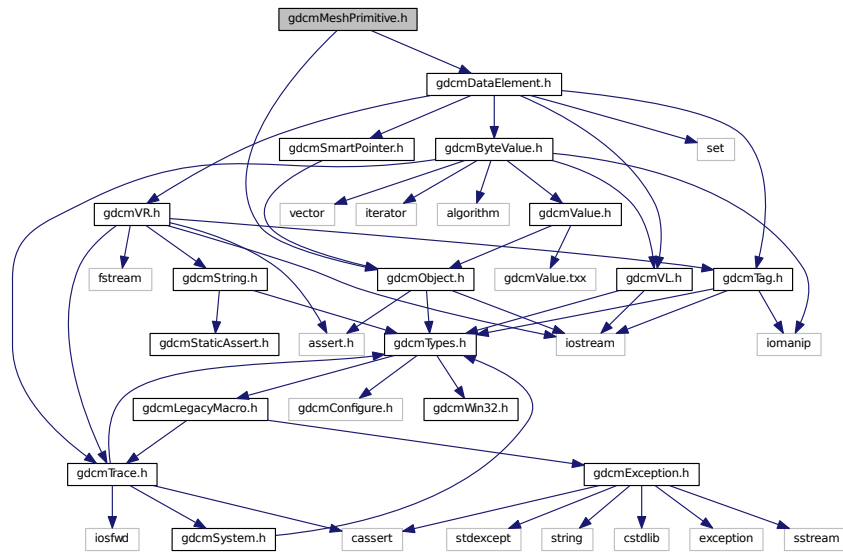
- `std::ostream & gdcm::operator<< (std::ostream &_os, const MediaStorage &ms)`

11.143 gdcmMeshPrimitive.h File Reference

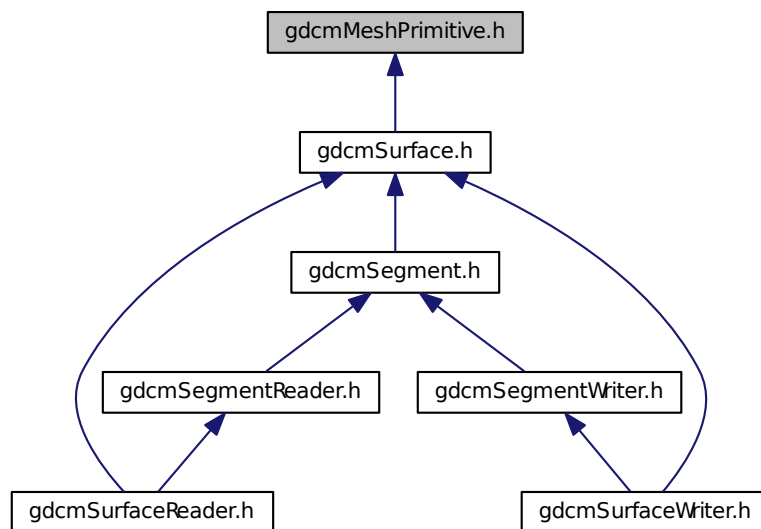
```
#include <gdcmObject.h>
```

```
#include <gdcmDataElement.h>
```

Include dependency graph for gdcmMeshPrimitive.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdc::MeshPrimitive`

This class defines surface mesh primitives. It is designed from surface mesh primitives macro.

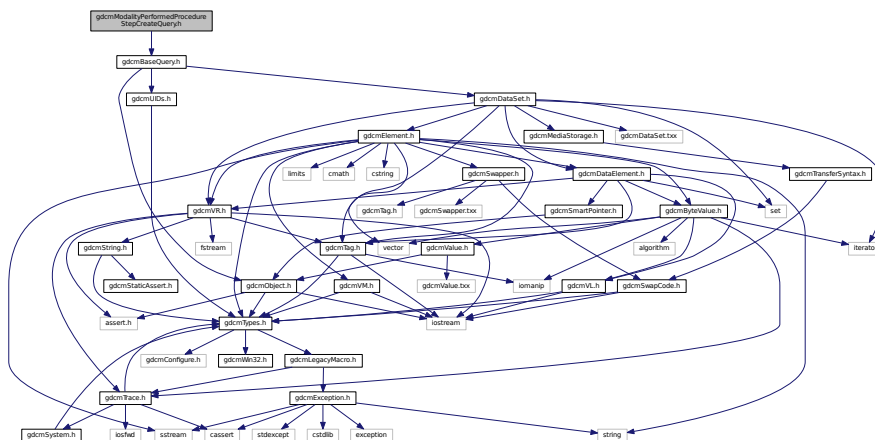
Namespaces

- **gdcm**

11.144 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference

```
#include "gdcmBaseQuery.h"
```

Include dependency graph for `gdcMModalityPerformedProcedureStepCreateQuery.h`:



Classes

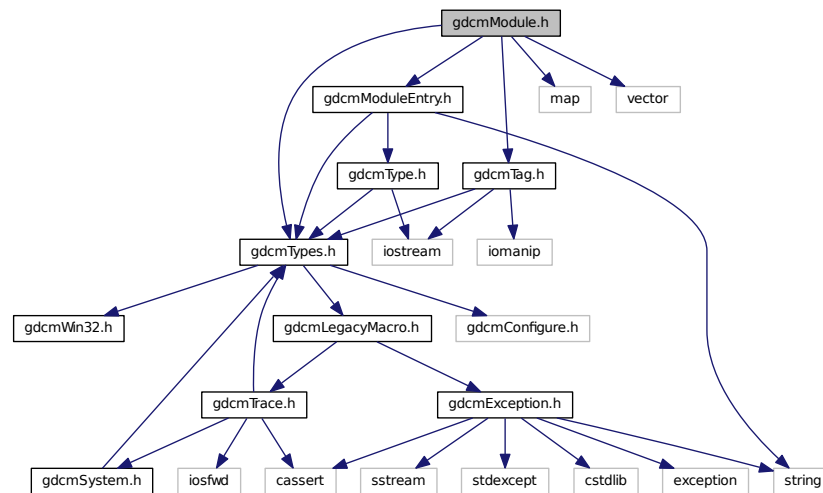
- class `gdcm::ModalityPerformedProcedureStepCreateQuery`

ModalityPerformedProcedureStepCreateQuery contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class.

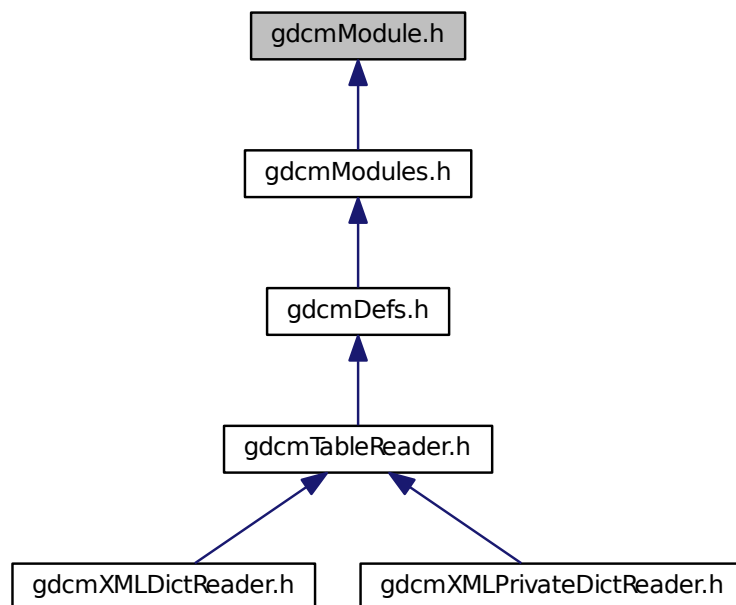
Namespaces

- **gdcm**

Include dependency graph for gdcmModule.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Module](#)

Class for representing a [Module](#).

Namespaces

- [gdcm](#)

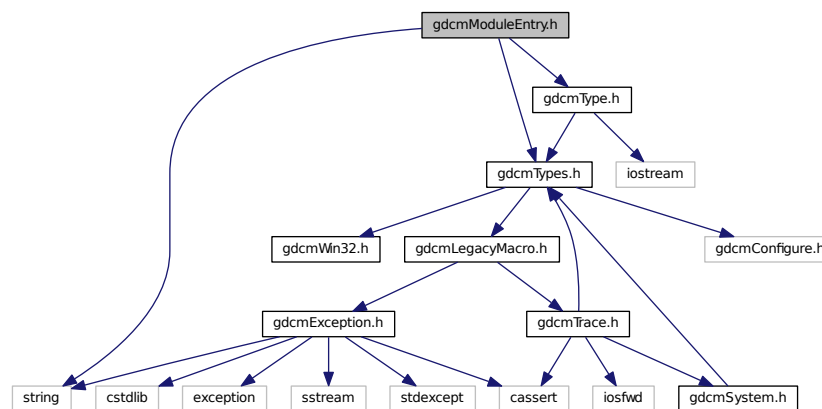
Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const Module &_val)`

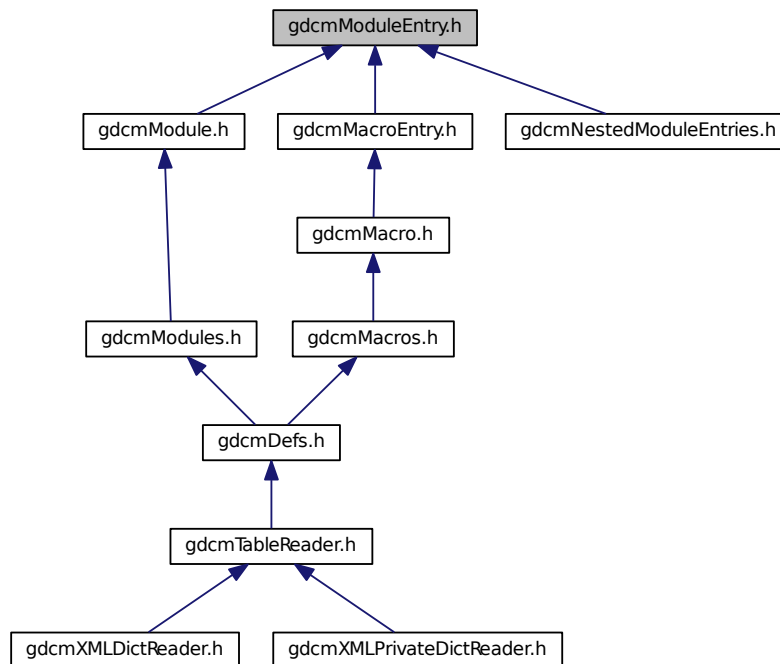
11.147 gdcmModuleEntry.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for `gdcmModuleEntry.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::ModuleEntry](#)
Class for representing a *ModuleEntry*.

Namespaces

- [gdcm](#)

Typedefs

- typedef ModuleEntry [gdcm::MacroEntry](#)

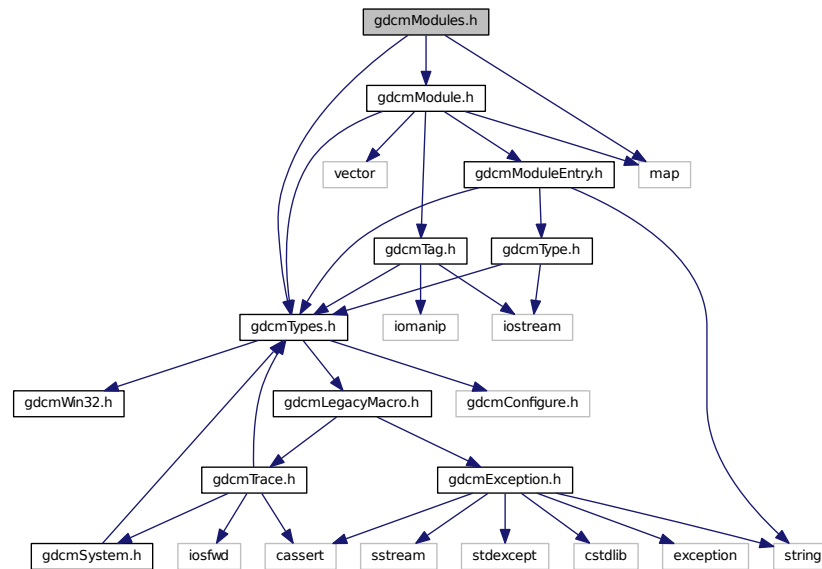
Functions

- std::ostream & [gdcm::operator<<](#) (std::ostream &_os, const ModuleEntry &_val)

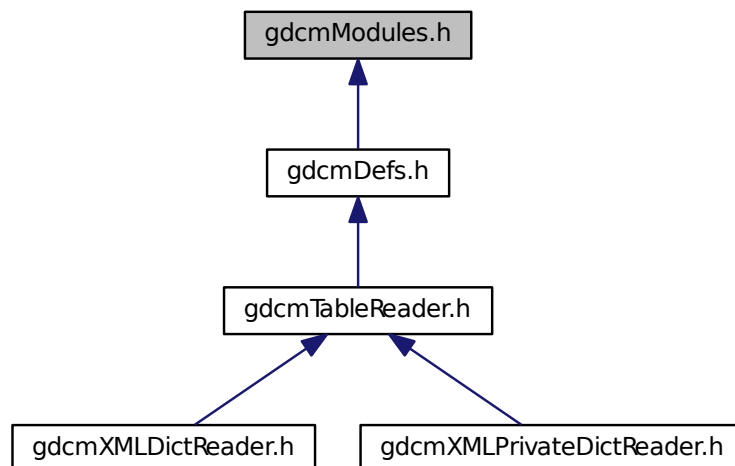
11.148 gdcmModules.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmModule.h"
#include <map>
```

Include dependency graph for gdcmModules.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcmove::Modules](#)
Class for representing a *Modules*.

Namespaces

- [gdcmove](#)

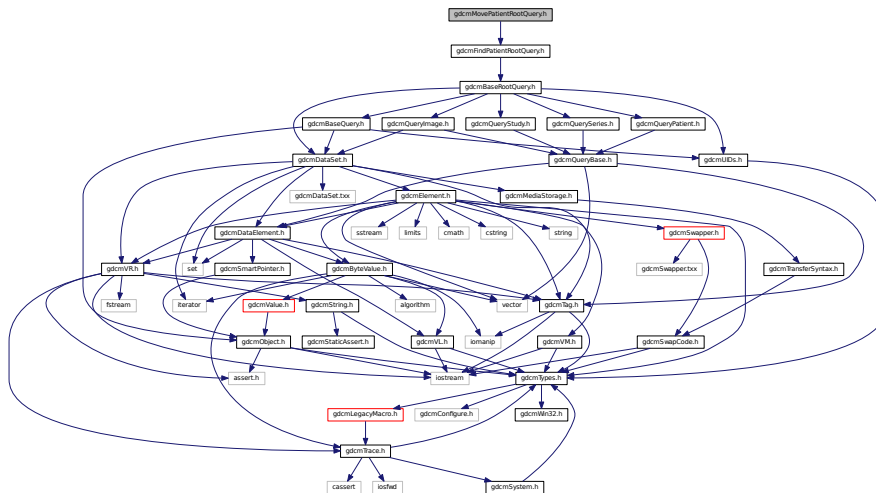
Functions

- `std::ostream & gdcmove::operator<< (std::ostream &_os, const Modules &_val)`

11.149 gdcmovePatientRootQuery.h File Reference

```
#include "gdcmoveFindPatientRootQuery.h"
```

Include dependency graph for gdcmovePatientRootQuery.h:



Classes

- class [gdcmove::MovePatientRootQuery](#)
MovePatientRootQuery contains: the class which will produce a dataset for c-move with patient root.

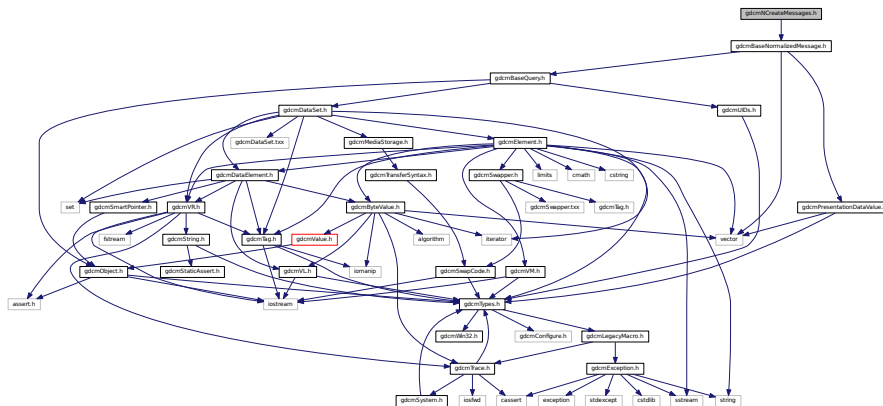
Namespaces

- [gdcmove](#)

- class `gdcmm::network::NActionRQ`
NActionRQ this file defines the messages for the NAction action.
- class `gdcmm::network::NActionRSP`
NActionRSP this file defines the messages for the NAction action.

- gdc
- gdc::network

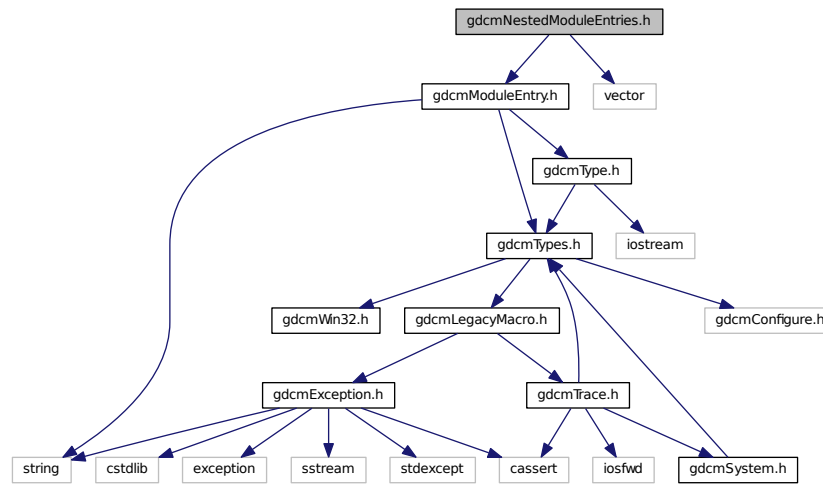
```
#include "gdcmBaseNormalizedMessage.h"
Include dependency graph for gdcmNCreateMessages.h:
```



- class `gdcmm::network::NCreateRQ`
NCreateRQ this file defines the messages for the ncreate action.
- class `gdcmm::network::NCreateRSP`
NCreateRSP this file defines the messages for the ncreate action.

- `gdcm`
- `gdcm::network`

Include dependency graph for gdcmNestedModuleEntries.h:



Classes

- class [gdcm::NestedModuleEntries](#)
Class for representing a *NestedModuleEntries*.

Namespaces

- [gdcm](#)

Typedefs

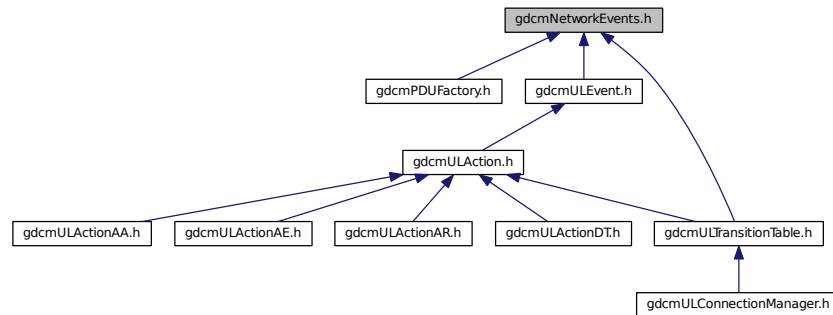
- typedef NestedModuleEntries [gdcm::NestedMacroEntries](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const NestedModuleEntries &_val)`

11.155 gdcNetworkEvents.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- [gdc](#)
- [gdc::network](#)

Enumerations

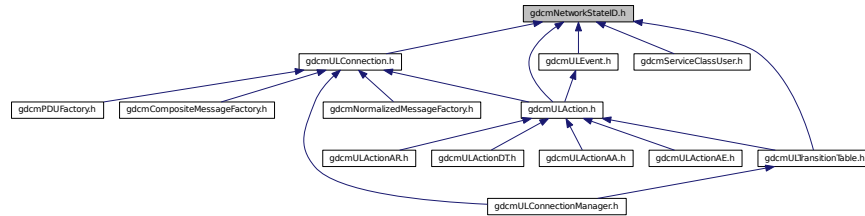
- `enum gdc::network::EEventID {`
`gdc::network::eAASSOCIATERequestLocalUser = 0,`
`gdc::network::eTransportConnConfirmLocal,`
`gdc::network::eASSOCIATE_ACPDUreceived,`
`gdc::network::eASSOCIATE_RJPDUreceived,`
`gdc::network::eTransportConnIndicLocal,`
`gdc::network::eAASSOCIATE_RQPDUreceived,`
`gdc::network::eAASSOCIATEresponseAccept,`
`gdc::network::eAASSOCIATEresponseReject,`
`gdc::network::ePDATArequest,`
`gdc::network::ePDATATFPDU,`
`gdc::network::eARELEASERequest,`
`gdc::network::eARELEASE_RQPDUReceivedOpen,`
`gdc::network::eARELEASE_RPPDUReceived,`
`gdc::network::eARELEASEResponse,`
`gdc::network::eAABORTRequest,`
`gdc::network::eAABORTPDUReceivedOpen,`
`gdc::network::eTransportConnectionClosed,`
`gdc::network::eARTIMTimerExpired,`
`gdc::network::eUnrecognizedPDUReceived,`
`gdc::network::eEventDoesNotExist }`

Variables

- `const int gdc::network::cMaxEventID = eEventDoesNotExist`

11.156 gdcNetworkStateID.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- [gdc](#)
- [gdc::network](#)

Enumerations

- enum [gdc::network::EStateID](#) {
[gdc::network::eStaDoesNotExist](#) = 0,
[gdc::network::eSta1Idle](#) = 1,
[gdc::network::eSta2Open](#) = 2,
[gdc::network::eSta3WaitLocalAssoc](#) = 4,
[gdc::network::eSta4LocalAssocDone](#) = 8,
[gdc::network::eSta5WaitRemoteAssoc](#) = 16,
[gdc::network::eSta6TransferReady](#) = 32,
[gdc::network::eSta7WaitRelease](#) = 64,
[gdc::network::eSta8WaitLocalRelease](#) = 128,
[gdc::network::eSta9ReleaseCollisionRqLocal](#) = 256,
[gdc::network::eSta10ReleaseCollisionAc](#) = 512,
[gdc::network::eSta11ReleaseCollisionRq](#) = 1024,
[gdc::network::eSta12ReleaseCollisionAcLocal](#) = 2048,
[gdc::network::eSta13AwaitingClose](#) = 4096 }

Functions

- int [gdc::network::GetStateIndex](#) (EStateID inState)

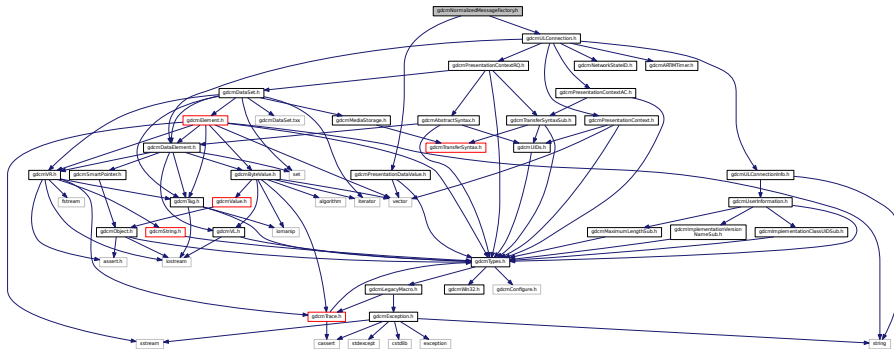
Variables

- const int [gdc::network::cMaxStateID](#) = 13

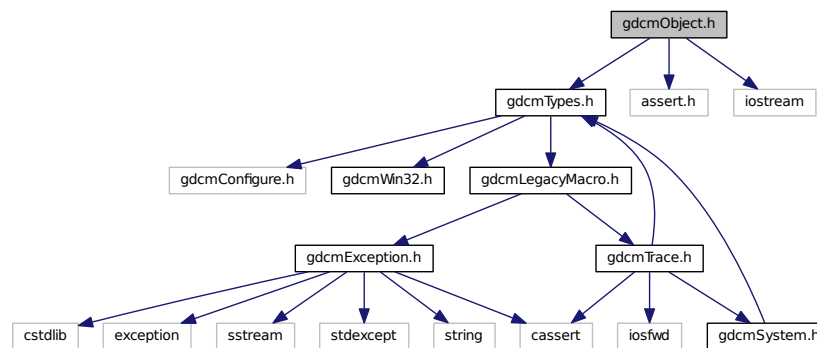
- class `gdcmm::network::NGetRQ`
NGetRQ this file defines the messages for the *nget* action.
- class `gdcmm::network::NGetRSP`
NGetRSP this file defines the messages for the *nget* action.

- gdc
- gdc::network

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
Include dependency graph for gdcmNormalizedMessageFactory.h:
```



Include dependency graph for `gdcmObject.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Object`
Object.
- class `gdcm::SmartPointer< ObjectType >`
Class for Smart Pointer.

Namespaces

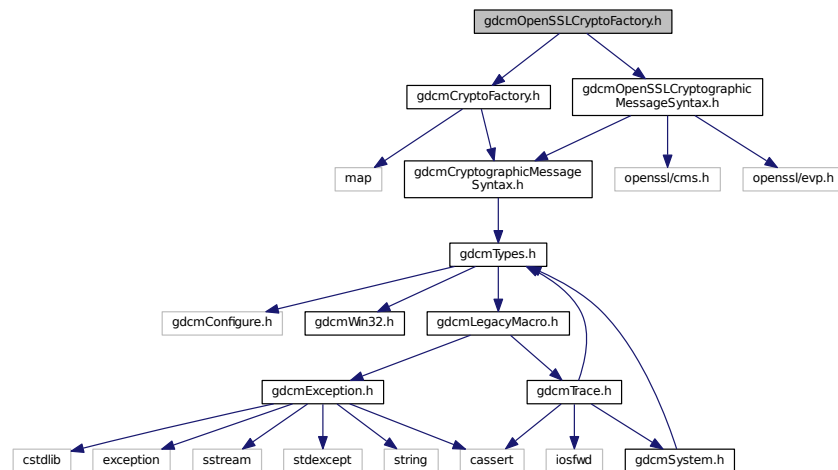
- `gdcm`

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Object &obj)`

11.163 gdcmOpenSSLCryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLCryptographicMessageSyntax.h"
Include dependency graph for gdcmOpenSSLCryptoFactory.h:
```



Classes

- class [gdcm::OpenSSLCryptoFactory](#)

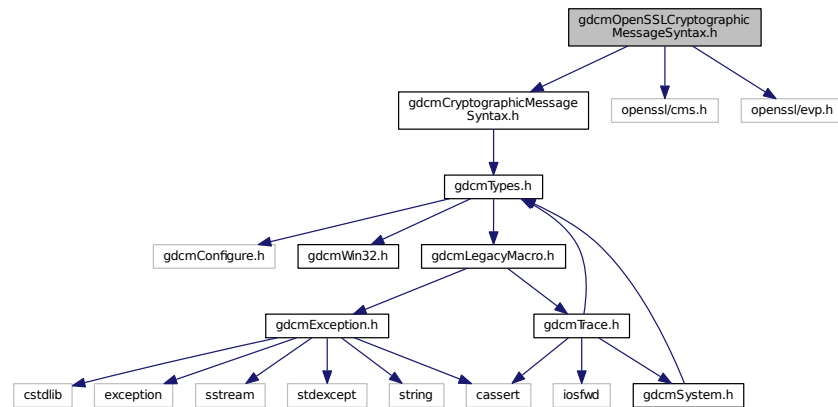
Namespaces

- [gdcm](#)

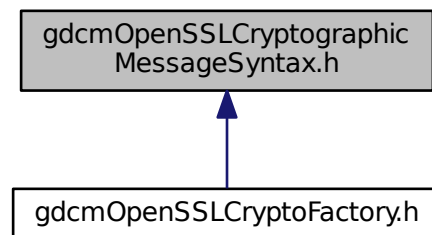
11.164 gdcmOpenSSLCryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <openssl/cms.h>
#include <openssl/evp.h>
```

Include dependency graph for `gdcOpenSSLCryptographicMessageSyntax.h`:



This graph shows which files directly or indirectly include this file:



Classes

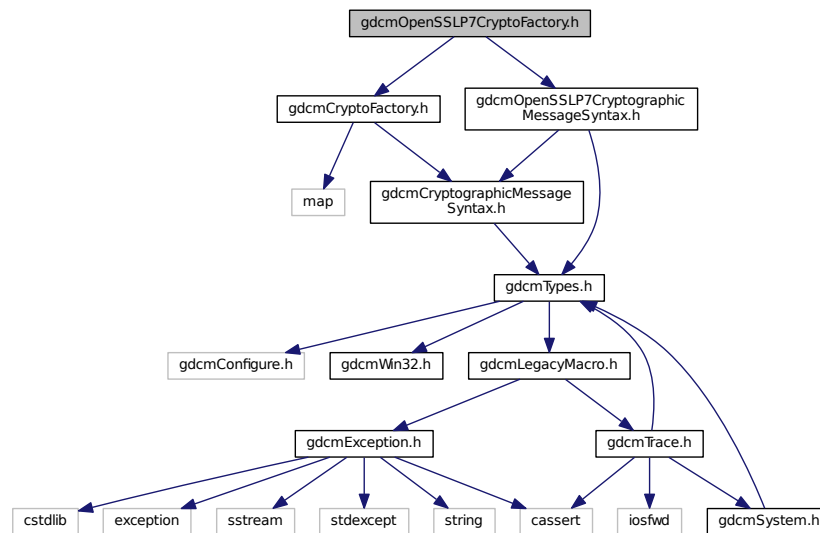
- class `gdc::OpenSSLCryptographicMessageSyntax`

Namespaces

- `gdc`

11.165 gdcmOpenSSLP7CryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
Include dependency graph for gdcmOpenSSLP7CryptoFactory.h:
```



Classes

- class `gdcm::OpenSSLP7CryptoFactory`

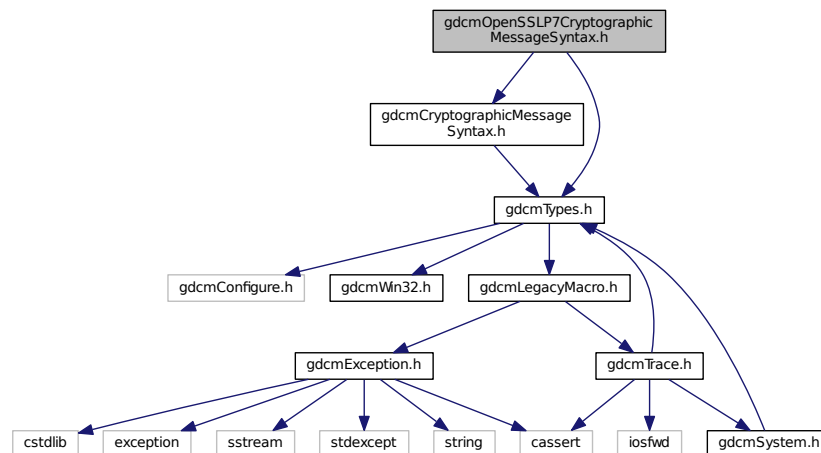
Namespaces

- `gdcm`

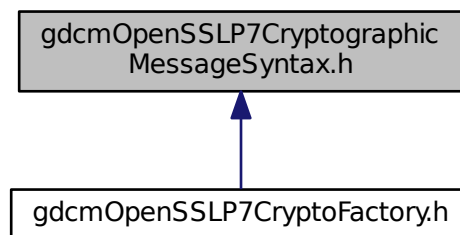
11.166 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include "gdcmTypes.h"
```

Include dependency graph for `gdcOpenSSLP7CryptographicMessageSyntax.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdc::OpenSSLP7CryptographicMessageSyntax](#)

Class for [CryptographicMessageSyntax](#) encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities.

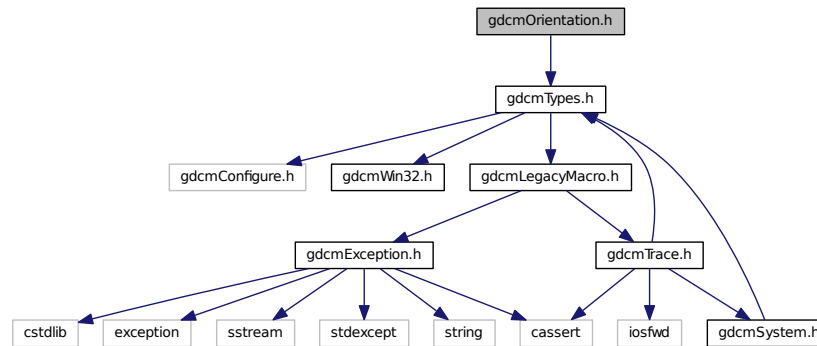
Namespaces

- [gdc](#)

11.167 gdcmOrientation.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmOrientation.h:



Classes

- class [gdcm::Orientation](#)
class to handle [Orientation](#)

Namespaces

- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Orientation &o)`

11.168 gdcmOverlay.h File Reference

```
#include "gdcmTypes.h"
```

```
#include "gdcmObject.h"
```

```

graph TD
    gdcmOverlay.h[gdcmOverlay.h] --> gdcmObject.h[gdcmObject.h]
    gdcmOverlay.h --> gdcmTypes.h[gdcmTypes.h]
    gdcmObject.h --> assert.h[assert.h]
    gdcmObject.h --> iostream[iostream]
    gdcmTypes.h --> gdcmConfigure.h[gdcmConfigure.h]
    gdcmTypes.h --> gdcmWin32.h[gdcmWin32.h]
    gdcmTypes.h --> gdcmLegacyMacro.h[gdcmLegacyMacro.h]
    gdcmTypes.h --> gdcmException.h[gdcmException.h]
    gdcmTypes.h --> gdcmTrace.h[gdcmTrace.h]
    gdcmLegacyMacro.h --> gdcmException.h
    gdcmLegacyMacro.h --> gdcmTrace.h
    gdcmException.h --> cstdlib[cstdlib]
    gdcmException.h --> exception[exception]
    gdcmException.h --> sstream[sstream]
    gdcmException.h --> stdexcept[stdexcept]
    gdcmException.h --> string[string]
    gdcmException.h --> cassert[cassert]
    gdcmException.h --> iosfwd[iosfwd]
    gdcmTrace.h --> iosfwd
    gdcmTrace.h --> gdcmSystem.h[gdcmSystem.h]
    gdcmSystem.h --> gdcmTrace.h
  
```

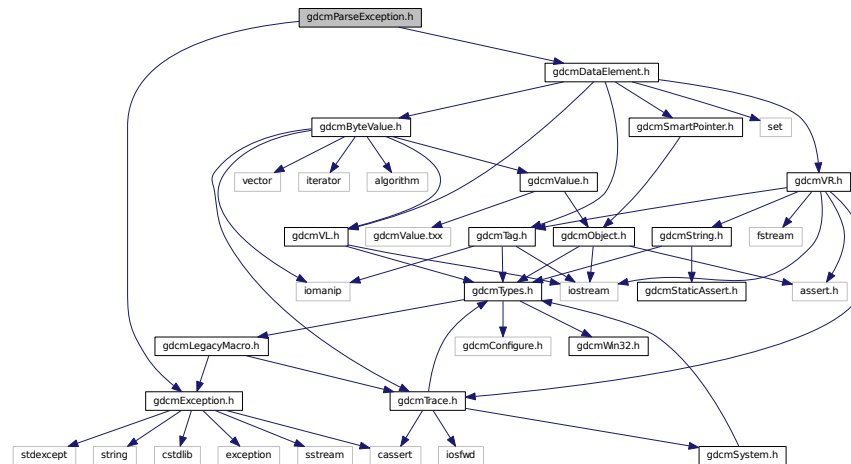
[illegible]

- class `gdcm::Overlay`
Overlay class.

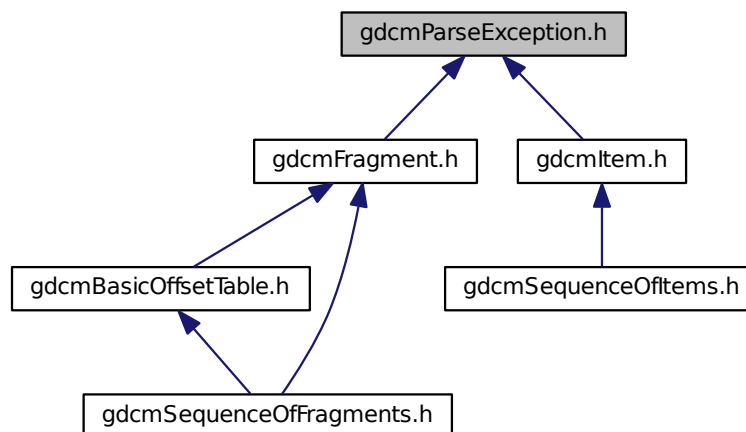
- **gdcm**

```
#include "gdcmException.h"
#include "gdcmDataElement.h"
```


Include dependency graph for gdcmParseException.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::ParseException](#)
ParseException Standard exception handling object.

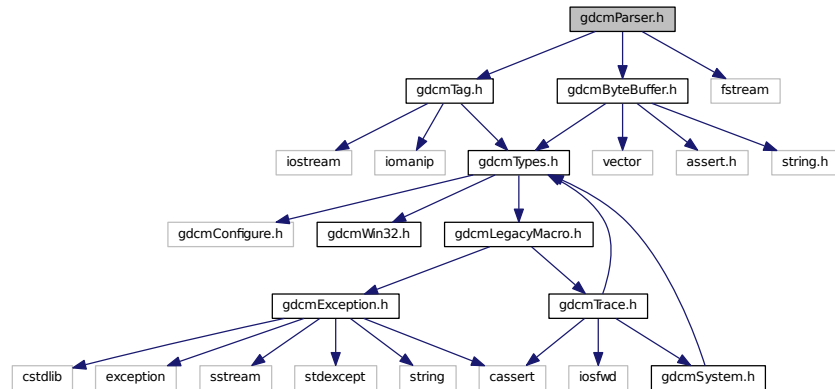
Namespaces

- [gdcm](#)

11.170 gdcmParser.h File Reference

```
#include "gdcmTag.h"
#include "gdcmByteBuffer.h"
#include <fstream>
```

Include dependency graph for gdcmParser.h:



Classes

- class [gdcm::Parser](#)
Parser ala XML_Parser from expat (SAX)

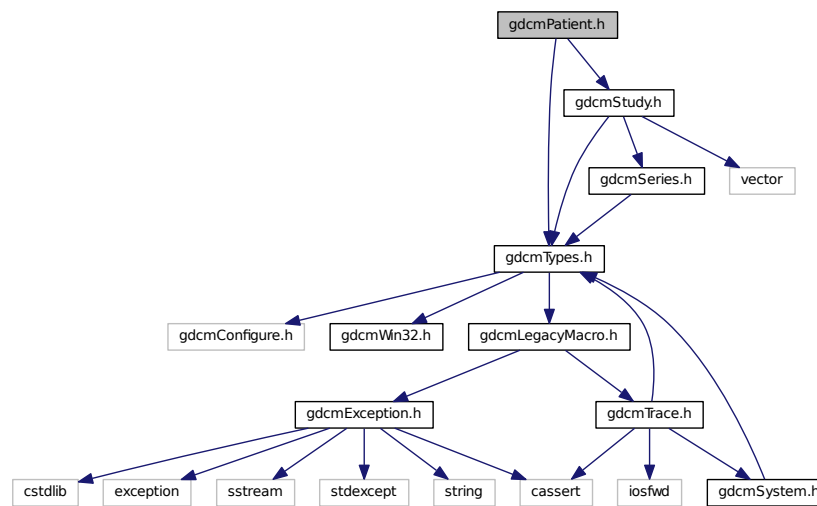
Namespaces

- [gdcm](#)

11.171 gdcmPatient.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStudy.h"
```

Include dependency graph for gdcmPatient.h:



Classes

- class [gdcm::Patient](#)

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

Namespaces

- [gdcm](#)

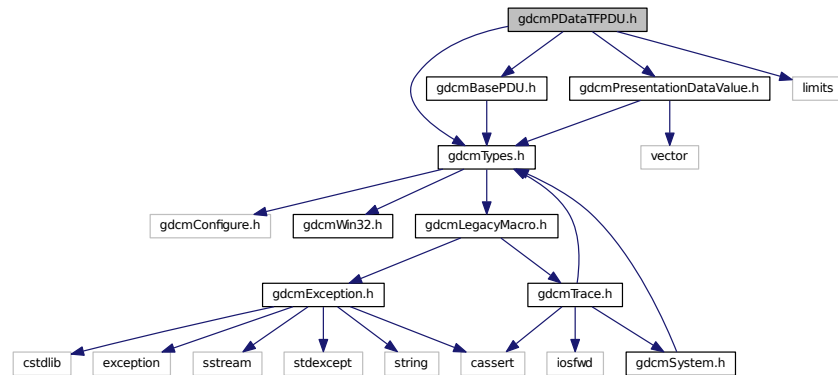
11.172 gdcmPDataTFPDU.h File Reference

```

#include "gdcmTypes.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmBasePDU.h"
#include <limits>

```

Include dependency graph for `gdcmPDataTFPDU.h`:



Classes

- class `gdcm::network::PDataTFPDU`
PDataTFPDU Table 9-22 P-DATA-TF PDU FIELDS.

Namespaces

- `gdcm`
- `gdcm::network`

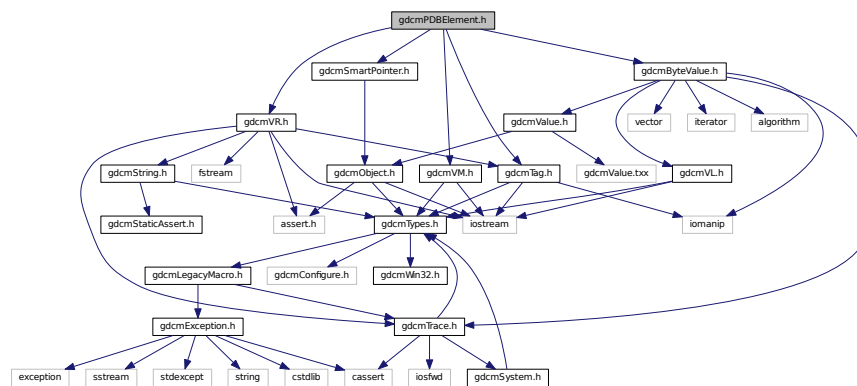
11.173 gdcmPDBelement.h File Reference

```

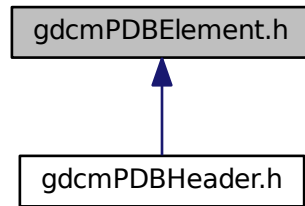
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"

```

Include dependency graph for `gdcmPDBelement.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::PDBElement](#)
Class to represent a PDB *Element*.

Namespaces

- [gdcm](#)

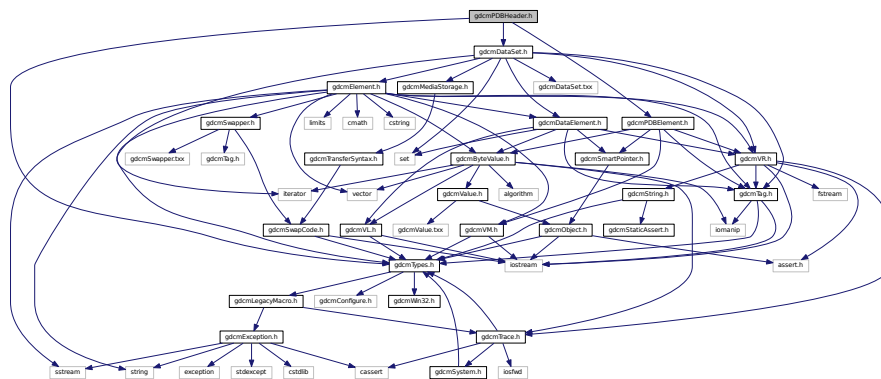
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const PDBElement &val)`

11.174 gdcmPDBHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmPDBElement.h"
```

Include dependency graph for gdcmPDBHeader.h:



Classes

- class [gdcm::PDBHeader](#)
Class for *PDBHeader*.

Namespaces

- [gdcm](#)

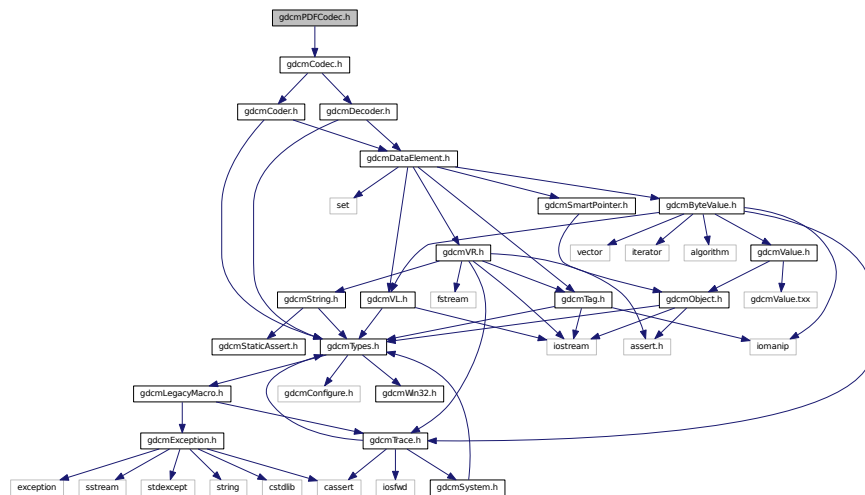
Functions

- std::ostream & [gdcm::operator<<](#) (std::ostream &os, const PDBHeader &d)

11.175 gdcmPDFCodec.h File Reference

```
#include "gdcmCodec.h"
```

Include dependency graph for gdcmPDFCodec.h:

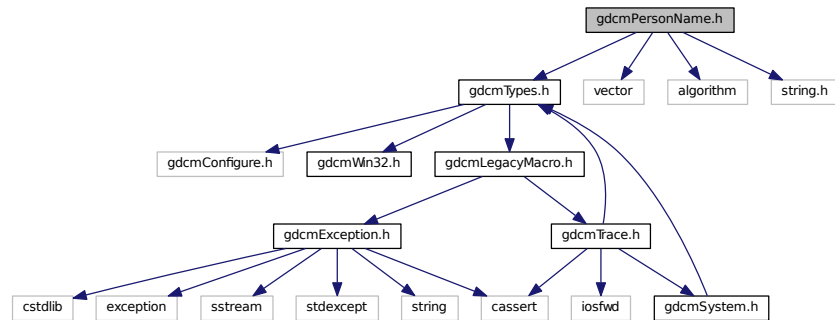


Classes

- class [gdcm::PDFCodec](#)
PDFCodec class.

Namespaces

- [gdcm](#)



Classes

- class `gdcm::PersonName`
PersonName class.

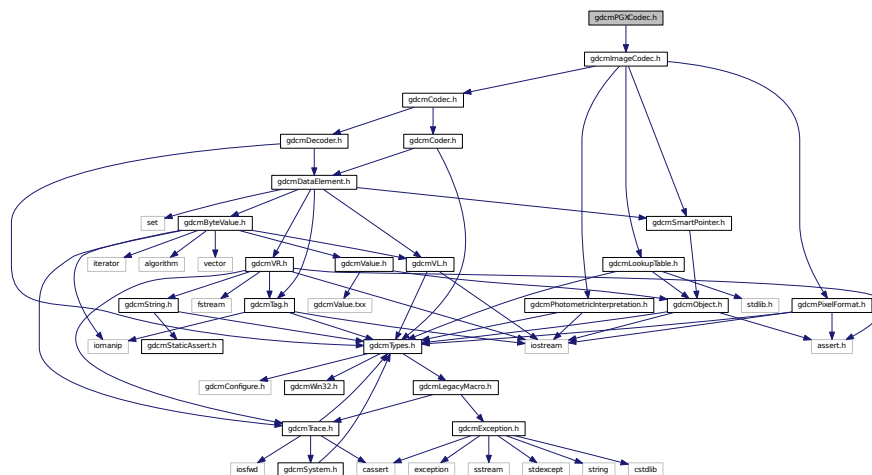
Namespaces

- **gdcm**

11.178 gdcmPGXCodec.h File Reference

```
#include "gdcmImageCodec.h"
```

Include dependency graph for `gdcmPGXCodec.h`:



Namespaces

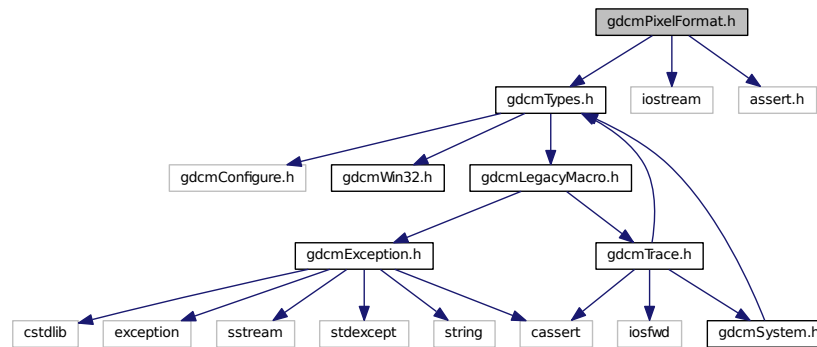
- [gdcm](#)

Functions

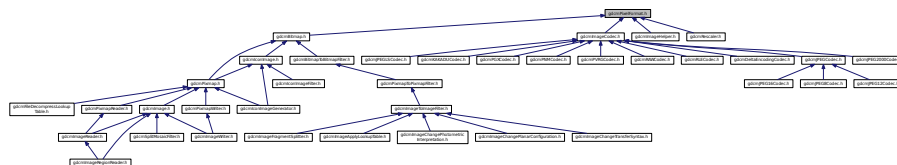
- `std::ostream & gdcm::operator<< (std::ostream &os, const PhotometricInterpretation &val)`

11.180 gdcmPixelFormat.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <assert.h>
Include dependency graph for gdcmPixelFormat.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::PixelFormat](#)
[PixelFormat](#).

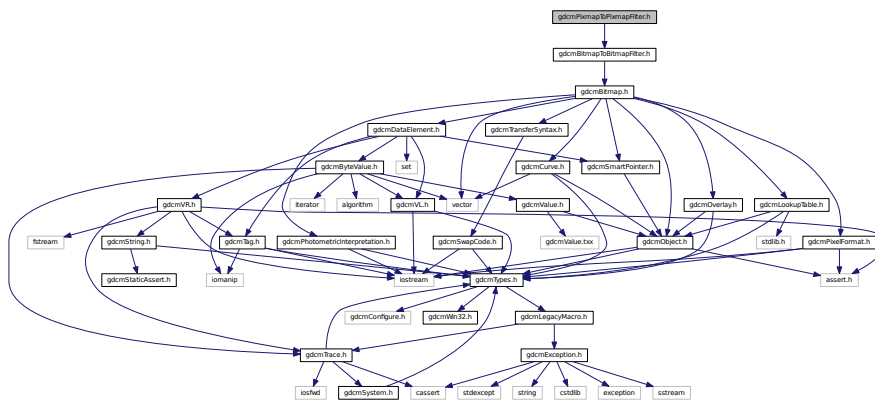
Namespaces

- **gdcm**

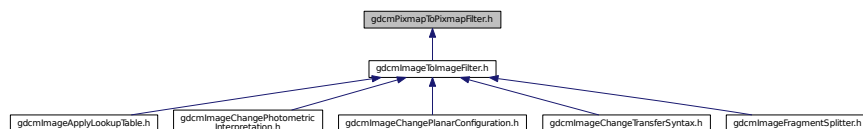
11.183 gdcmPixmapToPixmapFilter.h File Reference

```
#include "gdcmBitmapToBitmapFilter.h"
```

Include dependency graph for `gdcmPixmapToPixmapFilter.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::PixmapToPixmapFilter`
PixmapToPixmapFilter class Super class for all filter taking an image and producing an output image.

Namespaces

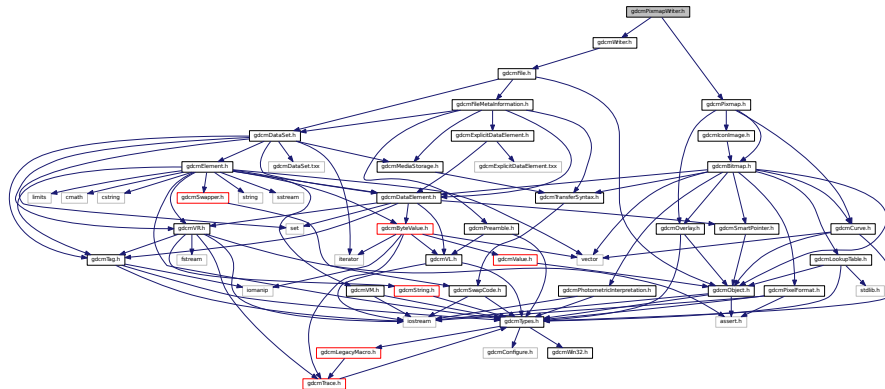
- **gdcm**

11.184 gdcmPixmapWriter.h File Reference

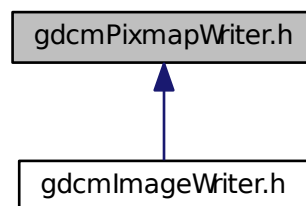
```
#include "gdcmWriter.h"
```

```
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapWriter.h:



This graph shows which files directly or indirectly include this file:



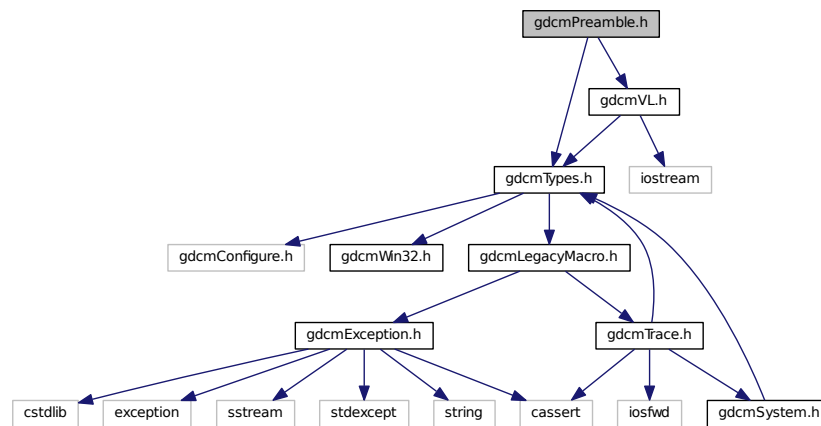
Classes

- class [gdcm::PixmapWriter](#)
PixmapWriter This class will takes two inputs:

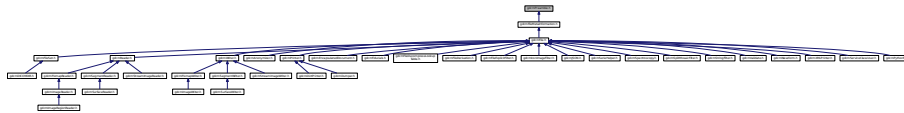
Namespaces

- [gdcm](#)

Include dependency graph for `gdcmPreamble.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Preamble](#)
DICOM Preamble (Part 10)

Namespaces

- [gdcm](#)

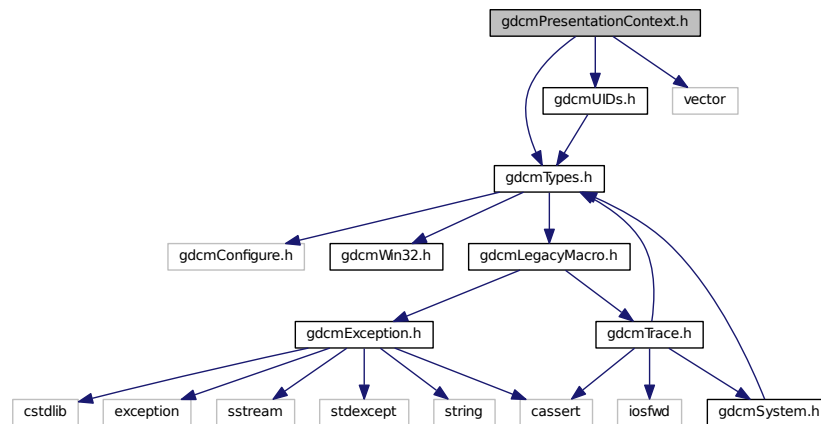
Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Preamble &val)`

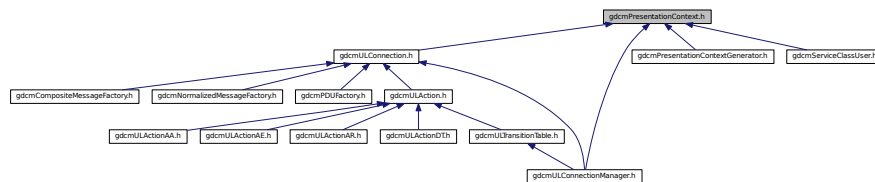
11.187 gdcmPresentationContext.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include <vector>
```

Include dependency graph for gdcmPresentationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::PresentationContext`
PresentationContext.

Namespaces

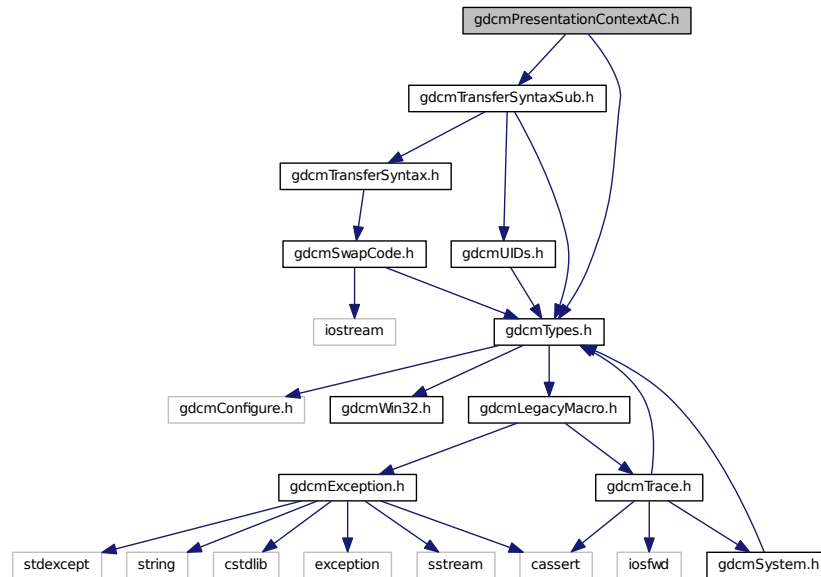
- `gdcm`

11.188 gdcmPresentationContextAC.h File Reference

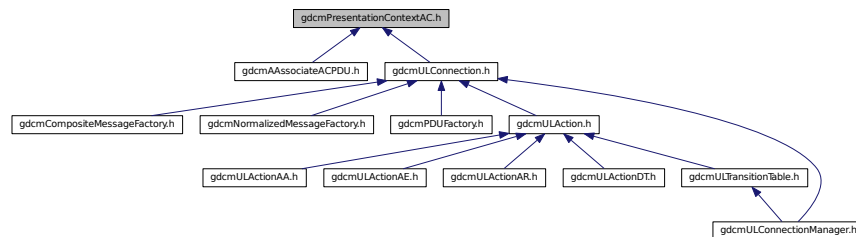
```
#include "gdcmTypes.h"
```

```
#include "gdcmTransferSyntaxSub.h"
```

Include dependency graph for gdcmPresentationContextAC.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::PresentationContextAC](#)

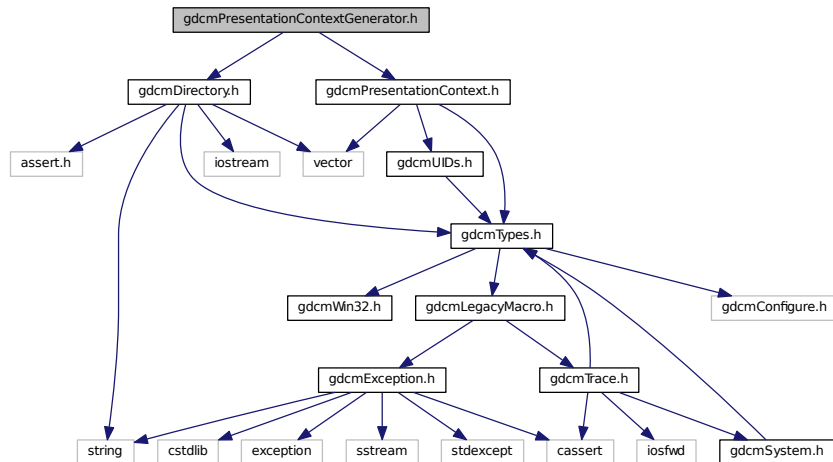
PresentationContextAC Table 9-18 PRESENTATION CONTEXT ITEM FIELDS.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.189 gdcmPresentationContextGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPresentationContext.h"
Include dependency graph for gdcmPresentationContextGenerator.h:
```



Classes

- class [gdcm::PresentationContextGenerator](#)

***PresentationContextGenerator** This class is responsible for generating the proper [PresentationContext](#) that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.*

Namespaces

- [gdcm](#)

11.190 gdcmPresentationContextRQ.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAbstractSyntax.h"
#include "gdcmTransferSyntaxSub.h"
#include "gdcmDataSet.h"
```

[illegible]

```

classDiagram
    class gdcmPresentationContextRQ_h["gdcmPresentationContextRQ.h"]
    class gdcmAAAssociateRQPDU_h["gdcmAAAssociateRQPDU.h"]
    class gdcmULConnection_h["gdcmULConnection.h"]
    class gdcmCompositeMessageFactory_h["gdcmCompositeMessageFactory.h"]
    class gdcmNormalizedMessageFactory_h["gdcmNormalizedMessageFactory.h"]
    class gdcmPDUFactory_h["gdcmPDUFactory.h"]
    class gdcmULAction_h["gdcmULAction.h"]
    class gdcmULActionAA_h["gdcmULActionAA.h"]
    class gdcmULActionAE_h["gdcmULActionAE.h"]
    class gdcmULActionAR_h["gdcmULActionAR.h"]
    class gdcmULActionDTh_h["gdcmULActionDTh"]
    class gdcmULTransitionTable_h["gdcmULTransitionTable.h"]
    class gdcmULConnectionManager_h["gdcmULConnectionManager.h"]

    gdcmPresentationContextRQ_h <|-- gdcmAAAssociateRQPDU_h
    gdcmPresentationContextRQ_h <|-- gdcmULConnection_h
    gdcmULConnection_h --> gdcmCompositeMessageFactory_h
    gdcmULConnection_h --> gdcmNormalizedMessageFactory_h
    gdcmULConnection_h --> gdcmPDUFactory_h
    gdcmULConnection_h --> gdcmULAction_h
    gdcmULAction_h --> gdcmULActionAA_h
    gdcmULAction_h --> gdcmULActionAE_h
    gdcmULAction_h --> gdcmULActionAR_h
    gdcmULAction_h --> gdcmULActionDTh_h
    gdcmULAction_h --> gdcmULTransitionTable_h
    gdcmULTransitionTable_h --> gdcmULConnectionManager_h
    gdcmULConnectionManager_h --> gdcmPresentationContextRQ_h
  
```

- class `gdcn::network::PresentationContextRQ`

PresentationContextRQ Table 9-13 PRESENTATION CONTEXT ITEM FIELDS.

- `gdc`
- `gdc::network`

```
#include "gdcmTypes.h"
#include <vector>
```

```

graph TD
    gdcmPresentationDataValue.h[gdcmPresentationDataValue.h] --> gdcmTypes.h[gdcmTypes.h]
    gdcmPresentationDataValue.h --> vector[vector]
    gdcmTypes.h --> gdcmConfigure.h[gdcmConfigure.h]
    gdcmTypes.h --> gdcmWin32.h[gdcmWin32.h]
    gdcmTypes.h --> gdcmLegacyMacro.h[gdcmLegacyMacro.h]
    gdcmLegacyMacro.h --> gdcmException.h[gdcmException.h]
    gdcmLegacyMacro.h --> gdcmTrace.h[gdcmTrace.h]
    gdcmException.h --> cstdlib[cstdlib]
    gdcmException.h --> exception[exception]
    gdcmException.h --> sstream[sstream]
    gdcmException.h --> stdexcept[stdexcept]
    gdcmException.h --> string[string]
    gdcmException.h --> cassert[cassert]
    gdcmException.h --> iosfwd[iosfwd]
    gdcmException.h --> gdcmSystem.h[gdcmSystem.h]
    gdcmTrace.h --> gdcmSystem.h
    gdcmPresentationDataValue.h --> gdcmSystem.h
  
```

[illegible]

- class `gdcm::network::PresentationDataValue`

Namespaces

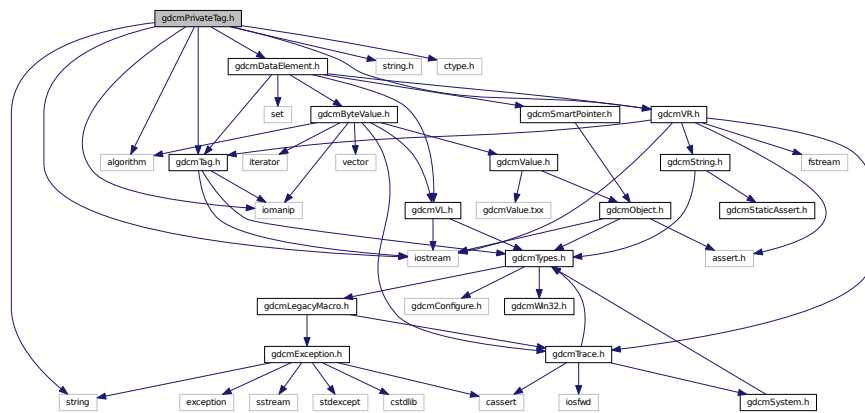
- ## 11.192 gdcmPrinter.h File Reference

Generated by Doxygen

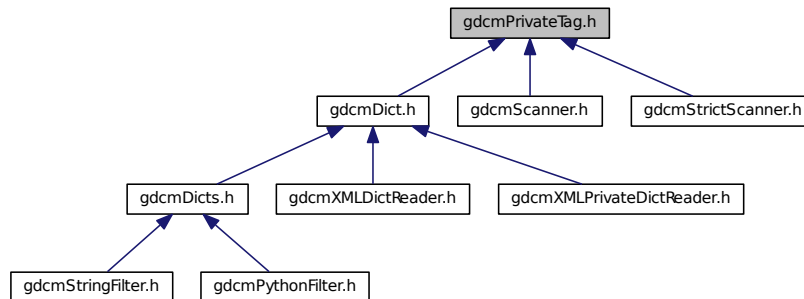
11.193 gdcmPrivateTag.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmDataElement.h"
#include <iostream>
#include <iomanip>
#include <string>
#include <algorithm>
#include <string.h>
#include <ctype.h>
```

Include dependency graph for gdcmPrivateTag.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::PrivateTag](#)

Class to represent a Private DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#), Owner)

Namespaces

- [gdcm](#)

Functions

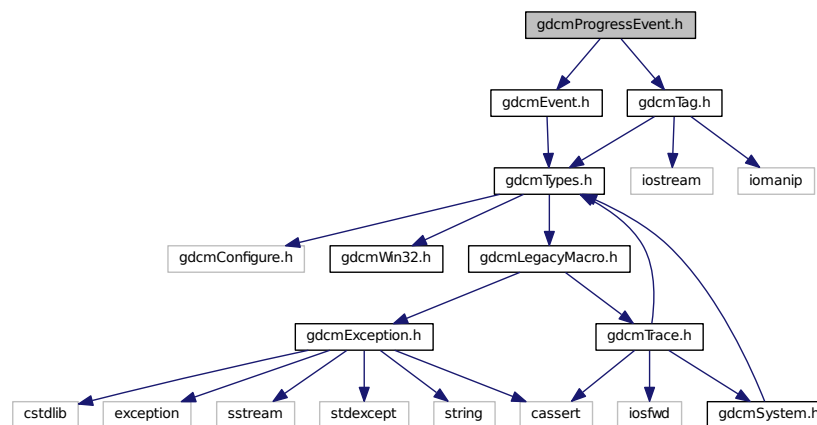
- `std::ostream & gdcm::operator<< (std::ostream &os, const PrivateTag &val)`

11.194 gdcmProgressEvent.h File Reference

```
#include "gdcmEvent.h"
```

```
#include "gdcmTag.h"
```

Include dependency graph for `gdcmProgressEvent.h`:



Classes

- class [gdcm::ProgressEvent](#)
ProgressEvent Special type of event triggered during.

Namespaces

- [gdcm](#)

Namespaces

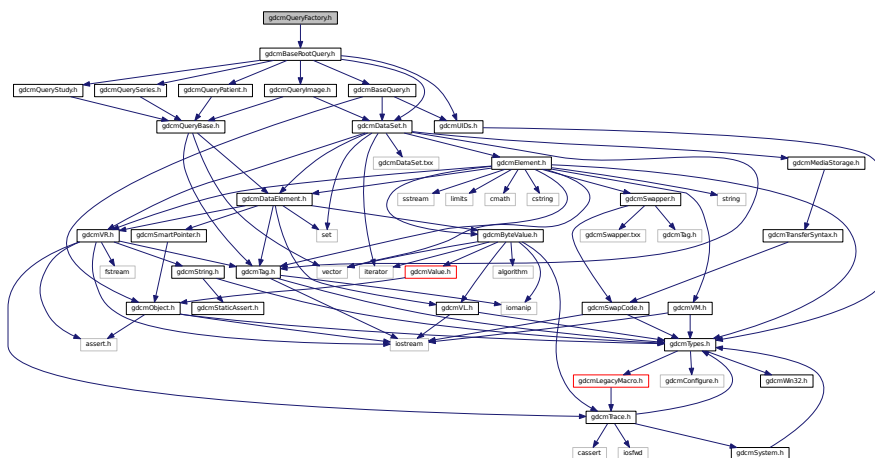
- **gdcm**

Enumerations

- enum `gdcm::ERootType` {
`gdcm::ePatientRootType`,
`gdcm::eStudyRootType` }

11.198 gdcmQueryFactory.h File Reference

```
#include "gdcmBaseRootQuery.h"
Include dependency graph for gdcmQueryFactory.h:
```



Classes

- class `gdcm::QueryFactory`
QueryFactory.h.

Namespaces

- **gdcm**

Classes

- class `gdcm::QueryImage`
QueryImage contains: class to construct an image-based query for C-FIND and C-MOVE.

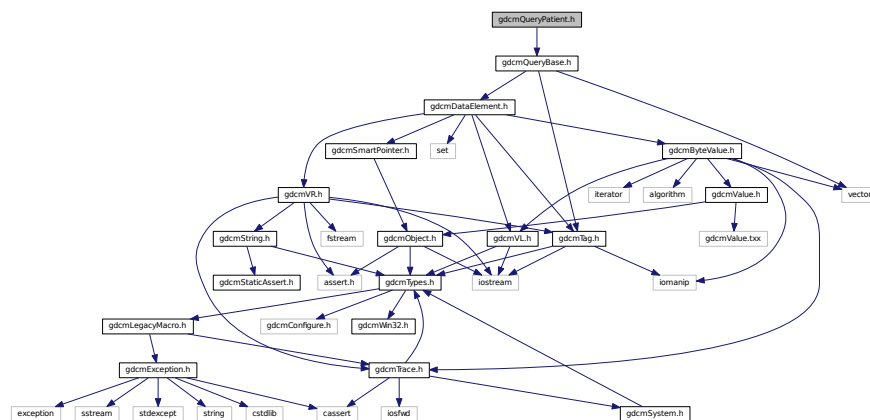
Namespaces

- `gdcm`

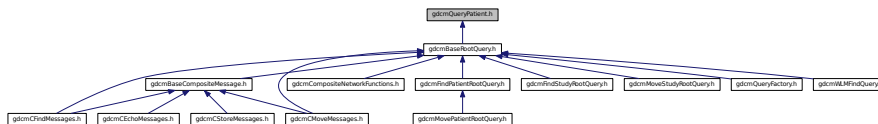
11.200 gdcmQueryPatient.h File Reference

```
#include "gdcmQueryBase.h"
```

Include dependency graph for `gdcmQueryPatient.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdc::QueryPatient`
QueryPatient contains: class to construct a patient-based query for c-find and c-move.

[illegible]

```
graph BT; gdcmImageRegionReader.h --> gdcmImageReader.h; gdcmImageReader.h --> gdcmPixmapReader.h; gdcmSurfaceReader.h --> gdcmSegmentReader.h; gdcmPixmapReader.h --> gdcmReader.h; gdcmSegmentReader.h --> gdcmReader.h; gdcmStreamImageReader.h --> gdcmReader.h; style gdcmReader.h fill:#ccc; style gdcmImageRegionReader.h fill:#fff; style gdcmImageReader.h fill:#fff; style gdcmSurfaceReader.h fill:#fff; style gdcmPixmapReader.h fill:#fff; style gdcmSegmentReader.h fill:#fff; style gdcmStreamImageReader.h fill:#fff;
```

- class `gdcm::Reader`
Reader ala *DOM* (Document *Object* Model)

- **gdcm**

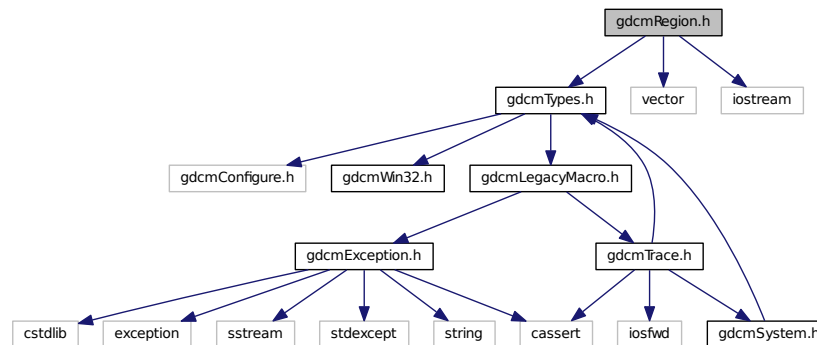
11.205 gdcmRegion.h File Reference

```
#include "gdcmTypes.h"
```

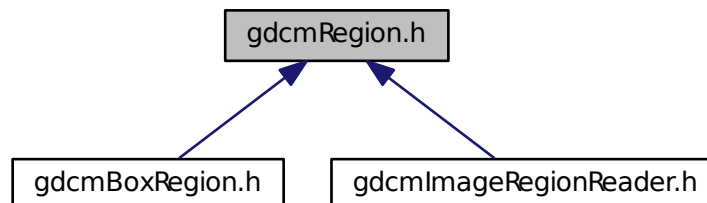
```
#include <vector>
```

```
#include <iostream>
```

Include dependency graph for gdcmRegion.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Region](#)
Class for manipulation region.

Namespaces

- [gdcm](#)

Functions

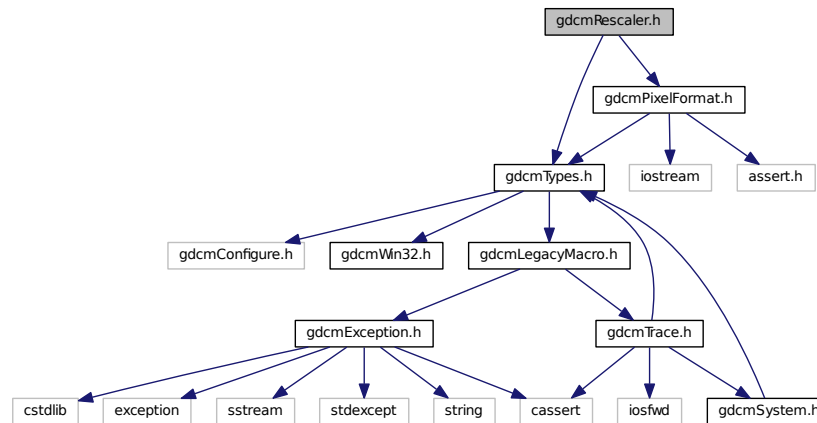
- `std::ostream & gdcm::operator<< (std::ostream &os, const Region &r)`

11.206 gdcmRescaler.h File Reference

```
#include "gdcmTypes.h"
```

```
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmRescaler.h:



Classes

- class `gdcm::Rescaler`

Rescale class This class is meant to apply the linear transform of Stored Pixel [Value](#) to Real World [Value](#). This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel [Type](#) is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

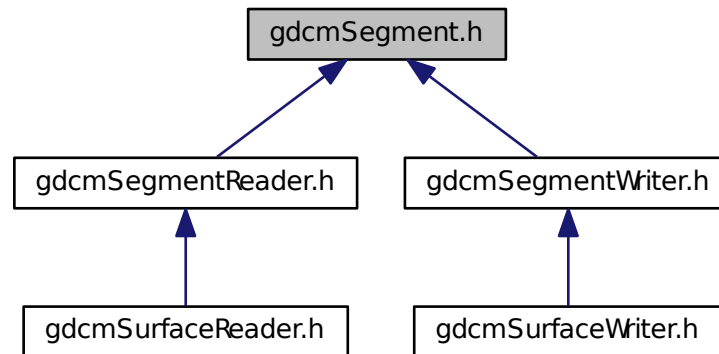
$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World [Value](#) will be 16 bits signed type.

Namespaces

- `gdcm`

This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Segment](#)

This class defines a segment. It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

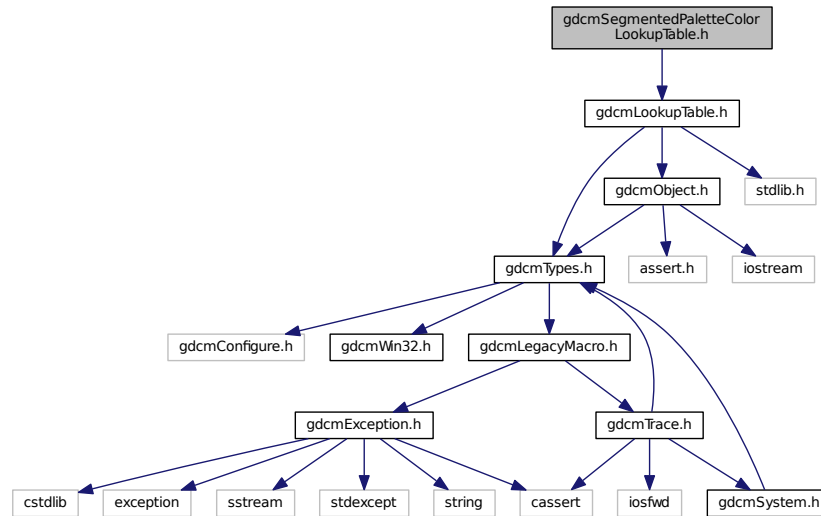
Namespaces

- [gdcm](#)

11.211 gdcmSegmentedPaletteColorLookupTable.h File Reference

```
#include "gdcmLookupTable.h"
```

Include dependency graph for `gdcmSegmentedPaletteColorLookupTable.h`:



Classes

- class [gdcm::SegmentedPaletteColorLookupTable](#)
SegmentedPaletteColorLookupTable class.

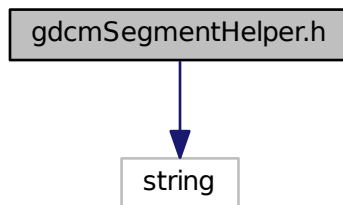
Namespaces

- [gdcm](#)

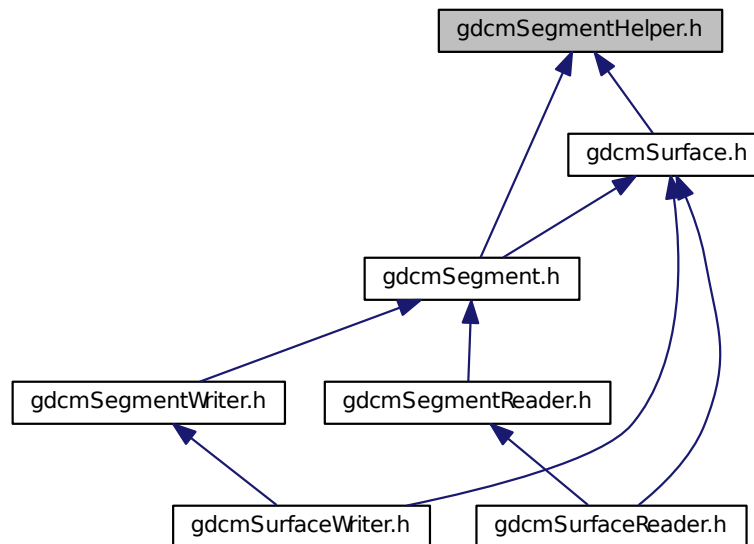
11.212 gdcmSegmentHelper.h File Reference

```
#include <string>
```

Include dependency graph for `gdcmSegmentHelper.h`:



This graph shows which files directly or indirectly include this file:



Classes

- struct [gdcm::SegmentHelper::BasicCodedEntry](#)

This structure defines a basic coded entry with all of its attributes.

Namespaces

- [gdcm](#)
- [gdcm::SegmentHelper](#)

11.213 gdcmSegmentReader.h File Reference

```

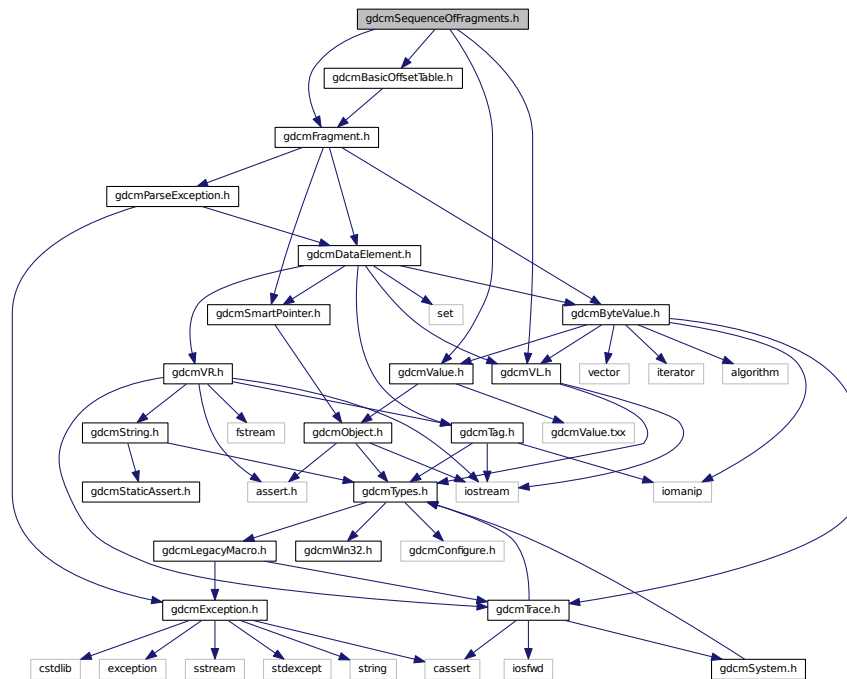
#include <map>
#include <gdcmReader.h>
#include <gdcmSegment.h>

```


11.215 gdcmSequenceOfFragments.h File Reference

```
#include "gdcmValue.h"
#include "gdcmVL.h"
#include "gdcmFragment.h"
#include "gdcmBasicOffsetTable.h"
```

Include dependency graph for gdcmSequenceOfFragments.h:



Classes

- class [gdcm::SequenceOfFragments](#)
Class to represent a Sequence Of Fragments.

Namespaces

- [gdcm](#)

11.216 gdcmSequenceOfItems.h File Reference

```
#include "gdcmValue.h"
```

The diagram illustrates a dense network of dependencies between numerous header files. The nodes are arranged in layers from top to bottom:

- Top Layer:** `gblmDataSystemHeader.h`, `gblmResourceHeaders.h`
- Second Layer:** `gblmData.h`, `gblmDataList.h`, `gblmDataStorage.h`, `gblmProcess.h`
- Third Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Fourth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Fifth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Sixth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Seventh Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Eighth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Ninth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Tenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Eleventh Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Twelfth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Thirteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Fourteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Fifteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Sixteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Seventeenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Eighteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Nineteenth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`
- Twentieth Layer:** `gblmDataExport.h`, `gblmDataImport.h`, `gblmDataParser.h`, `gblmDataSerializer.h`, `limits`, `cmath`, `gblmMapper.h`, `string`

The node `gblmData.h` is highlighted in red.

- class `gdcmm::SequenceOfItems`
Class to represent a Sequence Of Items (value representation : SQ)

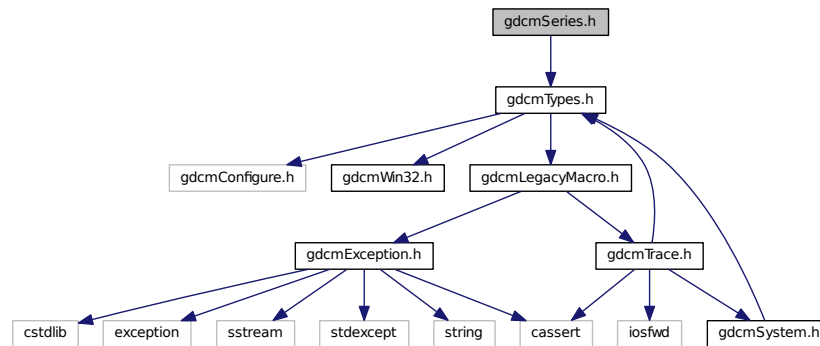
- `gdcm`

```
#include "gdcmTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmFile.h"
#include <vector>
#include <string>
#include <map>
```

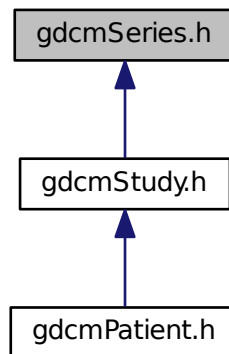

11.218 gdcmSeries.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmSeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Series`
Series.

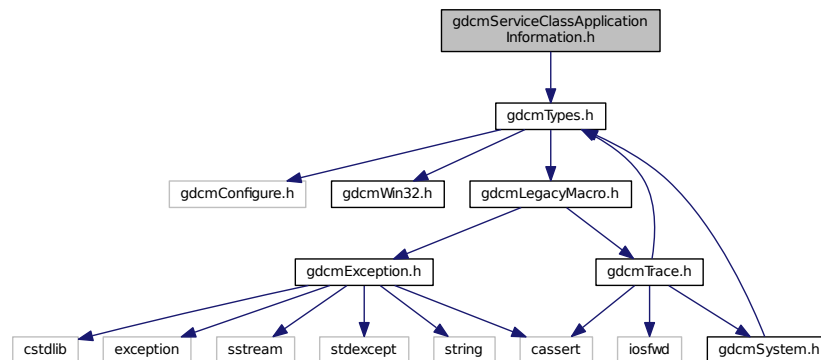
Namespaces

- `gdcm`

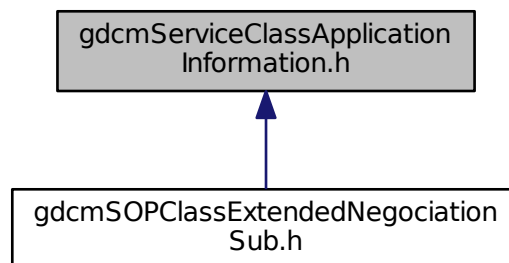
11.219 gdcmServiceClassApplicationInformation.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmServiceClassApplicationInformation.h:



This graph shows which files directly or indirectly include this file:



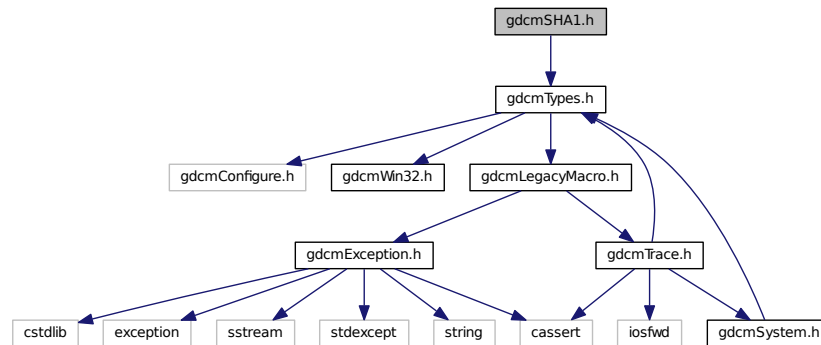
Classes

- class `gdcm::network::ServiceClassApplicationInformation`

Namespaces

- `gdcm`
- `gdcm::network`

Include dependency graph for `gdcmsHA1.h`:



Classes

- class [gdcms::SHA1](#)

Class for [SHA1](#).

Namespaces

- [gdcms](#)

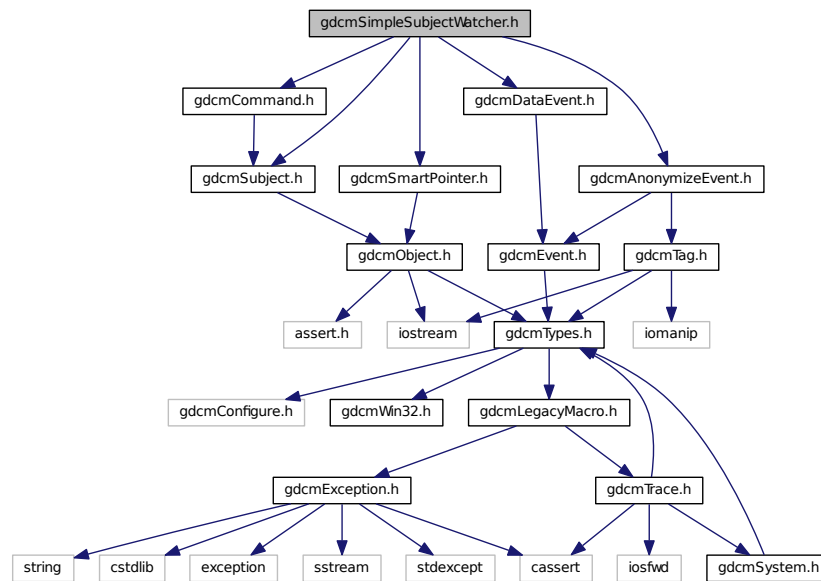
11.222 gdcmsSimpleSubjectWatcher.h File Reference

```

#include "gdcmsSubject.h"
#include "gdcmsCommand.h"
#include "gdcmsSmartPointer.h"
#include "gdcmsAnonymizeEvent.h"
#include "gdcmsDataEvent.h"

```

Include dependency graph for gdcmSimpleSubjectWatcher.h:



Classes

- class [gdcm::SimpleSubjectWatcher](#)

SimpleSubjectWatcher This is a typical *Subject* Watcher class. It will observe all events.

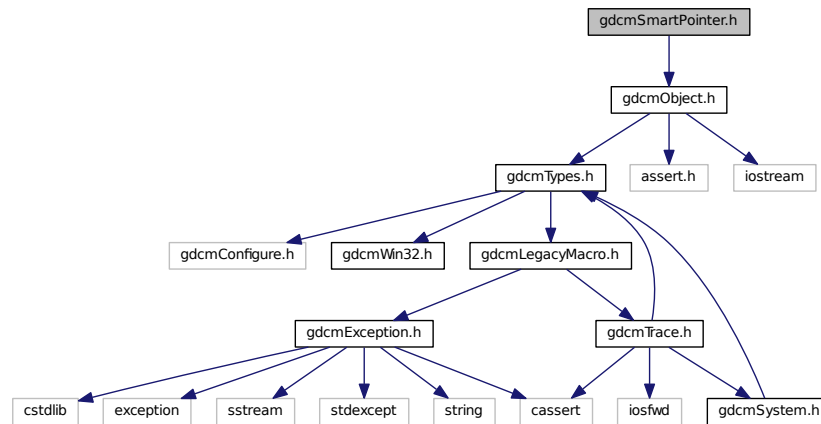
Namespaces

- [gdcm](#)

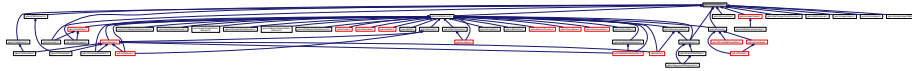
11.223 gdcmSmartPointer.h File Reference

```
#include "gdcmObject.h"
```

Include dependency graph for `gdcmSmartPointer.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::SmartPointer< ObjectType >`
Class for Smart Pointer.

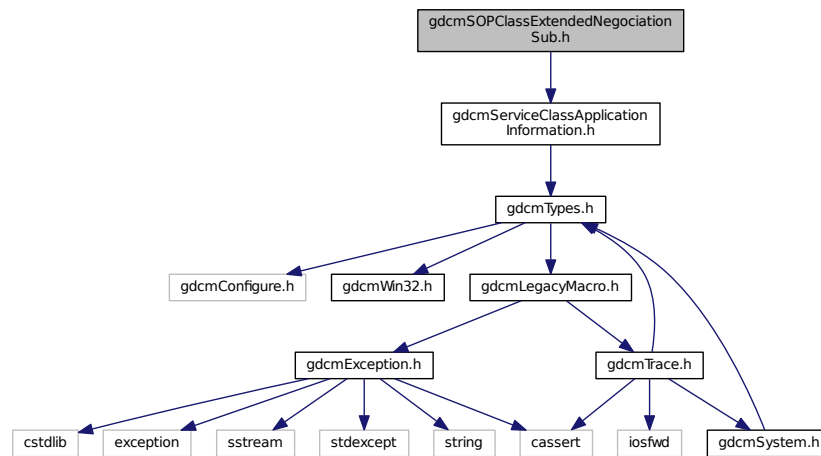
Namespaces

- `gdcm`

11.224 gdcmSOPClassExtendedNegociationSub.h File Reference

```
#include "gdcmServiceClassApplicationInformation.h"
```

Include dependency graph for gdcmSOPClassExtendedNegociationSub.h:



Classes

- class [gdcm::network::SOPClassExtendedNegociationSub](#)

[SOPClassExtendedNegociationSub](#) PS 3.7 Table D.3-11 SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-ASSOCIATE-AC)

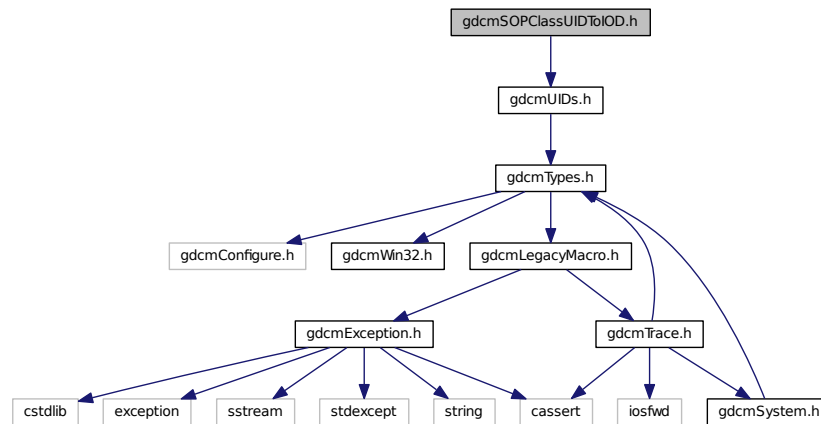
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.225 gdcmSOPClassUIDToIOD.h File Reference

```
#include "gdcmUIDs.h"
```

Include dependency graph for `gdcmSOPClassUIDToIOD.h`:



Classes

- class `gdcm::SOPClassUIDToIOD`

Class convert a class SOP Class UID into [IOD](#).

Namespaces

- `gdcm`

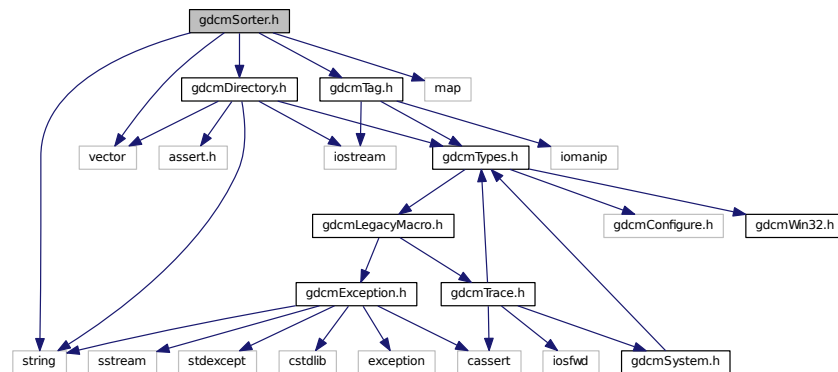
11.226 gdcmSorter.h File Reference

```

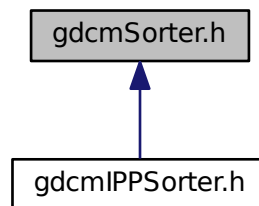
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <vector>
#include <string>
#include <map>

```

Include dependency graph for gdcmSorter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Sorter](#)

[Sorter](#) General class to do sorting using a custom function You simply need to provide a function of type: [Sorter::SortFunction](#).

Namespaces

- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &os, const Sorter &s)`

Classes

- class `gdcm::Spectroscopy`
Spectroscopy class.

Namespaces

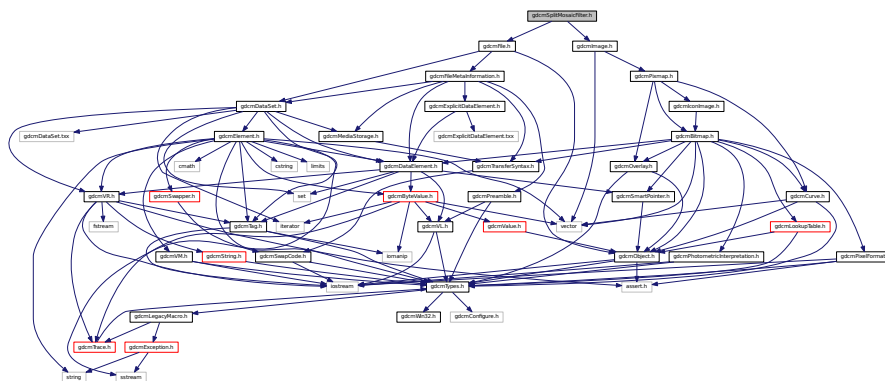
- **gdcm**

11.229 gdcMSplitMosaicFilter.h File Reference

```
#include "gdcmFile.h"
```

```
#include "gdcmImage.h"
```

Include dependency graph for `gdcmSplitMosaicFilter.h`:



Classes

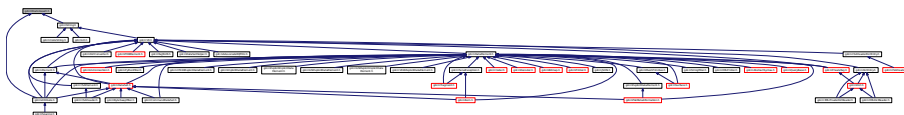
- class `gdcm::SplitMosaicFilter`
SplitMosaicFilter class Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA *Image* Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture.

Namespaces

- **gdcm**

11.230 gdcmStaticAssert.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- struct [gdcm::static_assert_test< x >](#)
- struct [gdcm::STATIC_ASSERTION_FAILURE< x >](#)
- struct [gdcm::STATIC_ASSERTION_FAILURE< true >](#)

Namespaces

- [gdcm](#)

Macros

- #define [GDCM_DO_JOIN\(X, Y\) GDCM_DO_JOIN2\(X,Y\)](#)
- #define [GDCM_DO_JOIN2\(X, Y\) X##Y](#)
- #define [GDCM_JOIN\(X, Y\) GDCM_DO_JOIN\(X, Y \)](#)
- #define [GDCM_STATIC_ASSERT\(B\)](#)

*The GDCM_JOIN + **LINE** is needed to create a uniq identifier.*

11.230.1 Macro Definition Documentation

11.230.1.1 #define [GDCM_DO_JOIN\(X, Y \) GDCM_DO_JOIN2\(X,Y\)](#)

11.230.1.2 #define [GDCM_DO_JOIN2\(X, Y \) X##Y](#)

11.230.1.3 #define [GDCM_JOIN\(X, Y \) GDCM_DO_JOIN\(X, Y \)](#)

11.230.1.4 #define [GDCM_STATIC_ASSERT\(B \)](#)

Value:

```
typedef ::gdcm::static_assert_test<\
    sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool) ( B ) >)>
    \
    GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
```

The GDCM_JOIN + **LINE** is needed to create a uniq identifier.

- struct `gdcm::StrictScanner::Itstr`
- class `gdcm::StrictScanner`

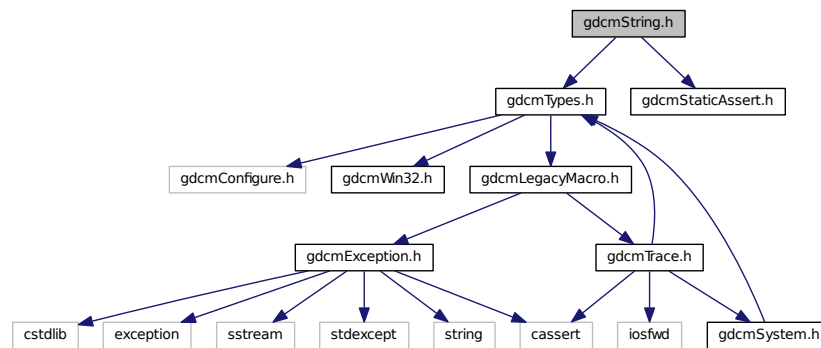
Namespaces

- ## Functions

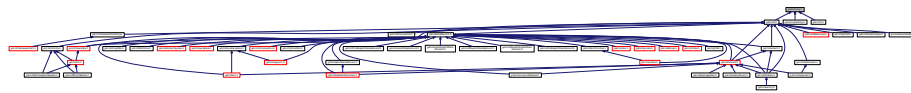
- ## 11.234 gdcmString.h File Reference

Generated by Doxygen

Include dependency graph for `gdcmString.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::String< TDelimiter, TMaxLength, TPadChar >`
String.

Namespaces

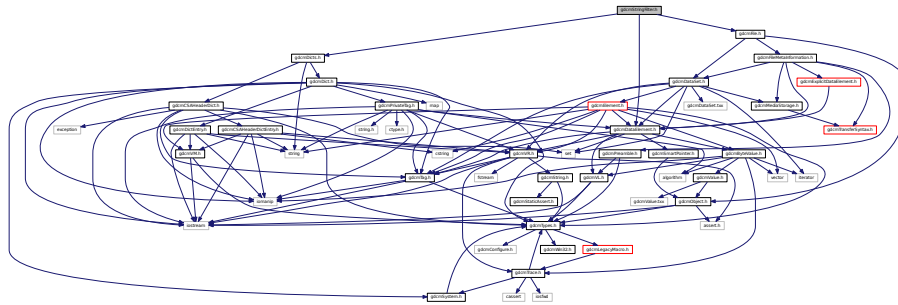
- `gdcm`

Functions

- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
`std::istream & gdcm::operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)`

11.235 gdcmStringFilter.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"
Include dependency graph for gdcmStringFilter.h:
```



Classes

- class [gdcm::StringFilter](#)

[StringFilter](#) [StringFilter](#) is the class that make `gdcm2.x` looks more like `gdcm1` and transform the binary blob contained in a [DataElement](#) into a string, typically this is a nice feature to have for wrapped language.

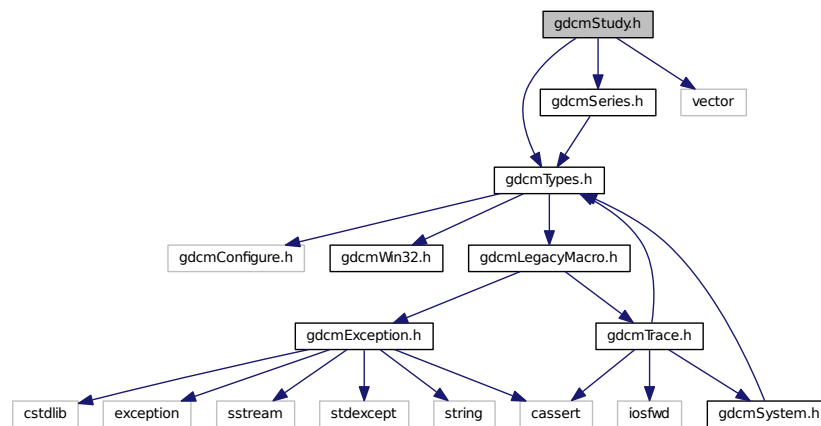
Namespaces

- [gdcm](#)

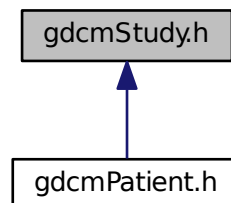
11.236 gdcmStudy.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSeries.h"
#include <vector>
```

Include dependency graph for `gdcmStudy.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Study`
Study.

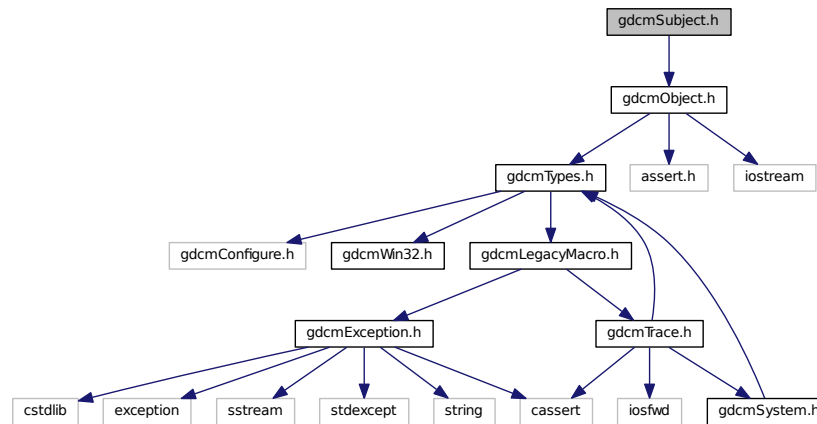
Namespaces

- `gdcm`

11.237 gdcmSubject.h File Reference

```
#include "gdcmObject.h"
```

Include dependency graph for gdcmSubject.h:



This graph shows which files directly or indirectly include this file:



Classes

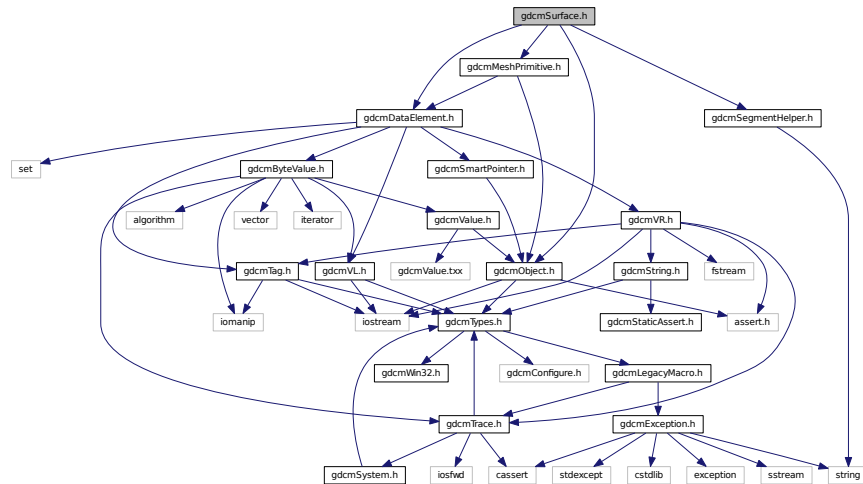
- class [gdcm::Subject](#)
Subject.

Namespaces

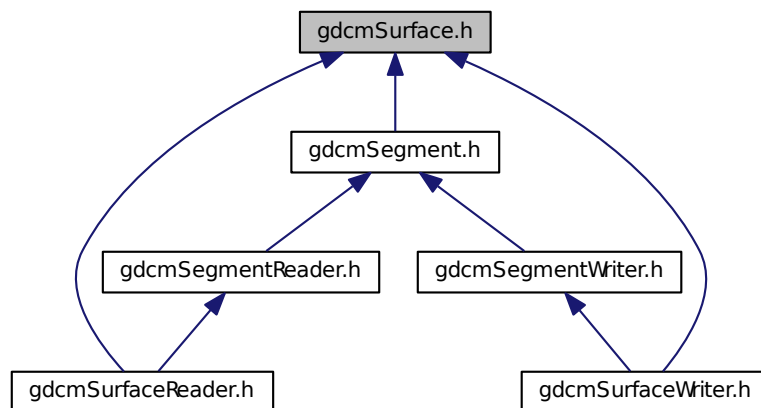
- [gdcm](#)

11.238 gdcmSurface.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
#include <gdcmMeshPrimitive.h>
#include "gdcmSegmentHelper.h"
Include dependency graph for gdcmSurface.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Surface](#)

This class defines a SURFACE IE. This members are taken from required surface mesh module attributes.

Namespaces

- [gdcm](#)

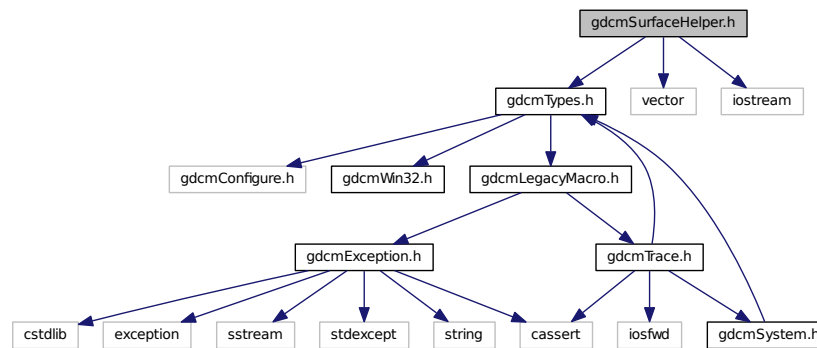
11.239 gdcmSurfaceHelper.h File Reference

```
#include "gdcmTypes.h"
```

```
#include <vector>
```

```
#include <iostream>
```

Include dependency graph for gdcmSurfaceHelper.h:



Classes

- class [gdcm::SurfaceHelper](#)
SurfaceHelper Helper class for *Surface* object.

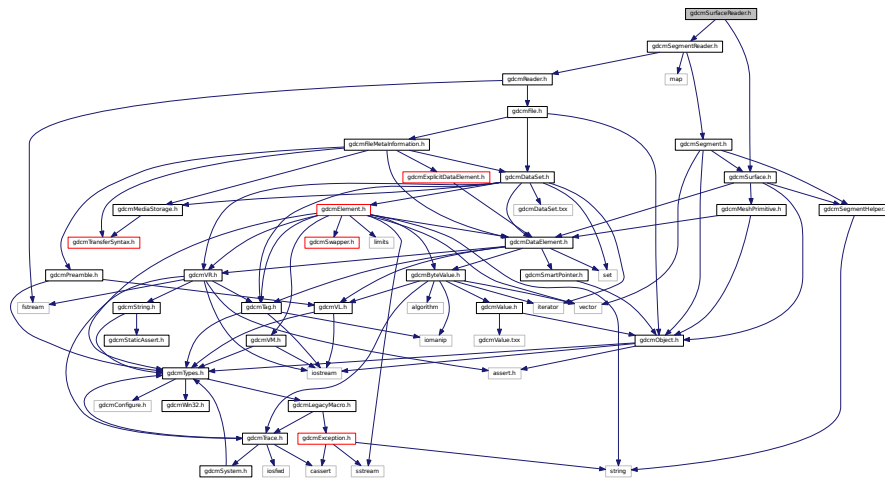
Namespaces

- [gdcm](#)

11.240 gdcmSurfaceReader.h File Reference

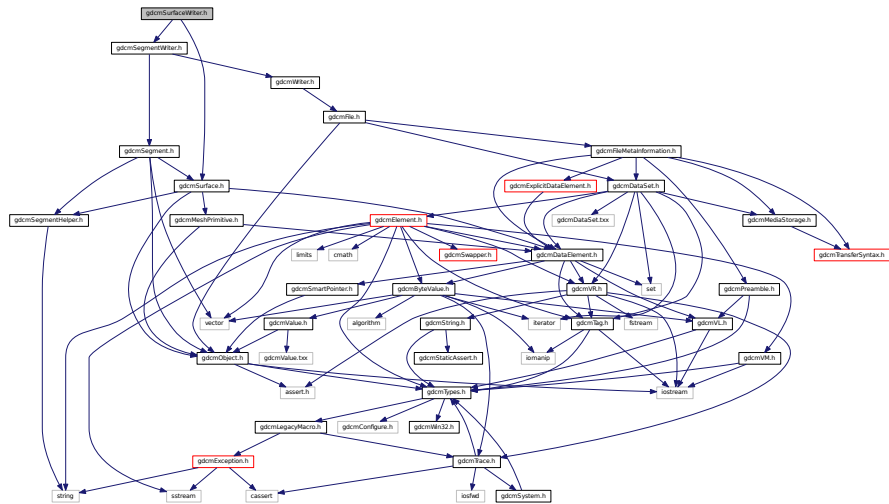
```
#include <gdcmSegmentReader.h>
```

```
#include <gdcmSurface.h>
```



- This class defines a `GROUP`*

Include dependency graph for gdcmSurfaceWriter.h:



Classes

- class [gdcm::SurfaceWriter](#)

This class defines a SURFACE IE writer. It writes surface mesh module attributes.

Namespaces

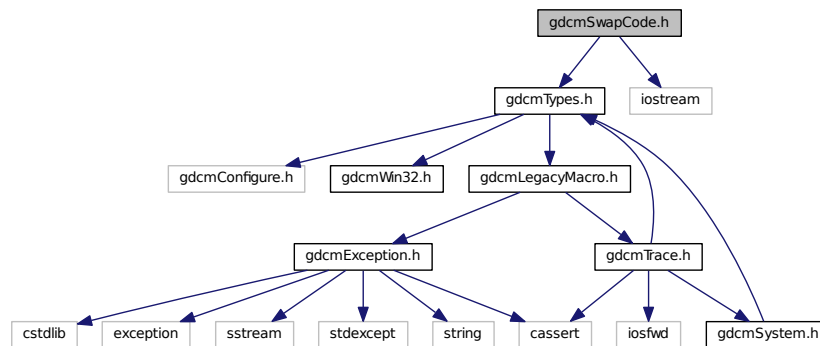
- [gdcm](#)

11.242 gdcmSwapCode.h File Reference

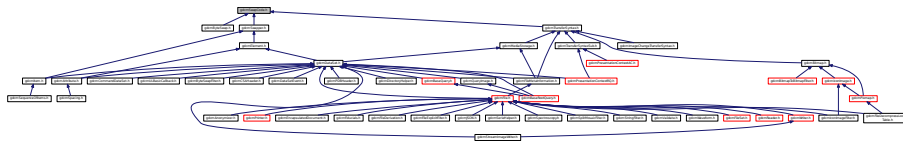
```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for gdcmSwapCode.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcmm::SwapCode](#)
SwapCode representation.

Namespaces

- [gdcmm](#)

Functions

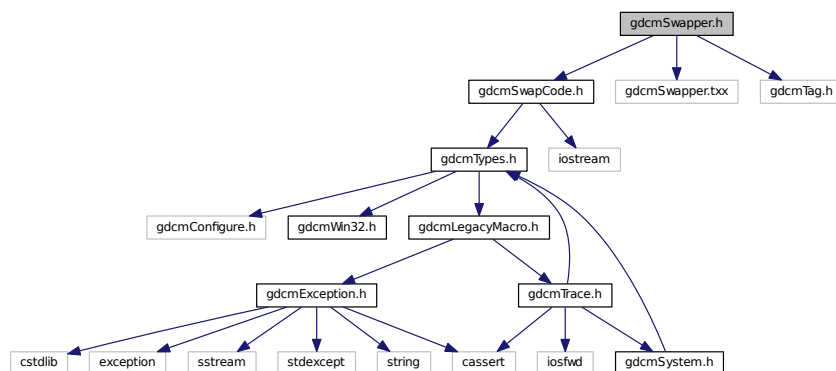
- `std::ostream & gdcmm::operator<< (std::ostream &os, const SwapCode &sc)`

11.243 gdcmmSwapper.h File Reference

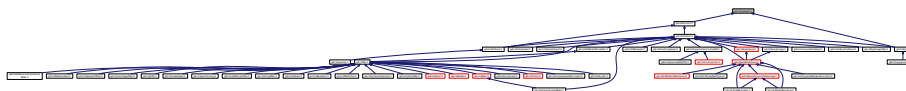
```
#include "gdcmmSwapCode.h"
```

```
#include "gdcmmSwapper.txx"
```

Include dependency graph for gdcmmSwapper.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::SwapperDoOp](#)
- class [gdcm::SwapperNoOp](#)

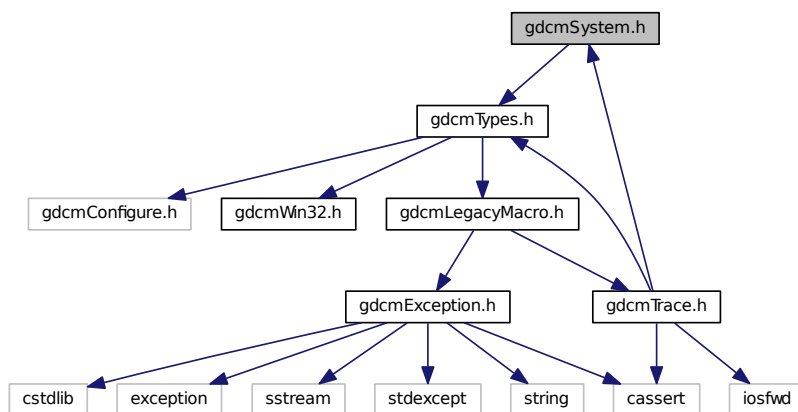
Namespaces

- [gdcm](#)

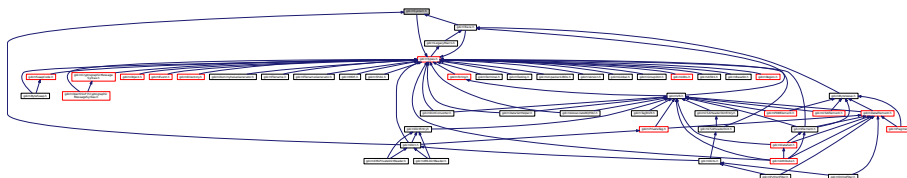
11.244 gdcmSystem.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmSystem.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::System](#)
Class to do system operation.

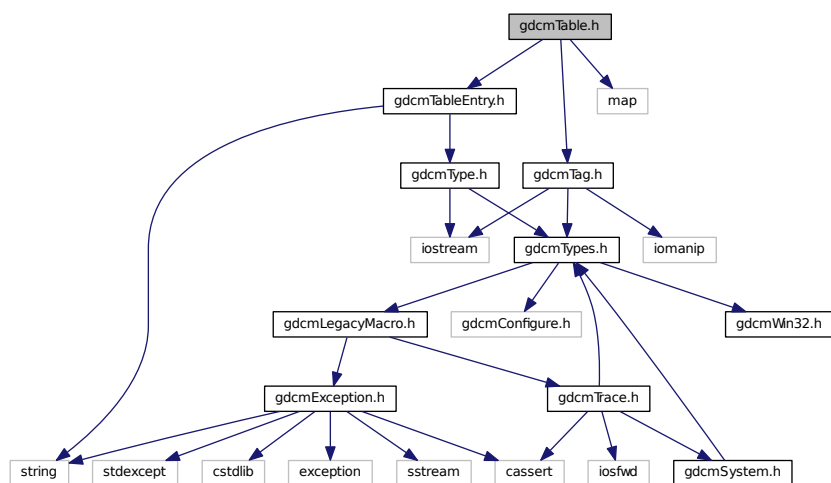
Namespaces

- [gdcm](#)

11.245 gdcmTable.h File Reference

```
#include "gdcmTableEntry.h"  
#include "gdcmTag.h"  
#include <map>
```

Include dependency graph for gdcmTable.h:



Classes

- class [gdcm::Table](#)
Table.

Namespaces

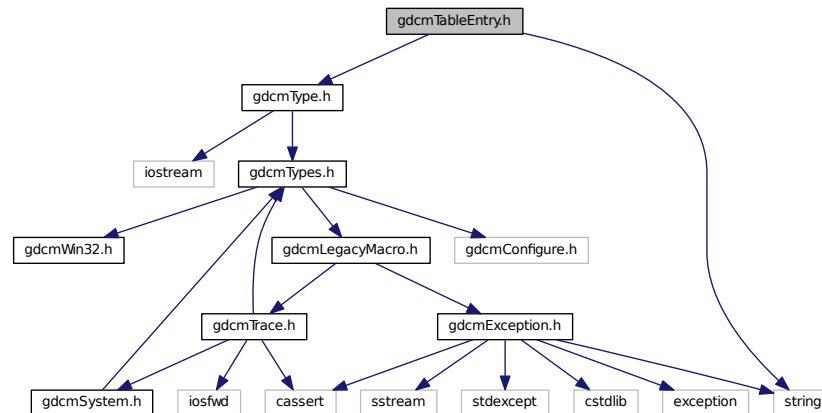
- [gdcm](#)

11.246 gdcmTableEntry.h File Reference

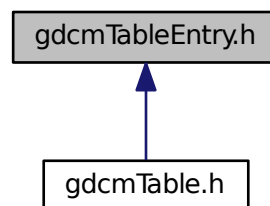
```
#include "gdcmType.h"
```

```
#include <string>
```

Include dependency graph for gdcmTableEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::TableEntry`
TableEntry.

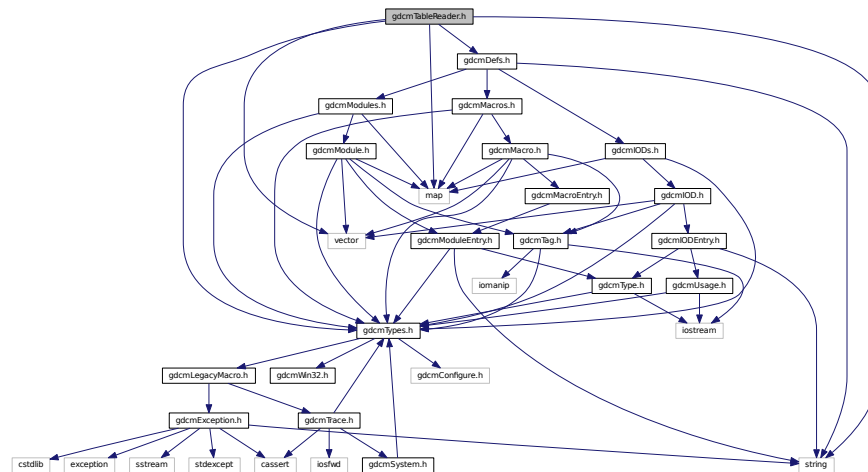
Namespaces

- `gdcm`

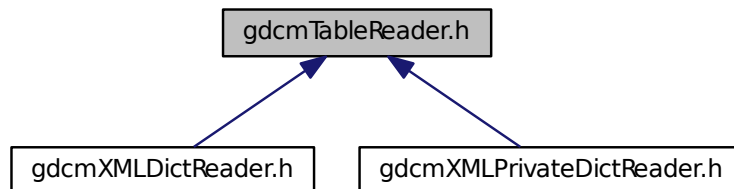
11.247 gdcmTableReader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDefs.h"
#include <string>
#include <vector>
#include <map>
```

Include dependency graph for gdcmTableReader.h:



This graph shows which files directly or indirectly include this file:



Classes

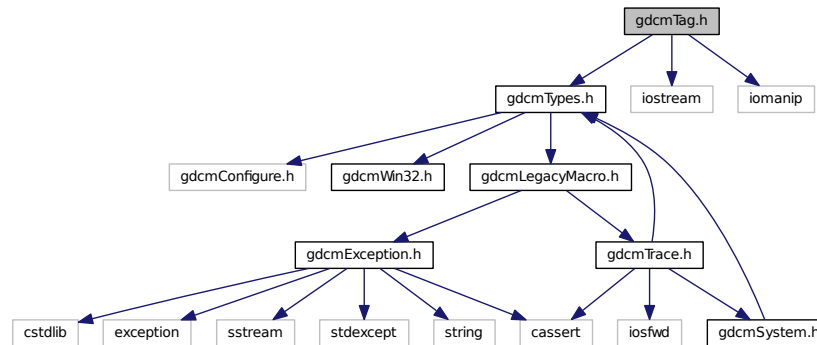
- class [gdcm::TableReader](#)
Class for representing a [TableReader](#).

Namespaces

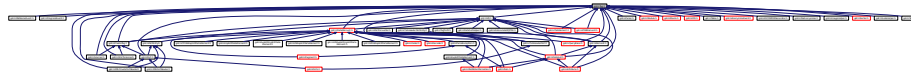
- [gdcm](#)

11.248 gdcmTag.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <iomanip>
Include dependency graph for gdcmTag.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Tag](#)

Class to represent a DICOM Data [Element](#) ([Attribute](#)) [Tag](#) (Group, [Element](#)). Basically an `uint32_t` which can also be expressed as two `uint16_t` (group and element)

Namespaces

- [gdcm](#)

Functions

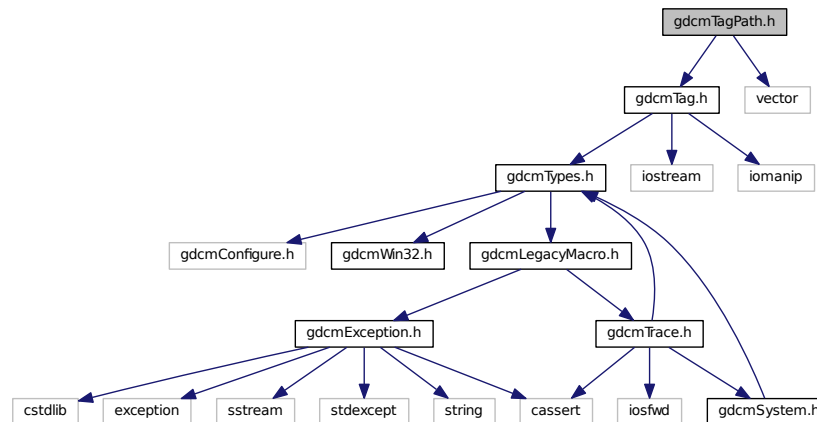
- `std::ostream & gdcm::operator<< (std::ostream &_os, const Tag &_val)`
- `std::istream & gdcm::operator>> (std::istream &_is, Tag &_val)`

11.249 gdcmTagPath.h File Reference

```
#include "gdcmTag.h"
```

```
#include <vector>
```

Include dependency graph for gdcmTagPath.h:



Classes

- class [gdcm::TagPath](#)
class to handle a path of tag.

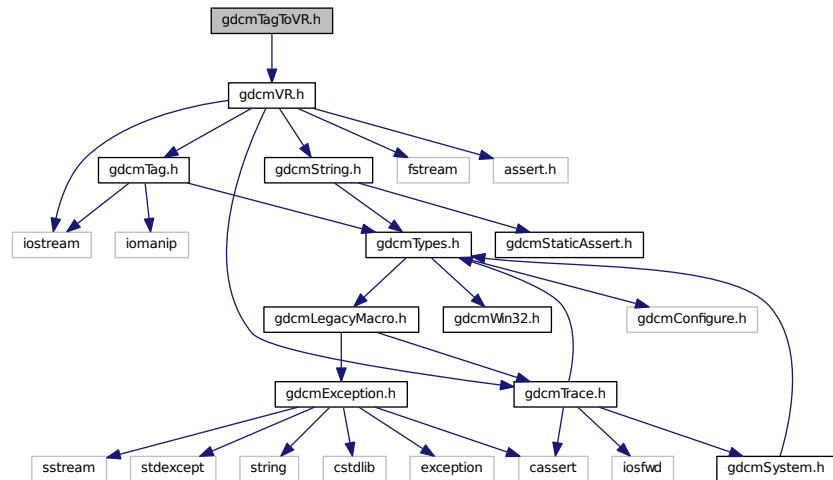
Namespaces

- [gdcm](#)

11.250 gdcmTagToVR.h File Reference

```
#include "gdcmVR.h"
```

Include dependency graph for gdcmTagToVR.h:



Namespaces

- [gdcm](#)

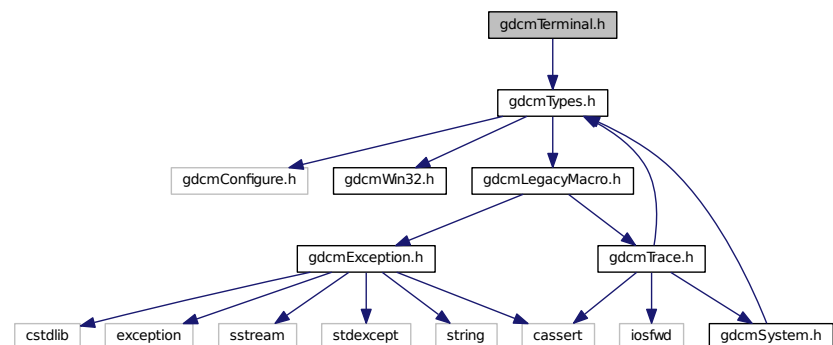
Functions

- VR::VRType [gdcm::GetVRFromTag](#) (Tag const &tag)

11.251 gdcmTerminal.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmTerminal.h:



Namespaces

- [gdc](#)
- [gdc::terminal](#)

Class for Terminal Allow one to print in color in a shell.

Enumerations

- enum [gdc::terminal::Attribute](#) {
 [gdc::terminal::reset](#) = 0,
 [gdc::terminal::bright](#) = 1,
 [gdc::terminal::dim](#) = 2,
 [gdc::terminal::underline](#) = 3,
 [gdc::terminal::blink](#) = 5,
 [gdc::terminal::reverse](#) = 7,
 [gdc::terminal::hidden](#) = 8 }
- enum [gdc::terminal::Color](#) {
 [gdc::terminal::black](#) = 0,
 [gdc::terminal::red](#),
 [gdc::terminal::green](#),
 [gdc::terminal::yellow](#),
 [gdc::terminal::blue](#),
 [gdc::terminal::magenta](#),
 [gdc::terminal::cyan](#),
 [gdc::terminal::white](#) }
- enum [gdc::terminal::Mode](#) {
 [gdc::terminal::CONSOLE](#) = 0,
 [gdc::terminal::VT100](#) }

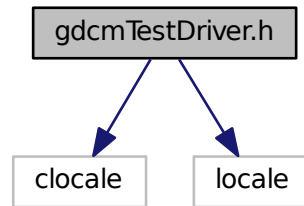
Functions

- [GDCM_EXPORT](#) std::string [gdc::terminal::setattribute](#) (Attribute att)
- [GDCM_EXPORT](#) std::string [gdc::terminal::setbgcolor](#) (Color c)
- [GDCM_EXPORT](#) std::string [gdc::terminal::setfgcolor](#) (Color c)
- [GDCM_EXPORT](#) void [gdc::terminal::setmode](#) (Mode m)

11.252 gdcTestDriver.h File Reference

```
#include <locale>
#include <locale>
```

Include dependency graph for gdcmTestDriver.h:

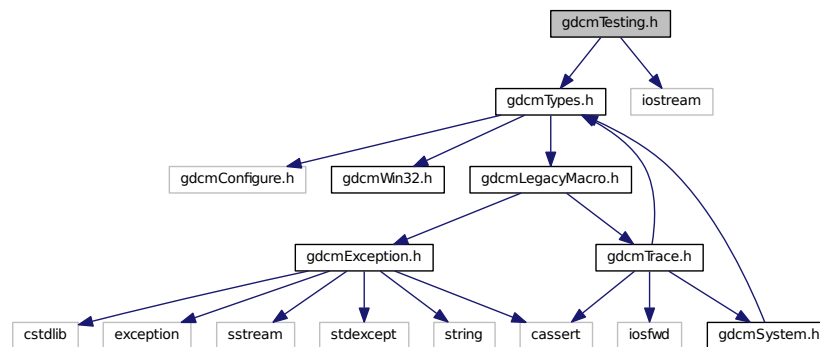


11.253 gdcmTesting.h File Reference

```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for gdcmTesting.h:



Classes

- class [gdcm::Testing](#)
class for testing

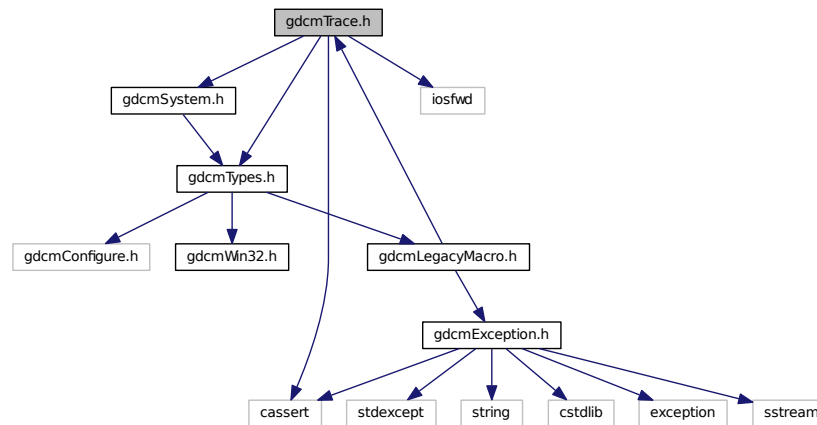
Namespaces

- [gdcm](#)

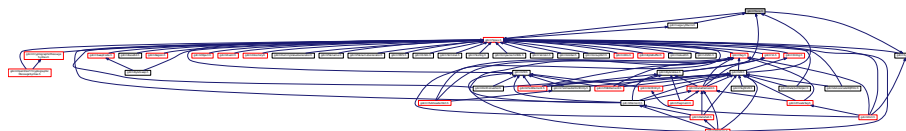
11.254 gdcmTrace.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSystem.h"
#include <iosfwd>
#include <cassert>
```

Include dependency graph for gdcmTrace.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Trace`
Trace.

Namespaces

- `gdcm`

Macros

- #define `GDCM_FUNCTION` "<unknown>"
- #define `gdcmAssertAlwaysMacro`(arg) `gdcmAssertMacro`(arg)
AssertAlways.
- #define `gdcmAssertMacro`(arg)
Assert.
- #define `gdcmDebugMacro`(msg)
Debug.
- #define `gdcmErrorMacro`(msg)
Error this is pretty bad, more than just warning It could mean lost of data, something not handle...
- #define `gdcmWarningMacro`(msg)
Warning.

11.254.1 Macro Definition Documentation

11.254.1.1 #define `GDCM_FUNCTION` "<unknown>"

11.254.1.2 #define `gdcmAssertAlwaysMacro`(arg) `gdcmAssertMacro`(arg)

`AssertAlways.`

Parameters

<i>arg</i>	argument to test An easy solution to pass also a message is to do: <code>gdcmAssertMacro("my message" && 2 < 3)</code>
------------	---

Referenced by `gdcm::DataElement::GetValue()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::DataSet::↵
Replace()`, `gdcm::DataSet::ReplaceEmpty()`, and `gdcm::VR::Write()`.

11.254.1.3 #define `gdcmAssertMacro`(arg)

Value:

```
{
    if( !(arg) )
    {
        std::ostringstream osmacro;
        osmacro << "Assert: In " __FILE__ ", line " << __LINE__
            << ", function " << GDCM_FUNCTION
            << "\n\n";
        std::ostream &_os = gdcm::Trace::GetErrorStream();
        _os << osmacro.str() << std::endl;
        assert ( arg );
    }
}
```

`Assert.`

Parameters

<i>arg</i>	argument to test An easy solution to pass also a message is to do: <code>gdcmaAssertMacro("my message" && 2 < 3)</code>
------------	--

Referenced by `gdcma::PixelFormat::SetSamplesPerPixel()`.

11.254.1.4 `#define gdcmaDebugMacro(msg)`

Value:

```
{
    if( gdcma::Trace::GetDebugFlag() )
    {
        std::ostringstream osmacro;
        osmacro << "Debug: In " __FILE__ ", line " << __LINE__
        << ", function " << GDCM_FUNCTION << '\n'
        << "Last system error was: "
        << gdcma::System::GetLastSystemError() << '\n' << msg;
        std::ostream &_os = gdcma::Trace::GetDebugStream();
        _os << osmacro.str() << "\n\n" << std::endl;
    }
}
```

Debug.

Parameters

<i>msg</i>	message part
------------	--------------

Referenced by `gdcma::ByteValue::ByteValue()`, `gdcma::OpenSSLCryptoFactory::OpenSSLCryptoFactory()`, `gdcma::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory()`, `gdcma::BasicOffsetTable::Read()`, `gdcma::Item::Read()`, `gdcma::SequenceOfItems::Read()`, `gdcma::VR::Read()`, `gdcma::SequenceOfFragments::ReadPreValue()`, and `gdcma::SequenceOfFragments::ReadValue()`.

11.254.1.5 `#define gdcmaErrorMacro(msg)`

Value:

```
{
    if( gdcma::Trace::GetErrorFlag() )
    {
        std::ostringstream osmacro;
        osmacro << "Error: In " __FILE__ ", line " << __LINE__
        << ", function " << GDCM_FUNCTION << '\n'
        << msg << "\n\n";
        std::ostream &_os = gdcma::Trace::GetErrorStream();
        _os << osmacro.str() << std::endl;
    }
}
```

Error this is pretty bad, more than just warning It could mean lost of data, something not handle...

Parameters

<i>msg</i>	second message part
------------	---------------------

Referenced by `gdcm::CryptoFactory::CryptoFactory()`, `gdcm::CommandDataSet::Insert()`, `gdcm::FileMetaInformation::Insert()`, `gdcm::DataSet::Insert()`, `gdcm::Item::Read()`, and `gdcm::Fragment::ReadBacktrack()`.

11.254.1.6 `#define gdcmWarningMacro(msg)`

Value:

```
{
    if( gdcm::Trace::GetWarningFlag() )
    {
        std::ostringstream osmacro;
        osmacro << "Warning: In " __FILE__ ", line " << __LINE__
            << ", function " << GDCM_FUNCTION << "\n"
            << msg << "\n\n";
        std::ostream &_os = gdcm::Trace::GetWarningStream();
        _os << osmacro.str() << std::endl;
    }
}
```

Warning.

Parameters

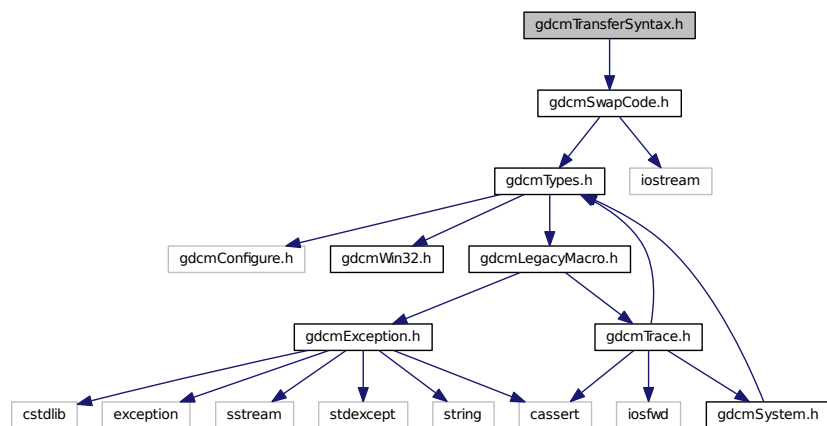
<i>msg</i>	message part
------------	--------------

Referenced by `gdcm::DataSet::InsertDataElement()`, `gdcm::Item::Read()`, `gdcm::SequenceOfItems::Read()`, `gdcm::Fragment::ReadBacktrack()`, `gdcm::Fragment::ReadValue()`, `gdcm::SequenceOfFragments::ReadValue()`, `gdcm::OpenSSL7CryptographicMessageSyntax::SetPassword()`, and `gdcm::Item::Write()`.

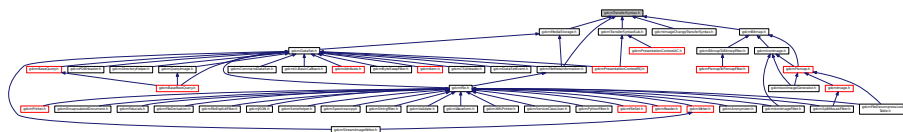
11.255 gdcmTransferSyntax.h File Reference

```
#include "gdcmSwapCode.h"
```

Include dependency graph for `gdcmTransferSyntax.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::TransferSyntax](#)
Class to manipulate Transfer Syntax.

Namespaces

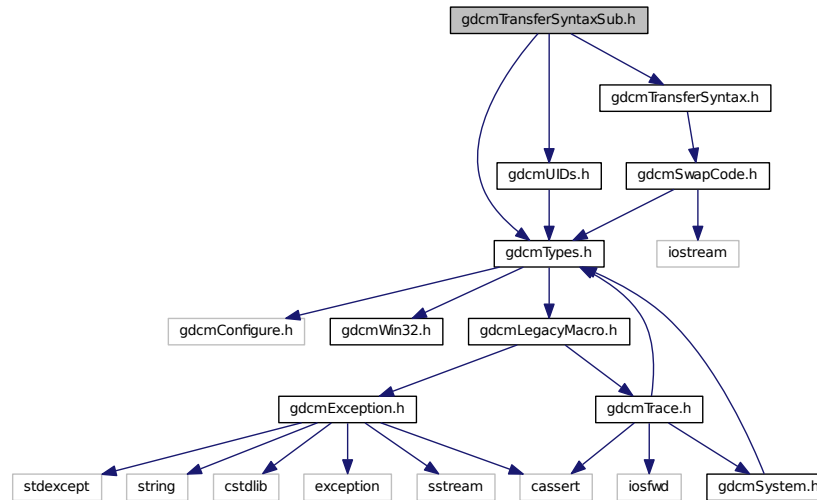
- [gdcm](#)

Functions

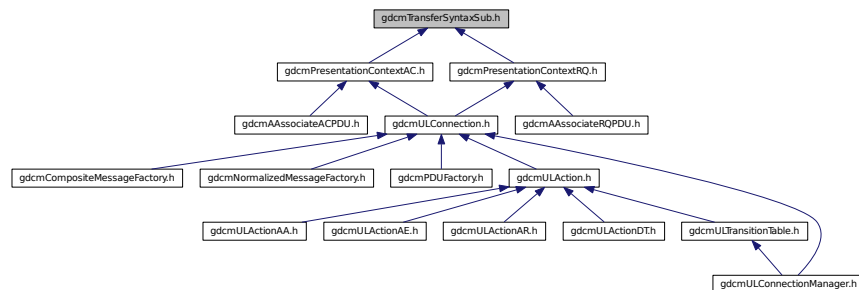
- `std::ostream & gdcm::operator<< (std::ostream &_os, const TransferSyntax &ts)`

11.256 gdcmTransferSyntaxSub.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDs.h"
Include dependency graph for gdcmTransferSyntaxSub.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::TransferSyntaxSub](#)
TransferSyntaxSub Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS.

Namespaces

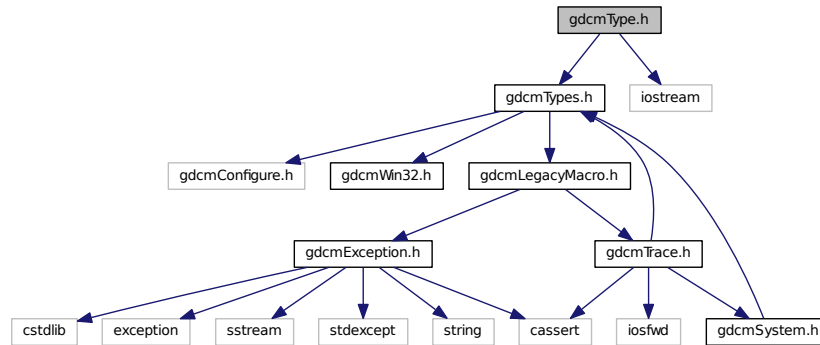
- [gdcm](#)
- [gdcm::network](#)

11.257 gdcmType.h File Reference

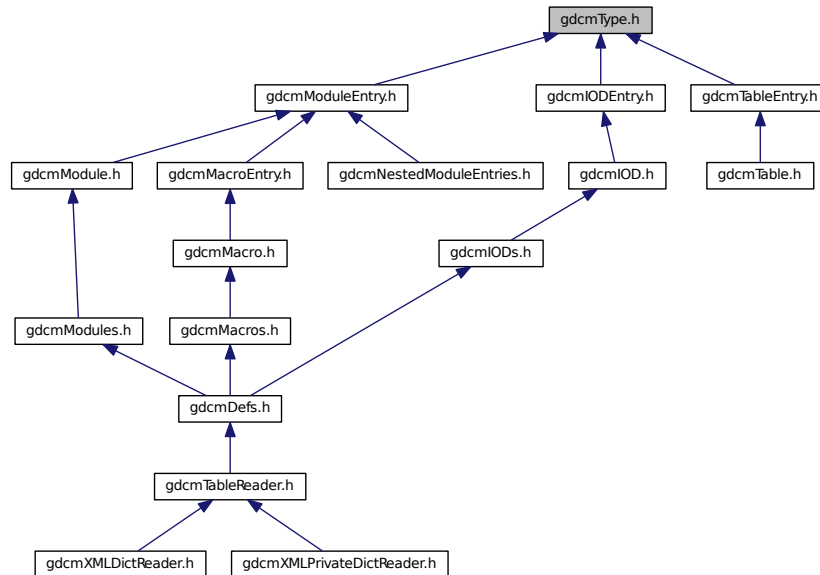
```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for gdcmType.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Type`
Type.

Namespaces

- [gdcm](#)

Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const Type &val)`

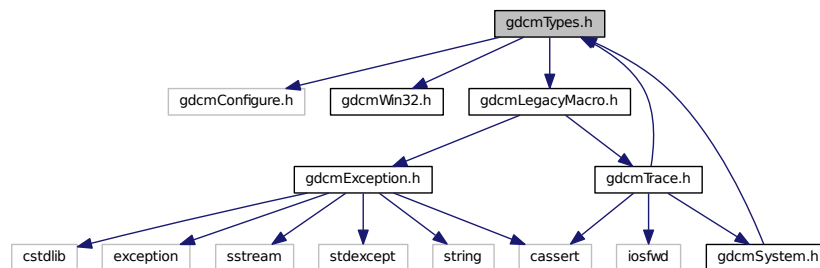
11.258 gdcmTypes.h File Reference

```
#include "gdcmConfigure.h"
```

```
#include "gdcmWin32.h"
```

```
#include "gdcmLegacyMacro.h"
```

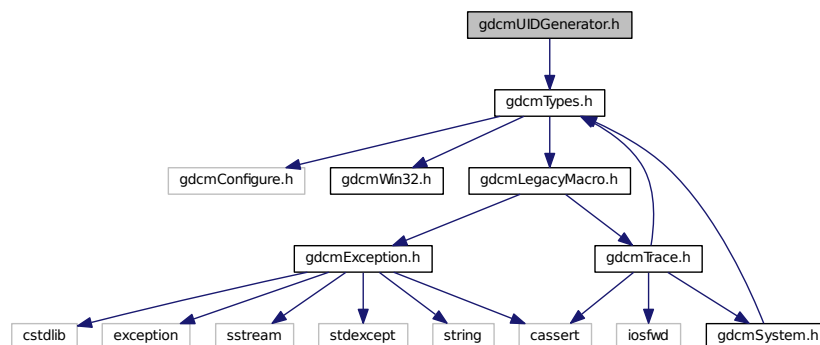
Include dependency graph for gdcmTypes.h:



11.259 gdcmUIDGenerator.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmUIDGenerator.h:



Classes

- class [gdcm::UIDGenerator](#)
Class for generating unique UID.

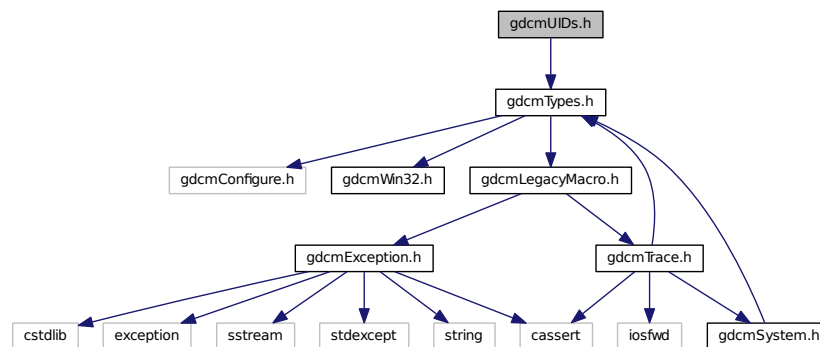
Namespaces

- [gdcm](#)

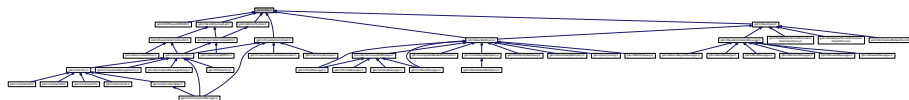
11.260 gdcmUIDs.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmUIDs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::UIDs](#)
all known uids

Namespaces

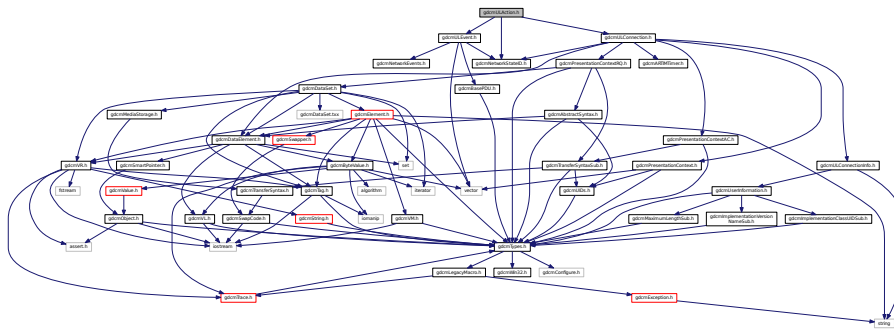
- [gdcm](#)

Functions

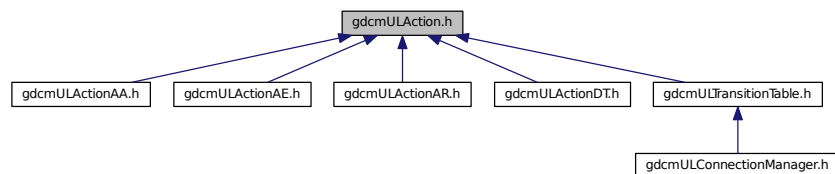
- `std::ostream & gdcm::operator<< (std::ostream &_os, const UIDs &uid)`

11.261 gdcmULAction.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmULEvent.h"
#include "gdcmULConnection.h"
Include dependency graph for gdcmULAction.h:
```



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::network::ULAction`

ULAction A *ULConnection* in a given *ULState* can perform certain *ULActions*. This base class provides the interface for running those *ULActions* on a given *ULConnection*.

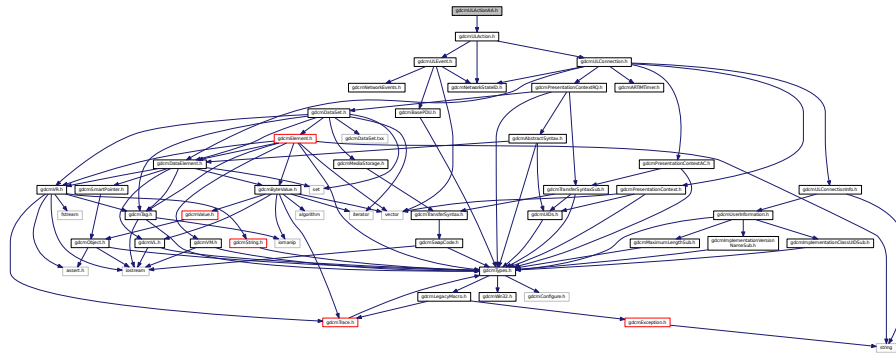
Namespaces

- `gdcm`
- `gdcm::network`

11.262 gdcmULActionAA.h File Reference

```
#include "gdcmULAction.h"
```

Include dependency graph for gdcmULActionAA.h:



Classes

- class [gdcm::network::ULActionAA1](#)
- class [gdcm::network::ULActionAA2](#)
- class [gdcm::network::ULActionAA3](#)
- class [gdcm::network::ULActionAA4](#)
- class [gdcm::network::ULActionAA5](#)
- class [gdcm::network::ULActionAA6](#)
- class [gdcm::network::ULActionAA7](#)
- class [gdcm::network::ULActionAA8](#)

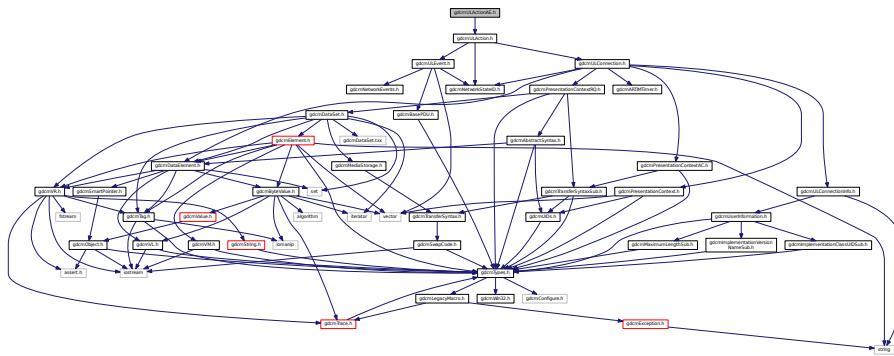
Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.263 gdcmULActionAE.h File Reference

```
#include "gdcmULAction.h"
```

Include dependency graph for gdcmULActionAE.h:



Classes

- class [gdcm::network::ULActionAE1](#)
- class [gdcm::network::ULActionAE2](#)
- class [gdcm::network::ULActionAE3](#)
- class [gdcm::network::ULActionAE4](#)
- class [gdcm::network::ULActionAE5](#)
- class [gdcm::network::ULActionAE6](#)
- class [gdcm::network::ULActionAE7](#)
- class [gdcm::network::ULActionAE8](#)

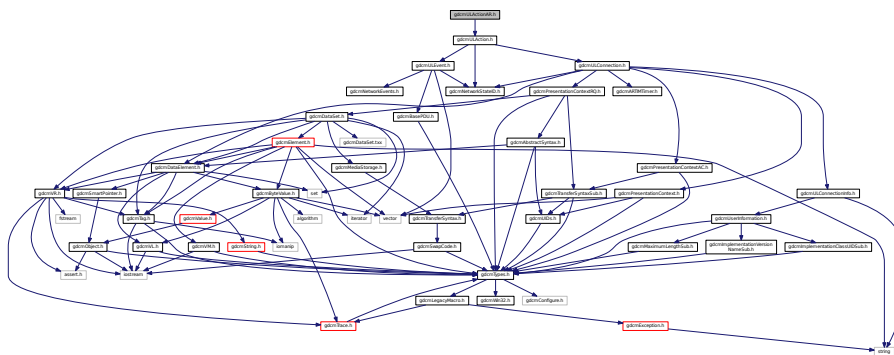
Namespaces

- [gdcm](#)
- [gdcm::network](#)

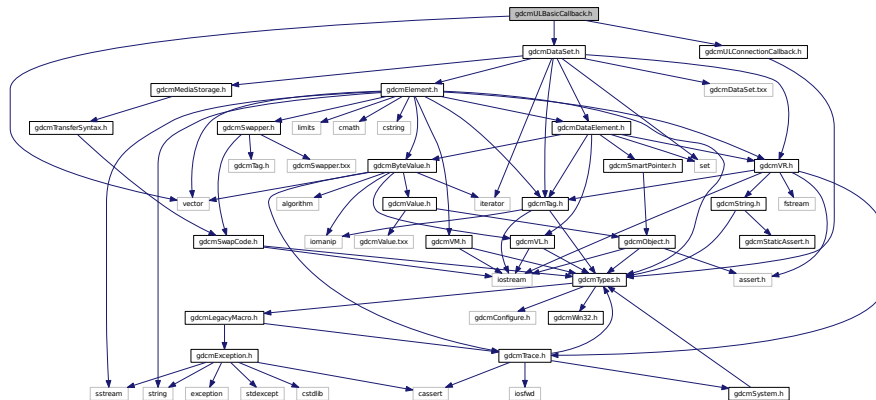
11.264 gdcmULActionAR.h File Reference

```
#include "gdcmULAction.h"
```

Include dependency graph for gdcmULActionAR.h:




```
#include "gdcmULConnectionCallback.h"
#include "gdcmDataSet.h"
#include <vector>
Include dependency graph for gdcmULBasicCallback.h:
```



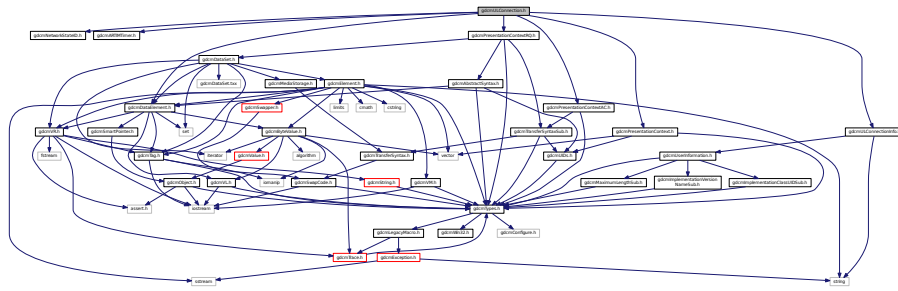
- class `gdcm::network::ULBasicCallback`

***ULBasicCallback** This is the most basic of callbacks for how the **ULConnectionManager** handles incoming datasets. **DataSets** are just concatenated to the **mDataSets** vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the **ULConnectionManager**.*

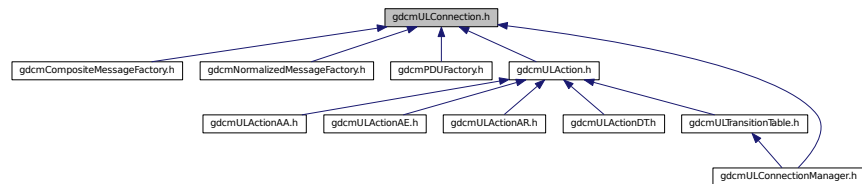
- `gdc`
- `gdc::network`

```
#include "gdcmNetworkStateID.h"
#include "gdcmARTIMTimer.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmDataElement.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for `gdcmULConnection.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::ULConnection](#)

[ULConnection](#) This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

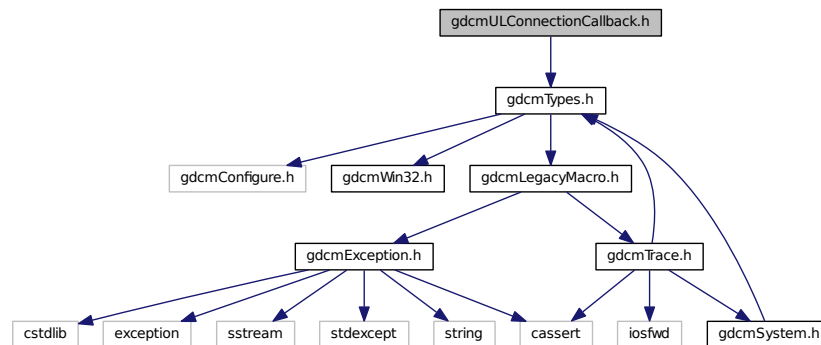
Namespaces

- [gdcm](#)
- [gdcm::network](#)

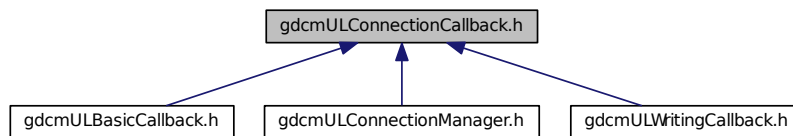
11.268 gdcmULConnectionCallback.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmULConnectionCallback.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::ULConnectionCallback](#)

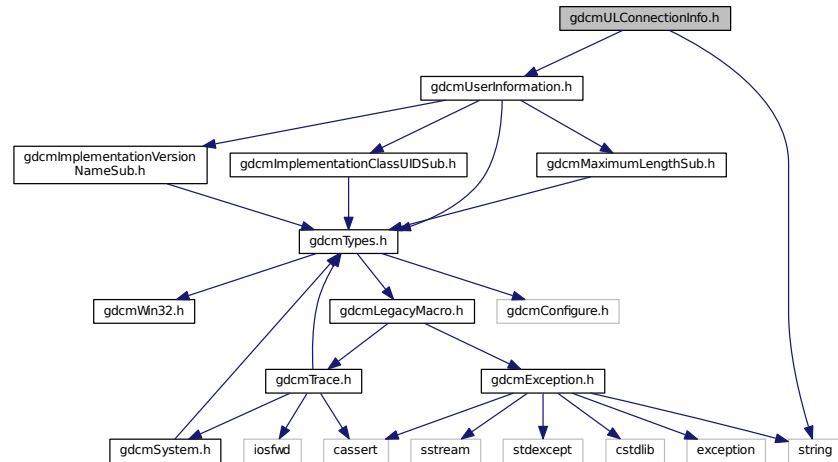
Namespaces

- [gdcm](#)
- [gdcm::network](#)

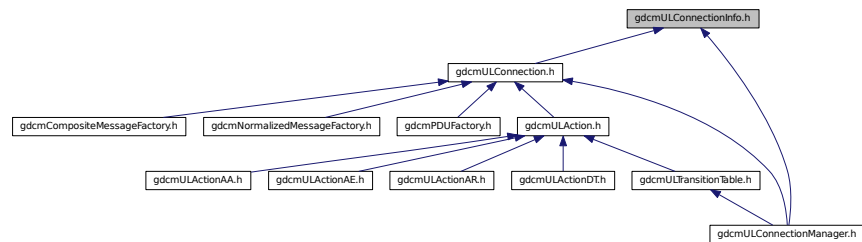
11.269 gdcmULConnectionInfo.h File Reference

```
#include "gdcmUserInformation.h"
#include <string>
```

Include dependency graph for `gdcmULConnectionInfo.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::ULConnectionInfo](#)

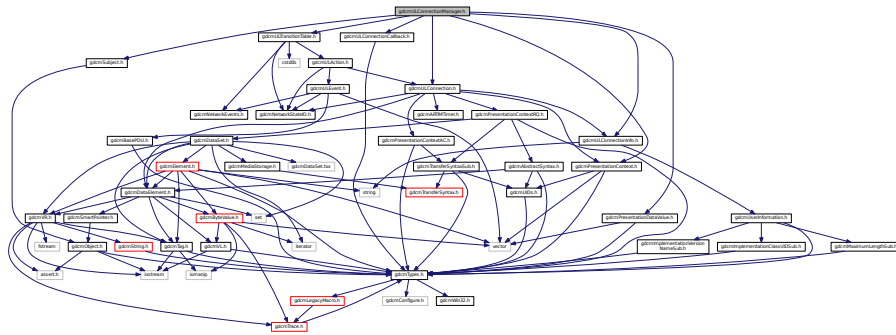
[ULConnectionInfo](#) this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

11.270 gdcmULConnectionManager.h File Reference

```
#include "gdcmULTransitionTable.h"
#include "gdcmULConnection.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnectionCallback.h"
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
Include dependency graph for gdcmULConnectionManager.h:
```



Classes

- class [gdcm::network::ULConnectionManager](#)

[ULConnectionManager](#) The [ULConnectionManager](#) performs actions on the [ULConnection](#) given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

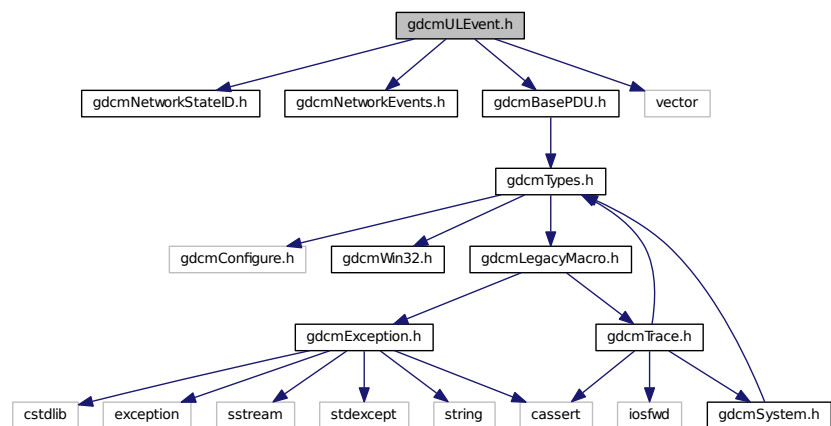
Namespaces

- [gdcm](#)
- [gdcm::network](#)

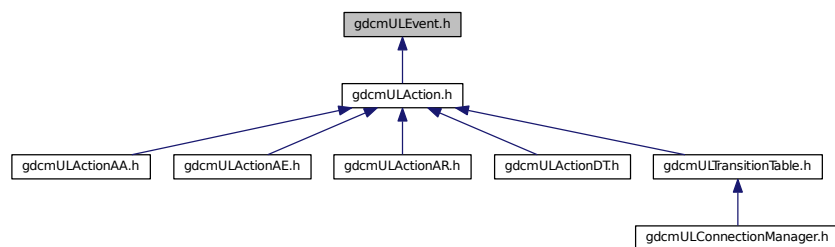
11.271 gdcmULEvent.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for `gdcmULEvent.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::network::ULEvent`
ULEvent base class for network events.

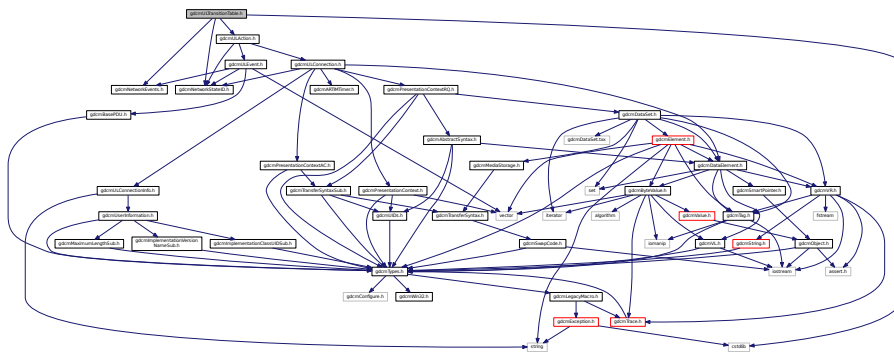
Namespaces

- `gdcm`
- `gdcm::network`

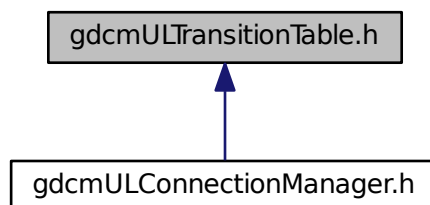
11.272 gdcmULTransitionTable.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULAction.h"
#include <cstdlib>
```

Include dependency graph for gdcmULTransitionTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::TableRow](#)
- struct [gdcm::network::Transition](#)
- class [gdcm::network::ULTransitionTable](#)

[ULTransitionTable](#) The transition table of all the ULEvents, new ULActions, and ULStates.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

Classes

- class `gdcm::UNExplicitDataElement`

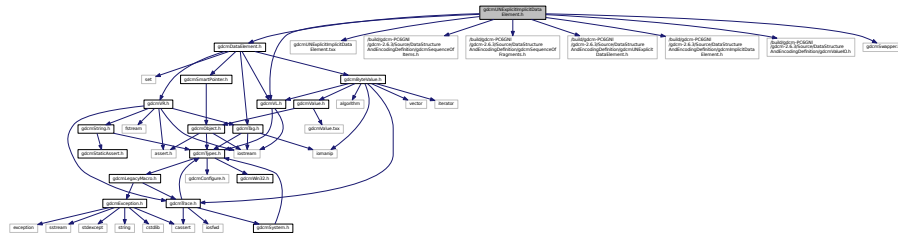
Class to read/write a [DataElement](#) as UNExplicit Data [Element](#).

Namespaces

- **gdcm**

11.275 gdcmmUNExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitImplicitDataElement.hxx"
Include dependency graph for gdcmUNExplicitImplicitDataElement.h:
```



Classes

- class `gdcm::UNExplicitImplicitDataElement`

Class to read/write a [DataElement](#) as ExplicitImplicit Data [Element](#) This class gather two known bugs:

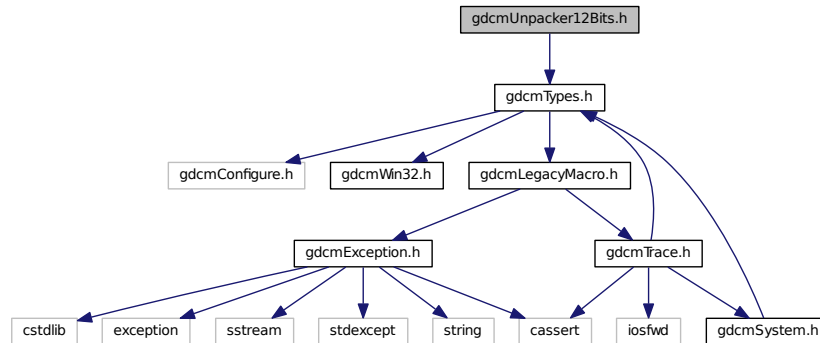
Namespaces

- **gdcm**

11.276 gdcmUnpacker12Bits.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmUnpacker12Bits.h:



Classes

- class [gdcm::Unpacker12Bits](#)
Pack/Unpack 12 bits pixel into 16bits.

Namespaces

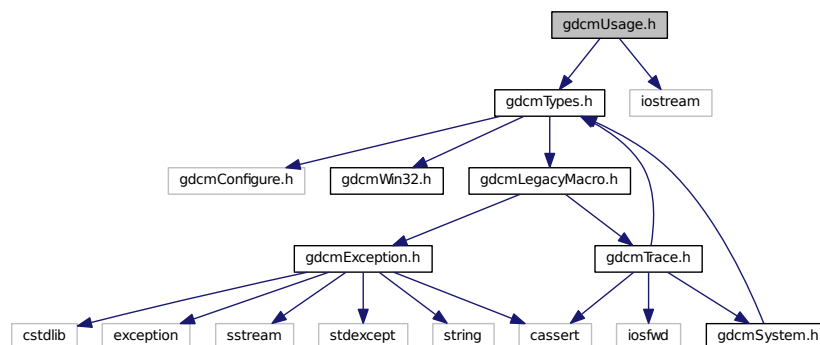
- [gdcm](#)

11.277 gdcmUsage.h File Reference

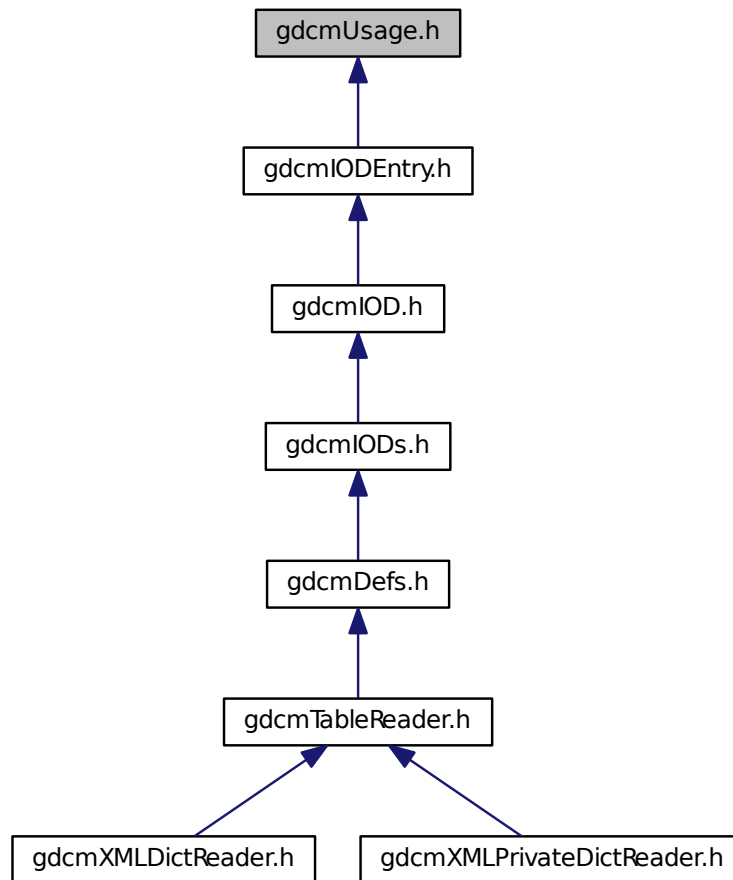
```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for gdcmUsage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `gdcm::Usage`
Usage.

Namespaces

- `gdcm`

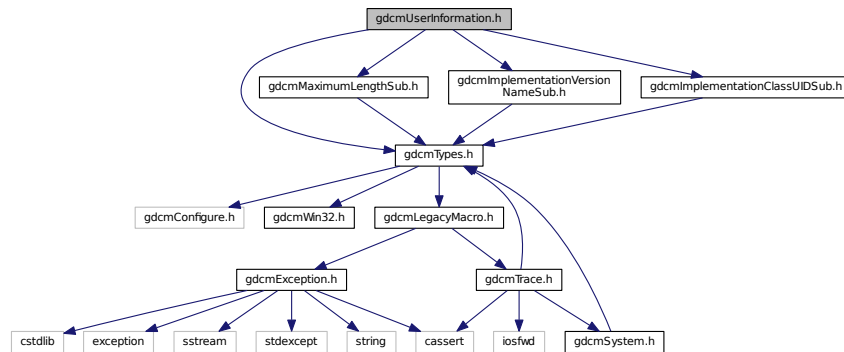
Functions

- `std::ostream & gdcm::operator<< (std::ostream &_os, const Usage &val)`

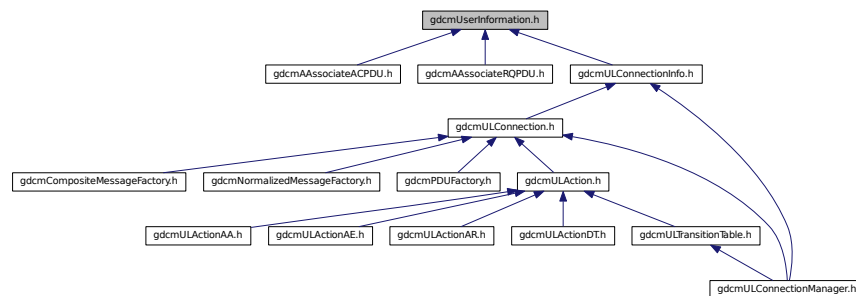
11.278 gdcmUserInformation.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMaximumLengthSub.h"
#include "gdcmImplementationVersionNameSub.h"
#include "gdcmImplementationClassUIDSub.h"
```

Include dependency graph for gdcmUserInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::network::UserInformation](#)
UserInformation Table 9-16 USER INFORMATION ITEM FIELDS.

Namespaces

- [gdcm](#)
- [gdcm::network](#)

Classes

- class [gdcm::Validate](#)
Validate class.

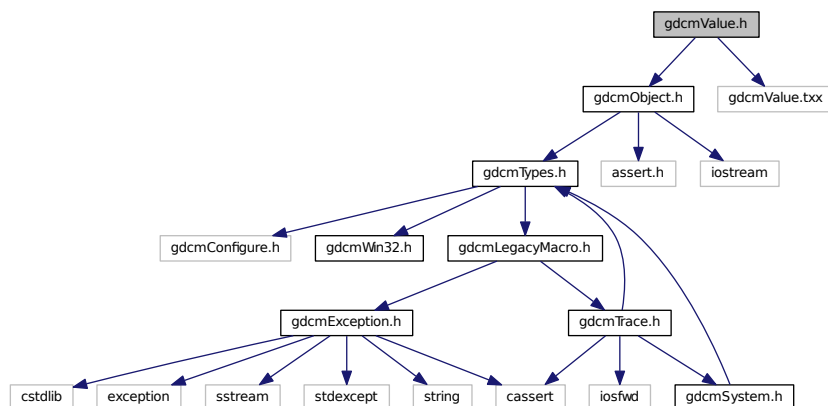
Namespaces

- [gdcm](#)

11.281 gdcmValue.h File Reference

```
#include "gdcmObject.h"
#include "gdcmValue.txx"
```

Include dependency graph for gdcmValue.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Value](#)
Class to represent the value of a Data [Element](#).

Namespaces

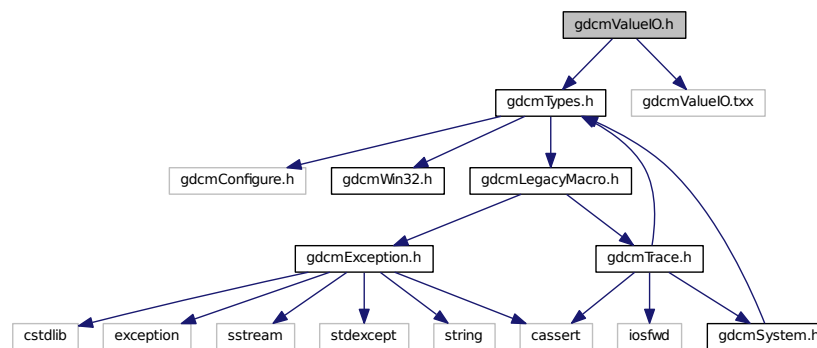
- [gdcm](#)

11.282 gdcmValueIO.h File Reference

```
#include "gdcmTypes.h"
```

```
#include "gdcmValueIO.hxx"
```

Include dependency graph for gdcmValueIO.h:



Classes

- class [gdcm::ValueIO< TDE, TSwap, TType >](#)

Class to dispatch template calls.

Namespaces

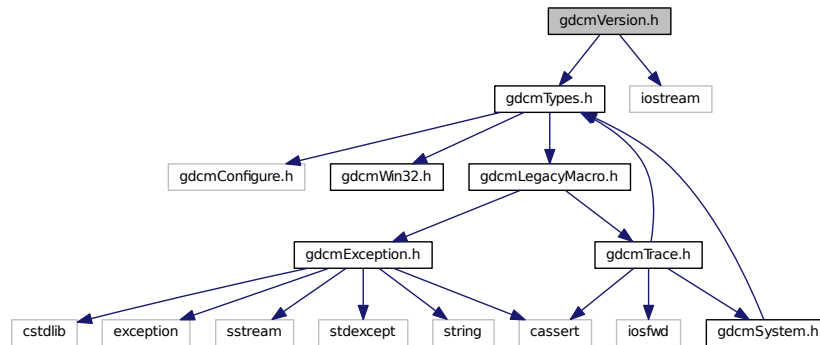
- [gdcm](#)

11.283 gdcmVersion.h File Reference

```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for `gdcmVersion.h`:



Classes

- class `gdcm::Version`
major/minor and build version

Namespaces

- `gdcm`

Functions

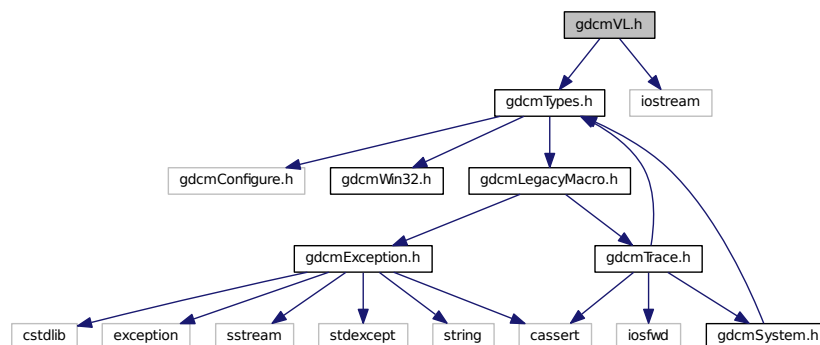
- `std::ostream & gdcm::operator<< (std::ostream &os, const Version &v)`

11.284 gdcmVL.h File Reference

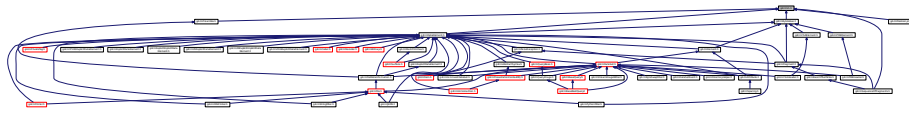
```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for `gdcmVL.h`:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::VL](#)
Value Length.

Namespaces

- [gdcm](#)

Functions

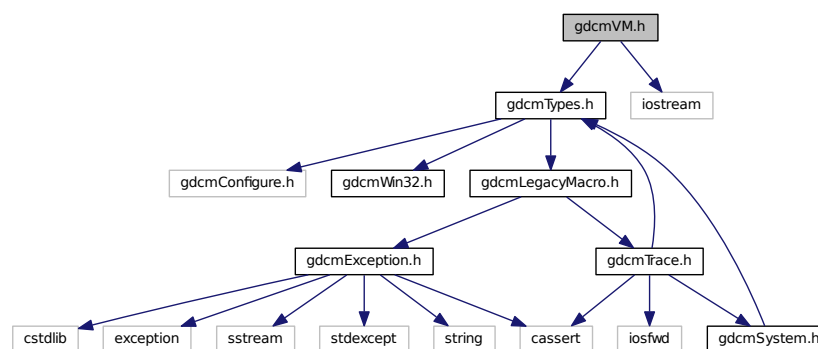
- `std::ostream & gdcm::operator<< (std::ostream &os, const VL &val)`

11.285 gdcmVM.h File Reference

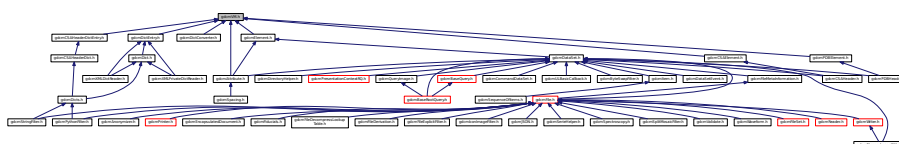
```
#include "gdcmTypes.h"
```

```
#include <iostream>
```

Include dependency graph for gdcmVM.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::VM](#)
Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.
- struct [gdcm::VMToLength< T >](#)

Namespaces

- [gdcm](#)

Macros

- `#define` [TYPETOLENGTH](#)(type, length)

Functions

- `std::ostream &` [gdcm::operator<<](#) (std::ostream &_os, const VM &_val)

11.285.1 Macro Definition Documentation

11.285.1.1 `#define` TYPETOLENGTH(type, length)

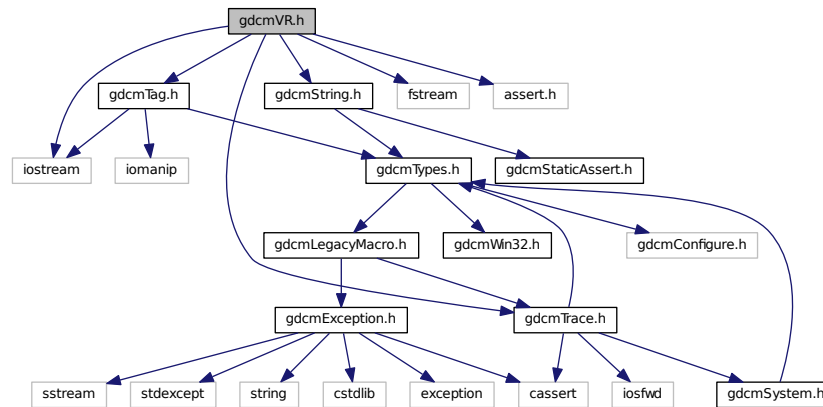
Value:

```
template<> struct VMToLength<VM::type> \
{ enum { Length = length }; };
```

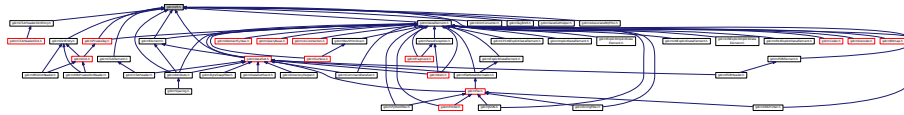
11.286 gdcmVR.h File Reference

```
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmString.h"
#include <iostream>
#include <fstream>
#include <assert.h>
```

Include dependency graph for gdcmVR.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct [gdcm::UI](#)
- class [gdcm::VR](#)

VR class This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict.

- struct [gdcm::VRToEncoding< T >](#)
- struct [gdcm::VRToType< T >](#)

Namespaces

- [gdcm](#)

Macros

- #define [TYPETOENCODING](#)(type, rep, rtype)
- #define [VRTypeTemplateCase](#)(type)

Typedefs

- typedef String<'\', 16 > [gdcm::AECComp](#)
- typedef String<'\', 64 > [gdcm::ASComp](#)
- typedef String<'\', 16 > [gdcm::CSComp](#)
- typedef String<'\', 64 > [gdcm::DAComp](#)
- typedef String<'\', 64 > [gdcm::DTComp](#)
- typedef String<'\', 64 > [gdcm::LOComp](#)
- typedef String<'\', 64 > [gdcm::LTComp](#)
- typedef String<'\', 64 > [gdcm::PNComp](#)
- typedef String<'\', 64 > [gdcm::SHComp](#)
- typedef String<'\', 64 > [gdcm::STComp](#)
- typedef String<'\', 16 > [gdcm::TMComp](#)
- typedef String<'\', 64, 0 > [gdcm::UIComp](#)
- typedef String<'\', 64 > [gdcm::UTComp](#)

Functions

- std::ostream & [gdcm::operator<<](#) (std::ostream &_os, const VR &val)
- std::ostream & [gdcm::operator<<](#) (std::ostream &_os, const UI &_val)
- [gdcm::TYPETOENCODING](#) (SQ, VRBINARY, unsigned char) TYPETOENCODING(UN

Variables

- [gdcm::VRBINARY](#)

11.286.1 Macro Definition Documentation

11.286.1.1 #define TYPETOENCODING(*type*, *rep*, *rtype*)

Value:

```
template<> struct VRToEncoding<VR::type> \
{ enum { Mode = VR::rep }; }; \
template<> struct VRToType<VR::type> \
{ typedef rtype Type; };
```

11.286.1.2 #define VRTypeTemplateCase(*type*)

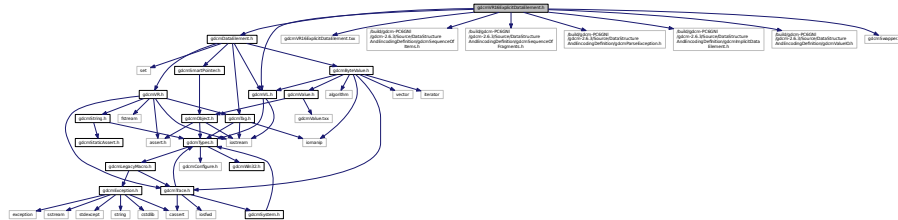
Value:

```
case VR::type: \
return sizeof ( VRToType<VR::type>::Type );
```

Referenced by [gdcm::VR::GetSize\(\)](#).

11.287 gdcmVR16ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmVR16ExplicitDataElement.txx"
Include dependency graph for gdcmVR16ExplicitDataElement.h:
```



Classes

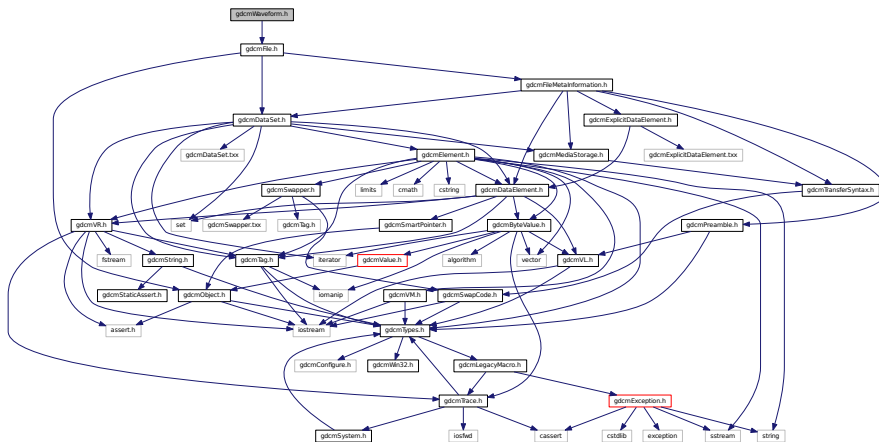
- class [gdcm::VR16ExplicitDataElement](#)
Class to read/write a *DataElement* as *Explicit Data Element*.

Namespaces

- [gdcm](#)

11.288 gdcmWaveform.h File Reference

```
#include "gdcmFile.h"
Include dependency graph for gdcmWaveform.h:
```



Classes

- class [gdcm::Waveform](#)
Waveform class.

Namespaces

- [gdcm](#)

11.289 gdcmWin32.h File Reference

This graph shows which files directly or indirectly include this file:



Macros

- #define [GDCM_EXPORT](#)

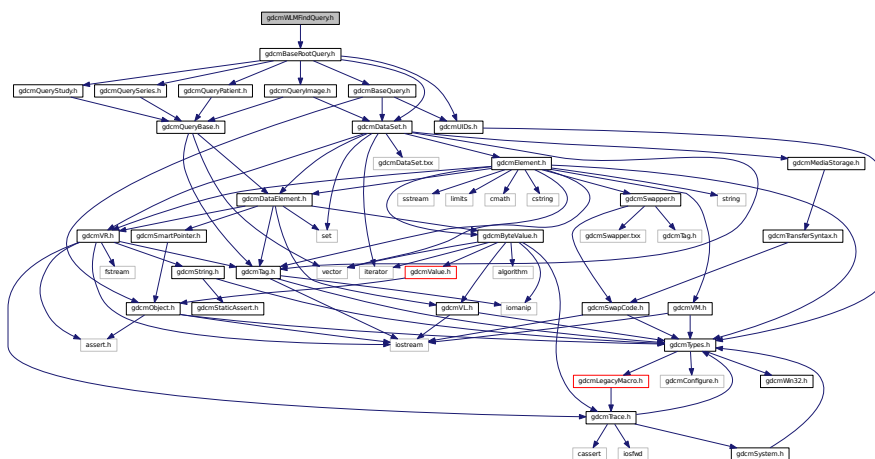
11.289.1 Macro Definition Documentation

11.289.1.1 #define GDCM_EXPORT

11.290 gdcmWLMFindQuery.h File Reference

```
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmWLMFindQuery.h:



Classes

- class [gdcm::WLMFindQuery](#)

PatientRootQuery contains: the class which will produce a dataset for c-find with patient root.

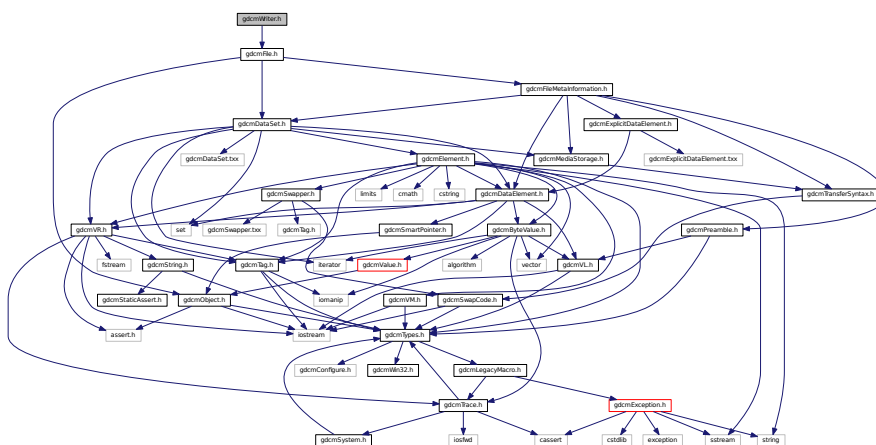
Namespaces

- [gdcm](#)

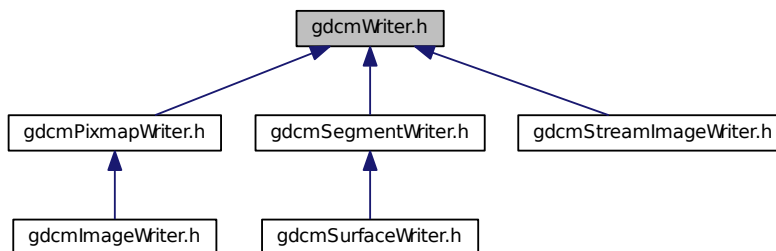
11.291 gdcmWriter.h File Reference

```
#include "gdcmFile.h"
```

Include dependency graph for gdcmWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [gdcm::Writer](#)

Writer ala DOM (Document *Object* Model) This class is a non-validating writer, it will only performs well- formedness check only.

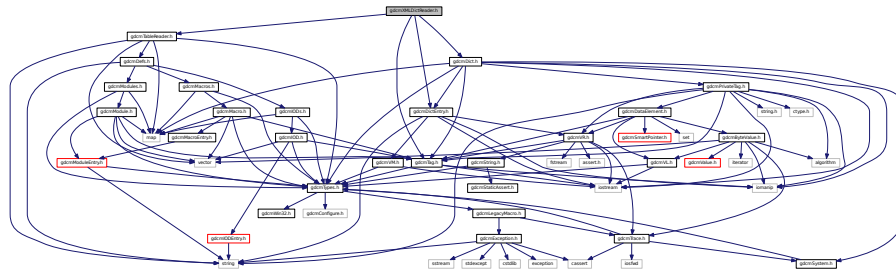
Namespaces

- [gdcm](#)

11.292 gdcmXMLDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLDictReader.h:



Classes

- class [gdcm::XMLDictReader](#)

Class for representing a *XMLDictReader*.

Namespaces

- [gdcm](#)

Classes

- class [gdcm::XMLPrivateDictReader](#)
Class for representing a [XMLPrivateDictReader](#).

Namespaces

- [gdcm](#)

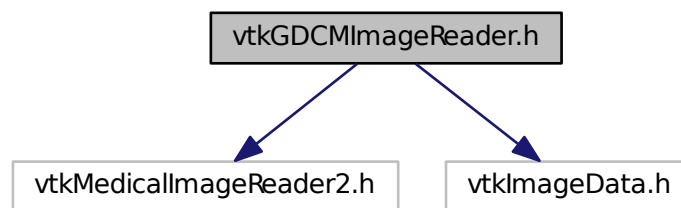
11.295 README.txt File Reference

11.296 TestsList.txt File Reference

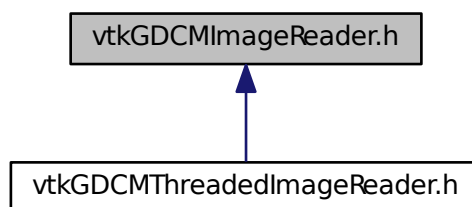
11.297 vtkGDCMImageReader.h File Reference

```
#include "vtkMedicalImageReader2.h"  
#include "vtkImageData.h"
```

Include dependency graph for vtkGDCMImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [vtkGDCMImageReader](#)

Namespaces

- [gdcM](#)

Macros

- #define [VTK_CMYK](#) 8
- #define [VTK_INVERSE_LUMINANCE](#) 5
- #define [VTK_LOOKUP_TABLE](#) 6
- #define [VTK_YBR](#) 7

11.297.1 Macro Definition Documentation

11.297.1.1 #define [VTK_CMYK](#) 8

11.297.1.2 #define [VTK_INVERSE_LUMINANCE](#) 5

11.297.1.3 #define [VTK_LOOKUP_TABLE](#) 6

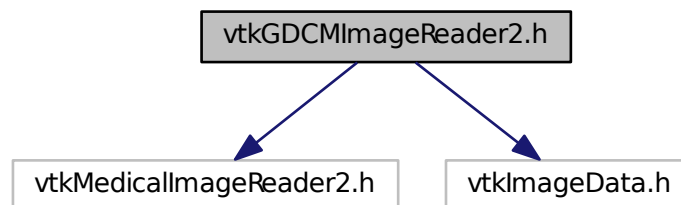
11.297.1.4 #define [VTK_YBR](#) 7

11.298 vtkGDCMImageReader2.h File Reference

```
#include "vtkMedicalImageReader2.h"
```

```
#include "vtkImageData.h"
```

Include dependency graph for vtkGDCMImageReader2.h:



Classes

- class [vtkGDCMImageReader2](#)

Namespaces

- [gdc](#)

Macros

- #define [VTK_CMYK](#) 8
- #define [VTK_INVERSE_LUMINANCE](#) 5
- #define [VTK_LOOKUP_TABLE](#) 6
- #define [VTK_YBR](#) 7

11.298.1 Macro Definition Documentation

11.298.1.1 #define [VTK_CMYK](#) 8

11.298.1.2 #define [VTK_INVERSE_LUMINANCE](#) 5

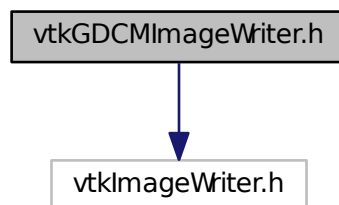
11.298.1.3 #define [VTK_LOOKUP_TABLE](#) 6

11.298.1.4 #define [VTK_YBR](#) 7

11.299 vtkGDCMImageWriter.h File Reference

```
#include "vtkImageWriter.h"
```

Include dependency graph for vtkGDCMImageWriter.h:



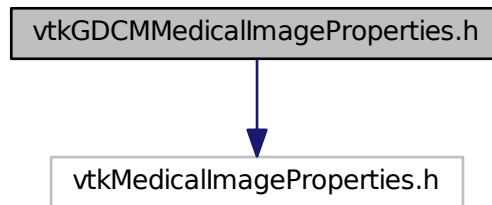
Classes

- class [vtkGDCMImageWriter](#)

11.300 vtkGDCMMedicalImageProperties.h File Reference

```
#include "vtkMedicalImageProperties.h"
```

Include dependency graph for vtkGDCMMedicalImageProperties.h:



Classes

- class [vtkGDCMMedicalImageProperties](#)

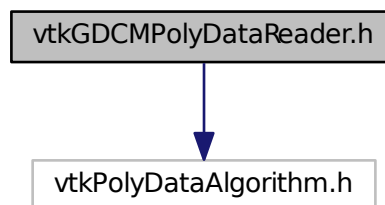
Namespaces

- [gdc](#)

11.301 vtkGDCMPolyDataReader.h File Reference

```
#include "vtkPolyDataAlgorithm.h"
```

Include dependency graph for vtkGDCMPolyDataReader.h:



Classes

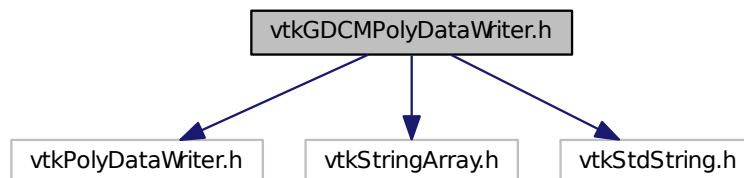
- class [vtkGDCMPolyDataReader](#)

Namespaces

- [gdc](#)

11.302 vtkGDCMPolyDataWriter.h File Reference

```
#include "vtkPolyDataWriter.h"
#include "vtkStringArray.h"
#include "vtkStdString.h"
Include dependency graph for vtkGDCMPolyDataWriter.h:
```



Classes

- class [vtkGDCMPolyDataWriter](#)

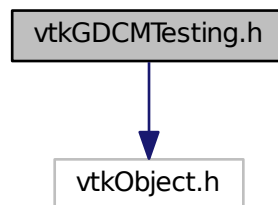
Namespaces

- [gdc](#)

11.303 vtkGDCMTesting.h File Reference

```
#include "vtkObject.h"
```

Include dependency graph for vtkGDCMTesting.h:



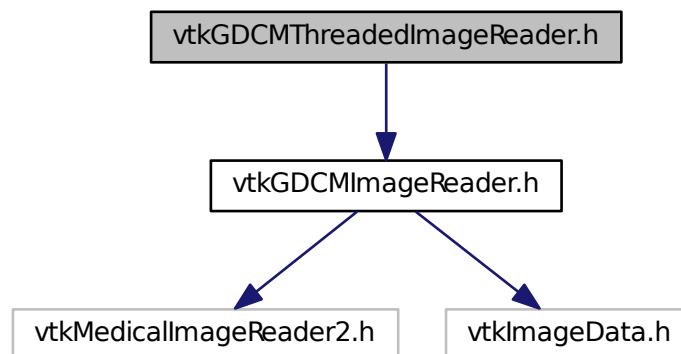
Classes

- class [vtkGDCMTesting](#)

11.304 vtkGDCMThreadedImageReader.h File Reference

```
#include "vtkGDCMImageReader.h"
```

Include dependency graph for vtkGDCMThreadedImageReader.h:



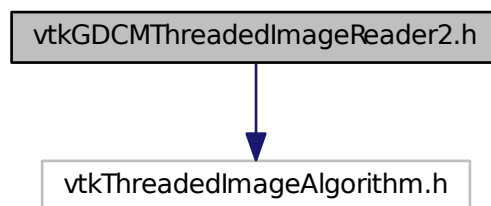
Classes

- class [vtkGDCMThreadedImageReader](#)

11.305 vtkGDCMThreadedImageReader2.h File Reference

```
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkGDCMThreadedImageReader2.h:



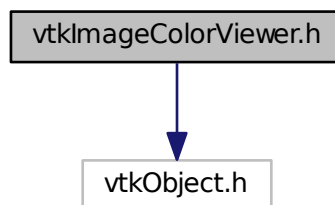
Classes

- class [vtkGDCMThreadedImageReader2](#)

11.306 vtkImageColorViewer.h File Reference

```
#include "vtkObject.h"
```

Include dependency graph for vtkImageColorViewer.h:



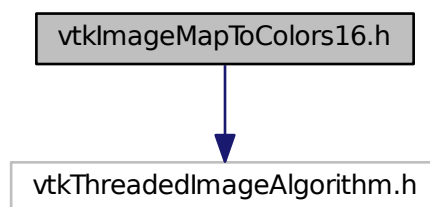
Classes

- class [vtkImageColorViewer](#)

11.307 vtkImageMapToColors16.h File Reference

```
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageMapToColors16.h:



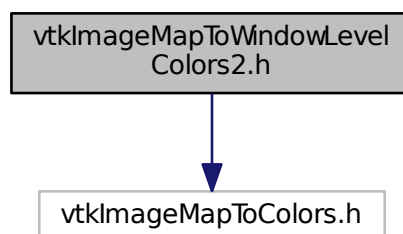
Classes

- class [vtkImageMapToColors16](#)

11.308 vtkImageMapToWindowLevelColors2.h File Reference

```
#include "vtkImageMapToColors.h"
```

Include dependency graph for vtkImageMapToWindowLevelColors2.h:



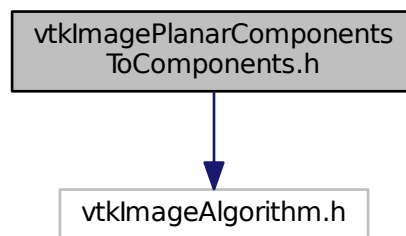
Classes

- class [vtkImageMapToWindowLevelColors2](#)

11.309 vtkImagePlanarComponentsToComponents.h File Reference

```
#include "vtkImageAlgorithm.h"
```

Include dependency graph for vtkImagePlanarComponentsToComponents.h:



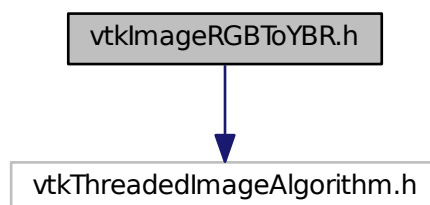
Classes

- class [vtkImagePlanarComponentsToComponents](#)

11.310 vtkImageRGBToYBR.h File Reference

```
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageRGBToYBR.h:



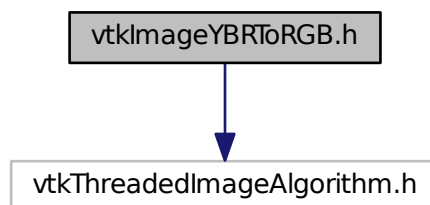
Classes

- class [vtkImageRGBToYBR](#)

11.311 vtkImageYBRTToRGB.h File Reference

```
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageYBRTToRGB.h:



Classes

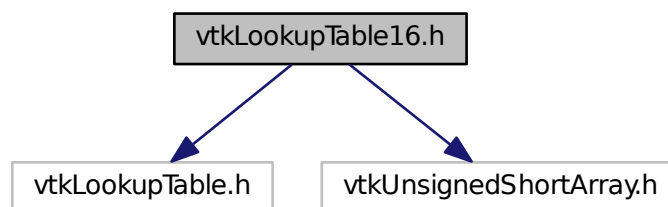
- class [vtkImageYBRTToRGB](#)

11.312 vtkLookupTable16.h File Reference

```
#include "vtkLookupTable.h"
```

```
#include "vtkUnsignedShortArray.h"
```

Include dependency graph for vtkLookupTable16.h:



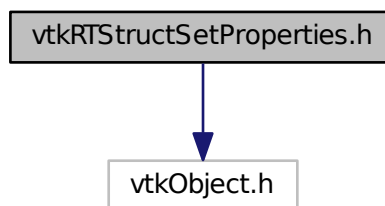
Classes

- class [vtkLookupTable16](#)

11.313 vtkRTStructSetProperties.h File Reference

```
#include "vtkObject.h"
```

Include dependency graph for vtkRTStructSetProperties.h:



Classes

- class [vtkRTStructSetProperties](#)

Chapter 12

Example Documentation

12.1 AWTMedical3.java

```
/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
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=====*/
package examples;

import vtk.*;
//import gdcm.*;

import vtk.util.VtkPanelContainer;
import vtk.util.VtkPanelUtil;
import vtk.util.VtkUtil;

import java.util.ArrayList;

import javax.swing.*;
import java.awt.*;
import java.io.File;

public class AWTMedical3 extends JComponent implements VtkPanelContainer {

    private vtkPanel renWin;

    vtkImageData ReadDataFile(File inSelectedFile){

        vtkImageData outImageData = null;
        Directory theDir = new Directory();

        String theInputDirectory = inSelectedFile.getPath();
        theDir.Load(theInputDirectory);

        Scanner theScanner = new Scanner();
        Tag theStudyTag = new Tag(0x0020,0x000d);
        Tag theSeriesTag = new Tag(0x0020,0x000e);
        theScanner.AddTag(theStudyTag); //get studies,
        theScanner.AddTag(theSeriesTag); //get studies,
        theScanner.Scan(theDir.GetFileNames());

        FilenamesType theStudyValues = theScanner.GetOrderedValues(theStudyTag);
        long theNumStudies = theStudyValues.size();
    }
}
```

```

//for now, take the first study, and nothing else.
//and the return is actually not FilenamesType, just a
//vector of strings
if (theNumStudies != 1)
    return outImageData;
String theStudyVal = theStudyValues.get(0);
//now, get all the values from the scanner that are in that
//study, then from that get their different series
FilenamesType theFileNames =
    theScanner.GetAllFileNamesFromTagToValue(theStudyTag, theStudyVal);

//from that set of filenames, isolate individual series
//conclude that singleton series = RT struct (can do further
//checking for things like MIPs and the like)
//and multiple series entries = volumetric data
theScanner.Scan(theFileNames);
FilenamesType theSeriesValues = theScanner.GetOrderedValues(theSeriesTag);
String studyUID = theScanner.GetValue(theScanner.GetFileNames().get(0), theStudyTag);
long theNumSeries = theSeriesValues.size();
for (int i = 0; i < theNumSeries; i++) {
    FilenamesType theSeriesFiles =
        theScanner.GetAllFileNamesFromTagToValue(theSeriesTag, theSeriesValues.get(i));
    long theNumFilesInSeries = theSeriesFiles.size();
    if (theNumFilesInSeries > 1) { //assume it's CT or volumetric data
        //for now, assume a single volume
        //could have multiples, like PET and CT

        IPPSorter sorter = new IPPSorter();
        sorter.SetComputeZSpacing(true);
        sorter.SetZSpacingTolerance(0.001);
        Boolean sorted = sorter.Sort(theSeriesFiles);
        if (!sorted){
            //need some better way to handle failures here
            return outImageData;
        }

        FilenamesType sortedFT = sorter.GetFileNames();
        long theSize = sortedFT.size();
        vtkStringArray sa = new vtkStringArray();
        ArrayList<String> theStrings = new ArrayList<String>();

        vtkGDCMImageReader gdcmReader = new
        vtkGDCMImageReader();
        for (int j = 0; j < theSize; j++) {
            String theFileName = sortedFT.get(j);
            if (gdcmReader.CanReadFile(theFileName) > 0){
                theStrings.add(theFileName);
                sa.InsertNextValue(theFileName);
            } else {
                //this is a busted series
                //need some more appropriate error here
                return outImageData;
            }
        }

        gdcmReader.SetFileNames(sa);

        gdcmReader.Update();

        outImageData = gdcmReader.GetOutput(); //the zeroth output should be the image
    }
}
String theImageInfo = "";
if (outImageData != null){
    theImageInfo = outImageData.Print();
}
return outImageData;
}

//this function is a rewrite of Medical3 to see if data can
//be loaded via gdcm easily
public AWTMedical3(File inFile) {
    // Create the buttons.
    renWin = new vtkPanel();

    vtkImageData theImageData = ReadDataFile(inFile);

    // An isosurface, or contour value of 500 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the

```

```

// isosurface these render much faster on some systems.
vtkContourFilter skinExtractor = new vtkContourFilter();
skinExtractor.SetInput(theImageData);
skinExtractor.SetValue(0, 500);
vtkPolyDataNormals skinNormals = new vtkPolyDataNormals();
skinNormals.SetInput(skinExtractor.GetOutput());
skinNormals.SetFeatureAngle(60.0);
//      vtkStripper skinStripper = new vtkStripper();
//      skinStripper.SetInput(skinNormals.GetOutput());
vtkPolyDataMapper skinMapper = new vtkPolyDataMapper();
skinMapper.SetInput(skinNormals.GetOutput());
skinMapper.ScalarVisibilityOff();
vtkActor skin = new vtkActor();
skin.SetMapper(skinMapper);
skin.GetProperty().SetDiffuseColor(1, .49, .25);
skin.GetProperty().SetSpecular(.3);
skin.GetProperty().SetSpecularPower(20);

// An isosurface, or contour value of 1150 is known to correspond to the
// skin of the patient. Once generated, a vtkPolyDataNormals filter is
// is used to create normals for smooth surface shading during rendering.
// The triangle stripper is used to create triangle strips from the
// isosurface these render much faster on some systems.
vtkContourFilter boneExtractor = new vtkContourFilter();
boneExtractor.SetInput(theImageData);
boneExtractor.SetValue(0, 1150);
vtkPolyDataNormals boneNormals = new vtkPolyDataNormals();
boneNormals.SetInput(boneExtractor.GetOutput());
boneNormals.SetFeatureAngle(60.0);
vtkStripper boneStripper = new vtkStripper();
boneStripper.SetInput(boneNormals.GetOutput());
vtkPolyDataMapper boneMapper = new vtkPolyDataMapper();
boneMapper.SetInput(boneStripper.GetOutput());
boneMapper.ScalarVisibilityOff();
vtkActor bone = new vtkActor();
bone.SetMapper(boneMapper);
bone.GetProperty().SetDiffuseColor(1, 1, .9412);

// An outline provides context around the data.
vtkOutlineFilter outlineData = new vtkOutlineFilter();
outlineData.SetInput(theImageData);
vtkPolyDataMapper mapOutline = new vtkPolyDataMapper();
mapOutline.SetInput(outlineData.GetOutput());
vtkActor outline = new vtkActor();
outline.SetMapper(mapOutline);
outline.GetProperty().SetColor(0, 0, 0);

// Now we are creating three orthogonal planes passing through the
// volume. Each plane uses a different texture map and therefore has
// different coloration.

// Start by creatin a black/white lookup table.
vtkLookupTable bwLut = new vtkLookupTable();
bwLut.SetTableRange(0, 2000);
bwLut.SetSaturationRange(0, 0);
bwLut.SetHueRange(0, 0);
bwLut.SetValueRange(0, 1);
bwLut.Build();

// Now create a lookup table that consists of the full hue circle (from
// HSV);.
vtkLookupTable hueLut = new vtkLookupTable();
hueLut.SetTableRange(0, 2000);
hueLut.SetHueRange(0, 1);
hueLut.SetSaturationRange(1, 1);
hueLut.SetValueRange(1, 1);
hueLut.Build();

// Finally, create a lookup table with a single hue but having a range
// in the saturation of the hue.
vtkLookupTable satLut = new vtkLookupTable();
satLut.SetTableRange(0, 2000);
satLut.SetHueRange(.6, .6);
satLut.SetSaturationRange(0, 1);
satLut.SetValueRange(1, 1);
satLut.Build();

// Create the first of the three planes. The filter vtkImageMapToColors
// maps the data through the corresponding lookup table created above.
// The vtkImageActor is a type of vtkProp and conveniently displays an
// image on a single quadrilateral plane. It does this using texture

```

```

// mapping and as a result is quite fast. (Note: the input image has to
// be unsigned char values, which the vtkImageMapToColors produces.);
// Note also that by specifying the DisplayExtent, the pipeline
// requests data of this extent and the vtkImageMapToColors only
// processes a slice of data.
vtkImageMapToColors saggitalColors = new vtkImageMapToColors();
saggitalColors.SetInput(theImageData);
saggitalColors.SetLookupTable(bwLut);
vtkImageActor saggital = new vtkImageActor();
saggital.SetInput(saggitalColors.GetOutput());
saggital.SetDisplayExtent(32, 32, 0, 63, 0, 92);

// Create the second (axial); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors axialColors = new vtkImageMapToColors();
axialColors.SetInput(theImageData);
axialColors.SetLookupTable(hueLut);
vtkImageActor axial = new vtkImageActor();
axial.SetInput(axialColors.GetOutput());
axial.SetDisplayExtent(0, 63, 0, 63, 46, 46);

// Create the third (coronal); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors coronalColors = new vtkImageMapToColors();
coronalColors.SetInput(theImageData);
coronalColors.SetLookupTable(satLut);
vtkImageActor coronal = new vtkImageActor();
coronal.SetInput(coronalColors.GetOutput());
coronal.SetDisplayExtent(0, 63, 32, 32, 0, 92);

// It is convenient to create an initial view of the data. The FocalPoint
// and Position form a vector direction. Later on (ResetCamera() method)
// this vector is used to position the camera to look at the data in
// this direction.
vtkCamera aCamera = new vtkCamera();
aCamera.SetViewUp(0, 0, -1);
aCamera.SetPosition(0, 1, 0);
aCamera.SetFocalPoint(0, 0, 0);
aCamera.ComputeViewPlaneNormal();

// Actors are added to the renderer. An initial camera view is created.
// The Dolly() method moves the camera towards the FocalPoint,
// thereby enlarging the image.
renWin.GetRenderer().AddActor(saggital);
renWin.GetRenderer().AddActor(axial);
renWin.GetRenderer().AddActor(coronal);
renWin.GetRenderer().AddActor(outline);
renWin.GetRenderer().AddActor(skin);
renWin.GetRenderer().AddActor(bone);

// Turn off bone for this example.
bone.VisibilityOff();

// Set skin to semi-transparent.
skin.GetProperty().SetOpacity(0.5);

// An initial camera view is created. The Dolly() method moves
// the camera towards the FocalPoint, thereby enlarging the image.
renWin.GetRenderer().SetActiveCamera(aCamera);
renWin.GetRenderer().ResetCamera();
aCamera.Dolly(1.5);

// Set a background color for the renderer and set the size of the
// render window (expressed in pixels).
renWin.GetRenderer().SetBackground(1, 1, 1);
VtkPanelUtil.setSize(renWin, 640, 480);

// Note that when camera movement occurs (as it does in the Dolly()
// method), the clipping planes often need adjusting. Clipping planes
// consist of two planes: near and far along the view direction. The
// near plane clips out objects in front of the plane the far plane
// clips out objects behind the plane. This way only what is drawn
// between the planes is actually rendered.
renWin.GetRenderer().ResetCameraClippingRange();

// Setup panel
setLayout(new BorderLayout());
add(renWin, BorderLayout.CENTER);
}

```

```

public vtkPanel getRenWin() {
    return renWin;
}

public static void main(String s[]) {
    if (s.length == 0){
        return; //need a filename here
    }
    File theFile = new File(s[0]);
    //File theFile = new
    File("/Users/mmroden/Documents/MVSDownloadDirectory/Documents/1.2.840.113704.1.111.3384.1271766367.5/");
    AWTMedical3 panel = new AWTMedical3(theFile);

    JFrame frame = new JFrame("AWTMedical3");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.getContentPane().add("Center", panel);
    frame.pack();
    frame.setVisible(true);
}
}

```

12.2 BasicAnonymizer.cs

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/BasicAnonymizer.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
    public MyWatcher(Subject s):base(s,"Override String"){
    protected override void StartFilter() {
        System.Console.WriteLine( "This is my start" );
    }
    protected override void EndFilter(){
        System.Console.WriteLine( "This is my end" );
    }
    protected override void ShowProgress(Subject caller, Event evt){
        ProgressEvent pe = ProgressEvent.Cast(evt);
        System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
    }
    protected override void ShowIteration(){
        System.Console.WriteLine( "This is my iteration" );
    }
    protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 * http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 * System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 * System.Type type = evt.GetType();
 * System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 * System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 * System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    }
}

```

```

        AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
        if( ae != null )
        {
            Tag t = ae.GetTag();
            System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.ToString() );
        }
        else
        {
            System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
        }
    }
    protected override void ShowAbort(){
        System.Console.WriteLine( "This is my abort" );
    }
}

public class BasicAnonymizer
{
    public static int Main(string[] args)
    {
        gdcm.Global global = gdcm.Global.GetInstance();
        if( !global.LoadResourcesFiles() )
        {
            System.Console.WriteLine( "Could not LoadResourcesFiles" );
            return 1;
        }

        string file1 = args[0];
        string file2 = args[1];
        Reader reader = new Reader();
        reader.SetFileName( file1 );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }

        string certpath = gdcm.Filename.Join(gdcm.Testing.
            GetSourceDirectory(), "/Testing/Source/Data/certificate.pem" );
        gdcm.CryptoFactory fact = gdcm.CryptoFactory.
            GetFactoryInstance();
        gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
        if( !cms.ParseCertificateFile( certpath ) )
        {
            return 1;
        }

        //Anonymizer ano = new Anonymizer();
        SmartPtrAno sano = Anonymizer.New();
        Anonymizer ano = sano.__ref__();

        //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
        MyWatcher watcher = new MyWatcher(ano);

        ano.SetFile( reader.GetFile() );
        ano.SetCryptographicMessageSyntax( cms );
        if( !ano.BasicApplicationLevelConfidentialityProfile() )
        {
            return 1;
        }

        Writer writer = new Writer();
        writer.SetFileName( file2 );
        writer.SetFile( ano.GetFile() );
        ret = writer.Write();
        if( !ret )
        {
            return 1;
        }

        return 0;
    }
}

```

12.3 BasicImageAnonymizer.cs

```

/*=====

```

Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

```

/*
 */
using System;
using gdcm;

public class BasicImageAnonymizer
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        // instantiate the reader:
        gdcm.ImageReader reader = new gdcm.ImageReader();
        reader.SetFileName( filename );

        if (!reader.Read()) return 1;

        Image ir = reader.GetImage();

        uint[] dims = {0, 0, 0};
        dims[0] = ir.GetDimension(0);
        dims[1] = ir.GetDimension(1);
        dims[2] = ir.GetDimension(2);
        System.Console.WriteLine( "Dim:" + dims[0] );
        System.Console.WriteLine( "Dim:" + dims[1] );
        System.Console.WriteLine( "Dim:" + dims[2] );

        // buffer to get the pixels
        byte[] buffer = new byte[ ir.GetBufferLength()];
        System.Console.WriteLine( "Dim:" + ir.GetBufferLength() );
        ir.GetBuffer( buffer );

        for (uint z = 0; z < dims[2]; z++)
        {
            for (uint y = 0; y < dims[1] / 2; y++) // only half Y
            {
                for (uint x = 0; x < dims[0] / 2; x++) // only half X
                {
                    buffer[ (z * dims[1] + y) * dims[0] + x ] = 0; // works when pixel type == UINT8
                }
            }
        }

        DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
        pixeldata.SetByteValue( buffer, new VL( (uint)buffer.Length ) );
        ir.SetDataElement( pixeldata );
        ir.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.ExplicitVRLittleEndian ) );

        ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
        change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLSLossless ) );
        change.SetInput( ir );
        if ( !change.Change() )
        {
            System.Console.WriteLine( "Could not change: " + filename );
            return 1;
        }

        ImageWriter writer = new ImageWriter();
        writer.SetFileName( "out.dcm" );
        writer.SetFile( reader.GetFile() );
        writer.SetImage( change.GetOutput() );
        bool ret = writer.Write();
        if ( !ret )
        {
            return 1;
        }
    }
}

```

```

    return 0;
}

```

12.4 CastConvertPhilips.py

```

1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 # Copyright (c) 2006-2011 Mathieu Malaterre
6 # All rights reserved.
7 # See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 python --public /path/to/directory/
19 or
20 python --private /path/to/directory/
21
22 python --public --extension bak /path/to/directory/
23
24 rename -f 's/\.bak$//' *.bak
25
26 TODO:
27 http://docs.python.org/library/optparse.html#module-optparse
28 """
29
30 import vtkgdc
31 import vtk
32 import sys
33 import gdcm
34
35 def ProcessOneFilePublic(filename, outfilename, tmpfile):
36     gdcm.ImageHelper.SetForceRescaleInterceptSlope(True)
37     vtkreader = vtkgdc.vtkGDCMImageReader()
38     vtkreader.SetFileName( filename )
39     vtkreader.Update()
40
41     cast = vtk.vtkImageCast()
42     cast.SetInput( vtkreader.GetOutput() )
43     cast.SetOutputScalarTypeToUnsignedShort()
44
45     # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
46     # Some operation will actually be discarded (we simply need a temp storage)
47     vtkwriter = vtkgdc.vtkGDCMImageWriter()
48     vtkwriter.SetFileName( tmpfile )
49     vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
50     vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
51     print "Format:", vtkreader.GetImageFormat()
52     vtkwriter.SetImageFormat( vtkreader.GetImageFormat() )
53     vtkwriter.SetInput( cast.GetOutput() )
54     #vtkwriter.Update()
55     vtkwriter.Write()
56
57     # ok now rewrite the exact same file as the original (keep all info)
58     # but use the Pixel Data Element from the written file
59     tmpreader = gdcm.ImageReader()
60     tmpreader.SetFileName( tmpfile )
61     if not tmpreader.Read():
62         sys.exit(1)
63
64     reader = gdcm.Reader()
65     reader.SetFileName( filename )
66     if not reader.Read():
67         sys.exit(1)
68
69     # Make sure to remove Slope/Rescale to avoid re-execution

```



```

70 ds = reader.GetFile().GetDataSet()
71 tags = [
72     gdcmm.Tag(0x0028,0x1052),
73     gdcmm.Tag(0x0028,0x1053),
74     gdcmm.Tag(0x0028,0x1053),
75 ]
76 for tag in tags:
77     ds.Remove( tag )
78
79 writer = gdcmm.ImageWriter()
80 writer.SetFileName( outfilename )
81 # Pass image from vtk written file
82 writer.SetImage( tmpreader.GetImage() )
83 # pass dataset from initial 'reader'
84 writer.SetFile( reader.GetFile() )
85 if not writer.Write():
86     sys.exit(1)
87
88 def ProcessOneFilePrivate(filename, outfilename, tmpfile):
89     vtkreader = vtkgdcmm.vtkGDCMImageReader()
90     vtkreader.SetFileName( filename )
91     vtkreader.Update()
92
93
94 # (2005,1409)    DS      4      0.0
95 # (2005,140a)    DS     16     1.52283272283272
96
97 # (2005,0014)    LO     26     Philips MR Imaging DD 005
98 tag1 = gdcmm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
99 tag2 = gdcmm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
100
101
102
103 # Need to access some private tags, reread the file (for now):
104 reader = gdcmm.Reader()
105 reader.SetFileName( filename )
106 if not reader.Read():
107     sys.exit(1)
108
109 ds = reader.GetFile().GetDataSet()
110
111 el1 = ds.GetDataElement( tag1 )
112 el2 = ds.GetDataElement( tag2 )
113
114
115 #pf = gdcmm.PythonFilter()
116 #pf.SetFile( reader.GetFile() )
117 #print el1.GetTag()
118
119 print el1.GetByteValue()
120 v1 = eval(el1.GetByteValue().GetBuffer())
121 print el2.GetByteValue()
122 v2 = eval(el2.GetByteValue().GetBuffer())
123
124 print v1
125 shift = v1
126 print v2
127 scale = v2
128
129 ss = vtk.vtkImageShiftScale()
130 ss.SetInput( vtkreader.GetOutput() )
131 # because VTK image shift / scale convention is inverted from DICOM make sure shift is 0
132 assert shift == 0
133 ss.SetShift( shift )
134 ss.SetScale( scale )
135 ss.SetOutputScalarTypeToUnsignedShort ()
136 ss.Update()
137
138 # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
139 # Some operation will actually be discarded (we simply need a temp storage)
140 vtkwriter = vtkgdcmm.vtkGDCMImageWriter()
141 vtkwriter.SetFileName( tmpfile )
142 vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
143 vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
144 vtkwriter.SetImageFormat( reader.GetImageFormat() )
145 # do not pass shift/scale again
146 vtkwriter.SetInput( ss.GetOutput() )
147 #vtkwriter.Update()
148 vtkwriter.Write()
149
150 # ok now rewrite the exact same file as the original (keep all info)

```

```

151 # but use the Pixel Data Element from the written file
152 tmpreader = gdcm.ImageReader()
153 tmpreader.SetFileName( tmpfile )
154 if not tmpreader.Read():
155     sys.exit(1)
156
157 writer = gdcm.ImageWriter()
158 writer.SetFileName( outfilename )
159 # Pass image from vtk written file
160 writer.SetImage( tmpreader.GetImage() )
161 # pass dataset from initial 'reader'
162 writer.SetFile( reader.GetFile() )
163 if not writer.Write():
164     sys.exit(1)
165
166 if __name__ == "__main__":
167
168     gdcm.Trace.DebugOff()
169     gdcm.Trace.WarningOff()
170     #filename = sys.argv[1]
171     #outfilename = sys.argv[2]
172     tmpfile = "/tmp/philips_rescaled.dcm"
173     #ProcessOneFile( filename, outfilename, tmpfile )
174     rescaletype = sys.argv[1]
175     assert rescaletype == "--public" or rescaletype == "--private"
176     dirname = sys.argv[2]
177     d = gdcm.Directory()
178     d.Load( dirname )
179
180     for f in d.GetFileNames():
181         #print f
182         ProcessOneFilePublic( f, f + ".bak", tmpfile )
183
184
185 print "success"

```

12.5 ChangePrivateTags.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmPrivateTag.h"

int main(int argc, char* argv[] )
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " path/to/05148044-mr-siemens-avanto-syngo.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if (! reader.Read() )
    {
        return 1;
    }

    // (0029,0010) LO [SIEMENS CSA HEADER] # 18,1 Private Creator
    // (0029,0011) LO [SIEMENS MEDCOM HEADER ] # 22,1 Private Creator
    // (0029,0012) LO [SIEMENS MEDCOM HEADER2] # 22,1 Private Creator

```

```

// [...]
// (0029,1018) CS [MR] # 2,1 CSA Series Header Type
// (0029,1134) CS [DB TO DICOM ] # 12,1 PMTF Information 4
// (0029,1260) LO [com ] # 4,1 Series Workflow Status

gdcm::File &file = reader.GetFile();
gdcm::DataSet &ds = file.GetDataSet();

// Declare private tag we need to find:
gdcm::PrivateTag pt1( 0x29,0x18, "SIEMENS CSA HEADER" );
gdcm::PrivateTag pt2( 0x29,0x34, "SIEMENS MEDCOM HEADER" );
gdcm::PrivateTag pt3( 0x29,0x60, "SIEMENS MEDCOM HEADER2" );

const char str1[] = "GDCM was here 3!";
if( !ds.FindDataElement( pt1 ) ) return 1;
gdcm::DataElement de1 = ds.GetDataElement( pt1 ); // Convert Private tag,
    into actual DataElement
std::cout << de1 << std::endl;
de1.SetByteValue( str1, (uint32_t)strlen(str1) );
ds.Replace( de1 );

const char str2[] = "GDCM was here 2!";
if( !ds.FindDataElement( pt2 ) ) return 1;
gdcm::DataElement de2 = ds.GetDataElement( pt2 );
std::cout << de2 << std::endl;
de2.SetByteValue( str2, (uint32_t)strlen(str2) );
ds.Replace( de2 );

const char str3[] = "GDCM was here 3!";
if( !ds.FindDataElement( pt3 ) ) return 1;
gdcm::DataElement de3 = ds.GetDataElement( pt3 );
std::cout << de3 << std::endl;
de3.SetByteValue( str3, (uint32_t)strlen(str3) );
ds.Replace( de3 );

gdcm::Writer writer;
writer.SetFile( file );
writer.SetFileName( outfilename );
if ( !writer.Write() )
{
    return 1;
}

return 0;
}

```

12.6 ChangeSequenceUltrasound.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmSmartPointer.h"
#include "gdcmDataSetHelper.h"

/*
./ChangeSequenceUltrasound gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

This is the exact C++ translation of the original python example: ManipulateSequence.py
*/

int main(int argc, char* argv[] )
{
    if( argc < 3 )

```

```

    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if ( ! reader.Read() )
    {
        return 1;
    }

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();
    gdcm::Tag tsis(0x0008,0x2112); // SourceImageSequence
    if ( ds.FindDataElement( tsis ) )
    {
        const gdcm::DataElement &sis = ds.GetDataElement( tsis );
        gdcm::SmartPointer<gdcm::SequenceOfItems> sqsis = sis.
            GetValueAsSQ();
        if ( sqsis && sqsis->GetNumberOfItems() )
        {
            gdcm::Item &item1 = sqsis->GetItem(1);
            gdcm::DataSet &nestedds = item1.GetNestedDataSet();
            gdcm::Tag tprcs(0x0040,0xa170); // PurposeOfReferenceCodeSequence
            if( nestedds.FindDataElement( tprcs ) )
            {
                const gdcm::DataElement &prcs = nestedds.GetDataElement( tprcs );
                gdcm::SmartPointer<gdcm::SequenceOfItems> sqprcs = prcs.
                    GetValueAsSQ();
                if ( sqprcs && sqprcs->GetNumberOfItems() )
                {
                    gdcm::Item &item2 = sqprcs->GetItem(1);
                    gdcm::DataSet &nestedds2 = item2.GetNestedDataSet();
                    // (0008,0104) LO [Uncompressed predecessor] # 24, 1 CodeMeaning
                    gdcm::Tag tcm(0x0008,0x0104);
                    if( nestedds2.FindDataElement( tcm ) )
                    {
                        gdcm::DataElement cm = nestedds2.GetDataElement( tcm );
                        std::string mystr = "GDCM was here";
                        cm.SetByteValue( mystr.c_str(), (uint32_t)mystr.size() );
                        nestedds2.Replace( cm );
                    }
                }
            }
        }
    }

    gdcm::Writer writer;
    writer.SetFile( file );
    writer.SetFileName( outfile );
    if ( !writer.Write() )
    {
        return 1;
    }

    return 0;
}

```

12.7 CheckBigEndianBug.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

```

```
=====*/
```

```
/*
 * WARNING: This is a dev tool, do not use !
 *
 * Usage: after a gdcmconv, you would like to know if the conversion process is acceptable
 * sometime a vbindiff is acceptable, sometime it is not. In the case of the famous Philips
 * Little/Big Endian Explicit Transfer Syntax it is not easy to compare two files. However
 * this only impact byte ordering, thus we can compute byte-independant information to still
 * compare the files.
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmSystem.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input1.dcm input2.dcm" << std::endl;
        return 1;
    }
    const char *filename1 = argv[1];
    const char *filename2 = argv[2];

    gdcm::ImageReader reader1;
    reader1.SetFileName( filename1 );
    if( !reader1.Read() )
    {
        std::cerr << "Could not read: " << filename1 << std::endl;
        return 1;
    }

    gdcm::ImageReader reader2;
    reader2.SetFileName( filename2 );
    if( !reader2.Read() )
    {
        std::cerr << "Could not read: " << filename2 << std::endl;
        return 1;
    }

    // TODO: need a DataSet== operator implementation

    std::cout << "Both files can be read and looks like DICOM" << std::endl;

    size_t s1 = gdcm::System::FileSize(filename1);
    size_t s2 = gdcm::System::FileSize(filename2);

    if( s1 != s2 )
    {
        std::cout << "Size mismatch: " << s1 << " != " << s2 << std::endl;
        return 1;
    }
    else
    {
        std::cout << "Size match: " << s1 << " = " << s2 << std::endl;
    }

    std::ifstream is1( filename1, std::ios::binary );
    char *buffer1 = new char[s1];
    is1.read(buffer1, s1);

    std::ifstream is2( filename2, std::ios::binary );
    char *buffer2 = new char[s2];
    is2.read(buffer2, s2);

    assert( s1 == s2 );
    if( memcmp(buffer1, buffer2, s1 ) == 0 )
    {
        std::cout << "memcmp succeed ! File are bit identical" << std::endl;
    }
    else
    {
        std::cout << "memcmp failed!" << std::endl;
    }
}
```

```

// Hum...memcmp failed, for big endian/ little endian inversion the histogram of bytes
// should still be the same. So let's compute it
// buffer2[0] = 1; // let's make the test fail
std::multiset<char> set1( buffer1, buffer1 + s1 );
std::multiset<char> set2( buffer2, buffer2 + s2 );

if( set1 == set2 )
{
    std::cout << "set1 == set2. Byte histogram seems valid" << std::endl;
}
else
{
    std::cout << "set1 != set2" << std::endl;
}
delete[] buffer1;
delete[] buffer2;

return 0;
}

```

12.8 ClinicalTrialAnnotate.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
/*
 * Dummy implementation of C.7.1.3 Clinical Trial Subject Module
 *
 * Usage:
 * ClinicalTrialAnnotate gdcmData/012345.002.050.dcm out.dcm
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAnonymizer.h"

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }

    // The output of gdcm::Reader is a gdcm::File
    //gdcm::File &file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    //gdcm::DataSet &ds = file.GetDataSet();

    gdcm::Anonymizer ano;
    ano.SetFile( reader.GetFile() );
    ano.RemoveGroupLength();

```

```

ano.RemovePrivateTags();

// PS 3.3 - 2008
// C.7.1.3 Clinical Trial Subject Module
// <entry group="0012" element="0010" vr="LO" vm="1" name="Clinical Trial Sponsor Name"/>
ano.Replace( gdcmm::Tag(0x12,0x10), "BigCompany name" );
// <entry group="0012" element="0020" vr="LO" vm="1" name="Clinical Trial Protocol ID"/>
ano.Replace( gdcmm::Tag(0x12,0x20), "My Clinical Trial Protocol ID" );
// <entry group="0012" element="0021" vr="LO" vm="1" name="Clinical Trial Protocol Name"/>
ano.Replace( gdcmm::Tag(0x12,0x21), "My Clinical Trial Protocol Name" );
// <entry group="0012" element="0030" vr="LO" vm="1" name="Clinical Trial Site ID"/>
ano.Replace( gdcmm::Tag(0x12,0x30), "My Clinical Trial Site ID" );
// <entry group="0012" element="0031" vr="LO" vm="1" name="Clinical Trial Site Name"/>
ano.Replace( gdcmm::Tag(0x12,0x31), "My Clinical Trial Site Name" );
// <entry group="0012" element="0040" vr="LO" vm="1" name="Clinical Trial Subject ID"/>
ano.Replace( gdcmm::Tag(0x12,0x40), "My Clinical Trial Subject ID" );
// <entry group="0012" element="0042" vr="LO" vm="1" name="Clinical Trial Subject Reading ID"/>
ano.Replace( gdcmm::Tag(0x12,0x42), "My Clinical Trial Subject Reading ID" );

gdcmm::Writer writer;
writer.SetFile( reader.GetFile() );
writer.SetFileName( outfilename );
if( !writer.Write() )
{
    return 1;
}

return 0;
}

```

12.9 ClinicalTrialIdentificationWorkflow.cs

This is a C# example on how to use Anonymizer

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/
/*
 * Typical usage on UNIX:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcmm/debug-gcc/bin
 * $ mono bin/ClinicalTrialIdentificationWorkflow.exe input_dir output_dir
 */
using System;
using gdcmm;

public class MyWatcher : SimpleSubjectWatcher
{
    public MyWatcher(Subject s):base(s,"Override String"){
    protected override void StartFilter() {
        System.Console.WriteLine( "This is my start" );
    }
    protected override void EndFilter(){
        System.Console.WriteLine( "This is my end" );
    }
    protected override void ShowProgress(Subject caller, Event evt){
        ProgressEvent pe = ProgressEvent.Cast(evt);
        System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
    }
    protected override void ShowIteration(){
        System.Console.WriteLine( "This is my iteration" );
    }
    protected override void ShowAnonymization(Subject caller, Event evt){

```

```

/*
 * A couple of explanation are necessary here to understand how SWIG work
 * http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 * System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 * System.Type type = evt.GetType();
 * System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 * System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 * System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
if( ae != null )
{
    Tag t = ae.GetTag();
    System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
}
else
{
    System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
}
}
protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
}
}

public class ClinicalTrialIdentificationWorkflow
{
    public static bool ProcessOneFile( gdcm.Anonymizer ano , string filename, string
        outfilename )
    {
        Reader reader = new Reader();
        reader.SetFileName( filename );
        bool ret = reader.Read();
        if( !ret )
        {
            return false;
        }
        // Pass in the file:
        ano.SetFile( reader.GetFile() );

        // First step, let's protect all Patient information as per
        // PS 3.15 / E.1 / Basic Application Level Confidentiality Profile
        if( !ano.BasicApplicationLevelConfidentialityProfile() )
        {
            return false;
        }

        // Now let's pass in all Clinical Trial fields
        // PS 3.3 - 2008 / C.7.1.3 Clinical Trial Subject Module
        /*
        Clinical Trial Sponsor Name (0012,0010) 1 The name of the clinical trial sponsor. See C.7.1.3.1.1.
        Clinical Trial Protocol ID (0012,0020) 1 Identifier for the noted protocol. See C.7.1.3.1.2.
        Clinical Trial Protocol Name (0012,0021) 2 The name of the clinical trial protocol. See C.7.1.3.1.3.
        Clinical Trial Site ID (0012,0030) 2 The identifier of the site responsible for submitting clinical
        trial data. See C.7.1.3.1.4.
        Clinical Trial Site Name (0012,0031) 2 Name of the site responsible for submitting clinical trial data.
        See C.7.1.3.1.5
        Clinical Trial Subject ID (0012,0040) 1C The assigned identifier for the clinical trial subject. See
        C.7.1.3.1.6. Shall be present if Clinical Trial Subject Reading ID (0012,0042) is absent. May be present
        otherwise.
        Clinical Trial Subject Reading ID (0012,0042) 1C Identifies the subject for blinded evaluations. Shall
        be present if Clinical Trial Subject ID (0012,0040) is absent. May be present otherwise. See C.7.1.3.1.7.
        */
        ano.Replace( new gdcm.Tag(0x0012,0x0010), "MySponsorName");
        ano.Replace( new gdcm.Tag(0x0012,0x0020), "MyProtocolID");
        ano.Replace( new gdcm.Tag(0x0012,0x0021), "MyProtocolName");
        ano.Replace( new gdcm.Tag(0x0012,0x0030), "MySiteId");
        ano.Replace( new gdcm.Tag(0x0012,0x0031), "MySiteName");
        ano.Replace( new gdcm.Tag(0x0012,0x0040), "MySponsorId");
        ano.Replace( new gdcm.Tag(0x0012,0x0050), "MyTPId");
        ano.Replace( new gdcm.Tag(0x0012,0x0051), "MyTPDescription");

        // The following two are not required as they are guaranteed to be filled in by the
        // Basic Application Level Confidentiality Profile. Only override if you understand what
        // you are doing
        //ano.Replace( new gdcm.Tag(0x0012,0x0062), "YES");
        //ano.Replace( new gdcm.Tag(0x0012,0x0063), "My Super Duper Anonymization Overload");

        // We might be generating a subdirectory. Let's make sure the subdir exist:
        gdcm.Filename fn = new gdcm.Filename( outfilename );
    }
}

```



```

string subdir = fn.GetPath();
if( !gdcm.PosixEmulation.MakeDirectory( subdir ) )
{
    return false;
}

gdcm.FileMetaInformation fmi = ano.GetFile().GetHeader();
// The following three lines make sure to regenerate any value:
fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

Writer writer = new Writer();
writer.SetFileName( outfilename );
writer.SetFile( ano.GetFile() );
ret = writer.Write();
if( !ret )
{
    return false;
}

return true;
}

public static int Main(string[] args)
{
    gdcm.FileMetaInformation.
        SetSourceApplicationEntityTitle( "My ClinicalTrial App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.
        GetRoot() );

    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
    {
        System.Console.WriteLine( "Could not LoadResourcesFiles" );
        return 1;
    }

    if( args.Length != 2 )
    {
        System.Console.WriteLine( "Usage:" );
        System.Console.WriteLine( "ClinicalTrialIdentificationWorkflow input_dir output_dir" );
        return 1;
    }
    string dir1 = args[0];
    string dir2 = args[1];

    // Check input is valid:
    if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
        System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
        return 1;
    }
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
    {
        System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
        return 1;
    }

    // Recursively search all file within this toplevel directory:
    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
    if(nfiles == 0) return 1;

    // Let's use the pre-shipped certificate of GDCM.
    string certpath = gdcm.Filename.Join(gdcm.Testing.
        GetSourceDirectory(), "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.
        GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
    {
        System.Console.WriteLine( "PEM Certificate : " + certpath + " could not be read. Sorry" );
        return 1;
    }

    //Anonymizer ano = new Anonymizer();

```

```

// A reference to an actual C++ instance is required here:
SmartPtrAno sano = Anonymizer.New();
Anonymizer ano = sano.__ref__();

//SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
MyWatcher watcher = new MyWatcher(ano);

// Explicitly specify the Cryptographic Message Syntax to use:
ano.SetCryptographicMessageSyntax( cms );

// Process all filenames:
FilenamesType filenames = d.GetFilenames();
for( uint i = 0; i < nfiles; ++i )
{
    string filename = filenames[ (int)i ];
    string outfilename = filename.Replace( dir1, dir2 );
    System.Console.WriteLine( "Filename: " + filename );
    System.Console.WriteLine( "Out Filename: " + outfilename );
    if( !ProcessOneFile( ano , filename, outfilename ) )
    {
        System.Console.WriteLine( "Could not process filename: " + filename );
        return 1;
    }
}

return 0;
}

```

12.10 CompressImage.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 *
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"
#include "gdcmImageChangeTransferSyntax.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }
}

```

```

// The output of gdcm::Reader is a gdcm::File
//gdcm::File &file = reader.GetFile();

// the dataset is the the set of element we are interested in:
//gdcm::DataSet &ds = file.GetDataSet();

const gdcm::Image &image = reader.GetImage();
image.Print( std::cout );

gdcm::ImageChangeTransferSyntax change;
change.SetTransferSyntax(
    gdcm::TransferSyntax::JPEG2000Lossless );
change.SetTransferSyntax(
    gdcm::TransferSyntax::JPEGLosslessProcess14_1 );
//change.SetTransferSyntax( gdcm::TransferSyntax::JPEGBaselineProcess1 );
//change.SetTransferSyntax( image.GetTransferSyntax() );
change.SetInput( image );
bool b = change.Change();
if( !b )
{
    std::cerr << "Could not change the Transfer Syntax" << std::endl;
    return 1;
}

//std::ofstream out( outfilename, std::ios::binary );
//image.GetBuffer2(out);
//out.close();
gdcm::ImageWriter writer;
writer.SetImage( change.GetOutput() );
writer.SetFile( reader.GetFile() );
writer.SetFileName( outfilename );
if( !writer.Write() )
{
    return 1;
}

return 0;
}

```

12.11 CompressLossyJPEG.cs

```

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=====*/
/*
* Usage:
* $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
* $ mono bin/CompressLossyJPEG.exe input.dcm output.dcm
*/

using System;
using gdcm;

public class CompressLossyJPEG
{
    public static int Main(string[] args)
    {
        {
            if( args.Length < 2 )
            {
                System.Console.WriteLine( " input.dcm output.dcm" );
                return 1;
            }
            string filename = args[0];
            string outfilename = args[1];

```

```

ImageReader reader = new ImageReader();
reader.SetFileName( filename );
if( !reader.Read() )
{
    System.Console.WriteLine( "Could not read: " + filename );
    return 1;
}

// The output of gdcmm::Reader is a gdcmm::File
File file = reader.GetFile();

// the dataset is the the set of element we are interested in:
DataSet ds = file.GetDataSet();

Image image = reader.GetImage();
//image.Print( cout );

ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
TransferSyntax targetts = new TransferSyntax( TransferSyntax.TType.JPEGBaselineProcess1 );
change.SetTransferSyntax( targetts );

// Setup our JPEGCodec, warning it should be compatible with JPEGBaselineProcess1
JPEGCodec jpegcodec = new JPEGCodec();
if( !jpegcodec.CanCode( targetts ) )
{
    System.Console.WriteLine( "Something went really wrong, JPEGCodec cannot handle JPEGBaselineProcess1" );
    return 1;
}
jpegcodec.SetLossless( false );
jpegcodec.SetQuality( 50 ); // poor quality !
change.SetUserCodec( jpegcodec ); // specify the codec to use to the ImageChangeTransferSyntax

change.SetInput( image );
bool b = change.Change();
if( !b )
{
    System.Console.WriteLine( "Could not change the Transfer Syntax" );
    return 1;
}

ImageWriter writer = new ImageWriter();
writer.SetImage( (gdcmm.Image)change.GetOutput() );
writer.SetFile( reader.GetFile() );
writer.SetFileName( outfilename );
if( !writer.Write() )
{
    System.Console.WriteLine( "Could not write: " + outfilename );
    return 1;
}

return 0;
}
}

```

12.12 Compute3DSpacing.cxx

```

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=====*/
#include "vtkGDCMImageReader2.h"
#include "vtkImageChangeInformation.h"
#include "vtkStringArray.h"

```

```

#include "gdcmIPPSorter.h"

#ifdef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

/*
 * Simple example to check computation of spacing within vtkGDCMImageReader2
 * This is a direct implementation of:
 *
 * http://gdcm.sourceforge.net/wiki/index.php/
 *   Using_GDCM_API#Automatic_ordering_of_slices_for_vtkGDCMImageReader.SetFileNames
 *
 * For more advanced information on how 3D spacing is being computed see:
 *
 * - http://gdcm.sourceforge.net/html/classgdcm_1_1IPPSorter.html
 *
 * Usage:
 *
 * $ Compute3DSpacing SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm \
 *   SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm \
 *   SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm \
 *   SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm
 */

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;

    std::vector<std::string> filenames;
    for( int i = 1; i < argc; ++i )
    {
        filenames.push_back( argv[i] );
    }

    gdcm::IPPSorter s;
    s.SetComputeZSpacing( true );
    s.SetZSpacingTolerance( 1e-3 );
    bool b = s.Sort( filenames );
    if( !b )
    {
        std::cerr << "Failed to sort files" << std::endl;
        return 1;
    }
    std::cout << "Sorting succeeded:" << std::endl;
    //s.Print( std::cout );

    std::cout << "Found z-spacing:" << std::endl;
    std::cout << s.GetZSpacing() << std::endl;
    const double ippszspacing = s.GetZSpacing();

    const std::vector<std::string> & sorted = s.GetFileNames();
    vtkGDCMImageReader2 * reader = vtkGDCMImageReader2::New();
    vtkStringArray *files = vtkStringArray::New();
    std::vector< std::string >::const_iterator it = sorted.begin();
    for( ; it != sorted.end(); ++it )
    {
        const std::string &f = *it;
        files->InsertNextValue( f.c_str() );
    }
    reader->SetFileNames( files );
    reader->Update();

    const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();
    vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
    #if (VTK_MAJOR_VERSION >= 6)
        v16->SetInputConnection( reader->GetOutputPort() );
    #else
        v16->SetInput( reader->GetOutput() );
    #endif
    v16->SetOutputSpacing( spacing[0], spacing[1], ippszspacing );
    v16->Update();

    v16->GetOutput()->Print( std::cout );

    return 0;
}

```

12.13 Convert16BitsTo8Bits.cxx

```

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=====*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"

#include "gdcmlTesting.h"
// The following file is 16/16/15 but the scalar range of the image is [0,192]
// it could be safely stored as 8bits instead:
// gdcmlData/012345.002.050.dcm

int main(int, char *[])
{
    const char *directory = gdcml::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/012345.002.050.dcm";
    std::cout << file << std::endl;

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( file.c_str() );
    reader->Update();
    //reader->GetOutput()->Print( std::cout );

    vtkImageCast *cast = vtkImageCast::New();
    #if (VTK_MAJOR_VERSION >= 6)
        cast->SetInputConnection( reader->GetOutputPort() );
    #else
        cast->SetInput( reader->GetOutput() );
    #endif
    cast->SetOutputScalarTypeToUnsignedChar();

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileName( "/tmp/cast.dcm" );
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputConnection( cast->GetOutputPort() );
    #else
        writer->SetInput( cast->GetOutput() );
    #endif
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->Write();

    reader->Delete();
    cast->Delete();
    writer->Delete();

    return 0;
}

```

12.14 ConvertMPL.py

```

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2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
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```

```

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11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 display a DICOM image with matplotlib via numpy
17
18 Caveats:
19 - Does not support UINT12/INT12
20
21 Usage:
22
23 python ConvertNumpy.py "IM000000"
24
25 Thanks:
26 plotting example - Ray Schumacher 2009
27 """
28
29 import gdcm
30 import numpy
31 from pylab import *
32
33
34 def get_gdcm_to_numpy_typemap():
35     """Returns the GDCM Pixel Format to numpy array type mapping."""
36     _gdcm_np = {gdcm.PixelFormat.UINT8 :numpy.int8,
37                 gdcm.PixelFormat.INT8 :numpy.uint8,
38                 gdcm.PixelFormat.UINT16 :numpy.uint16,
39                 gdcm.PixelFormat.INT16 :numpy.int16,
40                 gdcm.PixelFormat.UINT32 :numpy.uint32,
41                 gdcm.PixelFormat.INT32 :numpy.int32,
42                 gdcm.PixelFormat.FLOAT32 :numpy.float32,
43                 gdcm.PixelFormat.FLOAT64 :numpy.float64 }
44     return _gdcm_np
45
46 def get_numpy_array_type(gdcm_pixel_format):
47     """Returns a numpy array typecode given a GDCM Pixel Format."""
48     return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]
49
50 def gdcm_to_numpy(image):
51     """Converts a GDCM image to a numpy array.
52     """
53     pf = image.GetPixelFormat().GetScalarType()
54     print 'pf', pf
55     print image.GetPixelFormat().GetScalarTypeAsString()
56     assert pf in get_gdcm_to_numpy_typemap().keys(), \
57         "Unsupported array type %s"%pf
58     d = image.GetDimension(0), image.GetDimension(1)
59     print 'Image Size: %d x %d' % (d[0], d[1])
60     dtype = get_numpy_array_type(pf)
61     gdcm_array = image.GetBuffer()
62     ## use float for accurate scaling
63     result = numpy.frombuffer(gdcm_array, dtype=dtype).astype(float)
64     ## optional gamma scaling
65     #maxV = float(result[result.argmax()])
66     #result = result + .5*(maxV-result)
67     #result = numpy.log(result+50) ## apprxx background level
68     result.shape = d
69     return result
70
71 if __name__ == "__main__":
72     import sys
73     r = gdcm.ImageReader()
74     filename = sys.argv[1]
75     r.SetFileName( filename )
76     if not r.Read(): sys.exit(1)
77     numpy_array = gdcm_to_numpy( r.GetImage() )
78
79     subplot(111)# one plot, on left
80     title(filename)
81     ## many colormaps are available
82     imshow(numpy_array, interpolation='bilinear', cmap=cm.jet)
83     ## set the plot sizes and placement
84     subplots_adjust(bottom=0.1, right=0.8, top=0.9)
85     cax = axes([0.85, 0.1, 0.075, 0.8])
86     colorbar(cax=cax)

```

```

87  title('values')
88  get_current_fig_manager().window.title('plot')
89  show()

```

12.15 ConvertMultiFrameToSingleFrame.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkStringArray.h"

#include "gdcmTesting.h"
#include "gdcmFilenameGenerator.h"

int main(int argc, char *argv[])
{
    std::string filename;
    if( argc <= 1 )
    {
        const char *directory = gdcm::Testing::GetDataRoot();
        if(!directory) return 1;
        std::string file = std::string(directory) + "/US-PAL-8-10x-echo.dcm";
        filename = file;
    }
    else
    {
        filename = argv[1];
    }
    std::cout << "file: " << filename << std::endl;

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( filename.c_str() );
    reader->Update();
    //reader->GetOutput()->Print( std::cout );

    int dims[3];
    reader->GetOutput()->GetDimensions( dims );

    std::ostringstream os;
    os << "singleframe";
    os << "%04d.dcm";
    gdcm::FilenameGenerator fg;
    fg.SetPattern( os.str().c_str() );
    unsigned int nfiles = dims[2];
    fg.SetNumberOfFileNames( nfiles );
    bool b = fg.Generate();
    if( !b )
    {
        std::cerr << "FilenameGenerator::Generate() failed" << std::endl;
        return 1;
    }
    if( !fg.GetNumberOfFileNames() )
    {
        std::cerr << "FilenameGenerator::Generate() failed somehow..." << std::endl;
        return 1;
    }

    // By default write them as Secondary Capture (for portability)
    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    vtkStringArray *filenames = vtkStringArray::New();
    for(unsigned int i = 0; i < fg.GetNumberOfFileNames(); ++i)
    {

```



```

        filenames->InsertNextValue( fg.GetFilename(i) );
    }
    assert( filenames->GetNumberOfValues() == (int)fg.GetNumberOfFileNames() );
    writer->SetFileNames( filenames );
    filenames->Delete();
    writer->SetFileDimensionality( 2 );
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( reader->GetOutputPort() );
#else
    writer->SetInput( reader->GetOutput() );
#endif
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->Write();

    reader->Delete();
    writer->Delete();

    return 0;
}

```

12.16 ConvertNumpy.py

```

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11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 This module add support for converting a gdcm.Image to a numpy array.
17
18 Caveats:
19 - Does not support UINT12/INT12
20
21 Removed:
22 - float16 is defined in GDCM API but no implementation exist for it ...
23 """
24
25 import gdcm
26 import numpy
27
28 def get_gdcm_to_numpy_typemap():
29     """Returns the GDCM Pixel Format to numpy array type mapping."""
30     _gdcm_np = {gdcm.PixelFormat.UINT8 :numpy.uint8,
31                 gdcm.PixelFormat.INT8  :numpy.int8,
32                 #gdcm.PixelFormat.UINT12 :numpy.uint12,
33                 #gdcm.PixelFormat.INT12  :numpy.int12,
34                 gdcm.PixelFormat.UINT16 :numpy.uint16,
35                 gdcm.PixelFormat.INT16  :numpy.int16,
36                 gdcm.PixelFormat.UINT32 :numpy.uint32,
37                 gdcm.PixelFormat.INT32  :numpy.int32,
38                 #gdcm.PixelFormat.FLOAT16:numpy.float16,
39                 gdcm.PixelFormat.FLOAT32:numpy.float32,
40                 gdcm.PixelFormat.FLOAT64:numpy.float64 }
41     return _gdcm_np
42
43 def get_numpy_array_type(gdcm_pixel_format):
44     """Returns a numpy array typecode given a GDCM Pixel Format."""
45     return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]
46
47 def gdcm_to_numpy(image):
48     """Converts a GDCM image to a numpy array.
49     """
50     pf = image.GetPixelFormat()
51
52     assert pf.GetScalarType() in get_gdcm_to_numpy_typemap().keys(), \
53            "Unsupported array type %s"%pf

```

```

54
55     shape = image.GetDimension(0) * image.GetDimension(1), pf.GetSamplesPerPixel()
56     if image.GetNumberOfDimensions() == 3:
57         shape = shape[0] * image.GetDimension(2), shape[1]
58
59     dtype = get_numpy_array_type(pf.GetScalarType())
60     gdcarray = image.GetBuffer()
61     result = numpy.frombuffer(gdcarray, dtype=dtype)
62     result.shape = shape
63     return result
64
65 if __name__ == "__main__":
66     import sys
67     r = gdc.ImageReader()
68     filename = sys.argv[1]
69     r.SetFileName( filename )
70     if not r.Read():
71         sys.exit(1)
72
73     numpy_array = gdc_to_numpy( r.GetImage() )
74     print numpy_array

```

12.17 ConvertPIL.py

```

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11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 save a DICOM image with PIL via numpy
17
18 Caveats:
19 - Does not support UINT12/INT12
20
21 Usage:
22
23 python ConvertNumpy.py "IM000000"
24
25 Thanks:
26 plotting example - Ray Schumacher 2009
27 """
28
29 import gdc
30 import numpy
31 from PIL import Image, ImageOps
32
33
34 def get_gdc_to_numpy_typemap():
35     """Returns the GDCM Pixel Format to numpy array type mapping."""
36     _gdc_np = {gdc.PixelFormat.UINT8 :numpy.int8,
37                gdc.PixelFormat.INT8 :numpy.uint8,
38                gdc.PixelFormat.UINT16:numpy.uint16,
39                gdc.PixelFormat.INT16 :numpy.int16,
40                gdc.PixelFormat.UINT32 :numpy.uint32,
41                gdc.PixelFormat.INT32 :numpy.int32,
42                gdc.PixelFormat.FLOAT32:numpy.float32,
43                gdc.PixelFormat.FLOAT64:numpy.float64 }
44     return _gdc_np
45
46 def get_numpy_array_type(gdc_pixel_format):
47     """Returns a numpy array typecode given a GDCM Pixel Format."""
48     return get_gdc_to_numpy_typemap()[gdc_pixel_format]
49
50 def gdc_to_numpy(image):
51     """Converts a GDCM image to a numpy array.

```

```

52     ""
53     pf = image.GetPixelFormat().GetScalarType()
54     print 'pf', pf
55     print image.GetPixelFormat().GetScalarTypeAsString()
56     assert pf in get_gdcm_to_numpy_typedmap().keys(), \
57         "Unsupported array type %s"%pf
58     d = image.GetDimension(0), image.GetDimension(1)
59     print 'Image Size: %d x %d' % (d[0], d[1])
60     dtype = get_numpy_array_type(pf)
61     gdcm_array = image.GetBuffer()
62     result = numpy.frombuffer(gdcm_array, dtype=dtype)
63     maxV = float(result[result.argmax()])
64     ## linear gamma adjust
65     #result = result + .5*(maxV-result)
66     ## log gamma
67     result = numpy.log(result+50) ## 50 is approx background level
68     maxV = float(result[result.argmax()])
69     result = result*(2.**8/maxV) ## histogram stretch
70     result.shape = d
71     return result
72
73 if __name__ == "__main__":
74     import sys
75     r = gdcm.ImageReader()
76     filename = sys.argv[1]
77     r.SetFileName( filename )
78     if not r.Read(): sys.exit(1)
79     numpy_array = gdcm_to_numpy( r.GetImage() )
80     ## L is 8 bit grey
81     ## http://www.pythonware.com/library/pil/handbook/concepts.htm
82     pilImage = Image.frombuffer('L',
83                                numpy_array.shape,
84                                numpy_array.astype(numpy.uint8),
85                                'raw','L',0,1)
86     ## cutoff removes background noise and spikes
87     pilImage = ImageOps.autocontrast(pilImage, cutoff=.1)
88     pilImage.save(sys.argv[1]+' .jpg')

```

12.18 ConvertRGBToLuminance.cxx

```

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=====*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageLuminance.h"

#include "gdcmTesting.h"

// There is no such thing as MR Image Storage + Photometric Interpretation = RGB
// let's rewrite that into a proper single component image:
int main(int, char *[])
{
    const char *directory = gdcm::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/SIEMENS-MR-RGB-16Bits.dcm";
    std::cout << file << std::endl;

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( file.c_str() );
    reader->Update();
    //reader->GetOutput()->Print( std::cout );

    vtkImageLuminance *luminance = vtkImageLuminance::New();

```

```

#if (VTK_MAJOR_VERSION >= 6)
    luminance->SetInputConnection( reader->GetOutputPort() );
#else
    luminance->SetInput( reader->GetOutput() );
#endif

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( luminance->GetOutputPort() );
#else
    writer->SetInput( luminance->GetOutput() );
#endif
    //writer->SetImageFormat( reader->GetImageFormat() ); // Do NOT pass image format
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->Write();

    // TODO:
    //vtkImageAppendComponents.h

    reader->Delete();
    luminance->Delete();
    writer->Delete();

    return 0;
}

```

12.19 ConvertSingleBitTo8Bits.cxx

```

/*=====
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PURPOSE. See the above copyright notice for more information.

=====*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkPointData.h"
#include "vtkBitArray.h"
#include "vtkUnsignedCharArray.h"

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( filename );
    reader->Update();
    //reader->GetOutput()->Print( std::cout );

    vtkDataArray* array = reader->GetOutput()->GetPointData()->GetScalars();
    vtkBitArray *barray = vtkBitArray::SafeDownCast( array );
    if( !barray ) return false;
    vtkIdType nvalues = array->GetNumberOfTuples();
    vtkUnsignedCharArray *uarray = vtkUnsignedCharArray::New();
    uarray->SetNumberOfTuples( nvalues );
    for(vtkIdType i = 0; i < nvalues; ++i)

```

```

    {
        uarray->SetValue( i, (unsigned char)barray->GetValue(i) );
    }

    vtkImageData *copy = vtkImageData::New();
    //
    http://www.vtk.org/Wiki/VTK/VTK_6_Migration/Changes_to_Scalars_Manipulation_Functions#AllocateScalars.28.29
    copy->SetExtent( reader->GetOutput()->GetExtent() );
    #if (VTK_MAJOR_VERSION >= 6)
    copy->AllocateScalars(VTK_UNSIGNED_CHAR, 3);
    #else
    copy->SetScalarType( VTK_UNSIGNED_CHAR );
    copy->AllocateScalars();
    #endif

    //uarray->Print( std::cout );
    //copy->GetPointData()->GetScalars()->Print( std::cout );
    copy->GetPointData()->SetScalars( uarray );
    uarray->Delete();

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileName( outfilename );
    //writer->SetInput( cast->GetOutput() );
    #if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputData( copy );
    #else
    writer->SetInput( copy );
    #endif
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->SetFileDimensionality( reader->GetFileDimensionality() );
    writer->Write();

    reader->Delete();
    copy->Delete();
    writer->Delete();

    return 0;
}

```

12.20 ConvertToQImage.cxx

```

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=====*/
/*
 * This example shows how to setup the pipeline from a gdcm::ImageReader into a
 * Qt QImage data structure.
 * It only handles 2D image.
 *
 * Ref:
 * http://doc.trolltech.com/4.5/qimage.html
 *
 * Usage:
 * ConvertToQImage gdcmData/012345.002.050.dcm output.png
 *
 * Thanks:
 * Sylvain ADAM (sylvain51 hotmail com) for contributing this example
 */
#include "gdcmImageReader.h"
#include <QImage>

```

```

#include <QImageWriter>

bool ConvertToFormat_RGB888(gdcm::Image const & gimage, char *buffer, QImage* &imageQt)
{
    const unsigned int* dimension = gimage.GetDimensions();

    unsigned int dimX = dimension[0];
    unsigned int dimY = dimension[1];

    gimage.GetBuffer(buffer);

    // Let's start with the easy case:
    if( gimage.GetPhotometricInterpretation() ==
        gdcm::PhotometricInterpretation::RGB )
    {
        if( gimage.GetPixelFormat() != gdcm::PixelFormat::UINT8 )
        {
            return false;
        }
        unsigned char *ubuffer = (unsigned char*)buffer;
        // QImage::Format_RGB888 13 The image is stored using a 24-bit RGB format (8-8-8).
        imageQt = new QImage((unsigned char *)ubuffer, dimX, dimY, 3*dimX, QImage::Format_RGB888);
    }
    else if( gimage.GetPhotometricInterpretation() ==
        gdcm::PhotometricInterpretation::MONOCHROME2 )
    {
        if( gimage.GetPixelFormat() == gdcm::PixelFormat::UINT8 )
        {
            // We need to copy each individual 8bits into R / G and B:
            unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
            unsigned char *pubuffer = ubuffer;
            for(unsigned int i = 0; i < dimX*dimY; i++)
            {
                *pubuffer++ = *buffer;
                *pubuffer++ = *buffer;
                *pubuffer++ = *buffer++;
            }

            imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
        }
        else if( gimage.GetPixelFormat() == gdcm::PixelFormat::INT16 )
        {
            // We need to copy each individual 16bits into R / G and B (truncate value)
            short *buffer16 = (short*)buffer;
            unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
            unsigned char *pubuffer = ubuffer;
            for(unsigned int i = 0; i < dimX*dimY; i++)
            {
                // Scalar Range of gdcmData/012345.002.050.dcm is [0,192], we could simply do:
                // *pubuffer++ = *buffer16;
                // *pubuffer++ = *buffer16;
                // *pubuffer++ = *buffer16;
                // instead do it right:
                *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
                *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
                *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
                buffer16++;
            }

            imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
        }
        else
        {
            std::cerr << "Pixel Format is: " << gimage.GetPixelFormat() << std::endl;
            return false;
        }
    }
    else
    {
        std::cerr << "Unhandled PhotometricInterpretation: " << gimage.
            GetPhotometricInterpretation() << std::endl;
        return false;
    }
}

return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {

```

```

        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::ImageReader ir;
    ir.SetFileName( filename );
    if(!ir.Read())
    {
        //Read failed
        return 1;
    }

    std::cout<<"Getting image from ImageReader..."<<std::endl;

    const gdcm::Image &gimage = ir.GetImage();
    std::vector<char> vbuffer;
    vbuffer.resize( gimage.GetBufferLength() );
    char *buffer = &vbuffer[0];

    QImage *imageQt = NULL;
    if( !ConvertToFormat_RGB888( gimage, buffer, imageQt ) )
    {
        return 1;
    }

    QImageWriter writer;
    writer.setFormat("png");
    writer.setFileName( outfile );
    if( !writer.write( *imageQt ) )
    {
        return 1;
    }

    return 0;
}

```

12.21 CreateARGBImage.cxx

```

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=====*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.rgb
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.rgb output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];

```

```

const char *outfilename = argv[2];

size_t len = gdcm::System::FileSize(filename);
std::ifstream is(filename, std::ios::binary);

char * buf = new char[len];
is.read(buf, len);

gdcm::ImageWriter writer;
gdcm::Image &image = writer.GetImage();
image.SetNumberOfDimensions( 2 );
unsigned int dims[3] = {};
dims[0] = 380;
dims[1] = 287;
image.SetDimensions( dims );
gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
pf.SetSamplesPerPixel( 4 );
image.SetPixelFormat( pf );
gdcm::PhotometricInterpretation pi =
    gdcm::PhotometricInterpretation::ARGB;
image.SetPhotometricInterpretation( pi );
image.SetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian );

gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
pixeldata.SetByteValue( buf, (uint32_t)len );
image.SetDataElement( pixeldata );

writer.SetFileName( outfile );
if( !writer.Write() )
{
    return 1;
}
delete[] buf;

return 0;
}

```

12.22 CreateCMYKImage.cxx

```

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=====*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.cmyk
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.cmyk output.dcm" << std::endl;
        return 1;
    }
}

```



```

    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    size_t len = gdcm::System::FileSize(filename);
    std::ifstream is(filename, std::ios::binary);

    char * buf = new char[len];
    is.read(buf, len);

    gdcm::ImageWriter writer;
    gdcm::Image &image = writer.GetImage();
    image.SetNumberOfDimensions( 2 );
    unsigned int dims[3] = {};
    dims[0] = 380;
    dims[1] = 287;
    image.SetDimensions( dims );
    gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
    pf.SetSamplesPerPixel( 4 );
    image.SetPixelFormat( pf );
    gdcm::PhotometricInterpretation pi =
        gdcm::PhotometricInterpretation::CMYK;
    image.SetPhotometricInterpretation( pi );
    image.SetTransferSyntax(
        gdcm::TransferSyntax::ExplicitVRLittleEndian );

    gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
    pixeldata.SetByteValue( buf, (uint32_t)len );
    image.SetDataElement( pixeldata );

    writer.SetFileName( outfile );
    if( !writer.Write() )
    {
        return 1;
    }
    delete[] buf;

    return 0;
}

```

12.23 CreateFakePET.cxx

```

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=====*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkStringArray.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFilenameGenerator.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */

```

```

*/
int main(int, char *[])
{
    gdcm::Trace::DebugOn();

    const vtkIdType xSize = 512;
    const vtkIdType ySize = 512;
    const vtkIdType zSize = 512;

    // Create the filenames in advance to supply to the vtkGDCMImageWriter
    std::ostream os;
    os << "PT";
    os << "%03d.dcm";
    gdcm::FilenameGenerator fg;
    fg.SetPattern( os.str().c_str() );
    unsigned int nfiles = zSize;
    fg.SetNumberOfFileNames( nfiles );
    bool b = fg.Generate();
    if( !b )
    {
        std::cerr << "FilenameGenerator::Generate() failed" << std::endl;
        return 1;
    }
    if( !fg.GetNumberOfFileNames() )
    {
        std::cerr << "FilenameGenerator::Generate() failed somehow..." << std::endl;
        return 1;
    }

    vtkStringArray *filenames = vtkStringArray::New();
    for(unsigned int i = 0; i < fg.GetNumberOfFileNames(); ++i)
    {
        filenames->InsertNextValue( fg.GetFilename(i) );
    }

    vtkImageData *image = vtkImageData::New();
    image->SetDimensions(xSize,ySize,zSize);
    image->SetOrigin(-350.684,350.0,890.76);
    image->SetSpacing(5.4688,-5.4688,-3.27);
    #if VTK_MAJOR_VERSION <= 5
        image->SetNumberOfScalarComponents(1);
        image->SetScalarTypeToDouble();
    #else
        image->AllocateScalars(VTK_DOUBLE,1);
    #endif

    double pt[3];
    for( int z = 0; z < zSize; ++z )
        for( int y = 0; y < ySize; ++y )
            for( int x = 0; x < xSize; ++x )
            {
                pt[0] = x;
                pt[1] = y;
                pt[2] = z;
                pt[0] -= xSize / 2;
                pt[1] -= ySize / 2;
                pt[2] -= zSize / 2;
                pt[0] /= xSize / 2;
                pt[1] /= ySize / 2;
                pt[2] /= zSize / 2;
                const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
                const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
                double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
                pixel[0] = inval;
            }

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileDimensionality( 2 );
    writer->SetFileNames(filenames);
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputData( image );
    #else
        writer->SetInput( image );
    #endif
    writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
    writer->GetMedicalImageProperties()->SetModality( "PT" );
    writer->SetScale( 0.0042 ); // why not
    writer->Write();

    image->Delete();

```

```

writer->Delete();

return 0;
}

```

12.24 CreateFakeRTDOSE.cxx

```

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=====*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */
int main(int, char *[])
{
    //gdcm::Trace::DebugOn();

    const vtkIdType xSize = 512;
    const vtkIdType ySize = 512;
    const vtkIdType zSize = 512;

    vtkImageData *image = vtkImageData::New();
    image->SetDimensions(xSize,ySize,zSize);
    image->SetOrigin(-350.684,350.0,890.76);
    image->SetSpacing(5.4688,-5.4688,-3.27);
    #if VTK_MAJOR_VERSION <= 5
        image->SetNumberOfScalarComponents(1);
        image->SetScalarTypeToDouble();
    #else
        image->AllocateScalars(VTK_DOUBLE,1);
    #endif

    double pt[3];
    for( int z = 0; z < zSize; ++z )
        for( int y = 0; y < ySize; ++y )
            for( int x = 0; x < xSize; ++x )
            {
                pt[0] = x;
                pt[1] = y;
                pt[2] = z;
                pt[0] -= xSize / 2;
                pt[1] -= ySize / 2;
                pt[2] -= zSize / 2;
                pt[0] /= xSize / 2;
                pt[1] /= ySize / 2;
                pt[2] /= zSize / 2;
                const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
                const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
                double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));

```

```

        pixel[0] = inval;
    }

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileDimensionality( 3 );
    writer->SetFileName( "rtdose.dcm" );
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputData( image );
    #else
        writer->SetInput( image );
    #endif
    writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
    writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Units", "GY");
    writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Summation Type", "PLAN");
    writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Type", "PHYSICAL");
    writer->GetMedicalImageProperties()->AddUserDefinedValue( "Frame of Reference UID", "
        1.3.12.2.1107.5.6.1.68100.30270111041215391275000000001");
    writer->GetMedicalImageProperties()->SetModality( "RTDOSE" );
    //writer->GetMedicalImageProperties()->SetModality( "PT" ); // debug
    writer->SetScale( 0.0042 ); // why not
    writer->Write();

    image->Delete();
    writer->Delete();

    // BEGIN HACK
    // In GDCM version 2.4.3 and before, the following tag was missing which caused issue with some RTDose
    // software:

    // Open the DICOM file that was temporarily created. This will allows me to used
    // GDCM to append specific tags that allows the RTDOSE to be associated with the
    // relevant CT images.
    gdcm::Reader reader2;
    reader2.SetFileName("rtdose.dcm" );
    reader2.Read();
    gdcm::File &file = reader2.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    // Required by some software and not automatically added by GDCM in old version
    gdcm::Attribute<0x0028,0x0009> framePointer;
    framePointer.SetNumberOfValues(1);
    framePointer.SetValue( gdcm::Tag(0x3004,0x000C) );
    ds.Replace( framePointer.GetAsDataElement() );

    gdcm::Writer writer2;
    writer2.CheckFileMetaInformationOff();
    writer2.SetFileName("rtdose2.dcm");
    writer2.SetFile( file );
    writer2.Write();
    // END HACK

    return 0;
}

```

12.25 CreateJPIPDataSet.cxx

```

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=====*/
/*
 * This example was created during the GSOC 2011 project for
 * JPIP
 */

```

```

#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " output.dcm" << std::endl;
        return 1;
    }
    const char *outfilename = argv[1];

    gdcm::Writer w;
    gdcm::File &file = w.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();
    //w.SetCheckFileMetaInformation( true );
    w.SetFileName( outfile );

    file.GetHeader().SetDataSetTransferSyntax(
        gdcm::TransferSyntax::JPIPReferenced );

    gdcm::Anonymizer anon;
    anon.SetFile( file );

    gdcm::MediaStorage ms =
        gdcm::MediaStorage::SecondaryCaptureImageStorage;

    gdcm::UIDGenerator gen;
    anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
    std::cout << ms.GetString() << std::endl;
    anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );
    //
    anon.Replace( gdcm::Tag(0x0010,0x10), "JPIP^EXAMPLE" );
    anon.Replace( gdcm::Tag(0x0010,0x20), "012345" );
    anon.Empty( gdcm::Tag(0x0010,0x30) );
    anon.Empty( gdcm::Tag(0x0010,0x40) );
    anon.Empty( gdcm::Tag(0x0008,0x20) );
    anon.Empty( gdcm::Tag(0x0008,0x30) );
    anon.Empty( gdcm::Tag(0x0008,0x90) );
    anon.Empty( gdcm::Tag(0x0020,0x10) );
    anon.Empty( gdcm::Tag(0x0020,0x11) );
    anon.Empty( gdcm::Tag(0x0008,0x50) );
    anon.Empty( gdcm::Tag(0x0020,0x0013) );
    anon.Replace( gdcm::Tag(0x0020,0xd), gen.Generate() );
    anon.Replace( gdcm::Tag(0x0020,0xe), gen.Generate() );
    anon.Replace( gdcm::Tag(0x0008,0x64), "WSD " );
    anon.Replace( gdcm::Tag(0x0008,0x60), "OT" );

    gdcm::Attribute<0x0028,0x7FE0> at;
    at.SetValue( "http://dicom.example.com/jpipserver.cgi?target=img.jp2" );
    ds.Insert( at.GetAsDataElement() );

    // Need to retrieve the PixelFormat information from the given file

    if (!w.Write() )
    {
        std::cerr << "Could not write: " << outfile << std::endl;
        return 1;
    }

    return 0;
}

```

12.26 CreateRAWStorage.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 #   Copyright (c) 2006-2011 Mathieu Malaterre

```

```

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8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 <uid value="1.2.840.10008.5.1.4.1.1.66" name="Raw Data Storage" type="SOP Class" part="PS 3.4" retired=
    "false"/>
17 """
18
19 import gdcm
20 import sys,os
21
22 if __name__ == "__main__":
23     r = gdcm.Reader()
24     # Will require Testing...
25     dataroot = gdcm.Testing.GetDataRoot()
26     filename = os.path.join( dataroot, '012345.002.050.dcm' )
27     r.SetFileName( filename )
28     r.Read()
29     f = r.GetFile()
30     ds = f.GetDataSet()
31
32     uid = "1.2.840.10008.5.1.4.1.1.66"
33     # f = gdcm.File()
34     # ds = f.GetDataSet()
35     de = gdcm.DataElement( gdcm.Tag(0x0008,0x0016) )
36     de.SetByteValue( uid, gdcm.VL(len(uid)) )
37     vr = gdcm.VR( gdcm.VR.UI )
38     de.SetVR( vr )
39     ds.Replace( de )
40
41     ano = gdcm.Anonymizer()
42     ano.SetFile( r.GetFile() )
43     ano.RemovePrivateTags()
44     ano.RemoveGroupLength()
45     taglist = [
46         gdcm.Tag(0x0008,0x0008),
47         gdcm.Tag(0x0008,0x0022),
48         gdcm.Tag(0x0008,0x0032),
49         gdcm.Tag(0x0008,0x2111),
50         gdcm.Tag(0x0008,0x1150),
51         gdcm.Tag(0x0008,0x1155),
52         gdcm.Tag(0x0008,0x0100),
53         gdcm.Tag(0x0008,0x0102),
54         gdcm.Tag(0x0008,0x0104),
55         gdcm.Tag(0x0040,0xa170),
56         gdcm.Tag(0x0008,0x2112),
57         gdcm.Tag(0x0008,0x0100),
58         gdcm.Tag(0x0008,0x0102),
59         gdcm.Tag(0x0008,0x0104),
60         gdcm.Tag(0x0008,0x9215),
61         gdcm.Tag(0x0018,0x0010),
62         gdcm.Tag(0x0018,0x0022),
63         gdcm.Tag(0x0018,0x0050),
64         gdcm.Tag(0x0018,0x0060),
65         gdcm.Tag(0x0018,0x0088),
66         gdcm.Tag(0x0018,0x0090),
67         gdcm.Tag(0x0018,0x1040),
68         gdcm.Tag(0x0018,0x1100),
69         gdcm.Tag(0x0018,0x1110),
70         gdcm.Tag(0x0018,0x1111),
71         gdcm.Tag(0x0018,0x1120),
72         gdcm.Tag(0x0018,0x1130),
73         gdcm.Tag(0x0018,0x1150),
74         gdcm.Tag(0x0018,0x1151),
75         gdcm.Tag(0x0018,0x1152),
76         gdcm.Tag(0x0018,0x1160),
77         gdcm.Tag(0x0018,0x1190),
78         gdcm.Tag(0x0018,0x1210),
79         gdcm.Tag(0x0020,0x0012),
80         gdcm.Tag(0x0020,0x0032),
81         gdcm.Tag(0x0020,0x0037),
82         gdcm.Tag(0x0020,0x1041),
83         gdcm.Tag(0x0020,0x4000),
84         gdcm.Tag(0x0028,0x0002),
85         gdcm.Tag(0x0028,0x0004),

```

```

86     gdc.Tag(0x0028,0x0010),
87     gdc.Tag(0x0028,0x0011),
88     gdc.Tag(0x0028,0x0030),
89     gdc.Tag(0x0028,0x0100),
90     gdc.Tag(0x0028,0x0101),
91     gdc.Tag(0x0028,0x0102),
92     gdc.Tag(0x0028,0x0103),
93     gdc.Tag(0x0028,0x1052),
94     gdc.Tag(0x0028,0x1053),
95     gdc.Tag(0x0028,0x2110),
96     gdc.Tag(0x0028,0x2112),
97     gdc.Tag(0x7fe0,0x0010),
98     gdc.Tag(0x0018,0x0020),
99     gdc.Tag(0x0018,0x0021),
100    gdc.Tag(0x0018,0x0023),
101    gdc.Tag(0x0018,0x0025),
102    gdc.Tag(0x0018,0x0080),
103    gdc.Tag(0x0018,0x0081),
104    gdc.Tag(0x0018,0x0083),
105    gdc.Tag(0x0018,0x0084),
106    gdc.Tag(0x0018,0x0085),
107    gdc.Tag(0x0018,0x0086),
108    gdc.Tag(0x0018,0x0087),
109    gdc.Tag(0x0018,0x0091),
110    gdc.Tag(0x0018,0x0093),
111    gdc.Tag(0x0018,0x0094),
112    gdc.Tag(0x0018,0x0095),
113    gdc.Tag(0x0018,0x1088),
114    gdc.Tag(0x0018,0x1090),
115    gdc.Tag(0x0018,0x1094),
116    gdc.Tag(0x0018,0x1250),
117    gdc.Tag(0x0018,0x1251),
118    gdc.Tag(0x0018,0x1310),
119    gdc.Tag(0x0018,0x1312),
120    gdc.Tag(0x0018,0x1314),
121    gdc.Tag(0x0018,0x1315),
122    gdc.Tag(0x0018,0x1316),
123    gdc.Tag(0x0020,0x0110),
124    gdc.Tag(0x0028,0x0120),
125    gdc.Tag(0x0028,0x1050),
126    gdc.Tag(0x0028,0x1051)
127 ]
128 for tag in taglist:
129     #print tag
130     ano.Remove( tag )
131
132 # special handling
133 gen = gdc.UIDGenerator()
134 ano.Replace( gdc.Tag(0x0008,0x9123), gen.Generate() )
135 #ano.Empty( gdc.Tag(0x0040,0x0555) )
136
137
138 #
139 # uid = gen.Generate()
140 # de.SetTag( gdc.Tag(0x0008,0x0018) )
141 # de.SetByteValue( uid, gdc.VL(len(uid)) )
142 # ds.Insert( de )
143
144 # init FMI now:
145 #fmi = f.GetHeader()
146 #ts = gdc.TransferSyntax()
147 #print ts
148 #fmi.SetDataSetTransferSyntax( ts ) # default
149 #print fmi.GetDataSetTransferSyntax()
150 #de.SetTag( gdc.Tag(0x0002,0x0010) )
151 #uid = "1.2.840.10008.1.2"
152 #de.SetByteValue( uid, gdc.VL(len(uid)) )
153 #fmi.Insert( de )
154 # f.SetHeader( r.GetFile().GetHeader() )
155
156 writer = gdc.Writer()
157 writer.SetFile( ano.GetFile() )
158 writer.SetFileName( "rawstorage.dcm" );
159 writer.Write()

```

12.27 csa2img.cxx

```

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=====*/
/*
 * I do not know what the format is, just guessing from info found on the net:
 *
 * http://atonal.ucdavis.edu/matlab/fmri/spm5/spm_dicom_convert.m
 *
 * This example is an attempt at understanding the format used by SIEMENS
 * their "SIEMENS CSA NON-IMAGE" DICOM file (1.3.12.2.1107.5.9.1)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 */
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    // gdcmDataExtra/gdcmNonImageData/exCSA_Non-Image_Storage.dcm
    // PHANTOM.MR.CARDIO_COEUR_S_QUENCE_DE_REP_RAGE.9.257.2008.03.20.14.53.25.578125.43151705.IMA
    const char *filename = argv[1];

    gdcm::Reader reader; // Do not use ImageReader
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }

    gdcm::CSAHeader csa;
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
    //std::cout << t1 << std::endl;
    //const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

    if( ds.FindDataElement( t1 ) )
    {
        csa.LoadFromDataElement( ds.GetDataElement( t1 ) );
        csa.Print( std::cout );
    }

    int dims[2] = {};
    if( csa.FindCSAElementByName( "Columns" ) )
    {
        const gdcm::CSAElement &csael = csa.GetCSAElementByName( "Columns" )
        ;
        std::cout << csael << std::endl;
        //const gdcm::ByteValue *bv = csael.GetByteValue();
        gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el;
        el.Set( csael.GetValue() );
        dims[0] = el.GetValue();
        std::cout << "Columns:" << el.GetValue() << std::endl;
    }
}

```



```

if( csa.FindCSAElementByName( "Rows" ) )
{
    const gdcm::CSAElement &csael2 = csa.GetCSAElementByName( "Rows" );
    std::cout << csael2 << std::endl;
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
    el2.Set( csael2.GetValue() );
    dims[1] = el2.GetValue();
    std::cout << "Rows:" << el2.GetValue() << std::endl;
}

double spacing[2] = { 1. , 1. };
bool spacingfound = false;
if( csa.FindCSAElementByName( "PixelSpacing" ) )
{
    const gdcm::CSAElement &csael3 = csa.GetCSAElementByName( "PixelSpacing" );
    if( !csael3.IsEmpty() )
    {
        std::cout << csael3 << std::endl;
        gdcm::Element<gdcm::VR::DS, gdcm::VM::VM2> el3;
        el3.Set( csael3.GetValue() );
        spacing[0] = el3.GetValue(0);
        spacing[1] = el3.GetValue(1);
        std::cout << "PixelSpacing:" << el3.GetValue() << "," << el3.GetValue(1) << std::endl;
        spacingfound = true;
    }
}

if( !spacingfound )
{
    std::cerr << "Problem with PixelSpacing" << std::endl;
    //return 1;
}

if( !dims[0] || !dims[1] )
{
    std::cerr << "Problem with dims" << std::endl;
    return 1;
}

gdcm::ImageWriter writer;

gdcm::Image &image = writer.GetImage();
image.SetNumberOfDimensions( 2 ); // good default
image.SetDimension(0, dims[0] );
image.SetDimension(1, dims[1] );
image.SetSpacing(0, spacing[0] );
image.SetSpacing(1, spacing[1] );
gdcm::PixelFormat pixeltype = gdcm::PixelFormat::INT16; //
    bytewidth = spm_type('int16','bits')/8;

//unsigned long l = image.GetBufferLength();
//const int p = 1 / (dims[0] * dims[1]);

//image.SetNumberOfDimensions( 3 );
//image.SetDimension(2, p / pixeltype.GetPixelSize() );

gdcm::PhotometricInterpretation pi;
pi = gdcm::PhotometricInterpretation::MONOCHROME2;
//pixeltype.SetSamplesPerPixel( );
image.SetPhotometricInterpretation( pi );
image.SetPixelFormat( pixeltype );
//image.SetIntercept( inputimage.GetIntercept() );
//image.SetSlope( inputimage.GetSlope() );

//gdcm::DataElement pixeldata( gdcm::Tag(0x7fe1,0x1010) );
//pixeldata.SetByteValue( &outbuf[0], outbuf.size() );
gdcm::PrivateTag csanonimaget(0x7fe1,0x10,"SIEMENS CSA NON-IMAGE");
const gdcm::DataElement &pixeldata = ds.GetDataElement( csanonimaget );
image.SetDataElement( pixeldata );

std::string outfilename = "outcsa.dcm";
//writer.SetFile( reader.GetFile() );
writer.SetFileName( outfilename.c_str() );
if( !writer.Write() )
{
    std::cerr << "could not write: " << outfilename << std::endl;
    return 1;
}

```

```

    return 0;
}

```

12.28 CStoreQtProgress.cxx

```

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=====*/

/*
 * This small example show how one can use the virtual function
 * mechanism of the SimpleSubjectWatcher class to redirect progress
 * report to a custom Qt classes
 *
 * http://doc.qt.nokia.com/latest/qprogressdialog.html
 *
 * Usage:
 * CStoreQtProgress dicom.example.com 11112 gdcmData/MR_Spectroscopy_SIEMENS_OF.dcm
 *
 */

#include "gdcmServiceClassUser.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmProgressEvent.h"
#include "gdcmDirectory.h"
#include "gdcmPresentationContextGenerator.h"

#include <QApplication>
#include <QProgressDialog>
#include <QVBoxLayout>

namespace gdcm {
/*
 * This class is a little more complicated than what this example demonstrate
 * This watcher is capable of handling nested progress. Since the Progress
 * grows from [0 to 1] on a per file basis and we only have one instance of a
 * watcher per association, we need some calculation to compute the global
 * (total) progress
 * In fact we simply divide the per-file progress by the number of files.
 *
 * This QtWatcher class will then update the progress bar according to the
 * progress.
 */
class MyQtWatcher : public SimpleSubjectWatcher
{
    size_t nfiles;
    double progress;
    size_t index;
    double refprogress;
    QWidget* win;
    QProgressDialog* qtprogress;
public:
    MyQtWatcher(Subject * s, const char *comment = "", QWidget *w = NULL, QProgressDialog* p = NULL, size_t n
        = 1):
        SimpleSubjectWatcher(s,comment),nfiles(n),progress(0),index(0),refprogress(0),win(w),qtprogress(p) {}
    void ShowIteration()
    {
        index++;
        assert( index <= nfiles );
        // update refprogress (we are moving to the next file)
        refprogress = progress;
    }
    void ShowProgress(Subject *, const Event &evt)
    {
        // Retrieve the ProgressEvent:
        const ProgressEvent &pe = dynamic_cast<const ProgressEvent*>(evt);

```

```

    // compute global progress:
    progress = refprogress + (1. / (double)nfiles ) * pe.GetProgress();
    // Print Global and local progress to stdout:
    std::cout << "Global Progress: " << progress << " per file progress " << pe.GetProgress() << std::endl;
    //set progress value in the QtProgress bar
    int i = (int)(progress * 100 + 0.5); // round to next int
    qtprogress->setValue(i);
    win->show();
}
virtual void ShowDataSet(Subject *caller, const Event &evt)
{
    (void)caller;
    (void)evt;
}
};
} // end namespace gdcm

int main(int argc, char *argv[])
{
    if( argc < 4 )
    {
        std::cerr << argv[0] << " remote_server port filename" << std::endl;
        return 1;
    }
    QApplication a(argc, argv);

    std::ostream error_log;
    gdcm::Trace::SetErrorStream( error_log );

    const char *remote = argv[1];
    int portno = atoi(argv[2]);
    const char *filename = argv[3];

    QVBoxLayout* layout = new QVBoxLayout;
    QWidget* win = new QWidget;

    QProgressDialog* progress = new QProgressDialog("Sending data...", "Cancel", 0, 100);
    progress->setWindowModality(Qt::WindowModal);

    layout->addWidget( progress, Qt::AlignCenter);
    win->setLayout( layout);

    gdcm::SmartPointer<gdcm::ServiceClassUser> scup = new
        gdcm::ServiceClassUser;
    gdcm::ServiceClassUser &scu = *scup;
    //gdcm::SimpleSubjectWatcher w( &scu, "TestServiceClassUser" );
    // let's use a more complicated progress reported in this example
    gdcm::MyQtWatcher w( &scu, "QtWatcher", win, progress );

    scu.SetHostname( remote );
    scu.SetPort( (uint16_t)portno );
    scu.SetTimeout( 1000 );
    scu.SetCalledAETitle( "GDCM_STORE" );

    if( !scu.InitializeConnection() )
    {
        std::cerr << "Could not InitializeConnection" << std::endl;
        return 1;
    }

    gdcm::Directory::FileNamesType filenames;
    filenames.push_back( filename );

    // setup the PC(s) based on the filenames:
    gdcm::PresentationContextGenerator generator;
    if( !generator.GenerateFromFilenames( filenames) )
    {
        std::cerr << "Could not GenerateFromFilenames" << std::endl;
        return 1;
    }

    // Setup PresentationContext(s)
    scu.SetPresentationContexts( generator.
        GetPresentationContexts() );

    // Start ASSOCIATION
    if( !scu.StartAssociation() )
    {
        std::cerr << "Could not Start" << std::endl;
        return 1;
    }
}

```

```

// Send C-STORE
if( !scu.SendStore( filename ) )
{
    std::cerr << "Could not Store" << std::endl;
    std::cerr << "Error log is:" << std::endl;
    std::cerr << error_log.str() << std::endl;
    return 1;
}

// Stop ASSOCIATION
if( !scu.StopAssociation() )
{
    std::cerr << "Could not Stop" << std::endl;
    return 1;
}

win->show();

return a.exec();
}

```

12.29 DecompressImage.cs

This is a C# example on how to use Image

```

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=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm decompress.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
    public static int Main(string[] args)
    {
        {
            string file1 = args[0];
            string file2 = args[1];
            ImageReader reader = new ImageReader();
            reader.SetFileName( file1 );
            bool ret = reader.Read();
            if( !ret )
            {
                return 1;
            }

            // check that one can access a Fragment from C#:
            var de = reader.GetFile().GetDataSet().GetDataElement(new Tag(0x7fe0, 0x0010));
            var sq = de.GetSequenceOfFragments();
            sq.GetFragment(0);

            Image image = new Image();
            Image ir = reader.GetImage();

            image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );

            //Just for fun:

```

```

//int dircos = ir.GetDirectionCosines();
//t = gdcm.Orientation.GetType(dircos);
//int l = gdcm.Orientation.GetLabel(t);
//System.Console.WriteLine( "Orientation label:" + l );

// Set the dimensions,
// 1. either one at a time
//image.SetDimension(0, ir.GetDimension(0) );
//image.SetDimension(1, ir.GetDimension(1) );

// 2. the array at once
uint[] dims = {0, 0};
// Just for fun let's invert the dimensions:
dims[0] = ir.GetDimension(1);
dims[1] = ir.GetDimension(0);
ir.SetDimensions( dims );

PixelFormat pixeltype = ir.GetPixelFormat();
image.SetPixelFormat( pixeltype );

PhotometricInterpretation pi = ir.GetPhotometricInterpretation();
image.SetPhotometricInterpretation( pi );

DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
byte[] str1 = new byte[ ir.GetBufferLength()];
ir.GetBuffer( str1 );
//System.Console.WriteLine( ir.GetBufferLength() );
pixeldata.SetByteValue( str1, new VL( (uint)str1.Length ) );
//image.SetDataElement( pixeldata );
ir.SetDataElement( pixeldata );

ImageWriter writer = new ImageWriter();
writer.SetFileName( file2 );
writer.SetFile( reader.GetFile() );
writer.SetImage( ir );
ret = writer.Write();
if( !ret )
{
    return 1;
}

return 0;
}
}

```

12.30 DecompressImage.java

```

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=====*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressImage.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressImage gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressImage

```

```

{
    public static void main(String[] args) throws Exception
    {
        String file1 = args[0];
        String file2 = args[1];
        ImageReader reader = new ImageReader();
        reader.SetFileName( file1 );
        boolean ret = reader.Read();
        if( !ret )
        {
            throw new Exception("Could not read: " + file1 );
        }

        ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
        change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
        change.SetInput( reader.GetImage() );
        if( !change.Change() )
        {
            throw new Exception("Could not change: " + file1 );
        }

        Image out = change.GetOutput();
        System.out.println( out.toString() );

        // Set the Source Application Entity Title
        FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

        ImageWriter writer = new ImageWriter();
        writer.SetFileName( file2 );
        writer.SetFile( reader.GetFile() );
        writer.SetImage( out );
        ret = writer.Write();
        if( !ret )
        {
            throw new Exception("Could not write: " + file2 );
        }
    }
}

```

12.31 DecompressImage.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
9 #   This software is distributed WITHOUT ANY WARRANTY; without even
10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18   python DecompressImage.py gdcmData/012345.002.050.dcm decompress.dcm
19 """
20
21 import gdcm
22 import sys
23
24 if __name__ == "__main__":
25
26     file1 = sys.argv[1]
27     file2 = sys.argv[2]
28
29     r = gdcm.ImageReader()
30     r.SetFileName( file1 )
31     if not r.Read():
32         sys.exit(1)
33

```

```

34  image = gdcm.Image()
35  ir = r.GetImage()
36
37  image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );
38  dims = ir.GetDimensions();
39  print ir.GetDimension(0);
40  print ir.GetDimension(1);
41  print "Dims:", dims
42
43  # Just for fun:
44  dircos = ir.GetDirectionCosines()
45  t = gdcm.Orientation.GetType(dircos)
46  l = gdcm.Orientation.GetLabel(t)
47  print "Orientation label:", l
48
49  image.SetDimension(0, ir.GetDimension(0) );
50  image.SetDimension(1, ir.GetDimension(1) );
51
52  pixeltype = ir.GetPixelFormat();
53  image.SetPixelFormat( pixeltype );
54
55  pi = ir.GetPhotometricInterpretation();
56  image.SetPhotometricInterpretation( pi );
57
58  pixeldata = gdcm.DataElement( gdcm.Tag(0x7fe0,0x0010) )
59  str1 = ir.GetBuffer()
60  #print ir.GetBufferLength()
61  pixeldata.SetByteValue( str1, gdcm.VL( len(str1) ) )
62  image.SetDataElement( pixeldata )
63
64  w = gdcm.ImageWriter()
65  w.SetFileName( file2 )
66  w.SetFile( r.GetFile() )
67  w.SetImage( image )
68  if not w.Write():
69      sys.exit(1)

```

12.32 DecompressImageMultiframe.cs

```

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PURPOSE. See the above copyright notice for more information.

=====*/

/*
$ gdcminfo ~/Desktop/angiogram-06.dcm
MediaStorage is 1.2.840.10008.5.1.4.1.1.12.1 [X-Ray Angiographic Image Storage]
TransferSyntax is 1.2.840.10008.1.2.4.50 [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG
8 Bit Image Compression]
NumberOfDimensions: 3
Dimensions: (512,512,355)
Origin: (0,0,0)
Spacing: (1,1,40)
DirectionCosines: (1,0,0,0,1,0)
Rescale Intercept/Slope: (0,1)
SamplesPerPixel :1
BitsAllocated :8
BitsStored :8
HighBit :7
PixelRepresentation:0
ScalarType found :UINT8
PhotometricInterpretation: MONOCHROME2
PlanarConfiguration: 0
TransferSyntax: 1.2.840.10008.1.2.4.50
Orientation Label: AXIAL
*/

```

```

/*
 * Description:
 *
 * Assume we have a file angiogram-06.dcm as described above.
 * the following program will decompress directly from the extracted jpeg stream.
 *
 * First step extract the jpeg stream (but not the Basic Offset Table):
 *
 * $ gdcmmraw -i angiogram-06.dcm -o /tmp/output/chris --split-frags --pattern %d.jpg
 *
 * Check that indeed there are 355 files, while there are 356 fragments in the original DICOM file, since
 * gdcmmraw always skip the first fragment (Basic Offset Table).
 *
 * Now from those individual jpeg stream, recreate a fake gdcm.DataElement...
 *
 * Usage:
 *
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono ./bin/DecompressImageMultiframe.exe /tmp/output
 */
using System;
using gdcm;

public class DecompressImageMultiframe
{
    public static int Main(string[] args)
    {
        string directory = args[0];
        gdcm.Directory dir = new gdcm.Directory();
        uint nfiles = dir.Load(directory);
        //System.Console.WriteLine(dir.ToString());
        gdcm.FilenamesType filenames = dir.GetFilenames();

        Image image = new Image();
        image.SetNumberOfDimensions( 3 ); // important for now
        DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

        // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
        SmartPtrFrag sq = SequenceOfFragments.New();

        // Yeah, the file are not guarantee to be in order, please adapt...
        for(uint i = 0; i < nfiles; ++i)
        {
            System.Console.WriteLine( filenames[(int)i] );
            string file = filenames[(int)i];
            System.IO.FileStream infile =
                new System.IO.FileStream(file, System.IO.FileMode.Open, System.IO.FileAccess.Read);
            uint fsize = gdcm.PosixEmulation.FileSize(file);

            byte[] jstream = new byte[fsize];
            infile.Read(jstream, 0 , jstream.Length);

            Fragment frag = new Fragment();
            frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
            sq.AddFragment( frag );
        }

        // Pass by reference:
        pixeldata.SetValue( sq.__ref__() );

        // insert:
        image.SetDataElement( pixeldata );

        // JPEG use YBR to achieve better compression ratio by default (not RGB)
        // FIXME hardcoded:
        PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.
            MONOCHROME2 );
        image.SetPhotometricInterpretation( pi );
        // FIXME hardcoded:
        PixelFormat pixeltype = new PixelFormat(1,8,8,7);
        image.SetPixelFormat( pixeltype );

        // FIXME hardcoded:
        image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
        image.SetDimension(0, 512);
        image.SetDimension(1, 512);
        image.SetDimension(2, 355);

        // Decompress !
        byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    }
}

```



```

image.GetBuffer(decompressedData);

// Write out the decompressed bytes
System.Console.WriteLine(image.ToString());
using (System.IO.Stream stream =
    System.IO.File.Open(@"tmp/dd.raw",
        System.IO.FileMode.Create))
{
    System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
    writer.Write(decompressedData);
}

return 0;
}
}

```

12.33 DecompressJPEGFile.cs

This is a C# example on how to use [gdcm::SequenceOfFragments](#)

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressJPEGFile.exe somejpegfile.jpg
 */
using System;
using gdcm;

public class DecompressJPEGFile
{
    public static int Main(string[] args)
    {
        string file1 = args[0];
        System.IO.FileStream infile =
            new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
        uint fsize = gdcm.PosixEmulation.FileSize(file1);

        byte[] jstream = new byte[fsize];
        infile.Read(jstream, 0, jstream.Length);

        Trace.DebugOn();
        Image image = new Image();
        image.SetNumberOfDimensions( 2 ); // important for now
        DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

        // DO NOT set a ByteValue here, JPEG is a particular kind of encapsulated syntax
        // in which can one cannot use a simple byte array for storage. Instead, see
        // gdcm.SequenceOfFragments
        // pixeldata.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length ) );

        // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
        SmartPtrFrag sq = SequenceOfFragments.New();
        Fragment frag = new Fragment();
        frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length ) );
        // Single file => single fragment
        sq.AddFragment( frag );
        // Pass by reference:
        pixeldata.SetValue( sq.__ref__() );
    }
}

```

```

// insert:
image.SetDataElement( pixeldata );

// JPEG use YBR to achieve better compression ratio by default (not RGB)
// FIXME hardcoded:
PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.YBR_FULL
);
image.SetPhotometricInterpretation( pi );
// FIXME hardcoded:
PixelFormat pixeltype = new PixelFormat(3,8,8,7);
image.SetPixelFormat( pixeltype );

// FIXME hardcoded:
image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
image.SetDimension(0, 692);
image.SetDimension(1, 721);

// Decompress !
byte[] decompressedData = new byte[(int)image.GetBufferLength()];
image.GetBuffer(decompressedData);

// Write out the decompressed bytes
System.Console.WriteLine(image.toString());
using (System.IO.Stream stream =
    System.IO.File.Open(@"tmp/dd.raw",
        System.IO.FileMode.Create))
{
    System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
    writer.Write(decompressedData);
}

return 0;
}
}

```

12.34 DecompressPixmap.java

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressPixmap.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressPixmap gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressPixmap
{
    public static void main(String[] args) throws Exception
    {
        String file1 = args[0];
        String file2 = args[1];
        PixmapReader reader = new PixmapReader();
        reader.SetFileName( file1 );
        boolean ret = reader.Read();
        if( !ret )
    }
}

```

```

    {
        throw new Exception("Could not read: " + file1 );
    }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    PixmapToPixmapFilter filter = (PixmapToPixmapFilter)change;
    filter.SetInput( reader.GetPixmap() );
    if( !change.Change() )
    {
        throw new Exception("Could not change: " + file1 );
    }

    // The following does not work in Java/swig 2.0.7
    //Pixmap p = ((PixmapToPixmapFilter)change).GetOutput();
    Pixmap p = change.GetOutputAsPixmap(); // be explicit
    //System.out.println( p.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( p );
    ret = writer.Write();
    if( !ret )
    {
        throw new Exception("Could not write: " + file2 );
    }
}
}

```

12.35 DiffFile.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input1.dcm input2.dcm" << std::endl;
        return 1;
    }
    const char *filename1 = argv[1];
    const char *filename2 = argv[2];

    gdcm::Reader reader1;
    reader1.SetFileName( filename1 );
    if( !reader1.Read() )
    {
        return 1;
    }

    gdcm::Reader reader2;
    reader2.SetFileName( filename2 );
    if( !reader2.Read() )
    {
        return 1;
    }
}

```

```

const gdcm::File &file1 = reader1.GetFile();
const gdcm::File &file2 = reader2.GetFile();

const gdcm::DataSet &ds1 = file1.GetDataSet();
const gdcm::DataSet &ds2 = file2.GetDataSet();

gdcm::DataSet::ConstIterator it1 = ds1.Begin();
gdcm::DataSet::ConstIterator it2 = ds2.Begin();

const gdcm::DataElement &de1 = *it1;
const gdcm::DataElement &de2 = *it2;
if( de1 == de2 )
{
}
while( it1 != ds1.End() && it2 != ds2.End() && *it1 == *it2 )
{
  ++it1;
  ++it2;
}

if( it1 != ds1.End() || it2 != ds2.End() )
{
  std::cerr << "Problem with:" << std::endl;
  if( it1 != ds1.End() )
  {
    std::cerr << "ds1: " << *it1 << std::endl;
  }
  if( it2 != ds2.End() )
  {
    std::cerr << "ds2: " << *it2 << std::endl;
  }
  return 1;
}

return 0;
}

```

12.36 DiscriminateVolume.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmScanner.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"
#include "gdcmDirectionCosines.h"
#include <cmath>

/*
 * The following example is a basic sorted which should work in generic cases.
 * It sort files based on:
 * Study Instance UID
 *   Series Instance UID
 *     Frame of Reference UID
 *       Image Orientation (Patient)
 *         Image Position (Patient) (Sorting based on IPP + IOP)
 */

namespace gdcm {
  const Tag t1(0x0020,0x000d); // Study Instance UID
  const Tag t2(0x0020,0x000e); // Series Instance UID
  const Tag t3(0x0020,0x0052); // Frame of Reference UID
  const Tag t4(0x0020,0x0037); // Image Orientation (Patient)
}

class DiscriminateVolume

```

```

{
private:
    std::vector< Directory::FilenameType > SortedFiles;
    std::vector< Directory::FilenameType > UnsortedFiles;

    Directory::FilenameType GetAllFileNamesFromTagToValue(
        Scanner const & s, Directory::FilenameType const & filesubset, Tag const & t,
        const char *valueref)
    {
        Directory::FilenameType theReturn;
        if( valueref )
        {
            size_t len = strlen( valueref );
            Directory::FilenameType::const_iterator file = filesubset.begin();
            for(; file != filesubset.end(); ++file)
            {
                const char *filename = file->c_str();
                const char * value = s.GetValue(filename, t);
                if( value && strncmp(value, valueref, len ) == 0 )
                {
                    theReturn.push_back( filename );
                }
            }
        }
        return theReturn;
    }

void ProcessAIOP(Scanner const & , Directory::FilenameType const & subset, const
    char *iopval)
{
    std::cout << "IOP: " << iopval << std::endl;
    IPPSorter ipp;
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 ); // ??
    bool b = ipp.Sort( subset );
    if( !b )
    {
        // If you reach here this means you need one more parameter to discriminiat this
        // series. Eg. T1 / T2 intertwined. Multiple Echo (0018,0081)
        std::cerr << "Failed to sort: " << subset.begin()->c_str() << std::endl;
        for(
            Directory::FilenameType::const_iterator file = subset.begin();
            file != subset.end(); ++file)
        {
            std::cerr << *file << std::endl;
        }
        UnsortedFiles.push_back( subset );
        return ;
    }
    ipp.Print( std::cout );
    SortedFiles.push_back( ipp.GetFileNames() );
}

void ProcessAFrameOfRef(Scanner const & s, Directory::FilenameType const & subset,
    const char * frameuid)
{
    // In this subset of files (belonging to same series), let's find those
    // belonging to the same Frame ref UID:
    Directory::FilenameType files = GetAllFileNamesFromTagToValue(
        s, subset, t3, frameuid);

    std::set< std::string > iopset;

    for(
        Directory::FilenameType::const_iterator file = files.begin();
        file != files.end(); ++file)
    {
        //std::cout << *file << std::endl;
        const char * value = s.GetValue(file->c_str(), gdcmm::t4 );
        assert( value );
        iopset.insert( value );
    }
    size_t n = iopset.size();
    if ( n == 0 )
    {
        assert( files.empty() );
        return;
    }

    std::cout << "Frame of Ref: " << frameuid << std::endl;
    if ( n == 1 )

```

```

    {
        ProcessAIOP(s, files, iopset.begin()->c_str() );
    }
else
{
    const char *f = files.begin()->c_str();
    std::cerr << "More than one IOP: " << f << std::endl;
    // Make sure that there is actually 'n' different IOP
    gdcmm::DirectionCosines ref;
    gdcmm::DirectionCosines dc;
    for(
        std::set< std::string >::const_iterator it = iopset.begin();
        it != iopset.end(); ++it )
    {
        ref.SetFromString( it->c_str() );
        for(
            Directory::FileNamesType::const_iterator file = files.begin();
            file != files.end(); ++file)
        {
            std::string value = s.GetValue(file->c_str(), gdcmm::t4 );
            if( value != it->c_str() )
            {
                dc.SetFromString( value.c_str() );
                const double crossdot = ref.CrossDot(dc);
                const double eps = std::fabs( 1. - crossdot );
                if( eps < 1e-6 )
                {
                    std::cerr << "Problem with IOP discrimination: " << file->c_str()
                        << " " << it->c_str() << std::endl;
                    return;
                }
            }
        }
    }
    // If we reach here this means there is actually 'n' different IOP
    for(
        std::set< std::string >::const_iterator it = iopset.begin();
        it != iopset.end(); ++it )
    {
        const char *iopvalue = it->c_str();
        Directory::FileNamesType iopfiles = GetAllFileNamesFromTagToValue(
            s, files, t4, iopvalue );
        ProcessAIOP(s, iopfiles, iopvalue );
    }
}

void ProcessASeries(Scanner const & s, const char * seriesuid)
{
    std::cout << "Series: " << seriesuid << std::endl;
    // let's find all files belonging to this series:
    Directory::FileNamesType seriesfiles = GetAllFileNamesFromTagToValue(
        s, s.GetFiles(), t2, seriesuid);

    gdcmm::Scanner::ValuesType vt3 = s.GetValues(t3);
    for(
        gdcmm::Scanner::ValuesType::const_iterator it = vt3.begin()
        ; it != vt3.end(); ++it )
    {
        ProcessAFrameOfRef(s, seriesfiles, it->c_str());
    }
}

void ProcessAStudy(Scanner const & s, const char * studyuid)
{
    std::cout << "Study: " << studyuid << std::endl;
    gdcmm::Scanner::ValuesType vt2 = s.GetValues(t2);
    for(
        gdcmm::Scanner::ValuesType::const_iterator it = vt2.begin()
        ; it != vt2.end(); ++it )
    {
        ProcessASeries(s, it->c_str());
    }
}

public:

void Print( std::ostream & os )
{
    os << "Sorted Files: " << std::endl;
    for(
        std::vector< Directory::FileNamesType >::const_iterator it = SortedFiles.begin();

```

```

        it != SortedFiles.end(); ++it )
    {
        os << "Group: " << std::endl;
        for(
            Directory::FilenameType::const_iterator file = it->begin();
            file != it->end(); ++file)
        {
            os << *file << std::endl;
        }
    }
    os << "Unsorted Files: " << std::endl;
    for(
        std::vector< Directory::FilenameType >::const_iterator it = UnsortedFiles.begin();
        it != UnsortedFiles.end(); ++it )
    {
        os << "Group: " << std::endl;
        for(
            Directory::FilenameType::const_iterator file = it->begin();
            file != it->end(); ++file)
        {
            os << *file << std::endl;
        }
    }
}

std::vector< Directory::FilenameType > const & GetSortedFiles() const { return SortedFiles; }
std::vector< Directory::FilenameType > const & GetUnsortedFiles() const { return UnsortedFiles; }

void ProcessIntoVolume( Scanner const & s )
{
    gdcm::Scanner::ValueType vt1 = s.GetValues( gdcm::t1 );
    for(
        gdcm::Scanner::ValueType::const_iterator it = vt1.begin()
        ; it != vt1.end(); ++it )
    {
        ProcessAStudy( s, it->c_str() );
    }
}

};

} // namespace gdcm

int main(int argc, char *argv[])
{
    std::string dirl;
    if( argc < 2 )
    {
        const char *extradataroot = NULL;
#ifdef GDCM_BUILD_TESTING
        extradataroot = gdcm::Testing::GetDataExtraRoot();
#endif
        if( !extradataroot )
        {
            return 1;
        }
        dirl = extradataroot;
        dirl += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
    else
    {
        dirl = argv[1];
    }

    gdcm::Directory d;
    d.Load( dirl.c_str(), true ); // recursive !

    gdcm::Scanner s;
    s.AddTag( gdcm::t1 );
    s.AddTag( gdcm::t2 );
    s.AddTag( gdcm::t3 );
    s.AddTag( gdcm::t4 );
    bool b = s.Scan( d.GetFilesNames() );
    if( !b )
    {
        std::cerr << "Scanner failed" << std::endl;
        return 1;
    }
}

```

```

gdcmm::DiscriminateVolume dv;
dv.ProcessIntoVolume( s );
dv.Print( std::cout );

return 0;
}

```

12.37 DumbAnonymizer.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 #   Copyright (c) 2006-2011 Mathieu Malaterre
6 #   All rights reserved.
7 #   See Copyright.txt or http://gdcmm.sourceforge.net/Copyright.html for details.
8 #
9 #   This software is distributed WITHOUT ANY WARRANTY; without even
10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 This example shows how one can use the gdcmm.Anonymizer in 'dumb' mode.
17 This class becomes really handy when one knows which particular tag to fill in.
18 Usage:
19
20 python DumbAnonymizer.py gdcmmData/012345.002.050.dcm out.dcm
21
22 """
23
24 import gdcmm
25
26 # http://www.oid-info.com/get/1.3.6.1.4.17434
27 THERALYS_ORG_ROOT = "1.3.6.1.4.17434"
28
29 tag_rules={
30     # Value
31     (0x0012,0x0010):("Value","MySponsorName"),
32     (0x0012,0x0020):("Value","MyProtocolID"),
33     (0x0012,0x0021):("Value","MyProtocolName"),
34     (0x0012,0x0062):("Value","YES"),
35     (0x0012,0x0063):("Value","MyDeidentificationMethod"),
36
37     # Method
38     (0x0002,0x0003):("Method","GenerateMSOPID"),
39     (0x0008,0x1155):("Method","GenerateMSOPID"),
40     (0x0008,0x0018):("Method","GenerateMSOPID"),
41     (0x0010,0x0010):("Method","GetSponsorInitials"),
42     (0x0010,0x0020):("Method","GetSponsorId"),
43     (0x0012,0x0030):("Method","GetSiteId"),
44     (0x0012,0x0031):("Method","GetSiteName"),
45     (0x0012,0x0040):("Method","GetSponsorId"),
46     (0x0012,0x0050):("Method","GetTPID"),
47     (0x0018,0x0022):("Method","KeepIfExist"),
48     (0x0018,0x1315):("Method","KeepIfExist"),
49     (0x0020,0x000d):("Method","GenerateStudyId"),
50     (0x0020,0x000e):("Method","GenerateSeriesId"),
51     (0x0020,0x1002):("Method","GetNumberOfFrames"),
52     (0x0020,0x0020):("Method","GetPatientOrientation"),
53
54     # Other:
55     (0x0012,0x0051):("Patient Field","Type Examen"),
56     (0x0018,0x1250):("Sequence Field","Receive Coil"),
57     (0x0018,0x0088):("Sequence Field","Spacing Between Slice"),
58     (0x0018,0x0095):("Sequence Field","Pixel Bandwidth"),
59     (0x0018,0x0082):("Sequence Field","Inversion Time"),
60 }
61
62 class MyAnon:
63     def __init__(self):
64         self.studyuid = None
65         self.seriesuid = None
66         generator = gdcmm.UIDGenerator()

```



```

67     if not self.studyuid:
68         self.studyuid = generator.Generate()
69     if not self.seriesuid:
70         self.seriesuid = generator.Generate()
71     def GetSponsorInitials(self):
72         return "dummy^foobar"
73     def GenerateStudyId(self):
74         return self.studyuid
75     def GenerateSeriesId(self):
76         return self.seriesuid
77     #def GenerateMSOPId(self):
78     def GenerateMSOPId(self):
79         generator = gdcm.UIDGenerator()
80         return generator.Generate()
81     def GetSiteId(self):
82         return "MySiteId"
83     def GetSiteName(self):
84         return "MySiteName"
85     def GetSponsorId(self):
86         return "MySponsorId"
87     def GetTPId(self):
88         return "MyTP"
89
90 if __name__ == "__main__":
91     import sys
92     gdcm.FileMetaInformation.SetSourceApplicationEntityTitle
93     ( "DumbAnonymizer" )
94     gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT )
95
96     r = gdcm.Reader()
97     filename = sys.argv[1]
98     r.SetFileName( filename )
99     if not r.Read(): sys.exit(1)
100
101     obj = MyAnon()
102
103     w = gdcm.Writer()
104     ano = gdcm.Anonymizer()
105     ano.SetFile( r.GetFile() )
106     ano.RemoveGroupLength()
107     for tag,rule in tag_rules.items():
108         if rule[0] == 'Value':
109             print tag,rule
110             ano.Replace( gdcm.Tag( tag[0], tag[1] ), rule[1] )
111         elif rule[0] == 'Method':
112             print tag,rule
113             # result = locals()[rule[1]]()
114             methodname = rule[1]
115             if hasattr(obj, methodname):
116                 _member = getattr(obj, methodname)
117                 result = _member()
118                 ano.Replace( gdcm.Tag( tag[0], tag[1] ), result )
119             else:
120                 print "Problem with: ", methodname
121
122     outfilename = sys.argv[2]
123     w.SetFileName( outfilename )
124     w.SetFile( ano.GetFile() )
125     if not w.Write(): sys.exit(1)

```

12.38 DumpADAC.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/

```

```

/*
 * the goal of this example is to mimic the behavior of disp_img_header
 * see http://www.gmecorp-usa.com/IM/NM/GC/ADAC/SV/adactechtips/Released\_01Q3.pdf
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct dict
{
    uint16_t key;
    const char *name;
};

dict Array[] = {
    { 0x01, "Patient name" },
    { 0x02, "Patient ID" },
    { 0x03, "Patient sex" },
    { 0x04, "Patient age" },
    { 0x05, "Patient height" },
    { 0x06, "Patient weight" },
    { 0x07, "Exam date" },
    { 0x08, "Dose admin. time" },
    { 0x09, "Unique exam key" },
    { 0x0a, "Exam procedure" },
    { 0x0b, "Referring physician" },
    { 0x0c, "Attending physician" },
    { 0x0d, "Imaging modality" },
    { 0x0e, "Hospital ID" },
    { 0x0f, "Histogram crv file" },
    { 0x10, "Acq. start time" },
    { 0x11, "Object data type" },
    { 0x12, "Image viewid" },
    { 0x13, "Imaging device name" },
    { 0x14, "Device serial number" },
    { 0x15, "Collimator" },
    { 0x16, "Software version" },
    { 0x17, "Radiopharmaceutical #1" },
    { 0x18, "Energy window #1 center" },
    { 0x19, "Radiopharmaceutical #2" },
    { 0x1a, "Energy window #1 width" },
    { 0x1b, "Isotope imaging mode" },
    { 0x1c, "Energy window #2 center" },
    { 0x1d, "Energy window #2 width" },
    { 0x1e, "Energy window #3 center" },
    { 0x1f, "Energy window #3 width" },
    { 0x20, "Energy window #4 center" },
    { 0x21, "Energy window #4 width" },
    { 0x22, "??Energy window #5 center" },
    { 0x23, "??Energy window #5 width" },
    { 0x24, "Patient orientation" },
    { 0x25, "Spatial resolution" },
    { 0x26, "Slice thickness" },
    { 0x27, "Image X dimension" },
    { 0x28, "Image Y dimension" },
    { 0x29, "Image Z dimension" },
    { 0x2a, "Image pixel width" },
    { 0x2b, "Uniformity corr. file" },
    { 0x2c, "Acquisition zoom factor" },
    { 0x2d, "Total counts in set" },
    { 0x2e, "Time / frame" },
    { 0x2f, "Total acq. time" },
    { 0x30, "Maximum pixel value" },
    { 0x31, "Minimum pixel value" },
    { 0x32, "R-R interval time" },
    { 0x33, "Percent of cycle imaged" },
    { 0x34, "# of cycles accepted" },
    { 0x35, "# of cycles rejected" },
    { 0x36, "Approximate ED frame" },
    { 0x37, "Approximate ES frame" },
    { 0x38, "Approximate EF" },
    { 0x39, "Starting angle" },

```

```

    { 0x3a, "Degrees of rotation" },
    { 0x3b, "Direction of rotation" },
    { 0x3c, "Cont. or step/shoot" },
    { 0x3d, "Lim recon start frame" },
    { 0x3e, "Upper window grey shade" },
    { 0x3f, "Lower lvl grey shade" },
    { 0x40, "Associated color map" },
    { 0x41, "Custom color map file" },
    { 0x42, "Manipulated image" },
    { 0x43, "Axis of rotation corr." },
    { 0x44, "Reorientation azimuth" },
    { 0x45, "Reorientation elevation" },
    { 0x46, "Filter type" },
    { 0x47, "Filter order" },
    { 0x48, "Filter cutoff frequency" },
    { 0x49, "Reconstruction type" },
    { 0x4a, "Attenuation coefficient" },
    { 0x4b, "Associated parent file" },
    { 0x4c, "Unique patient key" },
    { 0x52, "Normalization crv file" },
    { 0x53, "Unique object key" },
    { 0x54, "This phase of VFR is" },
    { 0x55, "True color value" },
    { 0x56, "# of sets of x,y,z grps" },
    { 0x57, "Scale factor of set" },
    { 0x6d, "Date of birth" },
    { 0x6e, "Directional orientation" },
    { 0x6f, "Number of VFR studies" },
    { 0x70, "R-R low tolerance" },
    { 0x71, "R-R high tolerance" },
    { 0x72, "Prog specific results:" },

    { 0x99, NULL }
};

void printname( int , int , uint16_t v )
{
    if( v == 0x1 )
    {
        std::cout << "DATABASE PARAMETERS" << std::endl;
        std::cout << "_____" << std::endl;
    }
    else if( v == 0x27 )
    {
        std::cout << "IMAGE PARAMETERS" << std::endl;
        std::cout << "_____" << std::endl;
    }
    else if( v == 0x13 )
    {
        std::cout << "EXTRA PARAMETERS" << std::endl;
        std::cout << "_____" << std::endl;
    }
    else if( v == 0x2e )
    {
        std::cout << "*** NOT CURRENTLY USED : " << std::endl;
    }
    static const unsigned int n = sizeof( Array ) / sizeof( *Array ) - 1;
    for( unsigned int i = 0; i < n; ++i )
    {
        if( v == Array[i].key )
        {
            std::cout << /*" << std::dec << len << ", " << mult << " " << */ Array[i].name;
            std::cout << " : ";
            return;
        }
    }
    std::cout << /*"\t# " << std::dec << len << ", " << mult << */ std::hex << v << "\t: ";
}

uint16_t readint16(std::istream &is )
{
    uint16_t val;
    is.read( (char*)&val, sizeof( val ));
    return (uint16_t)((val>>8) | (val<<8));
}

uint32_t readint32(std::istream &is )
{
    uint32_t val;
    is.read( (char*)&val, sizeof( val ));
    val= ((val<<8)&0xFF00FF00) | ((val>>8)&0x00FF00FF);
}

```

```

    return (val>>16) | (val<<16);
}

float readfloat32(std::istream &is )
{
    union { uint32_t val; float f; } dual;
    dual.val = readint32(is);
    return dual.f;
}

struct el
{
    uint16_t v1;
    uint16_t v2;
    uint16_t v3;
    void read( std::istream & is )
    {
        v1 = readint16(is);
        v2 = readint16(is);
        v3 = readint16(is);
    }
    void print( std::ostream & os )
    {
        os << std::hex << v1 << "\\t" << v2 << "\\t" << v3 << std::endl;
    }
};

std::vector<el> Vel;

void readelement( std::istream & is )
{
    el e;
    e.read( is );
    Vel.push_back( e );
}

void printascii( uint16_t tag, const char *buffer, size_t len )
{
    std::ostream & os = std::cout;
    if( tag == 0x72 )
    {
        os << "\\n ";
        for(size_t i = 0; i < len; ++i)
        {
            const char &c = buffer[i];
            if( c == 0x0 ) os << "!";
            else if( c == 0x0f ) os << " ";
            else if( c == 0x17 ) os << ":";
            else if( c == 0x14 ) os << ":";
            else if( c == 0x10 ) os << ":";
            else if( c == 0x16 ) os << ":";
            else if( c == 0x08 ) os << ":";
            else if( c == 0x0b ) os << ":";
            else if( c == 0x0e ) os << ":";
            else if( c == 0x07 ) os << ":";
            else os << c;
        }
        os << " ";
    }
    else
    {
        (void)len;
        os << "" << buffer << " ";
    }
}

bool DumpADAC( std::istream & is )
{
    std::ostream &os = std::cout;

    char magic[6 + 1];
    magic[6] = 0;
    is.read( magic, 6);
    // std::cout << magic << " ";
    assert( strcmp( magic, "adac01" ) == 0 );
    int c = is.get();
    assert( c == 0 ); (void)c;
    c = is.get();
    assert( c == 'X' );

    uint16_t v;

```

```

v = readint16(is);
// std::cout << v << std::endl;
assert( v == 512 ); (void)v; // ??

int nel = 87;
for (int i = 0; i <= nel; ++i )
{
    readelement( is );
}

char buffer[512];
for( int i = 0; i <= nel; ++i )
{
    const el &e = Vel[i];
    int diff;
    if( i == nel )
    {
        diff = 2048 - e.v3;
        if( diff > 512 ) diff = 512;
    }
    else
    {
        const el &enext = Vel[i+1];
        diff = enext.v3 - e.v3;
    }
    is.seekg( e.v3, std::ios::beg );
    //std::cout << "(" << std::hex << std::setw( 2 ) << std::setfill( '0' ) << e.v1 << ")" << std::hex <<
        std::setw( 3 ) << std::setfill( '0' ) << e.v2 << " ";
    printname( diff, 0, e.v1 );
    int mult = 1;
    if( e.v2 == 0 )
    {
        is.read( buffer, diff);
        buffer[ diff ] = 0;
        printascii( e.v1, buffer, diff);
    }
    else if( e.v2 == 0x100 )
    {
        mult = diff / 2;
        assert( diff == 2 * mult );
        for ( int ii = 0; ii < mult; ++ii )
        {
            if ( ii ) os << "\\ ";
            uint16_t val = readint16(is);
            os << " " << std::dec << val << " ";
        }
    }
    else if( e.v2 == 0x200 )
    {
        assert( diff == 4 );
        uint32_t val = readint32(is);
        os << " " << std::dec << val << " ";
    }
    else if( e.v2 == 0x300 )
    {
        assert( diff == 4 );
        float val = readfloat32(is);
        os << " " << std::dec << val << " ";
    }
    else
    {
        assert( 0 );
    }
    os << std::endl;
}
return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

```

```

// (0019,1061) UN (OB) 61\64\61\63\30 # 2048,1 Ver200 ADAC Pegasys Headers
const gdcm::PrivateTag tver200adacpegasysheaders(0x0019,0x61,"ADAC_IMG");
if( !ds.FindDataElement( tver200adacpegasysheaders ) ) return 1;
const gdcm::DataElement& ver200adacpegasysheaders = ds.
    GetDataElement( tver200adacpegasysheaders );
if ( ver200adacpegasysheaders.IsEmpty() ) return 1;
const gdcm::ByteValue * bv = ver200adacpegasysheaders.
    GetByteValue();

// (0019,1021) US 1 # 2,1 Ver200 Number of ADAC Headers
// TODO

// (0019,1041) IS [2048\221184 ] # 12,1-n Ver200 ADAC Header/Image Size
if( bv->GetLength() != 2048 ) return 1;

gdcm::Element<gdcm::VR::IS, gdcm::VM::VM2> el;
const gdcm::PrivateTag tver200adacheaderimagesize(0x0019,0x41,"ADAC_IMG");
if( !ds.FindDataElement( tver200adacheaderimagesize ) ) return 1;
const gdcm::DataElement& ver200adacheaderimagesize = ds.
    GetDataElement( tver200adacheaderimagesize );
el.SetFromDataElement( ver200adacheaderimagesize );
if( el.GetValue(0) != 2048 ) return 1;

std::iostream is;
std::string dup( bv->GetPointer(), bv->GetLength() );
is.str( dup );
bool b = DumpADAC( is );
if( !b ) return 1;

return 0;
}

```

12.39 DumpExamCard.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
/*

Try to extract contents of Philips RAW storage class:

(0002,0002) UI [1.2.840.10008.5.1.4.1.1.66] # 26,1 Media Storage SOP Class UID
(0002,0003) UI [1.3.46.670589.11.17240.5.23.4.1.3012.2010032409482568018] # 56,1 Media Storage SOP
Instance UID
(0002,0010) UI [1.2.840.10008.1.2.1] # 20,1 Transfer Syntax UID
(0002,0012) UI [1.3.46.670589.11.0.0.51.4.4.1] # 30,1 Implementation Class UID
(0002,0013) SH [MR DICOM 4.1] # 12,1 Implementation Version Name

* Everything done in this code is for the sole purpose of writing interoperable
* software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
* If you believe anything in this code violates any law or any of your rights,
* please contact us (gdcm-developers@lists.sourceforge.net) so that we can
* find a solution.
*
* Everything you do with this code is at your own risk, since decompression
* algorithm was not written from specification documents.
*
* Special thanks to:
* Triplett, William T for bringing to your attention on this ExamCard stuff
*/
#include "gdcmReader.h"
#include "gdcmDataSet.h"
#include "gdcmPrivateTag.h"

```

```

#include "gdcmbase64.h"

#include <iomanip>

static bool compfn(const char *s1, const char *s2)
{
    return strcmp(s1,s2) < 0 ? true : false;
}

static const char *PDFStrings[] = { // Keep me ordered please
    "PDF_CONTROL_GEN_PARS",
    "PDF_CONTROL_PREP_PARS",
    "PDF_CONTROL_RECON_PARS",
    "PDF_CONTROL_SCAN_PARS",
    "PDF_EXAM_PARS",
    "PDF_HARDWARE_PARS",
    "PDF_PREP_PARS",
    "PDF_SPT_PARS",
};

static bool isvalidpdfstring( const char *pdfstring )
{
    assert( pdfstring );
    static const size_t n = sizeof( PDFStrings ) / sizeof( *PDFStrings );
    static const char **begin = PDFStrings;
    static const char **end = begin + n;
    return std::binary_search(begin, end, pdfstring, compfn);
}

typedef enum
{
    param_float = 0,
    param_integer,
    param_string,
    param_3, // ??
    param_enum,
} param_type;

static const char *gettypenamefromtype( int i)
{
    const char *ret = NULL;
    param_type e = (param_type)i;
    switch( e )
    {
        case param_float:
            ret = "float";
            break;
        case param_integer:
            ret = "int";
            break;
        case param_string:
            ret = "string";
            break;
        case param_3:
            ret = "??";
            break;
        case param_enum:
            ret = "enum";
            break;
    }
    assert( ret );
    return ret;
}

struct header
{
    /*
    * TODO:
    * Looks as if we could read all int*, float* and string* at once...
    */
    int32_t v1; // offset to int pointer array ?
    uint16_t nints; // number of ints (max number?)
    uint16_t v3; // always 0 ?
    int32_t v4; // offset to float pointer array ?
    uint32_t nfloats;
    int32_t v6; // offset to string pointer array ?
    uint32_t nstrings;
    int32_t v8; // always 8 ??
    uint32_t numparams;
    uint32_t getnints() const { return nints; }
    uint32_t getnfloats() const { return nfloats; }
}

```

```

uint32_t getnstrings() const { return nstrings; }
uint32_t getnparams() const { return numparams; }
void read( std::istream & is )
{
    is.read( (char*)&v1,sizeof(v1));
    is.read( (char*)&nints,sizeof(nints));
    is.read( (char*)&v3,sizeof(v3));
    assert( v3 == 0 ); // looks like this is always 0
    is.read( (char*)&v4,sizeof(v4));
    is.read( (char*)&nfloats,sizeof(nfloats));
    is.read( (char*)&v6,sizeof(v6));
    is.read( (char*)&nstrings,sizeof(nstrings));
    is.read( (char*)&v8,sizeof(v8));
    assert( v8 == 8 );
    is.read( (char*)&numparams,sizeof(numparams));
}
void print( std::ostream & os )
{
    os << v1 << ", ";
    os << nints << ", ";
    os << v3 << ", ";
    os << v4 << ", ";
    os << nfloats << ", ";
    os << v6 << ", ";
    os << nstrings << ", ";
    os << v8 << ", ";
    os << numparams << std::endl;
}
};

struct param
{
    char name[32+1];
    int8_t boolean;
    int32_t type;
    uint32_t dim;
    uint32_t v4;
    /*int32_t*/ std::streamoff offset;
    param_type gettype() const { return (param_type)type; }
    uint32_t getdim() const { return dim; }
    void read( std::istream & is )
    {
        is.read( name, 32 + 1 );
        //assert( name[32] == 0 ); // fails sometimes...
        // This is always the same issue the string can contains garbage from previous run,
        // we need to print only until the first \0 character:
        assert( strlen( name ) <= 32 ); // sigh
        is.read( (char*)&boolean,1);
        assert( boolean == 0 || boolean == 1 ); // some kind of bool...
        is.read( (char*)&type, sizeof( type ) );
        assert( gettypenamefromtype( type ) );
        is.read( (char*)&dim, sizeof( dim ) );
        is.read( (char*)&v4, sizeof( v4 ) );
        //assert( v4 == 0 ); // always 0 ? sometimes not...
        const std::streamoff cur = is.tellg();
        is.read( (char*)&offset, sizeof( offset ) );
        offset += cur;
    }

    void print( std::ostream & os ) const
    {
        os << name << ", ";
        os << (int)boolean << ", ";
        os << type << ", ";
        os << dim << ", ";
        os << v4 << ", ";
        os << offset << std::endl;
    }
}

void printvalue( std::ostream & os, std::istream & is ) const
{
    is.seekg( offset );
    switch( type )
    {
        case param_float:
        {
            os.precision(2);
            os << std::fixed;
            for( uint32_t idx = 0; idx < dim; ++idx )
            {
                if( idx ) os << ", ";
                float v;

```



```

        is.read( (char*)&v, sizeof(v) );
        os << v; // what if the string contains \0 ?
    }
}
break;
case param_integer:
{
    for( uint32_t idx = 0; idx < dim; ++idx )
    {
        if( idx ) os << ", ";
        int32_t v;
        is.read( (char*)&v, sizeof(v) );
        os << v;
    }
}
break;
case param_string:
{
    std::string v;
    v.resize( dim );
    is.read( &v[0], dim );
    os << v;
}
break;
case param_enum:
{
    for( uint32_t idx = 0; idx < dim; ++idx )
    {
        if( idx ) os << ", ";
        int32_t v;
        is.read( (char*)&v, sizeof(v) );
        os << v;
    }
}
break;
}

}
void printxml( std::ostream & os, std::istream & is ) const
{
    // <Attribute Name="CGEN_force_par_mode" Type="enum">0</Attribute>
    os << " <Attribute";
    os << " Name=\"" << name << "\"";
    os << " Type=\"" << gettypenamefromtype(type) << "\"";
    if( dim != 1 )
    {
        os << " ArraySize=\"" << dim << "\"";
    }
    os << ">";
    printvalue( os, is );
    os << "</Attribute>\n";
}
void printcsv( std::ostream & os, std::istream & is ) const
{
    os << std::setw(32) << std::left << name << ", ";
    os << std::setw(7) << std::right << gettypenamefromtype(type) << ", ";
    os << std::setw(4) << dim << ", ";
    os << " ";
    printvalue( os, is );
    os << ",\n";
}
};

static bool ProcessNested( gdcmm::DataSet & ds )
{
    /*
    TODO:
    Looks like the real length of the blob is stored here:
    (2005,1132) SQ # u/1,1 ?
    (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ] # 26,1 Private Creator
    (2005,1143) SL 3103 # 4,1 ?

    Wotsit ?
    (2005,1132) SQ # u/1,1 ?
    (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ] # 26,1 Private Creator
    (2005,1147) CS [Y ] # 2,1 ?
    */
    bool ret = false;

```

```

// (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS] # 20,1 ?
const gdcmm::PrivateTag pt0(0x2005,0x37,"Philips MR Imaging DD 002");
if( !ds.FindDataElement( pt0 ) ) return false;
const gdcmm::DataElement &de0 = ds.GetDataElement( pt0 );
if( de0.IsEmpty() ) return false;
const gdcmm::ByteValue * bv0 = de0.GetByteValue();
std::string s0( bv0->GetPointer() , bv0->GetLength() );

// (2005,1139) LO [IEEE_PDF] # 8,1 ?
const gdcmm::PrivateTag pt1(0x2005,0x39,"Philips MR Imaging DD 002");
if( !ds.FindDataElement( pt1 ) ) return false;
const gdcmm::DataElement &de1 = ds.GetDataElement( pt1 );

const gdcmm::PrivateTag pt(0x2005,0x44,"Philips MR Imaging DD 002");
if( !ds.FindDataElement( pt ) ) return false;
const gdcmm::DataElement &de = ds.GetDataElement( pt );
if( de.IsEmpty() ) return false;
const gdcmm::ByteValue * bv = de.GetByteValue();

if( s0 == "ExamCardBlob" )
{
    assert( de1.IsEmpty() );

    std::string fn = gdcmm::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".xml";
    std::ofstream out( fn.c_str() );

    // remove trailing \0
    size_t len = strlen( bv->GetPointer() );
    out.write( bv->GetPointer() , len );
    out.close();

    // Extract binary64 thingy (this is a ugly hack, better use an XML parser)
    std::string dup( bv->GetPointer(), len );
    std::string::size_type pos1 = dup.find( "<ExamCardBlob>" );
    std::string::size_type pos2 = dup.find( "</ExamCardBlob>" );

    std::string b64( bv->GetPointer() + pos1 + 14, pos2 - (pos1 + 14) );

    // ugly hack to remove \r\n from input base64:
    std::string::iterator r_pos = std::remove(b64.begin(), b64.end(), '\r');
    b64.erase(r_pos, b64.end());
    std::string::iterator n_pos = std::remove(b64.begin(), b64.end(), '\n');
    b64.erase(n_pos, b64.end());
}
if 0
{
    std::ofstream out2( "debug" );
    out2.write( b64.c_str(), b64.size() );
    out2.close();
}
#endif

const size_t dlen = gdcmm::Base64::GetDecodeLength(b64.c_str(), b64.size() );

std::string decoded;
decoded.resize( dlen );
gdcmm::Base64::Decode( &decoded[0], decoded.size(), b64.c_str(), b64.size() );

std::ofstream f64( "soap.xml" );
f64.write( decoded.c_str(), decoded.size() );
f64.close();

ret = true;
}
else
{
    if( de1.IsEmpty() ) return false;
    const gdcmm::ByteValue * bv1 = de1.GetByteValue();
    std::string s1( bv1->GetPointer() , bv1->GetLength() );

    if( s1 == "IEEE_PDF" )
    {
        // std::cout << "Len= " << bv->GetLength() << std::endl;
    }
}
if 0
{
    std::string fn = gdcmm::LOComp::Trim( s.c_str() ); // remove trailing space
    std::ofstream out( fn.c_str() );
    out.write( bv->GetPointer(), bv->GetLength() );
    out.close();
}
#endif

std::istringstream is;
std::string dup( bv->GetPointer(), bv->GetLength() );

```

```

        is.str( dup );

        header h;
        h.read( is );
    #if 0
        std::cout << s0.c_str() << std::endl;
        h.print( std::cout );
    #endif

    assert( is.tellg() == std::streampos(0x20) );
    is.seekg( 0x20 );

    std::vector< param > params;
    param p;
    for( uint32_t i = 0; i < h.getnparams(); ++i )
    {
        p.read( is );
        //p.print( std::cout );
        params.push_back( p );
    }

    std::string fn = gdc::LOComp::Trim( s0.c_str() ); // remove trailing space
    assert( !isvalidpdfstring( fn.c_str() ) );
    fn += ".csv";
    //fn += ".xml";
    std::ofstream csv( fn.c_str() );

    // let's do some bookkeeping:
    uint32_t nfloats = 0;
    uint32_t nints = 0;
    uint32_t nstrings = 0;
    for( std::vector<param>::const_iterator it = params.begin();
        it != params.end(); ++it )
    {
        param_type type = it->gettype();
        switch( type )
        {
            case param_float:
                nfloats += it->getdim();
                break;
            case param_integer:
                nints += it->getdim();
                break;
            case param_string:
                nstrings += it->getdim();
                break;
            default:
                ;
        }
    }
    #if 0
        std::cout << "Stats:" << std::endl;
        std::cout << "nfloats:" << nfloats << std::endl;
        std::cout << "nints:" << nints << std::endl;
        std::cout << "nstrings:" << nstrings << std::endl;
    #endif
    assert( h.getnints() >= nints );
    assert( h.getnfloats() >= nfloats );
    assert( h.getnstrings() >= nstrings );

    for( uint32_t i = 0; i < h.getnparams(); ++i )
    {
        params[i].printcsv( csv, is );
        //params[i].printxml( csv, is );
    }
    csv.close();
    ret = true;
}
else if( s1 == "ASCII " )
{
    #if 0
        std::cerr << "ASCII is not handled" << std::endl;
        std::string fn = gdc::LOComp::Trim( s0.c_str() ); // remove trailing space
        fn += ".asc";
        std::ofstream out( fn.c_str() );
        out.write( bv->GetPointer() , bv->GetLength() );
        out.close();
    #endif
    std::string fn = gdc::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".sin";
    std::ofstream sin( fn.c_str() );

```

```

const char *beg = bv->GetPointer();
const char *end = beg + bv->GetLength();
assert( *beg == 0 );
const char *p = beg + 1; // skip first \0
size_t prev = 0;
for( ; p != end; ++p )
{
    if( *p == 0 )
    {
        const char *s = beg + prev + 1;
        if( *s )
        {
            sin << s << std::endl;
        }
        else
        {
            sin << std::endl;
        }
        prev = p - beg;
    }
}
sin.close();

ret = true;
}
else if( sl == "BINARY" )
{
    std::cerr << "BINARY is not handled" << std::endl;
    std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".bin";
    std::ofstream out( fn.c_str() );
    //out.write( bv->GetPointer() + 512, bv->GetLength() - 512);
    out.write( bv->GetPointer() , bv->GetLength() );
    out.close();

#ifdef 0
    int array[ 128 ];
    memcpy( array, bv->GetPointer(), 512 );
    for( int i = 0; i < 14; ++i )
    {
        std::cout << array[i] << std::endl;
    }
#endif

    ret = true;
}
// else -> ret == false
assert( ret );

return ret;
}

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
    /*
(2005,1132) SQ                                     # u/1,1 ?
(fffe,e000) na (Item with undefined length)
(2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
(2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]          # 20,1 ?
(2005,1138) PN (LO) (no value)                     # 0,1 ?
(2005,1139) PN (LO) [IEEE_PDF]                     # 8,1 ?
(2005,1140) PN (LO) (no value)                     # 0,1 ?
(2005,1141) PN (LO) (no value)                     # 0,1 ?
(2005,1143) SL 3103                                # 4,1 ?
(2005,1144) OW
66\05\00\00\3b\01\00\00\4a\0a\00\00\0e\00\00\00\7a\0a\00\00\95\01\00\00\08\00\00\00\1b\00\00\00\43\47\45\4e\5f\75\73\65\72\
# 3104,1 ?
(2005,1147) CS [Y ]                                # 2,1 ?
(fffe,e00d)

```

```

*/
const gdcm::PrivateTag pt(0x2005,0x32,"Philips MR Imaging DD 002");
if( !ds.FindDataElement( pt ) ) return 1;
const gdcm::DataElement &de = ds.GetDataElement( pt );
if( de.IsEmpty() ) return 1;

gdcm::SequenceOfItems *sqi = de.GetValueAsSQ();
if ( !sqi ) return 1;
gdcm::SequenceOfItems::SizeType s = sqi->
  GetNumberOfItems();
for( gdcm::SequenceOfItems::SizeType i = 1; i <= s; ++i )
{
  gdcm::Item &item = sqi->GetItem(i);

  gdcm::DataSet &nestedds = item.GetNestedDataSet();

  if( !ProcessNested( nestedds ) ) return 1;
}

return 0;
}

```

12.40 DumpGEMSMovieGroup.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

bool PrintNameValueMapping( gdcm::SequenceOfItems *sqi_values,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  using namespace gdcm;
  // prepare names mapping:
  typedef VRTToType<VR::UL>::Type UL;
  std::map< UL, std::string > names;
  assert( sqi_names );
  assert( sqi_values );
  SequenceOfItems::SizeType s = sqi_names->
    GetNumberOfItems();
  PrivateTag tindex(0x7fe1,0x71,"GEMS_Ultrasound_MovieGroup_001");
  PrivateTag tname (0x7fe1,0x72,"GEMS_Ultrasound_MovieGroup_001");
  // First sequence contains all possible names (this is a dict)
  for( SequenceOfItems::SizeType i = 1; i <= s; ++i )
  {
    const Item & item = sqi_names->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex )
        || !ds.FindDataElement( tname ) )
    {
      assert( 0 );
      return false;
    }
    const DataElement & index = ds.GetDataElement( tindex );
    const DataElement & name = ds.GetDataElement( tname );

```

```

    if( index.IsEmpty() || name.IsEmpty() )
    {
        assert( 0 );
        return false;
    }
    gdcmm::Element<VR::UL, VM::VM1> el1;
    el1.SetFromDataElement( index );

    gdcmm::Element<VR::LO, VM::VM1> el2;
    el2.SetFromDataElement( name );
    // std::cout << el1.GetValue() << " " << el2.GetValue() << std::endl;
    names.insert( std::make_pair( el1.GetValue(), el2.GetValue() ) );
}

SequenceOfItems::SizeType s2 = sqi_values->
    GetNumberOfItems();
assert( s2 <= s );
PrivateTag tindex2(0x7fe1,0x48,"GEMS_Ultrasound_MovieGroup_001");
for( SequenceOfItems::SizeType i = 1; i <= s2; ++i )
{
    const Item & item = sqi_values->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex2 ) )
    {
        assert( 0 );
        return false;
    }
    const DataElement & index2 = ds.GetDataElement( tindex2 );
    if( index2.IsEmpty() )
    {
        assert( 0 );
        return false;
    }
    gdcmm::Element<VR::FD, VM::VM1_2> el1;
    el1.SetFromDataElement( index2 );

    UL copy = (UL)el1.GetValue();
    #if 1
    std::cout << indent;
    std::cout << " ( " << names[ copy ];
    #endif
    // (7fe1,1052) FD 1560 # 8,1 ?
    // (7fe1,1057) LT [MscSkelSup] # 10,1 ?
    //PrivateTag tvalue(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001");
    PrivateTag tvalueint(0x7fe1,0x49,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluefloat1(0x7fe1,0x51,"GEMS_Ultrasound_MovieGroup_001"); // FL
    PrivateTag tvaluefloat(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001"); // FD
    PrivateTag tvalueul(0x7fe1,0x53,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluesl(0x7fe1,0x54,"GEMS_Ultrasound_MovieGroup_001"); // SL
    PrivateTag tvalueob(0x7fe1,0x55,"GEMS_Ultrasound_MovieGroup_001"); // OB
    PrivateTag tvaluetext(0x7fe1,0x57,"GEMS_Ultrasound_MovieGroup_001"); // LT
    PrivateTag tvaluefd(0x7fe1,0x77,"GEMS_Ultrasound_MovieGroup_001"); // FD / 1-N
    PrivateTag tvaluesl3(0x7fe1,0x79,"GEMS_Ultrasound_MovieGroup_001"); // SL / 1-N
    PrivateTag tvaluesl2(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001"); // SL ??
    PrivateTag tvaluefdl(0x7fe1,0x87,"GEMS_Ultrasound_MovieGroup_001"); // FD / 1-N
    PrivateTag tvaluefloat2(0x7fe1,0x88,"GEMS_Ultrasound_MovieGroup_001"); // FD ??
    #if 1
    std::cout << " ) = ";
    #endif
    if( ds.FindDataElement( tvalueint ) )
    {
        const DataElement & value = ds.GetDataElement( tvalueint );
        gdcmm::Element<VR::UL,VM::VM1> el2;
        el2.SetFromDataElement( value );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvaluefloat1 ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluefloat1 );
        gdcmm::Element<VR::FL,VM::VM1> el2;
        el2.SetFromDataElement( value );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvaluefloat ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluefloat );
        gdcmm::Element<VR::FD,VM::VM1> el2;
        el2.SetFromDataElement( value );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvaluesl ) )

```

```

    {
        const DataElement & value = ds.GetDataElement( tvalues1 );
        gdcmm::Element<VR::SL,VM::VM1> el2;
        el2.SetFromDataElement( value );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvalueul ) )
    {
        const DataElement & value = ds.GetDataElement( tvalueul );
        gdcmm::Element<VR::UL,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        assert( el2.GetLength() == 1 );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvalueob ) )
    {
        const DataElement & value = ds.GetDataElement( tvalueob );
        gdcmm::Element<VR::SL,VM::VM1> el2;
        // el2.SetFromDataElement( value );
        // std::cout << el2.GetValue() << std::endl;
        std::cout << value << std::endl;
    }
    else if( ds.FindDataElement( tvaluetext ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluetext );
        gdcmm::Element<VR::LT,VM::VM1> el2;
        el2.SetFromDataElement( value );
        std::cout << el2.GetValue() << std::endl;
    }
    else if( ds.FindDataElement( tvaluesl2 ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluesl2 );
        gdcmm::Element<VR::SL,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        el2.Print( std::cout );
        assert( el2.GetLength() == 4 );
        std::cout << std::endl;
    }
    else if( ds.FindDataElement( tvaluesl3 ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluesl3 );
        gdcmm::Element<VR::SL,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        el2.Print( std::cout );
        // assert( el2.GetLength() == 4 );
        std::cout << std::endl;
    }
    else if( ds.FindDataElement( tvaluefd ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluefd );
        gdcmm::Element<VR::FD,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        el2.Print( std::cout );
        // assert( el2.GetLength() == 4 || el2.GetLength() == 3 || el2.GetLength() == 8 );
        std::cout << std::endl;
    }
    else if( ds.FindDataElement( tvaluefloat2 ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluefloat2 );
        gdcmm::Element<VR::FD,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        el2.Print( std::cout );
        assert( el2.GetLength() == 2 );
        std::cout << std::endl;
    }
    else if( ds.FindDataElement( tvaluefd1 ) )
    {
        const DataElement & value = ds.GetDataElement( tvaluefd1 );
        gdcmm::Element<VR::FD,VM::VM1_n> el2;
        el2.SetFromDataElement( value );
        el2.Print( std::cout );
        assert( el2.GetLength() == 4 );
        std::cout << std::endl;
    }
    else
    {
        std::cout << "(no value)" << std::endl;
        // std::cout << ds << std::endl;
        assert( ds.Size() == 2 );
    }
}

```

```

    return true;
}

bool PrintNameValueMapping2( gdcm::PrivateTag const & privtag, const
    gdcm::DataSet & ds ,
    gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
    if( !ds.FindDataElement( privtag ) ) return 1;
    const gdcm::DataElement& seq_values = ds.GetDataElement( privtag );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = seq_values.
        GetValueAsSQ();

    return PrintNameValueMapping( sqi, sqi_names, indent);
}

bool PrintNameValueMapping3( gdcm::PrivateTag const & privtag1,
    gdcm::PrivateTag const & privtag2, const gdcm::DataSet & ds ,
    gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
    if( !ds.FindDataElement( privtag1 ) )
    {
        assert( 0 );
        return false;
    }
    const gdcm::DataElement& values10name = ds.GetDataElement( privtag1 );
    gdcm::Element<gdcm::VR::LO, gdcm::VM::VM1> el;
    el.SetFromDataElement( values10name );
    std::cout << std::endl;
    std::cout << " <" << el.GetValue().c_str() << ">" << std::endl;

    return PrintNameValueMapping2( privtag2, ds, sqi_names, indent);
}

bool print73( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict
    , std::string const & indent )
{
    const gdcm::PrivateTag tseq_values73(0x7fel, 0x73, "GEMS_Ultrasound_MovieGroup_001");
    if( !ds10.FindDataElement( tseq_values73 ) )
    {
        std::cout << indent << "No group 73" << std::endl;
        return false;
    }
    const gdcm::DataElement& seq_values73 = ds10.GetDataElement( tseq_values73
    );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values73 =
        seq_values73.GetValueAsSQ();

    size_t ni3 = sqi_values73->GetNumberOfItems();
    for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
        gdcm::Item &item_73 = sqi_values73->GetItem(i3);
        gdcm::DataSet &ds73 = item_73.GetNestedDataSet();
        assert( ds73.Size() == 3 );

        const gdcm::PrivateTag tseq_values74name(0x7fel, 0x74, "GEMS_Ultrasound_MovieGroup_001");
        const gdcm::PrivateTag tseq_values75(0x7fel, 0x75, "GEMS_Ultrasound_MovieGroup_001");
        PrintNameValueMapping3( tseq_values74name, tseq_values75, ds73, sqi_dict, indent);
        std::cout << std::endl;
    }
    return true;
}

bool print36( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict
    , std::string const & indent )
{
    (void)sqi_dict;
    const gdcm::PrivateTag tseq_values36(0x7fel, 0x36, "GEMS_Ultrasound_MovieGroup_001");
    if( !ds10.FindDataElement( tseq_values36 ) )
    {
        std::cout << indent << "No group 36" << std::endl;
        return false;
    }
    const gdcm::DataElement& seq_values36 = ds10.GetDataElement( tseq_values36
    );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values36 =
        seq_values36.GetValueAsSQ();

    size_t ni3 = sqi_values36->GetNumberOfItems();
    assert( ni3 == 1 );
    for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {

```



```

gdcmm::Item &item_36 = sqi_values36->GetItem(i3);
gdcmm::DataSet &ds36 = item_36.GetNestedDataSet();
assert( ds36.Size() == 4 );

// (7fe1,1037) UL 47 # 4,1 US MovieGroup Number of Frames
// (7fe1,1043) OB 40\00\1c\c4\67\2f\0b\11\40 # 376,1 ?
// (7fe1,1060) OB 4e\4e\49\4f\4e\47\46\43\2a # 4562714,1 US MovieGroup Image Data
//
const gdcmm::PrivateTag timagedata(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");
assert( ds36.FindDataElement( timagedata ) );
gdcmm::DataElement const & imagedata = ds36.GetDataElement( timagedata );

const gdcmm::ByteValue * bv = imagedata.GetByteValue();
assert( bv );
static int c = 0;
std::stringstream ss;
ss << "/tmp/debug";
ss << c++;
std::ofstream os( ss.str().c_str(), std::ios::binary );
os.write( bv->GetPointer(), bv->GetLength() );
os.close();

//const gdcmm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
//PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
//std::cout << std::endl;
}
return true;
}

bool print83( gdcmm::DataSet const & ds10, gdcmm::SequenceOfItems *sqi_dict
, std::string const & indent )
{
const gdcmm::PrivateTag tseq_values83(0x7fe1,0x83,"GEMS_Ultrasound_MovieGroup_001");
if( !ds10.FindDataElement( tseq_values83 ) )
{
std::cout << indent << "No group 83" << std::endl;
return false;
}
const gdcmm::DataElement& seq_values83 = ds10.GetDataElement( tseq_values83
);
gdcmm::SmartPointer<gdcmm::SequenceOfItems> sqi_values83 =
seq_values83.GetValueAssQ();

size_t ni3 = sqi_values83->GetNumberOfItems();
for( size_t i3 = 1; i3 <= ni3; ++i3 )
{
gdcmm::Item &item_83 = sqi_values83->GetItem(i3);
gdcmm::DataSet &ds83 = item_83.GetNestedDataSet();
assert( ds83.Size() == 3 );

const gdcmm::PrivateTag tseq_values84name(0x7fe1,0x84,"GEMS_Ultrasound_MovieGroup_001");
const gdcmm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
std::cout << std::endl;
}
return true;
}

bool PrintNameValueMapping4( gdcmm::PrivateTag const & privtag0, const
gdcmm::DataSet & subds, gdcmm::PrivateTag const & privtag1,
gdcmm::PrivateTag const & privtag2,
gdcmm::SequenceOfItems *sqi_dict, std::string const & indent )
{
(void)indent;
if( !subds.FindDataElement( privtag0 ) )
{
assert( 0 );
return 1;
}
const gdcmm::DataElement& seq_values10 = subds.GetDataElement( privtag0 );
gdcmm::SmartPointer<gdcmm::SequenceOfItems> sqi_values10 =
seq_values10.GetValueAssQ();

size_t nil = sqi_values10->GetNumberOfItems();
// assert( nil == 1 );
for( size_t i1 = 1; i1 <= nil; ++i1 )
{
gdcmm::Item &item_10 = sqi_values10->GetItem(i1);
gdcmm::DataSet &ds10 = item_10.GetNestedDataSet();
assert( ds10.Size() == 2 + 3 );
// (7fe1,0010)
// (7fe1,1012)

```

```

// (7fe1,1018)
// (7fe1,1020)
// (7fe1,1083)

PrintNameValueMapping3( privtag1, privtag2, ds10, sqi_dict, " " );
std::cout << std::endl;

const gdcm::PrivateTag tseq_values20(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");
if( !ds10.FindDataElement( tseq_values20 ) )
{
    assert( 0 );
    return 1;
}
const gdcm::DataElement& seq_values20 = ds10.GetDataElement(
    tseq_values20 );
gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values20 =
    seq_values20.GetValueAsSQ();

size_t ni2 = sqi_values20->GetNumberOfItems();
//assert( ni == 1 );
for( size_t i2 = 1; i2 <= ni2; ++i2 )
{
    gdcm::Item &item_20 = sqi_values20->GetItem(i2);
    gdcm::DataSet &ds20 = item_20.GetNestedDataSet();
    size_t count = ds20.Size(); (void)count;
    assert( ds20.Size() == 2 + 3 || ds20.Size() == 2 + 2 );
    // (7fe1,0010)
    // (7fe1,1024)
    // (7fe1,1026)
    // (7fe1,1036)
    // (7fe1,103a)
    // (7fe1,1083) (*)

    const gdcm::PrivateTag tseq_values20name(0x7fe1,0x24,"GEMS_Ultrasound_MovieGroup_001"
    );
    const gdcm::PrivateTag tseq_values26(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values20name, tseq_values26, ds20, sqi_dict, " " );
    std::cout << std::endl;

    print36(ds20, sqi_dict, " ");
    print83(ds20, sqi_dict, " ");
}

print83(ds10, sqi_dict, " ");
}
return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    using namespace gdcm;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() ) return 1;

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();
    const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

    if( !ds.FindDataElement( tseq ) ) return 1;
    const DataElement& seq = ds.GetDataElement( tseq );

    SmartPointer<SequenceOfItems> sqi = seq.
        GetValueAsSQ();
    assert( sqi->GetNumberOfItems() == 1 );

    Item &item = sqi->GetItem(1);
    DataSet &subds = item.GetNestedDataSet();

    const PrivateTag tseq_dict(0x7fe1,0x70,"GEMS_Ultrasound_MovieGroup_001");
    if( !subds.FindDataElement( tseq_dict ) ) return 1;
    const DataElement& seq_dict = subds.GetDataElement( tseq_dict );
    SmartPointer<SequenceOfItems> sqi_dict = seq_dict.
        GetValueAsSQ();

    const PrivateTag tseq_values8(0x7fe1,0x8,"GEMS_Ultrasound_MovieGroup_001");
    if( !subds.FindDataElement( tseq_values8 ) ) return 1;
    const DataElement& seq_values8 = subds.GetDataElement( tseq_values8 );
    SmartPointer<SequenceOfItems> sqi_values8 = seq_values8.

```

```

        GetValueAsSQ();

const PrivateTag tseq_values8name(0x7fe1,0x2,"GEMS_Ultrasound_MovieGroup_001");
if( !subds.FindDataElement( tseq_values8name ) ) return 1;
const DataElement& values8name = subds.GetDataElement( tseq_values8name );
{
    Element<VR::LO,VM::VM1> el;
    el.SetFromDataElement( values8name );
    std::cout << el.GetValue() << std::endl;
}
size_t count = subds.Size(); (void)count;
assert( subds.Size() == 3 + 2 + 1 || subds.Size() == 3 + 2 + 2);

// (7fe1,0010) # 30,1 Private Creator
// (7fe1,1002) # 8,1 US MovieGroup Value 0008 Name
// (7fe1,1003) # 4,1 ?
// (7fe1,1008) # 8140,1 US MovieGroup Value 0008 Sequence
// (7fe1,1010) # 1372196,1 ?
// (7fe1,1070) # 33684,1 US MovieGroup Dict
// (7fe1,1073) (*)
PrintNameValueMapping( sqi_values8, sqi_dict, " ");

const PrivateTag tseq_values10(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");
const PrivateTag tseq_values10name(0x7fe1,0x12,"GEMS_Ultrasound_MovieGroup_001");
const PrivateTag tseq_values18(0x7fe1,0x18,"GEMS_Ultrasound_MovieGroup_001");
PrintNameValueMapping4( tseq_values10, subds, tseq_values10name, tseq_values18, sqi_dict, " ");

print73( subds, sqi_dict, " " );

#if 0
gdcm::DataSet::ConstIterator it = subds.Begin();
for( ; it != subds.End(); ++it )
{
    const gdcm::DataElement &de = *it;
    std::cout << de.GetTag() << std::endl;
}
#endif

return 0;
}

```

12.41 DumpImageHeaderInfo.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * Dump TOSHIBA MDW HEADER / Image Header Info
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct element
{
    std::istream & read( std::istream & is );
}

```



```

#endif
    return is;
}

static bool DumpImageHeaderInfo( std::istream & is, size_t reflen )
{
    // TUSNONIMAGESTAM (5176)
    // TUSREMEASUREMEN (1352)
    // TUSBSINGLELAYOU (16)
    // TUSCLIPPARAMETE (104)

    element el;
    while( el.read( is ) )
    {
    }
    //size_t pos = is.tellg();
    //assert( pos == reflen );
    (void)reflen;

    return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    const gdcm::PrivateTag timageheaderinfo(0x0029,0x10,"TOSHIBA MDW HEADER");
    if( !ds.FindDataElement( timageheaderinfo ) ) return 1;
    const gdcm::DataElement& imageheaderinfo = ds.GetDataElement(
        timageheaderinfo );
    if ( imageheaderinfo.IsEmpty() ) return 1;
    const gdcm::ByteValue * bv = imageheaderinfo.GetByteValue();

    std::ostringstream is;
    std::string dup( bv->GetPointer(), bv->GetLength() );
    is.str( dup );
    bool b = DumpImageHeaderInfo( is, bv->GetLength() );
    if( !b ) return 1;

#ifdef 0
    const float d1 = 0.00416666668839752674; // 89 88 88 3B // 0x44c
    //const float d1 = 0.053231674455417881;
    const float d2 = 0.10828025639057159; // 0A C2 DD 3D // 0x1ac
    //const float d1 = 0.17869562069272813;
    //const unsigned int d2 = 4294967280;
    const float d3 = 0.10828025639057159; // 0A C2 DD 3D // 0x15c
    const int32_t d4 = 134;
    const uint32_t d5 = 1153476;
    std::ofstream t("/tmp/debug", std::ios::binary );
    //t.write( (char*)&d0, sizeof( d0 ) );
    t.write( (char*)&d1, sizeof( d1 ) );
    t.write( (char*)&d2, sizeof( d2 ) );
    t.write( (char*)&d3, sizeof( d3 ) );
    t.write( (char*)&d4, sizeof( d4 ) );
    t.write( (char*)&d5, sizeof( d5 ) );
    t.close();
#endif
    return 0;
}

```

12.42 DumpPhilipsECHO.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

```

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```

=====*/
#include "gdcmReader.h"
#include "gdcmDeflateStream.h"
#include "gdcm_zlib.h"

/*
 * This example extract the ZLIB compressed US image from a Philips private tag
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Usage:
 *
 * $ DumpPhilipsECHO private_us.dcm raw_us_img.raw
 * $ gdcming --sop-class-uid 1.2.840.10008.5.1.4.1.1.3.1 --size 608,427,88 raw_us_img.raw raw_us_img.dcm
 */

// header:
struct hframe
{
  uint32_t val0; // 800 increment ?
  uint16_t val1[2];
  uint16_t val2[2];
  uint32_t imgsize;

  bool operator==(const hframe &h) const
  {
    return val0 == h.val0 &&
      val1[0] == h.val1[0] &&
      val1[1] == h.val1[1] &&
      val2[0] == h.val2[0] &&
      val2[1] == h.val2[1] &&
      imgsize == h.imgsize;
  }
};

static bool ProcessDeflate( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crdbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
  {
    std::iostream is;
    is.str( std::string( crdbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
    {
      is.read( (char*)&header, sizeof( header ) );
      #if 0
        std::cout << header.val0
          << " " << header.val1[0]
          << " " << header.val1[1]
          << " " << header.val2[0]
          << " " << header.val2[1]
          << " " << header.imgsize << std::endl;
      #endif
      crcheaders.push_back( header );
    }
  }

  std::iostream is;
  is.str( std::string( buf, len ) );

  std::streamoff totalsize;

```

```

is.read( (char*)&totalsize, sizeof( totalsize ));
assert( totalsize == len );

uint32_t nframes;
is.read( (char*)&nframes, sizeof( nframes ));
assert( nframes == (uint32_t)nslices );

std::vector< std::streamoff > offsets;
offsets.reserve( nframes );
for( uint32_t frame = 0; frame < nframes ; ++frame )
{
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
}

std::vector<char> outbuf;

const int size[2] = { 608, 427 }; // FIXME: where does it comes from ?
std::stringstream ss;
ss << outfilename;
ss << ' ';
//ss << crchheaders[0].imgsize; // FIXME: Assume all header are identical !
ss << size[0];
ss << ' ';
ss << size[1];
ss << ' ';
ss << nframes;
ss << ".raw";
std::ofstream os( ss.str().c_str(), std::ios::binary );

assert( buf_size >= size[0] * size[1] );
outbuf.resize( buf_size );

hframe header;
//uint32_t prev = 0;
for( unsigned int r = 0; r < nframes; ++r )
{
    is.read( (char*)&header, sizeof( header ));

    assert( header == crchheaders[r] );
    assert( header.val1[0] == 2000 );
    assert( header.val1[1] == 3 );
    assert( header.val2[0] == 1 );
    assert( header.val2[1] == 1280 );

    uLongf destLen = buf_size; // >= 608,427
    Bytef *dest = (Bytef*)&outbuf[0];
    assert( is.tellg() == offsets[r] + 16 );
    const Bytef *source = (Bytef*)buf + offsets[r] + 16;
    uLong sourceLen;
    if( r + 1 == nframes )
        sourceLen = totalsize - offsets[r] - 16;
    else
        sourceLen = offsets[r+1] - offsets[r] - 16;
    // FIXME: in-memory decompression:
    int ret = uncompress( dest, &destLen, source, sourceLen);
    assert( ret == Z_OK ); (void)ret;
    assert( destLen >= (uLongf)size[0] * size[1] ); // 16bytes padding ?
    assert( header.imgsize == (uint32_t)size[0] * size[1] );
    //os.write( &outbuf[0], outbuf.size() );
    os.write( &outbuf[0], size[0] * size[1] );

    // skip data:
    is.seekg( sourceLen, std::ios::cur );
}
os.close();
assert( is.tellg() == totalsize );

return true;
}

static bool ProcessNone( const char *outfilename, const int nslices, const
    int buf_size, const char *buf, const std::streampos len,
    const char *crdbuf, const size_t crclen )
{
    std::vector< hframe > crchheaders;
    crchheaders.reserve( nslices );
    {
        std::istringstream is;
        is.str( std::string( crdbuf, crclen ) );

```

```

    hframe header;
    for( int r = 0; r < nslices; ++r )
    {
        is.read( (char*)&header, sizeof( header ));
    }
    if 0
    {
        std::cout << header.val0
            << " " << header.val1[0]
            << " " << header.val1[1]
            << " " << header.val2[0]
            << " " << header.val2[1]
            << " " << header.imgsize << std::endl;
    }
    #endif
    crchheaders.push_back( header );
}

std::istringstream is;
is.str( std::string( buf, len ) );

std::streampos totalsize;
is.read( (char*)&totalsize, sizeof( totalsize ));
assert( totalsize == len );

uint32_t nframes;
is.read( (char*)&nframes, sizeof( nframes ));
assert( nframes == (uint32_t)nslices );

std::vector< uint32_t > offsets;
offsets.reserve( nframes );
for( uint32_t frame = 0; frame < nframes ; ++frame )
{
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    //std::cout << offset << std::endl;
}

std::vector<char> outbuf;
// No idea how to present the data, I'll just append everything, and present it as 2D
std::stringstream ss;
ss << outfilename;
ss << "_";
ss << crchheaders[0].imgsize; // FIXME: Assume all header are identical !
ss << "_";
ss << nframes;
ss << ".raw";
std::ofstream os( ss.str().c_str(), std::ios::binary );
outbuf.resize( buf_size ); // overallocated + 16
char *buffer = &outbuf[0];

hframe header;
for( unsigned int r = 0; r < nframes; ++r )
{
    is.read( (char*)&header, sizeof( header ));
}
if 0
{
    std::cout << header.val0
        << " " << header.val1[0]
        << " " << header.val1[1]
        << " " << header.val2[0]
        << " " << header.val2[1]
        << " " << header.imgsize << std::endl;
}
#endif
assert( header == crchheaders[r] );

is.read( buffer, buf_size - 16 );
os.write( buffer, header.imgsize );
}
assert( is.tellg() == totalsize );
os.close();

return true;
}

#ifndef NDEBUG
static const char * const UDM_USD_DATATYPE_STRINGS[] = {
    "UDM_USD_DATATYPE_DIN_2D_ECHO",
    "UDM_USD_DATATYPE_DIN_2D_ECHO_CONTRAST",
    "UDM_USD_DATATYPE_DIN_DOPPLER_CW",
    "UDM_USD_DATATYPE_DIN_DOPPLER_PW",
    "UDM_USD_DATATYPE_DIN_DOPPLER_PW_TDI",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_FLOW",

```



```

    "UDM_USD_DATATYPE_DIN_2D_COLOR_PMI",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_CPA",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_TDI",
    "UDM_USD_DATATYPE_DIN_MMODE_ECHO",
    "UDM_USD_DATATYPE_DIN_MMODE_COLOR",
    "UDM_USD_DATATYPE_DIN_MMODE_COLOR_TDI",
    "UDM_USD_DATATYPE_DIN_PARAM_BLOCK",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_VELOCITY",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_POWER",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_VARIANCE",
    "UDM_USD_DATATYPE_DIN_DOPPLER_AUDIO",
    "UDM_USD_DATATYPE_DIN_DOPPLER_HIGHQ",
    "UDM_USD_DATATYPE_DIN_PHYSIO",
    "UDM_USD_DATATYPE_DIN_2D_COLOR_STRAIN",
    "UDM_USD_DATATYPE_DIN_COMPOSITE_RGB",
    "UDM_USD_DATATYPE_DIN_XFOV_REALTIME_GRAPHICS",
    "UDM_USD_DATATYPE_DIN_XFOV_MOSAIC",
    "UDM_USD_DATATYPE_DIN_COMPOSITE_R",
    "UDM_USD_DATATYPE_DIN_COMPOSITE_G",
    "UDM_USD_DATATYPE_DIN_COMPOSITE_B",
    "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VELOCITY",
    "UDM_USD_DATATYPE_DIN_MMODE_COLOR_POWER",
    "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VARIANCE",
    "UDM_USD_DATATYPE_DIN_2D_ELASTO",
};

static inline bool is_valid( const char * datatype_str )
{
    static const int n = sizeof( UDM_USD_DATATYPE_STRINGS ) / sizeof( *UDM_USD_DATATYPE_STRINGS );
    bool found = false;
    if( datatype_str )
    {
        for( int i = 0; !found && i < n; ++i )
        {
            found = strcmp( datatype_str, UDM_USD_DATATYPE_STRINGS[i] ) == 0;
        }
    }
    return found;
}
#endif

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    using namespace gdcm;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() ) return 1;

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds1 = file.GetDataSet();

    const PrivateTag tseq1(0x200d,0x3cf8,"Philips US Imaging DD 045");
    if( !ds1.FindDataElement( tseq1 ) ) return 1;
    const DataElement& seq1 = ds1.GetDataElement( tseq1 );

    SmartPointer<SequenceOfItems> sq1 = seq1.
        GetValueAsSQ();
    assert( sq1->GetNumberOfItems() >= 1 );

    const size_t nitems = sq1->GetNumberOfItems();
    for( size_t item = 1; item < nitems; ++item )
    {
        Item &item1 = sq1->GetItem(item);
        DataSet &ds2 = item1.GetNestedDataSet();

        // (200d,300d) IO 28 UDM_USD_DATATYPE_DIN_2D_ECHO
        const PrivateTag tdatatype(0x200d,0x300d,"Philips US Imaging DD 033");
        if( !ds2.FindDataElement( tdatatype ) ) return 1;
        const DataElement& datatype = ds2.GetDataElement( tdatatype );
        const ByteValue *bvdatatype = datatype.GetByteValue();
        if( !bvdatatype ) return 1;

        const PrivateTag tseq2(0x200d,0x3cf1,"Philips US Imaging DD 045");
        if( !ds2.FindDataElement( tseq2 ) ) return 1;
        const DataElement& seq2 = ds2.GetDataElement( tseq2 );

        SmartPointer<SequenceOfItems> sqi2 = seq2.
            GetValueAsSQ();
        assert( sqi2->GetNumberOfItems() >= 1 );
    }
}

```

```

// FIXME: what if not in first Item ?
assert( sqi2->GetNumberOfItems() == 1 );
Item &item2 = sqi2->GetItem(1);
DataSet &ds3 = item2.GetNestedDataSet();

const PrivateTag tzlib(0x200d,0x3cfa,"Philips US Imaging DD 045");
if( !ds3.FindDataElement( tzlib ) ) return 1;
const DataElement& zlib = ds3.GetDataElement( tzlib );

const ByteValue *bv = zlib.GetByteValue();
if( !bv ) return 1;
if( bv->GetLength() != 4 ) return 1;

// (200d,3010) IS 2 88
const PrivateTag tnslices(0x200d,0x3010,"Philips US Imaging DD 033");
if( !ds3.FindDataElement( tnslices ) ) return 1;
const DataElement& nslices = ds3.GetDataElement( tnslices );
Element<VR::IS,VM::VM1> elnslices;
elnslices.SetFromDataElement( nslices );
const int nslicesref = elnslices.GetValue();
assert( nslicesref >= 0 );
// (200d,3011) IS 6 259648
const PrivateTag tzalloc(0x200d,0x3011,"Philips US Imaging DD 033");
if( !ds3.FindDataElement( tzalloc ) ) return 1;
const DataElement& zalloc = ds3.GetDataElement( tzalloc );
Element<VR::IS,VM::VM1> elzalloc;
elzalloc.SetFromDataElement( zalloc );
const int zallocref = elzalloc.GetValue();
assert( zallocref >= 0 );
// (200d,3021) IS 2 0
const PrivateTag tzzero(0x200d,0x3021,"Philips US Imaging DD 033");
if( !ds3.FindDataElement( tzzero ) ) return 1;
const DataElement& zero = ds3.GetDataElement( tzzero );
Element<VR::IS,VM::VM1> elzero;
elzero.SetFromDataElement( zero );
const int zerocref = elzero.GetValue();
assert( zerocref == 0 ); (void)zerocref;

// (200d,3cf3) OB
const PrivateTag tdeflate(0x200d,0x3cf3,"Philips US Imaging DD 045");
if( !ds3.FindDataElement( tdeflate ) ) return 1;
const DataElement& deflate = ds3.GetDataElement( tdeflate );
const ByteValue *bv2 = deflate.GetByteValue();

// (200d,3cfb) OB
const PrivateTag tcrc(0x200d,0x3cfb,"Philips US Imaging DD 045");
if( !ds3.FindDataElement( tcrc ) ) return 1;
const DataElement& crc = ds3.GetDataElement( tcrc );
const ByteValue *bv3 = crc.GetByteValue();

std::string outfile = std::string( bvdatatype->GetPointer(), bvdatatype->
    GetLength() );
outfile = LOComp::Trim( outfile.c_str() );
const char *outfilename = outfile.c_str();
assert( is_valid(outfilename) );
if( bv2 )
{
    assert( bv3 );
    assert( zallocref > 0 );
    assert( nslicesref > 0 );
    std::cout << ds2 << std::endl;

    if( strcmp(bv->GetPointer(), "ZLib", 4) == 0 )
    {
        if( !ProcessDeflate( outfile, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->
            GetLength() ) )
        {
            return 1;
        }
    }
    else if( strcmp(bv->GetPointer(), "None", 4) == 0 )
    {
        if( !ProcessNone( outfile, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->
            GetLength() ) )
        {
            return 1;
        }
    }
}

```

```

        else
        {
            std::string str( bv->GetPointer(), bv->GetLength() );
            std::cerr << "Unhandled: " << str << std::endl;
            return 1;
        }
    }
}

return 0;
}

```

12.43 DumpToshibaDTI.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
/*
 * https://groups.google.com/d/msg/comp.protocols.dicom/7IaIkT0ZG5U/k7LPu81VvAMJ
 */
#include "gdcmlReader.h"
#include "gdcmlPrivateTag.h"
#include "gdcmlPrinter.h"
#include "gdcmlDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

bool DumpToshibaDTI( const char * input, size_t len )
{
    if( len % 2 ) return false;

    std::vector<char> copy( input, input + len );
    std::reverse( copy.begin(), copy.end() );

    std::istringstream is;
    std::string dup( &copy[0], copy.size() );
    is.str( dup );

    gdcml::Reader reader;
    reader.SetStream( is );
    if( !reader.Read() )
        return false;

    //std::cout << reader.GetFile().GetDataSet() << std::endl;
    //gdcml::DictPrinter p;
    gdcml::Printer p;
    p.SetFile( reader.GetFile() );
    p.SetColor( true );
    p.Print( std::cout );

    return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcml::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {

```

```

    std::cerr << "Failed to read: " << filename << std::endl;
    return 1;
}
const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

// (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]           # 22,1 Private Creator
// (0029,1001) ?? (SQ) (Sequence with undefined length)    # u/1,1 ?

const gdcm::PrivateTag tpmtf(0x0029,0x1,"PMTF INFORMATION DATA");
if( !ds.FindDataElement( tpmtf ) ) return 1;
const gdcm::DataElement& pmtf = ds.GetDataElement( tpmtf );
if ( pmtf.IsEmpty() ) return 1;
gdcm::SmartPointer<gdcm::SequenceOfItems> seq = pmtf.
    GetValueAsSQ();
if ( !seq || !seq->GetNumberOfItems() ) return 1;

size_t n = seq->GetNumberOfItems();
for( size_t i = 1; i <= n; ++i )
{
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]           # 22,1 Private Creator
    // (0029,1090) ?? (OB) 00\05\00\13\00\12\00\22\           # 202,1 ?
    const gdcm::PrivateTag tseq(0x0029,0x90,"PMTF INFORMATION DATA");

    if( subds.FindDataElement( tseq ) )
    {
        const gdcm::DataElement &de = subds.GetDataElement( tseq );
        const gdcm::ByteValue *bv = de.GetByteValue();
        if( !bv ) return 1;

        bool b = DumpToshibaDTI( bv->GetPointer(), bv->GetLength() );
        if( !b ) return 1;
    }

}

return 0;
}

```

12.44 DumpToSQLITE3.cxx

```

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * Ref:
 * http://massmail.spl.harvard.edu/public-archives/slicer-devel/2010/004408.html
 *
 * Implementation details:
 * http://www.sqlite.org/c3ref/bind_blob.html
 * http://www.adp-gmbh.ch/sqlite/bind_insert.html
 */
#include "gdcmScanner.h"
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"

#include "sqlite3.h"

#include <stdio.h>
#include <time.h>

int main(int argc, char *argv[])
{

```

```

if( argc < 2 )
{
    return 1;
}
time_t time_start = time(0);

gdcmm::Trace::SetDebug( false );
gdcmm::Trace::SetWarning( false );
const char *inputdirectory = argv[1];

gdcmm::Directory d;
unsigned int nfiles = d.Load( inputdirectory, true);

gdcmm::Scanner s;
using gdcmm::Tag;
s.AddTag( Tag(0x20,0xd) ); // Study Instance UID
s.AddTag( Tag(0x20,0xe) ); // Series Instance UID

bool b0 = s.Scan( d.GetFilesNames() );
if( !b0 ) return 1;
time_t time_scanner = time(0);

std::cout << "Finished loading data from : " << nfiles << " files" << std::endl;
// MappingType const &mappings = s.GetMappings();

sqlite3* db;
sqlite3_open("./dicom.db", &db);

if(db == 0)
{
    std::cerr << "Could not open database." << std::endl;
    return 1;
}

const char sql_stmt[] = "create table browser (seriesuid, studyuid)";
int ret;

char *errmsg;
ret = sqlite3_exec(db, sql_stmt, 0, 0, &errmsg);

if(ret != SQLITE_OK)
{
    printf("Error in statement: %s [%s].\n", sql_stmt, errmsg);
    return 1;
}
using gdcmm::Directory;
using gdcmm::Scanner;
const Directory::FileNamesType& files = d.GetFilesNames();
Directory::FileNamesType::const_iterator file = files.begin();

sqlite3_stmt *stmt;
if ( sqlite3_prepare(
    db,
    "insert into browser values (?,?)", // stmt
    -1, // If than zero, then stmt is read up to the first nul terminator
    &stmt,
    0 // Pointer to unused portion of stmt
)
!= SQLITE_OK)
{
    printf("\nCould not prepare statement.");
    return 1;
}
//printf("\nThe statement has %d wildcards\n", sqlite3_bind_parameter_count(stmt));
for(; file != files.end(); ++file)
{
    const char *filename = file->c_str();
    bool b = s.IsKey(filename);
    if( b )
    {
        const Scanner::TagToValue &mapping = s.GetMapping(filename);
        Scanner::TagToValue::const_iterator it = mapping.begin();

        sqlite3_reset(stmt);

        for( int index = 1; it != mapping.end(); ++it, ++index)
        {
            //const Tag &tag = it->first;
            const char *value = it->second;

```

```

        if (sqlite3_bind_text (
            stmt,
            index, // Index of wildcard
            value,
            (int)strlen(value), // length of text
            SQLITE_STATIC // SQLite assumes that the information is in static
        )
        != SQLITE_OK)
        {
            printf("\nCould not bind int.\n");
            return 1;
        }
    }
    if (sqlite3_step(stmt) != SQLITE_DONE)
    {
        printf("\nCould not step (execute) stmt.\n");
        return 1;
    }
}

sqlite3_close(db);

time_t time_sqlite = time(0);

std::cout << "Time to scan DICOM files: " << (time_scanner - time_start) << std::endl;
std::cout << "Time to build SQLITE3: " << (time_sqlite - time_scanner) << std::endl;

return 0;
}

```

12.45 DuplicatePCDE.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
/*
Usage:
DuplicatePCDE gdcmData/D_CLUNIE_CT1_J2KI.dcm out.dcm

aka:
medical.nema.org/medical/dicom/DataSets/WG04/IMAGES/J2KI/CT1_J2KI

See:
gdcmConformanceTests/CT1_J2KI_DuplicatePCDE.dcm

Original thread can be found at:

http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/82f28c4db28963af

Question:
1.
There is no restriction for a specific Private Creator Data Element
(PCDE) to be unique within the same group, right ?
Decoders of Private Data would have to handle the case where a PCDE
would be repeated and should NOT stop on the first instance of a

```

particular PCDE, right ?

Eg. when searching for the tag associated with
(0x0029,0x0010,"SIEMENS CSA HEADER") in the following (pseudo)
dataset:

```
(0029,0010) LO [SIEMENS CSA HEADER] # 18, 1
PrivateCreator
(0029,0011) LO [SIEMENS MEDCOM HEADER] # 22, 1
PrivateCreator
(0029,0012) LO [SIEMENS MEDCOM HEADER2] # 22, 1
PrivateCreator
(0029,0013) LO [SIEMENS CSA HEADER] # 18, 1
PrivateCreator
(0029,1008) CS [IMAGE NUM 4] # 12, 1
CSAImageHeaderType
(0029,1009) LO [20050723] # 8, 1
CSAImageHeaderVersion
(0029,1010) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo
(0029,1018) CS [MR] # 2, 1
CSASeriesHeaderType
(0029,1019) LO [20050723] # 8, 1
CSASeriesHeaderVersion
(0029,1020) OB 53\56\31\30\04\03\02\01\2c\00\00\00\4d
\00\00\00\55\73\65\64\50\61... # 51520, 1 CSASeriesHeaderInfo
(0029,1131) LO [4.0.163088300] # 14, 1
PMTFInformation1
(0029,1132) UL 32768 # 4, 1
PMTFInformation2
(0029,1133) UL 0 # 4, 1
PMTFInformation3
(0029,1134) CS [DB TO DICOM] # 12, 1
PMTFInformation4
(0029,1260) ?? 63\6f\6d\20 # 4, 1
Unknown Tag & Data
(0029,1310) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo
```

one should return two instances, correct ?

Answer:

I would say that this is covered in principle by the PS 3.5 7.1
"The Data Elements ... shall occur at most once in a Data Set"
rule, since the data element is defined by the tuple
(private creator,gggg,ee) where xxee is the element
number and xx is arbitrary and has no inherent meaning and
does not serve to disambiguate the data element.

E.g.:

```
(0019,0030) Private Creator ID = "Smith"
...
(0019,0032) Private Creator ID = "Smith"
...
(0019,3015) Fractal Index = "32"
...
(0019,3215) Fractal Index = "32"
```

would be illegal because even though they are assigned different
(completely arbitrary) blocks, with the same group, element
number and private creator, (0019,3015) and (0019,3215) are the
"same" data element.

*/

```
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }
}
```

```

gdcmm::File &file = reader.GetFile();
gdcmm::DataSet &ds = file.GetDataSet();

// Let's get all private element from group 0x9:
/*
(0009,0010) LO [GEMS_IDEN_01] # 12,1 Private Creator
(0009,1001) LO [GE_GENESIS_FF ] # 14,1 Full fidelity
(0009,1002) SH [CT01] # 4,1 Suite id
(0009,1004) SH [HiSpeed CT/i] # 12,1 Product id
(0009,1027) SL 862399669 # 4,1 Image actual date
(0009,1030) SH (no value) # 0,1 Service id
(0009,1031) SH (no value) # 0,1 Mobile location number
(0009,10e6) SH [05] # 2,1 Genesis Version - now
(0009,10e7) UL 973283917 # 4,1 Exam Record checksum
(0009,10e9) SL 862399669 # 4,1 Actual series data time stamp
*/
gdcmm::Tag start(0x0009,0x0);
// Create a temporary duplicate dataset, since we cannot insert data element as we go over them (std::set
// would reorganize itself as we go over it ...)
gdcmm::DataSet dup;
gdcmm::Tag new_private(0x0009,0x0);
while (start.GetGroup() == 0x9)
{
    const gdcmm::DataElement& de = ds.FindNextDataElement(start);
    const gdcmm::Tag &t = de.GetTag();
    if( t.IsPrivateCreator() )
    {
        std::cout << t << std::endl;
        // Ok let's duplicate into the next available attribute:
        gdcmm::DataElement duplicate = de;
        duplicate.GetTag().SetElement( (uint16_t)(t.GetElement() + 1) );
        dup.Insert( duplicate );
        new_private = duplicate.GetTag();
    }
    else if( t.IsPrivate() && !t.IsPrivateCreator() )
    {
        //std::cout << de << std::endl;
        std::string owner = ds.GetPrivateCreator( de.GetTag() );
        //std::cout << owner << std::endl;
        gdcmm::DataElement duplicate = de;
        duplicate.GetTag().SetPrivateCreator( new_private );
        if( const gdcmm::ByteValue *bv = duplicate.GetByteValue() )
        {
            // Warning: when doing : duplicate = de, only the pointer to the ByteValue is passed
            // (to avoid large memory duplicate). We need to explicitly duplicate the bytevalue ourselves:
            gdcmm::ByteValue *dupbv = new gdcmm::ByteValue( bv->GetPointer(),
                bv->GetLength() );
            // Let's recognize the duplicated ASCII-type elements:
            if( duplicate.GetVR() & gdcmm::VR::VRASCII )
                dupbv->Fill( 'X' );
            duplicate.SetValue( *dupbv );
        }
        dup.Insert( duplicate );
    }
    start = t;
    // move to next possible 'public' element
    start.SetElement( (uint16_t)(start.GetElement() + 1) );
}

gdcmm::DataSet::ConstIterator it = dup.Begin();
for( ; it != dup.End(); ++it )
{
    ds.Insert( *it );
}

gdcmm::Writer w;
w.SetFile( file );
w.SetFileName( outfilename );
if ( !w.Write() )
{
    return 1;
}

return 0;
}

```


12.46 ELSCINT1WaveToText.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"

/*
 * This example shows how to read a Wave Information tag from ELSCINT1
 * The wave information is stored in Tag (01e1,18,ELSCINT1) hidden in a
 * Secondary Capture Image Storage (usually a 'N' Symbol is shown)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Gauthier Bouilhol
 */

template <typename T>
bool dumpargs(std::ostream & os, T c1, T c2, T c3, T c4, T c5, T c6, T c7, T c8)
{
    static const char sep = '\\t';
    os << c1 << sep << c2 << sep << c3 << sep << c4 << sep << c5 << sep << c6 << sep << c7 << sep << c8;
    os << std::endl;
    return true;
}

bool wave2stream( std::ostream &text_file, const char *in, size_t len )
{
    short * buffer = (short*)in;
    size_t length = len / sizeof( short );
    text_file << "COMPLETE_WAVE" << '\\t' << "MASK" << '\\t' << "AQUISITION_PROFIL" << '\\t' << "
    END-INHALE" << '\\t' << "END-EXHALE" << '\\t' << "AQUISITION_WAVE" << '\\t' << "WAVE_STATISTICS" << '\\t' << "MASK"
    << std::endl;
    for (size_t i=0;i<length-76;i+=2)
    {
        if ( i < 74 )
        {
            if (buffer[i+75] == 0)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 0 << '\\t' << " "
                << '\\t' << " " << '\\t' << buffer[i] << '\\t' << buffer
            [i+1] << std::endl;
            if (buffer[i+75] == 16384)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 0 << '\\t' << " "
                << '\\t' << " " << '\\t' << buffer[i] << '\\t' << buffer
            [i+1] << std::endl;
            if (buffer[i+75] == 256)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 0 << '\\t' << " "
                << '\\t' << buffer[i+74] << '\\t' << " " << '\\t' << buffer[i] << '\\t' << buffer
            [i+1] << std::endl;
            if (buffer[i+75] == -32768)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 1 << '\\t' << " "
                << '\\t' << " " << '\\t' << buffer[i+74] << '\\t' << buffer[i] << '\\t' << buffer
            [i+1] << std::endl;
            if (buffer[i+75] == -16384)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 1 << '\\t' << " "
                << '\\t' << buffer[i+74] << '\\t' << buffer[i] << '\\t' << buffer
            [i+1] << std::endl;
            if (buffer[i+75] == -32512)
                text_file << buffer[i+74] << '\\t' << buffer[i+75] << '\\t' << 1 << '\\t' << " "
                << '\\t' << buffer[i+74] << '\\t' << buffer[i+74] << '\\t' << buffer[i] << '\\t' << buffer
        }
    }
}

```

```

        [i+1] << std::endl;
    }
    else
    {
        if (buffer[i+75] == 0)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 0 << '\t' << " " << '\t' << " "
                << '\t' << " " << '\t' << " " << '\t' << " " << '\t' << " "
                << std::endl;
        if (buffer[i+75] == 16384)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 0 << '\t' << " " << '\t' << " "
                << '\t' << " " << '\t' << " " << '\t' << " " << '\t' << " "
                << std::endl;
        if (buffer[i+75] == 256)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 0 << '\t' << " " << '\t' << " "
                << '\t' << buffer[i+74] << '\t' << " " << '\t' << " " << '\t' << " "
                << std::endl;
        if (buffer[i+75] == -32768)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 1 << '\t' << " " << '\t' << " "
                << '\t' << " " << '\t' << buffer[i+74] << '\t' << " " << '\t' << " "
                << std::endl;
        if (buffer[i+75] == -16384)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 1 << '\t' << " " << '\t' << " "
                << '\t' << " " << '\t' << buffer[i+74] << '\t' << " " << '\t' << " "
                << std::endl;
        if (buffer[i+75] == -32512)
            text_file << buffer[i+74] << '\t' << buffer[i+75] << '\t' << 1 << '\t' << " " << '\t' << " "
                << '\t' << buffer[i+74] << '\t' << buffer[i+74] << '\t' << " " << '\t' << " "
                << std::endl;
    }
}

return true;
}

int main(int argc, char *argv [])
{
    if( argc < 3 ) return 1;
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    const gdcm::PrivateTag twave(0x01e1,0x18,"ELSCINT1");
    if( !ds.FindDataElement( twave ) ) return 1;
    const gdcm::DataElement& wave = ds.GetDataElement( twave );
    if ( wave.IsEmpty() ) return 1;
    const gdcm::ByteValue * bv = wave.GetByteValue();
    assert( bv );

    std::ofstream os( outfile, std::ios::binary );
    // Dump that to a CSV file:
    wave2stream( os, bv->GetPointer(), bv->GetLength() );
    os.close();

    return 0;
}

```

12.47 EncapsulateFileInRawData.cxx

```

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```

```

    PURPOSE. See the above copyright notice for more information.

=====*/
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"

#include "magic.h" // libmagic, API to file command line tool

/*
 * Let say you want to encapsulate a file type that is not defined in DICOM (exe, zip, png)
 * PNG is a bad example, unless it contains transparency (which has been deprecated).
 * It will take care of dispatching each chunk to an appropriate data item (pretty much like
 * WaveformData)
 *
 * Usage:
 * ./EncapsulateFileInRawData large_input_file.exe large_input_file.dcm
 */

// TODO:
// $ file -bi /tmp/gdcm-2.1.0.pdf
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " inputfile output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    if( !gdcm::System::FileExists( filename ) ) return 1;

    size_t s = gdcm::System::FileSize( filename );
    if( !s ) return 1;

    magic_t cookie = magic_open(MAGIC_NONE);
    const char * file_type = magic_file(cookie, filename);
    if( !file_type ) return 1;
    magic_close(cookie);

    gdcm::Writer w;
    gdcm::File &file = w.GetFile();
    //gdcm::DataSet &ds = file.GetDataSet();
    //w.SetCheckFileMetaInformation( true );
    w.SetFileName( outfile );

    file.GetHeader().SetDataSetTransferSyntax(
        gdcm::TransferSyntax::ImplicitVRLittleEndian );

    gdcm::Anonymizer anon;
    anon.SetFile( file );

    gdcm::MediaStorage ms = gdcm::MediaStorage::RawDataStorage
        ;

    gdcm::UIDGenerator gen;
    anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
    std::cout << ms.GetString() << std::endl;
    anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );

    if( !w.Write() )
    {
        std::cerr << "Could not write: " << outfile << std::endl;
        return 1;
    }

    return 0;
}

```

12.48 ExtractEncapsulatedFile.cs

```

/*=====

```

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```
=====*/

/*
 * This example shows how one from C# context can extract a binary blob
 * and write out as a file.
 * This example is meant for pdf encapsulated file, but can be adapted for other type
 * of binary blob.
 *
 * DICOM file is:
 * ...
 * (0042,0010) ST (no value available) # 0, 0 DocumentTitle
 * (0042,0011) OB 25\50\44\46\2d\31\2e\32\20\0d\25\e2\e3\cf\d3\20\0d\31\30\20\30\20... # 40718, 1
 * EncapsulatedDocument
 * (0042,0012) LO [application/pdf] # 16, 1 MIMETYPEOfEncapsulatedDocument
 * ...
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ExtractEncapsulatedFile.exe some_pdf_encapsulated.dcm
 */
using System;
using gdcm;

public class ExtractEncapsulatedFile
{
    public static int Main(string[] args)
    {
        string file = args[0];
        Reader reader = new Reader();
        reader.SetFileName( file );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }

        File f = reader.GetFile();
        DataSet ds = f.GetDataSet();
        Tag tencapsulated_stream = new Tag(0x0042,0x0011); // Encapsulated Document
        if( !ds.FindDataElement( tencapsulated_stream ) )
        {
            return 1;
        }
        // else
        DataElement de = ds.GetDataElement( tencapsulated_stream );
        ByteValue bv = de.GetByteValue();
        uint len = bv.GetLength();
        byte[] encapsulated_stream = new byte[len];
        bv.GetBuffer( encapsulated_stream, len );

        // Write out the decompressed bytes
        //System.Console.WriteLine(image.toString());
        using (System.IO.Stream stream =
            System.IO.File.Open(@"tmp/dd.pdf",
                System.IO.FileMode.Create))
        {
            System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
            writer.Write( encapsulated_stream );
        }

        return 0;
    }
}
```

12.49 ExtractEncryptedContent.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"

#include <fstream>

/*
openssl smime -encrypt -binary -aes256 -in outputfile.dcm -inform DER -out outputfile.der -outform DER ../
trunk/Testing/Source/Data/certificate.pem

openssl smime -decrypt -binary -in out.der -inform DER -out outputfile.dcm -outform DER -inkey ../trunk/
Testing/Source/Data/privatekey.pem ../trunk/Testing/Source/Data/certificate.pem

*/
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.der" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    const gdcm::DataElement &EncryptedAttributesSequence = ds.
        GetDataElement( gdcm::Tag( 0x0400,0x0500 ) );

    gdcm::SequenceOfItems *sqi = EncryptedAttributesSequence.
        GetValueAssQ();

    if ( !sqi || sqi->GetNumberOfItems() != 1 ) return 1;

    gdcm::Item &item = sqi->GetItem(1);

    gdcm::DataSet &nestedds = item.GetNestedDataSet();

    if( ! nestedds.FindDataElement( gdcm::Tag( 0x0400,0x0520 ) ) ) return 1;

    const gdcm::DataElement &EncryptedContent = nestedds.
        GetDataElement( gdcm::Tag( 0x0400,0x0520 ) );

    const gdcm::ByteValue *bv = EncryptedContent.GetByteValue();

    std::ofstream of( outfile, std::ios::binary );
    of.write( bv->GetPointer(), bv->GetLength() );
    of.close();

    return 0;
}

```

12.50 ExtractIconFromFile.cxx

```

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=====*/
/*
 * This example shows how to either retrieve an Icon if present somewhere
 * in the file, or else generate one.
 */
#include "gdcmImageReader.h"
#include "gdcmPNMCodec.h"
#include "gdcmIconImageFilter.h"
#include "gdcmIconImageGenerator.h"

bool WriteIconAsPNM(const char* filename, const gdcm::IconImage& icon)
{
    gdcm::PNMCodec pnm;
    pnm.SetDimensions( icon.GetDimensions() );
    pnm.SetPixelFormat( icon.GetPixelFormat() );
    pnm.SetPhotometricInterpretation( icon.
        GetPhotometricInterpretation() );
    pnm.SetLUT( icon.GetLUT() );
    const gdcm::DataElement& in = icon.GetDataElement();
    bool b = pnm.Write( filename, in );
    assert( b );
    return b;
}

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read (or not image): " << filename << std::endl;
        return 1;
    }

    gdcm::IconImageFilter iif;
    iif.SetFile( reader.GetFile() );
    bool b = iif.Extract();

    if( b )
    {
        const gdcm::IconImage &icon = iif.GetIconImage(0);
        icon.Print( std::cout );

        if( !icon.GetTransferSyntax().IsEncapsulated() )
        {
            // Let's write out this icon as PNM file
            WriteIconAsPNM("icon.ppm", icon);
        }
        else if( icon.GetTransferSyntax() ==
            gdcm::TransferSyntax::JPEGBaselineProcess1
            || icon.GetTransferSyntax() ==
            gdcm::TransferSyntax::JPEGExtendedProcess2_4
        )
        {
            const gdcm::DataElement& in = icon.GetDataElement();
            const gdcm::ByteValue *bv = in.GetByteValue();
            assert( bv );
            std::ofstream out( "icon.jpg", std::ios::binary );
            out.write( bv->GetPointer(), bv->GetLength() );
            out.close();
        }
    }
    else

```

```

{
    assert( iif.GetNumberOfIconImages() == 0 );
    std::cerr << "No Icon Found anywhere in file" << std::endl;

    const gdcm::Image &img = reader.GetImage();
    gdcm::IconImageGenerator iig;
    iig.AutoPixelMinMax(true);
    iig.SetPixmap( img );
    const unsigned int idims[2] = { 64, 64 };
    iig.SetOutputDimensions( idims );
    //iig.SetPixelMinMax(60, 868);
    if( !iig.Generate() ) return 1;
    const gdcm::IconImage &icon = iig.GetIconImage();
    WriteIconAsPNM("icon.ppm", icon);
}

return 0;
}

```

12.51 ExtractImageRegion.cs

```

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=====*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ bin/ExtractImageRegion.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegion.exe gdcmData/012345.002.050.dcm
 * $ md5sum /tmp/frame.raw
 * d594a5e2fde12f32b6633ca859b4d4a6 /tmp/frame.raw
 * $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 * [...]
 * md5sum: d594a5e2fde12f32b6633ca859b4d4a6
 */
using System;
using gdcm;

public class ExtractImageRegion
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        uint file_size = gdcm.PosixEmulation.FileSize(filename);

        // instantiate the reader:
        gdcm.ImageRegionReader reader = new gdcm.
            ImageRegionReader();
        reader.SetFileName( filename );

        // pull DICOM info:
        if (!reader.ReadInformation()) return 1;

        // store current offset:
        uint cur_pos = reader.GetStreamCurrentPosition();

        uint remaining = file_size - cur_pos;
    }
}

```

```

Console.WriteLine("Remaining bytes to read (Pixel Data): " + remaining.ToString() );

// Get file infos
gdcm.File f = reader.GetFile();

// get some info about image
UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
int pixelSize = pf.GetPixelSize();
PhotometricInterpretation pi = ImageHelper.GetPhotometricInterpretationValue(f);
Console.WriteLine( pi.toString() );

// buffer to get the pixels
byte[] buffer = new byte[ dims[0] * dims[1] * pixelSize ];

// define a simple box region.
BoxRegion box = new BoxRegion();
for (uint z = 0; z < dims[2]; z++)
{
    // Define that I want the image 0, full size (dimx x dimy pixels)
    // and do that for each z:
    box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
    //System.Console.WriteLine( box.toString() );
    reader.SetRegion( box );

    // reader will try to load the uncompressed image region into buffer.
    // the call returns an error when buffer.Length is too small. For instance
    // one can call:
    // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
    // to get the exact size of minimum buffer
    if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
    {
        using (System.IO.Stream stream =
            System.IO.File.Open(@"tmp/frame.raw",
                System.IO.FileMode.Create))
        {
            System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
            writer.Write(buffer);
        }
    }
    else
    {
        throw new Exception("can't read pixels error");
    }
}

return 0;
}

```

12.52 ExtractImageRegion.java

```

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=====*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java ExtractImageRegion input.dcm
 */
import gdcm.*;

```



```

import java.io.FileOutputStream;

public class ExtractImageRegion
{
    public static void main(String[] args) throws Exception
    {
        String filename = args[0];

        // instantiate the reader:
        ImageRegionReader reader = new ImageRegionReader();
        reader.SetFileName( filename );

        // pull DICOM info:
        if (!reader.ReadInformation()) return;
        // Get file infos
        File f = reader.GetFile();

        // get some info about image
        UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
        PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
        int pixelsize = pf.GetPixelSize();

        // buffer to get the pixels
        long buffer_length = dims.get(0) * dims.get(1) * pixelsize;
        byte[] buffer = new byte[ (int)buffer_length ];

        // define a simple box region.
        BoxRegion box = new BoxRegion();
        for (int z = 0; z < dims.get(2); z++)
        {
            // Define that I want the image 0, full size (dimx x dimy pixels)
            // and do that for each z:
            box.SetDomain(0, dims.get(0) - 1, 0, dims.get(1) - 1, z, z);
            //System.Console.WriteLine( box.toString() );
            reader.SetRegion( box );

            // reader will try to load the uncompressed image region into buffer.
            // the call returns an error when buffer.Length is too small. For instance
            // one can call:
            // long buf_len = reader.ComputeBufferLength(); // take into account pixel size
            // to get the exact size of minimum buffer
            if (reader.ReadIntoBuffer(buffer, buffer_length))
            {
                FileOutputStream fos = new FileOutputStream("/tmp/frame.raw");
                fos.write(buffer);
                fos.close();
            }
            else
            {
                throw new Exception("can't read pixels error");
            }
        }
    }
}

```

12.53 ExtractImageRegionWithLUT.cs

```

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=====*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to

```

```

* /tmp/frame.raw.
* Furthermore we are applying the LUT on this image.
* Special care should be taken in case the image is not PALETTE COLOR
*
* Usage:
* $ bin/ExtractImageRegionWithLUT.exe input.dcm
*
* Example:
* $ bin/ExtractImageRegionWithLUT.exe gdcmdata/rle16l00.dcm
* $ md5sum /tmp/frame_rgb.raw
* 73bf61325fdb6e2830244a2b7b0c4ae2 /tmp/frame_rgb.raw
* $ gdcimg --depth 16 --spp 3 --size 600,430 /tmp/frame_rgb.raw rgb.dcm
* $ gdcviewer rgb.dcm
*/
using System;
using gdc;

public class ExtractImageRegion
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        // instantiate the reader:
        gdc.ImageRegionReader reader = new gdc.
            ImageRegionReader();
        reader.SetFileName( filename );

        // pull DICOM info:
        if (!reader.ReadInformation()) return 1;
        // Get file infos
        gdc.File f = reader.GetFile();

        gdc.LookupTable lut = reader.GetImage().GetLUT();

        // get some info about image
        UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
        PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
        int pixelsize = pf.GetPixelSize();

        // buffer to get the pixels
        byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

        // output buffer for the RGB decoded image:
        byte[] buffer2 = new byte[ dims[0] * dims[1] * pixelsize * 3 ];

        // define a simple box region.
        BoxRegion box = new BoxRegion();
        for (uint z = 0; z < dims[2]; z++)
        {
            // Define that I want the image 0, full size (dimx x dimy pixels)
            // and do that for each z:
            box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
            //System.Console.WriteLine( box.ToString() );
            reader.SetRegion( box );

            // reader will try to load the uncompressed image region into buffer.
            // the call returns an error when buffer.Length is too small. For instance
            // one can call:
            // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
            // to get the exact size of minimum buffer
            if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
            {
                if( !lut.Decode( buffer2, (uint)buffer2.Length, buffer, (uint)buffer.Length ) )
                {
                    throw new Exception("can't decode");
                }

                using (System.IO.Stream stream =
                    System.IO.File.Open(@"tmp/frame_rgb.raw",
                        System.IO.FileMode.Create))
                {
                    System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
                    writer.Write(buffer2);
                }
            }
            else
            {
                throw new Exception("can't read pixels error");
            }
        }
    }
}

```

```

    return 0;
}
}

```

12.54 Extracting_All_Resolution.cxx

```

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=====*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include <fstream>
#include <openjpeg.h>
#include <stdint.h>
#include <string.h>
#include <assert.h>
#include <gdcm_j2k.h>
#include <gdcm_jp2.h>
#include <iostream>
#include <cstring>
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <math.h>
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmSystem.h"
#include <fstream>

#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

void error_callback(const char *msg, void *) {
    (void)msg;
}

void warning_callback(const char *msg, void *) {
    (void)msg;
}

void info_callback(const char *msg, void *) {
    (void)msg;
}

bool Write_Resolution(gdcm::StreamImageWriter & theStreamWriter, const char *
    filename, int res, std::ostream& of, int flag, gdcm::SequenceOfItems *sq, int
    No_Of_Resolutions)
{
    std::ifstream is;
    is.open( filename, std::ios::binary );
    opj_dparameters_t parameters; /* decompression parameters */
    opj_event_mgr_t event_mgr; /* event manager */

```

```

opj_dinfo_t* dinfo; /* handle to a decompressor */
opj_cio_t *cio;
opj_image_t *image = NULL;
// FIXME: Do some stupid work:
is.seekg( 0, std::ios::end);
std::streampos buf_size = is.tellg();
char *dummy_buffer = new char[(unsigned int)buf_size];
is.seekg(0, std::ios::beg);
is.read( dummy_buffer, buf_size);
unsigned char *src = (unsigned char*)dummy_buffer;
uint32_t file_length = (uint32_t)buf_size; // 32bits truncation should be ok since DICOM cannot have
    larger than 2Gb image

/* configure the event callbacks (not required) */
memset(&event_mgr, 0, sizeof(opj_event_mgr_t));
event_mgr.error_handler = error_callback;
event_mgr.warning_handler = warning_callback;
event_mgr.info_handler = info_callback;

/* set decoding parameters to default values */
opj_set_default_decoder_parameters(&parameters);

// default blindly copied
parameters.cp_layer=0;
parameters.cp_reduce= res;
// parameters.decode_format=-1;
// parameters.cod_format=-1;

const char jp2magic[] = "\x00\x00\x00\x0C\x6A\x50\x20\x20\x0D\x0A\x87\x0A";
if( memcmp( src, jp2magic, sizeof(jp2magic) ) == 0 )
{
    /* JPEG-2000 compressed image data ... sigh */
    // gdcData/ELSCINT1_JP2vsJ2K.dcm
    // gdcData/MAROTECH_CT_JP2Lossy.dcm
    //gdcWarningMacro( "J2K start like JPEG-2000 compressed image data instead of codestream" );
    parameters.decode_format = 1; //JP2_CFMT;
    //assert(parameters.decode_format == JP2_CFMT);
}
else
{
    /* JPEG-2000 codestream */
    //parameters.decode_format = J2K_CFMT;
    //assert(parameters.decode_format == J2K_CFMT);
    assert( 0 );
}
parameters.cod_format = 11; // PGX_DFMT;
//assert(parameters.cod_format == PGX_DFMT);

/* get a decoder handle */
dinfo = opj_create_decompress(CODEC_JP2);

/* catch events using our callbacks and give a local context */
opj_set_event_mgr((opj_common_ptr)dinfo, &event_mgr, NULL);

/* setup the decoder decoding parameters using user parameters */
opj_setup_decoder(dinfo, &parameters);

/* open a byte stream */
cio = opj_cio_open((opj_common_ptr)dinfo, src, file_length);

/* decode the stream and fill the image structure */
image = opj_decode(dinfo, cio);
if(!image) {
    opj_destroy_decompress(dinfo);
    opj_cio_close(cio);
    //gdcErrorMacro( "opj_decode failed" );
    return 1;
}

opj_cp_t * cp = ((opj_jp2_t*)dinfo->jp2_handle)->j2k->cp;
opj_tcp_t *tcp = &cp->tcps[0];
opj_tccp_t *tccp = &tcp->tccps[0];
/* std::cout << "\n No of Cols In Image" << image->x1;
std::cout << "\n No of Rows In Image" << image->y1;
std::cout << "\n No of Components in Image" << image->numcomps;
std::cout << "\n No of Resolutions"<< tccp->numresolutions << "\n";
*/

opj_j2k_t* j2k = NULL;
opj_jp2_t* jp2 = NULL;
jp2 = (opj_jp2_t*)dinfo->jp2_handle;

```

```

        int reversible = jp2->j2k->cp->tcps->tccps->qmfbid;
        //std::cout << reversible;
        int compno = 0;
        opj_image_comp_t *comp = &image->comps[compno];
        int Dimensions[2];
        Dimensions[0] = comp->w;
        Dimensions[1] = comp->h;
        opj_cio_close(cio);
        unsigned long len = Dimensions[0]*Dimensions[1] * image->numcomps;
        //std::cout << "\nTest" <<image->comps[0].factor;
        char *raw = new char[len];
        for (unsigned int compno = 0; compno < (unsigned int)image->numcomps; compno++)
        {
            opj_image_comp_t *comp = &image->comps[compno];

            int w = image->comps[compno].w;
            int h = image->comps[compno].h;
            uint8_t *data8 = (uint8_t*)raw + compno;
            for (int i = 0; i < w * h ; i++)
            {
                int v = image->comps[compno].data[i];
                *data8 = (uint8_t)v;
                data8 += image->numcomps;
            }
        }

        gdcm::Writer w;
        gdcm::File &file = w.GetFile();
        gdcm::DataSet &ds = file.GetDataSet();

        file.GetHeader().SetDataSetTransferSyntax(
            gdcm::TransferSyntax::ExplicitVRLittleEndian );

        gdcm::UIDGenerator uid;
        gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
        de.SetVR( gdcm::VR::UI );
        const char *u = uid.Generate();
        de.SetByteValue( u, strlen(u) );
        ds.Insert( de );

        gdcm::DataElement del( gdcm::Tag(0x8,0x16) );
        del.SetVR( gdcm::VR::UI );
        gdcm::MediaStorage ms( gdcm::MediaStorage::CTImageStorage
            );
        del.SetByteValue( ms.GetString(), strlen(ms.GetString()) );
        ds.Insert( del );

        const char mystr[] = "MONOCHROME2 ";
        gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
        //de.SetTag(gdcm::Tag(0x28,0x04));
        de2.SetVR( gdcm::VR::CS );
        de2.SetByteValue(mystr, strlen(mystr));
        ds.Insert( de2 );

        gdcm::Attribute<0x0028,0x0010> row = {image->comps[0].w};
        //row.SetValue(512);
        ds.Insert( row.GetAsDataElement() );
        // w.SetCheckFileMetaInformation( true );
        gdcm::Attribute<0x0028,0x0011> col = {image->comps[0].h};
        ds.Insert( col.GetAsDataElement() );
        gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
        ds.Insert( Number_Of_Frames.GetAsDataElement() );

        gdcm::Attribute<0x0028,0x0100> at = {8};
        ds.Insert( at.GetAsDataElement() );

        gdcm::Attribute<0x0028,0x0002> at1 = {image->numcomps};
        ds.Insert( at1.GetAsDataElement() );

        gdcm::Attribute<0x0028,0x0101> at2 = {8};
        ds.Insert( at2.GetAsDataElement() );

        gdcm::Attribute<0x0028,0x0102> at3 = {7};
        ds.Insert( at3.GetAsDataElement() );

        if (flag == 1)
        {
            for (int i=0; i < No_Of_Resolutions; i++)

```

```

{
    int a = 1;
    int b = 1;

    while(a!=(No_Of_Resolutions)-1)
    {
        b = b*2;
        a = a+1;
    }
    uint16_t row = (image->y1)/b;
    uint16_t col = (image->x1)/b;
    //std::cout << row;
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
    el2.SetValue(i+1);
    gdcm::DataElement rfn = el2.GetAsDataElement(); //ulr --> upper
        left row
    rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

    gdcm::Element<gdcm::VR::US, gdcm::VM::VM2> el;
    el.SetValue(1,0);
    el.SetValue(1,1);
    gdcm::DataElement ulr = el.GetAsDataElement(); //ulr --> upper
        left col/row
    ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

    gdcm::Element<gdcm::VR::US, gdcm::VM::VM2> ell;
    ell.SetValue(col,0);
    ell.SetValue(row,1);
    gdcm::DataElement brr = ell.GetAsDataElement();
    brr.SetTag( gdcm::Tag(0x0048,0x0202) ); //brr --> bottom right col/row
    gdcm::Item it;
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert( rfn );
    nds.Insert( ulr );
    nds.Insert( brr );

    sq->AddItem(it);
}

gdcm::Writer w1;
gdcm::File &file1 = w1.GetFile();
gdcm::DataSet &ds1 = file1.GetDataSet();
file1.GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian );

gdcm::UIDGenerator uid1;
gdcm::DataElement dea( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
dea.SetVR( gdcm::VR::UI );
const char *ul = uid1.Generate();
dea.SetByteValue( ul, strlen(ul) );
ds1.Insert( dea );

gdcm::DataElement deb( gdcm::Tag(0x8,0x16) );
deb.SetVR( gdcm::VR::UI );
gdcm::MediaStorage ms1(
    gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage
);
deb.SetByteValue( ms1.GetString(), strlen(ms1.GetString()) );
ds1.Insert( deb );

const char mystr1[] = "MONOCHROME2 ";
gdcm::DataElement dec( gdcm::Tag(0x28,0x04) );
//de.SetTag(gdcm::Tag(0x28,0x04));
dec.SetVR( gdcm::VR::CS );
dec.SetByteValue(mystr, strlen(mystr));
ds1.Insert( dec );

gdcm::Attribute<0x0028,0x0010> row1 = {image->y1};
//row.SetValue(512);
ds1.Insert( row1.GetAsDataElement() );
// w.SetCheckFileMetaInformation( true );
gdcm::Attribute<0x0028,0x0011> col1 = {image->x1};
ds1.Insert( col1.GetAsDataElement() );
gdcm::Attribute<0x0028,0x0008> Number_Of_Frames1 = {tccp->numresolutions};
ds1.Insert( Number_Of_Frames1.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0100> ata = {8};
ds1.Insert( ata.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0002> atb = {image->numcomps};

```

```

    ds1.Insert( atb.GetAsDataElement() );

    gdcm::Attribute<0x0028,0x0101> atc = {8};
    ds1.Insert( atc.GetAsDataElement() );

    gdcm::Attribute<0x0028,0x0102> atd = {7};
    ds1.Insert( atd.GetAsDataElement() );

    theStreamWriter.SetFile(file1);

    gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
    des.SetVR(gdcm::VR::SQ);
    //des.SetVR(gdcm::VM::VM1);
    des.SetValue(*sq);
    des.SetVLToUndefined();

    ds1.Insert(des);

    if (!theStreamWriter.WriteImageInformation()){
        std::cerr << "unable to write image information" << std::endl;
        return 1; //the CanWrite function should prevent getting here, else,
        //that's a test failure
    }
}

theStreamWriter.SetFile(file);

if (!theStreamWriter.CanWriteFile()){
    delete [] raw;
    std::cout << "Not able to write";
    return 0; //this means that the file was unwritable, period.
    //very similar to a ReadImageInformation failure
}
else
    std::cout<<"\nable to read";

// Important to write here
std::vector<unsigned int> extent = gdcm::ImageHelper::GetDimensionsValue
    (file);

unsigned short xmax = extent[0];
unsigned short ymax = extent[1];
unsigned short theChunkSize = 4;
unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
unsigned short zmax = extent[2];
std::cout << "\n"<<xmax << "\n" << ymax<<"\n"<<zmax<<"\n" << image->numcomps<<"\n";

if (xmax == 0 || ymax == 0)
{
    std::cerr << "Image has no size, unable to write zero-sized image." << std::endl;
    return 0;
}

int z, y, nexty;
unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
//the bytes sequentially. So, store how far you got in the buffer with each iteration.
for (z = 0; z < zmax; ++z){
    for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout << "\n" <<len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(raw[prevLen]), len);
        std::cout << "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
            std::cerr << "writing failure:" << "output.dcm" << " at y = " << y << " and z= " << z <<
std::endl;
            delete [] raw;
            delete [] finalBuffer;
            return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
    }
}
}

```

```

        delete raw;

        delete[] src; //FIXME

    if(dinfo) {
        opj_destroy_decompress(dinfo);
    }

    opj_image_destroy(image);

    return true;
}

bool Different_Resolution( gdcm::StreamImageWriter & theStreamWriter, const char *
    filename, int res, std::ostream& of)
{
    //std::vector<std::string>::const_iterator it = filenames.begin();
    bool b = true;
    int flag = 1;

    gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new
        gdcm::SequenceOfItems();
    sq->SetLengthToUndefined();

    for(int i = res-1 ; i>=0; --i)
    {
        b = b && Write_Resolution( theStreamWriter, filename, i, of ,flag,sq,res);
        // b = b && Get_Resolution( theStreamWriter, filename, i, of ,0);
        flag = 0;
    }
    //b = b && Get_Lowest_Resolution( writer, sq, filename, res-1 );
    //b = b && PopulateSingeFile( writer, sq, jpeg, filename2 );
    //image.SetDimension(2, res )
    return b;
}

int main(int argc, char *argv[])
{
    if( argc < 4 )
    {
        std::cerr << argv[0] << " input.jp2 output.dcm No. Of Resolutions " << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    char *resolutions = argv[3];
    int res = int((*resolutions)-48);
    //std:: cout << "\nres"<< res;
    gdcm::StreamImageWriter theStreamWriter;

    std::ofstream of;
    of.open( outfile, std::ios::out | std::ios::binary );
    theStreamWriter.SetStream(of);

    if( !Different_Resolution( theStreamWriter, filename,res,of ) ) return 1;

    uint16_t firstTag1 = 0xfffe;
    uint16_t secondTag1 = 0xe0dd;
    uint32_t thirdTag1 = 0x00000000;
    //uint16_t fourthTag1 = 0xffff;
    const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
    char* tmpBuffer2 = new char[theBufferSize1];
    memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
    memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
    memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
    //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
    assert( of && !of.eof() && of.good() );
    of.write(tmpBuffer2, theBufferSize1);
    of.flush();
    assert( of );

    return 0;
}

```


12.55 ExtractOneFrame.cs

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * This small code shows how to use the gdcm.StreamImageReader API
 * to read a single (whole) frame at a time
 * The API allow extracting a smaller extent of the frame of course.
 * It will write out the extracted frame in /tmp/frame.raw
 *
 * Usage:
 * $ bin/ExtractOneFrame.exe input.dcm
 */
using System;
using gdcm;

public class ExtractOneFrame
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        gdcm.StreamImageReader reader = new gdcm.
            StreamImageReader();

        reader.SetFileName( filename );

        if (!reader.ReadImageInformation()) return 1;
        // Get file infos
        gdcm.File f = reader.GetFile();

        // get some info about image
        UIntArrayType extent = ImageHelper.GetDimensionsValue(f);
        //System.Console.WriteLine( extent[0] );
        uint dimx = extent[0];
        //System.Console.WriteLine( extent[1] );
        uint dimy = extent[1];
        //System.Console.WriteLine( extent[2] );
        uint dimz = extent[2];
        PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
        int pixelsize = pf.GetPixelSize();
        //System.Console.WriteLine( pixelsize );

        // buffer to get the pixels
        byte[] buffer = new byte[ dimx * dimy * pixelsize ];

        for (int i = 0; i < dimz; i++)
        {
            // Define that I want the image 0, full size (dimx x dimy pixels)
            reader.DefinePixelExtent(0, (ushort)dimx, 0, (ushort)dimy, (ushort)i, (ushort)(i+1));
            uint buf_len = reader.DefineProperBufferLength(); // take into account pixel size
            //System.Console.WriteLine( buf_len );
            if( buf_len > buffer.Length )
            {
                throw new Exception("buffer is too small for target");
            }

            if (reader.Read(buffer, (uint)buffer.Length))
            {
                using (System.IO.Stream stream =
                    System.IO.File.Open(@"tmp/frame.raw",
                        System.IO.FileMode.Create))
                {
                    System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
                    writer.Write(buffer);
                }
            }
        }
    }
}

```

```

        else
        {
            throw new Exception("can't read pixels error");
        }
    }

    return 0;
}
}

```

12.56 Fake_Image_Using_Stream_Image_Writer.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmReader.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

int main(int, char *[])
{
    char * buffer = new char[ 256 * 256 *3 ];
    // *p = (uint8_t*)buffer;
    char * p = buffer;

    gdcm::Trace::DebugOn();
    gdcm::Trace::WarningOn();

    for(int row = 0; row < 256; ++row)
    {
        for(int col = 0; col < 256; ++col)
            //for(int b = 0; b < 256; ++b)
            {
                *p++ = 255;
                *p++ = 0;
                *p++ = 0;
            }
    }

    gdcm::Writer w;
    gdcm::File &file = w.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    file.GetHeader().SetDataSetTransferSyntax(
        gdcm::TransferSyntax::ExplicitVRLittleEndian );

    gdcm::UIDGenerator uid;
    gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
    de.SetVR( gdcm::VR::UI );
    const char *u = uid.Generate();
    de.SetByteValue( u, strlen(u) );

```

```

ds.Insert( de );

gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
de1.SetVR( gdcm::VR::UI );
gdcm::MediaStorage ms(
    gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage
);
de1.SetByteValue( ms.GetString(), strlen(ms.GetString()) );
ds.Insert( de1 );

const char mystr[] = "RGB";
gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
//de.SetTag( gdcm::Tag(0x28,0x04) );
de2.SetVR( gdcm::VR::CS );
de2.SetByteValue(mystr, strlen(mystr));
ds.Insert( de2 );

gdcm::Attribute<0x0028,0x0010> row = {256};
//row.SetValue(512);
ds.Insert( row.GetAsDataElement() );
// w.SetCheckFileMetaInformation( true );
gdcm::Attribute<0x0028,0x0011> col = {256};
ds.Insert( col.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
ds.Insert( Number_Of_Frames.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0100> at = {8};
ds.Insert( at.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0002> at1 = {3}; //bits per pixel
ds.Insert( at1.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0101> at2 = {8};
ds.Insert( at2.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0102> at3 = {7};
ds.Insert( at3.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0006> at4 = {0};
ds.Insert( at4.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0103> at5 = {0};
ds.Insert( at5.GetAsDataElement() );

//de.SetTag( gdcm::Tag(0x7fe0,0x0010) );
//ds.Insert( de );

gdcm::StreamImageWriter theStreamWriter;
gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new
    gdcm::SequenceOfItems();
sq->SetLengthToUndefined();

uint16_t row1 = 256;
uint16_t col1 = 256;
//std::cout << row;

gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
el2.SetValue(1);
gdcm::DataElement rfn = el2.GetAsDataElement(); //rfn --->
    reference frame number
rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

gdcm::Element<gdcm::VR::US, gdcm::VM::VM2> el;
el.SetValue(1,0);
el.SetValue(1,1);
gdcm::DataElement ulr = el.GetAsDataElement(); //ulr --> upper
    left col/row
ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

gdcm::Element<gdcm::VR::US, gdcm::VM::VM2> ell;
ell.SetValue(col1,0);
ell.SetValue(row1,1);
gdcm::DataElement brr = ell.GetAsDataElement();
brr.SetTag( gdcm::Tag(0x0048,0x0202) ); //brr --> bottom right col/row

gdcm::Item it;
gdcm::DataSet &nds = it.GetNestedDataSet();
nds.Insert( rfn );
nds.Insert( ulr );
nds.Insert( brr );

```

```

        sq->AddItem(it);

        gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
        des.SetVR(gdcm::VR::SQ);
        des.SetValue(*sq);
        des.SetVLToUndefined();

        ds.Insert(des);

theStreamWriter.SetFile(file);

        std::ofstream of;
        of.open( "output.dcm", std::ios::out | std::ios::binary );
        theStreamWriter.SetStream(of);

        if (!theStreamWriter.CanWriteFile()){
            delete [] buffer;
            std::cout << "Not able to write";
            return 0; //this means that the file was unwritable, period.
            //very similar to a ReadImageInformation failure
        }
        else
            std::cout << "\nable to read";

        if (!theStreamWriter.WriteImageInformation()){
            std::cerr << "unable to write image information" << std::endl;
            delete [] buffer;
            return 1; //the CanWrite function should prevent getting here, else,
            //that's a test failure
        }

        std::vector<unsigned int> extent =
            gdcm::ImageHelper::GetDimensionsValue(file);

        unsigned short xmax = extent[0];
        unsigned short ymax = extent[1];
        unsigned short theChunkSize = 1;
        unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
        unsigned short zmax = extent[2];

        std::cout << xmax << ymax << zmax;

        if (xmax == 0 || ymax == 0)
        {
            std::cerr << "Image has no size, unable to write zero-sized image." << std::endl;
            return 0;
        }

        int z, y, nexty;
        unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
        //the bytes sequentially. So, store how far you got in the buffer with each iteration.
        for (z = 0; z < zmax; ++z){
            for (y = 0; y < ymax; y += ychunk){
                nexty = y + ychunk;
                if (nexty > ymax) nexty = ymax;
                theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
                unsigned long len = theStreamWriter.DefineProperBufferLength();
                std::cout << "\n" << len;
                char* finalBuffer = new char[len];
                memcpy(finalBuffer, &(buffer[prevLen]), len);
                std::cout << "\nable to write";
                if (!theStreamWriter.Write(finalBuffer, len)){
                    std::cerr << "writing failure:" << "output.dcm" << " at y = " << y << " and z = " << z <<
                    std::endl;
                    delete [] buffer;
                    delete [] finalBuffer;
                    return 1;
                }
                delete [] finalBuffer;
                prevLen += len;
            }
        }
        delete buffer;

        uint16_t firstTag1 = 0xfffe;
        uint16_t secondTag1 = 0xe0dd;
        uint32_t thirdTag1 = 0x00000000;
        //uint16_t fourthTag1 = 0xffff;

```

```

const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
char* tmpBuffer2 = new char[theBufferSize1];
memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
//memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
assert( of && !of.eof() && of.good() );
of.write(tmpBuffer2, theBufferSize1);
of.flush();
assert( of );

return 0;
}

```

12.57 FileAnonymize.cs

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileAnonymize.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class FileAnonymize
{
    public static int Main(string[] args)
    {
        string filename = args[0];
        string outfilename = args[1];

        gdcm.FileAnonymizer fa = new gdcm.FileAnonymizer();
        fa.SetInputFileName( filename );
        fa.SetOutputFileName( outfilename );

        // Empty Operations
        // It will create elements, since those tags are non-registered public elements (2011):
        fa.Empty( new Tag(0x0008,0x1313) );
        fa.Empty( new Tag(0x0008,0x1317) );
        // Remove Operations
        // The following Tag are actually carefully chosen, since they refer to SQ:
        fa.Remove( new Tag(0x0008,0x2112) );
        fa.Remove( new Tag(0x0008,0x9215) );
        // Replace Operations
        // do not call replace operation on SQ attribute !
        fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
        fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

        if( !fa.Write() )
        {
            System.Console.WriteLine( "Could not write" );
            return 1;
        }

        return 0;
    }
}

```

12.58 FileAnonymize.java

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

import gdcml.*;

public class FileAnonymize
{
    public static class MyWatcher extends SimpleSubjectWatcher
    {
        public MyWatcher(Subject s) { super(s,"Override String"); }
        protected void ShowProgress(Subject caller, Event evt)
        {
            ProgressEvent pe = ProgressEvent.Cast(evt);
            System.out.println( "This is my progress: " + pe.GetProgress() );
        }
    }

    public static void main(String[] args) throws Exception
    {
        String input = args[0];
        String output = args[1];

        FileAnonymizer fa = new FileAnonymizer();
        fa.SetInputFileName( input );
        fa.SetOutputFileName( output );

        // Empty Operations
        // It will create elements, since those tags are non-registered public elements (2011):
        fa.Empty( new Tag(0x0008,0x1313) );
        fa.Empty( new Tag(0x0008,0x1317) );
        // Remove Operations
        // The following Tag are actually carefully chosen, since they refer to SQ:
        fa.Remove( new Tag(0x0008,0x2112) );
        fa.Remove( new Tag(0x0008,0x9215) );
        // Replace Operations
        // do not call replace operation on SQ attribute !
        fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
        fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

        if( !fa.Write() )
        {
            System.out.println( "Could not write" );
            return;
        }

        System.out.println( "success" );
    }
}

```

12.59 FileChangeTS.cs

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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```

```

    PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Lossless, Non-Hierarchical,
 * First-Order Prediction (Process 14 [Selection Value 1])]
 *
 * Usage:
 * $ mono bin/FileChangeTS.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
    public static byte[] StrToByteArray(string str)
    {
        System.Text.ASCIIEncoding encoding=new System.Text.ASCIIEncoding();
        return encoding.GetBytes(str);
    }
    // Create a 256 x 256 Secondary Capture Image Storage
    static private void CreateSmallDICOM(string fileName)
    {
        using( var writer = new gdcm.PixmapWriter() )
        {
            gdcm.Pixmap img = writer.GetImage();
            img.SetNumberOfDimensions( 3 );
            img.SetDimension(0, 512 );
            img.SetDimension(1, 512 );
            img.SetDimension(2, 2 ); // fake a 3d volume
            PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.
            MONOCHROME2 );
            img.SetPhotometricInterpretation( pi );
            gdcm.DataElement pixeldata = new gdcm.DataElement( new
            gdcm.Tag(0x7fe0,0x0010) );
            byte[] buffer = new byte[ 512 * 512 * 2 ];
            pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
            img.SetDataElement( pixeldata );

            gdcm.File file = writer.GetFile();
            gdcm.DataSet ds = file.GetDataSet();
            gdcm.DataElement ms = new gdcm.DataElement( new
            gdcm.Tag(0x0008,0x0016));
            string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture
            Image Storage
            byte[] val = StrToByteArray(mediastorage);
            ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
            ds.Insert( ms );

            writer.SetFileName( fileName );
            writer.Write();
        }
    }
    static private void CreateBigDICOM(string fileName, string outfilename)
    {

```

```

using( var ano = new gdcm.FileAnonymizer() )
{
    // The following is somewhat dangerous, do not try at home:
    string nframes = "1000";
    ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
    ano.SetInputFileName(fileName);
    ano.SetOutputFileName(outfilename);
    ano.Write(); // at this point the DICOM is invalid !
}
}

static private void CreateDummyFile(string fileName, long length)
{
    using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
    {
        // Looks like C# always init to 0 (fallocate ?)
        // For the purpose of the test we could add some random noise
        fileStream.SetLength(length);
    }
}

static private void ReadBytesIntoArray( byte[] array, FileStream source )
{
    int numBytesToRead = array.Length;
    int numBytesRead = 0;
    while (numBytesToRead > 0)
    {
        // According to spec: Read() may return anything from 0 to numBytesToRead.
        int n = source.Read(array, numBytesRead, numBytesToRead);

        // Break when the end of the file is reached.
        if (n == 0)
            break;

        numBytesRead += n;
        numBytesToRead -= n;
    }
}

static private void AssembledDICOMAndRaw(string dicomfn, string rawdata, string outfn)
{
    using ( var fs = new gdcm.FileStreamer() )
    {
        fs.SetTemplateFileName(dicomfn);
        fs.SetOutputFileName(outfn);
        gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
        // FileStreamer support automatic checking of pixel data length
        // based on DICOM attributes, only if we say so:
        fs.CheckDataElement( pixeldata );
        // Declare we are working on Pixel Data attribute:
        fs.StartDataElement( pixeldata );
        using (FileStream rawSource = new FileStream(rawdata,
            FileMode.Open, FileAccess.Read))
        {
            byte[] bytes = new byte[512];
            // Only read one scanline at a time
            // We could have been reading more at once, if this is more efficient,
            // AppendToDataElement will do the logic in all cases.
            for( int i = 0; i < 512 * 1000; ++i )
            {
                // Read the source file into a byte array.
                ReadBytesIntoArray( bytes, rawSource );
                fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
            }
        }
        if( !fs.StopDataElement( pixeldata ) )
        {
            // Most likely an issue with Pixel Data Length computation:
            throw new Exception("StopDataElement failed");
        }
    }
}

static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
{
    using( var sfcts = FileChangeTransferSyntax.New() )
    {
        // Need to retrieve the actual C++ reference, to pass to
        // SimpleSubjectWatcher:
        FileChangeTransferSyntax fcts = sfcts.__ref__();
        SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
        gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.
            JPEGLosslessProcess14_1 );
        fcts.SetTransferSyntax( ts );
        fcts.SetInputFileName( rawdicom );
    }
}

```



```

        fcts.SetOutputFileName( jpegdicom );
        fcts.Change();
    }
}
public static int Main(string[] args)
{
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
}
}

```

12.60 FileChangeTSLossy.cs

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG
 * 8 Bit Image Compression]
 *
 * Usage:
 * $ bin/FileChangeTSLossy.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{

```

```

public static byte[] StrToByteArray(string str)
{
    System.Text.ASCIIEncoding encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
}
// Create a 256 x 256 Secondary Capture Image Storage
static private void CreateSmallDICOM(string fileName)
{
    using( var writer = new gdcm.PixmapWriter() )
    {
        gdcm.Pixmap img = writer.GetImage();
        img.SetNumberOfDimensions( 3 );
        img.SetDimension(0, 512 );
        img.SetDimension(1, 512 );
        img.SetDimension(2, 2 ); // fake a 3d volume
        PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.
        MONOCHROME2 );
        img.SetPhotometricInterpretation( pi );
        gdcm.DataElement pixeldata = new gdcm.DataElement( new
        gdcm.Tag(0x7fe0,0x0010) );
        byte[] buffer = new byte[ 512 * 512 * 2 ];
        pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
        img.SetDataElement( pixeldata );

        gdcm.File file = writer.GetFile();
        gdcm.DataSet ds = file.GetDataSet();
        gdcm.DataElement ms = new gdcm.DataElement(new
        gdcm.Tag(0x0008,0x0016));
        string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture
        Image Storage
        byte[] val = StrToByteArray(mediastorage);
        ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
        ds.Insert( ms );

        writer.SetFileName( fileName );
        writer.Write();
    }
}
static private void CreateBigDICOM(string fileName, string outfilename)
{
    using( var ano = new gdcm.FileAnonymizer() )
    {
        // The following is somewhat dangerous, do not try at home:
        string nframes = "1000";
        ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
        ano.SetInputFileName(fileName);
        ano.SetOutputFileName(outfilename);
        ano.Write(); // at this point the DICOM is invalid !
    }
}
static private void CreateDummyFile(string fileName, long length)
{
    using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
    {
        // Looks like C# always init to 0 (fallocate ?)
        // For the purpose of the test we could add some random noise
        fileStream.SetLength(length);
    }
}
static private void ReadBytesIntoArray( byte[] array, FileStream source )
{
    int numBytesToRead = array.Length;
    int numBytesRead = 0;
    while (numBytesToRead > 0)
    {
        // According to spec: Read() may return anything from 0 to numBytesToRead.
        int n = source.Read(array, numBytesRead, numBytesToRead);

        // Break when the end of the file is reached.
        if (n == 0)
            break;

        numBytesRead += n;
        numBytesToRead -= n;
    }
}
static private void AssembledDICOMAndRaw(string dicomfn, string rawdata, string outfn)
{
    using ( var fs = new gdcm.FileStreamer() )
    {
        fs.SetTemplateFileName(dicomfn);
    }
}

```

```

fs.SetOutputFileName(outfn);
gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
// FileStreamer support automatic checking of pixel data length
// based on DICOM attributes, only if we say so:
fs.CheckDataElement( pixeldata );
// Declare we are working on Pixel Data attribute:
fs.StartDataElement( pixeldata );
using (FileStream rawSource = new FileStream(rawdata,
    FileMode.Open, FileAccess.Read))
{
    byte[] bytes = new byte[512];
    // Only read one scanline at a time
    // We could have been reading more at once, if this is more efficient,
    // AppendToDataElement will do the logic in all cases.
    for( int i = 0; i < 512 * 1000; ++i )
    {
        // Read the source file into a byte array.
        ReadBytesIntoArray( bytes, rawSource );
        fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
    }
}
if( !fs.StopDataElement( pixeldata ) )
{
    // Most likely an issue with Pixel Data Length computation:
    throw new Exception("StopDataElement failed");
}
}
}

static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
{
    using( var sfcts = FileChangeTransferSyntax.New() )
    {
        // Need to retrieve the actual C++ reference, to pass to
        // SimpleSubjectWatcher:
        FileChangeTransferSyntax fcts = sfcts.__ref__();
        SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
        gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.
            JPEGBaselineProcess1 );
        fcts.SetTransferSyntax( ts );
        ImageCodec ic = fcts.GetCodec();
        JPEGCodec jpeg = JPEGCodec.Cast( ic );
        jpeg.SetLossless( false );
        jpeg.SetQuality( 50 ); // poor quality !

        fcts.SetInputFileName( rawdicom );
        fcts.SetOutputFileName( jpegdicom );
        fcts.Change();
    }
}

public static int Main(string[] args)
{
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
}
}

```

12.61 FileStreaming.cs

```

/*=====

Program: GDCM (Grassroots DICOM). A DICOM library

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```

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```
=====*/
/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileStreaming.exe gdcmData/CT_16b_signed-UsedBits13.dcm output.dcm
 *
 * The class will take care of group handling and will use the first available group:
 * (0009,0012) ?? (LO) [MYTEST] # 6,1 Private Creator
 */
using System;
using gdcm;

public class FileStreaming
{
    public static int Main(string[] args)
    {
        string filename = args[0];
        string outfilename = args[1];

        gdcm.PrivateTag pt = new gdcm.PrivateTag( new
            gdcm.Tag(0x9,0x10), "MYTEST" );

        gdcm.FileStreamer fs = new gdcm.FileStreamer();
        fs.SetTemplateFileName( filename );
        fs.SetOutputFileName( outfilename );

        byte[] buffer = new byte[ 8192 ];
        uint len = (uint)buffer.Length;

        // In this example, we want that each newly created Private Attribute
        // contains at most 1000 bytes of incoming dataset.
        // We are also calling the function twice to check that appending mode is
        // working from one call to the other. The last element will have a length
        // of (2 * 8192) % 1000 = 384
        if( !fs.StartGroupDataElement( pt, 1000, 1 )
            || !fs.AppendToGroupDataElement( pt, buffer, len )
            || !fs.AppendToGroupDataElement( pt, buffer, len )
            || !fs.StopGroupDataElement( pt ) )
        {
            System.Console.WriteLine( "Could not change private group" );
            return 1;
        }

        return 0;
    }
}
```

12.62 FindAllPatientName.py

```
1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14 """
15 This example shows how one can use the gdcm.CompositeNetworkFunctions class
16 for executing a C-FIND query
17 It will print the list of patient name found
18
```

```

19 Usage:
20
21 python FindAllPatientName.py
22
23 """
24
25 import gdcmm
26
27 # Patient Name
28 tag = gdcmm.Tag(0x10,0x10)
29 de = gdcmm.DataElement(tag)
30
31 # Search all patient name where string match 'F*'
32 de.SetByteValue('F*',gdcmm.VL(2))
33
34 ds = gdcmm.DataSet()
35 ds.Insert(de)
36
37 cnf = gdcmm.CompositeNetworkFunctions()
38 theQuery = cnf.ConstructQuery(gdcmm.ePatientRootType,gdcmm.ePatient,ds)
39
40 #print theQuery.ValidateQuery()
41
42 # prepare the variable for output
43 ret = gdcmm.DataSetArrayType()
44
45 # Execute the C-FIND query
46 cnf.CFind('dicom.example.com',11112,theQuery,ret,'GDCM_PYTHON','ANY-SCP')
47
48 for i in range(0,ret.size()):
49     print "Patient #",i
50     print ret[i]

```

12.63 FixBrokenJ2K.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
#include "gdcmmReader.h"
#include "gdcmmWriter.h"
#include "gdcmmImageReader.h"
#include "gdcmmSequenceOfFragments.h"
#include "gdcmmFile.h"

// http://www.lost.in.ua/dicom/c.dcm
//
// -> BuggyJ2Kvvvua-fixed2-j2k.dcm

/*
 * This program attempts to fix a broken J2K/DICOM:
 * It contains 2 bugs:
 * 1. The first 8 bytes seems to be random bytes: remove them
 * 2. YCC is set to 1, while image is grayscale need to set it back to 0
 *
 * Ref:
 * It's a software from http://rentgenprom.ru/ , shipped with universal digital radiographic units
 * "ProScan-2000". The Ukrainian manufacturer developed own digital radiographic unit and it is
 * compatible with software from "ProScan-2000".
 * Information found in DICOM file is:
 *
 * (0008,0070) LO [ZAO "Renthenprom" (JSC Rentgenprom) ]          # 36,1 Manufacturer
 * (0018,1020) LO [2.13.1.7]                                       # 8,1-n Software Version(s)
 *
 */
int main(int argc, char *argv[])

```

```

{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcm::File &file = reader.GetFile();
    const gdcm::DataElement &pixeldata0 = file.GetDataSet().
        GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
    const gdcm::SequenceOfFragments *sqf = pixeldata0.
        GetSequenceOfFragments();
    if( !sqf )
    {
        return 1;
    }
    const gdcm::Fragment &frag0 = sqf->GetFragment(0);

    const gdcm::ByteValue *bv = frag0.GetByteValue();
    const char *ptr = bv->GetPointer();
    size_t len = bv->GetLength();

    static const unsigned char sig[] = {0,0,0,0,0x6A,0x70,0x32,0x63};
    if( memcmp(ptr, sig, sizeof(sig)) != 0 )
    {
        std::cerr << "magic random signature not found" << std::endl;
        return 1;
    }

    // Apparently the flag to enable a color transform on 3 color components is set in
    // the COD marker. (YCC is byte[6] in the COD marker)
    // we need to disable this flag;
    const char *cod_marker = ptr + 0x35; /* 0x2d + 0x8 */ // FIXME
    if( cod_marker[0] == (char)0xff && cod_marker[1] == 0x52 )
    {
        // found start of COD
        if( cod_marker[6+2] == 1 )
        {
            // Change in place:
            *((char*)cod_marker + 6+2) = 0;
            // Prepare a new DataElement:
            gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
            pixeldata.SetVR( gdcm::VR::OB );
            gdcm::SmartPointer<gdcm::SequenceOfFragments> sq = new
            gdcm::SequenceOfFragments;

            gdcm::Fragment frag;
            // remove 8 first bytes:
            frag.SetByteValue( ptr + 8, (uint32_t)(len - 8) );
            sq->AddFragment( frag );
            pixeldata.SetValue( *sq );
            file.GetDataSet().Replace( pixeldata );
        }
        else
        {
            return 1;
        }
    }
    else
    {
        std::cerr << "COD not found" << (int)cod_marker[0] << std::endl;
        return 1;
    }

    gdcm::Writer writer;
    writer.SetFile( reader.GetFile() );
    writer.SetFileName( outfile );
    writer.CheckFileMetaInformationOff();
    if( !writer.Write() )
    {
        std::cerr << "Could not write" << std::endl;
    }
}

```

```

// paranoid check:
gdcmm::ImageReader ireader;
ireader.SetFileName( outfile );
if( !ireader.Read() )
{
    std::cerr << "file written is still not valid, please report" << std::endl;
    return 1;
}

return 0;
}

```

12.64 FixCommaBug.py

```

1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Using LC_NUMERIC set to something not compatible with "C" it is possible to write out "," instead of
17 "." as required by the DICOM standard
18 Issue is still current (IMHO) with gdcm 2.0.9
19 """
20
21 import gdcm
22 import sys
23
24 filename = sys.argv[1]
25 outname = sys.argv[2]
26
27 # read
28 r = gdcm.Reader()
29 r.SetFileName( filename )
30 if not r.Read():
31     print "not valid"
32     sys.exit(1)
33
34 file = r.GetFile()
35 dataset = file.GetDataSet()
36
37 ano = gdcm.Anonymizer()
38 ano.SetFile( file )
39
40 tags = [
41     gdcm.Tag(0x0018,0x1164),
42     gdcm.Tag(0x0018,0x0088),
43     gdcm.Tag(0x0018,0x0050),
44     gdcm.Tag(0x0028,0x0030),
45 ]
46
47 for tag in tags:
48     print tag
49     if dataset.FindElement( tag ):
50         pixelspacing = dataset.GetDataElement( tag )
51         #print pixelspacing
52         bv = pixelspacing.GetByteValue()
53         str = bv.GetBuffer()
54         #print bv.GetLength()
55         #print len(str)
56         new_str = str.replace(",",".")
57         # Need to explicitly pass bv.GetLength() to remove any trailing garbage
58         ano.Replace( tag, new_str, bv.GetLength() )
59
60 #print dataset

```

```

61
62 w = gdcm.Writer()
63 w.SetFile( file )
64 w.SetFileName( outname )
65 if not w.Write():
66     print "Cannot write"
67     sys.exit(1)
68
69 # paranoid:
70 image_reader = gdcm.ImageReader()
71 image_reader.SetFileName( outname )
72 if not image_reader.Read():
73     print "there is still a comma"
74     sys.exit(1)
75
76 print "Sucess!"
77 sys.exit(0) # success

```

12.65 FixJAIBugJPEGLS.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"

#include <fstream>

#include "gdcm_charls.h"

/*
 * This small example should show how one can handle the famous JAI-JPEGLS bug
 * It will take in as invalid DICOM/JAI-JPEG-LS and write out as Explicit Little
 * Endian. One can use 'gdcmconv --jpegls' to recompress properly
 *
 * References:
 * http://charls.codeplex.com/discussions/230307?ProjectName=charls
 * http://charls.codeplex.com/workitem/7297
 * http://www.dcm4che.org/jira/browse/DCM-442
 * http://www.dcm4che.org/jira/browse/DCMEE-1144
 * http://java.net/jira/browse/JAI_IMAGEIO_CORE-183
 *
 * Explanation of the issue:
 *
 * Seems, the error is in the calculation of the default values for thresholds T1,
 * T2, T3, in particular min(MAXVAL, 4095) is not applied in
 *
 * FACTOR = (min(MAXVAL, 4095) + 128)/256
 *
 * as specified in http://www.itu.int/rec/T-REC-T.87-199806-I/en .
 */
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::FileMetaInformation::SetSourceApplicationEntityTitle
        ( "FixJAIBugJPEGLS" );

```



```

gdcM::ImageReader reader;
reader.SetFileName( filename );
if( !reader.Read() )
{
    return 1;
}

gdcM::Image &image = reader.GetImage();
//unsigned long len = image.GetBufferLength();
const gdcM::DataElement &in =
    reader.GetFile().GetDataSet().GetDataElement(
        gdcM::Tag(0x7fe0,0x0010) );
const gdcM::SequenceOfFragments *sf = in.
    GetSequenceOfFragments();
if( !sf )
{
    std::cerr << "No pixel data (or not encapsulated)" << std::endl;
    return 1;
}

const unsigned int *dims = image.GetDimensions();
if ( sf->GetNumberOfFragments() != dims[2] )
{
    std::cerr << "Unsupported" << std::endl;
    return 1;
}

// unsigned long totalLen = sf->ComputeByteLength();
std::vector<BYTE> rgbyteOutall;
for(unsigned int i = 0; i < sf->GetNumberOfFragments(); ++i)
{
    const gdcM::Fragment &frag = sf->GetFragment(i);
    if( frag.IsEmpty() ) return 1;
    const gdcM::ByteValue *bv = frag.GetByteValue();
    if( !bv ) return 1;
    unsigned long totalLen = bv->GetLength();

    std::vector<char> vbuffer;
    vbuffer.resize( totalLen );
    char *buffer = &vbuffer[0];
    bv->GetBuffer(buffer, totalLen);
    const BYTE* pbyteCompressed0 = (const BYTE*)buffer;
    while( totalLen > 0 && pbyteCompressed0[totalLen-1] != 0xd9 )
    {
        totalLen--;
    }

    JlsParameters metadata;
    if (JpegLsReadHeader(buffer, totalLen, &metadata) != OK)
    {
        std::cerr << "Cant parse jpegl" << std::endl;
        return false;
    }

    std::cout << metadata.width << std::endl;
    std::cout << metadata.height << std::endl;
    std::cout << metadata.bitspersample << std::endl;

    gdcM::PixelFormat const &pf = image.GetPixelFormat();
    std::cout << pf << std::endl;

    // http://charls.codeplex.com/discussions/230307?ProjectName=charls
    unsigned char marker_lse_13[] = {
        0xFF, 0xF8, 0x00, 0x0D,
        0x01,
        0x1F, 0xFF,
        0x00, 0x22, // T1 = 34
        0x00, 0x83, // T2 = 131
        0x02, 0x24, // T3 = 548
        0x00, 0x40
    };

    unsigned char marker_lse_14[] = {
        0xFF, 0xF8, 0x00, 0x0D,
        0x01,
        0x3F, 0xFF,
        0x00, 0x42, // T1 = 66
        0x01, 0x03, // T2 = 259
        0x04, 0x44, // T3 = 1092
        0x00, 0x40
    };
};

```

```

unsigned char marker_lse_15[] = {
    0xFF, 0xF8, 0x00, 0x0D,
    0x01,
    0x7F, 0xFF,
    0x00, 0x82, // T1 = 130
    0x02, 0x03, // T2 = 515
    0x08, 0x84, // T3 = 2180
    0x00, 0x40
};

unsigned char marker_lse_16[] = {
    0xFF, 0xF8, 0x00, 0x0D,
    0x01,
    0xFF, 0xFF,
    0x01, 0x02, // T1 = 258
    0x04, 0x03, // T2 = 1027
    0x11, 0x04, // T3 = 4356
    0x00, 0x40
};

const unsigned char *marker_lse = NULL;
switch( metadata.bitspersample )
{
case 13:
    marker_lse = marker_lse_13;
    break;
case 14:
    marker_lse = marker_lse_14;
    break;
case 15:
    marker_lse = marker_lse_15;
    break;
case 16:
    marker_lse = marker_lse_16;
    break;
}
if( !marker_lse )
{
    std::cerr << "Cant handle: " << metadata.bitspersample << std::endl;
    return 1;
}

// FIXME: One should recompute the value for 0x0F
vbuffer.insert( vbuffer.begin() + 0x0F, marker_lse, marker_lse+15);

#if 0
std::ofstream of( "/tmp/d.jls", std::ios::binary );
of.write( &vbuffer[0], vbuffer.size() );
of.close();
#endif

const char *pbyteCompressed = &vbuffer[0];
size_t cbyteCompressed = vbuffer.size(); // updated legnth

JlsParameters params;
JpegLsReadHeader(pbyteCompressed, cbyteCompressed, &params);

std::vector<BYTE> rgbyteOut;
//rgbyteOut.resize( image.GetBufferLength() );
rgbyteOut.resize(params.height *params.width * ((params.bitspersample + 7)
    / 8) * params.components);

JLS_ERROR result =
    JpegLsDecode(&rgbyteOut[0], rgbyteOut.size(), pbyteCompressed, cbyteCompressed, &params );
if (result != OK)
{
    std::cerr << "Could not patch JAI-JPEGLS" << std::endl;
    return 1;
}
rgbyteOutall.insert( rgbyteOutall.end(), rgbyteOut.begin(), rgbyteOut.end() );
}

gdc::DataElement pixeldata( gdc::Tag(0x7fe0,0x0010) );
pixeldata.SetVR( gdc::VR::OW );
pixeldata.SetByteValue( (char*)&rgbyteOutall[0], (uint32_t)rgbyteOutall.size() );

// Add the pixel data element
reader.GetFile().GetDataSet().Replace( pixeldata );
reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdc::TransferSyntax::ExplicitVRLittleEndian);

```

```

gdcmm::Writer writer;
writer.SetFileName( outfilename );
writer.SetFile( reader.GetFile() );
writer.Write();

std::cout << "Success !" << std::endl;

return 0;
}

```

12.66 FixOrientation.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmmReader.h"
#include "gdcmmWriter.h"
#include "gdcmmFile.h"
#include "gdcmmOrientation.h"
#include "gdcmmAttribute.h"

// Very simple orientation changer, fix invalid dataset
int main(int argc, char* argv[] )
{
    // assume AXIAL input for now
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcmm::Reader reader;
    reader.SetFileName( filename );
    if ( ! reader.Read() )
    {
        return 1;
    }

    const double axial[] = { 1,0,0, 0,1,0 };
    (void)axial;
    const double coronal[] = { 0,0,1, 1,0,0 };
    (void)coronal;
    const double sagittal[] = { 0,1,0, 0,0,1 };
    (void)sagittal;
    gdcmm::Attribute<0x0020,0x0032> at1; // IPP
    (void)at1;
    gdcmm::Attribute<0x0020,0x0037> at2; // IOP
    (void)at2;

    gdcmm::File & f = reader.GetFile();
    gdcmm::DataSet & ds = f.GetDataSet();
    at1.SetFromDataSet( ds );
    #if 0
    at2.SetFromDataSet( ds );
    const double * iop = at2.GetValues();
    if( !std::equal(iop, iop + 6, axial ) )
    {
        gdcmm::Orientation::OrientationType type =
            gdcmm::Orientation::GetType ( iop );
        std::cerr << "Wrong orientation: " << gdcmm::Orientation::GetLabel( type ) <<
            std::endl;
        return 1;
    }

```

```

    }
    at2.SetValues( sagittal );
    ds.Replace( at2.GetAsDataElement() );
#endif

    // for sagittal: swap element 0 & 2
    const double tmp0 = at1.GetValue(0);
    const double tmp2 = at1.GetValue(2);
    (void)tmp2;
    //at1.SetValue(tmp2, 0);
    //at1.SetValue(tmp0, 2);
    at1.SetValue( - tmp0 );
    ds.Replace( at1.GetAsDataElement() );

    gdcmm::Writer writer;
    writer.SetFile( f );
    writer.SetFileName( outfilename );
    if ( !writer.Write() )
    {
        return 1;
    }

    return 0;
}

```

12.67 gdcmmorthoplanes.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/

#include "vtkActor.h"
#include "vtkCamera.h"
#include "vtkMatrix4x4.h"
#include "vtkTransform.h"
#include "vtkAssembly.h"
#include "vtkCellPicker.h"
#include "vtkCommand.h"
#include "vtkImageActor.h"
#include "vtkImageMapToColors.h"
#include "vtkImageOrthoPlanes.h"
#include "vtkImagePlaneWidget.h"
#include "vtkImageReader.h"
#include "vtkInteractorEventRecorder.h"
#include "vtkLookupTable.h"
#include "vtkOutlineFilter.h"
#include "vtkPolyDataMapper.h"
#include "vtkProperty.h"
#include "vtkRenderWindow.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderer.h"
#include "vtkVolume16Reader.h"
#include "vtkImageData.h"
#include "vtkImageChangeInformation.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkAxesActor.h"
#include "vtkCaptionActor2D.h"
#include "vtkTextProperty.h"
#include "vtkPropAssembly.h"

#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkStringArray.h"

```

```

#include "gdcmsystem.h"
#include "gdcmdir.h"
#include "gdcmlppsorter.h"

#ifdef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

//-----
class vtkOrthoPlanesCallback : public vtkCommand
{
public:
    static vtkOrthoPlanesCallback *New()
    { return new vtkOrthoPlanesCallback; }

    void Execute( vtkObject *caller, unsigned long vtkNotUsed( event ),
                  void *callData )
    {
        vtkImagePlaneWidget* self =
            reinterpret_cast< vtkImagePlaneWidget* >( caller );
        if(!self) return;

        double* wl = static_cast<double*>( callData );

        if ( self == this->WidgetX )
        {
            this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
            this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
        }
        else if ( self == this->WidgetY )
        {
            this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
            this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
        }
        else if (self == this->WidgetZ)
        {
            this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
            this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
        }
    }

    vtkOrthoPlanesCallback():WidgetX( 0 ), WidgetY( 0 ), WidgetZ ( 0 ) {}

    vtkImagePlaneWidget* WidgetX;
    vtkImagePlaneWidget* WidgetY;
    vtkImagePlaneWidget* WidgetZ;
};

int main( int argc, char *argv[] )
{
    //char* fname = vtkTestUtilities::ExpandDataFileName(argc, argv, "Data/headsq/quarter");

    //vtkVolume16Reader* v16 = vtkVolume16Reader::New();
    // v16->SetDataDimensions( 64, 64);
    // v16->SetDataByteOrderToLittleEndian();
    // v16->SetImageRange( 1, 93);
    // v16->SetDataSpacing( 3.2, 3.2, 1.5);
    // v16->SetFilePrefix( fname );
    // v16->SetDataMask( 0x7fff);
    // v16->Update();
    std::vector<std::string> filenames;
    if( argc < 2 )
    {
        std::cerr << argv[0] << " filename1.dcm [filename2.dcm ...]\n";
        return 1;
    }
    else
    {
        // Is it a single directory ? If so loop over all files contained in it:
        const char *filename = argv[1];
        if( argc == 2 && gdcmsystem::FileIsDirectory( filename ) )
        {
            std::cout << "Loading directory: " << filename << std::endl;
            bool recursive = false;
            gdcmdir::Directory d;
            d.Load(filename, recursive);
            gdcmdir::Directory::FileNamesType const &files = d.
            GetFileNames();
            for( gdcmdir::Directory::FileNamesType::const_iterator it = files.begin(); it != files.end(); ++it )
            {
                filenames.push_back( it->c_str() );
            }
        }
    }
}

```

```

    }
}
else // list of files passed directly on the cmd line:
    // discard non-existing or directory
    {
        for(int i=1; i < argc; ++i)
        {
            filename = argv[i];
            if( gdcM::System::FileExists( filename ) )
            {
                if( gdcM::System::FileIsDirectory( filename ) )
                {
                    std::cerr << "Discarding directory: " << filename << std::endl;
                }
                else
                {
                    filenames.push_back( filename );
                }
            }
            else
            {
                std::cerr << "Discarding non existing file: " << filename << std::endl;
            }
        }
    }
}
//names->Print( std::cout );
}

vtkGDCMImageReader * reader = vtkGDCMImageReader::New();
double ippzspacing;
if( filenames.size() > 1 )
{
    //gdcM::Trace::DebugOn();
    //gdcM::Trace::WarningOn();
    gdcM::IPPSorter s;
    s.SetComputeZSpacing( true );
    s.SetZSpacingTolerance( 1e-3 );
    bool b = s.Sort( filenames );
    if( !b )
    {
        std::cerr << "Failed to sort files" << std::endl;
        return 1;
    }
    std::cout << "Sorting succeeded:" << std::endl;
    s.Print( std::cout );

    std::cout << "Found z-spacing:" << std::endl;
    std::cout << s.GetZSpacing() << std::endl;
    ippzspacing = s.GetZSpacing();

    const std::vector<std::string> & sorted = s.GetFiles();
    vtkStringArray *files = vtkStringArray::New();
    std::vector< std::string >::const_iterator it = sorted.begin();
    for( ; it != sorted.end(); ++it )
    {
        const std::string &f = *it;
        files->InsertNextValue( f.c_str() );
    }
    reader->SetFileNames( files );
    //reader->SetFileLowerLeft( 1 );
    reader->Update(); // important
    files->Delete();
}
else
{
    reader->SetFileName( argv[1] );
    reader->Update(); // important
    ippzspacing = reader->GetOutput()->GetSpacing()[2];
    ippzspacing = 4;
}

//reader->GetOutput()->Print( std::cout );
//vtkFloatingPointType range[2];
//reader->GetOutput()->GetScalarRange(range);
//std::cout << "Range: " << range[0] << " " << range[1] << std::endl;

const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();

vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if ( VTK_MAJOR_VERSION >= 6 )
    v16->SetInputConnection( reader->GetOutputPort() );

```

```

#else
    v16->SetInput( reader->GetOutput() );
#endif
v16->SetOutputSpacing( spacing[0], spacing[1], ippszspacing );
v16->Update();

#if 0
    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetInput( v16->GetOutput() );
    writer->SetFileLowerLeft( reader->GetFileLowerLeft() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetFileDimensionality( 3); //reader->GetFileDimensionality() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->SetFileName( "out.dcm" );
    writer->Write();
#endif

    vtkOutlineFilter* outline = vtkOutlineFilter::New();
    outline->SetInputConnection(v16->GetOutputPort());

    vtkPolyDataMapper* outlineMapper = vtkPolyDataMapper::New();
    outlineMapper->SetInputConnection(outline->GetOutputPort());

    vtkActor* outlineActor = vtkActor::New();
    outlineActor->SetMapper( outlineMapper);

    vtkRenderer* ren1 = vtkRenderer::New();
    vtkRenderer* ren2 = vtkRenderer::New();

    vtkRenderWindow* renWin = vtkRenderWindow::New();
    renWin->AddRenderer(ren2);
    renWin->AddRenderer(ren1);

    vtkRenderWindowInteractor* iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

    vtkCellPicker* picker = vtkCellPicker::New();
    picker->SetTolerance(0.005);

    vtkProperty* ipwProp = vtkProperty::New();
    //assign default props to the ipw's texture plane actor

    vtkImagePlaneWidget* planeWidgetX = vtkImagePlaneWidget::New();
    planeWidgetX->SetInteractor( iren);
    planeWidgetX->SetKeyPressActivationValue('x');
    planeWidgetX->SetPicker(picker);
    planeWidgetX->RestrictPlaneToVolumeOn();
    planeWidgetX->GetPlaneProperty()->SetColor(1,0,0);
    planeWidgetX->SetTexturePlaneProperty(ipwProp);
    planeWidgetX->TextureInterpolateOff();
    planeWidgetX->SetResliceInterpolateToNearestNeighbour();
    #if (VTK_MAJOR_VERSION >= 6)
        planeWidgetX->SetInputConnection(v16->GetOutputPort());
    #else
        planeWidgetX->SetInput(v16->GetOutput());
    #endif
    planeWidgetX->SetPlaneOrientationToXAxes();
    //planeWidgetX->SetSliceIndex(32);
    planeWidgetX->DisplayTextOn();
    planeWidgetX->On();
    planeWidgetX->InteractionOff();
    planeWidgetX->InteractionOn();

    vtkImagePlaneWidget* planeWidgetY = vtkImagePlaneWidget::New();
    planeWidgetY->SetInteractor( iren);
    planeWidgetY->SetKeyPressActivationValue('y');
    planeWidgetY->SetPicker(picker);
    planeWidgetY->GetPlaneProperty()->SetColor(1,1,0);
    planeWidgetY->SetTexturePlaneProperty(ipwProp);
    planeWidgetY->TextureInterpolateOn();
    planeWidgetY->SetResliceInterpolateToLinear();
    #if (VTK_MAJOR_VERSION >= 6)
        planeWidgetY->SetInputConnection(v16->GetOutputPort());
    #else
        planeWidgetY->SetInput(v16->GetOutput());
    #endif
    planeWidgetY->SetPlaneOrientationToYAxes();

```

```

//planeWidgetY->SetSlicePosition(102.4);
planeWidgetY->SetLookupTable( planeWidgetX->GetLookupTable());
planeWidgetY->DisplayTextOn();
planeWidgetY->UpdatePlacement();
planeWidgetY->On();

vtkImagePlaneWidget* planeWidgetZ = vtkImagePlaneWidget::New();
planeWidgetZ->SetInteractor( iren);
planeWidgetZ->SetKeyPressActivationValue('z');
planeWidgetZ->SetPicker(picker);
planeWidgetZ->GetPlaneProperty()->SetColor(0,0,1);
planeWidgetZ->SetTexturePlaneProperty(ipwProp);
planeWidgetZ->TextureInterpolateOn();
planeWidgetZ->SetResliceInterpolateToCubic();
#if (VTK_MAJOR_VERSION >= 6)
planeWidgetZ->SetInputConnection(vl6->GetOutputPort());
#else
planeWidgetZ->SetInput(vl6->GetOutput());
#endif
planeWidgetZ->SetPlaneOrientationToZAxes();
//planeWidgetZ->SetSliceIndex(25);
planeWidgetZ->SetLookupTable( planeWidgetX->GetLookupTable());
planeWidgetZ->DisplayTextOn();
planeWidgetZ->On();

vtkImageOrthoPlanes *orthoPlanes = vtkImageOrthoPlanes::New();
orthoPlanes->SetPlane(0, planeWidgetX);
orthoPlanes->SetPlane(1, planeWidgetY);
orthoPlanes->SetPlane(2, planeWidgetZ);
orthoPlanes->ResetPlanes();

vtkOrthoPlanesCallback* cbk = vtkOrthoPlanesCallback::New();
cbk->WidgetX = planeWidgetX;
cbk->WidgetY = planeWidgetY;
cbk->WidgetZ = planeWidgetZ;
planeWidgetX->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
planeWidgetY->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
planeWidgetZ->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
cbk->Delete();

double wl[2];
planeWidgetZ->GetWindowLevel(wl);

// Add a 2D image to test the GetReslice method
//
vtkImageMapToColors* colorMap = vtkImageMapToColors::New();
colorMap->PassAlphaToOutputOff();
colorMap->SetActiveComponent(0);
colorMap->SetOutputFormatToLuminance();
#if (VTK_MAJOR_VERSION >= 6)
colorMap->SetInputData(planeWidgetZ->GetResliceOutput());
#else
colorMap->SetInput(planeWidgetZ->GetResliceOutput());
#endif
colorMap->SetLookupTable(planeWidgetX->GetLookupTable());

vtkImageActor* imageActor = vtkImageActor::New();
imageActor->PickableOff();
#if (VTK_MAJOR_VERSION >= 6)
imageActor->SetInputData(colorMap->GetOutput());
#else
imageActor->SetInput(colorMap->GetOutput());
#endif

// Add the actors
//
ren1->AddActor( outlineActor);
ren2->AddActor( imageActor);

ren1->SetBackground( 0.1, 0.1, 0.2);
ren2->SetBackground( 0.2, 0.1, 0.2);

renWin->SetSize( 600, 350);

ren1->SetViewport(0,0,0.58333,1);
ren2->SetViewport(0.58333,0,1,1);

// Set the actors' postions
//
renWin->Render();
//iren->SetEventPosition( 175,175);

```



```

//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//iren->SetEventPosition( 475,175);
//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//renWin->Render();

//ren1->GetActiveCamera()->Elevation(110);
//ren1->GetActiveCamera()->SetViewUp(0, 0, -1);
//ren1->GetActiveCamera()->Azimuth(45);
//ren1->GetActiveCamera()->Dolly(1.15);
ren1->ResetCameraClippingRange();

vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
cube->SetXPlusFaceText ( "R" );
cube->SetXMinusFaceText ( "L" );
cube->SetYPlusFaceText ( "A" );
cube->SetYMinusFaceText ( "P" );
cube->SetZPlusFaceText ( "H" );
cube->SetZMinusFaceText ( "F" );
cube->SetFaceTextScale( 0.666667 );

vtkAxesActor* axes2 = vtkAxesActor::New();

vtkMatrix4x4 *invert = vtkMatrix4x4::New();
invert->DeepCopy( reader->GetDirectionCosines() );
invert->Invert();

// simulate a left-handed coordinate system
//
vtkTransform *transform = vtkTransform::New();
transform->Identity();
//transform->RotateY(90);
transform->Concatenate(invert);
axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
cube->GetAssembly()->SetUserTransform( transform );

axes2->SetTotalLength( 1.5, 1.5, 1.5 );
axes2->SetCylinderRadius( 0.500 * axes2->GetCylinderRadius() );
axes2->SetConeRadius ( 1.025 * axes2->GetConeRadius() );
axes2->SetSphereRadius ( 1.500 * axes2->GetSphereRadius() );

vtkTextProperty* tprop = axes2->GetXAxisCaptionActor2D()->
    GetCaptionTextProperty();
tprop->ItalicOn();
tprop->ShadowOn();
tprop->SetFontFamilyToTimes();

axes2->GetYAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );
axes2->GetZAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
widget->SetEnabled( 1 );
widget->InteractiveOff();
widget->InteractiveOn();

// Playback recorded events
//
//vtkInteractorEventRecorder *recorder = vtkInteractorEventRecorder::New();
//recorder->SetInteractor(iren);
//recorder->ReadFromInputStringOn();
//recorder->SetInputString(IOEventLog);

// Interact with data
// Render the image
//
iren->Initialize();
renWin->Render();

// Test SetKeyPressActivationValue for one of the widgets
//
//iren->SetKeyCode('z');

```

```

//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//iren->SetKeyCode('z');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);

//int retVal = vtkRegressionTestImage( renWin );
//
//if ( retVal == vtkRegressionTester::DO_INTERACTOR)
//{
//    iren->Start();
//}

// Clean up
//
//recorder->Off();
//recorder->Delete();

ipwProp->Delete();
orthoPlanes->Delete();
planeWidgetX->Delete();
planeWidgetY->Delete();
planeWidgetZ->Delete();
colorMap->Delete();
imageActor->Delete();
picker->Delete();
outlineActor->Delete();
outlineMapper->Delete();
outline->Delete();
iren->Delete();
renWin->Delete();
ren1->Delete();
ren2->Delete();
v16->Delete();
reader->Delete();

return 0;
}

```

12.68 gdcmmreslice.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkImageFlip.h"
#include "vtkImageReslice.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"

int main( int argc, char *argv[] )

```

```

{
    if( argc < 2 ) return 1;
    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( argv[1] );
    //reader->FileLowerLeftOn();
    reader->Update();

    vtkImageFlip *flip = vtkImageFlip::New();
    #if (VTK_MAJOR_VERSION >= 6)
        flip->SetInputConnection(reader->GetOutputPort());
    #else
        flip->SetInput(reader->GetOutput());
    #endif
    flip->SetFilteredAxis(0);
    flip->Update();

    vtkImageReslice *reslice = vtkImageReslice::New();
    //reslice->SetInput(reader->GetOutput());
    #if (VTK_MAJOR_VERSION >= 6)
        reslice->SetInputConnection(flip->GetOutputPort());
    #else
        reslice->SetInput(flip->GetOutput());
    #endif
    //reslice->SetResliceAxesDirectionCosines()
    reader->GetDirectionCosines()->Print(std::cout);
    vtkMatrix4x4 *invert = vtkMatrix4x4::New();
    invert->DeepCopy( reader->GetDirectionCosines() );
    invert->Invert();

    //reslice->SetResliceAxes( reader->GetDirectionCosines() );
    reslice->SetResliceAxes( invert );
    reslice->Update();
    vtkImageData* ima = reslice->GetOutput();

    vtkLookupTable* table = vtkLookupTable::New();
    table->SetNumberOfColors(1000);
    table->SetTableRange(0,1000);
    table->SetSaturationRange(0,0);
    table->SetHueRange(0,1);
    table->SetValueRange(0,1);
    table->SetAlphaRange(1,1);
    table->Build();

    // Texture
    vtkTexture* texture = vtkTexture::New();
    #if (VTK_MAJOR_VERSION >= 6)
        texture->SetInputData(ima);
    #else
        texture->SetInput(ima);
    #endif
    texture->InterpolateOn();
    texture->SetLookupTable(table);

    // PlaneSource
    vtkPlaneSource* plane = vtkPlaneSource::New();

    // PolyDataMapper
    vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
    #if (VTK_MAJOR_VERSION >= 6)
        planeMapper->SetInputConnection(plane->GetOutputPort());
    #else
        planeMapper->SetInput(plane->GetOutput());
    #endif

    // Actor
    vtkActor* planeActor = vtkActor::New();
    planeActor->SetTexture(texture);
    planeActor->SetMapper(planeMapper);
    planeActor->PickableOn();

    // Final rendering with simple interactor:
    vtkRenderer *ren = vtkRenderer::New();
    vtkRenderWindow *renwin = vtkRenderWindow::New();
    renwin->AddRenderer(ren);
    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renwin);
    ren->AddActor(planeActor);
    ren->SetBackground(0,0,0.5);

    // DICOM is RAH:
    vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();

```

```

cube->SetXPlusFaceText ( "R" );
cube->SetXMinusFaceText ( "L" );
cube->SetYPlusFaceText ( "A" );
cube->SetYMinusFaceText ( "P" );
cube->SetZPlusFaceText ( "H" );
cube->SetZMinusFaceText ( "F" );

vtkAxesActor* axes2 = vtkAxesActor::New();

vtkTransform *transform = vtkTransform::New();
transform->Identity();
//reader->GetDirectionCosines()->Print(std::cout);
transform->Concatenate(invert);
//axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
cube->GetAssembly()->SetUserTransform( transform ); // cant get it to work

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
widget->SetEnabled( 1 );
widget->InteractiveOff();
widget->InteractiveOn();

renwin->Render();
iren->Start();

// Clean up:
reader->Delete();
table->Delete();
texture->Delete();
plane->Delete();
planeMapper->Delete();
planeActor->Delete();
ren->Delete();
renwin->Delete();
iren->Delete();

return 0;
}

```

12.69 gdcmrtnonplan.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkXMLPolyDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>

```

```

#include "gdcmmReader.h"
#include "gdcmmAttribute.h"

/*
  This example is just for fun. We found a RT Ion Plan Storage and simply extracted the viz stuff for VTK

  RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
*/
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " filename.dcm outfile.vti\n";
        return 1;
    }
    const char * filename = argv[1];
    const char * outfile = argv[2];
    const char * outfile2 = argv[3];

    gdcmm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcmm::MediaStorage ms;
    ms.SetFromFile( reader.GetFile() );
    if( ms != gdcmm::MediaStorage::RTIonPlanStorage )
    {
        return 1;
    }

    /*
    (300a,03a2) SQ                                     # u/1,1 Ion Beam Sequence
      (ffff,e000) na (Item with undefined length)
        (0008,1040) LO [Test]                           # 4,1 Institutional Department Name
        (300a,00b2) SH (no value)                         # 0,1 Treatment Machine Name
        (300a,00b3) CS [MU]                               # 2,1 Primary Dosimeter Unit
        (300a,00c0) IS [1 ]                               # 2,1 Beam Number
        (300a,00c2) LO [1 ]                               # 2,1 Beam Name
        (300a,00c4) CS [STATIC]                           # 6,1 Beam Type
        (300a,00c6) CS [PROTON]                           # 6,1 Radiation Type
        (300a,00ce) CS [TREATMENT ]                       # 10,1 Treatment Delivery Type
        (300a,00d0) IS [0 ]                               # 2,1 Number of Wedges
        (300a,00e0) IS [1 ]                               # 2,1 Number of Compensators
        (300a,00ed) IS [0 ]                               # 2,1 Number of Boli
        (300a,00f0) IS [1 ]                               # 2,1 Number of Blocks
        (300a,0110) IS [2 ]                               # 2,1 Number of Control Points
        (300a,02ea) SQ                                     # u/1,1 Ion Range Compensator Sequence
          (ffff,e000) na (Item with undefined length)
            (300a,00e1) SH [Lucite]                       # 6,1 Material ID
            (300a,00e4) IS [1 ]                           # 2,1 Compensator Number
            (300a,00e5) SH [75hdhe5 ]                     # 8,1 Compensator ID
            (300a,00e7) IS [35]                           # 2,1 Compensator Rows
            (300a,00e8) IS [37]                           # 2,1 Compensator Columns
            (300a,00e9) DS [3.679991\4.249288 ]           # 18,2 Compensator Pixel Spacing
            (300a,00ea) DS [-76.00\62.50]                 # 12,2 Compensator Position
            (300a,00ec) DS
              [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\
              33.28\35.43\35.43\34.54\34.54\34.71\36.10\38.62\44.88\44.88\44.88\45.00\45.00\45.00\45.66\45.66\46.42\39.77\39.77\39.77\39.77\
              Data
                (300a,02e0) CS [ABSENT]                   # 6,1 Compensator Divergence
                (300a,02e1) CS [SOURCE_SIDE ]             # 12,1 Compensator Mounting Position
                (300a,02e4) FL 39.2                       # 4,1 Isocenter to Compensator Tray
                Distance
                  (300a,02e5) FL 2.12                     # 4,1 Compensator Column Offset
                  (300a,02e8) FL 4.76                     # 4,1 Compensator Milling Tool Diameter
            (ffff,e00d)
          */
    const gdcmm::DataSet& ds = reader.GetFile().GetDataSet();
    gdcmm::Tag tbeamsq(0x300a,0x03a2);
    if( !ds.FindDataElement( tbeamsq ) )
    {
        return 1;
    }
    const gdcmm::DataElement &tbeamsq = ds.GetDataElement( tbeamsq );
    //std::cout << tbeamsq << std::endl;
    gdcmm::SmartPointer<gdcmm::SequenceOfItems> sqi = tbeamsq.
        GetValueAsSQ();
    if( !sqi || !sqi->GetNumberOfItems() )

```

```

{
    return 1;
}

//for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
// {
//const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
const gdcm::DataSet& nestedds = item.GetNestedDataSet();
//std::cout << nestedds << std::endl;
gdcm::Tag tcompensatorsq(0x300a,0x02ea);
if( !nestedds.FindDataElement( tcompensatorsq ) )
{
    return 1;
}
const gdcm::DataElement &compensatorsq = nestedds.
    GetDataElement( tcompensatorsq );
//std::cout << compensatorsq << std::endl;
gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq
    .GetValueAsSQ();
const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
//std::cout << nestedds2 << std::endl;
gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
{
    return 1;
}
const gdcm::DataElement &compensatorthicknessdata = nestedds2.
    GetDataElement( tcompensatorthicknessdata );
// std::cout << compensatorthicknessdata << std::endl;
gdcm::Attribute<0x300a,0x00ec> at;
at.SetFromDataElement( compensatorthicknessdata );
const double* pts = at.GetValues();
// (300a,00e7) IS [35] # 2,1 Compensator Rows
gdcm::Attribute<0x300a,0x00e7> at1;
const gdcm::DataElement &compensatorrows = nestedds2.
    GetDataElement( at1.GetTag() );
at1.SetFromDataElement( compensatorrows );
std::cout << at1.GetValue() << std::endl;
// (300a,00e8) IS [37] # 2,1 Compensator Columns
gdcm::Attribute<0x300a,0x00e8> at2;
const gdcm::DataElement &compensatorcols = nestedds2.
    GetDataElement( at2.GetTag() );
at2.SetFromDataElement( compensatorcols );
std::cout << at2.GetValue() << std::endl;

// (300a,00e9) DS [3.679991\4.249288 ] # 18,2 Compensator Pixel Spacing
gdcm::Attribute<0x300a,0x00e9> at3;
const gdcm::DataElement &compensatorpixelspacing = nestedds2.
    GetDataElement( at3.GetTag() );
at3.SetFromDataElement( compensatorpixelspacing );
std::cout << at3.GetValue(0) << std::endl;
// (300a,00ea) DS [-76.00\62.50] # 12,2 Compensator Position
gdcm::Attribute<0x300a,0x00ea> at4;
const gdcm::DataElement &compensatorposition = nestedds2.
    GetDataElement( at4.GetTag() );
at4.SetFromDataElement( compensatorposition );
std::cout << at4.GetValue(0) << std::endl;

vtkDoubleArray *d = vtkDoubleArray::New();
d->SetArray( (double*)pts , at1.GetValue() * at2.GetValue() , 0 );

vtkImageData *img = vtkImageData::New();
img->Initialize();
img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
//imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
img->GetPointData()->SetScalars(d);

```

```

#if (VTK_MAJOR_VERSION >= 6)
#else
    img->Update();
#endif
    img->Print(std::cout);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
    if (VTK_MAJOR_VERSION >= 6)
        writeb->SetInputData( img );
    else
        writeb->SetInput( img );
    endif
    writeb->SetFileName( outfilename );
    writeb->Write();

/*
    (300a,03a6) SQ                                     # u/1,1 Ion Block Sequence
    (fffe,e000) na (Item with undefined length)
    (300a,00e1) SH [brass ]                             # 6,1 Material ID
    (300a,00f7) FL 95.03                                # 4,1 Isocenter to Block Tray Distance
    (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
    (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
    (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
    (300a,00fc) IS [1 ]                                 # 2,1 Block Number
    (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
    (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
    (300a,0106) DS
    [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\
    46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2\44.6\28.9\44.2\29.7\43.9\31.5\43.5\33.0\42.8\33.7\42.4\35.2\41.3\38.2\40.4\39.6\39.7\
    2\37.4\43.0\37.1\44.7\36] # 1934,2-2n Block Data
    (fffe,e00d)
    (fffe,e0dd)

*/

gdcm::Tag tblocksq(0x300a,0x03a6);
if( !nestedds.FindDataElement( tblocksq ) )
{
    return 1;
}
const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
//std::cout << blocksq << std::endl;
gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.
    GetValueAsSQ();
const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

gdcm::Tag tblockdata(0x300a,0x0106);
if( !nestedds3.FindDataElement( tblockdata ) )
{
    return 1;
}
const gdcm::DataElement &tblockdata = nestedds3.
    GetDataElement( tblockdata );
// std::cout << tblockdata << std::endl;
gdcm::Attribute<0x300a,0x0106> at_;
at_.SetFromDataElement( tblockdata );

vtkDoubleArray *scalars = vtkDoubleArray::New();
scalars->SetNumberOfComponents(3);

gdcm::Attribute<0x300a,0x0104> bnpts; // IS [179 ]
    # 4,1 Block Number of Points
if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
{
    return 1;
}
const gdcm::DataElement &blocknpts = nestedds3.
    GetDataElement( bnpts.GetTag() );
bnpts.SetFromDataElement( blocknpts );
//std::cout << bnpts.GetValue() << std::endl;

vtkPolyData *output = vtkPolyData::New();
vtkPoints *newPts = vtkPoints::New();
vtkCellArray *polys = vtkCellArray::New();
const double *ptr = at_.GetValues();
//unsigned int npts = bnpts.GetNumberOfValues() / 2;
unsigned int npts = bnpts.GetValue();
vtkIdType *ptIds = new vtkIdType[npts];
for(unsigned int i = 0; i < npts; ++i)
{
    float x[3] = {};
    x[0] = (float)ptr[2*i+0];

```

```

        x[1] = (float)ptr[2*i+1];
        //x[2] = pts[i+2];
        vtkIdType ptId = newPts->InsertNextPoint( x );
        //std::cout << x[0] << "," << x[1] << "," << x[2] << std::endl;
        ptIds[i] = ptId;
    }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
    #if (VTK_MAJOR_VERSION >= 6)
    #else
        output->Update();
    #endif
    output->Print( std::cout );

    // }

    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

    vtkImageColorViewer *viewer = vtkImageColorViewer::New();
    #if (VTK_MAJOR_VERSION >= 6)
        viewer->SetInputData(img);
    #else
        viewer->SetInput(img);
    #endif
    viewer->SetupInteractor(iren);
    viewer->SetSize(600, 600);
    viewer->GetRenderer()->ResetCameraClippingRange();
    viewer->Render();
    viewer->GetRenderer()->ResetCameraClippingRange();

    vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
    //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
    #if (VTK_MAJOR_VERSION >= 6)
        cubeMapper->SetInputData( output );
    #else
        cubeMapper->SetInput( output );
    #endif
    cubeMapper->SetScalarRange(0,7);
    vtkActor *cubeActor = vtkActor::New();
    //vtkActor2D* cubeActor = vtkActor2D::New();
    cubeActor->SetMapper(cubeMapper);
    vtkProperty * property = cubeActor->GetProperty();
    property->SetRepresentationToWireframe();

    viewer->GetRenderer()->AddActor( cubeActor );

    vtkXMLPolyDataWriter *writec= vtkXMLPolyDataWriter::New();
    #if (VTK_MAJOR_VERSION >= 6)
        writec->SetInputData( output );
    #else
        writec->SetInput( output );
    #endif
    writec->SetFileName( outfilename2 );
    writec->Write();

    iren->Initialize();
    iren->Start();

    return 0;
}

```

12.70 gdcmrtpplan.cxx

```

/*=====

```



```

Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
This example is just for fun. We found a fake RT Ion Plan Storage and simply extracted the viz stuff for
VTK
but this is rather a RT Plan storage
*/
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " filename.dcm outfile.vti\n";
        return 1;
    }
    const char * filename = argv[1];
    const char * outfile = argv[2];

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcm::MediaStorage ms;
    ms.SetFromFile( reader.GetFile() );
    if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
        return 1;
    }

    /*
(300a,00b0) SQ                                # u/1,1 Beam Sequence
(fffe,e000) na (Item with undefined length)
(300a,00b2) SH (no value)                    # 0,1 Treatment Machine Name
(300a,00c0) IS [1 ]                          # 2,1 Beam Number
(300a,00c2) LO [1 ]                          # 2,1 Beam Name
(300a,00c4) CS [STATIC]                      # 6,1 Beam Type
(300a,00c6) CS [PROTON]                     # 6,1 Radiation Type
(300a,00ce) CS [TREATMENT ]                 # 10,1 Treatment Delivery Type
(300a,00e0) IS [1 ]                         # 2,1 Number of Compensators
(300a,00e3) SQ                                # u/1,1 Compensator Sequence
(fffe,e000) na (Item with undefined length)
(300a,00e1) SH [lucite]                      # 6,1 Material ID
(300a,00e4) IS [1 ]                         # 2,1 Compensator Number
(300a,00e5) SH [75hdhe5 ]                   # 8,1 Compensator ID
(300a,00e7) IS [35]                         # 2,1 Compensator Rows
(300a,00e8) IS [37]                         # 2,1 Compensator Columns
(300a,00e9) DS [3.679991\4.249288 ]         # 18,2 Compensator Pixel Spacing
(300a,00ea) DS [-76.00\62.50]               # 12,2 Compensator Position
(300a,00ec) DS
[52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\
33.28\35.43\35.43\34.54\34.54\34.71\36.10\38.62\44.88\44.88\44.88\45.00\45.00\45.00\45.66\45.66\46.42\39.77\39.77\39.77\39.77\
Data
    */

```

```

        (300a,02e0) CS [ABSENT] # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ] # 12,1 Compensator Mounting Position
        (fffe,e00d)
        (fffe,e000) na (Item with undefined length)
        (fffe,e00d)
        (fffe,e0dd)
*/
const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
gdcm::Tag tbeamsq(0x300a,0x00b0);
if( !ds.FindDataElement( tbeamsq ) )
{
    return 1;
}
const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
//std::cout << beamsq << std::endl;
gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.
    GetValueAsSQ();
if( !sqi || !sqi->GetNumberOfItems() )
{
    return 1;
}

//for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
// {
//const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
const gdcm::Item & item = sqi->GetItem(2); // Item start at #1
const gdcm::DataSet& nestedds = item.GetNestedDataSet();
//std::cout << nestedds << std::endl;
gdcm::Tag tcompensatorsq(0x300a,0x00e3);
if( !nestedds.FindDataElement( tcompensatorsq ) )
{
    return 1;
}
const gdcm::DataElement &compensatorsq = nestedds.
    GetDataElement( tcompensatorsq );
//std::cout << compensatorsq << std::endl;
gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.
    GetValueAsSQ();
const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
//std::cout << nestedds2 << std::endl;
gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
{
    return 1;
}
const gdcm::DataElement &compensatorthicknessdata = nestedds2.
    GetDataElement( tcompensatorthicknessdata );
// std::cout << compensatorthicknessdata << std::endl;
gdcm::Attribute<0x300a,0x00ec> at;
at.SetFromDataElement( compensatorthicknessdata );
const double* pts = at.GetValues();
// (300a,00e7) IS [35] # 2,1 Compensator Rows
gdcm::Attribute<0x300a,0x00e7> at1;
const gdcm::DataElement &compensatorrows = nestedds2.
    GetDataElement( at1.GetTag() );
at1.SetFromDataElement( compensatorrows );
std::cout << at1.GetValue() << std::endl;
// (300a,00e8) IS [37] # 2,1 Compensator Columns
gdcm::Attribute<0x300a,0x00e8> at2;
const gdcm::DataElement &compensatorcols = nestedds2.
    GetDataElement( at2.GetTag() );
at2.SetFromDataElement( compensatorcols );
std::cout << at2.GetValue() << std::endl;

// (300a,00e9) DS [3.679991\4.249288 ] # 18,2 Compensator Pixel Spacing
gdcm::Attribute<0x300a,0x00e9> at3;
const gdcm::DataElement &compensatorpixelspacing = nestedds2.
    GetDataElement( at3.GetTag() );
at3.SetFromDataElement( compensatorpixelspacing );
std::cout << at3.GetValue(0) << std::endl;
// (300a,00ea) DS [-76.00\62.50] # 12,2 Compensator Position
gdcm::Attribute<0x300a,0x00ea> at4;
const gdcm::DataElement &compensatorposition = nestedds2.
    GetDataElement( at4.GetTag() );
at4.SetFromDataElement( compensatorposition );
std::cout << at4.GetValue(0) << std::endl;

vtkDoubleArray *d = vtkDoubleArray::New();
d->SetArray( (double*)pts , at1.GetValue() * at2.GetValue() , 0 );

```

```

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //img->SetExtent(1, xdim, 1, ydim, 1, zdim);
    #if (VTK_MAJOR_VERSION >= 6)
        assert(0);
    #else
        img->SetScalarTypeToDouble();
    #endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
    #if (VTK_MAJOR_VERSION >= 6)
        assert(0);
    #else
        img->SetNumberOfScalarComponents(1);
    #endif
    img->GetPointData()->SetScalars(d);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
    #if (VTK_MAJOR_VERSION >= 6)
        writeb->SetInputData( img );
    #else
        writeb->SetInput( img );
    #endif
    writeb->SetFileName( outfilename );
    writeb->Write();

/*
(300a,00f4) SQ # u/1,1 Block Sequence
  (fffe,e000) na (Item with undefined length)
    (300a,00e1) SH [brass ] # 6,1 Material ID
    (300a,00f8) CS [APERTURE] # 8,1 Block Type
    (300a,00fa) CS [ABSENT] # 6,1 Block Divergence
    (300a,00fb) CS [SOURCE_SIDE ] # 12,1 Block Mounting Position
    (300a,00fc) IS [1 ] # 2,1 Block Number
    (300a,0100) DS [50.00 ] # 6,1 Block Thickness
    (300a,0104) IS [179 ] # 4,1 Block Number of Points
    (300a,0106) DS
    [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\
    46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2\44.6\28.9\44.2\29.7\43.9\31.5\43.5\33.0\42.8\33.7\42.4\35.2\41.3\38.2\40.4\39.6\39.7\
    (fffe,e00d)
    (fffe,e000) na (Item with undefined length)
    (fffe,e00d)
  (fffe,e0dd)
*/
gdcm::Tag tblocksq(0x300a,0x00f4);
if( !nestedds.FindDataElement( tblocksq ) )
{
    return 1;
}
const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
//std::cout << blocksq << std::endl;
gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.
    GetValueAsSQ();
const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

gdcm::Tag tblockdata(0x300a,0x0106);
if( !nestedds3.FindDataElement( tblockdata ) )
{
    return 1;
}
const gdcm::DataElement &blockdata = nestedds3.
    GetDataElement( tblockdata );
// std::cout << blockdata << std::endl;
gdcm::Attribute<0x300a,0x0106> at_;
at_.SetFromDataElement( blockdata );

vtkDoubleArray *scalars = vtkDoubleArray::New();
scalars->SetNumberOfComponents(3);

gdcm::Attribute<0x300a,0x0104> bnpts; // IS [179 ] # 4,1 Block Number of
    Points
if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
{
    return 1;
}
const gdcm::DataElement &blocknpts = nestedds3.
    GetDataElement( bnpts.GetTag() );
bnpts.SetFromDataElement( blocknpts );
std::cout << bnpts.GetValue() << std::endl;

```

```

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds = new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
    {
        float x[3] = {};
        x[0] = (float)ptr[2*i+0];
        x[1] = (float)ptr[2*i+1];
        //x[2] = pts[i+2];
        vtkIdType ptId = newPts->InsertNextPoint( x );
        //std::cout << x[0] << ", " << x[1] << ", " << x[2] << std::endl;
        ptIds[i] = ptId;
    }
    vtkIdType cellId = polys->InsertNextCell(npts, ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#ifdef VTK_MAJOR_VERSION >= 6
#else
    output->Update();
#endif
    output->Print( std::cout );

    // }

    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

    vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#ifdef VTK_MAJOR_VERSION >= 6
    viewer->SetInputData(img);
#else
    viewer->SetInput(img);
#endif
    viewer->SetupInteractor(iren);
    viewer->SetSize(600, 600);
    viewer->Render();

    vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
    //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#ifdef VTK_MAJOR_VERSION >= 6
    cubeMapper->SetInputData( output );
#else
    cubeMapper->SetInput( output );
#endif
    cubeMapper->SetScalarRange(0,7);
    vtkActor *cubeActor = vtkActor::New();
    //vtkActor2D* cubeActor = vtkActor2D::New();
    cubeActor->SetMapper(cubeMapper);
    vtkProperty *property = cubeActor->GetProperty();
    property->SetRepresentationToWireframe();

    viewer->GetRenderer()->AddActor( cubeActor );

    iren->Initialize();
    iren->Start();

    return 0;
}

```

12.71 gdcmscene.cxx

```

/*=====

```

```

Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMPolyDataReader.h"
// #include "vtkGDCMPolyDataWriter.h"

#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"

// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " filename1.dcm\n";
        return 1;
    }
    const char * filename = argv[1];

    vtkGDCMPolyDataReader * reader =
        vtkGDCMPolyDataReader::New();
    reader->SetFileName( filename );
    reader->Update();

    // vtkGDCMPolyDataWriter * writer2 = vtkGDCMPolyDataWriter::New();
    // for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
    //     writer2->SetInput( num, reader->GetOutput( num) );
    //     writer2->SetFileName( "rtstruct.dcm" );
    //     writer2->Write();

    // print reader output:
    reader->Print( std::cout );
    // print first output:
    reader->GetOutput()->Print( std::cout );

    vtkAppendPolyData *append = vtkAppendPolyData::New();
    int n = reader->GetNumberOfOutputPorts();
    for(int i = 0; i < n; ++i)
    {
        #if (VTK_MAJOR_VERSION >= 6)
            append->AddInputConnection( reader->GetOutputPort(i) );
        #else
            append->AddInput( reader->GetOutput(i) );
        #endif
    }

    vtkPolyDataWriter * writer = vtkPolyDataWriter::New();
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputConnection( reader->GetOutputPort() );
    #else
        writer->SetInput( reader->GetOutput() );
    #endif
    writer->SetFileName( "rtstruct.vtk" );
    //writer->Write();

    // Now we'll look at it.
    vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
    //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
    //cubeMapper->SetInput( reader->GetOutput() );

```

```

#if (VTK_MAJOR_VERSION >= 6)
    cubeMapper->SetInputConnection( append->GetOutputPort() );
#else
    cubeMapper->SetInput( append->GetOutput() );
#endif
cubeMapper->SetScalarRange(0,7);
vtkActor *cubeActor = vtkActor::New();
//vtkActor2D* cubeActor = vtkActor2D::New();
cubeActor->SetMapper(cubeMapper);
vtkProperty * property = cubeActor->GetProperty();
property->SetRepresentationToWireframe();
//cubeActor->GetProperty()->SetColor(1, 0, 0);

// The usual rendering stuff.
// vtkCamera *camera = vtkCamera::New();
// camera->SetPosition(1,1,1);
// camera->SetFocalPoint(0,0,0);

vtkRenderer *renderer = vtkRenderer::New();
vtkRenderWindow *renWin = vtkRenderWindow::New();
renWin->AddRenderer(renderer);

vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
iren->SetRenderWindow(renWin);

renderer->AddActor(cubeActor);
//renderer->AddActor2D(cubeActor);
//renderer->SetActiveCamera(camera);
renderer->ResetCamera();
renderer->SetBackground(1,1,1);

renWin->SetSize(300,300);

// interact with data
renWin->Render();
iren->Start();

reader->Delete();
append->Delete();
cubeMapper->Delete();
cubeActor->Delete();
// camera->Delete();
renderer->Delete();
renWin->Delete();
iren->Delete();

writer->Delete();

return 0;
}

```

12.72 gdcmttexture.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"

```

```

#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"

int main( int argc, char *argv[] )
{
    if( argc < 2 ) return 1;
    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( argv[1] );

    reader->Update();
    vtkImageData* ima = reader->GetOutput();

    vtkLookupTable* table = vtkLookupTable::New();
    table->SetNumberOfColors(1000);
    table->SetTableRange(0,1000);
    table->SetSaturationRange(0,0);
    table->SetHueRange(0,1);
    table->SetValueRange(0,1);
    table->SetAlphaRange(1,1);
    table->Build();

    // Texture
    vtkTexture* texture = vtkTexture::New();
    #if (VTK_MAJOR_VERSION >= 6)
        texture->SetInputData(ima);
    #else
        texture->SetInput(ima);
    #endif
    texture->InterpolateOn();
    texture->SetLookupTable(table);

    // PlaneSource
    vtkPlaneSource* plane = vtkPlaneSource::New();
    plane->SetOrigin( -0.5, -0.5, 0.0);
    plane->SetPoint1( 0.5, -0.5, 0.0);
    plane->SetPoint2( -0.5, 0.5, 0.0);

    // PolyDataMapper
    vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
    #if (VTK_MAJOR_VERSION >= 6)
        planeMapper->SetInputConnection(plane->GetOutputPort());
    #else
        planeMapper->SetInput(plane->GetOutput());
    #endif

    // Actor
    vtkActor* planeActor = vtkActor::New();
    planeActor->SetTexture(texture);
    planeActor->SetMapper(planeMapper);
    planeActor->PickableOn();

    // Final rendering with simple interactor:
    vtkRenderer *ren = vtkRenderer::New();
    vtkRenderWindow *renwin = vtkRenderWindow::New();
    renwin->AddRenderer(ren);
    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renwin);
    ren->AddActor(planeActor);
    ren->SetBackground(0,0,0.5);

    vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
    cube->SetXPlusFaceText ( "L" );
    cube->SetXMinusFaceText ( "R" );
    cube->SetYPlusFaceText ( "A" );
    cube->SetYMinusFaceText ( "P" );
    cube->SetZPlusFaceText ( "H" );
    cube->SetZMinusFaceText ( "F" );

    vtkAxesActor* axes2 = vtkAxesActor::New();
    // simulate a left-handed coordinate system

```

```

//
vtkTransform *transform = vtkTransform::New();
transform->Identity();
//transform->RotateY(180);
reader->GetDirectionCosines()->Print(std::cout);
transform->Concatenate(reader->GetDirectionCosines());
//axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
//cube->SetUserTransform( transform ); // cant get it to work
cube->GetAssembly()->SetUserTransform( transform ); // cant get it to work

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
//widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
//widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
widget->SetEnabled( 1 );
widget->InteractiveOff();
widget->InteractiveOn();

renwin->Render();
iren->Start();

// Clean up:
reader->Delete();
table->Delete();
texture->Delete();
plane->Delete();
planeMapper->Delete();
planeActor->Delete();
ren->Delete();
renwin->Delete();
iren->Delete();

return 0;
}

```

12.73 gdcmvolume.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMImageReader.h"
#include "vtkPiecewiseFunction.h"
#include "vtkColorTransferFunction.h"
#include "vtkVolume.h"
#include "vtkVolumeProperty.h"
#include "vtkVolumeTextureMapper3D.h"
#include "vtkFixedPointVolumeRayCastMapper.h"
#include "vtkInteractorStyleTrackballCamera.h"
#include "vtkRenderer.h"
#include "vtkRenderWindow.h"
#include "vtkImageClip.h"
#include "vtkRenderWindowInteractor.h"

// gdcmvolume gdcmData/GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();

```



```

reader->SetFileName( argv[1] );
reader->Update();

// Create the renderers, render window, and interactor
vtkRenderWindow *renWin = vtkRenderWindow::New();
vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
iren->SetRenderWindow(renWin);
vtkRenderer *ren = vtkRenderer::New();
renWin->AddRenderer(ren);

// Create a transfer function mapping scalar value to opacity
vtkPiecewiseFunction *oTFun = vtkPiecewiseFunction::New();
//oTFun->AddSegment(0, 1.0, 256, 0.1);
oTFun->AddSegment(0, 1.0, 240, 0.1);

vtkColorTransferFunction *cTFun = vtkColorTransferFunction::New();
cTFun->AddRGBPoint( 0, 1.0, 1.0, 1.0 );
//cTFun->AddRGBPoint( 255, 1.0, 1.0, 1.0 );
cTFun->AddRGBPoint( 240, 1.0, 1.0, 1.0 );

// Need to crop to actually see minimum intensity
vtkImageClip *clip = vtkImageClip::New();
clip->SetInputConnection( reader->GetOutputPort() );
clip->SetOutputWholeExtent(0,66,0,66,30,37);
clip->ClipDataOn();

vtkVolumeProperty *property = vtkVolumeProperty::New();
property->SetScalarOpacity(oTFun);
property->SetColor(cTFun);
property->SetInterpolationTypeToLinear();

vtkFixedPointVolumeRayCastMapper *mapper = vtkFixedPointVolumeRayCastMapper::New();
mapper->SetBlendModeToMinimumIntensity();
mapper->SetInputConnection( reader->GetOutputPort() );

vtkVolume *volume = vtkVolume::New();
volume->SetMapper(mapper);
volume->SetProperty(property);

ren->AddViewProp(volume);

renWin->Render();
{
    iren->Start();
}

volume->Delete();
mapper->Delete();
property->Delete();
clip->Delete();
cTFun->Delete();
oTFun->Delete();
reader->Delete();
renWin->Delete();
iren->Delete();
ren->Delete();

return 0;
}

```

12.74 GenAllVR.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====

```

```

===== */
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFileExplicitFilter.h"

#include <cstdlib>
#include <cstring>

gdcm::Tag FindTagFromVR(gdcm::Dict const &dict, gdcm::VR const &vr)
{
    using gdcm::Dict;
    Dict::ConstIterator beg = dict.Begin();
    Dict::ConstIterator end = dict.End();
    Dict::ConstIterator it;
    for( it = beg; it != end; ++it)
    {
        const gdcm::Tag &t = it->first;
        const gdcm::DictEntry &de = it->second;
        const gdcm::VR &vr_de = de.GetVR();
        if( vr == vr_de && !de.GetRetired() && t.GetGroup() >= 0x8 )
        {
            return t;
        }
    }
    return gdcm::Tag(0xffff,0xffff);
}

struct rnd_gen {
    rnd_gen(char const* r = "abcdefghijklmnopqrstuvwxyz0123456789")
        : range(r), len(std::strlen(r)) { }

    char operator ()() const {
        return range[static_cast<std::size_t>(std::rand() * (1.0 / ((double)RAND_MAX + 1.0)) * (double)len)];
    }
private:
    char const* range;
    std::size_t len;
};

/*
*/
int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " output.dcm" << std::endl;
        return 1;
    }
    const char *outfilename = argv[1];
    static const gdcm::Global &g = gdcm::Global::GetInstance();
    static const gdcm::Dicts &dicts = g.GetDicts();
    static const gdcm::Dict &pubdict = dicts.GetPublicDict();
    using gdcm::VR;
    using gdcm::Tag;

    gdcm::Writer w;

    gdcm::File &f = w.GetFile();
    gdcm::DataSet &ds = f.GetDataSet();

    gdcm::FileExplicitFilter fef;
    //fef.SetChangePrivateTags( true );
    fef.SetFile( w.GetFile() );
    if( !fef.Change() )
    {
        std::cerr << "Failed to change" << std::endl;
    }
}

```

```

    return 1;
}

gdcmm::SmartPointer<gdcmm::SequenceOfItems> sq = new
    gdcmm::SequenceOfItems();
sq->SetLengthToUndefined();

// gdcmm::DummyValueGenerator dv;

const std::size_t len = 10;
char ss[len+1];
ss[len] = '\\0';

const char owner_str[] = "GDCM CONFORMANCE TESTS";
gdcmm::DataElement owner( gdcmm::Tag(0x4d4d, 0x10) );
owner.SetByteValue( owner_str, (uint32_t)strlen( owner_str ) );
owner.SetVR( gdcmm::VR::LO );

// Create an item
gdcmm::Item it;
it.SetVLToUndefined();
gdcmm::DataSet &nds = it.GetNestedDataSet();
// nds.Insert( owner );
// nds.Insert( de );

// Insert sequence into data set
gdcmm::DataElement des( gdcmm::Tag(0x4d4d, 0x1001) );
des.SetVR( gdcmm::VR::SQ );
des.SetValue( *sq );
des.SetVLToUndefined();

ds.Insert( owner );
ds.Insert( des );

// avoid INVALID = 0
for( int i = 1; i < 27; ++i )
{
    VR vr = (VR::VRType)(1 << i);
    Tag t = FindTagFromVR( pubdict, vr );
    if( vr != VR::UN && vr != VR::SQ )
    {
        assert( t != Tag(0xffff, 0xffff) );
        gdcmm::DataElement de( t );
        std::generate_n( ss, len, rnd_gen );
        de.SetVR( vr );
        de.SetByteValue( ss, (uint32_t)strlen( ss ) );
        nds.Insert( de );
    }
}
sq->AddItem( it );

// Make sure to override any UID stuff
gdcmm::UIDGenerator uid;
gdcmm::DataElement de( Tag(0x8, 0x18) ); // SOP Instance UID
de.SetVR( VR::UI );
const char *u = uid.Generate();
de.SetByteValue( u, (uint32_t)strlen( u ) );
ds.Insert( de );

de.SetTag( Tag(0x8, 0x16) ); // SOP Class UID
de.SetVR( VR::UI );
gdcmm::MediaStorage ms( gdcmm::MediaStorage::RawDataStorage );
de.SetByteValue( ms.GetString(), (uint32_t)strlen( ms.GetString() ) );
ds.Insert( de );

gdcmm::FileMetaInformation &fmi = f.GetHeader();
//fmi.SetDataSetTransferSyntax( gdcmm::TransferSyntax::ImplicitVRLittleEndian );
fmi.SetDataSetTransferSyntax(
    gdcmm::TransferSyntax::ExplicitVRLittleEndian );

w.SetCheckFileMetaInformation( true );
w.SetFileName( outfilename );
if ( !w.Write() )
{
    return 1;
}

return 0;
}

```

12.75 GenerateDICOMDIR.cs

This is a C# example on how to use DICOMDIRGenerator

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/

/*
 * Simple C# example to show how to use DICOMDIRGenerator
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GenerateDICOMDIR.exe path output_filename
 */
using System;
using gdcm;

public class GenerateDICOMDIR
{
    public static int Main(string[] args)
    {
        string directory = args[0];
        string outfilename = args[1];

        Directory d = new Directory();
        uint nfiles = d.Load( directory, true );
        if(nfiles == 0) return 1;
        //System.Console.WriteLine( "Files:\n" + d.toString() );

        // Implement fast path ?
        // Scanner s = new Scanner();

        string descriptor = "My_Descriptor";
        FilenamesType filenames = d.GetFilenames();

        gdcm.DICOMDIRGenerator gen = new DICOMDIRGenerator();
        gen.SetFilenames( filenames );
        gen.SetDescriptor( descriptor );
        if( !gen.Generate() )
        {
            return 1;
        }

        gdcm.FileMetaInformation.
            SetSourceApplicationEntityTitle( "GenerateDICOMDIR" );
        gdcm.Writer writer = new Writer();
        writer.SetFile( gen.GetFile() );
        writer.SetFileName( outfilename );
        if( !writer.Write() )
        {
            return 1;
        }

        return 0;
    }
}

```

12.76 GenerateRTSTRUCT.cxx

```

/*=====

```

```

Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMPolyDataWriter.h"
#include "vtkGDCMPolyDataReader.h"
#include "vtkPolyData.h"
#include "vtkPolyDataReader.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRTStructSetProperties.h"
#include "vtkStringArray.h"
#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkImageData.h"

#include <algorithm> //for std::find

#include "gdcmDirectoryHelper.h"

using namespace gdcm;

//view each organ independently of the others, to make sure that
//organ names correspond to actual segmentations.
void ShowOrgan(vtkPolyData* inData)
{
    // Now we'll look at it.
    vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
    #if (VTK_MAJOR_VERSION >= 6)
        cubeMapper->SetInputData( inData );
    #else
        cubeMapper->SetInput( inData );
    #endif
    cubeMapper->SetScalarRange(0,7);
    vtkActor *cubeActor = vtkActor::New();
    cubeActor->SetMapper(cubeMapper);
    vtkProperty *property = cubeActor->GetProperty();
    property->SetRepresentationToWireframe();

    vtkRenderer *renderer = vtkRenderer::New();
    vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->AddRenderer(renderer);

    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

    renderer->AddActor(cubeActor);
    renderer->ResetCamera();
    renderer->SetBackground(1,1,1);

    renWin->SetSize(300,300);

    renWin->Render();
    iren->Start();

    cubeMapper->Delete();
    cubeActor->Delete();
    renderer->Delete();
    renWin->Delete();
    iren->Delete();
}

/*
 * Full application which ... RTSTRUCT

```

```

*/
int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " directory-with-rtstruct-and-ct-images\n";
        return 1;
    }
    std::string theDirName(argv[1]);
    Directory::FileNamesType theRTSeries =
        DirectoryHelper::GetRTStructSeriesUIDs(theDirName);

    gdcm::Directory theDir;
    theDir.Load(argv[1]);

    if (theRTSeries.empty())
    {
        std::cerr << "No RTStructs found for the test, ending." << std::endl;
        return 1;
    }

    for (size_t q = 0; q < theRTSeries.size(); q++)
    {
        Directory::FileNamesType theRTNames =
            DirectoryHelper::GetFileNamesFromSeriesUIDs(theDirName,
                theRTSeries[q]);

        if (theRTNames.empty()) {
            std::cerr << "Unable to load RT Series " << theRTSeries[q] << ", continuing. " << std::endl;
            continue;
        }

        vtkGDCMPolyDataReader * reader =
            vtkGDCMPolyDataReader::New();
        reader->SetFileName( theRTNames[0].c_str() );
        reader->Update();

        //std::cout << reader->GetMedicalImageProperties()->GetStudyDate() << std::endl;

        vtkGDCMPolyDataWriter * writer =
            vtkGDCMPolyDataWriter::New();
        int numMasks = reader->GetNumberOfOutputPorts() + 1; //add a blank one in
        writer->SetNumberOfInputPorts( numMasks );
        std::string thePotentialName = theDirName + "/" + "GDCMTestRTStruct." + theRTSeries[q] + ".dcm";
        gdcm::Directory::FileNamesType theFileNames = theDir.
            GetFileNames();
        //keep renaming the output until we get something that doesn't overwrite what was there already
        int count = 0;
        while (std::find(theFileNames.begin(), theFileNames.end(), thePotentialName) != theFileNames.end())
        {
            char buff[255];
            sprintf(buff, "%d", count);
            thePotentialName = theDirName + "/" + "GDCMTestRTStruct." + buff + "." + theRTSeries[q] + ".dcm";
        }
        writer->SetFileName( thePotentialName.c_str());
        writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
        //this line is cheating, we won't have the same stuff, and may not have a struct
        //to start with.
        //have to go back to the original data to reconstruct the RTStructureSetProperties
        //writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
        //writer->Write();

        //loop through the outputs in order to write them out as if they had been created and appended
        vtkStringArray* roiNames = vtkStringArray::New();
        vtkStringArray* roiAlgorithms = vtkStringArray::New();
        vtkStringArray* roiTypes = vtkStringArray::New();
        roiNames->SetNumberOfValues(numMasks);
        roiAlgorithms->SetNumberOfValues(numMasks);
        roiTypes->SetNumberOfValues(numMasks);
        vtkAppendPolyData* append = vtkAppendPolyData::New();

        //ok, now we'll add a blank organ
        //the blank organ is to test to ensure that blank organs work; there have been crash reports
        //this code is added at the beginning to ensure that the blank organs are read
        //and preserved as individual organs.
        vtkPolyData* blank = vtkPolyData::New();
        #if (VTK_MAJOR_VERSION >= 6)
            writer->SetInputData(0, blank);
        #else
            writer->SetInput(0, blank);
        #endif
    }
}

```

```

roiNames->InsertValue(0, "blank");
roiAlgorithms->InsertValue(0, "blank");
roiTypes->InsertValue(0, "ORGAN");

//note the offsets used to place the blank rtstruct at the beginning of the newly generated RT.
//the idea is to run the program twice; first to generate an rtstruct with a blank mask (making
//sure that that functionality works), and then a second time to make sure that everything is
//being read properly. Multiple organs with the same name could cause some strangenesses.
for (int i = 1; i < numMasks; ++i)
{
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputConnection(i, reader->GetOutputPort(i-1));
        append->AddInputConnection(reader->GetOutputPort(i-1));
    #else
        writer->SetInput(i, reader->GetOutput(i-1));
        append->AddInput(reader->GetOutput(i-1));
    #endif
    std::string theString = reader->GetRTStructSetProperties()->GetStructureSetROIName(i-1);
    roiNames->InsertValue(i, theString);
    theString = reader->GetRTStructSetProperties()->GetStructureSetROIGenerationAlgorithm(i-1);
    roiAlgorithms->InsertValue(i, theString);
    theString = reader->GetRTStructSetProperties()->GetStructureSetRTROIInterpretedType(i-1);
    roiTypes->InsertValue(i, theString);

    ShowOrgan(reader->GetOutput(i-1));
}

vtkRTStructSetProperties* theProperties =
    vtkRTStructSetProperties::New();
writer->SetRTStructSetProperties(theProperties);
writer->InitializeRTStructSet(theDirName,
    reader->GetRTStructSetProperties()->GetStructureSetLabel(),
    reader->GetRTStructSetProperties()->GetStructureSetName(),
    roiNames, roiAlgorithms, roiTypes);

writer->SetRTStructSetProperties(theProperties);
writer->Write();

// print reader output:
reader->Print( std::cout );
// print first output:
reader->GetOutput()->Print( std::cout );

reader->Delete();
append->Delete();
roiNames->Delete();
roiTypes->Delete();
theProperties->Delete();
roiAlgorithms->Delete();
blank->Delete();

writer->Delete();
}
return 0;
}

```

12.77 GenerateStandardSOPClasses.cxx

```

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=====*/
/*
*/

#include "gdcmDefs.h"

```

```

#include "gdcmUIDs.h"
#include "gdcmGlobal.h"
#include "gdcmMediaStorage.h"
#include "gdcmSOPClassUIDToIOD.h"

int main(int , char *[])
{
    using gdcm::MediaStorage;
    gdcm::Global& g = gdcm::Global::GetInstance();
    if( !g.LoadResourcesFiles() )
    {
        std::cerr << "Could not LoadResourcesFiles" << std::endl;
        return 1;
    }

    const gdcm::Defs &defs = g.GetDefs();

    int ret = 0;

    //std::cout << "Table B.5-1 STANDARD SOP CLASSES" << std::endl;
    std::cout << "SOP Class Name,SOP Class UID,IOD Specification (defined in PS 3.3)" << std::endl;

    gdcm::MediaStorage::MSType mst;
    for ( mst = gdcm::MediaStorage::MediaStorageDirectoryStorage
        ; mst < gdcm::MediaStorage::MS_END;
        mst = (gdcm::MediaStorage::MSType)(mst + 1) )
    {
        const char *iod = defs.GetIODNameFromMediaStorage(mst);
        gdcm::UIDs uid;
        uid.SetFromUID( gdcm::MediaStorage::GetMSString(mst) /*
            mst.GetString()*/ );
        if( iod )
        {
            const char *iod_ref = gdcm::SOPClassUIDToIOD::GetIOD(uid);
            if( iod_ref )
            {
                std::string iod_ref_str = iod_ref;
                //iod_ref_str += " IOD Modules";
                //if( iod_ref_str != iod )
                {
                    //std::cout << "UID: " << uid << " ";
                    std::cout << "' ' << uid.GetName() << ' ' << " << " << " << uid.
                        GetString() << " << " << " << iod << " << std::endl;
                    //std::cout << "Incompatible IODs: [" << iod << "]" versus ref= [" << iod_ref_str << "]" <<
                        std::endl;
                    ++ret;
                }
            }
        }
    }

    return 0;
}

```

12.78 GenFakeldentifyFile.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"

```



```

#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"

#include <cstdlib>
#include <cstring>

gdcm::DataElement CreateFakeElement(gdcm::Tag const &tag, bool toremove)
{
    static const gdcm::Global &g = gdcm::Global::GetInstance();
    static const gdcm::Dicts &dicts = g.GetDicts();
    static const gdcm::Dict &pubdict = dicts.GetPublicDict();
    static size_t countglobal = 0;
    static std::vector<gdcm::Tag> balcptags =
        gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes
        ();
    size_t count = countglobal % balcptags.size();

    const gdcm::DictEntry &dictentry = pubdict.GetDictEntry(tag);

    gdcm::DataElement de;
    de.SetTag( tag );
    using gdcm::VR;
    const VR &vr = dictentry.GetVR();
    //if( vr != VR::INVALID )
    if( vr.IsDual() )
    {
        if( vr == VR::US_SS )
        {
            de.SetVR( VR::US );
        }
        else if( vr == VR::US_SS_OW )
        {
            de.SetVR( VR::OW );
        }
        else if( vr == VR::OB_OW )
        {
            de.SetVR( VR::OB );
        }
    }
    else
    {
        de.SetVR( vr );
    }
    const char str[] = "BasicApplicationLevelConfidentialityProfileAttributes";
    const char safe[] = "This is safe to keep";
    if( de.GetVR() != VR::SQ )
    {
        if( toremove )
            de.SetByteValue( str, (uint32_t)strlen(str) );
        else
            de.SetByteValue( safe, (uint32_t)strlen(safe) );
    }
    else
    {
        // Create an item
        gdcm::Item it;
        it.SetVLToUndefined();
        gdcm::DataSet &nds = it.GetNestedDataSet();
        // Insert sequence into data set
        assert(de.GetVR() == gdcm::VR::SQ );
        gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new
            gdcm::SequenceOfItems();
        sq->SetLengthToUndefined();
        de.SetValue(*sq);
        de.SetVLToUndefined();
        //ds.Insert( de );

        if( !toremove )
        {
            nds.Insert( CreateFakeElement( balcptags[count], true ) );
        }
    }
}

```

```

        countglobal++;
    }
    else
    {
        gdcmm::Attribute<0x0008,0x0000> at1 = { 0 }; // This element has no
            reason to be 'anonymized'...
        nds.Insert( at1.GetAsDataElement() );
        gdcmm::Attribute<0x000a,0x0000> at2 = { 0 };
        nds.Insert( at2.GetAsDataElement() );
    }
    sq->AddItem(it);
}
return de;
}

/*
*/
int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " output.dcm" << std::endl;
        return 1;
    }
    using gdcmm::Tag;
    using gdcmm::VR;
    const char *outfilename = argv[1];

    std::vector<gdcmm::Tag> balcptags =
        gdcmm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes
            ();

    gdcmm::Writer w;
    gdcmm::File &f = w.GetFile();
    gdcmm::DataSet &ds = f.GetDataSet();

    // Add attribute that need to be anonymized:
    std::vector<gdcmm::Tag>::const_iterator it = balcptags.begin();
    for(; it != balcptags.end(); ++it)
    {
        ds.Insert( CreateFakeElement( *it, true ) );
    }

    // Add attribute that do NOT need to be anonymized:
    static const gdcmm::Global &g = gdcmm::Global::GetInstance();
    static const gdcmm::Dicts &dicts = g.GetDicts();
    static const gdcmm::Dict &pubdict = dicts.GetPublicDict();

    using gdcmm::Dict;
    Dict::ConstIterator dictit = pubdict.Begin();
    for(; dictit != pubdict.End(); ++dictit)
    {
        const gdcmm::Tag &dicttag = dictit->first;
        if( dicttag == Tag(0x6e65,0x6146) ) break;
        //const gdcmm::DictEntry &dictentry = dictit->second;
        ds.Insert( CreateFakeElement( dicttag, false ) );
    }
    ds.Remove( gdcmm::Tag(0x400,0x500) );
    ds.Remove( gdcmm::Tag(0x12,0x62) );
    ds.Remove( gdcmm::Tag(0x12,0x63) );

    // Make sure to override any UID stuff
    gdcmm::UIDGenerator uid;
    gdcmm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
    de.SetVR( VR::UI );
    const char *u = uid.Generate();
    de.SetByteValue( u, (uint32_t)strlen(u) );
    //ds.Insert( de );
    ds.Replace( de );

    de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
    de.SetVR( VR::UI );
    gdcmm::MediaStorage ms( gdcmm::MediaStorage::RawDataStorage
        );
    de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.
        GetString()) );
    ds.Replace( de ); // replace !

    gdcmm::FileMetaInformation &fmi = f.GetHeader();
    //fmi.SetDataSetTransferSyntax( gdcmm::TransferSyntax::ImplicitVRLittleEndian );
    fmi.SetDataSetTransferSyntax(

```

```

        gdcmm::TransferSyntax::ExplicitVRLittleEndian );

w.SetCheckFileMetaInformation( true );
w.SetFileName( outfilename );
if (!w.Write() )
{
    return 1;
}

return 0;
}

```

12.79 GenFakelImage.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmmImage.h"
#include "gdcmmImageWriter.h"
#include "gdcmmFileDerivation.h"
#include "gdcmmUIDGenerator.h"
// #include "gdcmmImageChangePhotometricInterpretation.h"

/*
 * This example shows two things:
 * 1. How to create an image ex-nihilo
 * 2. How to use the gdcmm.FileDerivation filter. This filter is meant to create "DERIVED" image
 * object. FileDerivation has a simple API where you can reference *all* the input image that have been
 * used to generate the image. The API also allows user to specify the purpose of reference (see CID 7202,
 * PS 3.16 - 2008), and the image derivation type (CID 7203, PS 3.16 - 2008).
 */
int main(int, char *[])
{
    // Step 1: Fake Image
    gdcmm::SmartPointer<gdcmm::Image> im = new
        gdcmm::Image;

    char * buffer = new char[ 256 * 256 * 3];
    char * p = buffer;
    int b = 128;
    //int ybr[3];
    int ybr2[3];
    //int rgb[3];

    for(int r = 0; r < 256; ++r)
        for(int g = 0; g < 256; ++g)
            //for(int b = 0; b < 256; ++b)
            {
                //rgb[0] = r;
                //rgb[1] = g;
                //rgb[1] = 128;
                //rgb[2] = b;
                //ybr[0] = r;
                //ybr[1] = g;
                //ybr[1] = 128;
                //ybr[2] = b;

                ybr2[0] = r;
                ybr2[1] = g;
                ybr2[1] = 128;
                ybr2[2] = b;
                //gdcmm::ImageChangePhotometricInterpretation::YBR2RGB(rgb, ybr);
                //gdcmm::ImageChangePhotometricInterpretation::RGB2YBR(ybr2, rgb);
                *p++ = (char)ybr2[0];
                *p++ = (char)ybr2[1];
            }
}

```

```

        *p++ = (char)ybr2[2];
    }

    im->SetNumberOfDimensions( 2 );
    im->SetDimension(0, 256 );
    im->SetDimension(1, 256 );

    im->GetPixelFormat().SetSamplesPerPixel(3);
    //im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::RGB );
    im->SetPhotometricInterpretation(
        gdcm::PhotometricInterpretation::YBR_FULL );

    unsigned long l = im->GetBufferLength();
    if( l != 256 * 256 * 3 )
    {
        return 1;
    }
    gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
    pixeldata.SetByteValue( buffer, (uint32_t)l );
    delete[] buffer;
    im->SetDataElement( pixeldata );

    gdcm::UIDGenerator uid; // helper for uid generation

    gdcm::SmartPointer<gdcm::File> file = new
        gdcm::File; // empty file

    // Step 2: DERIVED object
    gdcm::FileDerivation fd;
    // For the purpose of this exercise we will pretend that this image is referencing
    // two source image (we need to generate fake UID for that).
    const char ReferencedSOPClassUID[] = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

    // Again for the purpose of the exercise we will pretend that the image is a
    // multiplanar reformat (MPR):
    // CID 7202 Source Image Purposes of Reference
    // { "DCM",121322,"Source image for image processing operation"},
    fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
    // CID 7203 Image Derivation
    // { "DCM",113072,"Multiplanar reformatting" },
    fd.SetDerivationCodeSequenceCodeValue( 113072 );
    fd.SetFile( *file );
    // If all Code Value are ok the filter will execute properly
    if( !fd.Derive() )
    {
        std::cerr << "Sorry could not derive using input info" << std::endl;
        return 1;
    }

    // We pass both :
    // 1. the fake generated image
    // 2. the 'DERIVED' dataset object
    // to the writer.
    gdcm::ImageWriter w;
    w.SetImage( *im );
    w.SetFile( fd.GetFile() );

    // Set the filename:
    w.SetFileName( "ybr2.dcm" );
    if( !w.Write() )
    {
        return 1;
    }

    return 0;
}

```

12.80 GenLongSeqs.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

```

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```

=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 *
 * There is a flaw in the DICOM design where it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * We need to make sure that we can store numerous Item in a SQ
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    // Create a Sequence
    gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new
        gdcm::SequenceOfItems();
    sq->SetLengthToUndefined();

    const char owner_str[] = "GDCM CONFORMANCE TESTS";
    gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
    owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
    owner.SetVR( gdcm::VR::LO );

    size_t nitems = 1000;
    nitems += std::numeric_limits<uint32_t>::max();
    for(unsigned int idx = 0; idx < nitems; ++idx)
    {
        // Create a dataelement
        //gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
        //de.SetByteValue(ptr, ptr_len);
        //de.SetVR( gdcm::VR::OB );

        // Create an item
        gdcm::Item it;
        it.SetVLToUndefined();
        //gdcm::DataSet &nds = it.GetNestedDataSet();
        //nds.Insert(owner);
        //nds.Insert(de);

        sq->AddItem(it);
    }

    // Insert sequence into data set
    gdcm::DataElement des( gdcm::Tag(0x4d4d, 0x1001) );
    des.SetVR(gdcm::VR::SQ);

```

```

des.SetValue(*sq);
des.SetVLToUndefined();

ds.Insert(owner);
ds.Insert(des);

gdcmm::Writer w;
w.SetFile( file );
//w.SetCheckFileMetaInformation( true );
w.SetFileName( outfilename );
if (!w.Write() )
{
    return 1;
}

return 0;
}

```

12.81 GenSeqs.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
#include "gdcmmReader.h"
#include "gdcmmWriter.h"
#include "gdcmmItem.h"
#include "gdcmmImageReader.h"
#include "gdcmmSequenceOfItems.h"
#include "gdcmmFile.h"
#include "gdcmmTag.h"

/*
 * This example is used to generate the file:
 *
 * gdcmmConformanceTests/SequenceWithUndefinedLengthNotConvertibleToDefinedLength.dcm
 *
 * There is a flaw in the DICOM design where it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most cases, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * Deflated syntax was used in this case since this synthetic example can be
 * nicely compressed using this transfer syntax.
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcmm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcmm::File &file = reader.GetFile();
    gdcmm::DataSet &ds = file.GetDataSet();

```

```

//const unsigned int nitems = 1000;
const unsigned int ptr_len = 42; /*94967296 / nitems; */
//assert( ptr_len == 42949672 );
char *ptr = new char[ptr_len];
memset(ptr,0,ptr_len);

// Create a Sequence
gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new
    gdcm::SequenceOfItems();
sq->SetLengthToUndefined();

const char owner_str[] = "GDCM CONFORMANCE TESTS";
gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
owner.SetVR( gdcm::VR::LO );

for(unsigned int idx = 0; idx < 10/* nitems*/; ++idx)
{
    // Create a dataelement
    gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    de.SetByteValue(ptr, ptr_len);
    de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert(owner);
    nds.Insert(de);

    sq->AddItem(it);
}

// Insert sequence into data set
gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
des.SetVR(gdcm::VR::SQ);
des.SetValue(*sq);
des.SetVLToUndefined();

ds.Insert(owner);
ds.Insert(des);

gdcm::Writer w;
w.SetFile( file );
//w.SetCheckFileMetaInformation( true );
w.SetFileName( outfilename );
if (!w.Write() )
{
    return 1;
}

return 0;
}

```

12.82 GetArray.cs

```

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PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GetArray.exe gdcmData/012345.002.050.dcm
 */

```

```

using System;
using gdcm;

public class GetArray
{
    public static int Main(string[] args)
    {
        string file1 = args[0];
        ImageReader reader = new ImageReader();
        reader.SetFileName( file1 );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }

        Image image = reader.GetImage();

        PixelFormat pixeltype = image.GetPixelFormat();

        if( image.GetNumberOfDimensions() != 2 )
        {
            // For the purpose of the test, exit early on
            return 1;
        }
        uint dimx = image.GetDimension(0);
        uint dimy = image.GetDimension(1);
        uint npixels = dimx * dimy;
        //LookupTable lut = image.GetLUT();
        //uint r1 = lut.GetLUTLength( LookupTable.LookupTableType.RED );
        //byte[] rbuf = new byte[ r1 ];
        //uint r12 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
        //assert r1 == r12;

        //byte[] str1 = new byte[ image.GetBufferLength()];
        //image.GetBuffer( str1 );
        if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
            System.Console.WriteLine( "Processing UINT8 image type" );
            byte[] str1 = new byte[ npixels ];
            image.GetArray( str1 );
        }
        else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.INT16 )
        {
            System.Console.WriteLine( "Processing INT16 image type" );
            short[] str1 = new short[ npixels ];
            image.GetArray( str1 );
        }
        else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT16 )
        {
            System.Console.WriteLine( "Processing UINT16 image type" );
            ushort[] str1 = new ushort[ npixels ];
            image.GetArray( str1 );
        }
        else
        {
            //System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.toString() );
            System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.GetScalarTypeAsString() );
            // Get bytes
            byte[] str1 = new byte[ image.GetBufferLength()];
            image.GetBuffer( str1 );
        }

        return 0;
    }
}

```

12.83 GetJPEGSamplePrecision.cxx

```

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```


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```

=====*/
/*
 * This example is a little helper to detect the famous SIEMENS JPEG lossless compressed image
 * where DICOM is declared as:
 *
 * (0028,0100) US 16 # 2,1 Bits Allocated
 * (0028,0101) US 12 # 2,1 Bits Stored
 * (0028,0102) US 11 # 2,1 High Bit
 * (0028,0103) US 0 # 2,1 Pixel Representation
 *
 * But where JPEG is:
 *
 * JPEG_SOF_Parameters:
 * SamplePrecision = 16
 * nLines = 192
 * nSamplesPerLine = 192
 * nComponentsInFrame = 1
 * component 0
 * ComponentIdentifier = 1
 * HorizontalSamplingFactor = 1
 * VerticalSamplingFactor = 1
 * QuantizationTableDestinationSelector = 0
 *
 * This case is valid. One simply has to use the 16bits jpeg decoder to decode the 12bits stored image.
 * This used to be an issue in GDCM 1.2.x (fixed in GDCM 1.2.5)
 *
 * The main return 0 (no error) when the file read is actually a potential problem. At the end of the main
 * function, the jpeg stream is stored in the filename specified as second argument
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmJPEGCodec.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.jpg" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }

    // The output of gdcm::Reader is a gdcm::File
    const gdcm::File &file = reader.GetFile();
    const gdcm::Image &image = reader.GetImage();

    const gdcm::TransferSyntax &ts = file.GetHeader().
        GetDataSetTransferSyntax();

    if( ts != gdcm::TransferSyntax::JPEGLosslessProcess14 && ts !=
        gdcm::TransferSyntax::JPEGLosslessProcess14_1 )
    {
        std::cerr << "Input is not a lossless JPEG" << std::endl;
        return 1;
    }

    // the dataset is the the set of element we are interested in:
    const gdcm::DataSet &ds = file.GetDataSet();

    const gdcm::Tag rawTag(0x7fe0, 0x0010); // Default to Pixel Data
    const gdcm::DataElement& pdde = ds.GetDataElement( rawTag );

```

```

const gdcm::SequenceOfFragments *sf = pdde.
    GetSequenceOfFragments();
if( sf )
{
    std::ofstream output(outfilename, std::ios::binary);
    sf->WriteBuffer(output);
}
else
{
    std::cerr << "Error" << std::endl;
    return 1;
}

gdcm::JPEGCodec jpeg;
std::ifstream is(outfilename, std::ios::binary);
gdcm::PixelFormat pf ( gdcm::PixelFormat::UINT8 ); // let's
    pretend it's a 8bits jpeg
jpeg.SetPixelFormat( pf );
gdcm::TransferSyntax ts_jpg;
bool b = jpeg.GetHeaderInfo( is, ts_jpg );
if( !b )
{
    return 1;
}

//jpeg.Print( std::cout );
if( jpeg.GetPixelFormat().GetBitsAllocated() != image.
    GetPixelFormat().GetBitsAllocated()
|| jpeg.GetPixelFormat().GetBitsStored() != image.
    GetPixelFormat().GetBitsStored() )
{
    std::cerr << "There is a mismatch in between DICOM declared Pixel Format and Sample Precision used in
        the JPEG stream" << std::endl;
    return 0;
}

std::cout << jpeg.GetPixelFormat() << std::endl;
std::cout << image.GetPixelFormat() << std::endl;

return 1;
}

```

12.84 GetPortionCSAHeader.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
9 #   This software is distributed WITHOUT ANY WARRANTY; without even
10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 python GetPortionCSAHeader.py input.dcm
19
20 Footnote:
21 SIEMENS is not publishing any information on the CSA header. So any info extracted
22 is at your own risk.
23 """
24
25 import sys
26 import gdcm
27
28 if __name__ == "__main__":
29
30     file = sys.argv[1]
31

```

```

32  r = gdcm.Reader()
33  r.SetFileName( file )
34  if not r.Read():
35      sys.exit(1)
36
37  ds = r.GetFile().GetDataSet()
38  csa_t1 = gdcm.CSAHeader()
39  csa_t2 = gdcm.CSAHeader()
40  #print csa
41  t1 = csa_t1.GetCSAImageHeaderInfoTag();
42  print t1
43  t2 = csa_t2.GetCSASeriesHeaderInfoTag();
44  print t2
45  # Let's do it for t1:
46  if ds.FindDataElement( t1 ):
47      csa_t1.LoadFromDataElement( ds.GetDataElement( t1 ) )
48      print csa_t1
49
50  # Now let's pretend we are only interested in B_value and DiffusionGradientDirection entries:
51  bvalues = csa_t1.GetCSAElementByName( "B_value" ) # WARNING: it is case sensitive !
52  print bvalues
53
54  diffgraddir = csa_t1.GetCSAElementByName( "DiffusionGradientDirection" ) # WARNING: it is case sensitive
55  !
56  print diffgraddir
57
58  # repeat for t2 if you like it:
59  if ds.FindDataElement( t2 ):
60      csa_t2.LoadFromDataElement( ds.GetDataElement( t2 ) )
61      # print csa_t2
62
63  gdt = csa_t2.GetCSAElementByName( "GradientDelayTime" )
64  print gdt
65
66  bv = gdt.GetByteValue();
67  #print bv
68  str = bv.GetPointer()
69  print str.split("\\\\")

```

12.85 GetSequenceUltrasound.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmAttribute.h"

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int*
Y_max );

int main(int argc, char* argv[] )
{
    // Controllo del numero di argomenti introdotti da riga di comando
    if( argc < 2 )
    {
        std::cerr << "Usage: " << std::endl;
        std::cerr << argv[0] << " inputImageFile " << std::endl;
        return EXIT_FAILURE;
    }

    unsigned int x_min = 1;
    unsigned int y_min = 1;
    unsigned int x_max = 1;
    unsigned int y_max = 1;

```

```

    if( Region ( argv[1], &x_min, &y_min, &x_max, &y_max ) )
    {
        std::cout << "x_min = " << x_min << std::endl;
        std::cout << "y_min = " << y_min << std::endl;
        std::cout << "x_max = " << x_max << std::endl;
        std::cout << "y_max = " << y_max << std::endl;
    }

    else
    {
        std::cout << "no\n";
    }
}

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int*
    Y_max )
{
    gdcm::Reader reader;
    reader.SetFileName( nomefile );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << nomefile << std::endl;
        return false;
    }

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    gdcm::Tag tsqr(0x0018,0x6011);
    if( !ds.FindDataElement( tsqr ) )
    {
        return false;
    }

    const gdcm::DataElement &sqr= ds.GetDataElement( tsqr );
    //std::cout << sqr << std::endl;
    const gdcm::SequenceOfItems *sqi = sqr.GetValueAsSQ();
    if( !sqi || !sqi->GetNumberOfItems() )
    {
        return false;
    }
    //std::cout << sqi << std::endl;

    const gdcm::Item &item = sqi->GetItem(1);
    //std::cout << item << std::endl;
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout << nestedds << std::endl;

    gdcm::Tag tX0(0x0018,0x6018);
    gdcm::Tag tY0(0x0018,0x601a);
    gdcm::Tag tX1(0x0018,0x601c);
    gdcm::Tag tY1(0x0018,0x601e);

    if( (!nestedds.FindDataElement( tX0 ))||(!nestedds.
        FindDataElement( tY0 ))||(!nestedds.FindDataElement( tX1 ))||(!nestedds.
        FindDataElement( tY1 )) )
    {
        return false;
    }

    const gdcm::DataElement& deX0 = nestedds.GetDataElement( tX0 );
    const gdcm::DataElement& deY0 = nestedds.GetDataElement( tY0 );
    const gdcm::DataElement& deX1 = nestedds.GetDataElement( tX1 );
    const gdcm::DataElement& deY1 = nestedds.GetDataElement( tY1 );
    //std::cout << deX0 << std::endl << deY0 << std::endl << deX1 << std::endl << deY1 << std::endl;

    //const gdcm::ByteValue *bvX0 = deX0.GetByteValue();
    //const gdcm::ByteValue *bvY0 = deY0.GetByteValue();
    //const gdcm::ByteValue *bvX1 = deX1.GetByteValue();
    //const gdcm::ByteValue *bvY1 = deY1.GetByteValue();
    //std::cout << bvX0 << std::endl << bvY0 << std::endl << bvX1 << std::endl << bvY1 << std::endl;

    gdcm::Attribute<0x0018,0x6018> atX0;
    gdcm::Attribute<0x0018,0x601a> atY0;
    gdcm::Attribute<0x0018,0x601c> atX1;
    gdcm::Attribute<0x0018,0x601e> atY1;
    atX0.SetFromDataElement( deX0 );
    atY0.SetFromDataElement( deY0 );
    atX1.SetFromDataElement( deX1 );

```

```

atY1.SetFromDataElement( deY1 );
uint32_t X0 = atX0.GetValue();
uint32_t Y0 = atY0.GetValue();
uint32_t X1 = atX1.GetValue();
uint32_t Y1 = atY1.GetValue();
std::cout << X0 << std::endl << Y0 << std::endl << X1 << std::endl << Y1 << std::endl;

*X_min = static_cast<unsigned int>(X0);
*Y_min = static_cast<unsigned int>(Y0);
*X_max = static_cast<unsigned int>(X1);
*Y_max = static_cast<unsigned int>(Y1);

//std::cout << "X_min = " << *X_min << std::endl;
//std::cout << "Y_min = " << *Y_min << std::endl;
//std::cout << "X_max = " << *X_max << std::endl;
//std::cout << "Y_max = " << *Y_max << std::endl;

return true;
}

```

12.86 GetSubSequenceData.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

/*
 * This example will extract the Movie from the private group of
 * GEMS_Ultrasound_MovieGroup_001 See Attribute
 * (7fel,60,GEMS_Ultrasound_MovieGroup_001)
 *
 * The output file will be stored in 'outvid.dcm' as
 * MultiframeGrayscaleByteSecondaryCaptureImageStorage
 */
int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    using namespace gdcm;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    reader.Read();

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();
    const PrivateTag tseq(0x7fel,0x1,"GEMS_Ultrasound_MovieGroup_001");

    if( !ds.FindDataElement( tseq ) ) return 1;
    const DataElement& seq = ds.GetDataElement( tseq );

    SmartPointer<SequenceOfItems> sqi = seq.
        GetValueAsSQ();
    assert( sqi->GetNumberOfItems() == 1 );
    Item &item = sqi->GetItem(1);

```

```

DataSet &subds = item.GetNestedDataSet();

const PrivateTag tseq1(0x7fel,0x10,"GEMS_Ultrasound_MovieGroup_001");

if( !subds.FindDataElement( tseq1 ) ) return 1;
const DataElement& seq1 = subds.GetDataElement( tseq1 );

SmartPointer<SequenceOfItems> sqi2 = seq1.
    GetValueAsSQ();
//int n = sqi2->GetNumberOfItems();
int index = 1;
Item &item2 = sqi2->GetItem(index);
DataSet &subds2 = item2.GetNestedDataSet();

const PrivateTag tseq2(0x7fel,0x20,"GEMS_Ultrasound_MovieGroup_001");

if( !subds2.FindDataElement( tseq2 ) ) return 1;
const DataElement& seq2 = subds2.GetDataElement( tseq2 );

//      std::cout << seq2 << std::endl;

SmartPointer<SequenceOfItems> sqi3 = seq2.
    GetValueAsSQ();
size_t ni3 = sqi3->GetNumberOfItems(); (void)ni3;
assert( sqi3->GetNumberOfItems() >= 1 );
Item &item3 = sqi3->GetItem(1);
DataSet &subds3 = item3.GetNestedDataSet();

const PrivateTag tseq6(0x7fel,0x26,"GEMS_Ultrasound_MovieGroup_001");
if( !subds3.FindDataElement( tseq6 ) ) return 1;
const DataElement& seq6 = subds3.GetDataElement( tseq6 );
SmartPointer<SequenceOfItems> sqi6 = seq6.
    GetValueAsSQ();
size_t ni6= sqi6->GetNumberOfItems();
assert( sqi6->GetNumberOfItems() >= 1 );
const PrivateTag tseq7(0x7fel,0x86,"GEMS_Ultrasound_MovieGroup_001");
int dimx = 0, dimy = 0;
for( size_t i6 = 1; i6 <= ni6; ++i6 )
{
    Item &item6 = sqi6->GetItem(i6);
    DataSet &subds6 = item6.GetNestedDataSet();

    if( subds6.FindDataElement( tseq7 ) )
    {
        Element<VR::SL, VM::VM4> el;
        el.SetFromDataElement( subds6.GetDataElement( tseq7 ) );
        std::cout << "El= " << el.GetValue() << std::endl;
        dimx = el.GetValue(0);
        dimy = el.GetValue(1);
    }
}

const PrivateTag tseq3(0x7fel,0x36,"GEMS_Ultrasound_MovieGroup_001");
if( !subds3.FindDataElement( tseq3 ) ) return 1;
const DataElement& seq3 = subds3.GetDataElement( tseq3 );

//      std::cout << seq3 << std::endl;

SmartPointer<SequenceOfItems> sqi4 = seq3.
    GetValueAsSQ();
size_t ni4= sqi4->GetNumberOfItems();
assert( sqi4->GetNumberOfItems() >= 1 );
const PrivateTag tseq8(0x7fel,0x37,"GEMS_Ultrasound_MovieGroup_001");
const PrivateTag tseq4(0x7fel,0x43,"GEMS_Ultrasound_MovieGroup_001");
const PrivateTag tseq5(0x7fel,0x60,"GEMS_Ultrasound_MovieGroup_001");

std::vector<char> imbuffer;
int dimz = 0;
for( size_t i4 = 1; i4 <= ni4; ++i4 )
{
    Item &item4 = sqi4->GetItem(i4);
    DataSet &subds4 = item4.GetNestedDataSet();

    if( !subds4.FindDataElement( tseq8 ) ) return 1;
    const DataElement& de8 = subds4.GetDataElement( tseq8 );
    Element<VR::UL,VM::VM1> ldimz;
    ldimz.SetFromDataElement( de8 );
    dimz += ldimz.GetValue();
    if( !subds4.FindDataElement( tseq4 ) ) return 1;
    const DataElement& seq4 = subds4.GetDataElement( tseq4 );
    if( !subds4.FindDataElement( tseq5 ) ) return 1;

```

```

    const DataElement& seq5 = subds4.GetDataElement( tseq5 );

    //      std::cout << seq4 << std::endl;
    //      std::cout << seq5 << std::endl;

    const ByteValue *bv4 = seq4.GetByteValue();
    (void)bv4;
#ifdef 0
    {
        std::ofstream out( "/tmp/mo4", std::ios::binary );
        out.write( bv4->GetPointer(), bv4->GetLength());
        out.close();
    }
#endif
    const ByteValue *bv5 = seq5.GetByteValue();
#ifdef 0
    {
        std::ofstream out( "/tmp/mo5", std::ios::binary );
        out.write( bv5->GetPointer(), bv5->GetLength());
        out.close();
    }
#endif

    std::cout << bv5->GetLength() << std::endl;
    imbuffer.insert( imbuffer.begin(), bv5->GetPointer(), bv5->
        GetPointer() + bv5->GetLength() );
    }
    DataElement fakedata;
    fakedata.SetByteValue( &imbuffer[0], (uint32_t)imbuffer.size() );

    gdcm::SmartPointer<gdcm::Image> im = new
        gdcm::Image;
    im->SetNumberOfDimensions( 3 );

    im->SetDimension(0, dimx );
    im->SetDimension(1, dimy );
    im->SetDimension(2, dimz );
    size_t l1 = imbuffer.size();
    (void)l1;
    size_t l2 = im->GetBufferLength();
    (void)l2;
    assert( im->GetBufferLength() == imbuffer.size() );
    im->SetPhotometricInterpretation(
        gdcm::PhotometricInterpretation::MONOCHROME2 );

    im->SetDataElement( fakedata );

    gdcm::ImageWriter w;
    w.SetImage( *im );
    DataSet &dataset = w.GetFile().GetDataSet();

    gdcm::UIDGenerator uid;
    gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
    de.SetVR( VR::UI );
    const char *u = uid.Generate();
    de.SetByteValue( u, (uint32_t)strlen(u) );
    //ds.Insert( de );
    dataset.Replace( de );

    de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
    de.SetVR( VR::UI );
    gdcm::MediaStorage ms(
        gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage
    );
    de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.
        GetString()));
    dataset.Replace( de ); // replace !

    w.SetFileName( "outvid.dcm" );
    if( !w.Write() )
    {
        return 1;
    }

    return 0;
}

```

12.87 headsq2dcm.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17   python headsq2dcm.py -D /path/to/VTKData
18 """
19
20 import vtk
21 import vtkgdcm
22 from vtk.util.misc import vtkGetDataRoot
23 VTK_DATA_ROOT = vtkGetDataRoot()
24
25 reader = vtk.vtkVolume16Reader()
26 reader.SetDataDimensions(64, 64)
27 reader.SetDataByteOrderToLittleEndian()
28 reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter")
29 reader.SetImageRange(1, 93)
30 reader.SetDataSpacing(3.2, 3.2, 1.5)
31
32 cast = vtk.vtkImageCast()
33 cast.SetInput( reader.GetOutput() )
34 cast.SetOutputScalarTypeToUnsignedChar()
35
36 # By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
37 writer = vtkgdcm.vtkGDCMImageWriter()
38 writer.SetFileName( "headsq.dcm" )
39 writer.SetInput( reader.GetOutput() )
40 # cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
41 #writer.SetInput( cast.GetOutput() )
42 writer.SetFileDimensionality( 3 )
43 writer.Write()

```

12.88 HelloActiviz.cs

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
using vtkgdcm;
using Kitware.VTK;
using System;
using System.Runtime.InteropServices;

/*
 * This example shows how vtkgdcm can be connected to Kitware.VTK Activiz product.
 * Three (3) arguments are required:
 * 1. Input DICOM file (SWIG)
 * 2. Temporary PNG (intermediate) file (Activiz)
 * 3. Final DICOM file (SWIG)
 *
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0

```



```

* $ mono ./bin/HelloActiviz.exe ~/Creatis/gdcmData/test.acr out.png toto.dcm
*
* Footnote:
* this test originally used vtkBMPWriter / vtkBMPReader combination to store intermediate
* image file, but BMP file are 24bits by default. Instead use PNG format which supports seems
* to be closer to what was expected in this simple test.
*/
public class HelloActiviz
{
    // Does not work with Activiz.NET-5.4.0.455-Linux-x86_64-Personal
    /*
    static void ConnectSWIGToActiviz(Kitware.VTK.vtkImageExport imgin, Kitware.VTK.vtkImageImport imgout)
    {
        imgout.SetUpdateInformationCallback(imgin.GetUpdateInformationCallback());
        imgout.SetPipelineModifiedCallback(imgin.GetPipelineModifiedCallback());
        imgout.SetWholeExtentCallback(imgin.GetWholeExtentCallback());
        imgout.SetSpacingCallback(imgin.GetSpacingCallback());
        imgout.SetOriginCallback(imgin.GetOriginCallback());
        imgout.SetScalarTypeCallback(imgin.GetScalarTypeCallback());
        imgout.SetNumberOfComponentsCallback(imgin.GetNumberOfComponentsCallback());
        imgout.SetPropagateUpdateExtentCallback(imgin.GetPropagateUpdateExtentCallback());
        imgout.SetUpdateDataCallback(imgin.GetUpdateDataCallback());
        imgout.SetDataExtentCallback(imgin.GetDataExtentCallback());
        imgout.SetBufferPointerCallback(imgin.GetBufferPointerCallback());
        imgout.SetCallbackUserData(imgin.GetCallbackUserData());
    }
    */

    static Kitware.VTK.vtkImageData ConnectSWIGToActiviz(vtkgdc.vtkImageData imgin)
    {
        HandleRef rawCppThis = imgin.GetCppThis();
        Kitware.VTK.vtkImageData imgout = new Kitware.VTK.vtkImageData( rawCppThis.Handle, false, false);
        return imgout;
    }

    static vtkgdc.vtkImageData ConnectActivizToSWIG(Kitware.VTK.vtkImageData imgin)
    {
        HandleRef rawCppThis = imgin.GetCppThis();
        vtkgdc.vtkImageData imgout = new vtkgdc.vtkImageData( rawCppThis );
        return imgout;
    }

    public static int Main(string[] args)
    {
        string filename = args[0];
        string outfilename = args[1];

        // Step 1. Test SWIG -> Activiz
        vtkGDCMImageReader reader = vtkGDCMImageReader.
            New();
        reader.SetFileName( filename );
        //reader.Update(); // DO NOT call Update to check pipeline execution

        Kitware.VTK.vtkImageData imgout = ConnectSWIGToActiviz(reader.GetOutput());

        System.Console.WriteLine( imgout.ToString() ); // not initialized as expected

        vtkPNGWriter writer = new vtkPNGWriter();
        writer.SetInput( imgout );
        writer.SetFileName( outfilename );
        writer.Write();

        // Step 2. Test Activiz -> SWIG
        vtkPNGReader bmpreader = new vtkPNGReader();
        bmpreader.SetFileName( outfilename );
        //bmpreader.Update(); // DO NOT update to check pipeline execution

        System.Console.WriteLine( bmpreader.GetOutput().ToString() ); // not initialized as expected

        vtkgdc.vtkImageData imgout2 = ConnectActivizToSWIG(bmpreader.GetOutput());

        System.Console.WriteLine( imgout2.ToString() ); // not initialized as expected

        Kitware.VTK.vtkMedicalImageProperties prop = new Kitware.VTK.vtkMedicalImageProperties();
        prop.SetModality( "MR" );

        string outfilename2 = args[2];
        vtkGDCMImageWriter writer2 = vtkGDCMImageWriter.
            New();

```

```

        writer2.SetMedicalImageProperties( prop.CastToActiviz() );
        writer2.SetFileName( outfilename2 );
        writer2.SetInput( imgout2 );
        writer2.Write();

        return 0;
    }
}

```

12.89 HelloActiviz2.cs

```

/*=====
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=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * Usage:
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz2.exe gdcmlData/test.acr bla.png bla2.dcm
 */

/*
 * From the outside view, no-one can detect that object pass to/from
 * vtkGDCMImageWriter/vtkGDCMImageReader are not Activiz object.
 *
 * TODO: Test Command/Observer
 */
public class HelloActiviz2
{
    public static int Main(string[] args)
    {
        string filename = args[0];
        string outfilename = args[1];
        string outfilename2 = args[2];

        vtkGDCMImageReader reader = new Kitware.VTK.GDCM.
            vtkGDCMImageReader();
        reader.SetFileName( filename );

        // When calling multiple times creation of C# object from the same C++ object it triggers a:
        //error: potential refcounting error: Duplicate rawCppThis - weak reference that is still alive. Attempting
        //to add '0x00b2dcl0' again.
        //    Allowing new wrapped object to take over table key...
        //    Original object should *not* have been destroyed while we still had it in our table without
        //    notifying us...
        //reader.GetOutput();
        //reader.GetOutput();

        System.Console.WriteLine( reader.ToString() ); // Test the ToString compat with Activiz

        vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
        writer.SetInput( reader.GetOutput() );
        writer.SetFileName( outfilename2 );
        writer.Write();

        System.Console.WriteLine( reader.GetOutput().ToString() ); // Test the ToString compat with Activiz

        System.Console.WriteLine( writer.ToString() ); // Test the ToString compat with Activiz

        vtkPNGWriter pngwriter = new vtkPNGWriter();
        pngwriter.SetInput( reader.GetOutput() );
        pngwriter.SetFileName( outfilename );
        pngwriter.Write();
    }
}

```

```
// at that point the .Write() should have triggered an Update() on the reader:
if( reader.GetImageFormat() == vtkgdc.VTK_LUMINANCE ) // MONOCHROME2
{
    System.Console.WriteLine( "Image is MONOCHROME2" ); //
}

vtkPNGReader bmpreader = new vtkPNGReader();
bmpreader.SetFileName( outfilename );

vtkMedicalImageProperties prop = new vtkMedicalImageProperties();
prop.SetModality( "MR" );

vtkMatrix4x4 dircos = reader.GetDirectionCosines();
dircos.Invert();

vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();
writer2.SetFileName( outfilename2 );
writer2.SetDirectionCosines( dircos );
writer2.SetMedicalImageProperties( prop );
writer2.SetInput( bmpreader.GetOutput() );
writer2.Write();

return 0;
}
}
```

12.90 HelloActiviz3.cs

```
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=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz3.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz3
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        vtkGDCMImageReader reader = vtkGDCMImageReader.
            New();
        vtkStringArray array = vtkStringArray.New();
        array.InsertNextValue(filename);

        reader.SetFileNames(array);
        reader.Update();

        //System.Console.Write(reader.GetOutput());

        vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

        vtkImageViewer2 viewer = vtkImageViewer2.New();
        viewer.SetInput(reader.GetOutput());
        viewer.SetupInteractor(iren);
        viewer.SetSize(600, 600);
        viewer.Render();

        iren.Initialize();
        iren.Start();
    }
}
```

```

    return 0;
}

```

12.91 HelloActiviz4.cs

```

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=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz4.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz4
{
    public static int Main(string[] args)
    {
        string filename = args[0];

        vtkGDCMImageReader reader = new vtkGDCMImageReader();
        vtkStringArray array = vtkStringArray.New();
        array.InsertNextValue(filename);

        reader.SetFileNames(array);
        reader.Update();

        //System.Console.WriteLine(reader.GetOutput());

        vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

        vtkImageViewer viewer = vtkImageViewer.New();
        viewer.SetInput(reader.GetOutput());
        viewer.SetupInteractor(iren);
        viewer.SetSize(600, 600);
        viewer.Render();

        iren.Initialize();
        iren.Start();

        return 0;
    }
}

```

12.92 HelloActiviz5.cs

```

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=====*/

```

```

=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

// The command line arguments are:
// -I      => run in interactive mode; unless this is used, the program will
//          not allow interaction and exit
// -D <path> => path to the data; the data should be in <path>/Data/

/*
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz5.exe -I
 */
public class HelloActiviz5
{
    public static int Main(string[] args)
    {
        vtkTesting testHelper = vtkTesting.New();
        for ( int cc = 0; cc < args.Length; cc++ )
        {
            //testHelper.AddArguments(argc,const_cast<const char **>(argv));
            //System.Console.Write( "args: " + args[cc] + "\n" );
            testHelper.AddArgument( args[cc] );
        }
        if ( testHelper.IsFlagSpecified("-D") != 0 )
        {
            string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();
            if ( VTK_DATA_ROOT != null )
            {
                //System.Console.Write( "VTK_DATA_ROOT: " + VTK_DATA_ROOT + "\n" );
                testHelper.SetDataRoot( VTK_DATA_ROOT );
                testHelper.AddArgument( "-D" );
                testHelper.AddArgument( VTK_DATA_ROOT );
            }
        }

        string dataRoot = testHelper.GetDataRoot();
        string filename = dataRoot;
        filename += "/Data/mr.001";

        vtkDirectory dir = vtkDirectory.New();
        if( dir.FileIsDirectory( dataRoot ) == 0 )
        {
            filename = vtkGDCMTesting.GetGDCMDataRoot() + "/test.acr";
        }
        //System.Console.Write( "dataRoot: " + dataRoot + "\n" );
        System.Console.Write( "filename being used is: " + filename + "\n" );

        vtkGDCMImageReader reader = vtkGDCMImageReader.
            New();
        vtkStringArray array = vtkStringArray.New();
        array.InsertNextValue(filename);
        reader.SetFileNames(array);
        reader.Update();

        System.Console.Write(reader.GetOutput());

        vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

        vtkRenderer ren1 = vtkRenderer.New();
        vtkRenderWindow renWin = vtkRenderWindow.New();
        renWin.AddRenderer(ren1);

        vtkImageActor actor = vtkImageActor.New();

        vtkImageMapToWindowLevelColors coronalColors = vtkImageMapToWindowLevelColors.
            New();
        coronalColors.SetInput( reader.GetOutput() );

        actor.SetInput( coronalColors.GetOutput() );

        ren1.AddActor(actor);
        iren.SetRenderWindow(renWin);

        iren.Initialize();

        renWin.Render();

        int retVal = testHelper.IsInteractiveModeSpecified();
    }
}

```

```

        if( retVal != 0 )
        {
            iren.Start();
        }

        return 0;
    }
}

```

12.93 HelloSimple.java

```

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/HelloSimple.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java HelloSimple gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class HelloSimple
{
    public static void main(String[] args) throws Exception
    {
        String filename = args[0];
        Reader reader = new Reader();
        reader.SetFileName( filename );
        boolean ret = reader.Read();
        if( !ret )
        {
            throw new Exception("Could not read: " + filename );
        }
        File f = reader.GetFile();
        DataSet ds = f.GetDataSet();

        System.out.println( ds.toString() );

        System.out.println("Success reading: " + filename );
    }
}

```

12.94 HelloVizWorld.cxx

```

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=====*/
/*

```

```

* Basic example for dealing with a DICOM file that contains an Image
* (read: Pixel Data element)
*/

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    // Instantiate the image reader:
    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }
    // If we reach here, we know for sure 2 things:
    // 1. It is a valid DICOM
    // 2. And it contains an Image !

    // The output of superclass gdcm::Reader is a gdcm::File
    //gdcm::File &file = reader.GetFile();

    // The other output of gdcm::ImageReader is a gdcm::Image
    const gdcm::Image &image = reader.GetImage();

    // Let's get some property from the image:
    unsigned int ndim = image.GetNumberOfDimensions();
    // Dimensions of the image:
    const unsigned int *dims = image.GetDimensions();
    // Origin
    const double *origin = image.GetOrigin();
    const gdcm::PhotometricInterpretation &pi = image.
        GetPhotometricInterpretation();
    for(unsigned int i = 0; i < ndim; ++i)
    {
        std::cout << "Dim(" << i << "): " << dims[i] << std::endl;
    }
    for(unsigned int i = 0; i < ndim; ++i)
    {
        std::cout << "Origin(" << i << "): " << origin[i] << std::endl;
    }
    std::cout << "PhotometricInterpretation: " << pi << std::endl;

    // Write the modified DataSet back to disk
    gdcm::ImageWriter writer;
    writer.SetImage( image );
    writer.SetFileName( outfile );
    //writer.SetFile( file ); // We purposely NOT copy the meta information from the input
    // file, and instead only pass the image
    if( !writer.Write() )
    {
        std::cerr << "Could not write: " << outfile << std::endl;
        return 1;
    }

    return 0;
}

```

12.95 HelloVTKWorld.cs

```

/*=====

```

```

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=====*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld
{
    public static int Main(string[] args)
    {
        string filename = args[0];
        vtkGDCMImageReader reader = vtkGDCMImageReader.
            New();
        reader.SetFileName( filename );
        reader.Update();

        vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
        System.Console.WriteLine( prop.GetPatientName() ); //

        if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
        {
            System.Console.WriteLine( "Image is MONOCHROME2" ); //
        }

        // Just for fun, invert the direction cosines, output should reflect that:
        vtkMatrix4x4 dircos = reader.GetDirectionCosines();
        dircos.Invert();

        string outfilename = args[1];
        vtkGDCMImageWriter writer = vtkGDCMImageWriter.
            New();
        writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
        writer.SetDirectionCosines( dircos );
        writer.SetShift( reader.GetShift() );
        writer.SetScale( reader.GetScale() );
        writer.SetImageFormat( reader.GetImageFormat() );
        writer.SetFileName( outfilename );
        //writer.SetInputConnection( reader.GetOutputPort() ); // new
        writer.SetInput( reader.GetOutput() ); // old
        writer.Write();

        return 0;
    }
}

```

12.96 HelloVTKWorld.java

```

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=====*/
// We are required to call the package 'vtk' eventhough I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

```



```

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac HelloVTKWorld.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:. CLASSPATH=/usr/share/java/
 *   vtk.jar:vtkgdcm.jar:gdcm.jar:. java HelloVTKWorld gdcmData/012345.002.050.dcm bla.dcm
 */
public class HelloVTKWorld
{
    static {
        System.loadLibrary("vtkCommonJava");
        System.loadLibrary("vtkFilteringJava");
        System.loadLibrary("vtkIOJava");
        System.loadLibrary("vtkImagingJava");
        System.loadLibrary("vtkGraphicsJava");
        System.loadLibrary("vtkgdcmJava");
        try {
            System.loadLibrary("vtkRenderingJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkHybrid, skipping...");
        }
        try {
            System.loadLibrary("vtkHybridJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkHybrid, skipping...");
        }
        try {
            System.loadLibrary("vtkVolumeRenderingJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkVolumeRendering, skipping...");
        }
    }

    public static void main(String[] args)
    {
        String filename = args[0];
        vtkGDCMImageReader reader = new vtkGDCMImageReader();
        reader.SetFileName( filename );
        reader.Update();

        vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
        System.out.println( prop.GetPatientName() ); //

        // if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
        // {
        //     System.out.println( "Image is MONOCHROME2" ); //
        // }

        // Just for fun, invert the direction cosines, output should reflect that:
        vtkMatrix4x4 dircos = reader.GetDirectionCosines();
        dircos.Invert();

        // We need to maintain in sync information stored in vtkMedicalImageProperties:
        double[] cosines = new double[6];
        cosines[0] = dircos.GetElement(0,0);
        cosines[1] = dircos.GetElement(1,0);
        cosines[2] = dircos.GetElement(2,0);
        cosines[3] = dircos.GetElement(0,1);
        cosines[4] = dircos.GetElement(1,1);
        cosines[5] = dircos.GetElement(2,1);
        reader.GetMedicalImageProperties().SetDirectionCosine( cosines );

        String outfilename = args[1];
        vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
        writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
        writer.SetDirectionCosines( dircos );
        writer.SetShift( reader.GetShift() );
        writer.SetScale( reader.GetScale() );
        writer.SetImageFormat( reader.GetImageFormat() );
        writer.SetFileName( outfilename );
        //writer.SetInputConnection( reader.GetOutputPort() ); // new
        writer.SetInput( reader.GetOutput() ); // old
        writer.Write();

        System.out.println("Success reading: " + filename );
    }
}

```

12.97 HelloVTKWorld2.cs

```

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=====*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld2
{
    public static int Main(string[] args)
    {
        string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();

        vtkVoxel16Reader reader = vtkVoxel16Reader.New();
        reader.SetDataDimensions(64, 64);
        reader.SetDataByteOrderToLittleEndian();
        reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter");
        reader.SetImageRange(1, 93);
        reader.SetDataSpacing(3.2, 3.2, 1.5);

        vtkImageCast cast = vtkImageCast.New();
        cast.SetInput( reader.GetOutput() );
        cast.SetOutputScalarTypeToUnsignedChar();

        // By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
        vtkGDCMImageWriter writer = vtkGDCMImageWriter.
            New();
        writer.SetFileName( "headsq.dcm" );
        writer.SetInput( reader.GetOutput() );
        // cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
        // writer.SetInput( cast.GetOutput() );
        writer.SetFileDimensionality( 3 );
        writer.Write();

        return 0;
    }
}

```

12.98 HelloWorld.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
/*
 * This example is ... guess what this is for :)
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

```

```

#include <iostream>

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];

    // Instantiate the reader:
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }

    // If we reach here, we know for sure only 1 thing:
    // It is a valid DICOM file (potentially an old ACR-NEMA 1.0/2.0 file)
    // (Maybe, it's NOT a Dicom image -could be a DICOMDIR, a RTSTRUCT, etc-)

    // The output of gdcm::Reader is a gdcm::File
    gdcm::File &file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    gdcm::DataSet &ds = file.GetDataSet();

    // Construct a static(*) type for Image Comments :
    gdcm::Attribute<0x0020,0x4000> imagecomments;
    imagecomments.SetValue( "Hello, World !" );

    // Now replace the Image Comments from the dataset with our:
    ds.Replace( imagecomments.GetAsDataElement() );

    // Write the modified DataSet back to disk
    gdcm::Writer writer;
    writer.CheckFileMetaInformationOff(); // Do not attempt to reconstruct the
        file meta to preserve the file // as close to the original as possible.
    writer.SetFileName( outfile );
    writer.SetFile( file );
    if( !writer.Write() )
    {
        std::cerr << "Could not write: " << outfile << std::endl;
        return 1;
    }

    return 0;
}

/*
 * (*) static type, means that extra DICOM information VR & VM are computed at compilation time.
 * The compiler is deducing those values from the template arguments of the class.
 */

```

12.99 HelloWorld.py

```

1 #####
2 #
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11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14

```

```

15 """
16 Hello World !
17 """
18
19 import gdcm
20 import sys
21
22 if __name__ == "__main__":
23
24     # verbosity:
25     #gdcm.Trace.DebugOn()
26     #gdcm.Trace.WarningOn()
27     #gdcm.Trace.ErrorOn()
28
29     # Get the filename from the command line
30     filename = sys.argv[1]
31
32     # Instanciate a gdcm.Reader
33     # This is the main class to handle any type of DICOM object
34     # You should check for gdcm.ImageReader for reading specifically DICOM Image file
35     r = gdcm.Reader()
36     r.SetFileName( filename )
37     # If the reader fails to read the file, we should stop !
38     if not r.Read():
39         print "Not a valid DICOM file"
40         sys.exit(1)
41
42     # Get the DICOM File structure
43     file = r.GetFile()
44
45     # Get the DataSet part of the file
46     dataset = file.GetDataSet()
47
48     # Ok let's print it !
49     print dataset
50
51     # Use StringFilter to print a particular Tag:
52     sf = gdcm.StringFilter()
53     sf.SetFile(r.GetFile())
54
55     # Check if Attribute exist
56     print dataset.FindElement( gdcm.Tag(0x0028,0x0010))
57
58     # Let's print it as string pair:
59     print sf.ToStringPair(gdcm.Tag(0x0028,0x0010))

```

12.100 iU22tomultisc.cxx

```

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=====*/
/*
 * iU22 Raw Data extractor
 */
#include "gdcmReader.h"
#include "gdcmImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    // IM_001

```

```

const char *filename = argv[1];

gdcm::Reader reader; // Do not use ImageReader
reader.SetFileName( filename );
if( !reader.Read() )
{
    std::cerr << "Failed to read: " << filename << std::endl;
    return 1;
}

// * The data is simply 8-bit unsigned in the obvious x/y/z order
// * 200D,300B contains the data
// * 200D,300I contains the no. of voxels (416,412,256 in this case)
// * 200D,3003 contains the voxel sizes (0.156184527398215 /
// 0.1223749613981957 / 0.328479990704639 in this case)

const gdcm::File &file = reader.GetFile();
const gdcm::DataSet &ds = file.GetDataSet();
const gdcm::PrivateTag trawdataus( 0x200d, 0x0b, "Philips US Imaging DD 033" );
const gdcm::DataElement &rawdataus = ds.GetDataElement( trawdataus );

const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x01, "Philips US Imaging DD 036" );
const gdcm::DataElement &colsrowsframes = ds.GetDataElement(
    tcolsrowsframes );
// const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x02, "Philips US Imaging DD 036" );
// this is just a duplicate previous tag.
const gdcm::PrivateTag tvoxelspacing( 0x200d, 0x03, "Philips US Imaging DD 036" );
const gdcm::DataElement &voxelspacing = ds.GetDataElement( tvoxelspacing );
;

gdcm::Element<gdcm::VR::DS, gdcm::VM::VM3> dims; // Use DS to
    interpret value stored in LO
dims.SetFromDataElement( colsrowsframes );

gdcm::Element<gdcm::VR::DS, gdcm::VM::VM3> spacing;
spacing.SetFromDataElement( voxelspacing );

gdcm::ImageWriter writer;

gdcm::Image &image = writer.GetImage();
image.SetNumberOfDimensions( 3 ); // good default
image.SetDimension(0, (unsigned int)dims[0] );
image.SetDimension(1, (unsigned int)dims[1] );
image.SetDimension(2, (unsigned int)dims[2] );
image.SetSpacing(0, spacing[0] );
image.SetSpacing(1, spacing[1] );
image.SetSpacing(2, spacing[2] );
gdcm::PixelFormat pixeltype = gdcm::PixelFormat::UINT8;

gdcm::PhotometricInterpretation pi;
pi = gdcm::PhotometricInterpretation::MONOCHROME2;
image.SetPhotometricInterpretation( pi );
image.SetPixelFormat( pixeltype );

image.SetDataElement( rawdataus );

std::string outfilename = "outiu22.dcm";

gdcm::DataElement de( gdcm::Tag(0x8,0x16) ); // SOP Class UID
de.SetVR( gdcm::VR::UI );
gdcm::MediaStorage ms(
    gdcm::MediaStorage::UltrasoundMultiFrameImageStorage
);
// gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.
    GetString()));
writer.GetFile().GetDataSet().Replace( de );

writer.SetFileName( outfilename.c_str() );
if( !writer.Write() )
{
    std::cerr << "could not write: " << outfilename << std::endl;
    return 1;
}

return 0;
}

```

12.101 LargeVRDSExplicit.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileExplicitFilter.h"
#include "gdcmSequenceOfItems.h"

bool interpolate(const double * pts, size_t npts, std::vector<double> &out )
{
    out.clear();
    for(size_t i = 0; i < 2*npts; ++i )
    {
        const size_t j = i / 2;
        if( i % 2 )
        {
            if( j != npts - 1 )
            {
                assert( 3*j+5 < 3*npts );
                const double midpointx = (pts[3*j+0] + pts[3*j+3]) / 2;
                const double midpointy = (pts[3*j+1] + pts[3*j+4]) / 2;
                const double midpointz = (pts[3*j+2] + pts[3*j+5]) / 2;
                out.push_back( midpointx );
                out.push_back( midpointy );
                out.push_back( midpointz );
            }
        }
        else
        {
            assert( j < npts );
            out.push_back( pts[3*j+0] );
            out.push_back( pts[3*j+1] );
            out.push_back( pts[3*j+2] );
        }
    }
    assert( out.size() == 2 * npts * 3 - 3 );
    return true;
}

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    const char *outfilename = argv[2];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        return 1;
    }

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();

    gdcm::FileExplicitFilter fef;
    //fef.SetChangePrivateTags( changeprivatetags );
    fef.SetFile( reader.GetFile() );
    if( !fef.Change() )
    {
        std::cerr << "Failed to change: " << filename << std::endl;
        return 1;
    }
}

```

```

// (3006,0039) SQ (Sequence with undefined length #=4)      # u/1, 1 ROIContourSequence
gdcmm::Tag tag(0x3006,0x0039);

const gdcmm::DataElement &roicsq = ds.GetDataElement( tag );
gdcmm::SmartPointer<gdcmm::SequenceOfItems> sqi = roicsq.
    GetValueAssSQ();
//sqi->SetNumberOfItems( 1 );
const gdcmm::Item & item = sqi->GetItem(1); // Item start at #1
const gdcmm::DataSet& nesteddds = item.GetNestedDataSet();

gdcmm::Tag tcsq(0x3006,0x0040);
if( !nesteddds.FindDataElement( tcsq ) )
{
    return 0;
}
const gdcmm::DataElement& csq = nesteddds.GetDataElement( tcsq );
gdcmm::SmartPointer<gdcmm::SequenceOfItems> sqi2 = csq.
    GetValueAssSQ();
if( !sqi2 || !sqi2->GetNumberOfItems() )
{
    return 0;
}
//unsigned int nitems = sqi2->GetNumberOfItems();
gdcmm::Item & item2 = sqi2->GetItem(1); // Item start at #1

gdcmm::DataSet& nesteddds2 = item2.GetNestedDataSet();
//item2.SetVLToUndefined();
//std::cout << nesteddds2 << std::endl;
// (3006,0050) DS [43.57636\65.52504\ -10.0\46.043102\62.564945\ -10.0\49.126537\60.714... # 398,48
    ContourData
gdcmm::Tag tcontourdata(0x3006,0x0050);
const gdcmm::DataElement & contourdata = nesteddds2.
    GetDataElement( tcontourdata );
//std::cout << contourdata << std::endl;

//const gdcmm::ByteValue *bv = contourdata.GetByteValue();
gdcmm::Attribute<0x3006,0x0046> ncontourpoints;
ncontourpoints.Set( nesteddds2 );

gdcmm::Attribute<0x3006,0x0050> at;
at.SetFromDataElement( contourdata );
const double* pts = at.GetValues();
unsigned int npts = at.GetNumberOfValues() / 3;

std::vector<double> out( pts, pts + npts * 3 );
std::vector<double> out2;

//const unsigned int niter = 7;
const unsigned int niter = 8;
for( unsigned int i = 0; i < niter; ++i)
{
    //bool b =
    interpolate(&out[0], out.size() / 3, out2);
    //const double *pout = &out[0];
    out = out2;
    out2.clear();
}
assert( out.size() % 3 == 0 );

gdcmm::Attribute<0x3006,0x0050> at_interpolate;
at_interpolate.SetNumberOfValues( (unsigned int)(out.size() / 3) );
at_interpolate.SetValues( &out[0], (uint32_t)out.size() );

ncontourpoints.SetValue( at_interpolate.GetNumberOfValues() / 3 );
nesteddds2.Replace( at_interpolate.GetAsDataElement() );
nesteddds2.Replace( ncontourpoints.GetAsDataElement() );

//assert(0);

// Let's take item one and subdivide it

gdcmm::TransferSyntax ts =
    gdcmm::TransferSyntax::ImplicitVRLittleEndian;
ts = gdcmm::TransferSyntax::ExplicitVRLittleEndian;

gdcmm::FileMetaInformation &fmi = file.GetHeader();
const char *tsuid = gdcmm::TransferSyntax::GetTSString( ts );
// const char * is ok since padding is \0 anyway...
gdcmm::DataElement de( gdcmm::Tag(0x0002,0x0010) );
de.SetByteValue( tsuid, (uint32_t)strlen(tsuid) );

```

```

de.SetVR( gdcm::Attribute<0x0002, 0x0010>::GetVR() );
fmi.Replace( de );
fmi.Remove( gdcm::Tag(0x0002,0x0012) ); // will be regenerated
fmi.Remove( gdcm::Tag(0x0002,0x0013) ); // ' ' ' '
fmi.SetDataSetTransferSyntax(ts);

gdcm::Writer w;
w.SetFile( file );
w.SetFileName( outfilename );
if (!w.Write() )
{
    return 1;
}

return 0;
}

```

12.102 MagnifyFile.cxx

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageMagnify.h"
#include "vtkImageCast.h"

#include "gdcmTesting.h"
#include "gdcmSystem.h"

// This is a simple test to magnify an image that is known to give excellent
// compression ratio. This will be our test for those large image
int main(int, char *[])
{
    const char *directory = gdcm::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/test.acr";
    std::cout << file << std::endl;
    if( !gdcm::System::FileExists( file.c_str() ) ) return 1;

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( file.c_str() );
    reader->Update();
    //reader->GetOutput()->Print( std::cout );

    vtkImageCast *cast = vtkImageCast::New();
    #if (VTK_MAJOR_VERSION >= 6)
        cast->SetInputConnection( reader->GetOutputPort() );
    #else
        cast->SetInput( reader->GetOutput() );
    #endif
    cast->SetOutputScalarTypeToUnsignedShort();

    vtkImageMagnify *magnify = vtkImageMagnify::New();
    #if (VTK_MAJOR_VERSION >= 6)
        magnify->SetInputConnection( cast->GetOutputPort() );
    #else
        magnify->SetInput( cast->GetOutput() );
    #endif
    magnify->SetInterpolate( 1 );
    magnify->SetInterpolate( 0 );
    int factor = 100;
    magnify->SetMagnificationFactors( factor, factor, 1);
}

```



```

    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetFileName( "/tmp/bla.dcm" );
#ifdef (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( magnify->GetOutputPort() );
#else
    writer->SetInput( magnify->GetOutput() );
#endif
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->Write();

    // TODO:
    //vtkImageAppendComponents.h

    reader->Delete();
    magnify->Delete();
    writer->Delete();

    return 0;
}

```

12.103 MakeTemplate.cxx

```

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=====*/
#include "gdcmFileAnonymizer.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"

int main(int argc, char *argv[])
{
    if( argc < 3 ) return 1;
    const char* filename = argv[1];
    const char* outfilename = argv[2];

    //gdcm::Trace::DebugOn();

    // Remove Pixel Data element:
    gdcm::FileAnonymizer fa;
    fa.SetInputFileName( filename );
    fa.SetOutputFileName( outfilename );

    fa.Empty( gdcm::Tag(0x7fe0,0x10) );
    // cannot replace in-place DICOM header:
    //fa.Replace( gdcm::Tag(0x2,0x2), "1.2.840.10008.5.1.4.1.1.7" );

    if( !fa.Write() )
    {
        std::cerr << "impossible to remove Pixel Data attribute" << std::endl;
        return 1;
    }

    // Update the DICOM Header:
    gdcm::Reader reader;
    reader.SetFileName( outfilename );
    if( !reader.Read() )
    {
        std::cerr << "could not read back" << std::endl;
        return 1;
    }
}

```

```

gdcmm::File & file = reader.GetFile();
gdcmm::FileMetaInformation &fmi = file.GetHeader();
gdcmm::TransferSyntax ts =
    gdcmm::TransferSyntax::ImplicitVRLittleEndian;
ts = gdcmm::TransferSyntax::ExplicitVRLittleEndian;
fmi.SetDataSetTransferSyntax(ts);

gdcmm::Writer writer;
writer.SetFile( file );
writer.SetFileName( outfilename ); // warning overwrite file !
if( !writer.Write() )
{
    std::cerr << "could not write back" << std::endl;
    return 1;
}

return 0;
}

```

12.104 ManipulateFile.cs

```

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Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcmm/debug-gcc/bin
 * $ mono bin/ManipulateFile.exe gdcmmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcmm;

public class ManipulateFile
{
    public static int Main(string[] args)
    {
        string file1 = args[0];
        string file2 = args[1];
        Reader reader = new Reader();
        reader.SetFileName( file1 );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }

        Anonymizer ano = new Anonymizer();
        ano.SetFile( reader.GetFile() );
        ano.RemovePrivateTags();
        ano.RemoveGroupLength();
        Tag t = new Tag(0x10,0x10);
        ano.Replace( t, "GDCM^Csharp^Test^Hello^World" );

        UIDGenerator g = new UIDGenerator();
        ano.Replace( new Tag(0x0008,0x0018), g.Generate() );
        ano.Replace( new Tag(0x0020,0x000d), g.Generate() );
        ano.Replace( new Tag(0x0020,0x000e), g.Generate() );
        ano.Replace( new Tag(0x0020,0x0052), g.Generate() );

        Writer writer = new Writer();
        writer.SetFileName( file2 );
        writer.SetFile( ano.GetFile() );
        ret = writer.Write();
    }
}

```

```

    if( !ret )
    {
        return 1;
    }

    return 0;
}

```

12.105 ManipulateFile.py

```

1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
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9 # This software is distributed WITHOUT ANY WARRANTY; without even
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11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 python ManipulateFile.py input.dcm output.dcm
19
20 Footnote:
21 GDCM 1.2.x would create incorrect Multiframe MR Image Storage file. Try to recover from
22 the issues to recreate a MultiframeGrayscaleByteSecondaryCaptureImageStorage file.
23 e.g:
24
25 python ManipulateFile.py Insight/Testing/Temporary/itkGDCMImageIOTest5-j2k.dcm manipulated.dcm
26 """
27
28 import sys
29 import gdcm
30
31 if __name__ == "__main__":
32
33     file1 = sys.argv[1]
34     file2 = sys.argv[2]
35
36     r = gdcm.Reader()
37     r.SetFileName( file1 )
38     if not r.Read():
39         sys.exit(1)
40
41     ano = gdcm.Anonymizer()
42     ano.SetFile( r.GetFile() )
43     ano.RemovePrivateTags()
44     ano.Remove( gdcm.Tag(0x0032,0x1030) )
45     ano.Remove( gdcm.Tag(0x008,0x14) )
46     ano.Remove( gdcm.Tag(0x008,0x1111) )
47     ano.Remove( gdcm.Tag(0x008,0x1120) )
48     ano.Remove( gdcm.Tag(0x008,0x1140) )
49     ano.Remove( gdcm.Tag(0x10,0x21b0) )
50     ano.Empty( gdcm.Tag(0x10,0x10) )
51     ano.Empty( gdcm.Tag(0x10,0x20) )
52     ano.Empty( gdcm.Tag(0x10,0x30) )
53     ano.Empty( gdcm.Tag(0x20,0x10) )
54     ano.Empty( gdcm.Tag(0x32,0x1032) )
55     ano.Empty( gdcm.Tag(0x32,0x1033) )
56     ano.Empty( gdcm.Tag(0x40,0x241) )
57     ano.Empty( gdcm.Tag(0x40,0x254) )
58     ano.Empty( gdcm.Tag(0x40,0x253) )
59     ano.Empty( gdcm.Tag(0x40,0x1001) )
60     ano.Empty( gdcm.Tag(0x8,0x80) )
61     ano.Empty( gdcm.Tag(0x8,0x50) )
62     ano.Empty( gdcm.Tag(0x8,0x1030) )
63     ano.Empty( gdcm.Tag(0x8,0x103e) )
64     ano.Empty( gdcm.Tag(0x18,0x1030) )

```

```

65 ano.Empty( gdcml.Tag(0x38,0x300) )
66 g = gdcml.UIDGenerator()
67 ano.Replace( gdcml.Tag(0x0008,0x0018), g.Generate() )
68 ano.Replace( gdcml.Tag(0x0020,0x00d), g.Generate() )
69 ano.Replace( gdcml.Tag(0x0020,0x00e), g.Generate() )
70 ano.Replace( gdcml.Tag(0x0020,0x052), g.Generate() )
71 #ano.Replace( gdcml.Tag(0x0008,0x0016), "1.2.840.10008.5.1.4.1.1.7.2" )
72 ""
73 ano.Remove( gdcml.Tag(0x0018,0x0020) ) # ScanningSequence
74 ano.Remove( gdcml.Tag(0x0018,0x0021) ) # SequenceVariant
75 ano.Remove( gdcml.Tag(0x0018,0x0022) ) # ScanOptions
76 ano.Remove( gdcml.Tag(0x0018,0x0023) ) # MRAcquisitionType
77 ano.Remove( gdcml.Tag(0x0018,0x0050) ) # SliceThickness
78 ano.Remove( gdcml.Tag(0x0018,0x0080) ) # RepetitionTime
79 ano.Remove( gdcml.Tag(0x0018,0x0081) ) # EchoTime
80 ano.Remove( gdcml.Tag(0x0018,0x0088) ) # SpacingBetweenSlices
81 ano.Remove( gdcml.Tag(0x0018,0x0091) ) # EchoTrainLength
82 ano.Remove( gdcml.Tag(0x0018,0x1164) ) # ImagerPixelSpacing
83
84 ano.Remove( gdcml.Tag(0x0020,0x0032) ) # Image Position (Patient)
85 ano.Remove( gdcml.Tag(0x0020,0x0037) ) # Image Orientation (Patient)
86 ano.Remove( gdcml.Tag(0x0020,0x0052) ) # Frame of Reference UID
87 ano.Remove( gdcml.Tag(0x0020,0x1040) ) # Position Reference Indicator
88
89 ano.Replace( gdcml.Tag(0x0028,0x0301), "NO" ) # Burned In Annotation
90
91 ano.Empty( gdcml.Tag(0x0020,0x0020) )
92
93 ano.Remove( gdcml.Tag(0x7fe0,0x0000) )
94
95 #ano.Empty( gdcml.Tag(0x0028,0x0009) ) # Frame Increment Pointer
96
97 #ano.Empty( gdcml.Tag(0x0028,0x1052) ) #<entry group="0028" element="1052" vr="DS" vm="1" name="Rescale
Intercept"/>
98 #ano.Empty( gdcml.Tag(0x0028,0x1053) ) #<entry group="0028" element="1053" vr="DS" vm="1" name="Rescale
Slope"/>
99 #ano.Replace( gdcml.Tag(0x0028,0x1054), "US" ) #<entry group="0028" element="1054" vr="LO" vm="1" name="
Rescale Type"/>
100
101 ano.Replace( gdcml.Tag(0x2050, 0x0020), "IDENTITY")
102 ""
103
104 w = gdcml.Writer()
105 w.SetFile( ano.GetFile() )
106 w.SetFileName( file2 )
107 if not w.Write():
108     sys.exit(1)

```

12.106 ManipulateSequence.py

```

1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 ""
16 Usage:
17
18 python ManipulateSequence.py input.dcm output.dcm
19
20 This was tested using:
21
22 python ManipulateSequence.py gdcmlData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm
23
24 This is a dummy example on how to modify a value set in a nested-nested dataset
25

```

```

26 WARNING:
27 Do not use as-is in production, this is just an example
28 This example works in an undefined length Item only (you need to explicitly recompute the length otherwise)
29 """
30
31 import sys
32 import gdcm
33
34 if __name__ == "__main__":
35
36     file1 = sys.argv[1]
37     file2 = sys.argv[2]
38
39     r = gdcm.Reader()
40     r.SetFileName( file1 )
41     if not r.Read():
42         sys.exit(1)
43
44     f = r.GetFile()
45     ds = f.GetDataSet()
46     tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
47     if ds.FindDataElement( tsis ):
48         sis = ds.GetDataElement( tsis )
49         #sqsis = sis.GetSequenceOfItems()
50         # GetValueAsSQ handle more cases
51         sqsis = sis.GetValueAsSQ()
52         if sqsis.GetNumberOfItems():
53             item1 = sqsis.GetItem(1)
54             nestedds = item1.GetNestedDataSet()
55             tprcs = gdcm.Tag(0x0040,0x170) # PurposeOfReferenceCodeSequence
56             if nestedds.FindDataElement( tprcs ):
57                 prcs = nestedds.GetDataElement( tprcs )
58                 sqprcs = prcs.GetSequenceOfItems()
59                 if sqprcs.GetNumberOfItems():
60                     item2 = sqprcs.GetItem(1)
61                     nestedds2 = item2.GetNestedDataSet()
62                     # (0008,0104) LO [Uncompressed predecessor] # 24, 1 CodeMeaning
63                     tcm = gdcm.Tag(0x0008,0x0104)
64                     if nestedds2.FindDataElement( tcm ):
65                         cm = nestedds2.GetDataElement( tcm )
66                         mystr = "GDCM was here"
67                         cm.SetByteValue( mystr, gdcm.VL( len(mystr) ) )
68
69     w = gdcm.Writer()
70     w.SetFile( f )
71     w.SetFileName( file2 )
72     if not w.Write():
73         sys.exit(1)

```

12.107 MergeFile.py

```

1 #####
2 #
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8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 python MergeFile.py input1.dcm input2.dcm
19
20 It will produce a 'merge.dcm' output file, which contains all meta information from input1.dcm
21 and copy the Stored Pixel values from input2.dcm
22 This script even works when input2.dcm is a Secondary Capture and does not contains information
23 such as IOP and IPP...
24 """

```

```

25
26 import sys
27 import gdcm
28
29 if __name__ == "__main__":
30
31     file1 = sys.argv[1]
32     file2 = sys.argv[2]
33
34     r1 = gdcm.ImageReader()
35     r1.SetFileName( file1 )
36     if not r1.Read():
37         sys.exit(1)
38
39     r2 = gdcm.ImageReader()
40     r2.SetFileName( file2 )
41     if not r2.Read():
42         sys.exit(1)
43
44     # Image from r2 could be Secondary Capture and thus would not contains neither IPP nor IOP
45     # Instead always prefer to only copy the Raw Data Element.
46     # Warning ! Image need to be identical ! Only the value of Stored Pixel can be different.
47     r1.GetImage().SetDataElement( r2.GetImage().GetDataElement() )
48
49     w = gdcm.ImageWriter()
50     w.SetFile( r1.GetFile() )
51     #w.SetImage( r2.GetImage() ) # See comment above
52     w.SetImage( r1.GetImage() )
53
54     w.SetFileName( "merge.dcm" )
55     if not w.Write():
56         sys.exit(1)
57
58     sys.exit(0)

```

12.108 MergeTwoFiles.cxx

```

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PURPOSE. See the above copyright notice for more information.
=====*/

/*
 * This example will show how one can read in two DICOM files, use the dataset
 * from file1 and use image from file2 to save it in a 3rd file.
 *
 * Eg:
 * MergeTwoFiles gdcmData/012345.002.050.dcm gdcmData/test.acr merge.dcm
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        return 1;
    }
    const char *file1 = argv[1];
    const char *file2 = argv[2];
    const char *file3 = argv[3];

```

```

// Read file1
gdcm::ImageReader reader1;
reader1.SetFileName( file1 );
if( !reader1.Read() )
{
    return 1;
}

// Read file2
gdcm::ImageReader reader2;
reader2.SetFileName( file2 );
if( !reader2.Read() )
{
    return 1;
}

// Ok now let's take the DataSet from file1 and the Image from file2
// Warning: if file2 is -for example- a Secondary Capture Storage, then it has no
// Image Orientation (Patient) thus any Image Orientation (Patient) from file1
// will be discarded...

// let's be fancy. In case reader2 contains explicit, but reader1 is implicit
// we would rather see an implicit output
if( reader1.GetFile().GetHeader().GetDataSetTransferSyntax() ==
    gdcm::TransferSyntax::ImplicitVRLittleEndian )
{
    reader2.GetImage().SetTransferSyntax(
        gdcm::TransferSyntax::ImplicitVRLittleEndian );
}

gdcm::ImageWriter writer;
writer.SetFileName( file3 );
writer.SetFile( reader1.GetFile() );
// ImageWriter will always use all of gdcm::Image information and override anything wrong from
// reader1.GetFile(), including the Transfer Syntax
writer.SetImage( reader2.GetImage() );

gdcm::DataSet &ds = reader1.GetFile().GetDataSet();

// Make sure that SOPInstanceUID are different
// Simply removing it is sufficient as gdcm::ImageWriter will generate one by default
// if not found.
ds.Remove( gdcm::Tag(0x0008,0x0018) );
if( !writer.Write() )
{
    return 1;
}

return 0;
}

```

12.109 MetaImageMD5Activiz.cs

```

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PURPOSE. See the above copyright notice for more information.
=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;
using gdcm;

/*
 * $ export MONO_PATH=/usr/lib/cli/Activiz.NET:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/MetaImageMD5Activiz.exe gdcmData/012345.002.050.dcm
 */
public class MetaImageMD5Activiz

```

```

{
    public static int ProcessOneMHDMD5(string filename)
    {
        vtkGDCMImageReader reader = vtkGDCMImageReader.
            New();
        reader.FileLowerLeftOn();
        reader.DebugOff();
        int canread = reader.CanReadFile( filename );
        if( canread == 0 )
        {
            string refms = gdcm.Testing.GetMediaStorageFromFile(filename);
            if( gdcm.MediaStorage.IsImage( gdcm.
                MediaStorage.GetMSType(refms) ) )
            {
                System.Console.Write( "Problem with file: " + filename + "\n" );
                return 1;
            }
            // not an image
            return 0;
        }

        reader.SetFileName( filename );
        reader.Update();

        // System.Console.Write(reader.GetOutput());

        vtkMetaImageWriter writer = vtkMetaImageWriter.New();
        writer.SetCompression( false );
        writer.SetInput( reader.GetOutput() );
        string subdir = "MetaImageMD5Activiz";
        string tmpdir = gdcm.Testing.GetTempDirectory( subdir );
        if( !gdcm.PosixEmulation.FileIsDirectory( tmpdir ) )
        {
            gdcm.PosixEmulation.MakeDirectory( tmpdir );
        }
        string mhdfile = gdcm.Testing.GetTempFilename( filename, subdir );

        string rawfile = mhdfile;
        mhdfile += ".mhd";
        rawfile += ".raw";
        writer.SetFileName( mhdfile );
        writer.Write();

        string digestmhd = gdcm.Testing.ComputeFileMD5( mhdfile );
        string digestraw = gdcm.Testing.ComputeFileMD5( rawfile );

        string mhdref = vtkGDCMTesting.GetMHDMD5FromFile(filename);
        string rawref = vtkGDCMTesting.GetRAWMD5FromFile(filename);

        if( mhdref != digestmhd )
        {
            System.Console.Write( "Problem with mhd file: " + filename + "\n" );
            System.Console.Write( digestmhd );
            System.Console.Write( "\n" );
            System.Console.Write( mhdref );
            System.Console.Write( "\n" );
            return 1;
        }
        if( rawref != digestraw )
        {
            System.Console.Write( "Problem with raw file: " + filename + "\n" );
            System.Console.Write( digestraw );
            System.Console.Write( "\n" );
            System.Console.Write( rawref );
            System.Console.Write( "\n" );
            return 1;
        }

        return 0;
    }
}

public static int Main(string[] args)
{
    if ( args.Length == 1 )
    {
        string filename = args[0];
        return ProcessOneMHDMD5( filename );
    }

    // Loop over all gdcmData
    gdcm.Trace.DebugOff();
    gdcm.Trace.WarningOff();
    gdcm.Trace.ErrorOff();
}

```



```

uint n = gdcm.Testing.GetNumberOfFileNames();
int ret = 0;
for( uint i = 0; i < n; ++i )
{
    string filename = gdcm.Testing.GetFileName( i );
    ret += ProcessOneMHDMD5( filename );
}
return ret;
}
}

```

12.110 MIPViewer.java

```

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=====*/
import vtk.*;
import gdcm.*;
import java.io.File;
import java.awt.Canvas;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MIPViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:. CLASSPATH=/usr/share/java/
   vtk.jar:vtkgdcm.jar:gdcm.jar:. java MIPViewer BRAINX
 *
 */
public class MIPViewer extends Canvas
{
    static {
        // VTK
        System.loadLibrary("vtkCommonJava");
        System.loadLibrary("vtkFilteringJava");
        System.loadLibrary("vtkIOJava");
        System.loadLibrary("vtkImagingJava");
        System.loadLibrary("vtkGraphicsJava");
        System.loadLibrary("vtkRenderingJava");
        System.loadLibrary("vtkVolumeRenderingJava"); // vtkSmartVolumeMapper
        System.loadLibrary("vtkWidgetsJava"); // vtkBoxWidget
        // VTK-GDCM
        System.loadLibrary("vtkgdcmJava");
    }

    static FilenamesType fns = new FilenamesType();

    protected native int Lock();

    protected native int UnLock();

    public static void process(String path)
    {
        fns.add( path );
    }

    // Process only files under dir
    public static void visitAllFiles(File dir)
    {
        if (dir.isDirectory())
        {
            String[] children = dir.list();
            for (int i=0; i<children.length; i++)

```

```

        {
            visitAllFiles(new File(dir, children[i]));
        }
    }
    else
    {
        process(dir.getPath());
    }
}

public static void main(String[] args) throws Exception
{
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
    {
        return;
    }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
    {
        throw new Exception("Could not scan");
    }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
        String f = sorted.get(i);
        files.InsertNextValue( f );
    }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // Create our volume and mapper
    vtkVolume volume = new vtkVolume();
    vtkSmartVolumeMapper mapper = new vtkSmartVolumeMapper();

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();

    // Add a box widget if the clip option was selected
    vtkBoxWidget box = new vtkBoxWidget();
    box.SetInteractor(iren);
    box.SetPlaceFactor(1.01);
    box.SetInput( change.GetOutput() );

    //box.SetDefaultRenderer(renderer);
    box.InsideOutOn();
    box.PlaceWidget();
    //vtkBoxWidgetCallback callback = vtkBoxWidgetCallback::New();
    //callback.SetMapper(mapper);
    //box.AddObserver(vtkCommand::InteractionEvent, callback);
    //callback.Delete();
    // Lock();
    // box.EnabledOn();
    // Unlock();
    box.GetSelectedFaceProperty().SetOpacity(0.0);

    mapper.SetInputConnection( change.GetOutputPort() );

    // Create our transfer function
    vtkColorTransferFunction colorFun = new vtkColorTransferFunction();
    vtkPiecewiseFunction opacityFun = new vtkPiecewiseFunction();

    // Create the property and attach the transfer functions
    vtkVolumeProperty property = new vtkVolumeProperty();

```

```

property.IndependentComponentsOn();
property.SetColor( colorFun );
property.SetScalarOpacity( opacityFun );
property.SetInterpolationTypeToLinear();

// connect up the volume to the property and the mapper
volume.SetProperty( property );
volume.SetMapper( mapper );

vtkMedicalImageProperties medprop = reader.GetMedicalImageProperties();
int n = medprop.GetNumberOfWindowLevelPresets();
double opacityWindow = 4096;
double opacityLevel = 2048;

// Override default with value from DICOM files:
for( int i = 0; i < n; ++i )
{
    double wl[] = medprop.GetNthWindowLevelPreset(i);
    //System.out.println( "W/L: " + wl[0] + " " + wl[1] );
    opacityWindow = wl[0];
    opacityLevel = wl[1];
}

colorFun.AddRGBSegment(0.0, 1.0, 1.0, 1.0, 255.0, 1.0, 1.0, 1.0 );
opacityFun.AddSegment( opacityLevel - 0.5*opacityWindow, 0.0,
    opacityLevel + 0.5*opacityWindow, 1.0 );
mapper.SetBlendModeToMaximumIntensity();

// Create the RenderWindow, Renderer
vtkRenderer ren1 = new vtkRenderer();
vtkRenderWindow renWin = new vtkRenderWindow();
renWin.AddRenderer(ren1);

// Set the default window size
renWin.SetSize(600,600);

// Add the volume to the scene
ren1.AddVolume( volume );
ren1.ResetCamera();

iren.SetRenderWindow( renWin );

// interact with data
renWin.Render();

iren.Start();
}
}

```

12.111 MpegVideoInfo.cs

```

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=====*/
/*
 * This examples takes in a MPEG2 and write out a Video Endoscopic Image Storage
 * encoded using MPEG2 @ Main Profile
 * ref: http://chrissa.wordpress.com/2007/11/21/decoding-mpeg2-information/
 * See also:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 * http://cvs.linux.hr/cgi-bin/viewcvs.cgi/mpeg_mod/README.informpeg?view=markup
 * http://www.guru-group.fi/~too/sw/m2vmp2cut/mpeg2info.c
 */
/*

```

```

* Provides information about an MPEG2 file, including the duration, frame rate, aspect
* ratio, and resolution. Good information about the MPEG2 file structure that helps
* explain parts of the code can be found here:
* http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
*
* Copyright (c) 2007 Chris Anderson (chrisa@wordpress.com)
*
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*
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* but WITHOUT ANY WARRANTY; without even the implied warranty of
* MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
* Lesser General Public License for more details.
*/
using System;
using System.IO;
using gdc;

public class Mpeg2VideoInfo
{
    #region Member Variables
    private TimeSpan m_startTime = TimeSpan.Zero;
    private TimeSpan m_endTime = TimeSpan.Zero;
    private TimeSpan m_duration = TimeSpan.Zero;
    private eAspectRatios m_aspectRatio = eAspectRatios.Invalid;
    private eFrameRates m_frameRate = 0;
    private int m_pictureWidth = 0;
    private int m_pictureHeight = 0;
    #endregion

    #region Constants
    private const byte PADDING_PACKET = 0xBE;
    private const byte VIDEO_PACKET = 0xE0;
    private const byte AUDIO_PACKET = 0xC0;
    private const byte SYSTEM_PACKET = 0xBB;
    private const byte TIMESTAMP_PACKET = 0xB8;
    private const byte HEADER_PACKET = 0xB3;

    private const int BUFFER_SIZE = 8162; // 8K buffer

    private readonly static TimeSpan EMPTY_TIMESPAN = new TimeSpan(0, 0, -1);
    #endregion

    #region Enumerations
    public enum eFrameRates
    {
        Invalid,
        PulldownNTSC, // 24000d/1001d = 23.976 Hz
        Film, // 24 Hz
        PAL, // 25 Hz
        NTSC, // 30000d/1001d = 29.97 Hz
        DropFrameNTSC, // 30 Hz
        DoubleRatePAL, // 50 Hz
        DoubleRateNTSC, // 59.97 Hz
        DoubleRateDropFrameNTSC // 60 Hz
    }

    public enum eAspectRatios
    {
        Invalid,
        VGA, // 1/1
        StandardTV, // 4/3
        LargeTV, // 16/9
        Cinema // 2.21/1
    }
    #endregion

    #region Constructor
    public Mpeg2VideoInfo(string file)
    {
        ParseMpeg(file);
    }
    #endregion

    #region Public Properties
    public TimeSpan StartTime
    {
        get { return m_startTime; }
    }

```

```

    }

    public TimeSpan EndTime
    {
        get { return m_endTime; }
    }

    public TimeSpan Duration
    {
        get { return m_duration; }
    }

    public eAspectRatios AspectRatio
    {
        get { return m_aspectRatio; }
    }

    public eFrameRates FrameRate
    {
        get { return m_frameRate; }
    }

    public int PictureWidth
    {
        get { return m_pictureWidth; }
    }

    public int PictureHeight
    {
        get { return m_pictureHeight; }
    }
#endregion

#region Private Functions
private void ParseMpeg(string file)
{
    FileStream fs = new FileStream(file, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);
    BinaryReader br = new BinaryReader(fs);

    m_startTime = GetStartTimeStampInfo(br);
    m_endTime = GetEndTimeStampInfo(br);

    m_duration = m_endTime.Subtract(m_startTime);

    GetHeaderInfo(br);

    br.Close();
    fs.Close();
}

private TimeSpan GetStartTimeStampInfo(BinaryReader br)
{
    TimeSpan startTime = EMPTY_TIMESPAN;
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(0, SeekOrigin.Begin);

    while (startTime == EMPTY_TIMESPAN && br.BaseStream.Position < br.BaseStream.Length)
    {
        int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

        for (int offset = 0; offset < readBytes - 8; offset++)
        {
            if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
            {
                offset += 4; // Move to the data position which follows the stream header
                uint timeStampEncoded = GetData(ref buffer, offset);
                startTime = DecodeTimeStamp(timeStampEncoded);

                if (startTime != EMPTY_TIMESPAN)
                    break;
            }
        }
    }

    return startTime;
}

private TimeSpan GetEndTimeStampInfo(BinaryReader br)
{
    TimeSpan endTime = EMPTY_TIMESPAN;

```

```

byte[] buffer = new byte[BUFFER_SIZE];

br.BaseStream.Seek(-BUFFER_SIZE, SeekOrigin.End);

while (endTime == EMPTY_TIMESPAN && br.BaseStream.Position > BUFFER_SIZE)
{
    int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

    for (int offset = readBytes - 8; offset >= 0; offset--)
    {
        if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
        {
            offset += 4; // Move to the data position which follows the stream header
            uint timeStampEncoded = GetData(ref buffer, offset);
            endTime = DecodeTimeStamp(timeStampEncoded);

            if (endTime != EMPTY_TIMESPAN)
                break;
        }
    }

    br.BaseStream.Seek(-BUFFER_SIZE * 2, SeekOrigin.Current);
}

return endTime;
}

private TimeSpan DecodeTimeStamp(uint timeStampEncoded)
{
    TimeSpan timeStamp = EMPTY_TIMESPAN;

    // Mask out the bits containing the property we are after, then
    // shift the data to the right to get its value
    int hour = (int)(timeStampEncoded & 0x7C000000) >> 26; // Bits 31 -> 27
    int minute = (int)(timeStampEncoded & 0x03F00000) >> 20; // Bits 26 -> 21
    int second = (int)(timeStampEncoded & 0x0007E000) >> 13; // Bits 19 -> 14
    int frame = (int)(timeStampEncoded & 0x00001F80) >> 7; // Bits 13 -> 8 - not used, but included
    for completeness

    timeStamp = new TimeSpan(hour, minute, second);
    return timeStamp;
}

private void GetHeaderInfo(BinaryReader br)
{
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(0, SeekOrigin.Begin);
    br.Read(buffer, 0, BUFFER_SIZE);

    for (int offset = 0; offset < buffer.Length - 4; offset++)
    {
        if (IsStreamMarker(ref buffer, offset, HEADER_PACKET))
        {
            offset += 4; // Move to the data position which follows the stream header
            uint headerData = GetData(ref buffer, offset);

            // Mask out the bits containing the property we are after, then
            // shift the data to the right to get its value
            m_pictureWidth = (int)(headerData & 0xFFFF0000) >> 20;
            m_pictureHeight = (int)(headerData & 0x000FFF00) >> 8;

            uint aspectRatioIndex = (headerData & 0x000000F0) >> 4;
            uint fpsIndex = headerData & 0x0000000F;

            m_aspectRatio = (eAspectRatios)fpsIndex;
            m_frameRate = (eFrameRates)fpsIndex;

            break;
        }
    }
}

private uint GetData(ref byte[] buffer, int offset)
{
    return (uint) ((buffer[offset] << 24) |
        (buffer[offset + 1] << 16) |
        (buffer[offset + 2] << 8) |
        (buffer[offset + 3]));
}

```

```

private bool IsStreamMarker(ref byte[] buffer, int offset, byte markerType)
{
    return (buffer[offset] == 0x00 &&
            buffer[offset + 1] == 0x00 &&
            buffer[offset + 2] == 0x01 &&
            buffer[offset + 3] == markerType);
}
#endregion
public static int Main(string[] args)
{
    string file1 = args[0];
    Mpeg2VideoInfo info = new Mpeg2VideoInfo(file1);
    System.Console.WriteLine( info.StartTime );
    System.Console.WriteLine( info.EndTime );
    System.Console.WriteLine( info.Duration );
    System.Console.WriteLine( info.AspectRatio );
    System.Console.WriteLine( info.FrameRate );
    System.Console.WriteLine( info.PictureWidth );
    System.Console.WriteLine( info.PictureHeight );

    ImageReader r = new ImageReader();
    //Image image = new Image();
    Image image = r.GetImage();
    image.SetNumberOfDimensions( 3 );
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    System.IO.FileStream infile =
        new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream = new byte[fsize];
    infile.Read(jstream, 0, jstream.Length);

    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    sq.AddFragment( frag );
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.
        YBR_PARTIAL_420 );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.MPEG2MainProfile);
    image.SetTransferSyntax( ts );

    image.SetDimension(0, (uint)info.PictureWidth);
    image.SetDimension(1, (uint)info.PictureHeight);
    image.SetDimension(2, 721);

    ImageWriter writer = new ImageWriter();
    gdcm.File file = writer.GetFile();
    file.GetHeader().SetDataSetTransferSyntax( ts );
    Anonymizer anon = new Anonymizer();
    anon.SetFile( file );

    MediaStorage ms = new MediaStorage( MediaStorage.MSType.VideoEndoscopicImageStorage);

    UIDGenerator gen = new UIDGenerator();
    anon.Replace( new Tag(0x0008,0x16), ms.GetString() );
    anon.Replace( new Tag(0x0018,0x40), "25" );
    anon.Replace( new Tag(0x0018,0x1063), "40.000000" );
    anon.Replace( new Tag(0x0028,0x34), "4\\3" );
    anon.Replace( new Tag(0x0028,0x2110), "01" );

    writer.SetImage( image );
    writer.SetFileName( "dummy.dcm" );
    if( !writer.Write() )
    {
        System.Console.WriteLine( "Could not write" );
        return 1;
    }

    return 0;
}

```

```

    }
}

```

12.112 MPRViewer.java

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/

import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:. CLASSPATH=/usr/share/java/
   vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer BRAINX
 */
public class MPRViewer
{
    static {
        // VTK
        System.loadLibrary("vtkCommonJava");
        System.loadLibrary("vtkFilteringJava");
        System.loadLibrary("vtkIOJava");
        System.loadLibrary("vtkImagingJava");
        System.loadLibrary("vtkGraphicsJava");
        System.loadLibrary("vtkRenderingJava");
        // VTK-GDCM
        System.loadLibrary("vtkgdcmJava");
    }

    static FilenamesType fns = new FilenamesType();

    public static void process(String path)
    {
        fns.add( path );
    }

    // Process only files under dir
    public static void visitAllFiles(File dir)
    {
        if (dir.isDirectory())
        {
            String[] children = dir.list();
            for (int i=0; i<children.length; i++)
            {
                visitAllFiles(new File(dir, children[i]));
            }
        }
        else
        {
            process(dir.getPath());
        }
    }

    public static void main(String[] args) throws Exception
    {
        String dirname = args[0];
        if( !PosixEmulation.FileIsDirectory( dirname ) )
        {
            return;
        }
    }
}

```



```

    }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
    {
        throw new Exception("Could not scan");
    }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
        String f = sorted.get(i);
        files.InsertNextValue( f );
    }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // A simple vtkInteractorStyleImage example for
    // 3D image viewing with the vtkImageResliceMapper.
    //
    // Drag Left mouse button to window/level
    // Shift-Left drag to rotate (oblique slice)
    // Shift-Middle drag to slice through image
    // OR Ctrl-Right drag to slice through image

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    vtkImageResliceMapper im = new vtkImageResliceMapper();
    im.SetInputConnection(change.GetOutputPort());
    im.SliceFacesCameraOn();
    im.SliceAtFocalPointOn();
    im.BorderOff();

    vtkImageProperty ip = new vtkImageProperty();
    ip.SetColorWindow(2000);
    ip.SetColorLevel(1000);
    ip.SetAmbient(0.0);
    ip.SetDiffuse(1.0);
    ip.SetOpacity(1.0);
    ip.SetInterpolationTypeToLinear();

    vtkImageSlice ia = new vtkImageSlice();
    ia.SetMapper(im);
    ia.SetProperty(ip);

    ren1.AddViewProp(ia);
    ren1.SetBackground(0.1,0.2,0.4);
    renWin.SetSize(300,300);

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
    vtkInteractorStyleImage style = new vtkInteractorStyleImage();
    style.SetInteractionModeToImage3D();
    iren.SetInteractorStyle(style);
    renWin.SetInteractor(iren);

    // render the image
    renWin.Render();
    vtkCamera cam1 = ren1.GetActiveCamera();
    cam1.ParallelProjectionOn();
    ren1.ResetCameraClippingRange();
    renWin.Render();

```

```

        iren.Start();
    }
}

```

12.113 MPRViewer2.java

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.
=====*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdc.jar:/usr/share/java/vtk.jar javac MPRViewer2.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:. CLASSPATH=/usr/share/java/
   vtk.jar:vtkgdc.jar:gdcm.jar:. java MPRViewer2 BRAINX
 *
 */
public class MPRViewer2
{
    static {
        // VTK
        System.loadLibrary("vtkCommonJava");
        System.loadLibrary("vtkFilteringJava");
        System.loadLibrary("vtkIOJava");
        System.loadLibrary("vtkImagingJava");
        System.loadLibrary("vtkGraphicsJava");
        System.loadLibrary("vtkRenderingJava");
        System.loadLibrary("vtkHybridJava");
        System.loadLibrary("vtkWidgetsJava");
        // VTK-GDCM
        System.loadLibrary("vtkgdc.jar");
    }

    static FilenamesType fns = new FilenamesType();

    public static void process(String path)
    {
        fns.add( path );
    }

    // Process only files under dir
    public static void visitAllFiles(File dir)
    {
        if (dir.isDirectory())
        {
            String[] children = dir.list();
            for (int i=0; i<children.length; i++)
            {
                visitAllFiles(new File(dir, children[i]));
            }
        }
        else
        {
            process(dir.getPath());
        }
    }

    public void dointer(vtkImagePlaneWidget current_widget)
    {
        int cstat = current_widget.GetCursorDataStatus();
    }
}

```

```

double[] v = current_widget.GetCurrentCursorPosition();
//System.out.println( cstat );
//System.out.println( v[0] );
//System.out.println( v[1] );
//System.out.println( v[2] );
planeWidgetX.SetSliceIndex( (int)v[0] );
planeWidgetY.SetSliceIndex( (int)v[1] );
planeWidgetZ.SetSliceIndex( (int)v[2] );
planeWidgetX.GetCurrentRenderer().ResetCameraClippingRange();
planeWidgetY.GetCurrentRenderer().ResetCameraClippingRange();
planeWidgetZ.GetCurrentRenderer().ResetCameraClippingRange();
}

public void startinterX()
{
    dointer( planeWidgetX );
}

public void interX()
{
    dointer( planeWidgetX );
}

public void endinterX()
{
}

public void startinterY()
{
    dointer( planeWidgetY );
}

public void interY()
{
    dointer( planeWidgetY );
}

public void endinterY()
{
}

public void startinterZ()
{
    dointer( planeWidgetZ );
}

public void interZ()
{
    dointer( planeWidgetZ );
}

public void endinterZ()
{
    //System.out.println( "endinter" );
}

public static void AlignCamera(int slice_number, vtkImagePlaneWidget current_widget)
{
    vtkImageData image = (vtkImageData)current_widget.GetInput();
    vtkRenderer ren = current_widget.GetCurrentRenderer();
    double[] origin = image.GetOrigin();
    double ox = origin[0];
    double oy = origin[1];
    double oz = origin[2];

    int wextent[] = image.GetWholeExtent();
    int xmin = wextent[0];
    int xmax = wextent[1];
    int ymin = wextent[2];
    int ymax = wextent[3];
    int zmin = wextent[4];
    int zmax = wextent[5];

    double[] spacing = image.GetSpacing();
    double sx = spacing[0];
    double sy = spacing[1];
    double sz = spacing[2];

    double cx = ox + (0.5*(xmax-xmin))*sx;
    double cy = oy + (0.5*(ymax-ymin))*sy;
    double cz = oz + (0.5*(zmax-zmin))*sz;
    double vx = 0, vy = 0, vz = 0;
    double nx = 0, ny = 0, nz = 0;
    int iaxis = current_widget.GetPlaneOrientation();
    if ( iaxis == 0 ) {
        vz = -1;
        nx = ox + xmax*sx;
        cx = ox + slice_number*sx;
    }
    else if ( iaxis == 1 ) {

```

```

        vz = -1;
        ny = oy+yMax*sy;
        cy = oy+slice_number*sy;
    }
    else {
        vy = 1;
        nz = oz+zMax*sz;
        cz = oz+slice_number*sz;
    }
    double px = cx+nx*2;
    double py = cy+ny*2;
    double pz = cz+nz*3;

    vtkCamera camera = ren.GetActiveCamera();
    camera.SetViewUp(vx, vy, vz);
    camera.SetFocalPoint(cx, cy, cz);
    camera.SetPosition(px, py, pz);
    camera.OrthogonalizeViewUp();
    ren.ResetCameraClippingRange();
}

private vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
private vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
private vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();

public void config()
{
    //System.out.println( "config" );
    planeWidgetX.GetCurrentRenderer().ResetCamera();
    planeWidgetY.GetCurrentRenderer().ResetCamera();
    planeWidgetZ.GetCurrentRenderer().ResetCamera();
}

public void Run(String dirname)
{
    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
    {
        //throw new Exception("Could not scan");
    }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
        String f = sorted.get(i);
        files.InsertNextValue( f );
    }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
    change.Update();

    System.out.println( change.GetOutput().toString() );

    vtkRenderer ren1 = new vtkRenderer();
    ren1.SetViewport(0., 0., 0.333, 1);
    ren1.SetBackground(0.1,0.2,0.4);
    vtkRenderer ren2 = new vtkRenderer();
    ren2.SetViewport(0.333, 0., 0.667, 1);
    ren2.SetBackground(0.1,0.2,0.4);
    vtkRenderer ren3 = new vtkRenderer();
    ren3.SetViewport(0.667, 0., 1., 1.);
    ren3.SetBackground(0.1,0.2,0.4);

    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

```

```

renWin.AddRenderer(ren2);
renWin.AddRenderer(ren3);

vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
iren.SetRenderWindow(renWin);

vtkInteractorStyleImage style = new vtkInteractorStyleImage();
iren.SetInteractorStyle( style );

vtkCellPicker picker = new vtkCellPicker();
picker.SetTolerance(0.005);

vtkProperty ipwProp = new vtkProperty();

//vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
planeWidgetX.SetInteractor(iren);
planeWidgetX.SetCurrentRenderer(ren1);
planeWidgetX.SetDefaultRenderer(ren1);
planeWidgetX.RestrictPlaneToVolumeOn();
planeWidgetX.SetTexturePlaneProperty(ipwProp);
//planeWidgetX.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetX.TextureInterpolateOff();
//planeWidgetX.SetResliceInterpolateToNearestNeighbour();
planeWidgetX.SetInput(change.GetOutput());
planeWidgetX.SetPlaneOrientationToXAxes();
planeWidgetX.SetSliceIndex(62);
planeWidgetX.SetPicker(picker);
planeWidgetX.SetKeyPressActivationValue('x');
planeWidgetX.On();
planeWidgetX.InteractionOn();

//vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
planeWidgetY.SetInteractor(iren);
planeWidgetY.SetCurrentRenderer(ren2);
planeWidgetY.SetDefaultRenderer(ren2);
planeWidgetY.RestrictPlaneToVolumeOn();
planeWidgetY.SetTexturePlaneProperty(ipwProp);
//planeWidgetY.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetY.TextureInterpolateOff();
//planeWidgetY.SetResliceInterpolateToNearestNeighbour();
planeWidgetY.SetInput(change.GetOutput());
planeWidgetY.SetLookupTable( planeWidgetX.GetLookupTable() );
planeWidgetY.SetPlaneOrientationToYAxes();
planeWidgetY.SetSliceIndex(32);
planeWidgetY.SetPicker(picker);
planeWidgetY.SetKeyPressActivationValue('y');
planeWidgetY.On();

//vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();
planeWidgetZ.SetInteractor(iren);
planeWidgetZ.SetCurrentRenderer(ren3);
planeWidgetZ.SetDefaultRenderer(ren3);
planeWidgetZ.RestrictPlaneToVolumeOn();
planeWidgetZ.SetTexturePlaneProperty(ipwProp);
//planeWidgetZ.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetZ.TextureInterpolateOff();
//planeWidgetZ.SetResliceInterpolateToNearestNeighbour();
planeWidgetZ.SetInput(change.GetOutput());
planeWidgetZ.SetLookupTable( planeWidgetX.GetLookupTable() );
planeWidgetZ.SetPlaneOrientationToZAxes();
planeWidgetZ.SetSliceIndex(32);
planeWidgetZ.SetPicker(picker);
planeWidgetZ.SetKeyPressActivationValue('z');
planeWidgetZ.On();

iren.Initialize();

renWin.Render();
AlignCamera(52, planeWidgetX);
AlignCamera(32, planeWidgetY);
AlignCamera(32, planeWidgetZ);

planeWidgetX.GetCurrentRenderer().ResetCamera();
planeWidgetY.GetCurrentRenderer().ResetCamera();
planeWidgetZ.GetCurrentRenderer().ResetCamera();

renWin.Render();

planeWidgetX.AddObserver("StartInteractionEvent", this,"startinterX");
planeWidgetX.AddObserver("InteractionEvent", this,"interX");

```

```

planeWidgetX.AddObserver("EndInteractionEvent", this,"endinterX");
planeWidgetY.AddObserver("StartInteractionEvent", this,"startinterY");
planeWidgetY.AddObserver("InteractionEvent", this,"interY");
planeWidgetY.AddObserver("EndInteractionEvent", this,"endinterY");
planeWidgetZ.AddObserver("StartInteractionEvent", this,"startinterZ");
planeWidgetZ.AddObserver("InteractionEvent", this,"interZ");
planeWidgetZ.AddObserver("EndInteractionEvent", this,"endinterZ");

iren.AddObserver("ConfigureEvent", this,"config");

iren.Start();
}

public static void main(String[] args) throws Exception
{
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
    {
        return;
    }

    MPRViewer2 me = new MPRViewer2();
    me.Run( dirname );
}
}

```

12.114 MrProtocol.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
*
*/

/*
28 - 'MrProtocol' VM 1, VR UN, SyngoDT 0, NoOfItems 6, Data '### ASCCONV BEGIN ###
ulVersion = 0xbee332
tSequenceFileName = "%SiemensSeq%\fl_fq_shphs"
tProtocolName = "flash+AF8-100+AF8-through-plane+AF8-V"
tReferenceImage0 = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004658"
tReferenceImage1 = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004635"
tReferenceImage2 = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004683"
ucScanRegionPosValid = 0x1
sProtConsistencyInfo.tBaselineString = "N4_VB11A_LATEST_20031004"
sProtConsistencyInfo.flNominalB0 = 1.494
sProtConsistencyInfo.flGMax = 22
sProtConsistencyInfo.flRiseTime = 10
sGRADSPEC.sEddyCompensationX.aflAmplitude[0] = 0.0141111
sGRADSPEC.sEddyCompensationX.aflAmplitude[1] = 0.057038
sGRADSPEC.sEddyCompensationX.aflAmplitude[2] = -0.00986504
sGRADSPEC.sEddyCompensationX.aflAmplitude[3] = 0.00247627
sGRADSPEC.sEddyCompensationX.aflAmplitude[4] = 0.0026377
sGRADSPEC.sEddyCompensationX.aflTimeConstant[0] = 1.53826
sGRADSPEC.sEddyCompensationX.aflTimeConstant[1] = 0.746617
sGRADSPEC.sEddyCompensationX.aflTimeConstant[2] = 0.339236
sGRADSPEC.sEddyCompensationX.aflTimeConstant[3] = 0.0309809
sGRADSPEC.sEddyCompensationX.aflTimeConstant[4] = 0.00067694
sGRADSPEC.sEddyCompensationY.aflAmplitude[0] = 0.0156411
sGRADSPEC.sEddyCompensationY.aflAmplitude[1] = 0.0440623
sGRADSPEC.sEddyCompensationY.aflAmplitude[2] = -0.00782663
sGRADSPEC.sEddyCompensationY.aflAmplitude[3] = 0.00186828
sGRADSPEC.sEddyCompensationY.aflAmplitude[4] = 0.00154504
sGRADSPEC.sEddyCompensationY.aflTimeConstant[0] = 1.47145
sGRADSPEC.sEddyCompensationY.aflTimeConstant[1] = 0.750538

```

```
sGRADSPEC.sEddyCompensationY.aflTimeConstant[2] = 0.339397
sGRADSPEC.sEddyCompensationY.aflTimeConstant[3] = 0.0312962
sGRADSPEC.sEddyCompensationY.aflTimeConstant[4] = 0.000895133
sGRADSPEC.sEddyCompensationZ.aflAmplitude[0] = 0.00618504
sGRADSPEC.sEddyCompensationZ.aflAmplitude[1] = 0.00313121
sGRADSPEC.sEddyCompensationZ.aflAmplitude[2] = 0.000289346
sGRADSPEC.sEddyCompensationZ.aflAmplitude[3] = -0.00019677
sGRADSPEC.sEddyCompensationZ.aflAmplitude[4] = 7.66445e-005
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[0] = 3.37462
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[1] = 0.999351
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[2] = 0.0174646
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[3] = 0.0110094
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[4] = 0.00199922
sGRADSPEC.bEddyCompensationValid = 1
sGRADSPEC.sB0CompensationX.aflAmplitude[0] = 0.307474
sGRADSPEC.sB0CompensationX.aflAmplitude[1] = 0.029337
sGRADSPEC.sB0CompensationX.aflAmplitude[2] = -0.187118
sGRADSPEC.sB0CompensationX.aflTimeConstant[0] = 0.98583
sGRADSPEC.sB0CompensationX.aflTimeConstant[1] = 0.0308443
sGRADSPEC.sB0CompensationX.aflTimeConstant[2] = 0.000466792
sGRADSPEC.sB0CompensationY.aflAmplitude[0] = 0.365257
sGRADSPEC.sB0CompensationY.aflAmplitude[1] = -0.318647
sGRADSPEC.sB0CompensationY.aflAmplitude[2] = -0.0118978
sGRADSPEC.sB0CompensationY.aflTimeConstant[0] = 0.61535
sGRADSPEC.sB0CompensationY.aflTimeConstant[1] = 0.488831
sGRADSPEC.sB0CompensationY.aflTimeConstant[2] = 0.00199991
sGRADSPEC.sB0CompensationZ.aflAmplitude[0] = -0.44647
sGRADSPEC.sB0CompensationZ.aflAmplitude[1] = -0.0455154
sGRADSPEC.sB0CompensationZ.aflAmplitude[2] = -0.0304901
sGRADSPEC.sB0CompensationZ.aflTimeConstant[0] = 0.959231
sGRADSPEC.sB0CompensationZ.aflTimeConstant[1] = 0.0720189
sGRADSPEC.sB0CompensationZ.aflTimeConstant[2] = 0.00190141
sGRADSPEC.bB0CompensationValid = 1
sGRADSPEC.sCrossTermCompensationXY.aflAmplitude[0] = 0.00105046
sGRADSPEC.sCrossTermCompensationXY.aflTimeConstant[0] = 0.842014
sGRADSPEC.sCrossTermCompensationXZ.aflAmplitude[0] = -0.00150189
sGRADSPEC.sCrossTermCompensationXZ.aflTimeConstant[0] = 0.736169
sGRADSPEC.sCrossTermCompensationYX.aflAmplitude[0] = -5.5278e-005
sGRADSPEC.sCrossTermCompensationYX.aflTimeConstant[0] = 0.228697
sGRADSPEC.sCrossTermCompensationYZ.aflAmplitude[0] = 0.000307999
sGRADSPEC.sCrossTermCompensationYZ.aflTimeConstant[0] = 1.19431
sGRADSPEC.sCrossTermCompensationZX.aflAmplitude[0] = -0.000286868
sGRADSPEC.sCrossTermCompensationZX.aflTimeConstant[0] = 0.665979
sGRADSPEC.sCrossTermCompensationZY.aflAmplitude[0] = 0.000355175
sGRADSPEC.sCrossTermCompensationZY.aflTimeConstant[0] = 0.844189
sGRADSPEC.bCrossTermCompensationValid = 1
sGRADSPEC.lOffsetX = 25
sGRADSPEC.lOffsetY = 84
sGRADSPEC.lOffsetZ = 47
sGRADSPEC.bOffsetValid = 1
sGRADSPEC.lDelayX = 12
sGRADSPEC.lDelayY = 11
sGRADSPEC.lDelayZ = 9
sGRADSPEC.bDelayValid = 1
sGRADSPEC.flSensitivityX = 0.000264087
sGRADSPEC.flSensitivityY = 0.000272009
sGRADSPEC.flSensitivityZ = 0.000272677
sGRADSPEC.bSensitivityValid = 1
sGRADSPEC.alShimCurrent[0] = 183
sGRADSPEC.alShimCurrent[1] = -25
sGRADSPEC.alShimCurrent[2] = -85
sGRADSPEC.alShimCurrent[3] = 378
sGRADSPEC.alShimCurrent[4] = 82
sGRADSPEC.bShimCurrentValid = 1
sGRADSPEC.ucMode = 0x2
sTXSPEC.asNucleusInfo[0].tNucleus = "1H"
sTXSPEC.asNucleusInfo[0].lFrequency = 63684693
sTXSPEC.asNucleusInfo[0].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[0].flReferenceAmplitude = 359.734
sTXSPEC.asNucleusInfo[0].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[0].flAmplitudeCorrection = 1
sTXSPEC.asNucleusInfo[0].bAmplitudeCorrectionValid = 1
sTXSPEC.asNucleusInfo[1].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[1].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[1].bAmplitudeCorrectionValid = 1
sTXSPEC.arFPULSE[0].tName = "03GreFCE"
sTXSPEC.arFPULSE[0].bAmplitudeValid = 0x1
sTXSPEC.arFPULSE[0].flAmplitude = 147.095
sTXSPEC.arFPULSE[1].tName = "02GreFCE"
sTXSPEC.arFPULSE[1].bAmplitudeValid = 0x1
sTXSPEC.arFPULSE[1].flAmplitude = 147.095
```

```

sTXSPEC.aRFPULSE[2].tName           = "01GreFCE"
sTXSPEC.aRFPULSE[2].bAmplitudeValid = 0x1
sTXSPEC.aRFPULSE[2].flAmplitude     = 147.095
sTXSPEC.lNoOfTraPulses              = 3
sTXSPEC.lBTB1ParallelCapacity       = 2
sTXSPEC.lBTB1SerialCapacity         = 24
sTXSPEC.lBTB2ParallelCapacity       = 2
sTXSPEC.lBTB2SerialCapacity         = 26
sTXSPEC.bBTBValid                   = 1
sTXSPEC.flKDynMagnitudeMin           = 0.5
sTXSPEC.flKDynMagnitudeMax          = 1.5
sTXSPEC.flKDynMagnitudeClipLow      = 0.96
sTXSPEC.flKDynMagnitudeClipHigh     = 1.04
sTXSPEC.flKDynPhaseMax              = 0.698132
sTXSPEC.flKDynPhaseClip             = 0.174533
sTXSPEC.bKDynValid                  = 1
sTXSPEC.ucRFPulseType               = 0x1
sTXSPEC.ucExcitMode                  = 0x1
sTXSPEC.ucSimultaneousExcitation    = 0x1
sRXSPEC.lGain                       = 1
sRXSPEC.bGainValid                  = 1
sRXSPEC.aFFT_SCALE[0].lRxChannel     = 1
sRXSPEC.aFFT_SCALE[0].flFactor       = 1.06857
sRXSPEC.aFFT_SCALE[0].bValid         = 1
sRXSPEC.aFFT_SCALE[1].lRxChannel     = 2
sRXSPEC.aFFT_SCALE[1].flFactor       = 1.07454
sRXSPEC.aFFT_SCALE[1].bValid         = 1
sRXSPEC.aFFT_SCALE[2].lRxChannel     = 3
sRXSPEC.aFFT_SCALE[2].flFactor       = 1.06622
sRXSPEC.aFFT_SCALE[2].bValid         = 1
sRXSPEC.aFFT_SCALE[3].lRxChannel     = 4
sRXSPEC.aFFT_SCALE[3].flFactor       = 1.06524
sRXSPEC.aFFT_SCALE[3].bValid         = 1
sRXSPEC.aFFT_SCALE[4].lRxChannel     = 5
sRXSPEC.aFFT_SCALE[4].flFactor       = 0.982692
sRXSPEC.aFFT_SCALE[4].bValid         = 1
sRXSPEC.aFFT_SCALE[5].lRxChannel     = 6
sRXSPEC.aFFT_SCALE[5].flFactor       = 0.988603
sRXSPEC.aFFT_SCALE[5].bValid         = 1
sRXSPEC.aFFT_SCALE[6].lRxChannel     = 7
sRXSPEC.aFFT_SCALE[6].flFactor       = 0.981538
sRXSPEC.aFFT_SCALE[6].bValid         = 1
sRXSPEC.aFFT_SCALE[7].lRxChannel     = 8
sRXSPEC.aFFT_SCALE[7].flFactor       = 1.00856
sRXSPEC.aFFT_SCALE[7].bValid         = 1
sRXSPEC.bVariCapVoltagesValid       = 1
sRXSPEC.alDwellTime[0]              = 8500
sAdjFreSpec.ulMode                   = 0x1
sAdjFreSpec.ucAdjWithBC              = 0x1
sAdjTraSpec.ucAdjWithBC              = 0x1
sAdjShimSpec.ulMode                  = 0x1
sAdjShimSpec.ucAdjWithBC             = 0x1
sAdjWatSupSpec.ulMode                = 0x1
sAdjWatSupSpec.ucAdjWithBC           = 0x1
alTR[0]                             = 37000
lContrasts                           = 1
alTE[0]                             = 4000
acFlowComp[0]                       = 1
lCombinedEchoes                     = 1
sSliceArray.asSlice[0].sPosition.dSag = 35.31199581
sSliceArray.asSlice[0].sPosition.dCor = -8.387765754
sSliceArray.asSlice[0].sPosition.dTra = -23.13178296
sSliceArray.asSlice[0].sNormal.dSag   = 0.771051253
sSliceArray.asSlice[0].sNormal.dCor   = 0.5863890019
sSliceArray.asSlice[0].sNormal.dTra   = -0.2482496801
sSliceArray.asSlice[0].dThickness     = 6
sSliceArray.asSlice[0].dPhaseFOV      = 187.5
sSliceArray.asSlice[0].dReadoutFOV    = 250
sSliceArray.lSize                     = 1
sSliceArray.lSag                      = 1
sSliceArray.lConc                     = 1
sSliceArray.ucMode                    = 0x1
sSliceArray.sTSat.dThickness          = 40
sSliceArray.sTSat.dGap                 = 10
sGroupArray.asGroup[0].nSize          = 1
sGroupArray.asGroup[0].dDistFact      = 0.2
sGroupArray.anMember[1]               = -1
sGroupArray.lSize                     = 1
sGroupArray.sPSat.dThickness          = 50
sGroupArray.sPSat.dGap                 = 10
sAutoAlign.dAAMatrix[0]              = 1

```



```

sAutoAlign.dAAMatrix[5]           = 1
sAutoAlign.dAAMatrix[10]          = 1
sAutoAlign.dAAMatrix[15]          = 1
sNavigatorPara.ucRespComp          = 0x4
sPrepPulses.ucFatSat               = 0x4
sPrepPulses.ucWaterSat             = 0x4
sPrepPulses.ucInversion            = 0x4
sPrepPulses.ucSatRecovery          = 0x1
sPrepPulses.ucFatSatMode           = 0x2
sKSpace.lBaseResolution            = 256
sKSpace.lPhaseEncodingLines        = 192
sKSpace.dPhaseResolution           = 1
sKSpace.lPartitions                 = 32
sKSpace.lImagesPerSlab             = 32
sKSpace.dSliceResolution           = 1
sKSpace.ucPhasePartialFourier      = 0x10
sKSpace.ucSlicePartialFourier      = 0x10
sKSpace.ucAveragingMode             = 0x2
sKSpace.ucMultiSliceMode           = 0x1
sKSpace.ucDimension                = 0x2
sKSpace.ucAsymmetricEchoAllowed    = 0x1
sKSpace.unReordering               = 0x1
sFastImaging.lEPIFactor            = 1
sFastImaging.lTurboFactor           = 1
sFastImaging.lSegments              = 3
sFastImaging.ulEnableRFSpoiling    = 0x1
sPhysioImaging.lSignal1            = 2
sPhysioImaging.lMethod1            = 2
sPhysioImaging.lSignal2            = 1
sPhysioImaging.lMethod2            = 1
sPhysioImaging.lPhases              = 21
sPhysioImaging.lRetroGatedImages    = 16
sPhysioImaging.sPhysioECG.lScanWindow = 805
sPhysioImaging.sPhysioECG.lTriggerPulses = 1
sPhysioImaging.sPhysioECG.lTriggerWindow = 5
sPhysioImaging.sPhysioECG.lArrhythmiaDetection = 1
sPhysioImaging.sPhysioECG.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioECG.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioPulse.lTriggerPulses = 1
sPhysioImaging.sPhysioPulse.lTriggerWindow = 5
sPhysioImaging.sPhysioPulse.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioPulse.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioExt.lTriggerPulses = 1
sPhysioImaging.sPhysioExt.lTriggerWindow = 5
sPhysioImaging.sPhysioExt.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioExt.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioResp.lRespGateThreshold = 20
sPhysioImaging.sPhysioResp.lRespGatePhase = 2
sPhysioImaging.sPhysioResp.dGatingRatio = 0.3
sSpecPara.lPhaseCyclingType        = 1
sSpecPara.lPhaseEncodingType        = 1
sSpecPara.lRFExcitationBandwidth    = 1
sSpecPara.ucRemoveOversampling      = 0x1
sSpecPara.lDecouplingType           = 1
sSpecPara.lNOEType                  = 1
sSpecPara.lExcitationType            = 1
sSpecPara.lSpectralSuppression       = 1
sDiffusion.ulMode                   = 0x1
sAngio.sFlowArray.asElm[0].nVelocity = 100
sAngio.sFlowArray.asElm[0].nDir      = 0x4
sAngio.sFlowArray.lSize              = 1
sAngio.ucPCFlowMode                  = 0x2
sAngio.ucTOFInflow                   = 0x4
sAngio.ucRephasedImage               = 0x1
sAngio.ucPhaseImage                  = 0x1
sEllipticalFilter.ucMode             = 0x1
sPat.lAccelFactPE                    = 1
sPat.lAccelFact3D                    = 1
sPat.ucPATMode                       = 0x1
sPat.ucRefScanMode                   = 0x1
ucAutoMovie                          = 0x1
ucDisableChangeStoreImages           = 0x1
ucReconstructionMode                = 0x1
ucPHAPSMODE                          = 0x1
ucDixon                             = 0x1
lAverages                           = 2
adFlipAngleDegree[0]                 = 30
lScanTimeSec                         = 103
lTotalScanTimeSec                   = 112
dRefSNR                             = 165404.1473
dRefSNR_VOI                         = 165404.1473

```

```

tdefaultEVAProt                                = "%SiemensEvaDefProt%\Inline\Inline.evp"
tcurrentEVAProt                                = "%CURRENTEVAPROT%\EVA2A5.tmp"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tElement = "PP6"
sCOIL_SELECT_MEAS.asList[0].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[0].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tElement = "PP5"
sCOIL_SELECT_MEAS.asList[1].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[1].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tElement = "PP3"
sCOIL_SELECT_MEAS.asList[2].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[2].lRxChannelConnected = 2
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tElement = "PP4"
sCOIL_SELECT_MEAS.asList[3].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[3].lRxChannelConnected = 3
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tElement = "PP2"
sCOIL_SELECT_MEAS.asList[4].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[4].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tElement = "PP1"
sCOIL_SELECT_MEAS.asList[5].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[5].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tElement = "PA6"
sCOIL_SELECT_MEAS.asList[6].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[6].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tElement = "PA5"
sCOIL_SELECT_MEAS.asList[7].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[7].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tElement = "PA3"
sCOIL_SELECT_MEAS.asList[8].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[8].lRxChannelConnected = 6
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tElement = "PA4"
sCOIL_SELECT_MEAS.asList[9].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[9].lRxChannelConnected = 7
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tElement = "PA2"
sCOIL_SELECT_MEAS.asList[10].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[10].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tElement = "PA1"
sCOIL_SELECT_MEAS.asList[11].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[11].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[0] = 0xff
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[1] = 0x76
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[2] = 0x78
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[3] = 0x87
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[4] = 0x67
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[0] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[1] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[2] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[3] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[4] = 0x2
sEFISPEC.bEFIDataValid                        = 1
### ASCCONV END ###
,
*/

/*
 * Table of equivalence:
 *
ulVersion                                = 0xbee332

```

```

<=>
27 - 'MrProtocolVersion' VM 1, VR IS, SyngoDT 6, NoOfItems 6, Data '12510002'
*/

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"

#include <map>

#include <math.h>

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }

    gdcm::CSAHeader csa;
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    //const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
    const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

    if( ds.FindElement( t2 ) )
    {
        csa.LoadFromDataElement( ds.GetDataElement( t2 ) );
        //csa.Print( std::cout );
    }

    if( !csa.FindCSAElementByName( "MrProtocol" ) )
    {
        return 1;
    }
    const gdcm::CSAElement &csael = csa.GetCSAElementByName( "MrProtocol" );
    //std::cout << csael << std::endl;

    const gdcm::ByteValue *bv = csael.GetByteValue();
    if( !bv )
    {
        return 1;
    }
    std::string str(bv->GetPointer(), bv->GetLength());
    std::istringstream is(str);
    std::string s;
    typedef std::map< std::string, std::string > MyMapType;
    MyMapType mymap;
    while( std::getline(is, s) )
    {
        std::string::size_type pos = s.find( '=' );
        if( pos != std::string::npos )
        {
            std::string sub1 = s.substr(0, pos);
            sub1.erase( sub1.find_last_not_of(' ') + 1);
            std::string sub2 = s.substr(pos+1); // skip the '=' char
            sub2.erase( 0, sub2.find_first_not_of(' '));
            //std::cout << sub1 << std::endl;
            mymap.insert( MyMapType::value_type(sub1, sub2) );
        }
        else
        {
            // ### ASCCONV BEGIN ###
            // ### ASCCONV END ###
        }
    }
    const char fourierstr[] = "sKSpace.ucSlicePartialFourier";
    const gdcm::CSAHeaderDict &csadict =
        gdcm::Global::GetInstance().GetDicts().
        GetCSAHeaderDict();
    const gdcm::CSAHeaderDictEntry &fourier = csadict.

```

```

    GetCSAHeaderDictEntry( fourierstr );
    std::cout << fourier << std::endl;
    MyMapType::const_iterator it = mymap.find ( fourierstr );
    if( it == mymap.end() ) return 1;
    //std::cout << it->second << std::endl;
    const std::string &partial_fourier = it->second;
    if( partial_fourier == "0x1" )
    {
        std::cout << "partial fourier is 4/8" << std::endl;
    }
    else if( partial_fourier == "0x2" )
    {
        std::cout << "partial fourier is 5/8" << std::endl;
    }
    else if( partial_fourier == "0x4" )
    {
        std::cout << "partial fourier is 6/8" << std::endl;
    }
    else if( partial_fourier == "0x8" )
    {
        std::cout << "partial fourier is 7/8" << std::endl;
    }
    else if( partial_fourier == "0x10" )
    {
        std::cout << "partial fourier is 8/8" << std::endl;
    }
    else
    {
        std::cerr << "Impossible: " << partial_fourier << std::endl;
        return 1;
    }
}

/*
This is the Flip Angle:
adFlipAngleDegree[0]                = 30

One can find it also in the protocol:

...
    <ParamFuncor."<TlmapFuncor">
    {
        <Class> "<TlmapFuncor@IceImagePostProcFuncors">

        <ParamBool."<EXECUTE"> { }
        <ParamDouble."<Flip_deg"> { <Precision> 16 14.7378520000000000 }
    }
...

*/
// Below is an attempt to play with the CSAHeader dict:
#if 0
const char gspec[] = "sGRADSPEC.flSensitivityX";
it = mymap.find( gspec );
if( it == mymap.end() ) return 1;
const std::string &dummy = it->second;
std::cout << dummy << std::endl;

const gdcm::CSAHeaderDictEntry &csaentry = csadict.
    GetCSAHeaderDictEntry( gspec );
std::cout << csaentry << std::endl;
#endif

/*
sSliceArray.ucMode -- should be in (1, 2, 4)
enum SeriesMode
{
    ASCENDING    = 0x01,
    DESCENDING   = 0x02,
    INTERLEAVED  = 0x04
};

*/
const char sliceorderstr[] = "sSliceArray.ucMode";
const gdcm::CSAHeaderDictEntry &sliceorder = csadict.
    GetCSAHeaderDictEntry( sliceorderstr );
std::cout << sliceorder << std::endl;

it = mymap.find ( sliceorderstr );
if( it == mymap.end() ) return 1;
const std::string &slice_order = it->second;
if( slice_order == "0x1" )
{
    std::cout << "slice_order: ASCENDING" << std::endl;

```

```

    }
    else if( slice_order == "0x2" )
    {
        std::cout << "slice_order: DESCENDING" << std::endl;
    }
    else if( slice_order == "0x4" )
    {
        std::cout << "slice_order: INTERLEAVED" << std::endl;
    }
    else
    {
        std::cerr << "Impossible: " << slice_order << std::endl;
        return 1;
    }

    return 0;
}

```

12.115 NewSequence.cs

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/NewSequence.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
//using gdcm;

public class NewSequence
{
    public static byte[] StrToByteArray(string str)
    {
        System.Text.ASCIIEncoding encoding=new System.Text.ASCIIEncoding();
        return encoding.GetBytes(str);
    }

    public static int Main(string[] argv)
    {
        string file1 = argv[0];
        string file2 = argv[1];

        gdcm.Reader r = new gdcm.Reader();
        r.SetFileName( file1 );
        if ( ! r.Read() )
        {
            return 1;
        }

        gdcm.File f = r.GetFile();
        gdcm.DataSet ds = f.GetDataSet();
        // tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

        // Create a dataelement
        gdcm.DataElement de = new gdcm.DataElement(new
            gdcm.Tag(0x0010, 0x2180));
        string occ = "Occupation";
        de.SetByteValue( StrToByteArray(occ), new gdcm.VL((uint)occ.Length));
        de.SetVR(new gdcm.VR(gdcm.VR.VRType.SH));

        // Create an item
        gdcm.Item it = new gdcm.Item();

```

```

it.SetVLToUndefined();          // Needed to not popup error message
//it.InsertDataElement(de)
gdcm.DataSet nds = it.GetNestedDataSet();
nds.Insert(de);

// Create a Sequence
gdcm.SmartPtrSQ sq = gdcm.SequenceOfItems.New();
sq.SetLengthToUndefined();
sq.AddItem(it);

// Insert sequence into data set
gdcm.DataElement des = new gdcm.DataElement(new
    gdcm.Tag(0x0400,0x0550));
des.SetVR(new gdcm.VR(gdcm.VR.VRType.SQ));
des.SetValue(sq.__ref__());
des.SetVLToUndefined();

ds.Insert(des);

gdcm.Writer w = new gdcm.Writer();
w.SetFile( f );
w.SetFileName( file2 );
if ( !w.Write() )
    return 1;

return 0;
}

```

12.116 NewSequence.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
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10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18     python NewSequence.py input.dcm output.dcm
19
20
21 Thanks to Robert Irie for code
22 """
23
24 import sys
25 import gdcm
26
27 if __name__ == "__main__":
28
29     file1 = sys.argv[1]
30     file2 = sys.argv[2]
31
32     r = gdcm.Reader()
33     r.SetFileName( file1 )
34     if not r.Read():
35         sys.exit(1)
36
37     f = r.GetFile()
38     ds = f.GetDataSet()
39     #tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
40
41     # Create a dataelement
42     de = gdcm.DataElement(gdcm.Tag(0x0010, 0x2180))
43     de.SetByteValue("Occupation", gdcm.VL(len("Occupation")))
44     de.SetVR(gdcm.VR(gdcm.VR.SH))

```

```

45
46 # Create an item
47 it=gdcM.Item()
48 it.SetVLToUndefined() # Needed to not popup error message
49 #it.InsertDataElement(de)
50 nds=it.GetNestedDataSet()
51 nds.Insert(de)
52
53 # Create a Sequence
54 sq=gdcM.SequenceOfItems().New()
55 sq.SetLengthToUndefined()
56 sq.AddItem(it)
57
58 # Insert sequence into data set
59 des=gdcM.DataElement(gdcM.Tag(0x0400,0x0550))
60 des.SetVR(gdcM.VR(gdcM.VR.SQ))
61 des.SetValue(sq.__ref__())
62 des.SetVLToUndefined()
63
64 ds.Insert(des)
65
66 w = gdcM.Writer()
67 w.SetFile( f )
68 w.SetFileName( file2 )
69 if not w.Write():
70     sys.exit(1)

```

12.117 offscreenimage.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/
#include "vtkGDCMImageReader.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkImageMapToWindowLevelColors.h"
#include "vtkImageActor.h"
#include "vtkPNGWriter.h"
#include "vtkWindowToImageFilter.h"
#include "vtkMedicalImageProperties.h"

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        return 1;
    }
    const char *filename = argv[1];

    vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
    reader->SetFileName( filename );
    reader->Update(); // important to read the window/level info

    vtkMedicalImageProperties *prop = reader->GetMedicalImageProperties();

    vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->OffScreenRenderingOn();

    vtkRenderer *renderer = vtkRenderer::New();
    renWin->AddRenderer(renderer);

    vtkImageMapToWindowLevelColors *windowlevel = vtkImageMapToWindowLevelColors::New();
    #if (VTK_MAJOR_VERSION >= 6)
        windowlevel->SetInputConnection( reader->GetOutputPort() );
    #else

```

```

    windowlevel->SetInput( reader->GetOutput() );
#endif
    unsigned int n = prop->GetNumberOfWindowLevelPresets();
    if( n )
    {
        // Take the first one by default:
        const double *wl = prop->GetNthWindowLevelPreset(0);
        windowlevel->SetWindow( wl[0] );
        windowlevel->SetLevel( wl[1] );
    }

    vtkImageActor *actor = vtkImageActor::New();
    #if (VTK_MAJOR_VERSION >= 6)
        actor->SetInputData( windowlevel->GetOutput() );
    #else
        actor->SetInput( windowlevel->GetOutput() );
    #endif

    renderer->AddActor( actor );

    renWin->Render();

    vtkWindowToImageFilter *w2if = vtkWindowToImageFilter::New();
    w2if->SetInput( renWin );

    vtkPNGWriter *wr = vtkPNGWriter::New();
    #if (VTK_MAJOR_VERSION >= 6)
        wr->SetInputConnection( w2if->GetOutputPort() );
    #else
        wr->SetInput( w2if->GetOutput() );
    #endif
    wr->SetFileName( "offscreenimage.png" );
    wr->Write();

    reader->Delete();
    renWin->Delete();
    renderer->Delete();
    windowlevel->Delete();
    actor->Delete();
    w2if->Delete();
    wr->Delete();

    return 0;
}

```

12.118 PatchFile.cxx

This is a C++ example on how to use [gdcm::Attribute](#)

```

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * The image was a broken file where the Pixel Data element was 8 times too big
 * Apparently multiplying the BitsAllocated to 4 and multiplying the number of
 * frames by 2 would solve the problem
 *
 * This C++ code can be used to patch the header.
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmWriter.h"

```



```

#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        return 1;
    }
    const char *f = argv[1];
    const char *out = argv[2];
    gdcm::Reader r;
    r.SetFileName( f );
    if( !r.Read() )
    {
        return 1;
    }

    gdcm::File &file = r.GetFile();
    gdcm::DataSet& ds = file.GetDataSet();
    // (0028,0100) US 16 # 2, 1 BitsAllocated
    // (0028,0101) US 16 # 2, 1 BitsStored
    // (0028,0102) US 15 # 2, 1 HighBit
    //
    {
        gdcm::Attribute<0x28,0x100> at;
        at.SetFromDataElement( ds.GetDataElement( at.
            GetTag() ) );
        if( at.GetValue() != 8 )
        {
            return 1;
        }
        at.SetValue( 32 );
        ds.Replace( at.GetAsDataElement() );
    }
    {
        gdcm::Attribute<0x28,0x101> at;
        at.SetFromDataElement( ds.GetDataElement( at.
            GetTag() ) );
        if( at.GetValue() != 8 )
        {
            return 1;
        }
        at.SetValue( 32 );
        ds.Replace( at.GetAsDataElement() );
    }
    {
        gdcm::Attribute<0x28,0x102> at;
        at.SetFromDataElement( ds.GetDataElement( at.
            GetTag() ) );
        if( at.GetValue() != 7 )
        {
            return 1;
        }
        at.SetValue( 31 );
        ds.Replace( at.GetAsDataElement() );
    }
    // (0028,0008) IS [56] # 2, 1 NumberOfFrames

    {
        gdcm::Attribute<0x28,0x8> at;
        at.SetFromDataElement( ds.GetDataElement( at.
            GetTag() ) );
        at.SetValue( at.GetValue() * 2 );
        ds.Replace( at.GetAsDataElement() );
    }

    gdcm::Writer w;
    w.SetFile( file );
    w.SetCheckFileMetaInformation( false );
    w.SetFileName( out );
    if( !w.Write() )
    {
        return 1;
    }

    // Now let's see if we can read it as an image:
    gdcm::ImageReader ir;
    ir.SetFileName( out );
    if(!ir.Read())
    {

```

```

        return 1;
    }
    gdcmm::Image &image = ir.GetImage();
    unsigned long len = image.GetBufferLength();
    const gdcmm::ByteValue *bv = ir.GetFile().GetDataSet().
        GetDataElement( gdcmm::Tag(0x7fe0,0x0010) ).GetByteValue();
    if( !bv || len != bv->GetLength() )
    {
        return 1;
    }
    std::cout << bv->GetLength() << " " << len << std::endl;

    std::cout << "Sucess to rewrite image !" << std::endl;
    image.Print( std::cout );
    return 0;
}

```

12.119 PhilipsPrivateRescaleInterceptSlope.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
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11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18   python
19   """
20
21 import gdcm
22 import sys
23
24 filename = sys.argv[1]
25 tmpfile = "/tmp/philips_rescaled.dcm"
26
27
28 # Need to access some private tags, read the file :
29 reader = gdcm.Reader()
30 reader.SetFileName( filename )
31 if not reader.Read():
32     sys.exit(1)
33
34 ds = reader.GetFile().GetDataSet()
35
36 #print ds
37 # (2005,1409)      DS      4      0.0
38 # (2005,140a)      DS     16     1.52283272283272
39
40 # (2005,0014)      LO     26     Philips MR Imaging DD 005
41 tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
42 tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
43 print tag1
44 print tag2
45
46 # make sure to do a copy, we want the private tag to remain
47 # otherwise gdcm gives us a reference
48 e11 = gdcm.DataElement( ds.GetDataElement( tag1 ) )
49 print e11
50 e12 = gdcm.DataElement( ds.GetDataElement( tag2 ) )
51 print e12
52
53 # (0028,1052) DS [-1000]          # 6, 1 RescaleIntercept
54 # (0028,1053) DS [1]             # 2, 1 RescaleSlope
55
56 e11.SetTag( gdcm.Tag(0x0028,0x1052) )

```

```

57 el2.SetTag( gdcM.Tag(0x0028,0x1053) )
58
59 ds.Insert( el1 )
60 ds.Insert( el2 )
61
62 w = gdcM.Writer()
63 w.SetCheckFileMetaInformation( False )
64 w.SetFileName( tmpfile )
65 w.SetFile( reader.GetFile() )
66 if not w.Write():
67     sys.exit(1)
68
69 print "success"

```

12.120 PlaySound.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
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12 #
13 #####
14
15 """
16 Usage:
17
18   python PlaySound.py input.dcm
19 """
20
21 import gdcM
22 import sys
23
24 #filename = "/home/mmalaterre/Creatis/gdcMDataExtra/gdcMNonImageData/audio_from_rafael_sanguinetti.dcm"
25 filename = sys.argv[1]
26 print filename
27
28 r = gdcM.Reader()
29 r.SetFileName( filename )
30 if not r.Read():
31     sys.exit(1)
32
33 ds = r.GetFile().GetDataSet()
34
35 waveformtag = gdcM.Tag(0x5400,0x0100)
36 waveformsq = ds.GetDataElement( waveformtag )
37 #print waveformsq
38
39 #print dir(waveformsq)
40
41 items = waveformsq.GetSequenceOfItems()
42
43 if not items.GetNumberOfItems():
44     sys.exit(1)
45
46 item = items.GetItem(1)
47 #print item
48
49 waveformds = item.GetNestedDataSet()
50 #print waveformds
51
52 waveformdatatag = gdcM.Tag(0x5400,0x0101)
53 waveformdata = waveformds.GetDataElement( waveformdatatag )
54
55 #print waveformdata.GetPointer()
56 bv = waveformdata.GetByteValue()
57 print dir(bv)
58
59 #print bv.GetPointer()

```

```

60 print bv.GetLength()
61 l = 116838
62
63 file='test.wav'
64 myfile = open(file, "wb")
65 s = bv.GetPointer()
66 for i in range(0, l):
67     myfile.write(s[i])
68 myfile.close()
69
70 # http://mail.python.org/pipermail/python-list/2004-October/288905.html
71 if sys.platform.startswith('win'):
72     from winsound import PlaySound, SND_FILENAME, SND_ASYNC
73     PlaySound(file, SND_FILENAME|SND_ASYNC)
74 elif sys.platform.find('linux')>-1:
75     from wave import open as waveOpen
76     from ossaudiodev import open as ossOpen
77     s = waveOpen(file,'rb')
78     (nc,sw,fr,nf,comptype, compname) = s.getparams( )
79     dsp = ossOpen('/dev/dsp','w')
80     try:
81         from ossaudiodev import AFMT_S16_NE
82     except ImportError:
83         if byteorder == "little":
84             AFMT_S16_NE = ossaudiodev.AFMT_S16_LE
85         else:
86             AFMT_S16_NE = ossaudiodev.AFMT_S16_BE
87     dsp.setparameters(AFMT_S16_NE, nc, fr)
88     data = s.readframes(nf)
89     s.close()
90     dsp.write(data)
91     dsp.close()

```

12.121 pmsct_rgb1.cxx

```

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=====*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RGB1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Jean-Pierre Roux for providing the sample datasets
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

void delta_decode(const unsigned char *data_in, size_t data_size,
                  std::vector<unsigned char> &new_stream, unsigned short pc, size_t w, size_t h)
{

```

```

const size_t plane_size = h * w;
const size_t outputlen = 3 * plane_size;
new_stream.resize( outputlen );

assert( data_size != outputlen );
if( data_size == outputlen )
{
    return;
}
typedef unsigned char byte;
enum {
    COLORMODE   = 0x81,
    ESCMODE     = 0x82,
    REPEATMODE  = 0x83
};

byte* src = (byte*)data_in;
byte* dest = (byte*)&new_stream[0];
union { byte gray; byte rgb[3]; } pixel;
pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
// always start in grayscale mode
bool graymode = true;
size_t dx = 1;
size_t dy = 3;
// algorithm works with both planar configuration
// It does produce surprising greenish background color for planar
// configuration is 0, while the nested Icon SQ display a nice black
// background
if (pc)
{
    dx = plane_size;
    dy = 1;
}
size_t ps = plane_size;

// The following is highly unoptimized as we have nested if statement in a while loop
// we need to switch from one algorithm to ther other (RGB <-> GRAY)
while (ps)
{
    // next byte:
    byte b = *src++;
    assert( src < data_in + data_size );
    // mode selection:
    switch ( b )
    {
        case ESCMODE:
            // Used to treat a byte 81/82/83 as a normal byte
            if (graymode)
            {
                pixel.gray += *src++;
                dest[0*dx] = pixel.gray;
                dest[1*dx] = pixel.gray;
                dest[2*dx] = pixel.gray;
            }
            else
            {
                pixel.rgb[0] += *src++;
                pixel.rgb[1] += *src++;
                pixel.rgb[2] += *src++;
                dest[0*dx] = pixel.rgb[0];
                dest[1*dx] = pixel.rgb[1];
                dest[2*dx] = pixel.rgb[2];
            }
            dest += dy;
            ps--;
            break;
        case REPEATMODE:
            // repeat mode (RLE)
            b = *src++;
            ps -= b;
            if (graymode)
            {
                while (b-- > 0)
                {
                    dest[0*dx] = pixel.gray;
                    dest[1*dx] = pixel.gray;
                    dest[2*dx] = pixel.gray;
                    dest += dy;
                }
            }
            else

```

```

        {
            while (b-- > 0)
            {
                dest[0*dx] = pixel.rgb[0];
                dest[1*dx] = pixel.rgb[1];
                dest[2*dx] = pixel.rgb[2];
                dest += dy;
            }
        }
        break;
    case COLORMODE:
        // We are swithing from one mode to the other. The stream contains an intermixed
        // compression of RGB codec and GRAY codec. Each one not knowing of the other
        // reset old value to 0.
        if (graymode)
        {
            graymode = false;
            pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
        }
        else
        {
            graymode = true;
            pixel.gray = 0;
        }
        break;
    default:
        // This is identical to ESCMODE, it would be nicer to use fall-through
        if (graymode)
        {
            pixel.gray += b;
            dest[0*dx] = pixel.gray;
            dest[1*dx] = pixel.gray;
            dest[2*dx] = pixel.gray;
        }
        else
        {
            pixel.rgb[0] += b;
            pixel.rgb[1] += *src++;
            pixel.rgb[2] += *src++;
            dest[0*dx] = pixel.rgb[0];
            dest[1*dx] = pixel.rgb[1];
            dest[2*dx] = pixel.rgb[2];
        }
        dest += dy;
        ps--;
        break;
    } // end switch
} // end while
}

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    // (07a1,1011) CS [PMSCT_RGB1] # 10,1 Tamar Compression Type
    const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
    if( !ds.FindDataElement( tcompressiontype ) ) return 1;
    const gdcm::DataElement& compressiontype = ds.GetDataElement(
        tcompressiontype );
    if ( compressiontype.IsEmpty() ) return 1;
    const gdcm::ByteValue *bv = compressiontype.GetByteValue();
    std::string comprle = "PMSCT_RLE1";
    std::string comprgb = "PMSCT_RGB1";
    bool isrle = false;
    bool isrgb = false;
    if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
        isrle = true;
        return 1;
    }
    if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {

```

```

    isrgb = true;
}
if( !isrgb && !isrle ) return 1;

const gdcm::PrivateTag tcompressedpixeldata(0x07a1,0x000a,"ELSCINT1");
if( !ds.FindDataElement( tcompressedpixeldata ) ) return 1;
const gdcm::DataElement& compressionpixeldata = ds.
    GetDataElement( tcompressedpixeldata);
if ( compressionpixeldata.IsEmpty() ) return 1;
const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

gdcm::Attribute<0x0028,0x0006> at0;
at0.SetFromDataSet( ds );
gdcm::Attribute<0x0028,0x0010> at1;
at1.SetFromDataSet( ds );
gdcm::Attribute<0x0028,0x0011> at2;
at2.SetFromDataSet( ds );

std::vector<unsigned char> buffer;
delta_decode((const unsigned char*)bv2->GetPointer(), bv2->GetLength(), buffer,
    at0.GetValue(), at1.GetValue(), at2.GetValue() );

gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
pixeldata.SetVR( gdcm::VR::OW );
pixeldata.SetByteValue( (char*)&buffer[0], (uint32_t)buffer.size() );
// TODO we should check that decompress byte buffer match the expected size (row*col*...)

// Add the pixel data element
reader.GetFile().GetDataSet().Replace( pixeldata );

reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
gdcm::Writer writer;
writer.SetFile( reader.GetFile() );

// Cleanup stuff:
// remove the compressed pixel data:
// FIXME: should I remove more private tags ? all of them ?
// oh well this is just an example
// use gdcm::Anonymizer::RemovePrivateTags if needed...
writer.GetFile().GetDataSet().Remove( compressionpixeldata.
    GetTag() );
std::string outfilename;
if (argc > 2)
    outfilename = argv[2];
else
    outfilename = "outrgb.dcm";
writer.SetFileName( outfilename.c_str() );
if( !writer.Write() )
{
    std::cerr << "Failed to write" << std::endl;
    return 1;
}

std::cout << "success !" << std::endl;

return 0;
}

```

12.122 PrivateDict.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 #   Copyright (c) 2006-2011 Mathieu Malaterre
6 #   All rights reserved.
7 #   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
8 #
9 #   This software is distributed WITHOUT ANY WARRANTY; without even
10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14

```

```

15 """
16 """
17
18 import gdc
19 import sys,os
20
21 if __name__ == "__main__":
22     #gdc.Trace.DebugOn()
23     globInst = gdc.Global.GetInstance()
24     # Try to load Part3.xml file
25     # This file is too big for being accessible directly at runtime.
26     globInst.LoadResourcesFiles()
27
28
29 # Get a private tag from the runtime dicts. LoadResourcesFiles could
30 # have failed but this has no impact on the private dict
31
32 d = globInst.GetDicts()
33 print d.GetDictEntry( gdc.Tag(0x0029,0x0010) ,"SIEMENS CSA HEADER" )
34 pd = d.GetPrivateDict()
35 print pd.GetDictEntry( gdc.PrivateTag(0x0029,0x0010,"SIEMENS CSA HEADER") )

```

12.123 PublicDict.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * Dummy example to show GDCM Dict(s) API (Part 6) + Collected Private Attributes:
 */

#include "gdcGlobal.h"
#include "gdcDicts.h"
#include "gdcDict.h"
#include "gdcCSAHeader.h"
#include "gdcPrivateTag.h"

int main(int , char *[])
{
    const gdc::Global& g = gdc::Global::GetInstance(); // sum of all
        knowledge !
    const gdc::Dicts &dicts = g.GetDicts();
    const gdc::Dict &pub = dicts.GetPublicDict(); // Part 6

    //std::cout << pub << std::endl;

    // 3 different ways to access the same information

    // 1. From the public dict only:
    gdc::Tag patient_name(0x10,0x10);
    const gdc::DictEntry &entry1 = pub.GetDictEntry(patient_name);
    std::cout << entry1 << std::endl;

    // 2. From all dicts:
    const gdc::DictEntry &entry2 = dicts.GetDictEntry(patient_name);
    std::cout << entry2 << std::endl;

    // 3. This solution is the most flexible solution as you can request using the same
    // API either a public tag or a private tag
    const char *strowner = 0;
    const gdc::DictEntry &entry3 = dicts.GetDictEntry(patient_name,strowner);
    std::cout << entry3 << std::endl;

    // Private attributes:

```



```

// try with a private tag now:
const gdcm::PrivateTag &private_tag =
    gdcm::CSAHeader::GetCSAImageHeaderInfoTag();
//std::cout << private_tag << std::endl;
const gdcm::DictEntry &entry4 = dicts.GetDictEntry(private_tag,private_tag.
    GetOwner());
std::cout << entry4 << std::endl;

// Let's pretend that private lookup is on 0x10xx elements:
gdcm::PrivateTag dummy = private_tag;
dummy.SetElement( (uint16_t)(0x1000 + dummy.GetElement()) );
const gdcm::DictEntry &entry5 = dicts.GetDictEntry(dummy,dummy.
    GetOwner());
std::cout << entry5 << std::endl;

return 0;
}

```

12.124 QIDO-RS.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmJSON.h"

/*
 * Simple QIDO-RS round-trip to test implementation of gdcm::JSON
 * See Supl66 for details
 */
int main(int argc, char *argv[])
{
    if( argc < 2 ) return 1;
    using namespace gdcm;
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() ) return 1;

    gdcm::JSON json;
    json.PrettyPrintOn();
    std::stringstream ss;
    const gdcm::File & f = reader.GetFile();
    json.Code( f.GetDataSet(), ss);

    std::cout << ss.str() << std::endl;

    gdcm::Writer w;
    gdcm::File & ff = w.GetFile();
    ff.GetHeader().SetDataSetTransferSyntax(
        gdcm::TransferSyntax::ExplicitVRLittleEndian );
    if( !json.Decode(ss, ff.GetDataSet() ) )
    {
        std::cerr << "Could not decode" << std::endl;
        return 1;
    }
    w.SetFileName( "/tmp/debug.dcm" );
    if( !w.Write() ) return 1;

    return 0;
}

```

12.125 ReadAndDumpDICOMDIR.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing this example
 */
#include "gdcmReader.h"
#include "gdcmMediaStorage.h"

typedef std::set<gdcm::DataElement> DataElementSet;
typedef DataElementSet::const_iterator ConstIterator;

int main(int argc, char *argv [])
{
    if( argc < 2 ) return 1;
    const char *filename = argv[1];

    gdcm::Reader reader;
    reader.SetFileName( filename);
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }
    std::stringstream strm;

    gdcm::File &file = reader.GetFile();
    gdcm::DataSet &ds = file.GetDataSet();
    gdcm::FileMetaInformation &fmi = file.GetHeader();

    gdcm::MediaStorage ms;
    ms.SetFromFile(file);
    if( ms != gdcm::MediaStorage::MediaStorageDirectoryStorage
        )
    {
        std::cout << "This file is not a DICOMDIR" << std::endl;
        return 1;
    }

    if (fmi.FindDataElement( gdcm::Tag (0x0002, 0x0002)))
    {
        strm.str("");
        fmi.GetDataElement( gdcm::Tag (0x0002, 0x0002) ).
            GetValue().Print(strm);
    }
    else
    {
        std::cerr << " Media Storage Sop Class UID not present" << std::endl;
    }

    //TODO il faut trimer strm.str() avant la comparaison au cas ou...
    if ( "1.2.840.10008.1.3.10"!=strm.str())
    {
        std::cout << "This file is not a DICOMDIR" << std::endl;
        return 1;
    }

    ConstIterator it = ds.GetDES().begin();

    for( ; it != ds.GetDES().end(); ++it)
    {
        if (it->GetTag()==gdcm::Tag (0x0004, 0x1220))
        {

```

```

const gdcm::DataElement &de = (*it);
// ne pas utiliser GetSequenceOfItems pour extraire les items
gdcm::SmartPointer<gdcm::SequenceOfItems> sqi =de.
GetValueAssQ();
unsigned int itemused = 1;
while (itemused<=sqi->GetNumberOfItems())

{
    strm.str("");

    if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0004, 0x1430)))
        sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).
        GetValue().Print(strm);

    //TODO il faut trimer strm.str() avant la comparaison
    while((strm.str()=="PATIENT")||((strm.str()=="PATIENT ")))
    {
        std::cout << strm.str() << std::endl;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0010, 0x0010)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0010))
            .GetValue().Print(strm);
        std::cout << "PATIENT NAME : " << strm.str() << std::endl;

        //PATIENT ID
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0010, 0x0020)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0020))
            .GetValue().Print(strm);
        std::cout << "PATIENT ID : " << strm.str() << std::endl;

        /*ADD TAG TO READ HERE*/
        std::cout << "===== " << std::endl;
        itemused++;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0004, 0x1430)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430))
            .GetValue().Print(strm);

        //TODO il faut trimer strm.str() avant la comparaison
        while((strm.str()=="STUDY")||((strm.str()=="STUDY ")))
        {
            std::cout << " " << strm.str() << std::endl;
            //UID
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0020, 0x000d)))
                sqi->GetItem(itemused).GetDataElement(
gdcm::Tag (0x0020, 0x000d)).GetValue().Print(strm);
            std::cout << "      STUDY UID : " << strm.str() << std::endl;

            //STUDY DATE
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0008, 0x0020)))
                sqi->GetItem(itemused).GetDataElement(
gdcm::Tag (0x0008, 0x0020)).GetValue().Print(strm);
            std::cout << "      STUDY DATE : " << strm.str() << std::endl;

            //STUDY DESCRIPTION
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0008, 0x1030)))
                sqi->GetItem(itemused).GetDataElement(
gdcm::Tag (0x0008, 0x1030)).GetValue().Print(strm);
            std::cout << "      STUDY DESCRIPTION : " << strm.str() << std::endl;

            /*ADD TAG TO READ HERE*/
            std::cout << "      " << "===== " << std::endl;

            itemused++;
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcm::Tag (0x0004, 0x1430)))
                sqi->GetItem(itemused).GetDataElement(
gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

```

```

//TODO il faut trimer strm.str() avant la comparaison
while((strm.str()=="SERIES")||((strm.str()=="SERIES ")))
{
    std::cout << "          " << strm.str() << std::endl;
    strm.str("");
    if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0020, 0x000e)))
        sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0020, 0x000e)).GetValue().Print(strm);
    std::cout << "          SERIE UID" << strm.str() << std::endl;

    //SERIE MODALITY
    strm.str("");
    if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0008, 0x0060)))
        sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0008, 0x0060)).GetValue().Print(strm);
    std::cout << "          SERIE MODALITY" << strm.str() << std::endl;

    //SERIE DESCRIPTION
    strm.str("");
    if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0008, 0x103e)))
        sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0008, 0x103e)).GetValue().Print(strm);
    std::cout << "          SERIE DESCRIPTION" << strm.str() << std::endl;

    /*ADD TAG TO READ HERE*/

    std::cout << "          " << "===== " << std::endl;
    itemused++;
    strm.str("");
    if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0004, 0x1430)))
        sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

    //TODO il faut trimer strm.str() avant la comparaison
    while ((strm.str()=="IMAGE")||((strm.str()=="IMAGE ")))
        // if(tmp=="IMAGE")
        {
            std::cout << "          " << strm.str() << std::endl;

            //UID
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0004, 0x1511)))
                sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0004, 0x1511)).GetValue().Print(strm);
            std::cout << "          IMAGE UID : " << strm.str() << std::endl;

            //PATH de l'image
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0004, 0x1500)))
                sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0004, 0x1500)).GetValue().Print(strm);
            std::cout << "          IMAGE PATH : " << strm.str() << std::endl;
            /*ADD TAG TO READ HERE*/

            if(itemused < sqi->GetNumberOfItems())
            {itemused++;}
            else{break;}

            strm.str("");

            if (sqi->GetItem(itemused).FindDataElement(
gdcmm::Tag (0x0004, 0x1430)))
                sqi->GetItem(itemused).GetDataElement (
gdcmm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

        }
    }
}
}

```

```

        itemused++;
    }
}
return 0;
}

```

12.126 ReadAndDumpDICOMDIR.py

```

1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 # File: ReadAndDumpDICOMDIR.py
14 #
15 # Author: Lukas Batteau (lbatteau gmail)
16 #
17 # This example shows how to read and dump a DICOMDIR File.
18 # Based on Tom Marynowski's (lordglub gmail) example.
19 #
20 # Usage:
21 # python ReadAndDumpDICOMDIR.py [DICOMDIR file]
22 #####
23
24
25
26 import sys
27 import gdcm
28
29 if __name__ == "__main__":
30     # Check arguments
31     if (len(sys.argv) < 2):
32         # No filename passed
33         print "No input filename found"
34         quit()
35
36     filename = sys.argv[1]
37
38
39     # Read file
40     reader = gdcm.Reader()
41     reader.SetFileName(filename)
42     if (not reader.Read()):
43         print "Unable to read %s" % (filename)
44         quit()
45
46     file = reader.GetFile()
47
48     # Retrieve header information
49     fileMetaInformation = file.GetHeader()
50     print fileMetaInformation
51
52     # Retrieve data set
53     dataSet = file.GetDataSet()
54     #print dataSet
55
56     # Check media storage
57     mediaStorage = gdcm.MediaStorage()
58     mediaStorage.SetFromFile(file)
59     if (gdcm.MediaStorage.GetMSType(str(mediaStorage)) !=
60         gdcm.MediaStorage.MediaStorageDirectoryStorage):
61         # File is not a DICOMDIR
62         print "This file is not a DICOMDIR (Media storage type: %s)" % (str(mediaStorage))
63         quit()
64
65     # Check Media Storage SOP Class
66     if (fileMetaInformation.FindDataElement(gdcm.Tag(0x0002, 0x0002))):

```

```

66     sopClassUid = str(fileMetaInformation.GetDataElement(gdcm.Tag(0x0002, 0x0002)).GetValue())
67     # Check SOP UID
68     if (sopClassUid != "1.2.840.10008.1.3.10"):
69         # File is not a DICOMDIR
70         print "This file is not a DICOMDIR"
71     else:
72         # Not present
73         print "Media Storage SOP Class not present"
74         quit()
75
76     # Iterate through the DICOMDIR data set
77     iterator = dataSet.GetDES().begin()
78     while (not iterator.equal(dataSet.GetDES().end())):
79         dataElement = iterator.next()
80
81         # Check the element tag
82         if (dataElement.GetTag() == gdcm.Tag(0x004, 0x1220)):
83             # The 'Directory Record Sequence' element
84             sequence = dataElement.GetValueAsSQ()
85
86             # Loop through the sequence items
87             itemNr = 1
88             while (itemNr < sequence.GetNumberOfItems()):
89                 item = sequence.GetItem(itemNr)
90
91                 # Check the element tag
92                 if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
93                     # The 'Directory Record Type' element
94                     value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
95
96                     # PATIENT
97                     while (value.strip() == "PATIENT"):
98                         print value.strip()
99                         # Print patient name
100                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0010))):
101                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0010)).GetValue())
102                            print value
103
104                        # Print patient ID
105                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0020))):
106                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0020)).GetValue())
107                            print value
108
109                        # Next
110                        itemNr = itemNr + 1
111                        item = sequence.GetItem(itemNr)
112                        if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
113                            value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
114
115                        # STUDY
116                        while (value.strip() == "STUDY"):
117                            print value.strip()
118
119                            # Print study UID
120                            if (item.FindDataElement(gdcm.Tag(0x0020, 0x000d))):
121                                value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000d)).GetValue())
122                                print value
123
124                            # Print study date
125                            if (item.FindDataElement(gdcm.Tag(0x0008, 0x0020))):
126                                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0020)).GetValue())
127                                print value
128
129                            # Print study description
130                            if (item.FindDataElement(gdcm.Tag(0x0008, 0x1030))):
131                                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x1030)).GetValue())
132                                print value
133
134                            # Next
135                            itemNr = itemNr + 1
136                            item = sequence.GetItem(itemNr)
137                            if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
138                                value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())
139
140                                # SERIES
141                                while (value.strip() == "SERIES"):
142                                    print value.strip()

```

```

143
144         # Print series UID
145         if (item.FindDataElement(gdcm.Tag(0x0020, 0x000e))):
146             value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000e)).
147
148             GetValue())
149             print value
150
151         # Print series modality
152         if (item.FindDataElement(gdcm.Tag(0x0008, 0x0060))):
153             value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0060)).
154
155             GetValue())
156             print "Modality"
157             print value
158
159         # Print series description
160         if (item.FindDataElement(gdcm.Tag(0x0008, 0x103e))):
161             value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x103e)).
162
163             GetValue())
164             print "Description"
165             print value
166
167         # Next
168         itemNr = itemNr + 1
169         item = sequence.GetItem(itemNr)
170         if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
171             value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).
172
173             GetValue())
174
175             # IMAGE
176             while (value.strip() == "IMAGE"):
177                 print value.strip()
178
179             # Print image UID
180             if (item.FindDataElement(gdcm.Tag(0x0004, 0x1511))):
181                 value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1511)).
182
183                 GetValue())
184                 print value
185
186             # Next
187             if (itemNr < sequence.GetNumberOfItems()):
188                 itemNr = itemNr + 1
189             else:
190                 break
191
192             item = sequence.GetItem(itemNr)
193             if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
194                 value = str(item.GetDataElement(
195
196                 gdcm.Tag(0x0004, 0x1430)).GetValue())
197
198             # Next
199             itemNr = itemNr + 1

```

12.127 ReadAndPrintAttributes.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
/*
 * This small example will show how one can read and print
 * a DICOM Attribute using different technique (by tag or by name)
 */

#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"

```

```

#include "gdcmDict.h"
#include "gdcmAttribute.h"
#include "gdcmStringFilter.h"

#include <iostream>

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " input.dcm" << std::endl;
        return 1;
    }
    const char *filename = argv[1];

    // Instantiate the reader:
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Could not read: " << filename << std::endl;
        return 1;
    }

    // The output of gdcm::Reader is a gdcm::File
    gdcm::File &file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    gdcm::DataSet &ds = file.GetDataSet();

    const gdcm::Global& g = gdcm::Global::GetInstance();
    const gdcm::Dicts &dicts = g.GetDicts();
    const gdcm::Dict &pubdict = dicts.GetPublicDict();

    using namespace gdcm;

    // In this example we will show why using name to lookup attribute can be
    // dangerous.
    Tag tPatientName(0x00,0x00);
    //const DictEntry &de1 =
    pubdict.GetDictEntryByName("Patient Name", tPatientName);

    std::cout << "Found: " << tPatientName << std::endl;

    // Indeed the attribute could not be found. Since DICOM 2003, Patient Name
    // has become Patient's Name.

    Tag tPatientsName;
    //const DictEntry &de2 =
    pubdict.GetDictEntryByName("Patient's Name", tPatientsName);

    std::cout << "Found: " << tPatientsName << std::endl;

    // Let's try to read an arbitrary DICOM Attribute:
    Tag tDoseGridScaling;
    //const DictEntry &de3 =
    pubdict.GetDictEntryByName("Dose Grid Scaling", tDoseGridScaling);

    std::cout << "Found: " << tDoseGridScaling << std::endl;

    if( ds.FindDataElement( tDoseGridScaling ) )
    {
        gdcm::StringFilter sf;
        sf.SetFile(file);
        std::cout << "Attribute Value as String: " << sf.ToString( tDoseGridScaling ) << std::endl;

        // Let's check the name again:
        std::pair<std::string, std::string> pss
            = sf.ToStringPair( tDoseGridScaling );
        std::cout << "Attribute Name Checked: " << pss.first << std::endl;
        std::cout << "Attribute Value (string): " << pss.second << std::endl;

        //const DataElement &dgs = ds.GetDataElement( tDoseGridScaling );

        // Let's assume for a moment we knew the tag number:
        Attribute<0x3004,0x000e> at;
        assert( at.GetTag() == tDoseGridScaling );
        at.SetFromDataSet( ds );
        // For the sake of long term maintenance, we will not write
        // that this particular attribute is stored as a double. What if
        // a user made a mistake. It is much safer to rely on GDCM internal

```



```

        // mechanism to deduce the VR::DS type (represented as a ieee double)
        Attribute<0x3004,0x000e>::ArrayType v = at.
        GetValue();
        std::cout << "DoseGridScaling=" << v << std::endl;
    }

    return 0;
}

```

12.128 ReadExplicitLengthSQIVR.cxx

```

/*=====

Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"
#include "gdcmImplicitDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmByteValue.h"
#include "gdcmSequenceOfItems.h"

using namespace gdcm;

int main(int argc, char *argv[])
{
    if ( argc < 2 ) return 1;
    const char *filename = argv[1];
    gdcm::Reader r;
    r.SetFileName( filename );
    r.Read();

    //gdcm::PrivateTag pt(0x01,0x42,"ELSCINT1");
    //gdcm::Tag pt(0x88,0x200);
    gdcm::Tag pt(0x8,0x1140);
    DataSet &ds = r.GetFile().GetDataSet();
    const DataElement &de = ds.GetDataElement( pt );

    std::cout << de << std::endl;
    const ByteValue *bv = de.GetByteValue();
    SmartPointer<SequenceOfItems> sqi = new
        SequenceOfItems;
    sqi->SetLength( bv->GetLength() );
    std::stringstream ss;
    ss.str( std::string( bv->GetPointer(), bv->GetLength() ) );
    sqi->Read<ImplicitDataElement,SwapperNoOp>( ss );

    std::cout << *sqi << std::endl;

    return 0;
}

```

12.129 ReadFiles.java

```

/*=====

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```

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```

=====*/
import gdcm.*;
import java.io.File;

public class ReadFiles
{
    static int i = 0;
    public static void process(String path)
    {
        //String path = file.getPath();
        assert PosixEmulation.FileExists(path) : "Problem converting to 8bits";

        System.out.println("Reading: " + path );
        System.out.println("File: " + i++);
        Reader r = new Reader();
        try
        {
            r.SetFileName( path );
            TagSetType skip = new TagSetType();
            skip.insert( new Tag(0x7fe0,0x10) );
            boolean b = r.ReadUpToTag( new Tag(0x88,0x200), skip );
            //System.out.println("DS:\n" + r.GetFile().GetDataSet().toString() );
        }
        finally
        {
            r.delete(); // will properly call C++ destructor and close file descriptor
        }
    }

    // Process only files under dir
    public static void visitAllFiles(File dir)
    {
        if (dir.isDirectory())
        {
            String[] children = dir.list();
            for (int i=0; i<children.length; i++)
            {
                visitAllFiles(new File(dir, children[i]));
            }
        }
        else
        {
            process(dir.getPath());
        }
    }

    public static void waiting (int n)
    {
        long t0, t1;
        t0 = System.currentTimeMillis();
        do
        {
            t1 = System.currentTimeMillis();
        }
        while ((t1 - t0) < (n * 1000));
    }

    public static void main(String[] args) throws Exception
    {
        String directory = args[0];

        Directory gdir = new Directory();
        long n = gdir.Load( directory, true );
        System.out.println( gdir.toString() );
        FilenamesType files = gdir.GetFilenames();
        for( long i = 0; i < n; ++i )
        {
            String path = files.get( (int)i );
            process( path );
        }

        System.out.println( "Java API" );

        //waiting( 10 );
    }
}

```

```

    for( int i = 0; i < 2; ++i )
    {
        File dir = new File(directory);
        visitAllFiles(dir);
    }
}

```

12.130 ReadGEMSSDO.cxx

```

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=====*/
#include "gdcmReader.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"

#include <iostream>
#include <string>

using namespace gdcm;

struct SDOElement
{
    typedef std::vector<std::string>::size_type SizeType;
    const char *GetData(SizeType index) const {
        return Data[index].c_str();
    }
    SizeType GetNumberOfData() const {
        return Data.size();
    }
    void SetData(SizeType index, const char *data) {
        Data[index] = data;
    }
    const char *GetDataFormat() const {
        return DataFormat.c_str();
    }
    void SetDataFormat(const char *dataformat, SizeType num) {
        DataFormat = dataformat;
        Data.resize( num );
    }
    void Print( std::ostream &os ) const {
        os << DataFormat << ":" << std::endl;
        std::vector<std::string>::const_iterator it = Data.begin();
        size_t s = 0;
        for( ; it != Data.end(); ++it )
        {
            os << "  (" << s++ << ") " << *it << std::endl;
        }
    }
private:
    std::string DataFormat;
    std::vector<std::string> Data;
};

class SDOHeader
{
public:
    typedef std::vector<SDOElement> SDOElements;
    typedef SDOElements::size_type SizeType;
    SizeType GetNumberOfSDOElements() const {
        return InternalSDODataset.size();
    }
    void AddSDOElement(SDOElement const &sdoelement) {
        InternalSDODataset.push_back( sdoelement );
    }

```

```

    }
    const SDOElement &GetSDOElement(SizeType index) const {
        return InternalSDODataset[index];
    }
    const SDOElement &GetSDOElementByName(const char *) const {
        return InternalSDODataset[0];
    }
    void LoadFromAttributes(std::string const &s1, std::string const &s2)
    {
        std::string tok;
        std::string tok2;
        std::stringstream strstr(s1);
        std::stringstream strstr2(s2);

        SDOElement element;
        // Do format
        size_t count = 0;
        while ( std::getline ( strstr2, tok, '\\') )
        {
            //std::cout << tok << " ";
            std::getline ( strstr2, tok2, '\\');
            //std::cout << tok2 << std::endl;
            count += atoi( tok2.c_str() );
            element.SetDataFormat( tok.c_str(), atoi( tok2.c_str() ) );
            for( size_t t = 0; t < element.GetNumberOfData(); ++t )
            {
                std::getline ( strstr, tok, '\\');
                element.SetData(t, tok.c_str() );
            }
            AddSDOElement( element );
        }
        //while ( std::getline ( strstr, tok, '^') )
        // while ( std::getline ( strstr, tok, '\\') )
        // {
        //     std::cout << tok << std::endl;
        //     count++;
        // }
        // std::cout << "Count: " << count << std::endl;
        // count = 0;

        // std::cout << "Count: " << count << std::endl;

    }
    void Print( std::ostream &os ) const {
        SDOElements::const_iterator it = InternalSDODataset.begin();
        for( ; it != InternalSDODataset.end(); ++it )
        {
            it->Print ( os );
        }
    }
private:
    SDOElements InternalSDODataset;
};

bool sdo_decode( DataElement const &stringdata, DataElement const &stringdataformat )
{
    const char *sd = stringdata.GetByteValue()->GetPointer();
    const size_t len_sd = stringdata.GetByteValue()->GetLength();

    std::string s1 = std::string( sd, len_sd );

    const char *sdf = stringdataformat.GetByteValue()->GetPointer();
    const size_t len_sdf = stringdataformat.GetByteValue()->GetLength();

    std::string s2 = std::string( sdf, len_sdf );

    // std::cout << s1 << std::endl;
    // std::cout << s2 << std::endl;

    SDOHeader header;
    header.LoadFromAttributes( s1, s2 );

    header.Print( std::cout );

    return true;
}

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {

```

```

    std::cerr << argv[0] << " input.dcm" << std::endl;
    return 1;
}
const char *filename = argv[1];
Reader reader;
reader.SetFileName( filename );
if( !reader.Read() )
{
    return 1;
}

File &file = reader.GetFile();
DataSet &ds = file.GetDataSet();

// StringData (0033,xx1F) 3 "GEMS_GENIE_1" List of SDO parameters stored as
// list of strings
const PrivateTag tstringdata(0x33,0x1f,"GEMS_GENIE_1");
// StringDataFormat (0033,xx23) 3 "GEMS_GENIE_1" Format of string parameters;
// contains information about name and number of strings in list
const PrivateTag tstringdataformat(0x33,0x23,"GEMS_GENIE_1");

if( !ds.FindDataElement( tstringdata ) ) return 1;
const DataElement& stringdata = ds.GetDataElement( tstringdata );
if( !ds.FindDataElement( tstringdataformat ) ) return 1;
const DataElement& stringdataformat = ds.GetDataElement( tstringdataformat );

sdo_decode( stringdata, stringdataformat );

return 0;
}

```

12.131 ReadMultiTimesException.cxx

```

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=====*/
// The intention of this sample program is to provoke bad_alloc exceptions in gdcm code

#include "gdcmImageReader.h"

int main(int argc, char* argv[])
{
    // We pre-allocate some memory (about 1Gb) to help the issue to show up earlier
    char *dummyBuffer = new char[1024*1024*1100]; (void)dummyBuffer;
    // Check the number of parameters given
    if (argc < 3)
    {
        std::cerr << "Usage: " << argv[0] << " Filename numberOfTries" << std::endl;
        return 1;
    }

    std::cout << "We are going to read the file: " << argv[1] << " " << argv[2] << " times" << std::endl;
    // We hold the pointers in an array to avoid the memory to be released
    // We read the input file n-times
    for (int i = 0; i < atoi(argv[2]); ++i)
    {
        gdcm::ImageReader reader;
        std::cout << "Reading try: " << i << std::endl;
        // Read files
        reader.SetFileName(argv[1]);
        try
        {
            reader.Read();
            gdcm::Image & img = reader.GetImage();
            unsigned long len = img.GetBufferLength();

```

```

        char *buffer = new char[ len ];
        img.GetBuffer( buffer ); // do NOT de-allocate buffer !
    }
    catch (std::bad_alloc)
    {
        std::cerr << "BAD ALLOC Exception caught!" << std::endl;
    }
    catch (...)
    {
        std::cerr << "Exception caught!" << std::endl;
    }
}

return 0;
}

```

12.132 ReadSeriesIntoVTK.java

```

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=====*/
// We are required to call the package 'vtk' eventhough I (MM) would have preferred
// an import statement along the line of:
// import vtkgdc.*;
import vtk.*;

/*
 * Usage:
 * export LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:.
 * java -classpath `pwd`/vtkgdc.jar:/usr/share/java/vtk.jar:. ReadSeriesIntoVTK
 */
public class ReadSeriesIntoVTK
{
    static {
        System.loadLibrary("vtkCommonJava");
        System.loadLibrary("vtkFilteringJava");
        System.loadLibrary("vtkIOJava");
        System.loadLibrary("vtkImagingJava");
        System.loadLibrary("vtkGraphicsJava");
        System.loadLibrary("vtkgdcJava");
        try {
            System.loadLibrary("vtkRenderingJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkHybrid, skipping...");
        }
        try {
            System.loadLibrary("vtkHybridJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkHybrid, skipping...");
        }
        try {
            System.loadLibrary("vtkVolumeRenderingJava");
        } catch (Throwable e) {
            System.out.println("cannot load vtkVolumeRendering, skipping...");
        }
    }

    public static void main(String[] args)
    {
        vtkFileOutputWindow outWin = new vtkFileOutputWindow();
        outWin.SetInstance(outWin);
        outWin.SetFileName("MVSVTKViewer.log");

        // See: http://review.source.kitware.com/#change,888
        // vtkWrapJava does not handle static keyword
    }
}

```

```

// String directory = vtkGDCMTesting.GetGDCMDataRoot();
vtkGDCMTesting t = new vtkGDCMTesting();
String directory = t.GetGDCMDataRoot();
String file0 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm";
String file1 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm";
String file2 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm";
String file3 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm";

vtkStringArray s = new vtkStringArray();
System.out.println("adding : " + file0 );
s.InsertNextValue( file0 );
s.InsertNextValue( file1 );
s.InsertNextValue( file2 );
s.InsertNextValue( file3 );

vtkGDCMImageReader reader = new vtkGDCMImageReader();
reader.SetFileNames( s );
reader.Update();

System.out.println("Success reading: " + file0 );

vtkMetaImageWriter writer = new vtkMetaImageWriter();
writer.DebugOn();
writer.SetCompression( false );
writer.SetInput( reader.GetOutput() );
writer.SetFileName( "ReadSeriesIntoVTK.mhd" );
writer.Write();

System.out.println("Success writing: " + writer.GetFileName() );
}
}

```

12.133 ReadUTF8QtDir.cxx

```

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=====*/

/*
 * GDCM API expect a const char * as input for SetFileName
 * In order to use this API from Qt, here is a simple test that
 * shows how to do it in a portable manner:
 *
 * http://doc.qt.nokia.com/latest/qdir.html#navigation-and-directory-operations
 */

#include "gdcmReader.h"
#include "gdcmDirectory.h"

#include <QDir>
#include <QString>
#include <QCoreApplication>

#include <string>
#include <fstream>

#include <stdio.h> // fopen

static int TestBothFuncs(const char *info , const char *ba_str)
{
    int res = 0;
    FILE *f = fopen( ba_str, "r" );
    if( f )
    {
        std::cout << info << " fopen: " << ba_str << std::endl;
        fclose(f);
    }
}

```

```

        ++res;
    }
    gdcm::Reader reader;
    std::ifstream is( ba_str, std::ios::binary );
    if( is.is_open() )
    {
        std::cout << info << " is_open: " << ba_str << std::endl;
        ++res;
    }
    reader.SetStream( is );
    if( reader.CanRead() == true )
    {
        std::cout << info << " SetStream/CanRead:" << ba_str << std::endl;
        ++res;
    }
    is.close();
    reader.SetFileName( ba_str );
    if( reader.CanRead() == true )
    {
        std::cout << info << " SetFileName/CanRead:" << ba_str << std::endl;
        ++res;
    }
    return 4 - res;
}

static int scanFolder(const char dirname[])
{
    int res = 0;
    gdcm::Directory dir;
    unsigned int nfiles = dir.Load( dirname, true );
    const gdcm::Directory::FileNamesType &filenames = dir.
        GetFileNames();

    for( unsigned int i = 0; i < nfiles; ++i )
    {
        const char *ba_str = filenames[i].c_str();
        res += TestBothFuncs("GDCM",ba_str);
    }
    return res;
}

static int scanFolderQt(QDir const &dir, QStringList& files)
{
    int res = 0;
    QFileInfoList children = dir.entryInfoList(QDir::AllEntries|QDir::NoDotAndDotDot);
    for ( int i=0; i<children.count(); i++ ) {
        QFileInfo file = children.at(i);
        if ( file.isDir() == true ) {
            res += scanFolderQt(QDir(file.absoluteFilePath()), files);
            continue;
        }
        // Convert back from the internal representation to 8bits
        // toLocal8Bit() returns by copy. Need to store explicitly the QByteArray
        QByteArray str = file.absoluteFilePath().toLocal8Bit();
        const char *ba_str1 = str.constData();
        res += TestBothFuncs("QString", ba_str1);
    }
    return res;
}

int main(int argc, char *argv[])
{
    // very important:
    QCoreApplication qCoreApp( argc , argv );
    if( argc < 2 )
    {
        std::cerr << argv[0] << " dir " << std::endl;
        return 1;
    }

    int res = 0;
    const char *dirname = argv[1];
    res += scanFolder( dirname );

    QDir dir( QString::fromLocal8Bit(dirname) );
    QStringList files;
    res += scanFolderQt( dir, files);

    if( res )
        std::cerr << "Problem with UTF-8" << std::endl;
    else

```



```

        std::cerr << "Success with UTF-8" << std::endl;

    return res;
}

```

12.134 RefCounting.cs

```

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=====*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * this is not so much an example but simply a test to make sure ctor / dtor work as expected
 * and call the ::New and ->Delete() of VTK style.
 */
public class RefCounting
{
    public static int Main(string[] args)
    {
        {
            vtkGDCMTesting testing1 = vtkGDCMTesting.New();
            vtkGDCMTesting testing2 = new vtkGDCMTesting(); // just in case people do
                not read STYLE documentation

            vtkGDCMImageReader reader1 = vtkGDCMImageReader.
                New();
            vtkGDCMImageReader reader2 = new vtkGDCMImageReader();

            vtkGDCMImageWriter writer1 = vtkGDCMImageWriter.
                New();
            vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();

            using (vtkGDCMTesting testing3 = new vtkGDCMTesting())
            {
                System.Console.Write( "GetReferenceCount: " + testing1.GetReferenceCount() + "\n");
                System.Console.Write( "GetReferenceCount: " + testing2.GetReferenceCount() + "\n");
                System.Console.Write( "GetReferenceCount: " + testing3.GetReferenceCount() + "\n");
            }

            using (vtkGDCMImageReader reader3 = new vtkGDCMImageReader())
            {
                System.Console.Write( "GetReferenceCount: " + reader3.GetReferenceCount() + "\n");
            }

            using (vtkGDCMImageWriter writer3 = vtkGDCMImageWriter.
                New())
            {
                System.Console.Write( "GetReferenceCount: " + writer3.GetReferenceCount() + "\n");
            }

            // C# destructor will call ->Delete on all C++ object as expected.
            return 0;
        }
    }
}

```

12.135 ReformatFile.cs

This is a C++ example on how to use FileDerivation

```

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=====*/

/*
 * Simple C# example
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ReformatFile.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class ReformatFile
{
    public static int Main(string[] args)
    {
        gdcm.FileMetaInformation.
            SetSourceApplicationEntityTitle( "My Reformat App" );

        // http://www.oid-info.com/get/1.3.6.1.4.17434
        string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
        gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
        System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.
            GetRoot() );

        string filename = args[0];
        string outfilename = args[1];

        Reader reader = new Reader();
        reader.SetFileName( filename );
        if( !reader.Read() )
        {
            System.Console.WriteLine( "Could not read: " + filename );
            return 1;
        }

        UIDGenerator uid = new UIDGenerator(); // helper for uid generation
        FileDerivation fd = new FileDerivation();
        // For the pupose of this exercise we will pretend that this image is referencing
        // two source image (we need to generate fake UID for that).
        string ReferencedSOPClassUID = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
        fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
        fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

        // Again for the purpose of the exercise we will pretend that the image is a
        // multiplanar reformat (MPR):
        // CID 7202 Source Image Purposes of Reference
        // { "DCM",121322,"Source image for image processing operation"},
        fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
        // CID 7203 Image Derivation
        // { "DCM",113072,"Multiplanar reformatting" },
        fd.SetDerivationCodeSequenceCodeValue( 113072 );
        fd.SetFile( reader.GetFile() );
        // If all Code Value are ok the filter will execute properly
        if( !fd.Derive() )
        {
            return 1;
        }

        gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
        // The following three lines make sure to regenerate any value:
        fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
        fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
        fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

        Writer writer = new Writer();
        writer.SetFileName( outfilename );
        writer.SetFile( fd.GetFile() );
        if( !writer.Write() )

```

```

        {
            System.Console.WriteLine( "Could not write: " + outfilename );
            return 1;
        }

        return 0;
    }
}

```

12.136 RemovePrivateTags.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
9 #       This software is distributed WITHOUT ANY WARRANTY; without even
10 #       the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #       PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 python RemovePrivateTags.py input.dcm output.dcm
19 """
20
21 import sys
22 import gdcm
23
24
25 if __name__ == "__main__":
26
27     file1 = sys.argv[1]
28     file2 = sys.argv[2]
29
30     # Instantiate the reader.
31     r = gdcm.Reader()
32     r.SetFileName( file1 )
33     if not r.Read():
34         sys.exit(1)
35
36     # Remove private tags
37     ano = gdcm.Anonymizer()
38     ano.SetFile( r.GetFile() )
39     if not ano.RemovePrivateTags():
40         sys.exit(1)
41
42     # Write DICOM file
43     w = gdcm.Writer()
44     w.SetFile( ano.GetFile() )
45     #w.CheckFileMetaInformationOff() # Do not attempt to check meta header
46     w.SetFileName( file2 )
47     if not w.Write():
48         sys.exit(1)
49
50     # It is usually a good idea to exit the script with an error, as gdcm does not remove partial (incorrect)
51     # DICOM file
52     # (application level)

```

12.137 RescaleImage.cs

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

```

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 PURPOSE. See the above copyright notice for more information.

```

=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm rescaled.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
    public static int Main(string[] args)
    {
        string file1 = args[0];
        ImageReader reader = new ImageReader();
        reader.SetFileName( file1 );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }

        Image image = reader.GetImage();
        PixelFormat pixeltype = image.GetPixelFormat();

        Rescaler r = new Rescaler();
        r.SetIntercept( 0 );
        r.SetSlope( 1.2 );
        r.SetPixelFormat( pixeltype );
        PixelFormat outputpt = new PixelFormat( r.ComputeInterceptSlopePixelFormat() );

        System.Console.WriteLine( "pixeltype" );
        System.Console.WriteLine( pixeltype.toString() );
        System.Console.WriteLine( "outputpt" );
        System.Console.WriteLine( outputpt.toString() );

        uint len = image.GetBufferLength();
        short[] input = new short[ len / 2 ]; // sizeof(short) == 2
        image.GetArray( input );

        double[] output = new double[ len / 2 ];
        r.Rescale( output, input, len );

        // First Pixel is:
        System.Console.WriteLine( "Input:" );
        System.Console.WriteLine( input[0] );

        System.Console.WriteLine( "Output:" );
        System.Console.WriteLine( output[0] );

        return 0;
    }
}

```

12.138 reslicesphere.cxx

```

/*=====

Program: GDCM (Grassroots DICOM). A DICOM library

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```

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PURPOSE. See the above copyright notice for more information.

=====*/
//
// Load a DICOM series.
// Position a sphere within the volume.
// Allow the user to change between Axial, Sagittal, Coronal, and
// Oblique view of the images and move through the slices.
// The display should show the resliced image and the cross section
// of the sphere intersecting that plane.
//

/*
from Scott Johnson /Scott Johnson neuwave com/
to VTK /vtkusers vtk.org/
date Tue, May 11, 2010 at 7:01 PM
*/
#include <sstream>
#include <string>

#include <vtkDICOMImageReader.h>
#include <vtkStringArray.h>
#include <vtkDirectory.h>
#include <vtkImageThreshold.h>
#include <vtkImageShiftScale.h>
#include <vtkImageReslice.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageViewer2.h>
#include <vtkSphereSource.h>
#include <vtkPolyDataMapper.h>
#include <vtkPlane.h>
#include <vtkCutter.h>
#include <vtkActor.h>
#include <vtkCommand.h>
#include <vtkSmartPointer.h>
#include <vtkMatrix4x4.h>
#include <vtkInteractorObserver.h>
#include <vtkProperty.h>
#include <vtkRenderer.h>
#include <vtkImageData.h>
#include <vtkImageActor.h>
#include <vtkTransformPolyDataFilter.h>
#include <vtkCamera.h>
#include <vtkMath.h>
#include <vtkTransform.h>
#include <vtkTextActor.h>
#include <vtkActor2D.h>
#include <vtkPolyDataMapper2D.h>
#include <vtkProperty2D.h>
#include <vtkGDCMImageReader.h>
#include <vtkImageChangeInformation.h>

#include "gdcmDirectory.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"

// Change to match the path to find Raw_0.vti or provide
// the parameter when starting ResliceSphere.

const double sphereCenter[3]={74, 219, 70};

// Angles (0, 0, 0)
const double AxialMatrix[] = { 1.0, 0.0, 0.0, 0.0,
                              0.0, 1.0, 0.0, 0.0,
                              0.0, 0.0, 1.0, 0.0,
                              0.0, 0.0, 0.0, 1.0 };

// Angles (0, 90, 0)
const double SagittalMatrix[] = { 0.0, 0.0, 1.0, 0.0,
                                  0.0, 1.0, 0.0, 0.0,
                                  -1.0, 0.0, 0.0, 0.0,
                                  0.0, 0.0, 0.0, 1.0 };

// Angles (-90, 0, 0)
const double CoronalMatrix[] = { 1.0, 0.0, 0.0, 0.0,
                                 0.0, 0.0, 1.0, 0.0,
                                 0.0, -1.0, 0.0, 0.0,
                                 0.0, 0.0, 0.0, 1.0 };

// Angles (0, 90, 31)
const double ObliqueMatrix[] = { 0.0, -0.515038, 0.857167, 0.0,
                                 0.0, 0.857167, 0.515038, 0.0,

```

```

-1.0,  0.0,    0.0,    0.0,
 0.0,  0.0,    0.0,    1.0 };

class ResliceRender;

// Class to handle key press events.
class KeyCallback : public vtkCommand
{
public:
    static KeyCallback* New()
    {
        return new KeyCallback();
    }

    void Execute(vtkObject* caller, unsigned long eventId, void *calldata);
    void SetCallbackData(ResliceRender* reslice);

protected:
    ResliceRender* _reslice;
};

class ResliceRender
{
public:
    typedef enum _ORIENTATION
    {
        AXIAL = 0,
        SAGITTAL = 1,
        CORONAL = 2,
        OBLIQUE = 3
    } ORIENTATION;

    ResliceRender()
    {
        _orientation=AXIAL;
    }

    ~ResliceRender()
    {
        _transform->Delete();
        _reader->Delete();
        _reslice->Delete();
        _interactor->Delete();
        _imageViewer->Delete();

        _sphere->Delete();
        _sphereMapper->Delete();
        _sphereActor->Delete();

        _plane->Delete();
        _cutter->Delete();
        _polyTransform->Delete();
        _ROIMapper->Delete();
        _ROIActor->Delete();

        _annotation->Delete();
    }

    void CreatePipeline(const char* fileName)
    {
        vtkProperty2D* props;

        //_reader=vtkXMLImageDataReader::New();
        //_reader->SetFileName(fileName);
        //_reader->Update();

        //_reader=qzDICOMImageReader::New();
        _reader=vtkGDCMImageReader::New();

        //vtkDirectory *d = vtkDirectory::New();
        //_d->Open(fileName);
        //_d->Print( std::cout );
        gdcmm::Directory d;
        d.Load(fileName);
        gdcmm::Directory::FileNamesType const &files = d.
        GetFileNames();

        gdcmm::IPPSorter s;
        s.SetComputeZSpacing( true );
        s.SetZSpacingTolerance( 1e-3 );
        bool b = s.Sort( files );

```

```

if( !b )
{
    std::cerr << "Failed to sort:" << fileName << std::endl;
    //return ;
}
//std::cout << "Sorting succeeded:" << std::endl;
//s.Print( std::cout );

//std::cout << "Found z-spacing:" << std::endl;
//std::cout << s.GetZSpacing() << std::endl;
double ippzspacing = s.GetZSpacing();

const std::vector<std::string> & sorted = s.GetFileNames();
vtkStringArray *vtkfiles = vtkStringArray::New();
std::vector< std::string >::const_iterator it = sorted.begin();
for( ; it != sorted.end(); ++it)
{
    const std::string &f = *it;
    vtkfiles->InsertNextValue( f.c_str() );
}

    //_reader->SetDirectoryName(fileName);
    //_reader->SetFileNames( d->GetFiles() );
    _reader->SetFileNames( vtkfiles );
    _reader->Update();

const vtkFloatingPointType *spacing = _reader->GetOutput()->GetSpacing();

    vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
    #if (VTK_MAJOR_VERSION >= 6)
    v16->SetInputConnection( _reader->GetOutputPort() );
    #else
    v16->SetInput( _reader->GetOutput() );
    #endif
    v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
    v16->Update();

    _threshold=vtkImageThreshold::New();
    _threshold->ThresholdByUpper(-3024.0);
    _threshold->ReplaceOutOn();
    _threshold->SetOutValue(0.0);
    _threshold->SetInputConnection(v16->GetOutputPort());

    _shift=vtkImageShiftScale::New();
    _shift->SetShift(0);
    _shift->SetScale(1);
    _shift->SetInputConnection(_threshold->GetOutputPort());

    // Initialize the reslice with an axial orientation.
    vtkSmartPointer<vtkMatrix4x4> matrix =
        vtkSmartPointer<vtkMatrix4x4>::New();
    matrix->Identity();

    _transform = vtkTransform::New();
    _transform->SetMatrix(matrix);

    _reslice = vtkImageReslice::New();
    _reslice->SetOutputDimensionality(3);

    // PROBLEM:
    // The original intent was to connect the same transform
    // to the vtkImageReslice and vtkTransformPolyDataFilter,
    // but the resulting reslices appear different using the
    // vtkTransform as opposed to explicitly setting the
    // reslice axes via SetResliceAxes. Also, if the vtkTransform
    // is connected and orientated other than axial, the extents
    // don't seem to update resulting in VTK believing the slice
    // is out of range.

    //_reslice->SetResliceTransform(_transform);
    _reslice->SetResliceAxes(matrix);
    //_reslice->SetInputConnection(_reader->GetOutputPort());
    _reslice->SetInputConnection(_shift->GetOutputPort());

    // Create the sphere target shape.
    _sphere=vtkSphereSource::New();
    _sphere->SetRadius(7.0);
    _sphere->SetThetaResolution(16);
    _sphere->SetPhiResolution(16);
    _sphere->SetCenter(sphereCenter[0], sphereCenter[1], sphereCenter[2]);

```

```

_sphereMapper=vtkPolyDataMapper::New();
_sphereMapper->SetInputConnection(_sphere->GetOutputPort());

_sphereActor=vtkActor::New();
_sphereActor->SetMapper(_sphereMapper);
_sphereActor->PickableOff();
_sphereActor->GetProperty()->SetColor(1.0, 0.0, 0.0);
_sphereActor->GetProperty()->SetEdgeColor(1.0, 0.0, 0.0);
_sphereActor->GetProperty()->SetDiffuseColor(1.0, 0.0, 0.0);
_sphereActor->SetVisibility(true);

// Create the cutting pipeline.
// This plane will be positioned in the original image coordinate system.
_plane = vtkPlane::New();
_plane->SetNormal(0.0, 0.0, 1.0);

_cutter = vtkCutter::New();
_cutter->SetInputConnection(_sphere->GetOutputPort());
_cutter->SetCutFunction(_plane);
_cutter->GenerateCutScalarsOn();
_cutter->SetValue(0, 0.5);

// The transform attached to _polyTransform should move the cut
// ROI into the resliced coordinate system, which should be the
// same as the coordinate system of the resliced images.
// PROBLEM: It doesn't.
_polyTransform = vtkTransformPolyDataFilter::New();
_polyTransform->SetTransform(_transform);
_polyTransform->SetInputConnection(_cutter->GetOutputPort());

_ROIMapper = vtkPolyDataMapper2D::New();
_ROIMapper->SetInputConnection(_polyTransform->GetOutputPort());

vtkCoordinate* coordinate = vtkCoordinate::New();
coordinate->SetCoordinateSystemToWorld();
_ROIMapper->SetTransformCoordinate(coordinate);

_ROIActor = vtkActor2D::New();
_ROIActor->SetMapper(_ROIMapper);

// Make sure the cut can be seen, especially the edges.
props=_ROIActor->GetProperty();
props->SetLineWidth(2);
props->SetOpacity(1.0);
// props->EdgeVisibilityOn();
// props->SetDiffuse(0.8);
// props->SetSpecular(0.3);
// props->SetSpecularPower(20);
// props->SetRepresentationToSurface();
// props->SetDiffuseColor(1.0, 0.0, 0.0);
// props->SetEdgeColor(1.0, 0.0, 0.0);
props->SetColor(1.0, 0.0, 0.0);

_interactor = vtkRenderWindowInteractor::New();

// Create the image viewer and add the actor with the cut ROI.
_imageViewer = vtkImageViewer2::New();
_imageViewer->SetupInteractor(_interactor);
_imageViewer->SetSize(400, 400);
_imageViewer->SetColorWindow(1024);
_imageViewer->SetColorLevel(800);
_imageViewer->SetInputConnection(_reslice->GetOutputPort());
_imageViewer->GetImageActor()->SetOpacity(0.5);

_annotation = vtkTextActor::New();
_annotation->SetTextScaleModeToViewport();
_imageViewer->GetRenderer()->AddActor(_annotation);

// Add the cut shape actor to the renderer.
_imageViewer->GetRenderer()->AddActor(_ROIActor);

// Set up the key handler.
vtkSmartPointer<KeyCallback> callback = vtkSmartPointer<KeyCallback>::New();
callback->SetCallbackData(this);
_interactor->AddObserver(vtkCommand::KeyPressEvent, callback);

_interactor->Initialize();
}

void Start()

```



```

{
    _interactor->Start();
}

void ResetOrientation()
{
    vtkSmartPointer<vtkMatrix4x4> matrix =
        vtkSmartPointer<vtkMatrix4x4>::New();
    matrix->Identity();

    SetOrientation(matrix);
}

// Make sure the orientation of the vtkImageReslice and
// vtkTransform are in sync.
void SetOrientation(vtkMatrix4x4* matrix)
{
    _reslice->SetResliceAxes(matrix);
    _reslice->Update();

    vtkMatrix4x4* inverse = vtkMatrix4x4::New();
    vtkMatrix4x4::Invert(matrix, inverse);

    _transform->SetMatrix(inverse);
    _transform->Update();
}

// Set the current slice of the current view.
void SetSlice(int slice)
{
    std::stringstream posString;

    double    center[3];
    double    spacing[3];
    double    origin[3];
    double    point[4];
    double    newPoint[4];

    vtkImageData* imageData;
    int newSlice;

    // Try to make sure the extents of the reslice are updated.
    // PROBLEM: It doesn't seem to work when changing the orientation.
    imageData=vtkImageData::SafeDownCast(_reslice->GetOutput());
#ifdef VTK_MAJOR_VERSION >= 6
    assert(0);
#else
    imageData->UpdateInformation();
#endif

    // Let vtkImageViewer2 handle the slice limits.
    _imageView->SetSlice(slice);
    newSlice=GetSlice();

    imageData->GetCenter(center);
    imageData->GetSpacing(spacing);
    imageData->GetOrigin(origin);

    // Compute the position of the center of the slice based on the
    // spacing of the slices. The resliced axis will always
    // be the "Z" axis.
    point[0]=center[0];
    point[1]=center[1];
    point[2]=(newSlice * spacing[2]) + origin[2];
    point[3]=1.0;

    // Convert the coordinate from the reslice coordinate system to the
    // original image coordinate system.
    // PROBLEM: Logically this seems like it should have been multiplied
    // by the inverse to translate from the resliced coordinate system to
    // the original coordinate system. However, multiplying by the inverse
    // sticks the plane in the wrong place completely. Using the original
    // matrix at least gets the Z coordinate right.
    vtkMatrix4x4* matrix=_reslice->GetResliceAxes();
    vtkSmartPointer<vtkMatrix4x4> inverse =
        vtkSmartPointer<vtkMatrix4x4>::New();
    vtkMatrix4x4::Invert(matrix, inverse);

    matrix->MultiplyPoint(point, newPoint);
    _plane->SetOrigin(newPoint[0], newPoint[1], newPoint[2]);
}

```

```

    // Annotate the image.
    posString << "Position: (" << newPoint[0] << ", " << newPoint[1]
    << ", " << newPoint[2] << ") Slice: " << newSlice;
    _annotation->SetInput(posString.str());

    _imageView->Render();
}

int GetSlice()
{
    return _imageView->GetSlice();
}

// Set the orientation of the view.
void SetOrientation(ResliceRender::ORIENTATION orientation)
{
    vtkCamera* camera=_imageView->GetRenderer()->GetActiveCamera();

    double spacing[3];
    double origin[3];
    double point[4];
    double newPoint[4];
    double initialPosition;
    double xDirCosine[3];
    double yDirCosine[3];
    double zDirCosine[3];
    double normal[3];

    vtkImageData* imageData;

    vtkSmartPointer<vtkMatrix4x4> matrix =
        vtkSmartPointer<vtkMatrix4x4>::New();

    _orientation=orientation;

    // Reset ViewUp
    camera->SetViewUp(0.0, 1.0, 0.0);

    // Compute the cut plane position to the input coordinate system.
    imageData=vtkImageData::SafeDownCast(_reslice->GetInput());
#ifdef VTK_MAJOR_VERSION >= 6
    assert(0);
#else
    imageData->UpdateInformation();
#endif
    imageData->GetSpacing(spacing);
    imageData->GetOrigin(origin);

    point[0]=origin[0];
    point[1]=origin[1];
    point[2]=origin[2];
    point[3]=1.0;

    switch (_orientation)
    {
    case AXIAL:
        matrix->DeepCopy(AxialMatrix);
        initialPosition=sphereCenter[2];
        break;

    case CORONAL:
        matrix->DeepCopy(CoronalMatrix);
        initialPosition=sphereCenter[1];
        break;

    case SAGITTAL:
        matrix->DeepCopy(SagittalMatrix);
        initialPosition=sphereCenter[0];
        break;

    case OBLIQUE:
        matrix->DeepCopy(ObliqueMatrix);
        initialPosition=sphereCenter[2];
        break;
    }

    // Move the origin from the original image coordinate system to the
    // resliced image coordinate system.
    matrix->MultiplyPoint(point, newPoint);
    matrix->SetElement(0, 3, newPoint[0]);
    matrix->SetElement(1, 3, newPoint[1]);

```

```

        matrix->SetElement(2, 3, newPoint[2]);

        ResetOrientation();
        SetOrientation(matrix);

        // Compute the cutting plane normal and set it.
        // PROBLEM: If the transformation is connected rather than
        // using SetResliceAxes, the Direction Cosines do not reflect
        // the orientation of the vtkImageReslice.
        _reslice->GetResliceAxesDirectionCosines(xDirCosine, yDirCosine,
                                                zDirCosine);
        vtkMath::Cross(xDirCosine, yDirCosine, normal);
        _plane->SetNormal(normal);

        // Set the extents and spacing of the reslice to account for
        // all of the data.
        _reslice->SetOutputExtentToDefault();
        _reslice->SetOutputSpacing(spacing[0], spacing[0], spacing[0]);

        // Force the vtkImageViewer2 to update.
        // PROBLEM: The whole extent does not seem to be set in time
        // for the first render. This results in an error because the
        // slice is positioned outside the old bounds.
        if (VTK_MAJOR_VERSION >= 6)
            _imageView->SetInputData(NULL);
        #else
            _imageView->SetInput(NULL);
        #endif
        _imageView->SetInputConnection(_reslice->GetOutputPort());

        _imageView->GetRenderer()->ResetCameraClippingRange();
        _imageView->GetRenderer()->ResetCamera();

        // Set the initial slice to be at the center of the sphere.
        // Divide by the spacing because this will be undone in SetSlice.
        SetSlice( (int)(initialPosition / spacing[0]));
    }

    vtkRenderWindowInteractor* GetInteractor()
    {
        return _interactor;
    }

protected:
    ORIENTATION          _orientation;

    //qzDICOMImageReader*    _reader;
    vtkGDCMImageReader*    _reader;
    vtkImageThreshold*      _threshold;
    vtkImageShiftScale*     _shift;
    vtkImageReslice*        _reslice;
    vtkRenderWindowInteractor* _interactor;
    vtkImageViewer2*        _imageView;

    vtkSphereSource*        _sphere;
    vtkPolyDataMapper*      _sphereMapper;
    vtkActor*               _sphereActor;

    vtkPlane*               _plane;
    vtkCutter*              _cutter;
    vtkTransform*           _transform;
    vtkTransformPolyDataFilter* _polyTransform;
    vtkPolyDataMapper2D*     _ROIMapper;
    vtkActor2D*             _ROIActor;

    vtkTextActor*           _annotation;
};

// Catch KeyPress events.
// Up Arrow - increases the slice
// Down Arrow - decreases the slice
// 'A' - sets the view to Axial
// 'S' - sets the view to Sagittal
// 'C' - sets the view to Coronal
// 'O' - set the view to Oblique

void KeyCallback::Execute(vtkObject* caller, unsigned long eventId, void *calldata)
{
    (void)caller;
    (void)eventId;

```

```

(void)calldata;
std::string sym=_reslice->GetInteractor()->GetKeySym();

if (!sym.compare("Up"))
{
    _reslice->SetSlice(_reslice->GetSlice() + 1);
}
else if (!sym.compare("Down"))
{
    _reslice->SetSlice(_reslice->GetSlice() - 1);
}
else if ((!sym.compare("A")) || (!sym.compare("a")))
{
    _reslice->SetOrientation(ResliceRender::AXIAL);
}
else if ((!sym.compare("C")) || (!sym.compare("c")))
{
    _reslice->SetOrientation(ResliceRender::CORONAL);
}
else if ((!sym.compare("S")) || (!sym.compare("s")))
{
    _reslice->SetOrientation(ResliceRender::SAGITTAL);
}
else if ((!sym.compare("O")) || (!sym.compare("o")))
{
    _reslice->SetOrientation(ResliceRender::OBLIQUE);
}
}

void KeyCallback::SetCallbackData(ResliceRender* reslice)
{
    _reslice=reslice;
}

// Usage: ResliceSphere [fileName]
int main(int argc, char *argv[])
{
    ResliceRender render;

    if (argc == 1)
    {
        const char *root = gdcm::Testing::GetDataExtraRoot();
        std::string dir3 = root;
        dir3 += "/gdcmSampleData/ForSeriesTesting/Dentist/images/";
        render.CreatePipeline(dir3.c_str());
    }
    else
    {
        render.CreatePipeline(argv[1]);
    }

    render.SetOrientation(ResliceRender::AXIAL);
    render.Start();

    return EXIT_SUCCESS;
}

```

12.139 ReWriteSCAsMR.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 #   Copyright (c) 2006-2011 Mathieu Malaterre
6 #   All rights reserved.
7 #   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
8 #
9 #   This software is distributed WITHOUT ANY WARRANTY; without even
10 #   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 GDCM 1.x would write out MR Image Storage as Secondary Capture Object while still setting Rescale

```

```

        Slope/Intercept
17 and saving the Pixel Spacing in (0028,0030)
18 """
19
20 import gdcm
21 import sys,os
22
23 def CheckSecondaryCaptureObjectIsMRImageStorage(r):
24     ds = r.GetFile().GetDataSet()
25     # Check Source Image Sequence
26     if ds.FindDataElement( gdcm.Tag(0x0008,0x2112) ):
27         sis = ds.GetDataElement( gdcm.Tag(0x0008,0x2112) )
28         sqsis = sis.GetSequenceOfItems()
29         if sqsis.GetNumberOfItems():
30             item1 = sqsis.GetItem(1)
31             nestedds = item1.GetNestedDataSet()
32             if nestedds.FindDataElement( gdcm.Tag(0x0008,0x1150) ):
33                 ReferencedSOPClassUID = nestedds.GetDataElement( gdcm.Tag(0x0008,0x1150) )
34                 raw = ReferencedSOPClassUID.GetByteValue().GetPointer()
35                 uids = gdcm.UIDs()
36                 # what is the actual object we are looking at ?
37                 ms = gdcm.MediaStorage()
38                 ms.SetFromDataSet(ds)
39                 msuid = ms.GetString()
40                 uids.SetFromUID( msuid )
41                 msuidname = uids.GetName() # real Media Storage Name
42                 uids.SetFromUID( raw )
43                 sqmsuidname = uids.GetName() # Source Image Sequence Media Storage Name
44                 # If object is SC and Source derivation is MRImageStorage then we can assume 'Pixel Spacing' is
45                 correct
46                 if( sqmsuidname == 'MR Image Storage' and msuidname == 'Secondary Capture Image Storage' ):
47                     return True
48             # in all other case simply return the currentspacing:
49             return False
50 if __name__ == "__main__":
51     r = gdcm.ImageReader()
52     filename = sys.argv[1]
53     r.SetFileName( filename )
54     if not r.Read():
55         sys.exit(1)
56     f = r.GetFile()
57
58     if( CheckSecondaryCaptureObjectIsMRImageStorage(r) ):
59         # Special handling of the spacing:
60         # GDCM 1.2.0 would not rewrite correctly DICOM Object and would always set them as 'Secondary Capture
61         # Image Storage'
62         # while we would rather have 'MR Image Storage'
63         gdcm.ImageHelper.SetForcePixelSpacing( True )
64         mrspacing = gdcm.ImageHelper.GetSpacingValue( r.GetFile() )
65         # TODO: I cannot do simply the following:
66         #image.SetSpacing( mrspacing )
67         image.SetSpacing(0, mrspacing[0] )
68         image.SetSpacing(1, mrspacing[1] )
69         image.SetSpacing(2, mrspacing[2] )
70         gdcm.ImageHelper.SetForceRescaleInterceptSlope( True )
71         ris = gdcm.ImageHelper.GetRescaleInterceptSlopeValue(
72             r.GetFile() )
73         image.SetIntercept( ris[0] )
74         image.SetSlope( ris[1] )
75
76     outfilename = sys.argv[2]
77     w = gdcm.ImageWriter()
78     w.SetFileName( outfilename )
79     w.SetFile( r.GetFile() )
80     w.SetImage( image )
81     if not w.Write():
82         sys.exit(1)
83     sys.exit(0)

```

12.140 rle2img.cxx

/*=====

Program: GDCM (Grassroots DICOM). A DICOM library

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```

=====*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RLE1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Mauro Maiorca for bringing to our attention on this new ELSCINT1
 * compression algorithm : PMSCT_RLE1 (different from the 'LOSSLESS RICE')
 * See post at:
 * http://groups.google.com/group/comp.protocols.dicom/msg/f2b99bf706a7f8ca
 *
 * Thanks to Jesus Spinola, for more datasets,
 * http://www.itk.org/pipermail/insight-users/2008-April/025571.html
 *
 * And last but not least, a very big thank to Ivo van Poorten, without
 * whom we would still be looking at this compressed byte stream as if
 * it was RLE compressed.
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

/* FIXME: Why is PhilipsLosslessRice.dcm a 512x512 image ... */
void delta_decode(const char *inbuffer, size_t length, std::vector<unsigned short> &output)
{
    // RLE pass
    std::vector<char> temp;
    for(size_t i = 0; i < length; ++i)
    {
        if( inbuffer[i] == (char)0xa5 )
        {
            //unsigned char repeat = (unsigned char)inbuffer[i+1] + 1;
            //assert( (unsigned char)inbuffer[i+1] != 255 );
            int repeat = (unsigned char)inbuffer[i+1] + 1;
            char value = inbuffer[i+2];
            while(repeat)
            {
                temp.push_back( value );
                --repeat;
            }
            i+=2;
        }
        else
        {
            temp.push_back( inbuffer[i] );
        }
    }

    // Delta encoding pass
    unsigned short delta = 0;
    for(size_t i = 0; i < temp.size(); ++i)
    {
        if( temp[i] == 0x5a )
        {
            unsigned char v1 = (unsigned char)temp[i+1];
            unsigned char v2 = (unsigned char)temp[i+2];
            unsigned short value = (unsigned short)(v2 * 256 + v1);
            output.push_back( value );
        }
    }
}

```

```

        delta = value;
        i+=2;
    }
    else
    {
        unsigned short value = (unsigned short)(temp[i] + delta);
        output.push_back( value );
        delta = value;
    }
    //assert( output[output.size()-1] == ref[output.size()-1] );
}

if ( output.size() % 2 )
{
    output.resize( output.size() - 1 );
}
std::cout << length << " -> " << output.size() * 2 << std::endl;
}

int main(int argc, char *argv [])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << "input.dcm [output.dcm]" << std::endl;
        std::cerr << "will default to 'out.rle.dcm' unless output.dcm is specified."
        << std::endl;
        return 1;
    }
    const char *filename = argv[1];
    gdcm::Reader reader;
    reader.SetFileName( filename );
    if( !reader.Read() )
    {
        std::cerr << "Failed to read: " << filename << std::endl;
        return 1;
    }
    const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

    // (07a1,1011) CS [PMSCT_RLE1] # 10,1 Tamar Compression Type
    const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
    if( !ds.FindDataElement( tcompressiontype ) ) return 1;
    const gdcm::DataElement& compressiontype = ds.GetDataElement(
        tcompressiontype );
    if ( compressiontype.IsEmpty() ) return 1;
    const gdcm::ByteValue * bv = compressiontype.GetByteValue();
    std::string comprle = "PMSCT_RLE1";
    std::string comprgb = "PMSCT_RGB1";
    bool isrle = false;
    bool isrgb = false;
    if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
        isrle = true;
    }
    if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {
        isrgb = true;
        std::cerr << "See: pmsct_rgb1.cxx instead" << std::endl;
        return 1;
    }
    if( !isrgb && !isrle ) return 1;

    const gdcm::PrivateTag tcompressedpixeldata(0x07a1,0x000a,"ELSCINT1");
    if( !ds.FindDataElement( tcompressedpixeldata ) ) return 1;
    const gdcm::DataElement& compressionpixeldata = ds.
        GetDataElement( tcompressedpixeldata );
    if ( compressionpixeldata.IsEmpty() ) return 1;
    const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

    gdcm::Attribute<0x0028,0x0010> at1;
    at1.SetFromDataSet( ds );
    gdcm::Attribute<0x0028,0x0011> at2;
    at2.SetFromDataSet( ds );

    gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
    pixeldata.SetVR( gdcm::VR::OW );
    gdcm::VL bv2l = bv2->GetLength();
    gdcm::VL at1l = at1.GetValue() * at2.GetValue() * 2; /* sizeof(unsigned short) ==
        2 */
    // Handle special case that is not compressed:
    if( bv2l == at1l )
    {

```

```

    pixeldata.SetByteValue( bv2->GetPointer(), bv2->
        GetLength() );
}
else
{
    std::vector<unsigned short> buffer;
    delta_decode(bv2->GetPointer(), bv2->GetLength(), buffer);
    pixeldata.SetByteValue( (char*)&buffer[0], (uint32_t)(buffer.size() * sizeof( unsigned
        short )) );
}
// TODO we should check that decompress byte buffer match the expected size (row*col*...)

// Add the pixel data element
reader.GetFile().GetDataSet().Replace( pixeldata );

reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
gdcm::Writer writer;
writer.SetFile( reader.GetFile() );

// Cleanup stuff:
// remove the compressed pixel data:
// FIXME: should I remove more private tags ? all of them ?
// oh well this is just an example
// use gdcm::Anonymizer::RemovePrivateTags if needed...
writer.GetFile().GetDataSet().Remove( compressionpixeldata.
    GetTag() );
std::string outfilename;
if (argc > 2)
    outfilename = argv[2];
else
    outfilename = "out.rle.dcm";
writer.SetFileName( outfilename.c_str() );
if( !writer.Write() )
{
    std::cerr << "Failed to write" << std::endl;
    return 1;
}

std::cout << "success !" << std::endl;

return 0;
}

```

12.141 rtstructapp.cxx

```

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=====*/
#include "vtkGDCMPolyDataReader.h"
#include "vtkGDCMPolyDataWriter.h"

#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkAppendPolyData.h"
#include "vtkImageData.h"

```



```

/*
 * Small example to read in a RTSTRUCT and write it out (displays it too).
 */

// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm\n";
        return 1;
    }
    const char * filename = argv[1];
    const char * outfilename = argv[2];
    vtkGDCMPolyDataReader * reader =
        vtkGDCMPolyDataReader::New();
    reader->SetFileName( filename );
    reader->Update();

    //std::cout << reader->GetMedicalImageProperties()->GetStudyDate() << std::endl;

    vtkGDCMPolyDataWriter * writer =
        vtkGDCMPolyDataWriter::New();
    writer->SetNumberOfInputPorts( reader->GetNumberOfOutputPorts() );
    writer->SetFileName( outfilename );
    for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
    #if (VTK_MAJOR_VERSION >= 6)
        writer->SetInputConnection( num, reader->GetOutputPort(num) );
    #else
        writer->SetInput( num, reader->GetOutput(num) );
    #endif
    //doesn't look like the medical properties are actually written out
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
    writer->Write();

    // print reader output:
    reader->Print( std::cout );
    // print first output:
    reader->GetOutput()->Print( std::cout );

    vtkAppendPolyData *append = vtkAppendPolyData::New();

    int n = reader->GetNumberOfOutputPorts();
    for(int i = 0; i < n; ++i)
    {
    #if (VTK_MAJOR_VERSION >= 6)
        append->AddInputConnection( reader->GetOutputPort(i) );
    #else
        append->AddInput( reader->GetOutput(i) );
    #endif
    }

    // Now we'll look at it.
    vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
    #if (VTK_MAJOR_VERSION >= 6)
        cubeMapper->SetInputConnection( append->GetOutputPort() );
    #else
        cubeMapper->SetInput( append->GetOutput() );
    #endif
    cubeMapper->SetScalarRange(0,7);
    vtkActor *cubeActor = vtkActor::New();
    cubeActor->SetMapper(cubeMapper);
    vtkProperty * property = cubeActor->GetProperty();
    property->SetRepresentationToWireframe();

    vtkRenderer *renderer = vtkRenderer::New();
    vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->AddRenderer(renderer);

    vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

    renderer->AddActor(cubeActor);
    renderer->ResetCamera();
    renderer->SetBackground(1,1,1);

```

```

renWin->SetSize(300,300);

renWin->Render();
iren->Start();

reader->Delete();
append->Delete();
cubeMapper->Delete();
cubeActor->Delete();
renderer->Delete();
renWin->Delete();
iren->Delete();
writer->Delete();

return 0;
}

```

12.142 ScanDirectory.cs

This is a C# example on how to use Scanner

```

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=====*/

/*
 * Usage:
 * $ bin/ScanDirectory.exe /path/to/gdcmData/
 */
using System;
using gdcm;

// We will print each filename being processed
public class MyWatcher : SimpleSubjectWatcher
{
    public MyWatcher(Subject s):base(s,"Override String"){
    protected override void ShowFileName(Subject caller, Event evt){
        FileNameEvent fne = FileNameEvent.Cast(evt);
        if( fne != null )
        {
            string fn = fne.GetFileName();
            System.Console.WriteLine( "This is my Scanner. Processing FileName: " + fn );
        }
        else
        {
            System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
        }
    }
}

public class ScanDirectory
{
    public static int Main(string[] args)
    {
        string directory = args[0];
        Tag t = new Tag(0x8,0x80);

        Directory d = new Directory();
        uint nfiles = d.Load( directory );
        if(nfiles == 0) return 1;
        //System.Console.WriteLine( "Files:\n" + d.toString() );

        // Use a StrictScanner, need to use a reference to pass the C++ pointer to

```

```

// MyWatcher implementation
SmartPtrStrictScan sscan = StrictScanner.New();
StrictScanner s = sscan.__ref__();
MyWatcher watcher = new MyWatcher(s);

s.AddTag( t );
bool b = s.Scan( d.GetFileNames() );
if(!b) return 1;

for(int i = 0; i < (int)nfiles; ++i)
{
    if( !s.IsKey( d.GetFileNames()[i] ) )
    {
        System.Console.WriteLine( "File is not DICOM or could not be read: " + d.GetFileNames()[i] );
    }
}

System.Console.WriteLine( "Scan:\n" + s.toString() );

System.Console.WriteLine( "success" );
return 0;
}
}

```

12.143 ScanDirectory.java

```

/*=====
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=====*/

import gdcml.*;
import gdcml.Reader;
import gdcml.LookupTable;
import java.io.File;
import java.io.*;
import java.awt.image.*;
import javax.imageio.ImageIO;

public class ScanDirectory
{
    public static class MyWatcher extends SimpleSubjectWatcher
    {
        public MyWatcher(Subject s) { super(s,"Override String"); }
        protected void ShowProgress(Subject caller, Event evt)
        {
            ProgressEvent pe = ProgressEvent.Cast(evt);
            System.out.println( "This is my progress: " + pe.GetProgress() );
        }
    }

    public static byte[] GetAsByte(Bitmap input)
    {
        long len = input.GetBufferLength();
        byte[] buffer = new byte[ (int)len ];
        PhotometricInterpretation pi = input.GetPhotometricInterpretation();
        if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
        {
            ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
            icpi.SetInput( input );
            icpi.SetPhotometricInterpretation(
                new PhotometricInterpretation(
                    PhotometricInterpretation.PIType.MONOCHROME2 ) );
            if( icpi.Change() )
            {
                Bitmap output = icpi.GetOutput();
            }
        }
    }
}

```

```

        output.GetArray( buffer );
    }
    return buffer;
}
else
{
    input.GetArray( buffer );
    return buffer;
}
}
public static short[] GetAsShort(Bitmap input)
{
    long len = input.GetBufferLength(); // length in bytes
    short[] buffer = new short[ (int)len / 2 ];
    PhotometricInterpretation pi = input.GetPhotometricInterpretation();
    if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
        ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
        icpi.SetInput( input );
        icpi.SetPhotometricInterpretation(
            new PhotometricInterpretation(
                PhotometricInterpretation.PIType.MONOCHROME2 ) );
        if( icpi.Change() )
        {
            Bitmap output = icpi.GetOutput();
            output.GetArray( buffer );
        }
        return buffer;
    }
    else
    {
        input.GetArray( buffer );
        return buffer;
    }
}
public static boolean WritePNG(Bitmap input, String outfilename )
{
    int imageType = BufferedImage.TYPE_CUSTOM;
    PixelFormat pf = input.GetPixelFormat();
    PhotometricInterpretation pi = input.GetPhotometricInterpretation();
    // We need to handle both public and private icon
    // It could well be that we are getting an RGB Icon or 16 bits Icon:
    ColorModel colorModel = null;
    if( pf.GetSamplesPerPixel() == 1 )
    {
        if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1
            || pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME2 )
        {
            if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
            {
                imageType = BufferedImage.TYPE_BYTE_GRAY;
            }
            else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT12 )
            {
                imageType = BufferedImage.TYPE_USHORT_GRAY;
            }
            else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT16 )
            {
                imageType = BufferedImage.TYPE_USHORT_GRAY;
            }
        }
        else if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
        {
            LookupTable lut = input.GetLUT();
            long r1 = lut.GetLUTLength( LookupTable.LookupTableType.RED );
            byte[] rbuf = new byte[ (int)r1 ];
            long r12 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
            assert r1 == r12;
            long g1 = lut.GetLUTLength( LookupTable.LookupTableType.GREEN );
            byte[] gbuf = new byte[ (int)g1 ];
            long g12 = lut.GetLUT( LookupTable.LookupTableType.GREEN, gbuf );
            assert g1 == g12;
            long b1 = lut.GetLUTLength( LookupTable.LookupTableType.BLUE );
            byte[] bbuf = new byte[ (int)b1 ];
            long b12 = lut.GetLUT( LookupTable.LookupTableType.BLUE, bbuf );
            assert b1 == b12;
            colorModel = new IndexColorModel(8, (int)r1, rbuf, gbuf, bbuf);
            // For code below
            imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
    }
}

```

```

else if( pf.GetSamplesPerPixel() == 3 )
{
    if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
    {
        // FIXME should be TYPE_3BYTE_RGB
        imageType = BufferedImage.TYPE_3BYTE_BGR;
    }
}
//System.out.println( "pf: " + pf.toString() );
//System.out.println( "pi: " + pi.toString() );
long width = input.GetDimension(0);
long height = input.GetDimension(1);
BufferedImage bi;
if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
{
    bi = new BufferedImage(colorModel,
        colorModel.createCompatibleWritableRaster((int)width, (int)height),
        false, null);
}
else
{
    bi = new BufferedImage((int)width, (int)height, imageType);
}
WritableRaster wr = bi.getRaster();
//System.out.println( "imagetype: " + imageType );
if( imageType == BufferedImage.TYPE_BYTE_GRAY
    || imageType == BufferedImage.TYPE_3BYTE_BGR )
{
    byte[] buffer = GetAsByte( input );
    wr.setDataElements( 0, 0, (int)width, (int)height, buffer);
}
else if( imageType == BufferedImage.TYPE_USHORT_GRAY )
{
    short[] buffer = GetAsShort( input );
    wr.setDataElements( 0, 0, (int)width, (int)height, buffer);
}

File outputfile = new File( outfilename );
try {
    ImageIO.write(bi, "png", outputfile);
} catch (IOException e) {
    return false;
}
return true;
}

public static void main(String[] args) throws Exception
{
    String directory = args[0];

    Directory d = new Directory();
    long nfiles = d.Load( directory, true );
    if(nfiles == 0)
    {
        throw new Exception("No files found");
    }
    // System.out.println( "Files:\n" + d.toString() );
    FilenamesType fns = d.GetFilenames();

    //Scanner s = new Scanner();
    SmartPtrScan sscan = Scanner.New();
    Scanner s = sscan.__ref__();
    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(s, "MySimple");
    MyWatcher watcher = new MyWatcher(s);
    Tag[] tagarray = {
        new Tag(0x0010, 0x0010), // PatientName
        new Tag(0x0010, 0x0020), // PatientID
        new Tag(0x0010, 0x0030), // PatientBirthDate
        new Tag(0x0010, 0x0040), // PatientSex
        new Tag(0x0010, 0x1010), // PatientAge
        new Tag(0x0020, 0x000d), // StudyInstanceUID
        new Tag(0x0020, 0x0010), // StudyID
        new Tag(0x0008, 0x0020), // StudyDate
        new Tag(0x0008, 0x1030), // StudyDescription
        new Tag(0x0020, 0x000e), // SeriesInstanceUID
        new Tag(0x0020, 0x0011), // SeriesNumber
        new Tag(0x0008, 0x0021), // SeriesDate
        new Tag(0x0008, 0x103e), // SeriesDescription
        new Tag(0x0008, 0x0090), // ReferringPhysicianName
        new Tag(0x0008, 0x0060), // Modality
        new Tag(0x0054, 0x0400), // ImageID ?? Should be Instance number ??
    }

```

```

        new Tag(0x0008, 0x0018),    // SOPInstanceUID
        new Tag(0x0008, 0x0032),    // AcquisitionTime
        new Tag(0x0008, 0x0033),    // ContentTime
        new Tag(0x0020, 0x0013),    // InstanceNumber
        new Tag(0x0020, 0x1041),    // SliceLocation
        new Tag(0x0018, 0x0050),    // SliceThickness ?? Eg. Enhanced MR Image Storage
        new Tag(0x0008, 0x0080),    // InstitutionName
        new Tag(0x0028, 0x1050),    // WindowCenter
        new Tag(0x0028, 0x1051),    // WindowWidth
    };
    for( Tag t : tagarray ) {
        //System.out.println( "Tag: " + t.toString() );
        s.AddTag( t );
    }
    boolean b = s.Scan( fns );
    if(!b)
    {
        throw new Exception("Could not scan");
    }

    for( long idx = 0; idx < fns.size(); ++idx )
    {
        Reader r = new Reader();
        String fn = fns.get( (int)idx );
        String outfn = fn + ".png";
        r.SetFileName( fn );
        TagSetType tst = new TagSetType();
        tst.insert( new Tag(0x7fe0,0x10) );
        b = r.ReadUpToTag( new Tag(0x88,0x200), tst );
        UIntArrayType dims = ImageHelper.GetDimensionsValue( r.GetFile() );
        if( b )
        {
            IconImageFilter iif = new IconImageFilter();
            System.out.println( "Processing: " + fn );

            iif.SetFile( r.GetFile() );
            b = iif.Extract();
            if( b )
            {
                Bitmap icon = iif.GetIconImage(0);
                WritePNG(icon, outfn);
            }
            else
            {
                ImageReader ir = new ImageReader();
                ir.SetFileName( fn );
                if( ir.Read() )
                {
                    Image img = ir.GetImage();
                    StringFilter sf = new StringFilter();
                    sf.SetFile( r.GetFile() );
                    String strval = sf.ToString( new Tag(0x0028,0x0120) );
                    IconImageGenerator iig = new IconImageGenerator();
                    iig.SetPixmap( img );
                    iig.AutoPixelMinMax( true );
                    try {
                        double val = Double.parseDouble( strval );
                        iig.SetOutsideValuePixel( val );
                    }
                    catch ( NumberFormatException e ) {
                    }
                    iig.ConvertRGBToPaletteColor( false );
                    long idims[] = { 128, 128 };
                    iig.SetOutputDimensions( idims );
                    iig.Generate();
                    Bitmap icon = iig.GetIconImage();
                    WritePNG(icon, outfn);
                }
            }
        }
    }

    System.out.println( "Scan:\n" + s.toString() );

    System.out.println( "success" );
}
}

```

12.144 ScanDirectory.py

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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8 #
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11 #   PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 import gdcm
16 import sys,os
17
18 class ProgressWatcher(gdcm.SimpleSubjectWatcher):
19     def ShowProgress(self, sender, event):
20         pe = gdcm.ProgressEvent.Cast(event)
21         print pe.GetProgress()
22     def EndFilter(self):
23         print "Yay ! I am done"
24
25 if __name__ == "__main__":
26     directory = sys.argv[1]
27
28     # Define the set of tags we are interested in
29     t1 = gdcm.Tag(0x8,0x8);
30     t2 = gdcm.Tag(0x10,0x10);
31
32     # Iterate over directory
33     d = gdcm.Directory();
34     nfiles = d.Load( directory );
35     if(nfiles == 0): sys.exit(1);
36     # System.Console.WriteLine( "Files:\n" + d.toString() );
37
38     filenames = d.GetFilenames()
39
40     # Get rid of any Warning while parsing the DICOM files
41     gdcm.Trace.WarningOff()
42
43     # instanciate Scanner:
44     sp = gdcm.Scanner.New();
45     s = sp.__ref__()
46     w = ProgressWatcher(s, 'Watcher')
47
48     s.AddTag( t1 );
49     s.AddTag( t2 );
50     b = s.Scan( filenames );
51     if(not b): sys.exit(1);
52
53     print "success" ;
54     #print s
55
56     pttv = gdcm.PythonTagToValue( s.GetMapping( filenames[1] ) )
57     pttv.Start()
58     # iterate until the end:
59     while( not pttv.IsAtEnd() ):
60         # get current value for tag and associated value:
61         # if tag was not found, then it was simply not added to the internal std::map
62         # Warning value can be None
63         tag = pttv.GetCurrentTag()
64         value = pttv.GetCurrentValue()
65         print tag,"->",value
66         # increment iterator
67         pttv.Next()
68
69     sys.exit(0)

```

12.145 SendFileSCU.cs

```

/*=====

```

```

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=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm-gcc/bin
 * $ mono bin/SendFileSCU.exe server port input.dcm
 */
using System;
using gdcm;

public class SendFileSCU
{
    public static int Main(string[] args)
    {
        {
            string server = args[0];
            ushort port = ushort.Parse(args[1]);
            string filename = args[2];

            bool b = CompositeNetworkFunctions.CEcho( server, port );
            if( !b ) return 1;

            FilenamesType files = new FilenamesType();
            files.Add( filename );
            b = CompositeNetworkFunctions.CStore( server, port, files );
            if( !b ) return 1;

            return 0;
        }
    }
}

```

12.146 SimplePrint.cs

This is a C# example on how to use gdcm::SWIGDataSet

```

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=====*/

/*
Convertor convertor = new Convertor();
int a = convertor.Convert<int>( some_int_blob );
double b = convertor.Convert<double>( some_double_blob );
*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrint.exe gdcmData/012345.002.050.dcm
 */
using System;
using gdcm;

public class SimplePrint

```



```

{
    public static void RecurseDataSet(File f, DataSet ds, string indent)
    {
        CSharpDataSet cds = new CSharpDataSet(ds);
        while(!cds.IsAtEnd())
        {
            DataElement de = cds.GetCurrent();
            // Compute VR from the toplevel file, and the currently processed dataset:
            VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

            if( vr.Compatible( new VR(VR.VRType.SQ) ) )
            {
                uint uvl = (uint)de.GetVL(); // Test cast is ok
                System.Console.WriteLine( indent + de.GetTag().toString() + ":" + uvl ); // why not ?
                //SequenceOfItems sq = de.GetSequenceOfItems();
                // GetValueAsSQ handle more cases than GetSequenceOfItems
                SmartPtrSQ sq = de.GetValueAsSQ();
                uint n = sq.GetNumberOfItems();
                for( uint i = 1; i <= n; i++) // item starts at 1, not 0
                {
                    Item item = sq.GetItem( i );
                    DataSet nested = item.GetNestedDataSet();
                    RecurseDataSet( f, nested, indent + "  " );
                }
            }
            else
            {
                System.Console.WriteLine( indent + de.toString() );
            }
            cds.Next();
        }
    }

    public static int Main(string[] args)
    {
        string filename = args[0];
        Reader reader = new Reader();
        reader.SetFileName( filename );
        bool ret = reader.Read();
        if( !ret )
        {
            return 1;
        }
        File f = reader.GetFile();
        DataSet ds = f.GetDataSet();

        RecurseDataSet( f, ds, "" );

        return 0;
    }
}

```

12.147 SimplePrintPatientName.cs

```

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=====*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrintPatientName.exe gdcmData/012345.002.050.dcm
 */
/*
This example was provided by Jonathan Morra /jonmorra gmail com/
on the gdcm mailing list (Fri, 28 May 2010)

```

```

*/
using System;
using gdcm;

namespace GDCMTest
{
    class SimplePrintPatientName
    {
        static int Main(string[] args)
        {
            if (args.Length != 1)
            {
                Console.WriteLine("This program prints the patient name of a dicom file with gdcm");
                Console.WriteLine("Usage: [input.dcm]");
                return 1;
            }

            gdcm.Reader reader = new gdcm.Reader();
            reader.SetFileName(args[0]);
            bool ret = reader.Read();
            //TagSetType tst = new TagSetType();
            //tst.Add( new Tag(0x7fe0,0x10) );
            //bool ret = reader.ReadUpToTag( new Tag(0x88,0x200), tst );
            if( !ret )
            {
                return 1;
            }

            gdcm.File file = reader.GetFile();

            gdcm.StringFilter filter = new gdcm.StringFilter();
            filter.SetFile(file);
            string value = filter.ToString(new gdcm.Tag(0x0010, 0x0010));

            Console.WriteLine("Patient Name: " + value);
            return 0;
        }
    }
}

```

12.148 SimpleScanner.cxx

```

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=====*/
/*
 * Simple example to show how to use Scanner API.
 * It exposes the three different cases:
 * - DICOM Attribute is present and has a value
 * - DICOM Attribute is present and has no value
 * - DICOM Attribute is not present at all
 * It also shows the purpose of the function 'IsKey' to detect whether or
 * not the file has been read by the gdcm::Scanner. Technically most of the time
 * if a file is not a 'Key' this is because it is not a DICOM file. You need to use
 * gdcm::System::FileExists to decide whether or not the file actually exist on the disk.
 *
 * It was tested on this particular image:
 * ./SimpleScanner gdcmData/012345.002.050.dcm
 */

#include "gdcmStrictScanner.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmFileNameEvent.h"

class MyFileWatcher : public gdcm::SimpleSubjectWatcher

```

```

{
public:
    MyFileWatcher(gdcm::Subject * s, const char *comment = ""):
        gdcm::SimpleSubjectWatcher(s,comment) {}
    void ShowFileName(gdcm::Subject *, const gdcm::Event &evt)
    {
        const gdcm::FileNameEvent &pe = dynamic_cast<const
            gdcm::FileNameEvent&>(evt);
        const char *fn = pe.GetFileName();
        std::cout << "FileName: " << fn << " FileSize: " << gdcm::System::FileSize( fn )
            << std::endl;
    }
};

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        return 1;
    }
    const char *filename = argv[1];
    const char filename_invalid[] = "this is a file that may not exist on this disk.dcm";

    gdcm::SmartPointer<gdcm::StrictScanner> sp = new
        gdcm::StrictScanner;
    gdcm::StrictScanner &s = *sp;
    //gdcm::SimpleSubjectWatcher w(&s, "TestFileName" );
    MyFileWatcher w(&s, "TestFileName" );

    const gdcm::Tag tag_array[] = {
        gdcm::Tag(0x8,0x50),
        gdcm::Tag(0x8,0x51),
        gdcm::Tag(0x8,0x60),
        gdcm::Tag(0x8,0x80),
    };
    s.AddTag( tag_array[0] );
    s.AddTag( tag_array[1] );
    s.AddTag( tag_array[2] );
    s.AddTag( tag_array[3] );

    gdcm::Directory::FileNamesType filenames;
    filenames.push_back( filename );
    filenames.push_back( filename_invalid );

    if( !s.Scan( filenames ) )
    {
        return 1;
    }

    //s.Print( std::cout );

    for(gdcm::Directory::FileNamesType::const_iterator it = filenames.begin();
        it != filenames.end(); ++it )
    {
        if( s.IsKey( it->c_str() ) )
        {
            std::cout << "INFO:" << it->c_str() << " is a proper Key for the Scanner (this is a DICOM file)" <<
                std::endl;
        }
        else
        {
            std::cout << "INFO:" << it->c_str() << " is not a proper Key for the Scanner (this is either not a
                DICOM file or file does not exist)" << std::endl;
        }
    }

    gdcm::StrictScanner::TagToValue const &ttv = s.
        GetMapping(filename);

    const gdcm::Tag *ptag = tag_array;
    for( ; ptag != tag_array + 3; ++ptag )
    {
        gdcm::StrictScanner::TagToValue::const_iterator it = ttv.find( *ptag );
        if( it != ttv.end() )
        {
            std::cout << *ptag << " was properly found in this file" << std::endl;
            // it contains a pair of value. the first one is the actual tag, so the following is always true:
            // *ptag == it->first
            // The second part is the actual value (stored as RAW strings). You will have to reinterpret this

```

```

        string
        // if VR for *ptag is not VR::VRASCII !
        const char *value = it->second;
        if( *value )
        {
            std::cout << "  It has the value: " << value << std::endl;
        }
        else
        {
            std::cout << "  It has no value (empty)" << std::endl;
        }
    }
    else
    {
        std::cout << "Sorry " << *ptag << " could not be found in this file" << std::endl;
    }
}

return 0;
}

```

12.149 SortImage.cxx

```

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=====*/
/*
*/
#include "gdcmSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

bool mysort(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    //gdcm::Attribute<0x0020,0x0013> at1; // Instance Number
    gdcm::Attribute<0x0018,0x1060> at1; // Trigger Time
    gdcm::Attribute<0x0020,0x0032> at11; // Image Position (Patient)
    at1.Set( ds1 );
    at11.Set( ds1 );
    //gdcm::Attribute<0x0020,0x0013> at2;
    gdcm::Attribute<0x0018,0x1060> at2;
    gdcm::Attribute<0x0020,0x0032> at22;
    at2.Set( ds2 );
    at22.Set( ds2 );
    if( at11 == at22 )
    {
        return at1 < at2;
    }
    return at11 < at22;
}

bool mysort_part1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    gdcm::Attribute<0x0018,0x1060> at1;
    at1.Set( ds1 );
    gdcm::Attribute<0x0018,0x1060> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

bool mysort_part2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    gdcm::Attribute<0x0020,0x0032> at1;

```

```

    at1.Set( ds1 );
    gdc::Attribute<0x0020,0x0032> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

// technically all files are in the same Frame of Reference, so this function
// should be a no-op
bool mysort_dummy(gdc::DataSet const & ds1, gdc::DataSet const & ds2 )
{
    gdc::Attribute<0x0020,0x0052> at1; // FrameOfReferenceUID
    at1.Set( ds1 );
    gdc::Attribute<0x0020,0x0052> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

int main(int argc, char *argv[])
{
    if (argc < 2 ) return 1;
    const char *dirname = argv[1];
    gdc::Directory dir;
    unsigned int nfiles = dir.Load( dirname );

    dir.Print( std::cout );

    gdc::Sorter sorter;
    sorter.SetSortFunction( mysort );
    sorter.Sort( dir.GetFilesNames() );

    std::cout << "Sorter:" << std::endl;
    sorter.Print( std::cout );

    gdc::Sorter sorter2;
    sorter2.SetSortFunction( mysort_part1 );
    sorter2.StableSort( dir.GetFilesNames() );
    sorter2.SetSortFunction( mysort_part2 );
    sorter2.StableSort( sorter2.GetFilesNames() ); // IMPORTANT
    sorter2.SetSortFunction( mysort_dummy );
    sorter2.StableSort( sorter2.GetFilesNames() ); // IMPORTANT

    std::cout << "Sorter2:" << std::endl;
    sorter2.Print( std::cout );

    gdc::Scanner s;
    s.AddTag( gdc::Tag(0x20,0x32) ); // Image Position (Patient)
    //s.AddTag( gdc::Tag(0x20,0x37) ); // Image Orientation (Patient)
    s.Scan( dir.GetFilesNames() );

    //s.Print( std::cout );

    // Count how many different IPP there are:
    const gdc::Scanner::ValueType &values = s.GetValues();
    size_t nvalues = values.size();
    std::cout << "There are " << nvalues << " different type of values" << std::endl;

    //std::cout << "nfiles=" << nfiles << std::endl;
    if( nfiles % nvalues != 0 )
    {
        std::cerr << "Impossible: this is a not a proper series" << std::endl;
        return 1;
    }
    std::cout << "Series is composed of " << (nfiles/nvalues) << " different 3D volumes" << std::endl;

    return 0;
}

```

12.150 SortImage.py

```

1 #####
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```

```

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12 #
13 #####
14
15 """
16 Usage:
17
18 python SortImage.py dirname
19 """
20
21 import gdcm
22 import sys
23
24 def PrintProgress(object, event):
25     assert event == "ProgressEvent"
26     print "Progress:", object.GetProgress()
27
28 def MySort(ds1, ds2):
29     # compare ds1
30     return False
31
32 if __name__ == "__main__":
33
34     dirname = sys.argv[1]
35     d = gdcm.Directory()
36     d.Load( dirname )
37
38     print d
39
40     sorter = gdcm.Sorter()
41     sorter.SetSortFunction( MySort )
42     #sorter.AddObserver( "ProgressEvent", PrintProgress )
43     sorter.Sort( d.GetFileNames() )
44
45     print "Sorter:"
46     print sorter

```

12.151 SortImage2.cs

```

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=====*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SortImage.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class SortImage2
{
    bool mysort(DataSet ds1, DataSet ds2)
    {
        return false;
    }

    public static int Main(string[] args)
    {
        Sorter sorter = new Sorter();

```

```

        sorter.SetSortFunction( mysort );

        return 0;
    }
}

```

12.152 StandardizeFiles.cs

This is a C++ example on how to use ImageChangeTransferSyntax

```

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=====*/

/*
 * Simple C# example to show how one would 'Standardize' a DICOM File-Set
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/StandardizeFiles.exe input_path output_path
 */
using System;
using gdcm;

public class StandardizeFiles
{
    public static bool ProcessOneFile( string filename, string outfilename )
    {
        PixmapReader reader = new PixmapReader();
        reader.SetFileName( filename );
        if( !reader.Read() )
        {
            System.Console.WriteLine( "Could not read: " + filename );
            return false;
        }

        ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
        change.SetForce( false ); // do we really want to recompress when input is already compressed in same
        // alg ?
        change.SetCompressIconImage( false ); // Keep it simple
        change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEG2000Lossless ) );
        change.SetInput( reader.GetPixmap() );
        if( !change.Change() )
        {
            System.Console.WriteLine( "Could not change: " + filename );
            return false;
        }

        gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
        // The following three lines make sure to regenerate any value:
        fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
        fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
        fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

        PixmapWriter writer = new PixmapWriter();
        writer.SetFileName( outfilename );
        writer.SetFile( reader.GetFile() );
        gdcm.Pixmap pixout = ((PixmapToPixmapFilter)change).GetOutput();

        writer.SetPixmap( pixout );
        if( !writer.Write() )
        {
            System.Console.WriteLine( "Could not write: " + outfilename );
        }
    }
}

```

```

        return false;
    }

    return true;
}

public static int Main(string[] args)
{
    gdcm.FileMetaInformation.
        SetSourceApplicationEntityTitle( "My Standardize App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.
        GetRoot() );

    string dir1 = args[0];
    string dir2 = args[1];

    // Check input is valid:
    if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
        System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
        return 1;
    }
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
    {
        System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
        return 1;
    }

    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
    if(nfiles == 0) return 1;

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
    {
        string filename = filenames[ (int)i ];
        string outfilename = filename.Replace( dir1, dir2 );
        System.Console.WriteLine( "Filename: " + filename );
        System.Console.WriteLine( "Out Filename: " + outfilename );
        if( !ProcessOneFile( filename, outfilename ) )
        {
            System.Console.WriteLine( "Could not process filename: " + filename );
            //return 1;
        }
    }

    return 0;
}
}

```

12.153 StreamImageReaderTest.cxx

```

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=====*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmStreamImageReader.h"
#include "gdcmFileMetaInformation.h"

```



```

#include "gdcmSystem.h"
#include "gdcmFilename.h"
#include "gdcmByteSwap.h"
#include "gdcmTrace.h"
#include "gdcmTesting.h"
#include "gdcmImageHelper.h"
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmMediaStorage.h"
#include "gdcmRAWCodec.h"
#include "gdcmJPEGLSCodec.h"
#include "gdcmUIDGenerator.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

bool StreamImageRead(gdcm::StreamImageWriter & theStreamWriter,
    const char* filename, const char* outfilename, int resolution)
{
    gdcm::StreamImageReader reader;

    reader.SetFileName( filename );

    if (!reader.ReadImageInformation())
    {
        std::cerr << "unable to read image information" << std::endl;
        return 1; //unable to read tags as expected.
    }
    //let's be tricky; each image will be read in portions, first the top half, then the bottom
    //that way, we can test how the stream handles fragmentation of the data
    //we could also loop this to get various different size combinations, but I'm not sure
    //that's useful, yet.
    std::vector<unsigned int> extent =
        gdcm::ImageHelper::GetDimensionsValue(reader.
            GetFile());
    // std::cout << extent[0];
    //at this point, these values aren't used, but may be in the future
    //unsigned short xmin = 0;
    //unsigned short xmax = extent[0];
    //unsigned short ymin = 0;
    //unsigned short ymax = extent[1];
    //unsigned short zmin = 0;
    //unsigned short zmax = extent[2];

    std::cout<< "\n Row: "<<extent[0] <<"\n Col : "<< extent[1]<< "\n Resolution : "<< extent[2] << std::endl;

    int a =1;
    for (int i=1; i<=(extent[2]-resolution);++i)
        a = a*2;

    reader.DefinePixelExtent(0, extent[0]/a, 0, extent[1]/a, resolution-1, resolution);

    unsigned long len = reader.DefineProperBufferLength();
    char* finalBuffer = new char[len];
    memset(finalBuffer, 0, sizeof(char)*len);

    if (reader.CanReadImage())
    {
        bool result = reader.Read(finalBuffer, len);
        if( !result )
        {
            std::cout << "res2 failure:" << filename << std::endl;
            delete [] finalBuffer;
            return 1;
        }
        else
        {
            std::cout<< "Able to read";
        }
    }
    else
    {
        std::cerr<< "Not able to put in buffer"<< std::endl;
    }
}

/*
    //now, read in smaller buffer extents
    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);
    len = reader.DefineProperBufferLength();

    char* buffer = new char[len];

```

```

    bool res2 = reader.Read(buffer, len);
    if( !res2 ){
        std::cerr << "res2 failure:" << filename << std::endl;
        return 1;
    }
    //copy the result into finalBuffer
    memcpy(finalBuffer, buffer, len);

    //now read the next half of the image
    ymin = ymax;
    ymax = extent[1];

    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);

    //std::cerr << "Success to read image from file: " << filename << std::endl;
    unsigned long len2 = reader.DefineProperBufferLength();

    char* buffer2 = new char[len2];
    bool res3 = reader.Read(buffer2, len2);
    if( !res3 ){
        std::cerr << "res3 failure:" << filename << std::endl;
        return 1;
    }
    //copy the result into finalBuffer
    memcpy(&(finalBuffer[len]), buffer2, len2);

    delete [] buffer;
    delete [] buffer2;
*/

gdcm::Writer w;
gdcm::File &file = w.GetFile();
gdcm::DataSet &ds = file.GetDataSet();

file.GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian );

gdcm::UIDGenerator uid;
gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
de.SetVR( gdcm::VR::UI );
const char *u = uid.Generate();
de.SetByteValue( u, strlen(u) );
ds.Insert( de );

gdcm::DataElement del( gdcm::Tag(0x8,0x16) );
del.SetVR( gdcm::VR::UI );
gdcm::MediaStorage ms(
    gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage
);
del.SetByteValue( ms.GetString(), strlen(ms.GetString()) );
ds.Insert( del );

const char mystr[] = "MONOCHROME2 ";
gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
//de.SetTag(gdcm::Tag(0x28,0x04));
de2.SetVR( gdcm::VR::CS );
de2.SetByteValue(mystr, strlen(mystr));
ds.Insert( de2 );

gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
ds.Insert( Number_Of_Frames.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0010> row = {extent[0]/a}; //
ds.Insert( row.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0011> col = {extent[1]/a}; //
ds.Insert( col.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0100> at = {8};
ds.Insert( at.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0002> at1 = {1}; //
ds.Insert( at1.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0101> at2 = {8};
ds.Insert( at2.GetAsDataElement() );

gdcm::Attribute<0x0028,0x0102> at3 = {7};
ds.Insert( at3.GetAsDataElement() );
/*
ds1.Remove( gdcm::Tag(0x0028,0x0008) );

```

```

gdcmm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
ds1.Insert( Number_Of_Frames.GetAsDataElement() );
*/
theStreamWriter.SetFile(file);

if (!theStreamWriter.WriteImageInformation())
{
    std::cerr << "unable to write image information" << std::endl;
    return 1; //the CanWrite function should prevent getting here, else,
    //that's a test failure
}
std::vector<unsigned int> extent1 = gdcmm::ImageHelper::GetDimensionsValue
(file);

unsigned short xmax = extent1[0];
unsigned short ymax = extent1[1];
unsigned short theChunkSize = 1;
unsigned short ychunk = extent1[1]/theChunkSize; //go in chunk sizes of theChunkSize
unsigned short zmax = 1;

std::cout<< "\n Row: "<<extent1[0] <<"\n Col :"<< extent1[1]<< "\n Resolution :"<< extent1[2] <<
std::endl;

if (xmax == 0 || ymax == 0)
{
    std::cerr << "Image has no size, unable to write zero-sized image." << std::endl;
    return 0;
}

int z, y, nexty;
unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
//the bytes sequentially. So, store how far you got in the buffer with each iteration.

for (z = 0; z < zmax; ++z){
    for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout << "\n" <<len;
        char* finalBuffer1 = new char[len];
        memcpy(finalBuffer1, &(finalBuffer[prevLen]), len);
        std::cout << "\nable to write";

        if (!theStreamWriter.Write(finalBuffer1, len)){
            std::cerr << "writing failure:" << "output.dcm" << " at y = " << y << " and z= " << z <<
std::endl;
            delete [] finalBuffer1;
            delete [] finalBuffer;
            return 1;
        }
        delete [] finalBuffer1;
        prevLen += len;
    }
}
delete [] finalBuffer;
std::cout << "all is set";

return true;
}

int main(int argc, char *argv[])
{
    if( argc < 3 )
    {
        std::cerr << argv[0] << " input.dcm output.dcm Resolution" << std::endl;
        return 1;
    }

    const char *filename = argv[1];
    const char *outfilename = argv[2];
    char *res = argv[3];

    int resolution = atoi(res);

    gdcmm::StreamImageWriter theStreamWriter;

    std::ofstream of;
    of.open( outfile, std::ios::out | std::ios::binary );

```

```

theStreamWriter.SetStream(of);

// else
// First of get rid of warning/debug message
gdcmm::Trace::DebugOn();
gdcmm::Trace::WarningOn();

if(!StreamImageRead( theStreamWriter, filename, outfilename, resolution))
    return 1;

uint16_t firstTag1 = 0xfffe;
uint16_t secondTag1 = 0xe0dd;
uint32_t thirdTag1 = 0x00000000;
//uint16_t fourthTag1 = 0xffff;
const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
char* tmpBuffer2 = new char[theBufferSize1];
memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
//memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
assert( of && !of.eof() && of.good() );
of.write(tmpBuffer2, theBufferSize1);
of.flush();
assert( of );

return 0;
}

```

12.154 TestByteSwap.cxx

This is a C++ example on how to use `gdcmm::ByteSwap`

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.

=====*/
#include "gdcmmTypes.h"
#include "gdcmmSwapCode.h"
#include "gdcmmByteSwap.h"

#include <string.h> // memcpy

int myfunc()
{
    char vl_str[4];
    const char raw[] = "\000\000\000\004";
    memcpy(vl_str, raw, 4);
    uint32_t vl;
    gdcmm::ByteSwap<uint32_t>::SwapRangeFromSwapCodeIntoSystem(
        ((uint32_t*)(&vl_str)), gdcmm::SwapCode::BigEndian, 1);
    memcpy(&vl, vl_str, 4);
    if( vl != 0x00000004 )
    {
        std::cerr << std::hex << "vl: " << vl << std::endl;
        return 1;
    }

    gdcmm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(
        vl, gdcmm::SwapCode::LittleEndian);
    if( vl != 0x00000004 )
    {
        std::cerr << std::hex << "vl: " << vl << std::endl;
        return 1;
    }
}

```

```

    gdcmm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(
        vl, gdcmm::SwapCode::BigEndian);
    if( vl != 0x4000000 )
    {
        std::cerr << std::hex << "vl: " << vl << std::endl;
        return 1;
    }

    return 0;
}

int TestByteSwap(int , char *[])
{
    gdcmm::SwapCode sc = gdcmm::SwapCode::Unknown;
    if ( gdcmm::ByteSwap<uint16_t>::SystemIsBigEndian() )
    {
        sc = gdcmm::SwapCode::BigEndian;
    }
    else if ( gdcmm::ByteSwap<uint16_t>::SystemIsLittleEndian() )
    {
        sc = gdcmm::SwapCode::LittleEndian;
    }
    if( sc == gdcmm::SwapCode::Unknown )
    {
        std::cerr << "unk" << std::endl;
        return 1;
    }

    //std::cout << "sc: " << sc << std::endl;

    uint16_t t = 0x1234;
    gdcmm::ByteSwap<uint16_t>::SwapFromSwapCodeIntoSystem(
        t, sc);
    if( sc == gdcmm::SwapCode::BigEndian )
    {
        if( t != 0x3412 )
        {
            std::cerr << std::hex << "t: " << t << std::endl;
            return 1;
        }
        // ok test pass rest value to old one
        t = 0x1234;
    }
    else if ( sc == gdcmm::SwapCode::LittleEndian )
    {
        if( t != 0x1234 )
        {
            std::cerr << std::hex << "t: " << t << std::endl;
            return 1;
        }
    }

    union { char n[2]; uint16_t tn; } ul6;
    memcpy(ul6.n, &t, 2 );
    gdcmm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem
        (&ul6.tn, sc, 1);
    uint16_t tn = ul6.tn;
    if( sc == gdcmm::SwapCode::BigEndian )
    {
        if( tn != 0x3412 )
        {
            std::cerr << std::hex << "tn: " << tn << std::endl;
            return 1;
        }
        // ok test pass rest value to old one
        t = 0x1234;
    }
    else if ( sc == gdcmm::SwapCode::LittleEndian )
    {
        if( tn != 0x1234 )
        {
            std::cerr << std::hex << "tn: " << tn << std::endl;
            return 1;
        }
    }
    gdcmm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem
        (&ul6.tn, gdcmm::SwapCode::BigEndian, 1);
    tn = ul6.tn;
    if( sc == gdcmm::SwapCode::LittleEndian )

```

```

    {
    if( tn != 0x3412 )
    {
        std::cerr << std::hex << "tn: " << tn << std::endl;
        return 1;
    }
    }
else if ( sc == gdcm::SwapCode::BigEndian )
{
    if( tn != 0x1234 )
    {
        std::cerr << std::hex << "tn: " << tn << std::endl;
        return 1;
    }
}

if( myfunc() )
{
    return 1;
}

uint16_t array[] = { 0x1234 };
gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem
(array,
gdcm::SwapCode::BigEndian,1);
if ( array[0] != 0x3412 )
{
    std::cerr << std::hex << "array: " << array[0] << std::endl;
    return 1;
}

return 0;
}

```

12.155 TestReader.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmFile.h"
#include "gdcmTesting.h"
#include "gdcmMediaStorage.h"

int TestRead(const char* filename, bool verbose = false)
{
    if( verbose )
        std::cout << "TestRead: " << filename << std::endl;

    gdcm::Reader reader;
    reader.SetFileName( filename );
    if ( !reader.Read() )
    {
        std::cerr << "TestReadError: Failed to read: " << filename << std::endl;
        return 1;
    }

    //commenting out the fmi and ds to avoid warnings
    //const gdcm::FileMetaInformation &h = reader.GetFile().GetHeader();
    //std::cout << h << std::endl;

    //const gdcm::DataSet &ds = reader.GetFile().GetDataSet();
    //std::cout << ds << std::endl;

```

```

const char *ref = gdc::Testing::GetMediaStorageFromFile(filename);
gdc::MediaStorage ms;
ms.SetFromFile( reader.GetFile() );
if( !ref )
{
    std::cerr << "TestReadError: Missing MediaStorage: " << filename << std::endl;
    std::cerr << "It should be: " << ms << std::endl;
    return 1;
}

if( ms.IsUndefined() && ref && *ref != 0 )
{
    std::cerr << "TestReadError: MediaStorage: " << filename << std::endl;
    std::cerr << "It should be instead: " << ref << std::endl;
    return 1;
}

// Make sure it is the right one:

if( ref && *ref != 0 && ms != gdc::MediaStorage::GetMSType(ref) )
{
    std::cerr << "Error: Found MediaStorage: " << ms << " for " << filename << std::endl;
    std::cerr << "It should be instead: " << ref << std::endl;
    return 1;
}

return 0;
}

int TestReader(int argc, char *argv[])
{
    if( argc == 2 )
    {
        const char *filename = argv[1];
        return TestRead(filename, true);
    }

    // else
    gdc::Trace::DebugOff();
    gdc::Trace::WarningOff();
    int r = 0, i = 0;
    const char *filename;
    const char * const *filenames = gdc::Testing::GetFileNames();
    while( (filename = filenames[i]) )
    {
        r += TestRead( filename );
        ++i;
    }

    return r;
}

```

12.156 TestReader.py

This is a C++ example on how to use `gdc::Reader`

```

1 #####
2 #
3 #   Program: GDCM (Grassroots DICOM). A DICOM library
4 #
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10 #       the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 #       PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 import os,sys
16 import gdc
17

```

```

18 def TestRead(filename, verbose = False):
19     r = gdcM.Reader()
20     r.SetFileName( filename )
21     success = r.Read()
22     #if verbose: print r.GetFile()
23     if verbose: print (r.GetFile().GetDataSet())
24     return success
25
26 if __name__ == "__main__":
27     success = 0
28     try:
29         filename = os.sys.argv[1]
30         success += TestRead( filename, True )
31     except:
32         # loop over all files:
33         gdcM.Trace.DebugOff()
34         gdcM.Trace.WarningOff()
35         t = gdcM.Testing()
36         nfiles = t.GetNumberOfFileNames()
37         for i in range(0,nfiles):
38             filename = t.GetFileName(i)
39             success += TestRead( filename )
40
41
42 # Test succeed ?
43 sys.exit(success == 0)

```

12.157 threadgdcM.cxx

```

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=====*/
#include "gdcMReader.h"
#include "gdcMImageReader.h"
#include "gdcMDirectory.h"
#include "gdcMSystem.h"

#include "vtkImageData.h"
#include "vtkStructuredPointsWriter.h"

#include <pthread.h>

struct threadparams
{
    const char **filenames;
    size_t nfiles;
    char *scalarpointer;
// TODO I should also pass in the dim of the reference image just in case
};

void *ReadFilesThread(void *voidparams)
{
    const threadparams *params = static_cast<const threadparams *> (voidparams);

    const size_t nfiles = params->nfiles;
    for(unsigned int file = 0; file < nfiles; ++file)
    {
        /*
        // TODO: update progress
        pthread_mutex_lock(&params->lock);
        //section critique
        ReadingProgress+=params->stepProgress;
        pthread_mutex_unlock(&params->lock);
        */
        const char *filename = params->filenames[file];

```



```

        //std::cerr << filename << std::endl;

        gdcmm::ImageReader reader;
        reader.SetFileName( filename );
        try
        {
            if( !reader.Read() )
            {
                std::cerr << "Failed to read: " << filename << std::endl;
                break;
            }
        }
        catch( ... )
        {
            std::cerr << "Failed to read: " << filename << std::endl;
            break;
        }

        const gdcmm::Image &image = reader.GetImage();
        unsigned long len = image.GetBufferLength();
        char * pointer = params->scalarpointer;

    #if 0
        char *tempimage = new char[len];
        image.GetBuffer(tempimage);

        memcpy(pointer + file*len, tempimage, len);
        delete[] tempimage;
    #else
        char *tempimage = pointer + file * len;
        image.GetBuffer(tempimage);
    #endif
    }

    return voidparams;
}

void ShowFileNames(const threadparams &params)
{
    std::cout << "start" << std::endl;
    for(unsigned int i = 0; i < params.nfiles; ++i)
    {
        const char *filename = params.fileNames[i];
        std::cout << filename << std::endl;
    }
    std::cout << "end" << std::endl;
}

void ReadFiles(size_t nfiles, const char *fileNames[])
{
    // \precondition: nfiles > 0
    assert( nfiles > 0 );
    const char *reference= fileNames[0]; // take the first image as reference

    gdcmm::ImageReader reader;
    reader.SetFileName( reference );
    if( !reader.Read() )
    {
        // That would be very bad...
        assert(0);
    }

    const gdcmm::Image &image = reader.GetImage();
    gdcmm::PixelFormat pixeltype = image.GetPixelFormat();
    unsigned long len = image.GetBufferLength();
    const unsigned int *dims = image.GetDimensions();
    unsigned short pixelSize = pixeltype.GetPixelSize();
    (void)pixelSize;
    assert( image.GetNumberOfDimensions() == 2 );

    vtkImageData *output = vtkImageData::New();
    output->SetDimensions(dims[0], dims[1], (int)nfiles);

    #if (VTK_MAJOR_VERSION >= 6)
    int numscal = pixeltype.GetSamplesPerPixel();
    switch( pixeltype )
    {
        case gdcmm::PixelFormat::INT8:
            output->AllocateScalars( VTK_SIGNED_CHAR, numscal );
            break;
        case gdcmm::PixelFormat::UINT8:
            output->AllocateScalars( VTK_UNSIGNED_CHAR, numscal );

```

```

        break;
    case gdcm::PixelFormat::INT16:
        output->AllocateScalars( VTK_SHORT, numscal );
        break;
    case gdcm::PixelFormat::UINT16:
        output->AllocateScalars( VTK_UNSIGNED_SHORT, numscal );
        break;
    case gdcm::PixelFormat::INT32:
        output->AllocateScalars( VTK_INT, numscal );
        break;
    case gdcm::PixelFormat::UINT32:
        output->AllocateScalars( VTK_UNSIGNED_INT, numscal );
        break;
    default:
        assert(0);
    }
#else
    switch( pixeltype )
    {
        case gdcm::PixelFormat::INT8:
            #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
                output->SetScalarType ( VTK_SIGNED_CHAR );
            #else
                output->SetScalarType ( VTK_CHAR );
            #endif
            break;
        case gdcm::PixelFormat::UINT8:
            output->SetScalarType ( VTK_UNSIGNED_CHAR );
            break;
        case gdcm::PixelFormat::INT16:
            output->SetScalarType ( VTK_SHORT );
            break;
        case gdcm::PixelFormat::UINT16:
            output->SetScalarType ( VTK_UNSIGNED_SHORT );
            break;
        case gdcm::PixelFormat::INT32:
            output->SetScalarType ( VTK_INT );
            break;
        case gdcm::PixelFormat::UINT32:
            output->SetScalarType ( VTK_UNSIGNED_INT );
            break;
        default:
            assert(0);
    }
    output->SetNumberOfScalarComponents ( pixeltype.GetSamplesPerPixel() );
    output->AllocateScalars();
#endif
    char * scalarpointer = static_cast<char*>(output->GetScalarPointer());

    const unsigned int nthreads = 4;
    threadparams params[nthreads];

    //pthread_mutex_t lock;
    //pthread_mutex_init(&lock, NULL);

    pthread_t *pthread = new pthread_t[nthreads];

    // There is nfiles, and nThreads
    assert( nfiles > nthreads );
    const size_t partition = nfiles / nthreads;
    for (unsigned int thread=0; thread < nthreads; ++thread)
    {
        params[thread].filenames = filenames + thread * partition;
        params[thread].nfiles = partition;
        if( thread == nthreads - 1 )
        {
            // There is slightly more files to process in this thread:
            params[thread].nfiles += nfiles % nthreads;
        }
        assert( thread * partition < nfiles );
        params[thread].scalarpointer = scalarpointer + thread * partition * len;
        //assert( params[thread].scalarpointer < scalarpointer + 2 * dims[0] * dims[1] * dims[2] );
        // start thread:
        int res = pthread_create( &pthread[thread], NULL, ReadFilesThread, &params[thread]);
        if( res )
        {
            std::cerr << "Unable to start a new thread, pthread returned: " << res << std::endl;
            assert(0);
        }
        //ShowFileNames(params[thread]);
    }

```

```

// DEBUG
size_t total = 0;
for (unsigned int thread=0; thread < nthreads; ++thread)
{
    total += params[thread].nfiles;
}
assert( total == nfiles );
// END DEBUG

for (unsigned int thread=0; thread<nthreads;thread++)
{
    pthread_join( pthread[thread], NULL);
}
delete[] pthread;

//pthread_mutex_destroy(&lock);

// For some reason writing down the file is painfully slow...
vtkStructuredPointsWriter *writer = vtkStructuredPointsWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputData( output );
#else
    writer->SetInput( output );
#endif
writer->SetFileName( "/tmp/threadgdcms.vtk" );
writer->SetFileTypeToBinary();
//writer->Write();
writer->Delete();

//output->Print( std::cout );
output->Delete();
}

int main(int argc, char *argv[])
{
    if( argc < 2 )
    {
        std::cerr << argv[0] << " [directory|list of filenames]\n";
        return 1;
    }

    // Check if user pass in a single directory
    if( argc == 2 && gdcm::System::FileIsDirectory( argv[1] ) )
    {
        gdcm::Directory d;
        d.Load( argv[1] );
        gdcm::Directory::FileNamesType l = d.
            GetFileNames();
        const size_t nfiles = l.size();
        const char **filenames = new const char* [ nfiles ];
        for(unsigned int i = 0; i < nfiles; ++i)
        {
            filenames[i] = l[i].c_str();
        }
        ReadFiles(nfiles, filenames);
        delete[] filenames;
    }
    else
    {
        // Simply copy all filenames into the vector:
        const char **filenames = const_cast<const char**>(argv+1);
        const size_t nfiles = argc - 1;
        ReadFiles(nfiles, filenames);
    }

    return 0;
}

```

12.158 TraverseModules.cxx

```

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```

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```

=====*/
/*
*/

#include "gdcmDefs.h"
#include "gdcmGlobal.h"
#include "gdcmIODs.h"
#include "gdcmIOD.h"
#include "gdcmMacros.h"
#include "gdcmIODEntry.h"
#include "gdcmModules.h"
#include "gdcmModule.h"
#include "gdcmAnonymizer.h"
#include "gdcmDicts.h"

int main(int , char *[])
{
    using namespace gdcm;
    static Global &g = Global::GetInstance();

    if( !g.LoadResourcesFiles() )
    {
        return 1;
    }

    static const Defs &defs = g.GetDefs();
    static const Modules &modules = defs.GetModules();
    static const IODs &iods = defs.GetIODs();
    static const Macros &macros = defs.GetMacros();
    static const Dicts &dicts = g.GetDicts();

    std::vector<Tag> tags =
        gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes
        ();
    for( std::vector<Tag>::const_iterator tit = tags.begin(); tit != tags.end(); ++tit )
    {
        const Tag &tag = *tit;
        const DictEntry &dictentry = dicts.GetDictEntry(tag);
        std::cout << "Processing Attribute: " << tag << " " << dictentry << std::endl;

        IODs::IODMapTypeConstIterator it = iods.Begin();
        for( ; it != iods.End(); ++it )
        {
            const IODs::IODName &name = it->first;
            const IOD &iod = it->second;

            const size_t niods = iod.GetNumberOfIODs();
            // Iterate over each iod entry in order:
            for(unsigned int idx = 0; idx < niods; ++idx)
            {
                const IODEntry &iodentry = iod.GetIODEntry(idx);
                const char *ref = iodentry.GetRef();
                //Usage::UsageType ut = iodentry.GetUsageType();

                const Module &module = modules.GetModule( ref );
                if( module.FindModuleEntryInMacros(macros, tag) )
                {
                    const ModuleEntry &module_entry = module.
                    GetModuleEntryInMacros(macros,tag);
                    Type type = module_entry.GetType();
                    std::cout << "IOD Name: " << name << std::endl;
                    std::cout << "Type: " << type << std::endl;
                }
            }
        }
    }

    return 0;
}

```

12.159 uid_unique.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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=====*/
#include "gdcmlUIDGenerator.h"

#include <iostream>
#include <string>
#include <set>

int main()
{
    gdcml::UIDGenerator uid;
    //const char myroot[] = "9876543210.9876543210.9876543210.9876543210.9876543210"; // fails in ~40000
    tries
    const char myroot[] = "9876543210.9876543210.9876543210";
    uid.SetRoot( myroot );
    std::set<std::string> uids;
    uint64_t wrap = 0;
    uint64_t c = 0;
    while(1)
    {
        const char *unique = uid.Generate();
        //std::cout << unique << std::endl;
        if( c % 10000 == 0 )
        {
            std::cout << "wrap=" << wrap << ",c=" << c << std::endl;
        }
        ++c;
        if( c == 0 )
        {
            wrap++;
        }
        if ( uids.count(unique) == 1 )
        {
            std::cerr << "Failed with: " << unique << std::endl;
            return 1;
        }
        uids.insert( unique );
    }
}

```

12.160 VolumeSorter.cxx

```

/*=====
Program: GDCM (Grassroots DICOM). A DICOM library

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PURPOSE. See the above copyright notice for more information.
=====*/
/*
*/
#include "gdcmlSorter.h"
#include "gdcmlIPPSorter.h"
#include "gdcmlScanner.h"
#include "gdcmlDataSet.h"

```

```

#include "gdcAttribute.h"
#include "gdcTesting.h"

bool mysort1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    gdcm::Attribute<0x0020,0x000d> at1;
    at1.Set( ds1 );
    gdcm::Attribute<0x0020,0x000d> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

bool mysort2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    gdcm::Attribute<0x0020,0x000e> at1;
    at1.Set( ds1 );
    gdcm::Attribute<0x0020,0x000e> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

bool mysort3(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    // This is a floating point number is the comparison ok ?
    gdcm::Attribute<0x0020,0x0037> at1;
    at1.Set( ds1 );
    gdcm::Attribute<0x0020,0x0037> at2;
    at2.Set( ds2 );
    return at1 < at2;
}

bool mysort4(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
    // Do the IPP sorting here
    gdcm::Attribute<0x0020,0x0032> iop1;
    gdcm::Attribute<0x0020,0x0037> iop1;
    iop1.Set( ds1 );
    iop1.Set( ds1 );
    gdcm::Attribute<0x0020,0x0032> iop2;
    gdcm::Attribute<0x0020,0x0037> iop2;
    iop2.Set( ds2 );
    iop2.Set( ds2 );
    if( iop1 != iop2 )
    {
        return false;
    }

    // else
    double normal[3];
    normal[0] = iop1[1]*iop1[5] - iop1[2]*iop1[4];
    normal[1] = iop1[2]*iop1[3] - iop1[0]*iop1[5];
    normal[2] = iop1[0]*iop1[4] - iop1[1]*iop1[3];
    double dist1 = 0;
    for( int i = 0; i < 3; ++i) dist1 += normal[i]*iop1[i];
    double dist2 = 0;
    for( int i = 0; i < 3; ++i) dist2 += normal[i]*iop2[i];

    std::cout << dist1 << ", " << dist2 << std::endl;
    return dist1 < dist2;
}

int main(int argc, char *argv[])
{
    const char *extradataroot = gdcm::Testing::GetDataExtraRoot();
    std::string dir1;
    if( argc < 2 )
    {
        if( !extradataroot )
        {
            return 1;
        }
        dir1 = extradataroot;
        dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
    else
    {
        dir1 = argv[1];
    }
}

```

```

gdcmm::Directory d;
d.Load( dir1.c_str(), true ); // recursive !
const gdcmm::Directory::FileNamesType &l1 = d.
    GetFileNames();
const size_t nfiles = l1.size();
std::cout << nfiles << std::endl;

//if( nfiles != 280 )
// {
//     return 1;
// }

//d.Print( std::cout );

gdcmm::Scanner s0;
const gdcmm::Tag t1(0x0020,0x000d); // Study Instance UID
const gdcmm::Tag t2(0x0020,0x000e); // Series Instance UID
//const gdcmm::Tag t3(0x0010,0x0010); // Patient's Name
s0.AddTag( t1 );
s0.AddTag( t2 );
//s0.AddTag( t3 );
//s0.AddTag( t4 );
//s0.AddTag( t5 );
//s0.AddTag( t6 );
bool b = s0.Scan( d.GetFileNames() );
if( !b )
{
    std::cerr << "Scanner failed" << std::endl;
    return 1;
}

//s0.Print( std::cout );

// Only get the DICOM files:
gdcmm::Directory::FileNamesType l2 = s0.GetKeys();
const size_t nfiles2 = l2.size();
std::cout << nfiles2 << std::endl;

if ( nfiles2 > nfiles )
{
    return 1;
}

gdcmm::Sorter sorter;
sorter.SetSortFunction( mysort1 );
sorter.StableSort( l2 );

sorter.SetSortFunction( mysort2 );
sorter.StableSort( sorter.GetFileNames() );

sorter.SetSortFunction( mysort3 );
sorter.StableSort( sorter.GetFileNames() );

sorter.SetSortFunction( mysort4 );
sorter.StableSort( sorter.GetFileNames() );

//sorter.Print( std::cout );

// Let's try to check our result:
// assume that IPP is precise enough so that we can test floating point equality:
size_t nvalues = 0;
{
    gdcmm::Scanner s;
    s.AddTag( gdcmm::Tag(0x20,0x32) ); // Image Position (Patient)
    //s.AddTag( gdcmm::Tag(0x20,0x37) ); // Image Orientation (Patient)
    s.Scan( d.GetFileNames() );

    //s.Print( std::cout );

    const gdcmm::Scanner::ValuesType &values = s.GetValues();
    nvalues = values.size();
    std::cout << "There are " << nvalues << " different type of values" << std::endl;
    assert( nfiles2 % nvalues == 0 );
    std::cout << "Series is composed of " << (nfiles/nvalues) << " different 3D volumes" << std::endl;
}

gdcmm::Directory::FileNamesType sorted_files = sorter.
    GetFileNames();

```

```
// Which means we can take nvalues files at a time and execute gdcmm::IPPSorter on it:
gdcmm::IPPSorter ippsorter;
gdcmm::Directory::FileNamesType sub( sorted_files.begin(), sorted_files.
    begin() + nvalues);
std::cout << sub.size() << std::endl;
std::cout << sub[0] << std::endl;
std::cout << sub[nvalues-1] << std::endl;
ippsorter.SetComputeZSpacing( false );
if( !ippsorter.Sort( sub ) )
{
    std::cerr << "Could not sort" << std::endl;
    return 1;
}

std::cout << "IPPSorter:" << std::endl;
ippsorter.Print( std::cout );

return 0;
}
```

12.161 WriteBuffer.py

```
1 #####
2 #
3 # Program: GDCM (Grassroots DICOM). A DICOM library
4 #
5 # Copyright (c) 2006-2011 Mathieu Malaterre
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8 #
9 # This software is distributed WITHOUT ANY WARRANTY; without even
10 # the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
11 # PURPOSE. See the above copyright notice for more information.
12 #
13 #####
14
15 """
16 Usage:
17
18 http://chuckahm.com/Ischem/Zurich/XX_0134
19
20 (2005,1132) SQ (Sequence with undefined length #=8) # u/1, 1 Unknown Tag & Data
21 (ffff,e000) na (Item with undefined length #=9) # u/1, 1 Item
22 (2005,0011) LO [Philips MR Imaging DD 002] # 26, 1 PrivateCreator
23 (2005,1137) PN [PDF_CONTROL_GEN_PARS] # 20, 1 Unknown Tag & Data
24 (2005,1138) PN (no value available) # 0, 0 Unknown Tag & Data
25 (2005,1139) PN [IEEE_PDF] # 8, 1 Unknown Tag & Data
26 (2005,1140) PN (no value available) # 0, 0 Unknown Tag & Data
27 (2005,1141) PN (no value available) # 0, 0 Unknown Tag & Data
28 (2005,1143) SL 3103 # 4, 1 Unknown Tag & Data
29 (2005,1144) OW 0566\0000\013b\0000\0a4a\0000\000e\0000\0a7a\0000\0195\0000\0008... # 3104, 1 Unknown
    Tag & Data
30 (2005,1147) CS [Y] # 2, 1 Unknown Tag & Data
31 (ffff,e00d) na (ItemDelimitationItem) # 0, 0 ItemDelimitationItem
32 (ffff,e000) na (Item with undefined length #=9) # u/1, 1 Item
33 (2005,0011) LO [Philips MR Imaging DD 002] # 26, 1 PrivateCreator
34 (2005,1137) PN [PDF_CONTROL_PREP_PARS] # 22, 1 Unknown Tag & Data
35 (2005,1138) PN (no value available) # 0, 0 Unknown Tag & Data
36 (2005,1139) PN [IEEE_PDF] # 8, 1 Unknown Tag & Data
37 (2005,1140) PN (no value available) # 0, 0 Unknown Tag & Data
38 (2005,1141) PN (no value available) # 0, 0 Unknown Tag & Data
39 (2005,1143) SL 7934 # 4, 1 Unknown Tag & Data
40 (2005,1144) OW 19b6\0000\005f\0000\1b2a\0000\00f3\0000\1eee\0000\0000\0000\0008... # 7934, 1 Unknown
    Tag & Data
41 (2005,1147) CS [Y] # 2, 1 Unknown Tag & Data
42 (ffff,e00d) na (ItemDelimitationItem) # 0, 0 ItemDelimitationItem
43 ...
44 """
45
46 import sys
47 import gdcmm
48
49 if __name__ == "__main__":
50
```



```
51 file1 = sys.argv[1]
52 file2 = sys.argv[2]
53
54 r = gdcm.Reader()
55 r.SetFileName( file1 )
56 if not r.Read():
57     sys.exit(1)
58
59 fg = gdcm.FilenameGenerator()
60 f = r.GetFile()
61 ds = f.GetDataSet()
62 tsis = gdcm.Tag(0x2005,0x1132) #
63 if ds.FindDataElement( tsis ):
64     sis = ds.GetDataElement( tsis )
65     #sqsis = sis.GetSequenceOfItems()
66     # GetValueAsSQ handle more cases
67     sqsis = sis.GetValueAsSQ()
68     if sqsis.GetNumberOfItems():
69         nitems = sqsis.GetNumberOfItems();
70         fg.SetNumberOfFileNames( nitems )
71         fg.SetPrefix( file2 )
72         if not fg.Generate():
73             print "problem"
74             sys.exit(1)
75     for i in range(0,nitems):
76         item1 = sqsis.GetItem(i+1) # Item start at 1
77         nestedds = item1.GetNestedDataSet()
78         tprcs = gdcm.Tag(0x2005,0x1144) #
79         if nestedds.FindDataElement( tprcs ):
80             prcs = nestedds.GetDataElement( tprcs )
81             bv = prcs.GetByteValue()
82             print bv
83             f = open( fg.GetFilename(i) , "w" )
84             f.write( bv.WriteBuffer() )
```


Index

- ~ASN1
 - gdcmm::ASN1, [111](#)
- ~AnonymizeEvent
 - gdcmm::AnonymizeEvent, [94](#)
- ~Anonymizer
 - gdcmm::Anonymizer, [98](#)
- ~Attribute
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, [126](#)
- ~AudioCodec
 - gdcmm::AudioCodec, [136](#)
- ~BaseCompositeMessage
 - gdcmm::network::BaseCompositeMessage, [140](#)
- ~BaseNormalizedMessage
 - gdcmm::network::BaseNormalizedMessage, [142](#)
- ~BasePDU
 - gdcmm::network::BasePDU, [144](#)
- ~BaseQuery
 - gdcmm::BaseQuery, [147](#)
- ~BaseRootQuery
 - gdcmm::BaseRootQuery, [150](#)
- ~Bitmap
 - gdcmm::Bitmap, [159](#)
- ~BitmapToBitmapFilter
 - gdcmm::BitmapToBitmapFilter, [166](#)
- ~BoxRegion
 - gdcmm::BoxRegion, [168](#)
- ~ByteSwapFilter
 - gdcmm::ByteSwapFilter, [173](#)
- ~ByteValue
 - gdcmm::ByteValue, [176](#)
- ~CAPICryptographicMessageSyntax
 - gdcmm::CAPICryptographicMessageSyntax, [181](#)
- ~CSAHeader
 - gdcmm::CSAHeader, [220](#)
- ~Coder
 - gdcmm::Coder, [195](#)
- ~Command
 - gdcmm::Command, [199](#)
- ~CommandDataSet
 - gdcmm::CommandDataSet, [201](#)
- ~CryptoFactory
 - gdcmm::CryptoFactory, [211](#)
- ~CryptographicMessageSyntax
 - gdcmm::CryptographicMessageSyntax, [212](#)
- ~Curve
 - gdcmm::Curve, [232](#)
- ~DICOMDIRGenerator
 - gdcmm::DICOMDIRGenerator, [265](#)
- ~DataEvent
 - gdcmm::DataEvent, [245](#)
- ~DataSetEvent
 - gdcmm::DataSetEvent, [255](#)
- ~Decoder
 - gdcmm::Decoder, [258](#)
- ~Defs
 - gdcmm::Defs, [260](#)
- ~DeltaEncodingCodec
 - gdcmm::DeltaEncodingCodec, [263](#)
- ~DictConverter
 - gdcmm::DictConverter, [271](#)
- ~DictPrinter
 - gdcmm::DictPrinter, [276](#)
- ~Dicts
 - gdcmm::Dicts, [278](#)
- ~DirectionCosines
 - gdcmm::DirectionCosines, [282](#)
- ~Directory
 - gdcmm::Directory, [285](#)
- ~Dumper
 - gdcmm::Dumper, [290](#)
- ~Element
 - gdcmm::Element< TVR, VM::VM1_n >, [296](#)
- ~Event
 - gdcmm::Event, [316](#)
- ~Exception
 - gdcmm::Exception, [318](#)
- ~File
 - gdcmm::File, [327](#)
- ~FileAnonymizer
 - gdcmm::FileAnonymizer, [330](#)
- ~FileChangeTransferSyntax
 - gdcmm::FileChangeTransferSyntax, [333](#)
- ~FileDecompressLookupTable
 - gdcmm::FileDecompressLookupTable, [336](#)
- ~FileDerivation
 - gdcmm::FileDerivation, [338](#)
- ~FileExplicitFilter
 - gdcmm::FileExplicitFilter, [341](#)
- ~FileMetaInformation

- gdcmm::FileMetaInformation, 344
- ~FileNameEvent
 - gdcmm::FileNameEvent, 352
- ~FileStreamer
 - gdcmm::FileStreamer, 359
- ~FilenameGenerator
 - gdcmm::FilenameGenerator, 354
- ~Global
 - gdcmm::Global, 371
- ~GroupDict
 - gdcmm::GroupDict, 374
- ~IconImageFilter
 - gdcmm::IconImageFilter, 376
- ~IconImageGenerator
 - gdcmm::IconImageGenerator, 378
- ~Image
 - gdcmm::Image, 383
- ~ImageApplyLookupTable
 - gdcmm::ImageApplyLookupTable, 387
- ~ImageChangePhotometricInterpretation
 - gdcmm::ImageChangePhotometricInterpretation, 389
- ~ImageChangePlanarConfiguration
 - gdcmm::ImageChangePlanarConfiguration, 392
- ~ImageChangeTransferSyntax
 - gdcmm::ImageChangeTransferSyntax, 395
- ~ImageCodec
 - gdcmm::ImageCodec, 399
- ~ImageConverter
 - gdcmm::ImageConverter, 405
- ~ImageFragmentSplitter
 - gdcmm::ImageFragmentSplitter, 407
- ~ImageReader
 - gdcmm::ImageReader, 414
- ~ImageRegionReader
 - gdcmm::ImageRegionReader, 418
- ~ImageToImageFilter
 - gdcmm::ImageToImageFilter, 421
- ~ImageWriter
 - gdcmm::ImageWriter, 423
- ~JPEG12Codec
 - gdcmm::JPEG12Codec, 445
- ~JPEG16Codec
 - gdcmm::JPEG16Codec, 447
- ~JPEG2000Codec
 - gdcmm::JPEG2000Codec, 450
- ~JPEG8Codec
 - gdcmm::JPEG8Codec, 454
- ~JPEGCodec
 - gdcmm::JPEGCodec, 457
- ~JPEGLSCodec
 - gdcmm::JPEGLSCodec, 463
- ~JSON
 - gdcmm::JSON, 465
- ~KAKADUCodec
 - gdcmm::KAKADUCodec, 467
- ~LookupTable
 - gdcmm::LookupTable, 473
- ~MD5
 - gdcmm::MD5, 482
- ~MemberCommand
 - gdcmm::MemberCommand, 493
- ~MeshPrimitive
 - gdcmm::MeshPrimitive, 497
- ~ModuleEntry
 - gdcmm::ModuleEntry, 509
- ~Object
 - gdcmm::Object, 540
- ~OpenSSLCryptographicMessageSyntax
 - gdcmm::OpenSSLCryptographicMessageSyntax, 544
- ~OpenSSLP7CryptographicMessageSyntax
 - gdcmm::OpenSSLP7CryptographicMessageSyntax, 548
- ~Orientation
 - gdcmm::Orientation, 550
- ~Overlay
 - gdcmm::Overlay, 554
- ~PDBHeader
 - gdcmm::PDBHeader, 568
- ~PDFCodec
 - gdcmm::PDFCodec, 571
- ~PGXCodec
 - gdcmm::PGXCodec, 576
- ~PNMCodec
 - gdcmm::PNMCodec, 599
- ~PVRGCodec
 - gdcmm::PVRGCodec, 624
- ~ParseException
 - gdcmm::ParseException, 559
- ~Parser
 - gdcmm::Parser, 562
- ~Pixmap
 - gdcmm::Pixmap, 588
- ~PixmapReader
 - gdcmm::PixmapReader, 591
- ~PixmapToPixmapFilter
 - gdcmm::PixmapToPixmapFilter, 594
- ~PixmapWriter
 - gdcmm::PixmapWriter, 596
- ~Preamble
 - gdcmm::Preamble, 601
- ~Printer
 - gdcmm::Printer, 614
- ~PrivateDict
 - gdcmm::PrivateDict, 617
- ~ProgressEvent
 - gdcmm::ProgressEvent, 622
- ~PythonFilter
 - gdcmm::PythonFilter, 626

- ~QueryBase
 - gdcm::QueryBase, [627](#)
- ~RAWCodec
 - gdcm::RAWCodec, [639](#)
- ~RLECodec
 - gdcm::RLECodec, [655](#)
- ~Reader
 - gdcm::Reader, [644](#)
- ~Region
 - gdcm::Region, [649](#)
- ~Rescaler
 - gdcm::Rescaler, [651](#)
- ~SHA1
 - gdcm::SHA1, [701](#)
- ~Scanner
 - gdcm::Scanner, [662](#)
- ~Segment
 - gdcm::Segment, [668](#)
- ~SegmentReader
 - gdcm::SegmentReader, [675](#)
- ~SegmentWriter
 - gdcm::SegmentWriter, [677](#)
- ~SegmentedPaletteColorLookupTable
 - gdcm::SegmentedPaletteColorLookupTable, [672](#)
- ~SerieHelper
 - gdcm::SerieHelper, [691](#)
- ~ServiceClassUser
 - gdcm::ServiceClassUser, [696](#)
- ~SimpleMemberCommand
 - gdcm::SimpleMemberCommand, [703](#)
- ~SimpleSubjectWatcher
 - gdcm::SimpleSubjectWatcher, [705](#)
- ~SmartPointer
 - gdcm::SmartPointer, [708](#)
- ~Sorter
 - gdcm::Sorter, [714](#)
- ~Spacing
 - gdcm::Spacing, [717](#)
- ~SplitMosaicFilter
 - gdcm::SplitMosaicFilter, [718](#)
- ~StreamImageReader
 - gdcm::StreamImageReader, [722](#)
- ~StreamImageWriter
 - gdcm::StreamImageWriter, [727](#)
- ~StrictScanner
 - gdcm::StrictScanner, [733](#)
- ~StringFilter
 - gdcm::StringFilter, [741](#)
- ~Subject
 - gdcm::Subject, [745](#)
- ~Surface
 - gdcm::Surface, [749](#)
- ~SurfaceReader
 - gdcm::SurfaceReader, [758](#)
- ~SurfaceWriter
 - gdcm::SurfaceWriter, [760](#)
- ~Table
 - gdcm::Table, [769](#)
- ~TableEntry
 - gdcm::TableEntry, [770](#)
- ~TableReader
 - gdcm::TableReader, [772](#)
- ~TableRow
 - gdcm::network::TableRow, [773](#)
- ~TagPath
 - gdcm::TagPath, [782](#)
- ~Testing
 - gdcm::Testing, [785](#)
- ~Trace
 - gdcm::Trace, [790](#)
- ~Transition
 - gdcm::network::Transition, [799](#)
- ~ULAction
 - gdcm::network::ULAction, [827](#)
- ~ULBasicCallback
 - gdcm::network::ULBasicCallback, [858](#)
- ~ULConnection
 - gdcm::network::ULConnection, [860](#)
- ~ULConnectionCallback
 - gdcm::network::ULConnectionCallback, [862](#)
- ~ULConnectionManager
 - gdcm::network::ULConnectionManager, [867](#)
- ~ULEvent
 - gdcm::network::ULEvent, [869](#)
- ~ULWritingCallback
 - gdcm::network::ULWritingCallback, [872](#)
- ~UserInformation
 - gdcm::network::UserInformation, [881](#)
- ~Validate
 - gdcm::Validate, [884](#)
- ~Value
 - gdcm::Value, [885](#)
- ~Version
 - gdcm::Version, [888](#)
- ~Writer
 - gdcm::Writer, [972](#)
- ~XMLDictReader
 - gdcm::XMLDictReader, [975](#)
- ~XMLPrinter
 - gdcm::XMLPrinter, [977](#)
- ~XMLPrivateDictReader
 - gdcm::XMLPrivateDictReader, [979](#)
- ~vtkGDCMImageReader
 - vtkGDCMImageReader, [907](#)
- ~vtkGDCMImageReader2
 - vtkGDCMImageReader2, [913](#)
- ~vtkGDCMImageWriter
 - vtkGDCMImageWriter, [920](#)

- ~vtkGDCMMedicalImageProperties
 - vtkGDCMMedicalImageProperties, [924](#)
- ~vtkGDCMPolyDataReader
 - vtkGDCMPolyDataReader, [926](#)
- ~vtkGDCMPolyDataWriter
 - vtkGDCMPolyDataWriter, [929](#)
- ~vtkGDCMTesting
 - vtkGDCMTesting, [932](#)
- ~vtkGDCMThreadedImageReader
 - vtkGDCMThreadedImageReader, [935](#)
- ~vtkGDCMThreadedImageReader2
 - vtkGDCMThreadedImageReader2, [937](#)
- ~vtkImageColorViewer
 - vtkImageColorViewer, [943](#)
- ~vtkImageMapToColors16
 - vtkImageMapToColors16, [948](#)
- ~vtkImageMapToWindowLevelColors2
 - vtkImageMapToWindowLevelColors2, [951](#)
- ~vtkImagePlanarComponentsToComponents
 - vtkImagePlanarComponentsToComponents, [953](#)
- ~vtkImageRGBToYBR
 - vtkImageRGBToYBR, [955](#)
- ~vtkImageYBRToRGB
 - vtkImageYBRToRGB, [957](#)
- ~vtkLookupTable16
 - vtkLookupTable16, [959](#)
- ~vtkRTStructSetProperties
 - vtkRTStructSetProperties, [962](#)
- AAAbortPDU
 - gdcm::network::AAAbortPDU, [80](#)
- AAAssociateACPDU
 - gdcm::network::AAAssociateACPDU, [82](#)
 - gdcm::network::AAAssociateRQPDU, [90](#)
- AAAssociateRJPDU
 - gdcm::network::AAAssociateRJPDU, [85](#)
- AAAssociateRQPDU
 - gdcm::network::AAAssociateACPDU, [83](#)
 - gdcm::network::AAAssociateRQPDU, [88](#)
- AECComp
 - gdcm, [61](#)
- AES128_CIPHER
 - gdcm::CryptographicMessageSyntax, [212](#)
- AES192_CIPHER
 - gdcm::CryptographicMessageSyntax, [212](#)
- AES256_CIPHER
 - gdcm::CryptographicMessageSyntax, [212](#)
- ALGOType
 - gdcm::Segment, [668](#)
- ALGOType_END
 - gdcm::Segment, [668](#)
- ARGB
 - gdcm::PhotometricInterpretation, [578](#)
- ARTIMTimer
 - gdcm::network::ARTIMTimer, [110](#)
- AReleaseRPPDU
 - gdcm::network::AReleaseRPPDU, [107](#)
- AReleaseRQPDU
 - gdcm::network::AReleaseRQPDU, [109](#)
- ASComp
 - gdcm, [61](#)
- ASN1
 - gdcm::ASN1, [111](#)
- AUTOMATIC
 - gdcm::Segment, [668](#)
- AXIAL
 - gdcm::Orientation, [550](#)
- AbstractSyntax
 - gdcm::PresentationContext, [604](#)
 - gdcm::network::AbstractSyntax, [92](#)
- ActiveComponent
 - vtkImageMapToColors16, [949](#)
- Add
 - gdcm::GroupDict, [374](#)
- AddAcceptedPresentationContext
 - gdcm::network::ULConnection, [860](#)
- AddCSAHeaderDictEntry
 - gdcm::CSAHeaderDict, [224](#)
- AddContourReferencedFrameOfReference
 - vtkRTStructSetProperties, [962](#)
- AddDerivationDescription
 - gdcm::FileDerivation, [338](#)
- AddDictEntry
 - gdcm::Dict, [268](#)
 - gdcm::PrivateDict, [617](#)
- AddFile
 - gdcm::FileSet, [356](#)
 - gdcm::SerieHelper, [691](#)
- AddFileName
 - gdcm::SerieHelper, [691](#)
- AddFragment
 - gdcm::SequenceOfFragments, [681](#)
- AddFromFile
 - gdcm::PresentationContextGenerator, [607](#)
- AddGroupLength
 - gdcm::DictConverter, [271](#)
- AddIODEntry
 - gdcm::IOD, [430](#)
- AddIOD
 - gdcm::IODs, [434](#)
- AddImageDirectoryRecord
 - gdcm::DICOMDIRGenerator, [265](#)
- AddInput
 - vtkImageColorViewer, [943](#)
- AddInputConnection
 - vtkImageColorViewer, [943](#)
- AddItem
 - gdcm::SequenceOfItems, [686](#)

- AddMacro
 - gdcm::Macros, [480](#)
 - gdcm::Module, [506](#)
- AddMacroEntry
 - gdcm::Macro, [478](#)
- AddModule
 - gdcm::Modules, [511](#)
- AddModuleEntry
 - gdcm::Module, [506](#)
 - gdcm::NestedModuleEntries, [527](#)
- AddNewUndefinedLengthItem
 - gdcm::SequenceOfItems, [686](#)
- AddObserver
 - gdcm::Subject, [745](#)
- AddPatientDirectoryRecord
 - gdcm::DICOMDIRGenerator, [266](#)
- AddPresentationContext
 - gdcm::PresentationContextGenerator, [607](#)
 - gdcm::network::AAssociateRQPDU, [88](#)
- AddPresentationContextAC
 - gdcm::network::AAssociateACPDU, [82](#)
- AddPresentationDataValue
 - gdcm::network::PDataTFPDU, [564](#)
- AddPrimitiveData
 - gdcm::MeshPrimitive, [497](#)
- AddPrivateTag
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [733](#)
- AddPurposeOfReferenceCodeSequence
 - gdcm::FileDerivation, [338](#)
- AddQueryDataSet
 - gdcm::BaseQuery, [147](#)
- AddReference
 - gdcm::FileDerivation, [338](#)
- AddReferencedFrameOfReference
 - vtkRTStructSetProperties, [962](#)
- AddRestriction
 - gdcm::SerieHelper, [692](#)
- AddRoleSelectionSub
 - gdcm::network::UserInformation, [881](#)
- AddSOPClassExtendedNegotiationSub
 - gdcm::network::UserInformation, [881](#)
- AddSegment
 - gdcm::SegmentWriter, [677](#)
- AddSelect
 - gdcm::Sorter, [714](#)
- AddSeriesDirectoryRecord
 - gdcm::DICOMDIRGenerator, [266](#)
- AddSkipTag
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [733](#)
- AddSourceImageSequence
 - gdcm::FileDerivation, [338](#)
- AddStructureSetROIObservation
 - vtkRTStructSetProperties, [962](#)
- AddStructureSetROI
 - vtkRTStructSetProperties, [962](#)
- AddStudyDirectoryRecord
 - gdcm::DICOMDIRGenerator, [266](#)
- AddSurface
 - gdcm::Segment, [668](#)
- AddTag
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [733](#)
- AddTransferSyntax
 - gdcm::PresentationContext, [603](#)
 - gdcm::network::PresentationContextRQ, [609](#)
- AE
 - gdcm::VR, [898](#)
- AffectedSOPClassUID
 - gdcm::network::CEchoRQ, [183](#)
- Allocate
 - gdcm::LookupTable, [473](#)
- AmbulatoryECGWaveformStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [813](#)
- AnatomicRegion
 - gdcm::Segment, [670](#)
- AnonymizeEvent
 - gdcm::AnonymizeEvent, [94](#)
- Anonymizer
 - gdcm::Anonymizer, [98](#)
- Append
 - gdcm::ByteValue, [176](#)
 - gdcm::Global, [371](#)
- AppendFrameEncode
 - gdcm::ImageCodec, [399](#)
 - gdcm::JPEG2000Codec, [450](#)
 - gdcm::JPEGCodec, [457](#)
 - gdcm::JPEGLSCodec, [463](#)
 - gdcm::RLECodec, [655](#)
- AppendImplementationClassUID
 - gdcm::FileMetaInformation, [345](#)
- AppendRowEncode
 - gdcm::ImageCodec, [399](#)
 - gdcm::JPEG2000Codec, [450](#)
 - gdcm::JPEGCodec, [457](#)
 - gdcm::JPEGLSCodec, [463](#)
 - gdcm::RLECodec, [655](#)
- AppendToDataElement
 - gdcm::FileStreamer, [359](#)
- AppendToGroupDataElement
 - gdcm::FileStreamer, [359](#)
- ApplicationContext
 - gdcm::network::ApplicationContext, [103](#)
- Apply
 - gdcm::ImageApplyLookupTable, [387](#)
- ApplyInverseVideo

- vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ApplyLookupTable
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ApplyPlanarConfiguration
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ApplyShiftScale
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ApplyYBRToRGB
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- AreOverlaysInPixelData
 - gdcm::Bitmap, [159](#)
 - gdcm::Pixmap, [588](#)
- Area
 - gdcm::BoxRegion, [169](#)
 - gdcm::Region, [649](#)
- ArrayIncludeMacrosType
 - gdcm::Macro, [477](#)
 - gdcm::Module, [506](#)
- ArrayType
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [126](#)
- AS
 - gdcm::VR, [898](#)
- AsynchronousOperationsWindowSub
 - gdcm::network::AsynchronousOperationsWindow←Sub, [112](#)
- AT
 - gdcm::VR, [898](#)
- Attribute
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [126](#)
 - gdcm::terminal, [77](#)
- Audio
 - gdcm::MediaStorage, [488](#)
- AudioCodec
 - gdcm::AudioCodec, [136](#)
- AudioSRStorageTrialRetired
 - gdcm::UIDs, [814](#)
- AutoPixelMinMax
 - gdcm::IconImageGenerator, [378](#)
- BALCPPProtect
 - gdcm::Anonymizer, [98](#)
- BLUE
 - gdcm::LookupTable, [473](#)
- BOOL_FUNCTION_PFILE_PFILE_POINTER
 - gdcm, [61](#)
- backslash
 - gdcm, [63](#)
- BadBigEndian
 - gdcm::SwapCode, [761](#)
- BadLittleEndian
 - gdcm::SwapCode, [761](#)
- BaseQuery
 - gdcm::BaseQuery, [147](#)
- BaseRootQuery
 - gdcm::BaseRootQuery, [150](#)
- BasicAnnotationBoxSOPClass
 - gdcm::UIDs, [812](#)
- BasicApplicationLevelConfidentialityProfile
 - gdcm::Anonymizer, [98](#)
- BasicCodedEntry
 - gdcm::SegmentHelper::BasicCodedEntry, [153](#)
- BasicColorImageBoxSOPClass
 - gdcm::UIDs, [812](#)
- BasicColorPrintManagementMetaSOPClass
 - gdcm::UIDs, [813](#)
- BasicFilmBoxSOPClass
 - gdcm::UIDs, [812](#)
- BasicFilmSessionSOPClass
 - gdcm::UIDs, [812](#)
- BasicGrayscaleImageBoxSOPClass
 - gdcm::UIDs, [812](#)
- BasicGrayscalePrintManagementMetaSOPClass
 - gdcm::UIDs, [812](#)
- BasicOffsetTable
 - gdcm::BasicOffsetTable, [155](#)
- BasicPrintImageOverlayBoxSOPClassRetired
 - gdcm::UIDs, [813](#)
- BasicStudyContentNotificationSOPClassRetired
 - gdcm::UIDs, [812](#)
- BasicTextSRStorage
 - gdcm::UIDs, [814](#)
- BasicTextSR
 - gdcm::MediaStorage, [487](#)
- BasicVoiceAudioWaveformStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- Begin
 - gdcm::CSAHeaderDict, [224](#)
 - gdcm::DataSet, [249](#)
 - gdcm::Dict, [268](#)
 - gdcm::IODs, [434](#)
 - gdcm::Scanner, [663](#)
 - gdcm::SequenceOfFragments, [681](#)
 - gdcm::SequenceOfItems, [686](#), [687](#)
 - gdcm::StrictScanner, [733](#)
- BigEndian
 - gdcm::SwapCode, [761](#)
- BitSample

- gdcm::JPEGCodec, [460](#)
- gdcm::LookupTable, [475](#)
- Bitmap
 - gdcm::Bitmap, [159](#)
 - gdcm::JPEG2000Codec, [452](#)
 - gdcm::PixelFormat, [585](#)
- BitmapToBitmapFilter
 - gdcm::BitmapToBitmapFilter, [166](#)
- black
 - gdcm::terminal, [77](#)
- BlendingSoftcopyPresentationStateStorageSOPClass
 - gdcm::UIDs, [814](#)
- blink
 - gdcm::terminal, [77](#)
- blue
 - gdcm::terminal, [77](#)
- BoundingBox
 - gdcm::BoxRegion, [169](#)
- BoxRegion
 - gdcm::BoxRegion, [168](#)
- BreakConnection
 - gdcm::network::ULConnectionManager, [867](#)
- BreakConnectionNow
 - gdcm::network::ULConnectionManager, [867](#)
- BreastImagingRelevantPatientInformationQuery
 - gdcm::UIDs, [816](#)
- BreastTomosynthesisImageStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [817](#)
- bright
 - gdcm::terminal, [77](#)
- Build
 - vtkLookupTable16, [959](#)
- ByteBuffer
 - gdcm::ByteBuffer, [171](#)
- ByteSwap
 - gdcm::ByteSwapFilter, [173](#)
- ByteSwapFilter
 - gdcm::ByteSwapFilter, [173](#)
- ByteValue
 - gdcm::ByteValue, [176](#)
- bytes
 - gdcm::Tag, [781](#)
- C_CANCEL_RQ
 - gdcm::network::DIMSE, [281](#)
- C_ECHO_RSP
 - gdcm::network::DIMSE, [280](#)
- C_ECHO_RQ
 - gdcm::network::DIMSE, [280](#)
- C_FIND_RSP
 - gdcm::network::DIMSE, [280](#)
- C_FIND_RQ
 - gdcm::network::DIMSE, [280](#)
- C_GET_RSP
 - gdcm::network::DIMSE, [280](#)
- C_GET_RQ
 - gdcm::network::DIMSE, [280](#)
- C_MOVE_RSP
 - gdcm::network::DIMSE, [280](#)
- C_MOVE_RQ
 - gdcm::network::DIMSE, [280](#)
- C_STORE_RSP
 - gdcm::network::DIMSE, [280](#)
- C_STORE_RQ
 - gdcm::network::DIMSE, [280](#)
- CALIBRATED
 - gdcm::Spacing, [717](#)
- CAPICryptoFactory
 - gdcm::CAPICryptoFactory, [179](#)
- CAPICryptographicMessageSyntax
 - gdcm::CAPICryptographicMessageSyntax, [181](#)
- CAPI
 - gdcm::CryptoFactory, [210](#)
- CEcho
 - gdcm::CompositeNetworkFunctions, [204](#)
- CFind
 - gdcm::CompositeNetworkFunctions, [204](#)
- CMYK
 - gdcm::PhotometricInterpretation, [578](#)
- cMaxEventID
 - gdcm::network, [75](#)
- cMaxStateID
 - gdcm::network, [75](#)
- CMove
 - gdcm::CompositeNetworkFunctions, [205](#)
- CONDENSED_STYLE
 - gdcm::Printer, [614](#)
- CONSOLE
 - gdcm::terminal, [77](#)
- CORONAL
 - gdcm::Orientation, [550](#)
- CSAElement
 - gdcm::CSAElement, [215](#)
- CSAHeader
 - gdcm::CSAHeader, [220](#)
 - gdcm::DataSet, [253](#)
- CSAHeaderDict
 - gdcm::CSAHeaderDict, [224](#)
- CSAHeaderDictEntry
 - gdcm::CSAHeaderDictEntry, [226](#)
- CSAHeaderType
 - gdcm::CSAHeader, [220](#)
- CSANonImageStorage
 - gdcm::MediaStorage, [487](#)
- CSComp
 - gdcm, [61](#)
- CSD

- gdcm::SegmentHelper::BasicCodedEntry, 154
- CStore
 - gdcm::CompositeNetworkFunctions, 206
- CSV
 - gdcm::SegmentHelper::BasicCodedEntry, 154
- CT_private_ELE
 - gdcm::TransferSyntax, 795
- CTImageStorage
 - gdcm::MediaStorage, 486
 - gdcm::UIDs, 813
- CanCode
 - gdcm::AudioCodec, 136
 - gdcm::Coder, 195
 - gdcm::ImageCodec, 400
 - gdcm::JPEG2000Codec, 450
 - gdcm::JPEGCodec, 458
 - gdcm::JPEGLSCodec, 463
 - gdcm::KAKADUCodec, 467
 - gdcm::PDFCodec, 571
 - gdcm::PGXCodec, 576
 - gdcm::PNMCodec, 599
 - gdcm::PVRGCodec, 624
 - gdcm::RAWCodec, 639
 - gdcm::RLECodec, 655
- CanDecode
 - gdcm::AudioCodec, 136
 - gdcm::Decoder, 258
 - gdcm::DeltaEncodingCodec, 263
 - gdcm::ImageCodec, 400
 - gdcm::JPEG2000Codec, 450
 - gdcm::JPEGCodec, 458
 - gdcm::JPEGLSCodec, 463
 - gdcm::KAKADUCodec, 467
 - gdcm::PDFCodec, 571
 - gdcm::PGXCodec, 576
 - gdcm::PNMCodec, 599
 - gdcm::PVRGCodec, 624
 - gdcm::RAWCodec, 639
 - gdcm::RLECodec, 655
- CanDisplay
 - gdcm::VR, 899
- CanEmptyTag
 - gdcm::Anonymizer, 98
- CanRead
 - gdcm::Reader, 644
- CanReadFile
 - vtkGDCMImageReader, 907
 - vtkGDCMImageReader2, 913
- CanReadImage
 - gdcm::StreamImageReader, 722
- CanStoreLossy
 - gdcm::TransferSyntax, 795
- CanWriteFile
 - gdcm::StreamImageWriter, 727
- CardiacElectrophysiologyWaveformStorage
 - gdcm::MediaStorage, 487
 - gdcm::UIDs, 814
- CardiacRelevantPatientInformationQuery
 - gdcm::UIDs, 816
- Change
 - gdcm::FileChangeTransferSyntax, 333
 - gdcm::FileDecompressLookupTable, 336
 - gdcm::FileExplicitFilter, 341
 - gdcm::ImageChangePhotometricInterpretation, 389
 - gdcm::ImageChangePlanarConfiguration, 392
 - gdcm::ImageChangeTransferSyntax, 395
- ChangeFMI
 - gdcm::FileExplicitFilter, 341
- ChangeMonochrome
 - gdcm::ImageChangePhotometricInterpretation, 389
- CharacterDataHandler
 - gdcm::TableReader, 772
 - gdcm::XMLDictReader, 975
 - gdcm::XMLPrivateDictReader, 979
- CheckDataElement
 - gdcm::FileStreamer, 359
- CheckEvent
 - gdcm::AnonymizeEvent, 94
 - gdcm::DataEvent, 245
 - gdcm::DataSetEvent, 255
 - gdcm::Event, 316
 - gdcm::FileNameEvent, 352
 - gdcm::ProgressEvent, 622
- CheckFileMetaInformationOff
 - gdcm::Writer, 972
- CheckFileMetaInformationOn
 - gdcm::Writer, 972
- CheckTemplateFileName
 - gdcm::FileStreamer, 359
- ChestCADSRStorage
 - gdcm::UIDs, 815
- CipherTypes
 - gdcm::CryptographicMessageSyntax, 212
- Clear
 - gdcm::Bitmap, 159
 - gdcm::ByteValue, 176
 - gdcm::DataElement, 237
 - gdcm::DataSet, 249
 - gdcm::IODs, 434
 - gdcm::IOD, 430
 - gdcm::Item, 441
 - gdcm::LookupTable, 473
 - gdcm::Macro, 478
 - gdcm::Macros, 480
 - gdcm::Module, 506
 - gdcm::Modules, 511
 - gdcm::Preamble, 601
 - gdcm::SequenceOfFragments, 681

- gdcmm::SequenceOfItems, 687
- gdcmm::SerieHelper, 692
- gdcmm::Value, 886
- vtkGDCMMedicalImageProperties, 924
- vtkRTStructSetProperties, 962
- ClearInternalUIDs
 - gdcmm::Anonymizer, 98
- ClearSkipTags
 - gdcmm::Scanner, 663
 - gdcmm::StrictScanner, 733
- ClearTags
 - gdcmm::Scanner, 663
 - gdcmm::StrictScanner, 733
- Clone
 - gdcmm::BoxRegion, 169
 - gdcmm::ImageCodec, 400
 - gdcmm::JPEG2000Codec, 451
 - gdcmm::JPEGCodec, 458
 - gdcmm::JPEGLSCoec, 463
 - gdcmm::KAKADUCoec, 468
 - gdcmm::PGXCoec, 577
 - gdcmm::PNMCoec, 599
 - gdcmm::PVRGCoec, 624
 - gdcmm::RAWCoec, 640
 - gdcmm::RLECoec, 655
 - gdcmm::Region, 649
- CM
 - gdcmm::SegmentHelper::BasicCodedEntry, 153
- Code
 - gdcmm::Coder, 195
 - gdcmm::JPEG2000Codec, 451
 - gdcmm::JPEGCodec, 458
 - gdcmm::JPEGLSCoec, 463
 - gdcmm::JSON, 465
 - gdcmm::KAKADUCoec, 468
 - gdcmm::PVRGCoec, 625
 - gdcmm::RAWCoec, 640
 - gdcmm::RLECoec, 656
- CodeMeaning
 - gdcmm::RealWorldValueMappingContent, 647
- CodeString
 - gdcmm::CodeString, 197
- CodeValue
 - gdcmm::RealWorldValueMappingContent, 647
- Color
 - gdcmm::terminal, 77
- ColorArray
 - gdcmm::SurfaceHelper, 754
- ColorSoftcopyPresentationStateStorageSOPClass
 - gdcmm::UIDs, 814
- Command
 - gdcmm::Command, 199
- CommandDataSet
 - gdcmm::CommandDataSet, 201
- CommandTypes
 - gdcmm::network::DIMSE, 280
- CompOperators
 - gdcmm, 61
- Compatible
 - gdcmm::VM, 894
 - gdcmm::VR, 899
- Component
 - gdcmm::PersonName, 575
- ComprehensiveSRStorage
 - gdcmm::UIDs, 815
- ComprehensiveSRStorageTrialRetired
 - gdcmm::UIDs, 814
- ComprehensiveSR
 - gdcmm::MediaStorage, 487
- CompressionTypes
 - vtkGDCMImageWriter, 919
- Compute
 - gdcmm::MD5, 482
 - gdcmm::SHA1, 701
- ComputeBoundingBox
 - gdcmm::BoxRegion, 169
 - gdcmm::Region, 649
- ComputeBufferLength
 - gdcmm::ImageRegionReader, 418
- ComputeByteLength
 - gdcmm::SequenceOfFragments, 681
- ComputeDataElement
 - gdcmm::DataSet, 249
- ComputeDataSetMediaStorageSOPClass
 - gdcmm::FileMetaInformation, 345
- ComputeDataSetTransferSyntax
 - gdcmm::FileMetaInformation, 345
- ComputeDistAlongNormal
 - gdcmm::DirectionCosines, 282
- ComputeFile
 - gdcmm::MD5, 482
 - gdcmm::SHA1, 701
- ComputeFileMD5
 - gdcmm::Testing, 785
- ComputeGroupLength
 - gdcmm::DataSet, 249
- ComputeInterceptSlopePixelType
 - gdcmm::Rescaler, 651
- ComputeLength
 - gdcmm::ByteValue, 176
 - gdcmm::Fragment, 369
 - gdcmm::SequenceOfFragments, 681
 - gdcmm::SequenceOfItems, 687
- ComputeLossyFlag
 - gdcmm::Bitmap, 159
- ComputeMD5
 - gdcmm::Testing, 785
- ComputeMOSAICDimensions

- gdcmm::SplitMosaicFilter, 718
- ComputeMediaStorageFromModality
 - gdcmm::ImageHelper, 409
- ComputeNumberOfSurfaces
 - gdcmm::SurfaceWriter, 760
- ComputeOffsetTable
 - gdcmm::JPEGCodec, 458
- ComputePixelAspectRatioFromPixelSpacing
 - gdcmm::Spacing, 717
- ComputePixelTypeFromMinMax
 - gdcmm::Rescaler, 651
- ComputeSpacingFromImagePositionPatient
 - gdcmm::ImageHelper, 409
- ComputeTargetMediaStorage
 - gdcmm::ImageWriter, 423
- ComputeVR
 - gdcmm::DataSetHelper, 256
- ComputeZSpacing
 - gdcmm::IPPSorter, 439
- ComputedRadiographyImageStorage
 - gdcmm::MediaStorage, 486
 - gdcmm::UIDs, 813
- ConcatenatePDVBlobs
 - gdcmm::network::PresentationDataValue, 611
- ConcatenatePDVBlobsAsExplicit
 - gdcmm::network::PresentationDataValue, 611
- Conditional
 - gdcmm::Usage, 878
- const
 - gdcmm::SOPClassUIDToIOD, 711
- const_iterator
 - gdcmm::CodeString, 197
 - gdcmm::LO, 470
 - gdcmm::String, 738
- const_reference
 - gdcmm::CodeString, 197
 - gdcmm::LO, 470
 - gdcmm::String, 738
- const_reverse_iterator
 - gdcmm::CodeString, 197
 - gdcmm::LO, 470
 - gdcmm::String, 738
- ConstCharWrapper
 - gdcmm::ConstCharWrapper, 207
- ConstIterator
 - gdcmm::CSAHeaderDict, 224
 - gdcmm::DataSet, 249
 - gdcmm::Dict, 268
 - gdcmm::Scanner, 662
 - gdcmm::SequenceOfFragments, 680
 - gdcmm::SequenceOfItems, 686
 - gdcmm::StrictScanner, 732
- Construct
 - gdcmm::BaseRootQuery, 150
- ConstructAbortPDU
 - gdcmm::network::PDUFactory, 573
- ConstructCEchoRQ
 - gdcmm::network::CompositeMessageFactory, 203
- ConstructCFindRQ
 - gdcmm::network::CompositeMessageFactory, 203
- ConstructCMoveRQ
 - gdcmm::network::CompositeMessageFactory, 203
- ConstructCStoreRSP
 - gdcmm::network::CompositeMessageFactory, 203
- ConstructCStoreRQ
 - gdcmm::network::CompositeMessageFactory, 203
- ConstructFromString
 - gdcmm::TagPath, 782
- ConstructFromTagList
 - gdcmm::TagPath, 782
- ConstructNAction
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructNCreate
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructNDelete
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructNEventReport
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructNGet
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructNSet
 - gdcmm::network::NormalizedMessageFactory, 534
- ConstructPDVByDataSet
 - gdcmm::network::CEchoRSP, 185
 - gdcmm::network::CFindCancelRQ, 186
 - gdcmm::network::CFindRSP, 189
 - gdcmm::network::CMoveCancelRq, 190
 - gdcmm::network::CMoveRSP, 193
 - gdcmm::network::NActionRSP, 519
 - gdcmm::network::NCreateRSP, 522
 - gdcmm::network::NDeleteRSP, 525
 - gdcmm::network::NEventReportRSP, 530
 - gdcmm::network::NGetRSP, 533
 - gdcmm::network::NSetRSP, 539
- ConstructPDU
 - gdcmm::network::PDUFactory, 573
- ConstructPDV
 - gdcmm::network::BaseCompositeMessage, 140
 - gdcmm::network::BaseNormalizedMessage, 142
 - gdcmm::network::CEchoRQ, 183
 - gdcmm::network::CFindRQ, 188
 - gdcmm::network::CMoveRQ, 191
 - gdcmm::network::CStoreRSP, 230
 - gdcmm::network::CStoreRQ, 228
 - gdcmm::network::NActionRQ, 518
 - gdcmm::network::NCreateRQ, 521
 - gdcmm::network::NDeleteRQ, 523
 - gdcmm::network::NEventReportRQ, 529

- gdcmm::network::NGetRQ, [531](#)
- gdcmm::network::NSetRQ, [537](#)
- ConstructQuery
 - gdcmm::CompositeNetworkFunctions, [205](#), [206](#)
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- ConstructReleasePDU
 - gdcmm::network::PDUFactory, [573](#)
- ConstructorType
 - gdcmm::Dicts, [278](#)
- Convert
 - gdcmm::DictConverter, [271](#)
 - gdcmm::ImageConverter, [405](#)
- ConvertRGBToPaletteColor
 - gdcmm::IconImageGenerator, [378](#)
- ConvertToCXX
 - gdcmm::DictConverter, [271](#)
- ConvertToXML
 - gdcmm::DictConverter, [271](#)
- Create
 - gdcmm::Preamble, [601](#)
- CreateCEchoPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateCFindPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateCMSProvider
 - gdcmm::CAPICryptoFactory, [180](#)
 - gdcmm::CryptoFactory, [211](#)
 - gdcmm::OpenSSLCryptoFactory, [542](#)
 - gdcmm::OpenSSL7CryptoFactory, [546](#)
- CreateCMovePDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateCStoreRQPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateCStoreRSPPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateDefaultUniqueSeriesIdentifier
 - gdcmm::SerieHelper, [692](#)
- CreateNActionPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateNCreatePDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateNDeletePDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateNEventReportPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateNGetPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateNSetPDU
 - gdcmm::network::PDUFactory, [573](#)
- CreateUniqueSeriesIdentifier
 - gdcmm::SerieHelper, [692](#)
- Cross
 - gdcmm::DirectionCosines, [282](#)
- CrossDot
 - gdcmm::DirectionCosines, [282](#)
- CryptoFactory
 - gdcmm::CryptoFactory, [210](#)
- CryptoLib
 - gdcmm::CryptoFactory, [210](#)
- CryptographicMessageSyntax
 - gdcmm::CryptographicMessageSyntax, [212](#)
- CS
 - gdcmm::VR, [898](#)
- Curve
 - gdcmm::Curve, [232](#)
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- Curves
 - gdcmm::Pixmap, [589](#)
- CV
 - gdcmm::SegmentHelper::BasicCodedEntry, [154](#)
- cyan
 - gdcmm::terminal, [77](#)
- DAComp
 - gdcmm, [61](#)
- DATASET_FORMAT
 - gdcmm::CSAHeader, [220](#)
- DEFAULT
 - gdcmm::CryptoFactory, [210](#)
- DES3_CIPHER
 - gdcmm::CryptographicMessageSyntax, [212](#)
- DETECTOR
 - gdcmm::Spacing, [717](#)
- DICOMApplicationContextName
 - gdcmm::UIDs, [812](#)
- DICOMControlledTerminology
 - gdcmm::UIDs, [812](#)
- DICOMDIRGenerator
 - gdcmm::DICOMDIRGenerator, [265](#)
- DICOMDIR
 - gdcmm::DICOMDIR, [264](#)
- DICOMUIDRegistry
 - gdcmm::UIDs, [812](#)
- DICT_DEBUG
 - gdcmm::DictConverter, [270](#)
- DICT_DEFAULT
 - gdcmm::DictConverter, [270](#)
- DICT_XML
 - gdcmm::DictConverter, [270](#)
- DTComp
 - gdcmm, [61](#)
- DA
 - gdcmm::VR, [898](#)
- DataElement
 - gdcmm::DataElement, [237](#)
 - gdcmm::Value, [886](#)
- DataElementSet

- gdcmm::DataSet, 249
- DataElementType
 - gdcmm::ModuleEntry, 510
- DataEvent
 - gdcmm::DataEvent, 245
- DataField
 - gdcmm::CSAElement, 217
- DataPtr
 - gdcmm::CSAElement, 215
- DataSetEvent
 - gdcmm::DataSetEvent, 255
- DataSetHandled
 - gdcmm::network::ULConnectionCallback, 862
- DataSetHandles
 - gdcmm::network::ULConnectionCallback, 862
- DataSetMS
 - gdcmm::FileMetaInformation, 347
- DataSetTS
 - gdcmm::FileMetaInformation, 347
- DataWasPassed
 - vtkImageMapToColors16, 949
- DebugOff
 - gdcmm::Trace, 790
- DebugOn
 - gdcmm::Trace, 790
- Decode
 - gdcmm::AudioCodec, 137
 - gdcmm::Base64, 137
 - gdcmm::Curve, 232
 - gdcmm::Decoder, 258
 - gdcmm::DeltaEncodingCodec, 263
 - gdcmm::ImageCodec, 400
 - gdcmm::JPEG2000Codec, 451
 - gdcmm::JPEGCodec, 458
 - gdcmm::JPEGLSCodec, 463, 464
 - gdcmm::JSON, 465
 - gdcmm::KAKADUCodec, 468
 - gdcmm::LookupTable, 473
 - gdcmm::PDFCodec, 571
 - gdcmm::PVRGCodec, 625
 - gdcmm::RAWCodec, 640
 - gdcmm::RLECodec, 656
- DecodeByStreams
 - gdcmm::Decoder, 258
 - gdcmm::ImageCodec, 400
 - gdcmm::JPEG12Codec, 445
 - gdcmm::JPEG16Codec, 447
 - gdcmm::JPEG2000Codec, 451
 - gdcmm::JPEG8Codec, 454
 - gdcmm::JPEGCodec, 458
 - gdcmm::RAWCodec, 640
 - gdcmm::RLECodec, 656
- DecodeBytes
 - gdcmm::RAWCodec, 640
- DecodeExtent
 - gdcmm::JPEG2000Codec, 451
 - gdcmm::JPEGCodec, 458
 - gdcmm::JPEGLSCodec, 464
 - gdcmm::RLECodec, 656
- Decompress
 - gdcmm::Overlay, 554
- Decrypt
 - gdcmm::CAPICryptographicMessageSyntax, 181
 - gdcmm::CryptographicMessageSyntax, 212
 - gdcmm::OpenSSLCryptographicMessageSyntax, 544
 - gdcmm::OpenSSLP7CryptographicMessageSyntax, 548
- DeepCopy
 - vtkRTStructSetProperties, 962
- Default
 - gdcmm::FileMetaInformation, 345
- DefinePixelExtent
 - gdcmm::StreamImageReader, 722
 - gdcmm::StreamImageWriter, 727
- DefineProperBufferLength
 - gdcmm::StreamImageReader, 722
 - gdcmm::StreamImageWriter, 727
- DefinedTerms
 - gdcmm::DefinedTerms, 259
- DeflatedExplicitVRLittleEndian
 - gdcmm::TransferSyntax, 795
 - gdcmm::UIDs, 810
- DeformableSpatialRegistrationStorage
 - gdcmm::UIDs, 814
- Defs
 - gdcmm::Defs, 260
- DeleteDirectory
 - gdcmm::System, 765
- DeltaEncodingCodec
 - gdcmm::DeltaEncodingCodec, 263
- Derive
 - gdcmm::FileDerivation, 338
- Description
 - gdcmm::ModuleEntry, 509
- DescriptionField
 - gdcmm::ModuleEntry, 510
- DetachedInterpretationManagementSOPClassRetired
 - gdcmm::UIDs, 812
- DetachedPatientManagementMetaSOPClassRetired
 - gdcmm::UIDs, 812
- DetachedPatientManagementSOPClass
 - gdcmm::MediaStorage, 487
- DetachedPatientManagementSOPClassRetired
 - gdcmm::UIDs, 812
- DetachedResultsManagementMetaSOPClassRetired
 - gdcmm::UIDs, 812
- DetachedResultsManagementSOPClassRetired
 - gdcmm::UIDs, 812

- DetachedStudyManagementMetaSOPClassRetired
 - gdcm::UIDs, [812](#)
- DetachedStudyManagementSOPClass
 - gdcm::MediaStorage, [487](#)
- DetachedStudyManagementSOPClassRetired
 - gdcm::UIDs, [812](#)
- DetachedVisitManagementSOPClass
 - gdcm::MediaStorage, [487](#)
- DetachedVisitManagementSOPClassRetired
 - gdcm::UIDs, [812](#)
- DetailSRStorageTrialRetired
 - gdcm::UIDs, [814](#)
- DetermineEventByPDU
 - gdcm::network::PDUFactory, [573](#)
- dicomAETitle
 - gdcm::UIDs, [816](#)
- dicomApplicationCluster
 - gdcm::UIDs, [816](#)
- dicomAssociationAcceptor
 - gdcm::UIDs, [816](#)
- dicomAssociationInitiator
 - gdcm::UIDs, [816](#)
- dicomAuthorizedNodeCertificateReference
 - gdcm::UIDs, [816](#)
- dicomConfigurationRoot
 - gdcm::UIDs, [816](#)
- dicomDescription
 - gdcm::UIDs, [816](#)
- dicomDevice
 - gdcm::UIDs, [817](#)
- dicomDeviceName
 - gdcm::UIDs, [816](#)
- dicomDeviceSerialNumber
 - gdcm::UIDs, [816](#)
- dicomDevicesRoot
 - gdcm::UIDs, [816](#)
- dicomHostname
 - gdcm::UIDs, [816](#)
- dicomInstalled
 - gdcm::UIDs, [816](#)
- dicomInstitutionAddress
 - gdcm::UIDs, [816](#)
- dicomInstitutionDepartmentName
 - gdcm::UIDs, [816](#)
- dicomInstitutionName
 - gdcm::UIDs, [816](#)
- dicomIssuerOfPatientID
 - gdcm::UIDs, [816](#)
- dicomManufacturer
 - gdcm::UIDs, [816](#)
- dicomManufacturerModelName
 - gdcm::UIDs, [816](#)
- dicomNetworkAE
 - gdcm::UIDs, [817](#)
- dicomNetworkConnection
 - gdcm::UIDs, [817](#)
- dicomNetworkConnectionReference
 - gdcm::UIDs, [816](#)
- dicomPort
 - gdcm::UIDs, [816](#)
- dicomPreferredCalledAETitle
 - gdcm::UIDs, [816](#)
- dicomPreferredCallingAETitle
 - gdcm::UIDs, [816](#)
- dicomPrimaryDeviceType
 - gdcm::UIDs, [816](#)
- dicomRelatedDeviceReference
 - gdcm::UIDs, [816](#)
- dicomSOPClass
 - gdcm::UIDs, [816](#)
- dicomSoftwareVersion
 - gdcm::UIDs, [816](#)
- dicomStationName
 - gdcm::UIDs, [816](#)
- dicomSupportedCharacterSet
 - gdcm::UIDs, [816](#)
- dicomTLSCyphersuite
 - gdcm::UIDs, [816](#)
- dicomThisNodeCertificateReference
 - gdcm::UIDs, [816](#)
- dicomTransferCapability
 - gdcm::UIDs, [817](#)
- dicomTransferRole
 - gdcm::UIDs, [816](#)
- dicomTransferSyntax
 - gdcm::UIDs, [816](#)
- dicomUniqueAETitle
 - gdcm::UIDs, [817](#)
- dicomUniqueAETitlesRegistryRoot
 - gdcm::UIDs, [817](#)
- dicomVendorData
 - gdcm::UIDs, [816](#)
- Dict
 - gdcm::Dict, [268](#)
 - gdcm::DictEntry, [274](#)
- DictConverter
 - gdcm::DictConverter, [271](#)
- DictEntry
 - gdcm::DictEntry, [273](#)
- DictPrinter
 - gdcm::DictPrinter, [276](#)
- Dicts
 - gdcm::CSAHeaderDict, [224](#)
 - gdcm::Dict, [269](#)
 - gdcm::Dicts, [278](#)
 - gdcm::PrivateDict, [617](#)
- difference_type
 - gdcm::CodeString, [197](#)

- gdcmm::LO, [470](#)
- gdcmm::String, [738](#)
- DigitalIntraoralXRayImageStorageForPresentation
 - gdcmm::UIDs, [813](#)
- DigitalIntraoralXRayImageStorageForProcessing
 - gdcmm::MediaStorage, [486](#)
 - gdcmm::UIDs, [813](#)
- DigitalIntraoralXRayImageStorageForPresentation
 - gdcmm::MediaStorage, [486](#)
- DigitalMammographyImageStorageForPresentation
 - gdcmm::MediaStorage, [486](#)
- DigitalMammographyImageStorageForProcessing
 - gdcmm::MediaStorage, [486](#)
- DigitalMammographyXRayImageStorageForPresentation
 - gdcmm::UIDs, [813](#)
- DigitalMammographyXRayImageStorageForProcessing
 - gdcmm::UIDs, [813](#)
- DigitalXRayImageStorageForPresentation
 - gdcmm::MediaStorage, [486](#)
 - gdcmm::UIDs, [813](#)
- DigitalXRayImageStorageForProcessing
 - gdcmm::MediaStorage, [486](#)
 - gdcmm::UIDs, [813](#)
- dim
 - gdcmm::terminal, [77](#)
- Dimensions
 - gdcmm::Bitmap, [164](#)
 - gdcmm::ImageCodec, [403](#)
- DirCosTolerance
 - gdcmm::IPPSorter, [439](#)
- DirectionCosines
 - gdcmm::DirectionCosines, [282](#)
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- Directory
 - gdcmm::Directory, [285](#)
- DoByteSwap
 - gdcmm::ImageCodec, [400](#)
- DolconImage
 - gdcmm::PixmapWriter, [596](#)
- DoInvertMonochrome
 - gdcmm::ImageCodec, [401](#)
- DoOverlayCleanup
 - gdcmm::ImageCodec, [401](#)
- DoPaddedCompositePixelCode
 - gdcmm::ImageCodec, [401](#)
- DoPlanarConfiguration
 - gdcmm::ImageCodec, [401](#)
- DoSimpleCopy
 - gdcmm::ImageCodec, [401](#)
- DoYBR
 - gdcmm::ImageCodec, [401](#)
- Dot
 - gdcmm::DirectionCosines, [282](#)
- DropDuplicatePositions
 - gdcmm::IPPSorter, [439](#)
- DS
 - gdcmm::VR, [898](#)
- DT
 - gdcmm::VR, [898](#)
- Dumper
 - gdcmm::Dumper, [290](#)
- DuplicateAttributeError
 - gdcmm::Parser, [561](#)
- eAABORTPDUReturnedOpen
 - gdcmm::network, [74](#)
- eAABORTRequest
 - gdcmm::network, [74](#)
- eAASSOCIATE_RQPDUReturned
 - gdcmm::network, [74](#)
- eAASSOCIATERequestLocalUser
 - gdcmm::network, [74](#)
- eAASSOCIATEResponseAccept
 - gdcmm::network, [74](#)
- eAASSOCIATEResponseReject
 - gdcmm::network, [74](#)
- eARELEASE_RPPDUReturned
 - gdcmm::network, [74](#)
- eARELEASE_RQPDUReturnedOpen
 - gdcmm::network, [74](#)
- eARELEASERequest
 - gdcmm::network, [74](#)
- eARELEASEResponse
 - gdcmm::network, [74](#)
- eARTIMTimerExpired
 - gdcmm::network, [74](#)
- eASSOCIATE_ACPDUReturned
 - gdcmm::network, [74](#)
- eASSOCIATE_RJPDUReturned
 - gdcmm::network, [74](#)
- eArabic
 - gdcmm, [62](#)
- ECharSet
 - gdcmm, [61](#)
- eCreateMMPS
 - gdcmm, [62](#)
- eCyrillic
 - gdcmm, [62](#)
- EDGE
 - gdcmm::MeshPrimitive, [497](#)
- eEventDoesNotExist
 - gdcmm::network, [74](#)
- EEventID
 - gdcmm::network, [74](#)
- eFind
 - gdcmm, [63](#)
- eGB18030

- gdcM, 62
- eGreek
 - gdcM, 62
- eHebrew
 - gdcM, 62
- eImage
 - gdcM, 62
- eJapanese
 - gdcM, 62
- eJapaneseKanjiMultibyte
 - gdcM, 62
- eJapaneseSupplementaryKanjiMultibyte
 - gdcM, 62
- eKoreanHangulHanjaMultibyte
 - gdcM, 62
- eLatin1
 - gdcM, 62
- eLatin2
 - gdcM, 62
- eLatin3
 - gdcM, 62
- eLatin4
 - gdcM, 62
- eLatin5
 - gdcM, 62
- eMove
 - gdcM, 63
- ENQueryType
 - gdcM, 62
- ePDATATFPDU
 - gdcM::network, 74
- ePDATArequest
 - gdcM::network, 74
- ePatient
 - gdcM, 62
- ePatientRootType
 - gdcM, 63
- EQueryLevel
 - gdcM, 62
- EQueryType
 - gdcM, 62
- ERootType
 - gdcM, 63
- eSeries
 - gdcM, 62
- eSetMMPS
 - gdcM, 62
- eSta10ReleaseCollisionAc
 - gdcM::network, 75
- eSta11ReleaseCollisionRq
 - gdcM::network, 75
- eSta12ReleaseCollisionAcLocal
 - gdcM::network, 75
- eSta13AwaitingClose
 - gdcM::network, 75
- eSta1Idle
 - gdcM::network, 75
- eSta2Open
 - gdcM::network, 75
- eSta3WaitLocalAssoc
 - gdcM::network, 75
- eSta4LocalAssocDone
 - gdcM::network, 75
- eSta5WaitRemoteAssoc
 - gdcM::network, 75
- eSta6TransferReady
 - gdcM::network, 75
- eSta7WaitRelease
 - gdcM::network, 75
- eSta8WaitLocalRelease
 - gdcM::network, 75
- eSta9ReleaseCollisionRqLocal
 - gdcM::network, 75
- eStaDoesNotExist
 - gdcM::network, 75
- EStateID
 - gdcM::network, 74
- eStudy
 - gdcM, 62
- eStudyRootType
 - gdcM, 63
- eThai
 - gdcM, 62
- eTransportConnConfirmLocal
 - gdcM::network, 74
- eTransportConnIndicLocal
 - gdcM::network, 74
- eTransportConnectionClosed
 - gdcM::network, 74
- eUTF8
 - gdcM, 62
- eUnrecognizedPDUReceived
 - gdcM::network, 74
- eWLMFind
 - gdcM, 63
- elem
 - gdcM::SerieHelper::Rule, 659
- Element
 - gdcM::Element< TVR, VM::VM1_n >, 296
- Empty
 - gdcM::Anonymizer, 98
 - gdcM::BoxRegion, 169
 - gdcM::DataElement, 237
 - gdcM::FileAnonymizer, 330
 - gdcM::Region, 649
- EncapsulatedCDASStorage
 - gdcM::MediaStorage, 487
 - gdcM::UIDs, 815

- EncapsulatedDocument
 - gdcm::EncapsulatedDocument, [310](#)
- EncapsulatedPDFStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [815](#)
- Encode
 - gdcm::Base64, [138](#)
- EncodeBuffer
 - gdcm::JPEG12Codec, [445](#)
 - gdcm::JPEG16Codec, [447](#)
 - gdcm::JPEG8Codec, [454](#)
 - gdcm::JPEGCodec, [459](#)
- EncodeBytes
 - gdcm::System, [765](#)
- Encrypt
 - gdcm::CAPICryptographicMessageSyntax, [181](#)
 - gdcm::CryptographicMessageSyntax, [212](#)
 - gdcm::OpenSSLCryptographicMessageSyntax, [544](#)
 - gdcm::OpenSSLP7CryptographicMessageSyntax, [548](#)
- End
 - gdcm::CSAHeaderDict, [224](#)
 - gdcm::DataSet, [249](#)
 - gdcm::Dict, [268](#)
 - gdcm::IODs, [435](#)
 - gdcm::Scanner, [663](#)
 - gdcm::SequenceOfFragments, [681](#)
 - gdcm::SequenceOfItems, [687](#)
 - gdcm::StrictScanner, [733](#)
- EndElement
 - gdcm::TableReader, [772](#)
 - gdcm::XMLDictReader, [975](#)
 - gdcm::XMLPrivateDictReader, [979](#)
- EndElementHandler
 - gdcm::Parser, [561](#)
- EndFilter
 - gdcm::SimpleSubjectWatcher, [705](#)
- EndWith
 - gdcm::Filename, [348](#)
- EnhancedCTImageStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- EnhancedMRImageStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- EnhancedPETImageStorage
 - gdcm::MediaStorage, [488](#)
- EnhancedSRStorage
 - gdcm::UIDs, [814](#)
- EnhancedSR
 - gdcm::MediaStorage, [487](#)
- EnhancedUSVolumeStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [817](#)
- EnhancedXAImageStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [814](#)
- EnhancedXRImageStorage
 - gdcm::UIDs, [814](#)
- EnumeratedValues
 - gdcm::EnumeratedValues, [314](#)
- ErrorOff
 - gdcm::Trace, [790](#)
- ErrorOn
 - gdcm::Trace, [790](#)
- ErrorType
 - gdcm::Parser, [561](#)
- EstablishConnection
 - gdcm::network::ULConnectionManager, [867](#)
- EstablishConnectionMove
 - gdcm::network::ULConnectionManager, [867](#)
- Event
 - gdcm::Event, [316](#)
- Exception
 - gdcm::Exception, [318](#)
- Execute
 - gdcm::Command, [199](#)
 - gdcm::MemberCommand, [493](#)
 - gdcm::SimpleMemberCommand, [703](#)
- ExecuteData
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMThreadedImageReader, [935](#)
- ExecuteInformation
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMThreadedImageReader, [935](#)
- ExecuteQuery
 - gdcm::StringFilter, [741](#)
- Explicit
 - gdcm::TransferSyntax, [794](#)
- ExplicitVRBigEndian
 - gdcm::TransferSyntax, [795](#)
 - gdcm::UIDs, [810](#)
- ExplicitVRLittleEndian
 - gdcm::TransferSyntax, [795](#)
 - gdcm::UIDs, [810](#)
- Explore
 - gdcm::Directory, [285](#)
- Extract
 - gdcm::IconImageFilter, [376](#)
- ExtractIconImages
 - gdcm::IconImageFilter, [376](#)
- ExtractVeprolconImages
 - gdcm::IconImageFilter, [376](#)
- F
 - gdcm::Printer, [616](#)
 - gdcm::Reader, [646](#)
 - gdcm::Validate, [884](#)

- gdcm::XMLPrinter, [977](#)
- FACET
 - gdcm::MeshPrimitive, [497](#)
- FLOAT16
 - gdcm::PixelFormat, [582](#)
- FLOAT32
 - gdcm::PixelFormat, [582](#)
- FLOAT64
 - gdcm::PixelFormat, [582](#)
- FD
 - gdcm::VR, [898](#)
- Fiducials
 - gdcm::Fiducials, [324](#)
- File
 - gdcm::File, [327](#)
- FileAnonymizer
 - gdcm::FileAnonymizer, [330](#)
- FileChangeTransferSyntax
 - gdcm::FileChangeTransferSyntax, [333](#)
 - gdcm::ImageCodec, [403](#)
- FileDecompressLookupTable
 - gdcm::FileDecompressLookupTable, [336](#)
- FileDerivation
 - gdcm::FileDerivation, [338](#)
- FileExists
 - gdcm::System, [765](#)
- FileExplicitFilter
 - gdcm::FileExplicitFilter, [341](#)
- FilesDirectory
 - gdcm::System, [765](#)
- FilesSymlink
 - gdcm::System, [765](#)
- FileList
 - gdcm, [61](#)
- FileMetaInformation
 - gdcm::FileMetaInformation, [344](#)
- FileName
 - vtkGDCMPolyDataReader, [927](#)
- FileNameEvent
 - gdcm::FileNameEvent, [352](#)
- FileNameOrdering
 - gdcm::SerieHelper, [692](#)
- FileNames
 - vtkGDCMImageReader, [910](#)
- FileSet
 - gdcm::FileSet, [356](#)
- FileSize
 - gdcm::System, [765](#)
- FileStreamer
 - gdcm::FileStreamer, [359](#)
- FileTime
 - gdcm::System, [766](#)
- FileType
 - gdcm::FileSet, [356](#)
- FileWithName
 - gdcm::FileWithName, [362](#)
- Filename
 - gdcm::Filename, [348](#)
- filename
 - gdcm::FileWithName, [362](#)
- FilenameGenerator
 - gdcm::FilenameGenerator, [354](#)
- FilenameType
 - gdcm::DICOMDIRGenerator, [265](#)
 - gdcm::Directory, [284](#)
 - gdcm::FilenameGenerator, [354](#)
- FileNames
 - gdcm::Sorter, [715](#)
- FileNamesType
 - gdcm::DICOMDIRGenerator, [265](#)
 - gdcm::Directory, [284](#)
 - gdcm::FilenameGenerator, [354](#)
- FileType
 - gdcm::FileSet, [356](#)
- Fill
 - gdcm::ByteValue, [176](#)
- FillFromDataSet
 - gdcm::FileMetaInformation, [345](#)
- FillMedicalImageInformation
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [913](#)
 - vtkGDCMPolyDataReader, [926](#)
- FindCSAElementByName
 - gdcm::CSAHeader, [220](#)
- FindContext
 - gdcm::network::ULConnection, [860](#)
- FindDataElement
 - gdcm::DataSet, [250](#)
 - gdcm::Item, [441](#)
 - gdcm::SequenceOfItems, [687](#)
- FindDictEntry
 - gdcm::PrivateDict, [617](#)
- FindMacroEntry
 - gdcm::Macro, [478](#)
- FindModuleEntryInMacros
 - gdcm::Module, [506](#)
- FindNextDataElement
 - gdcm::DataSet, [250](#)
- FindPDBelementByName
 - gdcm::PDBHeader, [568](#)
- FindPatientRootQuery
 - gdcm::FindPatientRootQuery, [364](#)
- FindStudyRootQuery
 - gdcm::FindStudyRootQuery, [366](#)
- FirstRender
 - vtkImageColorViewer, [946](#)
- FL
 - gdcm::VR, [898](#)

- ForceRescale
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- FormatDateTime
 - gdcm::System, [766](#)
- Fragment
 - gdcm::Fragment, [369](#)
- FragmentVector
 - gdcm::SequenceOfFragments, [680](#)
- FromString
 - gdcm::StringFilter, [741](#)
- FujiPrivateCRImageStorage
 - gdcm::MediaStorage, [488](#)
- GDCM_DIFFERENT
 - gdcm, [61](#)
- GDCM_DO_JOIN2
 - gdcmStaticAssert.h, [1194](#)
- GDCM_DO_JOIN
 - gdcmStaticAssert.h, [1194](#)
- GDCM_EQUAL
 - gdcm, [61](#)
- GDCM_EXPORT
 - gdcmWin32.h, [1250](#)
- GDCM_FUNCTION
 - gdcmTrace.h, [1217](#)
- GDCM_GREATEROREQUAL
 - gdcm, [61](#)
- GDCM_GREATER
 - gdcm, [61](#)
- GDCM_JOIN
 - gdcmStaticAssert.h, [1194](#)
- GDCM_LEGACY_BODY
 - gdcmLegacyMacro.h, [1102](#)
- GDCM_LEGACY_REPLACED_BODY
 - gdcmLegacyMacro.h, [1102](#)
- GDCM_LEGACY
 - gdcmLegacyMacro.h, [1102](#)
- GDCM_LESSOREQUAL
 - gdcm, [61](#)
- GDCM_LESS
 - gdcm, [61](#)
- GDCM_STATIC_ASSERT
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
 - gdcmStaticAssert.h, [1194](#)
- GDCMMACROENTRY_H
 - gdcmMacroEntry.h, [1107](#)
- GEMS
 - gdcm::Dicts, [278](#)
- GEPrivate3DModelStorage
 - gdcm::MediaStorage, [487](#)
- GRAY
 - gdcm::LookupTable, [473](#)
- GREEN
 - gdcm::LookupTable, [473](#)
- gdcm, [45](#)
 - AEComp, [61](#)
 - ASComp, [61](#)
 - BOOL_FUNCTION_PFILE_PFILE_POINTER, [61](#)
 - backslash, [63](#)
 - CSComp, [61](#)
 - CompOperators, [61](#)
 - DAComp, [61](#)
 - DTCComp, [61](#)
 - eArabic, [62](#)
 - ECharSet, [61](#)
 - eCreateMMPS, [62](#)
 - eCyrillic, [62](#)
 - eFind, [63](#)
 - eGB18030, [62](#)
 - eGreek, [62](#)
 - eHebrew, [62](#)
 - eImage, [62](#)
 - eJapanese, [62](#)
 - eJapaneseKanjiMultibyte, [62](#)
 - eJapaneseSupplementaryKanjiMultibyte, [62](#)
 - eKoreanHangulHanjaMultibyte, [62](#)
 - eLatin1, [62](#)
 - eLatin2, [62](#)
 - eLatin3, [62](#)
 - eLatin4, [62](#)
 - eLatin5, [62](#)
 - eMove, [63](#)
 - ENQueryType, [62](#)
 - ePatient, [62](#)
 - ePatientRootType, [63](#)
 - EQueryLevel, [62](#)
 - EQueryType, [62](#)
 - ERootType, [63](#)
 - eSeries, [62](#)
 - eSetMMPS, [62](#)
 - eStudy, [62](#)
 - eStudyRootType, [63](#)
 - eThai, [62](#)
 - eUTF8, [62](#)
 - eWLMFind, [63](#)
 - FileList, [61](#)
 - GDCM_DIFFERENT, [61](#)
 - GDCM_EQUAL, [61](#)
 - GDCM_GREATEROREQUAL, [61](#)
 - GDCM_GREATER, [61](#)
 - GDCM_LESSOREQUAL, [61](#)
 - GDCM_LESS, [61](#)
 - GetVRFromTag, [63](#)

- GlobalInstance, 69
- IconImage, 61
- LD_ALL, 63
- LD_NOSEQ, 63
- LD_NOSHADOWSEQ, 63
- LD_NOSHADOW, 63
- LOComp, 61
- LTComp, 61
- LodModeType, 63
- MacroEntry, 61
- NestedMacroEntries, 61
- operator!=, 63
- operator<<, 63–68
- operator>>, 68, 69
- operator==, 68
- PNComp, 61
- SHComp, 61
- STComp, 61
- TMComp, 61
- TYPETOENCODING, 69
- to_string, 69
- UIComp, 61
- UTComp, 61
- VRBINARY, 69
- gdcmm::ASN1, 111
 - ~ASN1, 111
 - ASN1, 111
 - ParseDump, 111
 - ParseDumpFile, 111
 - TestPBKDF2, 111
- gdcmm::AbortEvent, 90
- gdcmm::AnonymizeEvent, 93
 - ~AnonymizeEvent, 94
 - AnonymizeEvent, 94
 - CheckEvent, 94
 - GetEventName, 94
 - GetTag, 94
 - MakeObject, 95
 - Self, 94
 - SetTag, 95
 - Superclass, 94
- gdcmm::Anonymizer, 95
 - ~Anonymizer, 98
 - Anonymizer, 98
 - BALCPPProtect, 98
 - BasicApplicationLevelConfidentialityProfile, 98
 - CanEmptyTag, 98
 - ClearInternalUIDs, 98
 - Empty, 98
 - GetBasicApplicationLevelConfidentialityProfile←
 - Attributes, 98
 - GetCryptographicMessageSyntax, 99
 - GetFile, 99
 - New, 99
 - RecurseDataSet, 99
 - Remove, 99
 - RemoveGroupLength, 99
 - RemovePrivateTags, 99
 - RemoveRetired, 99
 - Replace, 99, 100
 - SetCryptographicMessageSyntax, 100
 - SetFile, 100
- gdcmm::AnyEvent, 100
- gdcmm::ApplicationEntity, 104
 - Internal, 105
 - IsValid, 105
 - MaxLength, 105
 - MaxNumberOfComponents, 105
 - Padding, 105
 - Print, 105
 - Separator, 105
 - SetBlob, 105
 - Squeeze, 105
- gdcmm::Attribute
 - ArrayType, 115
 - GDCM_STATIC_ASSERT, 115
 - GetAsDataElement, 115
 - GetDictVM, 115
 - GetDictVR, 115
 - GetNumberOfValues, 115
 - GetTag, 115
 - GetValue, 116
 - GetValues, 116
 - GetVM, 116
 - GetVR, 116
 - Internal, 118
 - operator!=, 116
 - operator<, 116
 - operator==, 116
 - operator[], 116, 117
 - Print, 117
 - Set, 117
 - SetByteValue, 117
 - SetByteValueNoSwap, 117
 - SetFromDataElement, 117
 - SetFromDataSet, 117
 - SetValue, 117
 - SetValues, 118
 - VMType, 115
- gdcmm::Attribute< Group, Element, TVR, TVM >, 113
- gdcmm::Attribute< Group, Element, TVR, VM::VM1 >, 118
 - ArrayType, 120
 - GDCM_STATIC_ASSERT, 120
 - GetAsDataElement, 120
 - GetDictVM, 120
 - GetDictVR, 120
 - GetNumberOfValues, 120
 - GetTag, 120

- GetValue, [121](#)
- GetValues, [121](#)
- GetVM, [121](#)
- GetVR, [121](#)
- Internal, [122](#)
- operator!=, [121](#)
- operator<, [121](#)
- operator==, [121](#)
- Print, [121](#)
- Set, [121](#)
- SetByteValue, [121](#)
- SetByteValueNoSwap, [122](#)
- SetFromDataElement, [122](#)
- SetFromDataSet, [122](#)
- SetValue, [122](#)
- VMType, [120](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM1_3 >, [123](#)
- GetVM, [124](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 >, [124](#)
- GetVM, [125](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, [125](#)
- ~Attribute, [126](#)
- ArrayType, [126](#)
- Attribute, [126](#)
- GDCM_STATIC_ASSERT, [127](#)
- GetAsDataElement, [127](#)
- GetDictVM, [127](#)
- GetDictVR, [127](#)
- GetNumberOfValues, [127](#)
- GetTag, [127](#)
- GetValue, [127](#)
- GetValues, [127](#)
- GetVM, [127](#)
- GetVR, [127](#)
- operator[], [128](#)
- Print, [128](#)
- Set, [128](#)
- SetByteValue, [128](#)
- SetFromDataElement, [128](#)
- SetFromDataSet, [128](#)
- SetNumberOfValues, [128](#)
- SetValue, [128](#)
- SetValues, [128](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM2_2n >, [129](#)
- GetVM, [130](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM2_n >, [130](#)
- GetVM, [132](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM3_3n >, [132](#)
- GetVM, [133](#)
- gdcmm::Attribute< Group, Element, TVR, VM::VM3_n >, [134](#)
- GetVM, [135](#)
- gdcmm::AudioCodec, [135](#)
- ~AudioCodec, [136](#)
- AudioCodec, [136](#)
- CanCode, [136](#)
- CanDecode, [136](#)
- Decode, [137](#)
- gdcmm::Base64, [137](#)
- Decode, [137](#)
- Encode, [138](#)
- GetDecodeLength, [138](#)
- GetEncodeLength, [138](#)
- gdcmm::BaseQuery, [145](#)
- ~BaseQuery, [147](#)
- AddQueryDataSet, [147](#)
- BaseQuery, [147](#)
- GetAbstractSyntaxUID, [147](#)
- GetQueryDataSet, [147](#)
- GetSOPInstanceUID, [147](#)
- mDataSet, [148](#)
- mHelpDescription, [148](#)
- mSopInstanceUID, [148](#)
- Print, [147](#)
- QueryFactory, [148](#)
- SetSOPInstanceUID, [148](#)
- SetSearchParameter, [147](#), [148](#)
- ValidDataSet, [148](#)
- ValidateQuery, [148](#)
- WriteHelpFile, [148](#)
- WriteQuery, [148](#)
- gdcmm::BaseRootQuery, [149](#)
- ~BaseRootQuery, [150](#)
- BaseRootQuery, [150](#)
- Construct, [150](#)
- GetQueryLevelFromQueryRoot, [150](#)
- GetQueryLevelFromString, [150](#)
- GetQueryLevelString, [150](#)
- GetTagListByLevel, [150](#)
- InitializeDataSet, [150](#)
- mHelpDescription, [151](#)
- mImage, [151](#)
- mPatient, [151](#)
- mRootType, [151](#)
- mSeries, [151](#)
- mStudy, [151](#)
- QueryFactory, [151](#)
- ValidateQuery, [151](#)
- gdcmm::BasicOffsetTable, [154](#)
- BasicOffsetTable, [155](#)
- operator<<, [156](#)
- Read, [156](#)

- gdcm::Bitmap, 156
 - ~Bitmap, 159
 - AreOverlaysInPixelData, 159
 - Bitmap, 159
 - Clear, 159
 - ComputeLossyFlag, 159
 - Dimensions, 164
 - GetBuffer, 159
 - GetBuffer2, 159
 - GetBufferLength, 160
 - GetColumns, 160
 - GetDataElement, 160
 - GetDimension, 160
 - GetDimensions, 160
 - GetLUT, 160
 - GetNeedByteSwap, 161
 - GetNumberOfDimensions, 161
 - GetPhotometricInterpretation, 161
 - GetPixelFormat, 161
 - GetPlanarConfiguration, 161
 - GetRows, 161
 - GetTransferSyntax, 161
 - ImageChangeTransferSyntax, 164
 - IsEmpty, 161
 - IsLossy, 162
 - IsTransferSyntaxCompatible, 162
 - LUTPtr, 159
 - LUT, 164
 - LossyFlag, 164
 - NeedByteSwap, 164
 - NumberOfDimensions, 164
 - PF, 164
 - PI, 164
 - PixelData, 164
 - PixmapReader, 164
 - PlanarConfiguration, 164
 - Print, 162
 - SetColumns, 162
 - SetDataElement, 162
 - SetDimension, 162
 - SetDimensions, 162
 - SetLUT, 162
 - SetLossyFlag, 162
 - SetNeedByteSwap, 163
 - SetNumberOfDimensions, 163
 - SetPhotometricInterpretation, 163
 - SetPixelFormat, 163
 - SetPlanarConfiguration, 163
 - SetRows, 163
 - SetTransferSyntax, 163
 - TryJPEG2000Codec, 163
 - TryJPEG2000Codec2, 164
 - TryJPEGCodec, 164
 - TryJPEGCodec2, 164
 - TryJPEGLSCodec, 164
 - TryKAKADUCodec, 164
 - TryPVRGCodec, 164
 - TryRAWCodec, 164
 - TryRLECodec, 164
 - TS, 164
- gdcm::BitmapToBitmapFilter, 165
 - ~BitmapToBitmapFilter, 166
 - BitmapToBitmapFilter, 166
 - GetOutput, 166
 - GetOutputAsBitmap, 166
 - Input, 166
 - Output, 166
 - SetInput, 166
- gdcm::BoxRegion, 167
 - ~BoxRegion, 168
 - Area, 169
 - BoundingBox, 169
 - BoxRegion, 168
 - Clone, 169
 - ComputeBoundingBox, 169
 - Empty, 169
 - GetXMax, 169
 - GetXMin, 169
 - GetYMax, 169
 - GetYMin, 170
 - GetZMax, 170
 - GetZMin, 170
 - IsValid, 170
 - operator=, 170
 - Print, 170
 - SetDomain, 170
- gdcm::ByteBuffer, 170
 - ByteBuffer, 171
 - Get, 171
 - GetStart, 171
 - ShiftEnd, 171
 - UpdatePosition, 171
- gdcm::ByteSwap
 - Swap, 172
 - SwapFromSwapCodeIntoSystem, 172
 - SwapRange, 172
 - SwapRangeFromSwapCodeIntoSystem, 172
 - SystemIsBigEndian, 172
 - SystemIsLittleEndian, 172
- gdcm::ByteSwap< T >, 171
- gdcm::ByteSwapFilter, 173
 - ~ByteSwapFilter, 173
 - ByteSwap, 173
 - ByteSwapFilter, 173
 - SetByteSwapTag, 173
- gdcm::ByteValue, 174
 - ~ByteValue, 176
 - Append, 176

- ByteValue, [176](#)
- Clear, [176](#)
- ComputeLength, [176](#)
- Fill, [176](#)
- GetBuffer, [176](#)
- GetLength, [176](#)
- GetPointer, [177](#)
- IsEmpty, [177](#)
- IsPrintable, [177](#)
- operator const std::vector< char > &, [177](#)
- operator=, [177](#)
- operator==, [177](#)
- Print, [177](#)
- PrintASCIIXML, [178](#)
- PrintASCII, [178](#)
- PrintGroupLength, [178](#)
- PrintHex, [178](#)
- PrintHexXML, [178](#)
- PrintPNXML, [178](#)
- Read, [178](#)
- SetLength, [178](#)
- SetLengthOnly, [178](#)
- Write, [178](#)
- WriteBuffer, [178](#)
- gdcm::CAPICryptoFactory, [179](#)
 - CAPICryptoFactory, [179](#)
 - CreateCMSProvider, [180](#)
- gdcm::CAPICryptographicMessageSyntax, [180](#)
 - ~CAPICryptographicMessageSyntax, [181](#)
 - CAPICryptographicMessageSyntax, [181](#)
 - Decrypt, [181](#)
 - Encrypt, [181](#)
 - GetCipherType, [181](#)
 - GetInitialized, [181](#)
 - ParseCertificateFile, [182](#)
 - ParseKeyFile, [182](#)
 - SetCipherType, [182](#)
 - SetPassword, [182](#)
- gdcm::CP246ExplicitDataElement, [207](#)
 - GetLength, [209](#)
 - Read, [209](#)
 - ReadPreValue, [209](#)
 - ReadValue, [209](#)
 - ReadWithLength, [209](#)
- gdcm::CSAElement, [213](#)
 - CSAElement, [215](#)
 - DataField, [217](#)
 - DataPtr, [215](#)
 - GetByteValue, [215](#)
 - GetKey, [215](#)
 - GetName, [216](#)
 - GetNoOfItems, [216](#)
 - GetSyngoDT, [216](#)
 - GetValue, [216](#)
 - GetVM, [216](#)
 - GetVR, [216](#)
 - IsEmpty, [216](#)
 - KeyField, [217](#)
 - NameField, [218](#)
 - NoOfItemsField, [218](#)
 - operator<, [217](#)
 - operator<<, [217](#)
 - operator=, [217](#)
 - operator==, [217](#)
 - SetByteValue, [217](#)
 - SetKey, [217](#)
 - SetName, [217](#)
 - SetNoOfItems, [217](#)
 - SetSyngoDT, [217](#)
 - SetValue, [217](#)
 - SetVM, [217](#)
 - SetVR, [217](#)
 - SyngoDTField, [218](#)
 - VRField, [218](#)
 - ValueMultiplicityField, [218](#)
- gdcm::CSAHeader, [218](#)
 - ~CSAHeader, [220](#)
 - CSAHeader, [220](#)
 - CSAHeaderType, [220](#)
 - DATASET_FORMAT, [220](#)
 - FindCSAElementByName, [220](#)
 - GetCSADataInfo, [220](#)
 - GetCSAEEnd, [221](#)
 - GetCSAElementByName, [221](#)
 - GetCSAImageHeaderInfoTag, [221](#)
 - GetCSASeriesHeaderInfoTag, [221](#)
 - GetDataSet, [221](#)
 - GetFormat, [221](#)
 - GetInterfile, [222](#)
 - INTERFILE, [220](#)
 - LoadFromDataElement, [222](#)
 - NOMAGIC, [220](#)
 - operator<<, [222](#)
 - Print, [222](#)
 - Read, [222](#)
 - SV10, [220](#)
 - UNKNOWN, [220](#)
 - Write, [222](#)
 - ZEROED_OUT, [220](#)
- gdcm::CSAHeaderDict, [223](#)
 - AddCSAHeaderDictEntry, [224](#)
 - Begin, [224](#)
 - CSAHeaderDict, [224](#)
 - ConstIterator, [224](#)
 - Dicts, [224](#)
 - End, [224](#)
 - GetCSAHeaderDictEntry, [224](#)
 - IsEmpty, [224](#)

- Iterator, [224](#)
- LoadDefault, [224](#)
- MapCSAHeaderDictEntry, [224](#)
- operator<<, [224](#)
- gdcmm::CSAHeaderDictEntry, [225](#)
- CSAHeaderDictEntry, [226](#)
- GetDescription, [226](#)
- GetName, [226](#)
- GetVM, [226](#)
- GetVR, [226](#)
- operator<, [226](#)
- operator<<, [226](#)
- SetDescription, [226](#)
- SetName, [226](#)
- SetVM, [226](#)
- SetVR, [226](#)
- gdcmm::CSAHeaderDictException, [227](#)
- gdcmm::CodeString, [195](#)
- CodeString, [197](#)
- const_iterator, [197](#)
- const_reference, [197](#)
- const_reverse_iterator, [197](#)
- difference_type, [197](#)
- GetAsString, [197](#)
- IsValid, [197](#)
- iterator, [197](#)
- operator!=, [198](#)
- operator<<, [198](#)
- operator==, [198](#)
- pointer, [197](#)
- reference, [197](#)
- reverse_iterator, [197](#)
- Size, [198](#)
- size_type, [197](#)
- TrimInternal, [198](#)
- value_type, [197](#)
- gdcmm::Codec, [193](#)
- gdcmm::Coder, [194](#)
- ~Coder, [195](#)
- CanCode, [195](#)
- Code, [195](#)
- InternalCode, [195](#)
- gdcmm::Command, [198](#)
- ~Command, [199](#)
- Command, [199](#)
- Execute, [199](#)
- gdcmm::CommandDataSet, [200](#)
- ~CommandDataSet, [201](#)
- CommandDataSet, [201](#)
- Insert, [201](#)
- operator<<, [202](#)
- Read, [201](#)
- Replace, [201](#)
- Write, [202](#)
- gdcmm::CompositeNetworkFunctions, [203](#)
- CEcho, [204](#)
- CFind, [204](#)
- CMove, [205](#)
- CStore, [206](#)
- ConstructQuery, [205](#), [206](#)
- KeyValuePairArrayType, [204](#)
- KeyValuePairType, [204](#)
- gdcmm::ConstCharWrapper, [206](#)
- ConstCharWrapper, [207](#)
- operator const char *, [207](#)
- gdcmm::CryptoFactory, [209](#)
- ~CryptoFactory, [211](#)
- CAPI, [210](#)
- CreateCMSProvider, [211](#)
- CryptoFactory, [210](#)
- CryptoLib, [210](#)
- DEFAULT, [210](#)
- GetFactoryInstance, [211](#)
- OPENSSL7, [210](#)
- OPENSSL, [210](#)
- gdcmm::CryptographicMessageSyntax, [211](#)
- ~CryptographicMessageSyntax, [212](#)
- AES128_CIPHER, [212](#)
- AES192_CIPHER, [212](#)
- AES256_CIPHER, [212](#)
- CipherTypes, [212](#)
- CryptographicMessageSyntax, [212](#)
- DES3_CIPHER, [212](#)
- Decrypt, [212](#)
- Encrypt, [212](#)
- GetCipherType, [212](#)
- ParseCertificateFile, [213](#)
- ParseKeyFile, [213](#)
- SetCipherType, [213](#)
- SetPassword, [213](#)
- gdcmm::Curve, [230](#)
- ~Curve, [232](#)
- Curve, [232](#)
- Decode, [232](#)
- GetAsPoints, [232](#)
- GetCurveDataDescriptor, [232](#)
- GetDataValueRepresentation, [232](#)
- GetDimensions, [232](#)
- GetGroup, [232](#)
- GetNumberOfCurves, [232](#)
- GetNumberOfPoints, [232](#)
- GetTypeOfData, [232](#)
- GetTypeOfDataDescription, [232](#)
- IsEmpty, [232](#)
- Print, [232](#)
- SetCoordinateStartValue, [232](#)
- SetCoordinateStepValue, [233](#)
- SetCurve, [233](#)

- SetCurveDataDescriptor, [233](#)
- SetCurveDescription, [233](#)
- SetDataValueRepresentation, [233](#)
- SetDimensions, [233](#)
- SetGroup, [233](#)
- SetNumberOfPoints, [233](#)
- SetTypeOfData, [233](#)
- Update, [233](#)
- gdcmm::DICOMDIRGenerator, [264](#)
 - ~DICOMDIRGenerator, [265](#)
 - AddImageDirectoryRecord, [265](#)
 - AddPatientDirectoryRecord, [266](#)
 - AddSeriesDirectoryRecord, [266](#)
 - AddStudyDirectoryRecord, [266](#)
 - DICOMDIRGenerator, [265](#)
 - FilenameType, [265](#)
 - FileNamesType, [265](#)
 - Generate, [266](#)
 - GetFile, [266](#)
 - GetScanner, [266](#)
 - SetDescriptor, [266](#)
 - SetFile, [266](#)
 - SetFileNames, [266](#)
 - SetRootDirectory, [266](#)
- gdcmm::DICOMDIR, [263](#)
 - DICOMDIR, [264](#)
- gdcmm::DataElement, [233](#)
 - Clear, [237](#)
 - DataElement, [237](#)
 - Empty, [237](#)
 - GetByteValue, [237](#)
 - GetLength, [237](#)
 - GetSequenceOfFragments, [238](#)
 - GetTag, [238](#)
 - GetValue, [238](#)
 - GetValueAsSQ, [239](#)
 - GetVL, [239](#)
 - GetVR, [239](#)
 - IsEmpty, [239](#)
 - IsUndefinedLength, [240](#)
 - operator<, [240](#)
 - operator<<, [242](#)
 - operator=, [240](#)
 - operator==, [240](#)
 - Read, [240](#)
 - ReadOrSkip, [240](#)
 - ReadPreValue, [240](#)
 - ReadValue, [240](#)
 - ReadValueWithLength, [240](#)
 - ReadWithLength, [240](#)
 - SetByteValue, [240](#)
 - SetTag, [241](#)
 - SetVLToUndefined, [241](#)
 - SetValue, [241](#)
 - SetValueFieldLength, [241](#)
 - SetVL, [241](#)
 - SetVR, [242](#)
 - TagField, [242](#)
 - VRField, [243](#)
 - ValueField, [242](#)
 - ValueLengthField, [242](#)
 - ValuePtr, [237](#)
 - Write, [242](#)
- gdcmm::DataElementException, [243](#)
- gdcmm::DataEvent, [244](#)
 - ~DataEvent, [245](#)
 - CheckEvent, [245](#)
 - DataEvent, [245](#)
 - GetData, [245](#)
 - GetDataLength, [245](#)
 - GetEventName, [245](#)
 - MakeObject, [245](#)
 - Self, [245](#)
 - SetData, [246](#)
 - Superclass, [245](#)
- gdcmm::DataSet, [246](#)
 - Begin, [249](#)
 - CSAHeader, [253](#)
 - Clear, [249](#)
 - ComputeDataElement, [249](#)
 - ComputeGroupLength, [249](#)
 - ConstIterator, [249](#)
 - DataElementSet, [249](#)
 - End, [249](#)
 - FindDataElement, [250](#)
 - FindNextDataElement, [250](#)
 - GetDEEnd, [251](#)
 - GetDES, [251](#)
 - GetDataElement, [250](#)
 - GetLength, [251](#)
 - GetMediaStorage, [251](#)
 - GetPrivateCreator, [251](#)
 - Insert, [251](#)
 - InsertDataElement, [251](#)
 - IsEmpty, [252](#)
 - Iterator, [249](#)
 - operator<<, [253](#)
 - operator(), [252](#)
 - operator=, [252](#)
 - operator[], [252](#)
 - Print, [252](#)
 - Read, [252](#)
 - ReadNested, [252](#)
 - ReadSelectedPrivateTags, [252](#)
 - ReadSelectedPrivateTagsWithLength, [252](#)
 - ReadSelectedTags, [252](#)
 - ReadSelectedTagsWithLength, [252](#)
 - ReadUpToTag, [252](#)

- ReadUpToTagWithLength, [252](#)
- ReadWithLength, [252](#)
- Remove, [252](#)
- Replace, [252](#)
- ReplaceEmpty, [253](#)
- Size, [253](#)
- SizeType, [249](#)
- Write, [253](#)
- gdcmm::DataSetEvent, [254](#)
 - ~DataSetEvent, [255](#)
 - CheckEvent, [255](#)
 - DataSetEvent, [255](#)
 - GetDataSet, [255](#)
 - GetEventName, [255](#)
 - MakeObject, [255](#)
 - Self, [255](#)
 - Superclass, [255](#)
- gdcmm::DataSetHelper, [256](#)
 - ComputeVR, [256](#)
- gdcmm::Decoder, [257](#)
 - ~Decoder, [258](#)
 - CanDecode, [258](#)
 - Decode, [258](#)
 - DecodeByStreams, [258](#)
- gdcmm::DefinedTerms, [258](#)
 - DefinedTerms, [259](#)
- gdcmm::Defs, [259](#)
 - ~Defs, [260](#)
 - Defs, [260](#)
 - GetIODFromFile, [260](#)
 - GetIODNameFromMediaStorage, [260](#)
 - GetIODs, [260](#), [261](#)
 - GetMacros, [261](#)
 - GetModules, [261](#)
 - GetTypeFromTag, [261](#)
 - Global, [261](#)
 - IsEmpty, [261](#)
 - LoadDefaults, [261](#)
 - LoadFromFile, [261](#)
 - Verify, [261](#)
- gdcmm::DeltaEncodingCodec, [262](#)
 - ~DeltaEncodingCodec, [263](#)
 - CanDecode, [263](#)
 - Decode, [263](#)
 - DeltaEncodingCodec, [263](#)
- gdcmm::Dict, [267](#)
 - AddDictEntry, [268](#)
 - Begin, [268](#)
 - ConstIterator, [268](#)
 - Dict, [268](#)
 - Dicts, [269](#)
 - End, [268](#)
 - GetDictEntry, [268](#)
 - GetDictEntryByKeyword, [268](#)
 - GetDictEntryByName, [268](#)
 - GetKeywordFromTag, [269](#)
 - IsEmpty, [269](#)
 - Iterator, [268](#)
 - LoadDefault, [269](#)
 - MapDictEntry, [268](#)
 - operator<<, [269](#)
- gdcmm::DictConverter, [269](#)
 - ~DictConverter, [271](#)
 - AddGroupLength, [271](#)
 - Convert, [271](#)
 - ConvertToCXX, [271](#)
 - ConvertToXML, [271](#)
 - DICT_DEBUG, [270](#)
 - DICT_DEFAULT, [270](#)
 - DICT_XML, [270](#)
 - DictConverter, [271](#)
 - GetDictName, [271](#)
 - GetInputFilename, [271](#)
 - GetOutputFilename, [271](#)
 - GetOutputType, [271](#)
 - OutputTypes, [270](#)
 - ReadVM, [271](#)
 - ReadVR, [271](#)
 - Readuint16, [271](#)
 - SetDictName, [271](#)
 - SetInputFileName, [271](#)
 - SetOutputFileName, [271](#)
 - SetOutputType, [271](#)
 - WriteFooter, [271](#)
 - WriteHeader, [271](#)
- gdcmm::DictEntry, [272](#)
 - Dict, [274](#)
 - DictEntry, [273](#)
 - GetKeyword, [273](#)
 - GetName, [273](#)
 - GetRetired, [273](#)
 - GetVM, [273](#)
 - GetVR, [273](#)
 - IsUnique, [273](#)
 - operator<<, [274](#)
 - SetElementXX, [274](#)
 - SetGroupXX, [274](#)
 - SetKeyword, [274](#)
 - SetName, [274](#)
 - SetRetired, [274](#)
 - SetVM, [274](#)
 - SetVR, [274](#)
- gdcmm::DictPrinter, [275](#)
 - ~DictPrinter, [276](#)
 - DictPrinter, [276](#)
 - Print, [276](#)
 - PrintDataElement2, [276](#)
 - PrintDataSet2, [276](#)

- gdcm::Dicts, [276](#)
 - ~Dicts, [278](#)
 - ConstructorType, [278](#)
 - Dicts, [278](#)
 - GEMS, [278](#)
 - GetCSAHeaderDict, [278](#)
 - GetConstructorString, [278](#)
 - GetDictEntry, [278](#)
 - GetPrivateDict, [279](#)
 - GetPublicDict, [279](#)
 - Global, [279](#)
 - IsEmpty, [279](#)
 - LoadDefaults, [279](#)
 - operator<<, [279](#)
 - PHILIPS, [278](#)
 - SIEMENS, [278](#)
- gdcm::DirectionCosines, [281](#)
 - ~DirectionCosines, [282](#)
 - ComputeDistAlongNormal, [282](#)
 - Cross, [282](#)
 - CrossDot, [282](#)
 - DirectionCosines, [282](#)
 - Dot, [282](#)
 - IsValid, [282](#)
 - Normalize, [282](#)
 - operator const double *, [283](#)
 - Print, [283](#)
 - SetFromString, [283](#)
- gdcm::Directory, [283](#)
 - ~Directory, [285](#)
 - Directory, [285](#)
 - Explore, [285](#)
 - FilenameType, [284](#)
 - FileNamesType, [284](#)
 - GetDirectories, [285](#)
 - GetFileNames, [285](#)
 - GetToplevel, [285](#)
 - Load, [285](#)
 - operator<<, [286](#)
 - Print, [285](#)
- gdcm::DirectoryHelper, [286](#)
 - GetCTImageSeriesUIDs, [287](#)
 - GetFileNamesFromSeriesUIDs, [287](#)
 - GetFrameOfReference, [287](#)
 - GetMRImageSeriesUIDs, [287](#)
 - GetRTStructSeriesUIDs, [287](#)
 - GetSOPClassUID, [287](#)
 - GetSeriesUIDsBySOPClassUID, [287](#)
 - GetStringValueFromTag, [287](#)
 - LoadImageFromFiles, [287](#)
 - RetrieveSOPInstanceUIDFromIndex, [287](#)
 - RetrieveSOPInstanceUIDFromZPosition, [287](#)
- gdcm::DummyValueGenerator, [288](#)
 - Generate, [288](#)
- gdcm::Dumper, [288](#)
 - ~Dumper, [290](#)
 - Dumper, [290](#)
- gdcm::Element
 - GetAsDataElement, [292](#)
 - GetLength, [292](#)
 - GetValue, [292](#)
 - GetValues, [292](#)
 - GetVM, [292](#)
 - GetVR, [293](#)
 - Internal, [293](#)
 - operator[], [293](#)
 - Print, [293](#)
 - Read, [293](#)
 - Set, [293](#)
 - SetFromDataElement, [293](#)
 - SetNoSwap, [293](#)
 - SetValue, [293](#)
 - Type, [292](#)
 - Write, [293](#)
- gdcm::Element< TVR, TVM >, [290](#)
- gdcm::Element< TVR, VM::VM1_2 >, [294](#)
 - Parent, [295](#)
 - SetLength, [295](#)
- gdcm::Element< TVR, VM::VM1_n >, [295](#)
 - ~Element, [296](#)
 - Element, [296](#)
 - GetAsDataElement, [296](#)
 - GetLength, [296](#)
 - GetValue, [297](#)
 - GetVM, [297](#)
 - GetVR, [297](#)
 - operator=, [297](#)
 - operator[], [297](#)
 - Print, [297](#)
 - Read, [297](#)
 - Set, [297](#)
 - SetArray, [297](#)
 - SetFromDataElement, [297](#)
 - SetLength, [297](#)
 - SetNoSwap, [297](#)
 - SetValue, [297](#)
 - Type, [296](#)
 - Write, [298](#)
 - WriteASCII, [298](#)
- gdcm::Element< TVR, VM::VM2_2n >, [298](#)
 - Parent, [299](#)
 - SetLength, [299](#)
- gdcm::Element< TVR, VM::VM2_n >, [300](#)
 - Parent, [301](#)
 - SetLength, [301](#)
- gdcm::Element< TVR, VM::VM3_3n >, [301](#)
 - Parent, [302](#)
 - SetLength, [302](#)

- gdcmm::Element< TVR, VM::VM3_n >, 303
 - Parent, 304
 - SetLength, 304
- gdcmm::Element< VR::AS, VM::VM5 >, 304
 - GetLength, 304
 - Internal, 304
 - Print, 304
- gdcmm::Element< VR::OB, VM::VM1 >, 305
- gdcmm::Element< VR::OW, VM::VM1 >, 306
- gdcmm::ElementDisableCombinations< TVR, TVM >, 308
- gdcmm::ElementDisableCombinations< VR::OB, VM::V←M1_n >, 309
- gdcmm::ElementDisableCombinations< VR::OW, VM::V←M1_n >, 309
- gdcmm::EncapsulatedDocument, 309
 - EncapsulatedDocument, 310
- gdcmm::EncodingImplementation< T >, 310
- gdcmm::EncodingImplementation< VR::VRASCII >, 310
 - Read, 311
 - ReadComputeLength, 311
 - ReadNoSwap, 311
 - Write, 311
- gdcmm::EncodingImplementation< VR::VRBINARY >, 312
 - Read, 312
 - ReadComputeLength, 312
 - ReadNoSwap, 312
 - Write, 312
- gdcmm::EndEvent, 312
- gdcmm::EnumeratedValues, 314
 - EnumeratedValues, 314
- gdcmm::Event, 314
 - ~Event, 316
 - CheckEvent, 316
 - Event, 316
 - GetEventName, 316
 - MakeObject, 316
 - Print, 316
- gdcmm::Exception, 317
 - ~Exception, 318
 - Exception, 318
 - GetDescription, 318
 - what, 318
- gdcmm::ExitEvent, 319
- gdcmm::ExplicitDataElement, 320
 - GetLength, 322
 - Read, 322
 - ReadPreValue, 322
 - ReadValue, 322
 - ReadWithLength, 322
 - Write, 322
- gdcmm::ExplicitImplicitDataElement, 322
 - GetLength, 324
 - Read, 324
 - ReadPreValue, 324
 - ReadValue, 324
 - ReadWithLength, 324
- gdcmm::Fiducials, 324
 - Fiducials, 324
- gdcmm::File, 325
 - ~File, 327
 - File, 327
 - GetDataSet, 327
 - GetHeader, 327
 - operator<<, 328
 - Read, 327
 - SetDataSet, 328
 - SetHeader, 328
 - Write, 328
- gdcmm::FileAnonymizer, 328
 - ~FileAnonymizer, 330
 - Empty, 330
 - FileAnonymizer, 330
 - Remove, 330
 - Replace, 330
 - SetInputFileName, 331
 - SetOutputFileName, 331
 - Write, 331
- gdcmm::FileChangeTransferSyntax, 332
 - ~FileChangeTransferSyntax, 333
 - Change, 333
 - FileChangeTransferSyntax, 333
 - GetCodec, 333
 - New, 334
 - SetInputFileName, 334
 - SetOutputFileName, 334
 - SetTransferSyntax, 334
- gdcmm::FileDecompressLookupTable, 334
 - ~FileDecompressLookupTable, 336
 - Change, 336
 - FileDecompressLookupTable, 336
 - GetFile, 336
 - GetPixmap, 336
 - SetFile, 336
 - SetPixmap, 336
- gdcmm::FileDerivation, 337
 - ~FileDerivation, 338
 - AddDerivationDescription, 338
 - AddPurposeOfReferenceCodeSequence, 338
 - AddReference, 338
 - AddSourceImageSequence, 338
 - Derive, 338
 - FileDerivation, 338
 - GetFile, 338
 - SetDerivationCodeSequenceCodeValue, 339
 - SetDerivationDescription, 339
 - SetFile, 339
 - SetPurposeOfReferenceCodeSequenceCodeValue, 339

- gdcm::FileExplicitFilter, 339
 - ~FileExplicitFilter, 341
 - Change, 341
 - ChangeFMI, 341
 - FileExplicitFilter, 341
 - GetFile, 341
 - ProcessDataSet, 341
 - SetChangePrivateTags, 341
 - SetFile, 341
 - SetRecomputeItemLength, 341
 - SetRecomputeSequenceLength, 341
 - SetUseVRUN, 342
- gdcm::FileMetaInformation, 342
 - ~FileMetaInformation, 344
 - AppendImplementationClassUID, 345
 - ComputeDataSetMediaStorageSOPClass, 345
 - ComputeDataSetTransferSyntax, 345
 - DataSetMS, 347
 - DataSetTS, 347
 - Default, 345
 - FileMetaInformation, 344
 - FillFromDataSet, 345
 - GetDataSetTransferSyntax, 345
 - GetFileMetaInformationVersion, 345
 - GetFullLength, 345
 - GetGDCMImplementationClassUID, 345
 - GetGDCMImplementationVersionName, 345
 - GetGDCMSourceApplicationEntityTitle, 345
 - GetImplementationClassUID, 345
 - GetImplementationVersionName, 345
 - GetMediaStorage, 345
 - GetMediaStorageAsString, 345
 - GetMetaInformationTS, 345
 - GetPreamble, 345
 - GetSourceApplicationEntityTitle, 346
 - Insert, 346
 - IsValid, 346
 - MetaInformationTS, 347
 - operator<<, 347
 - Read, 346
 - ReadCompat, 346
 - ReadCompatInternal, 346
 - Replace, 346
 - SetDataSetTransferSyntax, 346
 - SetImplementationClassUID, 346
 - SetImplementationVersionName, 346
 - SetPreamble, 347
 - SetSourceApplicationEntityTitle, 347
 - Write, 347
- gdcm::FileNameEvent, 350
 - ~FileNameEvent, 352
 - CheckEvent, 352
 - FileNameEvent, 352
 - GetEventName, 352
 - GetFileName, 352
 - MakeObject, 352
 - Self, 352
 - SetFileName, 352
 - Superclass, 352
- gdcm::FileSet, 355
 - AddFile, 356
 - FileSet, 356
 - FileType, 356
 - FilesType, 356
 - GetFiles, 356
 - operator<<, 357
 - SetFiles, 357
- gdcm::FileStreamer, 357
 - ~FileStreamer, 359
 - AppendToDataElement, 359
 - AppendToGroupDataElement, 359
 - CheckDataElement, 359
 - CheckTemplateFileName, 359
 - FileStreamer, 359
 - New, 360
 - ReserveDataElement, 360
 - ReserveGroupDataElement, 360
 - SetOutputFileName, 360
 - SetTemplateFileName, 360
 - StartDataElement, 360
 - StartGroupDataElement, 360
 - StopDataElement, 361
 - StopGroupDataElement, 361
- gdcm::FileWithName, 361
 - FileWithName, 362
 - filename, 362
- gdcm::Filename, 347
 - EndWith, 348
 - Filename, 348
 - GetExtension, 348
 - GetFileName, 349
 - GetName, 349
 - GetPath, 349
 - IsEmpty, 349
 - IsIdentical, 349
 - Join, 349
 - operator const char *, 349
 - ToUnixSlashes, 349
 - ToWindowsSlashes, 350
- gdcm::FilenameGenerator, 353
 - ~FilenameGenerator, 354
 - FilenameGenerator, 354
 - FilenameType, 354
 - FilenamesType, 354
 - Generate, 354
 - GetFilename, 354
 - GetFilenames, 354
 - GetNumberOfFilenames, 354

- GetPattern, [354](#)
- GetPrefix, [355](#)
- SetNumberOfFileNames, [355](#)
- SetPattern, [355](#)
- SetPrefix, [355](#)
- SizeType, [354](#)
- gdcmm::FindPatientRootQuery, [363](#)
 - FindPatientRootQuery, [364](#)
 - GetAbstractSyntaxUID, [364](#)
 - GetTagListByLevel, [364](#)
 - InitializeDataSet, [364](#)
 - QueryFactory, [365](#)
 - ValidateQuery, [364](#)
- gdcmm::FindStudyRootQuery, [365](#)
 - FindStudyRootQuery, [366](#)
 - GetAbstractSyntaxUID, [366](#)
 - GetTagListByLevel, [366](#)
 - InitializeDataSet, [367](#)
 - QueryFactory, [367](#)
 - ValidateQuery, [367](#)
- gdcmm::Fragment, [367](#)
 - ComputeLength, [369](#)
 - Fragment, [369](#)
 - GetLength, [369](#)
 - operator<<, [370](#)
 - Read, [369](#)
 - ReadBacktrack, [369](#)
 - ReadPreValue, [369](#)
 - ReadValue, [370](#)
 - Write, [370](#)
- gdcmm::Global, [370](#)
 - ~Global, [371](#)
 - Append, [371](#)
 - GetDefs, [371](#)
 - GetDicts, [371](#), [372](#)
 - GetInstance, [372](#)
 - Global, [371](#)
 - LoadResourcesFiles, [372](#)
 - Locate, [372](#)
 - operator<<, [373](#)
 - Prepend, [372](#)
- gdcmm::GroupDict, [373](#)
 - ~GroupDict, [374](#)
 - Add, [374](#)
 - GetAbbreviation, [374](#)
 - GetName, [374](#)
 - GroupDict, [374](#)
 - GroupStringVector, [374](#)
 - Insert, [374](#)
 - operator<<, [374](#)
 - Size, [374](#)
- gdcmm::IODEntry, [431](#)
 - GetIE, [432](#)
 - GetName, [432](#)
 - GetRef, [432](#)
 - GetUsage, [432](#)
 - GetUsageType, [433](#)
 - IODEntry, [432](#)
 - operator<<, [433](#)
 - SetIE, [433](#)
 - SetName, [433](#)
 - SetRef, [433](#)
 - SetUsage, [433](#)
- gdcmm::IODs, [433](#)
 - AddIOD, [434](#)
 - Begin, [434](#)
 - Clear, [434](#)
 - End, [435](#)
 - GetIOD, [435](#)
 - IODMapType, [434](#)
 - IODMapTypeConstIterator, [434](#)
 - IODName, [434](#)
 - IODs, [434](#)
 - operator<<, [435](#)
- gdcmm::IOD, [429](#)
 - AddIODEntry, [430](#)
 - Clear, [430](#)
 - GetIODEntry, [430](#)
 - GetNumberOfIODs, [430](#)
 - GetTypeFromTag, [431](#)
 - IOD, [430](#)
 - MapIODEntry, [430](#)
 - operator<<, [431](#)
 - SizeType, [430](#)
- gdcmm::IPPSorter, [435](#)
 - ComputeZSpacing, [439](#)
 - DirCosTolerance, [439](#)
 - DropDuplicatePositions, [439](#)
 - GetDirectionCosinesTolerance, [437](#)
 - GetZSpacing, [437](#)
 - GetZSpacingTolerance, [437](#)
 - IPPSorter, [437](#)
 - SetComputeZSpacing, [438](#)
 - SetDirectionCosinesTolerance, [438](#)
 - SetDropDuplicatePositions, [438](#)
 - SetZSpacingTolerance, [438](#)
 - Sort, [438](#)
 - ZSpacing, [439](#)
 - ZTolerance, [439](#)
- gdcmm::IconImageFilter, [375](#)
 - ~IconImageFilter, [376](#)
 - Extract, [376](#)
 - ExtractIconImages, [376](#)
 - ExtractVeprolIconImages, [376](#)
 - GetFile, [376](#)
 - GetIconImage, [376](#)
 - GetNumberOfIconImages, [376](#)
 - IconImageFilter, [376](#)

- SetFile, [377](#)
- gdcmm::IconImageGenerator, [377](#)
 - ~IconImageGenerator, [378](#)
 - AutoPixelMinMax, [378](#)
 - ConvertRGBToPaletteColor, [378](#)
 - Generate, [378](#)
 - GetIconImage, [379](#)
 - GetPixmap, [379](#)
 - IconImageGenerator, [378](#)
 - SetOutputDimensions, [379](#)
 - SetOutsideValuePixel, [379](#)
 - SetPixelMinMax, [379](#)
 - SetPixmap, [379](#)
- gdcmm::Image, [381](#)
 - ~Image, [383](#)
 - GetDirectionCosines, [383](#)
 - GetIntercept, [383](#)
 - GetOrigin, [383](#)
 - GetSlope, [383](#)
 - GetSpacing, [383](#)
 - Image, [383](#)
 - Print, [384](#)
 - SetDirectionCosines, [384](#)
 - SetIntercept, [384](#)
 - SetOrigin, [384](#)
 - SetSlope, [384](#)
 - SetSpacing, [384](#)
- gdcmm::ImageApplyLookupTable, [385](#)
 - ~ImageApplyLookupTable, [387](#)
 - Apply, [387](#)
 - ImageApplyLookupTable, [387](#)
- gdcmm::ImageChangePhotometricInterpretation, [387](#)
 - ~ImageChangePhotometricInterpretation, [389](#)
 - Change, [389](#)
 - ChangeMonochrome, [389](#)
 - GetPhotometricInterpretation, [389](#)
 - ImageChangePhotometricInterpretation, [389](#)
 - RGB2YBR, [389](#)
 - SetPhotometricInterpretation, [389](#)
 - YBR2RGB, [390](#)
- gdcmm::ImageChangePlanarConfiguration, [390](#)
 - ~ImageChangePlanarConfiguration, [392](#)
 - Change, [392](#)
 - GetPlanarConfiguration, [392](#)
 - ImageChangePlanarConfiguration, [392](#)
 - RGBPixelsToRGBPlanes, [392](#)
 - RGBPlanesToRGBPixels, [392](#)
 - SetPlanarConfiguration, [392](#)
- gdcmm::ImageChangeTransferSyntax, [393](#)
 - ~ImageChangeTransferSyntax, [395](#)
 - Change, [395](#)
 - GetTransferSyntax, [395](#)
 - ImageChangeTransferSyntax, [395](#)
 - SetCompressIconImage, [396](#)
 - SetForce, [396](#)
 - SetTransferSyntax, [396](#)
 - SetUserCodec, [396](#)
 - TryJPEG2000Codec, [396](#)
 - TryJPEGCodec, [396](#)
 - TryJPEGLSCodec, [396](#)
 - TryRAWCodec, [396](#)
 - TryRLECodec, [396](#)
- gdcmm::ImageCodec, [397](#)
 - ~ImageCodec, [399](#)
 - AppendFrameEncode, [399](#)
 - AppendRowEncode, [399](#)
 - CanCode, [400](#)
 - CanDecode, [400](#)
 - Clone, [400](#)
 - Decode, [400](#)
 - DecodeByStreams, [400](#)
 - Dimensions, [403](#)
 - DoByteSwap, [400](#)
 - DoInvertMonochrome, [401](#)
 - DoOverlayCleanup, [401](#)
 - DoPaddedCompositePixelCode, [401](#)
 - DoPlanarConfiguration, [401](#)
 - DoSimpleCopy, [401](#)
 - DoYBR, [401](#)
 - FileChangeTransferSyntax, [403](#)
 - GetDimensions, [401](#)
 - GetHeaderInfo, [401](#)
 - GetLUT, [401](#)
 - GetLossyFlag, [401](#)
 - GetNeedByteSwap, [401](#)
 - GetNumberOfDimensions, [401](#)
 - GetPhotometricInterpretation, [401](#)
 - GetPixelFormat, [401](#)
 - GetPlanarConfiguration, [402](#)
 - ImageChangePhotometricInterpretation, [403](#)
 - ImageCodec, [399](#)
 - IsFrameEncoder, [402](#)
 - IsLossy, [402](#)
 - IsRowEncoder, [402](#)
 - IsValid, [402](#)
 - LUTPtr, [399](#)
 - LUT, [403](#)
 - LossyFlag, [403](#)
 - NeedByteSwap, [403](#)
 - NeedOverlayCleanup, [403](#)
 - NumberOfDimensions, [404](#)
 - PF, [404](#)
 - PI, [404](#)
 - PlanarConfiguration, [404](#)
 - RequestPaddedCompositePixelCode, [404](#)
 - RequestPlanarConfiguration, [404](#)
 - SetDimensions, [402](#)
 - SetLUT, [402](#)

- SetLossyFlag, 402
- SetNeedByteSwap, 402
- SetNeedOverlayCleanup, 402
- SetNumberOfDimensions, 402
- SetPhotometricInterpretation, 402
- SetPixelFormat, 402
- SetPlanarConfiguration, 403
- StartEncode, 403
- StopEncode, 403
- gdcm::ImageConverter, 404
 - ~ImageConverter, 405
 - Convert, 405
 - GetOutput, 405
 - ImageConverter, 405
 - SetInput, 405
- gdcm::ImageFragmentSplitter, 405
 - ~ImageFragmentSplitter, 407
 - GetFragmentSizeMax, 407
 - ImageFragmentSplitter, 407
 - SetForce, 407
 - SetFragmentSizeMax, 407
 - Split, 407
- gdcm::ImageHelper, 407
 - ComputeMediaStorageFromModality, 409
 - ComputeSpacingFromImagePositionPatient, 409
 - GetDimensionsValue, 409
 - GetDirectionCosinesFromDataSet, 409
 - GetDirectionCosinesValue, 409
 - GetForcePixelSpacing, 409
 - GetForceRescaleInterceptSlope, 409
 - GetLUT, 409
 - GetOriginValue, 409
 - GetPMSRescaleInterceptSlope, 410
 - GetPhotometricInterpretationValue, 409
 - GetPixelFormatValue, 410
 - GetPlanarConfigurationValue, 410
 - GetPointerFromElement, 410
 - GetRealWorldValueMappingContent, 410
 - GetRescaleInterceptSlopeValue, 410
 - GetSpacingTagFromMediaStorage, 410
 - GetSpacingValue, 410
 - GetZSpacingTagFromMediaStorage, 410
 - SetDimensionsValue, 410
 - SetDirectionCosinesValue, 410
 - SetForcePixelSpacing, 410
 - SetForceRescaleInterceptSlope, 411
 - SetOriginValue, 411
 - SetPMSRescaleInterceptSlope, 411
 - SetRescaleInterceptSlopeValue, 411
 - SetSpacingValue, 411
- gdcm::ImageReader, 411
 - ~ImageReader, 414
 - GetImage, 414
 - ImageReader, 414
 - Read, 415
 - ReadACRNEMAImage, 415
 - ReadImage, 415
- gdcm::ImageRegionReader, 416
 - ~ImageRegionReader, 418
 - ComputeBufferLength, 418
 - GetRegion, 418
 - ImageRegionReader, 418
 - Read, 418
 - ReadInformation, 418
 - ReadIntoBuffer, 419
 - SetRegion, 419
- gdcm::ImageToImageFilter, 419
 - ~ImageToImageFilter, 421
 - GetInput, 421
 - GetOutput, 421
 - ImageToImageFilter, 421
- gdcm::ImageWriter, 421
 - ~ImageWriter, 423
 - ComputeTargetMediaStorage, 423
 - GetImage, 423
 - ImageWriter, 423
 - Write, 423
- gdcm::ImplicitDataElement, 426
 - GetLength, 428
 - Read, 428
 - ReadPreValue, 428
 - ReadValue, 428
 - ReadValueWithLength, 428
 - ReadWithLength, 428
 - Write, 428
- gdcm::InitializeEvent, 428
- gdcm::Item, 439
 - Clear, 441
 - FindDataElement, 441
 - GetDataElement, 441
 - GetLength, 442
 - GetNestedDataSet, 442
 - InsertDataElement, 442
 - Item, 441
 - operator<<, 442
 - Read, 442
 - SetNestedDataSet, 442
 - Write, 442
- gdcm::IterationEvent, 443
- gdcm::JPEG12Codec, 444
 - ~JPEG12Codec, 445
 - DecodeByStreams, 445
 - EncodeBuffer, 445
 - GetHeaderInfo, 445
 - InternalCode, 445
 - IsStateSuspension, 446
 - JPEG12Codec, 445
- gdcm::JPEG16Codec, 446

- ~JPEG16Codec, [447](#)
- DecodeByStreams, [447](#)
- EncodeBuffer, [447](#)
- GetHeaderInfo, [448](#)
- InternalCode, [448](#)
- IsStateSuspension, [448](#)
- JPEG16Codec, [447](#)
- gdcmm::JPEG2000Codec, [448](#)
 - ~JPEG2000Codec, [450](#)
 - AppendFrameEncode, [450](#)
 - AppendRowEncode, [450](#)
 - Bitmap, [452](#)
 - CanCode, [450](#)
 - CanDecode, [450](#)
 - Clone, [451](#)
 - Code, [451](#)
 - Decode, [451](#)
 - DecodeByStreams, [451](#)
 - DecodeExtent, [451](#)
 - GetHeaderInfo, [451](#)
 - GetQuality, [451](#)
 - GetRate, [451](#)
 - ImageRegionReader, [452](#)
 - IsFrameEncoder, [451](#)
 - IsRowEncoder, [451](#)
 - JPEG2000Codec, [450](#)
 - SetNumberOfResolutions, [452](#)
 - SetQuality, [452](#)
 - SetRate, [452](#)
 - SetReversible, [452](#)
 - SetTileSize, [452](#)
 - StartEncode, [452](#)
 - StopEncode, [452](#)
- gdcmm::JPEG8Codec, [453](#)
 - ~JPEG8Codec, [454](#)
 - DecodeByStreams, [454](#)
 - EncodeBuffer, [454](#)
 - GetHeaderInfo, [454](#)
 - InternalCode, [454](#)
 - IsStateSuspension, [455](#)
 - JPEG8Codec, [454](#)
- gdcmm::JPEGCodec, [455](#)
 - ~JPEGCodec, [457](#)
 - AppendFrameEncode, [457](#)
 - AppendRowEncode, [457](#)
 - BitSample, [460](#)
 - CanCode, [458](#)
 - CanDecode, [458](#)
 - Clone, [458](#)
 - Code, [458](#)
 - ComputeOffsetTable, [458](#)
 - Decode, [458](#)
 - DecodeByStreams, [458](#)
 - DecodeExtent, [458](#)
 - EncodeBuffer, [459](#)
 - GetHeaderInfo, [459](#)
 - GetLossless, [459](#)
 - GetQuality, [459](#)
 - ImageRegionReader, [460](#)
 - IsFrameEncoder, [459](#)
 - IsRowEncoder, [459](#)
 - IsStateSuspension, [459](#)
 - IsValid, [459](#)
 - JPEGCodec, [457](#)
 - Quality, [460](#)
 - SetBitSample, [459](#)
 - SetLossless, [460](#)
 - SetPixelFormat, [460](#)
 - SetQuality, [460](#)
 - StartEncode, [460](#)
 - StopEncode, [460](#)
- gdcmm::JPEGLSCodec, [461](#)
 - ~JPEGLSCodec, [463](#)
 - AppendFrameEncode, [463](#)
 - AppendRowEncode, [463](#)
 - CanCode, [463](#)
 - CanDecode, [463](#)
 - Clone, [463](#)
 - Code, [463](#)
 - Decode, [463](#), [464](#)
 - DecodeExtent, [464](#)
 - GetBufferLength, [464](#)
 - GetHeaderInfo, [464](#)
 - GetLossless, [464](#)
 - ImageRegionReader, [465](#)
 - IsFrameEncoder, [464](#)
 - IsRowEncoder, [464](#)
 - JPEGLSCodec, [463](#)
 - SetBufferLength, [464](#)
 - SetLossless, [464](#)
 - SetLossyError, [464](#)
 - StartEncode, [464](#)
 - StopEncode, [464](#)
- gdcmm::JSON, [465](#)
 - ~JSON, [465](#)
 - Code, [465](#)
 - Decode, [465](#)
 - GetPrettyPrint, [466](#)
 - JSON, [465](#)
 - PrettyPrintOff, [466](#)
 - PrettyPrintOn, [466](#)
 - SetPrettyPrint, [466](#)
- gdcmm::KAKADUCodec, [466](#)
 - ~KAKADUCodec, [467](#)
 - CanCode, [467](#)
 - CanDecode, [467](#)
 - Clone, [468](#)
 - Code, [468](#)

- Decode, [468](#)
- KAKADUCodec, [467](#)
- gdcmm::LO, [468](#)
 - const_iterator, [470](#)
 - const_reference, [470](#)
 - const_reverse_iterator, [470](#)
 - difference_type, [470](#)
 - IsValid, [470](#)
 - iterator, [470](#)
 - LO, [470](#)
 - pointer, [470](#)
 - reference, [470](#)
 - reverse_iterator, [470](#)
 - size_type, [470](#)
 - Superclass, [470](#)
 - value_type, [470](#)
- gdcmm::LookupTable, [471](#)
 - ~LookupTable, [473](#)
 - Allocate, [473](#)
 - BLUE, [473](#)
 - BitSample, [475](#)
 - Clear, [473](#)
 - Decode, [473](#)
 - GRAY, [473](#)
 - GREEN, [473](#)
 - GetBitSample, [473](#)
 - GetBufferAsRGBA, [473](#)
 - GetLUTDescriptor, [474](#)
 - GetLUTLength, [474](#)
 - GetLUT, [474](#)
 - GetPointer, [474](#)
 - IncompleteLUT, [475](#)
 - InitializeBlueLUT, [474](#)
 - InitializeGreenLUT, [474](#)
 - InitializeLUT, [474](#)
 - InitializeRedLUT, [474](#)
 - Initialized, [474](#)
 - Internal, [475](#)
 - LookupTable, [473](#)
 - LookupTableType, [473](#)
 - Print, [474](#)
 - RED, [473](#)
 - SetBlueLUT, [475](#)
 - SetGreenLUT, [475](#)
 - SetLUT, [475](#)
 - SetRedLUT, [475](#)
 - UNKNOWN, [473](#)
 - WriteBufferAsRGBA, [475](#)
- gdcmm::MD5, [481](#)
 - ~MD5, [482](#)
 - Compute, [482](#)
 - ComputeFile, [482](#)
 - MD5, [482](#)
- gdcmm::Macro, [476](#)
 - AddMacroEntry, [478](#)
 - ArrayIncludeMacrosType, [477](#)
 - Clear, [478](#)
 - FindMacroEntry, [478](#)
 - GetMacroEntry, [478](#)
 - GetName, [478](#)
 - Macro, [477](#)
 - MapModuleEntry, [477](#)
 - operator<<, [478](#)
 - SetName, [478](#)
 - Verify, [478](#)
- gdcmm::Macros, [478](#)
 - AddMacro, [480](#)
 - Clear, [480](#)
 - GetMacro, [480](#)
 - IsEmpty, [480](#)
 - Macros, [479](#)
 - ModuleMapType, [479](#)
 - operator<<, [480](#)
- gdcmm::MediaStorage, [482](#)
 - AmbulatoryECGWaveformStorage, [487](#)
 - Audio, [488](#)
 - BasicTextSR, [487](#)
 - BasicVoiceAudioWaveformStorage, [487](#)
 - BreastTomosynthesisImageStorage, [488](#)
 - CSANonImageStorage, [487](#)
 - CTImageStorage, [486](#)
 - CardiacElectrophysiologyWaveformStorage, [487](#)
 - ComprehensiveSR, [487](#)
 - ComputedRadiographyImageStorage, [486](#)
 - DetachedPatientManagementSOPClass, [487](#)
 - DetachedStudyManagementSOPClass, [487](#)
 - DetachedVisitManagementSOPClass, [487](#)
 - DigitalIntraoralXRayImageStorageForProcessing, [486](#)
 - DigitalIntraoralXrayImageStorageForPresentation, [486](#)
 - DigitalMammographyImageStorageForPresentation, [486](#)
 - DigitalMammographyImageStorageForProcessing, [486](#)
 - DigitalXRayImageStorageForPresentation, [486](#)
 - DigitalXRayImageStorageForProcessing, [486](#)
 - EncapsulatedCDASStorage, [487](#)
 - EncapsulatedPDFStorage, [487](#)
 - EnhancedCTImageStorage, [486](#)
 - EnhancedMRIImageStorage, [486](#)
 - EnhancedPETImageStorage, [488](#)
 - EnhancedSR, [487](#)
 - EnhancedUSVolumeStorage, [488](#)
 - EnhancedXAImageStorage, [488](#)
 - FujiPrivateCRLImageStorage, [488](#)
 - GEPrivate3DModelStorage, [487](#)
 - GeneralECGWaveformStorage, [487](#)

- GeneralElectricMagneticResonanceImageStorage, 487
- GetMSString, 489
- GetMSType, 489
- GetModality, 489
- GetModalityDimension, 489
- GetNumberOfMSString, 489
- GetNumberOfMSType, 489
- GetNumberOfModality, 489
- GetString, 489
- GrayscaleSoftcopyPresentationStateStorageSOP← Class, 487
- GuessFromModality, 489
- HangingProtocolStorage, 488
- HardcopyGrayscaleImageStorage, 487
- HemodynamicWaveformStorage, 487
- IsImage, 490
- IsUndefined, 490
- KeyObjectSelectionDocument, 488
- LeadECGWaveformStorage, 487
- MRImageStorage, 486
- MRSpectroscopyStorage, 486
- MS_END, 488
- MSType, 486
- MammographyCADSR, 488
- MediaStorage, 489
- MediaStorageDirectoryStorage, 486
- ModalityPerformedProcedureStepSOPClass, 488
- MultiframeGrayscaleByteSecondaryCaptureImage← Storage, 487
- MultiframeGrayscaleWordSecondaryCapture← ImageStorage, 487
- MultiframeSingleBitSecondaryCaptureImage← Storage, 487
- MultiframeTrueColorSecondaryCaptureImage← Storage, 487
- NoObject, 488
- NuclearMedicineImageStorage, 487
- NuclearMedicineImageStorageRetired, 486
- ObjectEnd, 488
- ObjectType, 488
- operator MSType, 490
- operator<<, 491
- OphthalmicPhotography8BitImageStorage, 488
- OphthalmicTomographyImageStorage, 488
- PDF, 488
- PETImageStorage, 487
- Philips3D, 487
- PhilipsPrivateMRSyntheticImageStorage, 488
- RTDoseStorage, 487
- RTImageStorage, 487
- RTIonBeamsTreatmentRecordStorage, 488
- RTIonPlanStorage, 488
- RTPlanStorage, 487
- RTStructureSetStorage, 487
- RTTreatmentSummaryRecordStorage, 488
- RawDataStorage, 487
- SecondaryCaptureImageStorage, 486
- Segmentation, 488
- SegmentationStorage, 488
- SetFromDataSet, 490
- SetFromFile, 490
- SetFromHeader, 490
- SetFromModality, 491
- SetFromSourceImageSequence, 491
- SpacialFiducialsStorage, 487
- SpacialRegistrationStorage, 487
- StandaloneCurveStorage, 487
- StandaloneModalityLUTStorage, 487
- StandaloneOverlayStorage, 487
- StandaloneVOILUTStorage, 487
- StudyComponentManagementSOPClass, 487
- SurfaceSegmentationStorage, 488
- ToshibaPrivateDataStorage, 488
- URI, 488
- UltrasoundImageStorage, 486
- UltrasoundImageStorageRetired, 486
- UltrasoundMultiFrameImageStorage, 486
- UltrasoundMultiFrameImageStorageRetired, 486
- VLEndoscopicImageStorage, 488
- VLMicroscopicImageStorage, 488
- VLPhotographicImageStorage, 488
- VLWholeSlideMicroscopyImageStorage, 488
- Video, 488
- VideoEndoscopicImageStorage, 487
- VideoPhotographicImageStorage, 488
- Waveform, 488
- XRay3DAngiographicImageStorage, 488
- XRayAngiographicBiPlaneImageStorageRetired, 487
- XRayAngiographicImageStorage, 487
- XRayRadiationDoseSR, 488
- XRayRadiofluoroscopicImageStorage, 487
- gdcM::MemberCommand
 - ~MemberCommand, 493
 - Execute, 493
 - m_ConstMemberFunction, 494
 - m_MemberFunction, 494
 - m_This, 494
 - MemberCommand, 493
 - New, 494
 - Self, 493
 - SetCallbackFunction, 494
 - TConstMemberFunctionPointer, 493
 - TMemberFunctionPointer, 493
- gdcM::MemberCommand< T >, 491
- gdcM::MeshPrimitive, 495
 - ~MeshPrimitive, 497
 - AddPrimitiveData, 497

- EDGE, [497](#)
- FACET, [497](#)
- GetMPType, [497](#)
- GetMPTypeString, [497](#)
- GetNumberOfPrimitivesData, [497](#)
- GetPrimitiveData, [497](#), [498](#)
- GetPrimitiveType, [498](#)
- GetPrimitivesData, [498](#)
- LINE, [497](#)
- MPTType, [497](#)
- MPTType_END, [497](#)
- MeshPrimitive, [497](#)
- PrimitiveData, [498](#)
- PrimitiveType, [498](#)
- PrimitivesData, [497](#)
- SetPrimitiveData, [498](#)
- SetPrimitiveType, [498](#)
- SetPrimitivesData, [498](#)
- TRIANGLE_FAN, [497](#)
- TRIANGLE_STRIP, [497](#)
- TRIANGLE, [497](#)
- VERTEX, [497](#)
- gdcmm::ModalityPerformedProcedureStepCreateQuery, [499](#)
 - GetAbstractSyntaxUID, [501](#)
 - GetRequiredDataSet, [501](#)
 - ModalityPerformedProcedureStepCreateQuery, [501](#)
 - QueryFactory, [501](#)
 - ValidateQuery, [501](#)
- gdcmm::ModalityPerformedProcedureStepSetQuery, [501](#)
 - GetAbstractSyntaxUID, [503](#)
 - GetRequiredDataSet, [503](#)
 - ModalityPerformedProcedureStepSetQuery, [503](#)
 - QueryFactory, [503](#)
 - ValidateQuery, [503](#)
- gdcmm::ModifiedEvent, [504](#)
- gdcmm::Module, [505](#)
 - AddMacro, [506](#)
 - AddModuleEntry, [506](#)
 - ArrayIncludeMacrosType, [506](#)
 - Clear, [506](#)
 - FindModuleEntryInMacros, [506](#)
 - GetModuleEntryInMacros, [506](#)
 - GetName, [506](#)
 - MapModuleEntry, [506](#)
 - Module, [506](#)
 - operator<<, [507](#)
 - SetName, [507](#)
 - Verify, [507](#)
- gdcmm::ModuleEntry, [507](#)
 - ~ModuleEntry, [509](#)
 - DataElementType, [510](#)
 - Description, [509](#)
 - DescriptionField, [510](#)
 - GetDescription, [509](#)
 - GetName, [509](#)
 - GetType, [509](#)
 - ModuleEntry, [509](#)
 - Name, [510](#)
 - operator<<, [510](#)
 - SetDescription, [509](#)
 - SetName, [510](#)
 - SetType, [510](#)
- gdcmm::Modules, [510](#)
 - AddModule, [511](#)
 - Clear, [511](#)
 - GetModule, [511](#)
 - IsEmpty, [511](#)
 - ModuleMapType, [511](#)
 - Modules, [511](#)
 - operator<<, [512](#)
- gdcmm::MovePatientRootQuery, [512](#)
 - GetAbstractSyntaxUID, [513](#)
 - GetTagListByLevel, [513](#)
 - InitializeDataSet, [514](#)
 - MovePatientRootQuery, [513](#)
 - QueryFactory, [514](#)
 - ValidateQuery, [514](#)
- gdcmm::MoveStudyRootQuery, [515](#)
 - GetAbstractSyntaxUID, [516](#)
 - GetTagListByLevel, [516](#)
 - InitializeDataSet, [516](#)
 - MoveStudyRootQuery, [516](#)
 - QueryFactory, [517](#)
 - ValidateQuery, [516](#)
- gdcmm::NestedModuleEntries, [525](#)
 - AddModuleEntry, [527](#)
 - GetModuleEntry, [527](#)
 - GetNumberOfModuleEntries, [527](#)
 - NestedModuleEntries, [527](#)
 - operator<<, [527](#)
 - SizeType, [527](#)
- gdcmm::NoEvent, [533](#)
- gdcmm::NormalizedNetworkFunctions, [535](#)
 - ConstructQuery, [536](#)
 - NAction, [536](#)
 - NCreate, [536](#)
 - NDelete, [536](#)
 - NEventReport, [536](#)
 - NGet, [536](#)
 - NSet, [536](#)
- gdcmm::Object, [539](#)
 - ~Object, [540](#)
 - Object, [540](#)
 - operator<<, [541](#)
 - operator=, [541](#)
 - Print, [541](#)
 - Register, [541](#)

- SmartPointer, [541](#)
- UnRegister, [541](#)
- gdcmm::OpenSSLCryptoFactory, [541](#)
 - CreateCMSProvider, [542](#)
 - InitOpenSSL, [542](#)
 - OpenSSLCryptoFactory, [542](#)
- gdcmm::OpenSSLCryptographicMessageSyntax, [543](#)
 - ~OpenSSLCryptographicMessageSyntax, [544](#)
 - Decrypt, [544](#)
 - Encrypt, [544](#)
 - GetCipherType, [544](#)
 - OpenSSLCryptographicMessageSyntax, [544](#)
 - ParseCertificateFile, [544](#)
 - ParseKeyFile, [544](#)
 - SetCipherType, [544](#)
 - SetPassword, [545](#)
- gdcmm::OpenSSL7CryptoFactory, [545](#)
 - CreateCMSProvider, [546](#)
 - OpenSSL7CryptoFactory, [546](#)
- gdcmm::OpenSSL7CryptographicMessageSyntax, [546](#)
 - ~OpenSSL7CryptographicMessageSyntax, [548](#)
 - Decrypt, [548](#)
 - Encrypt, [548](#)
 - GetCipherType, [548](#)
 - OpenSSL7CryptographicMessageSyntax, [548](#)
 - ParseCertificateFile, [548](#)
 - ParseKeyFile, [548](#)
 - SetCipherType, [548](#)
 - SetPassword, [548](#)
- gdcmm::Orientation, [549](#)
 - ~Orientation, [550](#)
 - AXIAL, [550](#)
 - CORONAL, [550](#)
 - GetLabel, [550](#)
 - GetMajorAxisFromPatientRelativeDirectionCosine, [550](#)
 - GetObliquityThresholdCosineValue, [550](#)
 - GetType, [550](#)
 - OBLIQUE, [550](#)
 - operator<<, [551](#)
 - Orientation, [550](#)
 - OrientationType, [550](#)
 - Print, [550](#)
 - SAGITTAL, [550](#)
 - SetObliquityThresholdCosineValue, [551](#)
 - UNKNOWN, [550](#)
- gdcmm::Overlay, [551](#)
 - ~Overlay, [554](#)
 - Decompress, [554](#)
 - GetBitPosition, [554](#)
 - GetBitsAllocated, [554](#)
 - GetColumns, [555](#)
 - GetDescription, [555](#)
 - GetGroup, [555](#)
 - GetOrigin, [555](#)
 - GetOverlayData, [555](#)
 - GetOverlayTypeAsString, [555](#)
 - GetOverlayTypeFromString, [555](#)
 - GetRows, [555](#)
 - GetType, [555](#)
 - GetTypeAsEnum, [555](#)
 - GetUnpackBuffer, [556](#)
 - GetUnpackBufferLength, [556](#)
 - GrabOverlayFromPixelData, [556](#)
 - Graphics, [554](#)
 - Invalid, [554](#)
 - IsEmpty, [556](#)
 - IsInPixelData, [556](#)
 - IsZero, [556](#)
 - operator=, [556](#)
 - Overlay, [554](#)
 - OverlayType, [554](#)
 - Print, [556](#)
 - ROI, [554](#)
 - SetBitPosition, [556](#)
 - SetBitsAllocated, [556](#)
 - SetColumns, [557](#)
 - SetDescription, [557](#)
 - SetFrameOrigin, [557](#)
 - SetGroup, [557](#)
 - SetNumberOfFrames, [557](#)
 - SetOrigin, [557](#)
 - SetOverlay, [557](#)
 - SetRows, [557](#)
 - SetType, [557](#)
 - Update, [557](#)
- gdcmm::PDBelement, [565](#)
 - GetName, [566](#)
 - GetValue, [566](#)
 - NameField, [567](#)
 - operator<<, [567](#)
 - operator==, [566](#)
 - PDBelement, [566](#)
 - SetName, [567](#)
 - SetValue, [567](#)
 - ValueField, [567](#)
- gdcmm::PDBHeader, [567](#)
 - ~PDBHeader, [568](#)
 - FindPDBelementByName, [568](#)
 - GetPDBelement, [568](#)
 - GetPDBelementByName, [569](#)
 - GetPDBInfoTag, [569](#)
 - LoadFromDataElement, [569](#)
 - operator<<, [569](#)
 - PDBHeader, [568](#)
 - Print, [569](#)
- gdcmm::PDFCodec, [570](#)
 - ~PDFCodec, [571](#)

- CanCode, [571](#)
- CanDecode, [571](#)
- Decode, [571](#)
- PDFCodec, [571](#)
- gdcmm::PGXCodec, [575](#)
 - ~PGXCodec, [576](#)
 - CanCode, [576](#)
 - CanDecode, [576](#)
 - Clone, [577](#)
 - GetHeaderInfo, [577](#)
 - PGXCodec, [576](#)
 - Read, [577](#)
 - Write, [577](#)
- gdcmm::PNMCodec, [598](#)
 - ~PNMCodec, [599](#)
 - CanCode, [599](#)
 - CanDecode, [599](#)
 - Clone, [599](#)
 - GetBufferLength, [600](#)
 - GetHeaderInfo, [600](#)
 - PNMCodec, [599](#)
 - Read, [600](#)
 - SetBufferLength, [600](#)
 - Write, [600](#)
- gdcmm::PVRGCodec, [623](#)
 - ~PVRGCodec, [624](#)
 - CanCode, [624](#)
 - CanDecode, [624](#)
 - Clone, [624](#)
 - Code, [625](#)
 - Decode, [625](#)
 - PVRGCodec, [624](#)
 - SetLossyFlag, [625](#)
- gdcmm::ParseException, [558](#)
 - ~ParseException, [559](#)
 - GetLastElement, [559](#)
 - operator=, [559](#)
 - ParseException, [559](#)
 - SetLastElement, [559](#)
- gdcmm::Parser, [560](#)
 - ~Parser, [562](#)
 - DuplicateAttributeError, [561](#)
 - EndElementHandler, [561](#)
 - ErrorType, [561](#)
 - GetBuffer, [562](#)
 - GetCurrentByteIndex, [562](#)
 - GetErrorCode, [562](#)
 - GetErrorString, [562](#)
 - GetUserData, [562](#)
 - JunkAfterDocElementError, [561](#)
 - NoElementsError, [561](#)
 - NoError, [561](#)
 - NoMemoryError, [561](#)
 - Parse, [562](#)
 - ParseBuffer, [562](#)
 - Parser, [562](#)
 - Process, [562](#)
 - SetElementHandler, [562](#)
 - SetUserData, [562](#)
 - StartElementHandler, [561](#)
 - SyntaxError, [561](#)
 - TagMismatchError, [561](#)
 - UndefinedEntityError, [561](#)
 - UnexpectedStateError, [561](#)
- gdcmm::Patient, [562](#)
 - Patient, [563](#)
- gdcmm::PersonName, [574](#)
 - Component, [575](#)
 - GetMaxLength, [574](#)
 - GetNumberOfComponents, [574](#)
 - MaxLength, [575](#)
 - MaxNumberOfComponents, [575](#)
 - Padding, [575](#)
 - Print, [574](#)
 - Separator, [575](#)
 - SetBlob, [574](#)
 - SetComponents, [574](#), [575](#)
- gdcmm::PhotometricInterpretation, [577](#)
 - ARGB, [578](#)
 - CMYK, [578](#)
 - GetPIString, [579](#)
 - GetPIType, [579](#)
 - GetSamplesPerPixel, [579](#)
 - GetString, [579](#)
 - GetType, [579](#)
 - HSV, [578](#)
 - IsLossless, [579](#)
 - IsLossy, [579](#)
 - IsRetired, [579](#)
 - IsSameColorSpace, [579](#)
 - MONOCHROME1, [578](#)
 - MONOCHROME2, [578](#)
 - operator PIType, [579](#)
 - operator <<, [579](#)
 - PALETTE_COLOR, [578](#)
 - PI_END, [578](#)
 - PIType, [578](#)
 - PhotometricInterpretation, [579](#)
 - RGB, [578](#)
 - UNKNOWN, [578](#)
 - YBR_FULL_422, [578](#)
 - YBR_FULL, [578](#)
 - YBR_ICT, [578](#)
 - YBR_PARTIAL_420, [578](#)
 - YBR_PARTIAL_422, [578](#)
 - YBR_RCT, [578](#)
- gdcmm::PixelFormat, [580](#)
 - Bitmap, [585](#)

- FLOAT16, [582](#)
- FLOAT32, [582](#)
- FLOAT64, [582](#)
- GetBitsAllocated, [582](#)
- GetBitsStored, [582](#)
- GetHighBit, [583](#)
- GetMax, [583](#)
- GetMin, [583](#)
- GetPixelRepresentation, [583](#)
- GetPixelSize, [583](#)
- GetSamplesPerPixel, [583](#)
- GetScalarType, [584](#)
- GetScalarTypeAsString, [584](#)
- INT12, [582](#)
- INT16, [582](#)
- INT32, [582](#)
- INT64, [582](#)
- INT8, [582](#)
- IsCompatible, [584](#)
- IsValid, [584](#)
- operator ScalarType, [584](#)
- operator!=, [584](#)
- operator<<, [585](#)
- operator==, [584](#)
- PixelFormat, [582](#)
- Print, [584](#)
- SINGLEBIT, [582](#)
- ScalarType, [582](#)
- SetBitsAllocated, [584](#)
- SetBitsStored, [585](#)
- SetHighBit, [585](#)
- SetPixelRepresentation, [585](#)
- SetSamplesPerPixel, [585](#)
- SetScalarType, [585](#)
- UINT12, [582](#)
- UINT16, [582](#)
- UINT32, [582](#)
- UINT64, [582](#)
- UINT8, [582](#)
- UNKNOWN, [582](#)
- Validate, [585](#)
- gdcm::Pixmap, [586](#)
 - ~Pixmap, [588](#)
 - AreOverlaysInPixelData, [588](#)
 - Curves, [589](#)
 - GetCurve, [588](#)
 - GetIconImage, [588](#)
 - GetNumberOfCurves, [588](#)
 - GetNumberOfOverlays, [588](#)
 - GetOverlay, [588](#)
 - Icon, [589](#)
 - Overlays, [589](#)
 - Pixmap, [588](#)
 - Print, [588](#)
 - RemoveOverlay, [588](#)
 - SetIconImage, [589](#)
 - SetNumberOfCurves, [589](#)
 - SetNumberOfOverlays, [589](#)
- gdcm::PixmapReader, [589](#)
 - ~PixmapReader, [591](#)
 - GetPixmap, [591](#)
 - PixelData, [592](#)
 - PixmapReader, [591](#)
 - Read, [591](#)
 - ReadACRNEMAImage, [591](#)
 - ReadImage, [592](#)
 - ReadImageInternal, [592](#)
- gdcm::PixmapToPixmapFilter, [592](#)
 - ~PixmapToPixmapFilter, [594](#)
 - GetInput, [594](#)
 - GetOutput, [594](#)
 - GetOutputAsPixmap, [594](#)
 - PixmapToPixmapFilter, [594](#)
- gdcm::PixmapWriter, [594](#)
 - ~PixmapWriter, [596](#)
 - DolconImage, [596](#)
 - GetImage, [596](#)
 - GetPixmap, [596, 597](#)
 - PixelData, [597](#)
 - PixmapWriter, [596](#)
 - PrepareWrite, [597](#)
 - SetImage, [597](#)
 - SetPixmap, [597](#)
 - Write, [597](#)
- gdcm::Preamble, [600](#)
 - ~Preamble, [601](#)
 - Clear, [601](#)
 - Create, [601](#)
 - GetInternal, [601](#)
 - GetLength, [601](#)
 - IsEmpty, [601](#)
 - IsValid, [601](#)
 - operator<<, [601](#)
 - operator=, [601](#)
 - Preamble, [601](#)
 - Print, [601](#)
 - Read, [601](#)
 - Remove, [601](#)
 - Valid, [601](#)
 - Write, [601](#)
- gdcm::PresentationContext, [602](#)
 - AbstractSyntax, [604](#)
 - AddTransferSyntax, [603](#)
 - GetAbstractSyntax, [603](#)
 - GetNumberOfTransferSyntaxes, [603](#)
 - GetPresentationContextID, [603](#)
 - GetTransferSyntax, [603](#)
 - ID, [604](#)

- operator==, [603](#)
- PresentationContext, [603](#)
- Print, [603](#)
- SetAbstractSyntax, [604](#)
- SetPresentationContextID, [604](#)
- SizeType, [603](#)
- TransferSyntaxArrayType, [603](#)
- TransferSyntaxes, [604](#)
- gdcmm::PresentationContextGenerator, [605](#)
 - AddFromFile, [607](#)
 - AddPresentationContext, [607](#)
 - GenerateFromFilenames, [607](#)
 - GenerateFromUID, [607](#)
 - GetDefaultTransferSyntax, [607](#)
 - GetPresentationContexts, [607](#)
 - PresentationContextArrayType, [607](#)
 - PresentationContextGenerator, [607](#)
 - SetDefaultTransferSyntax, [607](#)
 - SetMergeModeToAbstractSyntax, [608](#)
 - SetMergeModeToTransferSyntax, [608](#)
 - SizeType, [607](#)
- gdcmm::Printer, [612](#)
 - ~Printer, [614](#)
 - CONDENSED_STYLE, [614](#)
 - F, [616](#)
 - GetPrintStyle, [614](#)
 - MaxPrintLength, [616](#)
 - Print, [614](#)
 - PrintDataElement, [615](#)
 - PrintDataSet, [615](#)
 - PrintSQ, [615](#)
 - PrintStyle, [616](#)
 - PrintStyles, [614](#)
 - Printer, [614](#)
 - SetColor, [615](#)
 - SetFile, [615](#)
 - SetStyle, [615](#)
 - VERBOSE_STYLE, [614](#)
 - XML, [614](#)
- gdcmm::PrivateDict, [616](#)
 - ~PrivateDict, [617](#)
 - AddDictEntry, [617](#)
 - Dicts, [617](#)
 - FindDictEntry, [617](#)
 - GetDictEntry, [617](#)
 - IsEmpty, [617](#)
 - LoadDefault, [617](#)
 - operator<<, [617](#)
 - PrintXML, [617](#)
 - PrivateDict, [617](#)
 - RemoveDictEntry, [617](#)
- gdcmm::PrivateTag, [618](#)
 - GetAsDataElement, [619](#)
 - GetOwner, [619](#)
 - operator<, [619](#)
 - operator<<, [620](#)
 - PrivateTag, [619](#)
 - ReadFromCommaSeparatedString, [619](#)
 - SetOwner, [619](#)
- gdcmm::ProgressEvent, [620](#)
 - ~ProgressEvent, [622](#)
 - CheckEvent, [622](#)
 - GetEventName, [622](#)
 - GetProgress, [622](#)
 - MakeObject, [622](#)
 - ProgressEvent, [622](#)
 - Self, [622](#)
 - SetProgress, [622](#)
 - Superclass, [622](#)
- gdcmm::PythonFilter, [625](#)
 - ~PythonFilter, [626](#)
 - GetFile, [626](#)
 - PythonFilter, [626](#)
 - SetDicts, [626](#)
 - SetFile, [626](#)
 - ToPyObject, [626](#)
 - UseDictAlways, [626](#)
- gdcmm::QueryBase, [626](#)
 - ~QueryBase, [627](#)
 - GetAllRequiredTags, [627](#)
 - GetAllTags, [627](#)
 - GetHierarchicalSearchTags, [628](#)
 - GetName, [628](#)
 - GetOptionalTags, [628](#)
 - GetQueryLevel, [628](#)
 - GetRequiredTags, [628](#)
 - GetUniqueTags, [628](#)
- gdcmm::QueryFactory, [629](#)
 - GetCharacterFromCurrentLocale, [629](#)
 - ListCharSets, [629](#)
 - ProduceCharacterSetDataElement, [629](#)
 - ProduceQuery, [630](#)
- gdcmm::QueryImage, [630](#)
 - GetHierarchicalSearchTags, [631](#)
 - GetName, [631](#)
 - GetOptionalTags, [631](#)
 - GetQueryLevel, [632](#)
 - GetRequiredTags, [632](#)
 - GetUniqueTags, [632](#)
- gdcmm::QueryPatient, [632](#)
 - GetHierarchicalSearchTags, [633](#)
 - GetName, [633](#)
 - GetOptionalTags, [633](#)
 - GetQueryLevel, [634](#)
 - GetRequiredTags, [634](#)
 - GetUniqueTags, [634](#)
- gdcmm::QuerySeries, [634](#)
 - GetHierarchicalSearchTags, [635](#)

- GetName, [635](#)
- GetOptionalTags, [635](#)
- GetQueryLevel, [636](#)
- GetRequiredTags, [636](#)
- GetUniqueTags, [636](#)
- gdcmm::QueryStudy, [636](#)
 - GetHierarchicalSearchTags, [637](#)
 - GetName, [637](#)
 - GetOptionalTags, [637](#)
 - GetQueryLevel, [638](#)
 - GetRequiredTags, [638](#)
 - GetUniqueTags, [638](#)
- gdcmm::RAWCodec, [638](#)
 - ~RAWCodec, [639](#)
 - CanCode, [639](#)
 - CanDecode, [639](#)
 - Clone, [640](#)
 - Code, [640](#)
 - Decode, [640](#)
 - DecodeByStreams, [640](#)
 - DecodeBytes, [640](#)
 - GetHeaderInfo, [640](#)
 - RAWCodec, [639](#)
- gdcmm::RLECodec, [653](#)
 - ~RLECodec, [655](#)
 - AppendFrameEncode, [655](#)
 - AppendRowEncode, [655](#)
 - CanCode, [655](#)
 - CanDecode, [655](#)
 - Clone, [655](#)
 - Code, [656](#)
 - Decode, [656](#)
 - DecodeByStreams, [656](#)
 - DecodeExtent, [656](#)
 - GetBufferLength, [656](#)
 - GetHeaderInfo, [656](#)
 - ImageRegionReader, [657](#)
 - IsFrameEncoder, [656](#)
 - IsRowEncoder, [656](#)
 - RLECodec, [655](#)
 - SetBufferLength, [656](#)
 - SetLength, [657](#)
 - StartEncode, [657](#)
 - StopEncode, [657](#)
- gdcmm::Reader, [641](#)
 - ~Reader, [644](#)
 - CanRead, [644](#)
 - F, [646](#)
 - GetFile, [644](#)
 - GetStreamCurrentPosition, [644](#)
 - GetStreamPtr, [644](#)
 - Read, [645](#)
 - ReadDataSet, [645](#)
 - ReadMetaInformation, [645](#)
 - ReadPreamble, [645](#)
 - ReadSelectedPrivateTags, [645](#)
 - ReadSelectedTags, [645](#)
 - ReadUpToTag, [645](#)
 - Reader, [644](#)
 - SetFile, [646](#)
 - SetFileName, [646](#)
 - SetStream, [646](#)
 - StreamImageReader, [646](#)
- gdcmm::RealWorldValueMappingContent, [647](#)
 - CodeMeaning, [647](#)
 - CodeValue, [647](#)
 - RealWorldValueIntercept, [647](#)
 - RealWorldValueSlope, [647](#)
- gdcmm::Region, [648](#)
 - ~Region, [649](#)
 - Area, [649](#)
 - Clone, [649](#)
 - ComputeBoundingBox, [649](#)
 - Empty, [649](#)
 - IsValid, [649](#)
 - Print, [649](#)
 - Region, [649](#)
- gdcmm::Rescaler, [650](#)
 - ~Rescaler, [651](#)
 - ComputeInterceptSlopePixelType, [651](#)
 - ComputePixelTypeFromMinMax, [651](#)
 - GetIntercept, [652](#)
 - GetSlope, [652](#)
 - InverseRescale, [652](#)
 - InverseRescaleFunctionIntoBestFit, [652](#)
 - Rescale, [652](#)
 - RescaleFunctionIntoBestFit, [652](#)
 - Rescaler, [651](#)
 - SetIntercept, [652](#)
 - SetMinMaxForPixelType, [652](#)
 - SetPixelFormat, [652](#)
 - SetSlope, [652](#)
 - SetTargetPixelType, [652](#)
 - SetUseTargetPixelType, [653](#)
- gdcmm::SHA1, [700](#)
 - ~SHA1, [701](#)
 - Compute, [701](#)
 - ComputeFile, [701](#)
 - SHA1, [701](#)
- gdcmm::SOPClassUIDToIOD, [710](#)
 - const, [711](#)
 - GetIODFromSOPClassUID, [711](#)
 - GetIOD, [711](#)
 - GetNumberOfSOPClassToIOD, [711](#)
 - GetSOPClassUIDFromIOD, [711](#)
 - GetSOPClassUIDToIODs, [712](#)
 - GetSOPClassUIDToIOD, [712](#)
- gdcmm::STATIC_ASSERTION_FAILURE< true >, [721](#)

- value, [721](#)
- gdcm::STATIC_ASSERTION_FAILURE< x >, [720](#)
- gdcm::Scanner, [659](#)
 - ~Scanner, [662](#)
 - AddPrivateTag, [662](#)
 - AddSkipTag, [662](#)
 - AddTag, [662](#)
 - Begin, [663](#)
 - ClearSkipTags, [663](#)
 - ClearTags, [663](#)
 - ConstIterator, [662](#)
 - End, [663](#)
 - GetAllFileNamesFromTagToValue, [663](#)
 - GetFilenameFromTagToValue, [663](#)
 - GetFileNames, [663](#)
 - GetKeys, [663](#)
 - GetMapping, [663](#)
 - GetMappingFromTagToValue, [663](#)
 - GetMappings, [664](#)
 - GetOrderedValues, [664](#)
 - GetValue, [664](#)
 - GetValues, [664](#)
 - IsKey, [664](#)
 - MappingType, [662](#)
 - New, [664](#)
 - operator<<, [665](#)
 - Print, [665](#)
 - ProcessPublicTag, [665](#)
 - Scan, [665](#)
 - Scanner, [662](#)
 - TagToValue, [662](#)
 - TagToValueValueType, [662](#)
 - ValuesType, [662](#)
- gdcm::Scanner::ltstr, [475](#)
 - operator(), [476](#)
- gdcm::Segment, [666](#)
 - ~Segment, [668](#)
 - ALGOType, [668](#)
 - ALGOType_END, [668](#)
 - AUTOMATIC, [668](#)
 - AddSurface, [668](#)
 - AnatomicRegion, [670](#)
 - GetALGOType, [668](#)
 - GetALGOTypeString, [668](#)
 - GetAnatomicRegion, [668](#)
 - GetPropertyCategory, [668](#), [669](#)
 - GetPropertyType, [669](#)
 - GetSegmentAlgorithmName, [669](#)
 - GetSegmentAlgorithmType, [669](#)
 - GetSegmentDescription, [669](#)
 - GetSegmentLabel, [669](#)
 - GetSegmentNumber, [669](#)
 - GetSurface, [669](#)
 - GetSurfaceCount, [669](#)
 - GetSurfaces, [669](#)
 - MANUAL, [668](#)
 - PropertyCategory, [670](#)
 - PropertyType, [670](#)
 - Segment, [668](#)
 - SegmentAlgorithmName, [670](#)
 - SegmentAlgorithmType, [670](#)
 - SegmentDescription, [670](#)
 - SegmentLabel, [670](#)
 - SegmentNumber, [670](#)
 - SetAnatomicRegion, [669](#)
 - SetPropertyCategory, [669](#)
 - SetPropertyType, [669](#)
 - SetSegmentAlgorithmName, [669](#)
 - SetSegmentAlgorithmType, [669](#)
 - SetSegmentDescription, [669](#)
 - SetSegmentLabel, [669](#)
 - SetSegmentNumber, [669](#)
 - SetSurfaceCount, [670](#)
 - SurfaceCount, [670](#)
 - SurfaceVector, [668](#)
 - Surfaces, [670](#)
- gdcm::SegmentHelper, [76](#)
- gdcm::SegmentHelper::BasicCodedEntry, [152](#)
 - BasicCodedEntry, [153](#)
 - CSD, [154](#)
 - CSV, [154](#)
 - CM, [153](#)
 - CV, [154](#)
 - IsEmpty, [153](#)
- gdcm::SegmentReader, [673](#)
 - ~SegmentReader, [675](#)
 - GetSegments, [675](#)
 - Read, [675](#)
 - ReadSegment, [675](#)
 - ReadSegments, [675](#)
 - SegmentMap, [675](#)
 - SegmentReader, [675](#)
 - SegmentVector, [675](#)
 - Segments, [675](#)
- gdcm::SegmentWriter, [676](#)
 - ~SegmentWriter, [677](#)
 - AddSegment, [677](#)
 - GetNumberOfSegments, [677](#)
 - GetSegment, [677](#)
 - GetSegments, [677](#)
 - PrepareWrite, [677](#)
 - SegmentVector, [677](#)
 - SegmentWriter, [677](#)
 - Segments, [678](#)
 - SetNumberOfSegments, [677](#)
 - SetSegments, [677](#)
 - Write, [677](#)
- gdcm::SegmentedPaletteColorLookupTable, [671](#)

- ~SegmentedPaletteColorLookupTable, [672](#)
- Print, [672](#)
- SegmentedPaletteColorLookupTable, [672](#)
- SetLUT, [672](#)
- gdcmm::SequenceOfFragments, [678](#)
 - AddFragment, [681](#)
 - Begin, [681](#)
 - Clear, [681](#)
 - ComputeByteLength, [681](#)
 - ComputeLength, [681](#)
 - ConstIterator, [680](#)
 - End, [681](#)
 - FragmentVector, [680](#)
 - GetBuffer, [681](#)
 - GetFragBuffer, [681](#)
 - GetFragment, [681](#)
 - GetLength, [681](#)
 - GetNumberOfFragments, [681](#)
 - GetTable, [682](#)
 - Iterator, [680](#)
 - New, [682](#)
 - operator==, [682](#)
 - Print, [682](#)
 - Read, [682](#)
 - ReadPreValue, [682](#)
 - ReadValue, [682](#)
 - SequenceOfFragments, [680](#)
 - SetLength, [682](#)
 - SizeType, [680](#)
 - Write, [682](#)
 - WriteBuffer, [683](#)
- gdcmm::SequenceOfItems, [683](#)
 - AddItem, [686](#)
 - AddNewUndefinedLengthItem, [686](#)
 - Begin, [686](#), [687](#)
 - Clear, [687](#)
 - ComputeLength, [687](#)
 - ConstIterator, [686](#)
 - End, [687](#)
 - FindDataElement, [687](#)
 - GetItem, [687](#)
 - GetLength, [687](#)
 - GetNumberOfItems, [687](#)
 - IsUndefinedLength, [687](#)
 - ItemVector, [686](#)
 - Items, [689](#)
 - Iterator, [686](#)
 - New, [688](#)
 - operator=, [688](#)
 - operator==, [688](#)
 - Print, [688](#)
 - Read, [688](#)
 - RemoveItemByIndex, [688](#)
 - SequenceLengthField, [689](#)
 - SequenceOfItems, [686](#)
 - SetLength, [688](#)
 - SetLengthToUndefined, [689](#)
 - SetNumberOfItems, [689](#)
 - SizeType, [686](#)
 - Write, [689](#)
- gdcmm::SerieHelper, [690](#)
 - ~SerieHelper, [691](#)
 - AddFile, [691](#)
 - AddFileName, [691](#)
 - AddRestriction, [692](#)
 - Clear, [692](#)
 - CreateDefaultUniqueSeriesIdentifier, [692](#)
 - CreateUniqueSeriesIdentifier, [692](#)
 - FileNameOrdering, [692](#)
 - GetFirstSingleSerieUIDFileSet, [692](#)
 - GetNextSingleSerieUIDFileSet, [692](#)
 - ImagePositionPatientOrdering, [692](#)
 - ItFileSetHt, [692](#)
 - OrderFileList, [692](#)
 - SerieHelper, [691](#)
 - SerieRestrictions, [691](#)
 - SetDirectory, [692](#)
 - SetLoadMode, [692](#)
 - SetUseSeriesDetails, [692](#)
 - SingleSerieUIDFileSetHT, [692](#)
 - SingleSerieUIDFileSetmap, [691](#)
 - UserOrdering, [692](#)
- gdcmm::SerieHelper::Rule, [658](#)
 - elem, [659](#)
 - group, [659](#)
 - op, [659](#)
 - value, [659](#)
- gdcmm::Series, [693](#)
 - Series, [693](#)
- gdcmm::ServiceClassUser, [694](#)
 - ~ServiceClassUser, [696](#)
 - GetAETitle, [697](#)
 - GetCalledAETitle, [697](#)
 - GetTimeout, [697](#)
 - InitializeConnection, [697](#)
 - IsPresentationContextAccepted, [697](#)
 - New, [697](#)
 - SendEcho, [697](#)
 - SendFind, [697](#)
 - SendMove, [697](#), [698](#)
 - SendStore, [698](#)
 - ServiceClassUser, [696](#)
 - SetAETitle, [698](#)
 - SetCalledAETitle, [698](#)
 - SetHostname, [698](#)
 - SetPort, [699](#)
 - SetPortSCP, [699](#)
 - SetPresentationContexts, [699](#)

- SetTimeout, [699](#)
- StartAssociation, [699](#)
- StopAssociation, [699](#)
- gdcmm::SimpleMemberCommand
 - ~SimpleMemberCommand, [703](#)
 - Execute, [703](#)
 - m_MemberFunction, [704](#)
 - m_This, [704](#)
 - New, [704](#)
 - Self, [703](#)
 - SetCallbackFunction, [704](#)
 - SimpleMemberCommand, [703](#)
 - TMemberFunctionPointer, [703](#)
- gdcmm::SimpleMemberCommand< T >, [701](#)
- gdcmm::SimpleSubjectWatcher, [704](#)
 - ~SimpleSubjectWatcher, [705](#)
 - EndFilter, [705](#)
 - ShowAbort, [705](#)
 - ShowAnonymization, [705](#)
 - ShowData, [705](#)
 - ShowDataSet, [705](#)
 - ShowFileName, [705](#)
 - ShowIteration, [705](#)
 - ShowProgress, [706](#)
 - SimpleSubjectWatcher, [705](#)
 - StartFilter, [706](#)
 - TestAbortOff, [706](#)
 - TestAbortOn, [706](#)
- gdcmm::SmartPointer
 - ~SmartPointer, [708](#)
 - GetPointer, [708](#)
 - operator ObjectType *, [708](#)
 - operator*, [709](#)
 - operator->, [709](#)
 - operator=, [709](#)
 - SmartPointer, [708](#)
- gdcmm::SmartPointer< ObjectType >, [706](#)
- gdcmm::Sorter, [712](#)
 - ~Sorter, [714](#)
 - AddSelect, [714](#)
 - FileNames, [715](#)
 - GetFileNames, [714](#)
 - operator<<, [715](#)
 - Print, [714](#)
 - Selection, [715](#)
 - SelectionMap, [714](#)
 - SetSortFunction, [714](#)
 - Sort, [714](#)
 - SortFunc, [715](#)
 - SortFunction, [714](#)
 - Sorter, [714](#)
 - StableSort, [715](#)
- gdcmm::Spacing, [715](#)
 - ~Spacing, [717](#)
- CALIBRATED, [717](#)
- ComputePixelAspectRatioFromPixelSpacing, [717](#)
- DETECTOR, [717](#)
- MAGNIFIED, [717](#)
- Spacing, [717](#)
- SpacingType, [717](#)
- UNKNOWN, [717](#)
- gdcmm::Spectroscopy, [717](#)
 - Spectroscopy, [718](#)
- gdcmm::SplitMosaicFilter, [718](#)
 - ~SplitMosaicFilter, [718](#)
 - ComputeMOSAICDimensions, [718](#)
 - GetFile, [718](#), [719](#)
 - GetImage, [719](#)
 - SetFile, [719](#)
 - SetImage, [719](#)
 - Split, [719](#)
 - SplitMosaicFilter, [718](#)
- gdcmm::StartEvent, [719](#)
- gdcmm::StreamImageReader, [721](#)
 - ~StreamImageReader, [722](#)
 - CanReadImage, [722](#)
 - DefinePixelExtent, [722](#)
 - DefineProperBufferLength, [722](#)
 - GetDimensionsValueForResolution, [723](#)
 - GetFile, [723](#)
 - Read, [723](#)
 - ReadImageInformation, [723](#)
 - SetFileName, [723](#)
 - SetStream, [724](#)
 - StreamImageReader, [722](#)
- gdcmm::StreamImageWriter, [724](#)
 - ~StreamImageWriter, [727](#)
 - CanWriteFile, [727](#)
 - DefinePixelExtent, [727](#)
 - DefineProperBufferLength, [727](#)
 - mElementOffsets, [729](#)
 - mElementOffsets1, [729](#)
 - mWriter, [729](#)
 - mXMax, [729](#)
 - mXMin, [729](#)
 - mYMax, [729](#)
 - mYMin, [729](#)
 - mZMax, [729](#)
 - mZMin, [729](#)
 - mspFile, [729](#)
 - SetFile, [727](#)
 - SetFileName, [727](#)
 - SetStream, [728](#)
 - StreamImageWriter, [727](#)
 - Write, [728](#)
 - WriteImageInformation, [728](#)
 - WriteImageSubregionRAW, [728](#)
 - WriteRawHeader, [728](#)

- gdcmm::StrictScanner, 730
 - ~StrictScanner, 733
 - AddPrivateTag, 733
 - AddSkipTag, 733
 - AddTag, 733
 - Begin, 733
 - ClearSkipTags, 733
 - ClearTags, 733
 - ConstIterator, 732
 - End, 733
 - GetAllFileNamesFromTagToValue, 733
 - GetFilenameFromTagToValue, 733
 - GetFileNames, 733
 - GetKeys, 734
 - GetMapping, 734
 - GetMappingFromTagToValue, 734
 - GetMappings, 734
 - GetOrderedValues, 734
 - GetValue, 734
 - GetValues, 734
 - IsKey, 735
 - MappingType, 732
 - New, 735
 - operator<<, 735
 - Print, 735
 - ProcessPublicTag, 735
 - Scan, 735
 - StrictScanner, 733
 - TagToValue, 732
 - TagToValueValueType, 732
 - ValueType, 733
- gdcmm::StrictScanner::Itstr, 476
 - operator(), 476
- gdcmm::String
 - const_iterator, 738
 - const_reference, 738
 - const_reverse_iterator, 738
 - difference_type, 738
 - IsValid, 739
 - iterator, 738
 - operator const char *, 739
 - pointer, 738
 - reference, 738
 - reverse_iterator, 738
 - size_type, 738
 - String, 738, 739
 - Trim, 739
 - Truncate, 739
 - value_type, 738
- gdcmm::String< TDelimiter, TMaxLength, TPadChar >, 736
- gdcmm::StringFilter, 740
 - ~StringFilter, 741
 - ExecuteQuery, 741
 - FromString, 741
 - GetFile, 741
 - SetDicts, 741
 - SetFile, 741
 - StringFilter, 741
 - ToString, 741, 742
 - ToStringPair, 742
 - UseDictAlways, 742
- gdcmm::Study, 742
 - Study, 743
- gdcmm::Subject, 743
 - ~Subject, 745
 - AddObserver, 745
 - GetCommand, 745
 - HasObserver, 745
 - InvokeEvent, 745
 - RemoveAllObservers, 745
 - RemoveObserver, 745
 - Subject, 745
- gdcmm::Surface, 746
 - ~Surface, 749
 - GetAlgorithmFamily, 749
 - GetAlgorithmName, 749
 - GetAlgorithmVersion, 749
 - GetAxisOfRotation, 749
 - GetCenterOfRotation, 749
 - GetFiniteVolume, 750
 - GetManifold, 750
 - GetMaximumPointDistance, 750
 - GetMeanPointDistance, 750
 - GetMeshPrimitive, 750
 - GetNumberOfSurfacePoints, 750
 - GetNumberOfVectors, 750
 - GetPointCoordinatesData, 750
 - GetPointPositionAccuracy, 750
 - GetPointsBoundingBoxCoordinates, 750
 - GetProcessingAlgorithm, 750, 751
 - GetRecommendedDisplayCIELabValue, 751
 - GetRecommendedDisplayGrayscaleValue, 751
 - GetRecommendedPresentationOpacity, 751
 - GetRecommendedPresentationType, 751
 - GetSTATESString, 751
 - GetSTATES, 751
 - GetSurfaceComments, 751
 - GetSurfaceNumber, 751
 - GetSurfaceProcessing, 751
 - GetSurfaceProcessingDescription, 751
 - GetSurfaceProcessingRatio, 751
 - GetVIEWType, 751
 - GetVIEWTypeString, 751
 - GetVectorAccuracy, 751
 - GetVectorCoordinateData, 751
 - GetVectorDimensionality, 751
 - NO, 749
 - POINTS, 749

- STATES_END, [749](#)
- STATES, [749](#)
- SURFACE, [749](#)
- SetAlgorithmFamily, [751](#)
- SetAlgorithmName, [751](#)
- SetAlgorithmVersion, [752](#)
- SetAxisOfRotation, [752](#)
- SetCenterOfRotation, [752](#)
- SetFiniteVolume, [752](#)
- SetManifold, [752](#)
- SetMaximumPointDistance, [752](#)
- SetMeanPointDistance, [752](#)
- SetMeshPrimitive, [752](#)
- SetNumberOfSurfacePoints, [752](#)
- SetNumberOfVectors, [752](#)
- SetPointCoordinatesData, [752](#)
- SetPointPositionAccuracy, [752](#)
- SetPointsBoundingBoxCoordinates, [752](#)
- SetProcessingAlgorithm, [752](#)
- SetRecommendedDisplayCIELabValue, [752](#)
- SetRecommendedDisplayGrayscaleValue, [752](#)
- SetRecommendedPresentationOpacity, [752](#)
- SetRecommendedPresentationType, [752](#)
- SetSurfaceComments, [752](#)
- SetSurfaceNumber, [753](#)
- SetSurfaceProcessing, [753](#)
- SetSurfaceProcessingDescription, [753](#)
- SetSurfaceProcessingRatio, [753](#)
- SetVectorAccuracy, [753](#)
- SetVectorCoordinateData, [753](#)
- SetVectorDimensionality, [753](#)
- Surface, [749](#)
- UNKNOWN, [749](#)
- VIEWType, [749](#)
- VIEWType_END, [749](#)
- WIREFRAME, [749](#)
- YES, [749](#)
- gdcmm::SurfaceHelper, [753](#)
 - ColorArray, [754](#)
 - RGBToRecommendedDisplayCIELab, [755](#)
 - RGBToRecommendedDisplayGrayscale, [755](#)
 - RecommendedDisplayCIELabToRGB, [754](#)
- gdcmm::SurfaceReader, [756](#)
 - ~SurfaceReader, [758](#)
 - GetNumberOfSurfaces, [758](#)
 - Read, [758](#)
 - ReadPointMacro, [758](#)
 - ReadSurface, [758](#)
 - ReadSurfaces, [758](#)
 - SurfaceReader, [758](#)
- gdcmm::SurfaceWriter, [758](#)
 - ~SurfaceWriter, [760](#)
 - ComputeNumberOfSurfaces, [760](#)
 - GetNumberOfSurfaces, [760](#)
 - NumberOfSurfaces, [760](#)
 - PrepareWrite, [760](#)
 - PrepareWritePointMacro, [760](#)
 - SetNumberOfSurfaces, [760](#)
 - SurfaceWriter, [760](#)
 - Write, [760](#)
- gdcmm::SwapCode, [760](#)
 - BadBigEndian, [761](#)
 - BadLittleEndian, [761](#)
 - BigEndian, [761](#)
 - GetIndex, [762](#)
 - GetSwapCodeString, [762](#)
 - LittleEndian, [761](#)
 - operator SwapCode::SwapCodeType, [762](#)
 - operator<<, [762](#)
 - SwapCode, [762](#)
 - SwapCodeType, [761](#)
 - Unknown, [761](#)
- gdcmm::SwapperDoOp, [762](#)
 - Swap, [763](#)
 - SwapArray, [763](#)
- gdcmm::SwapperNoOp, [763](#)
 - Swap, [763](#)
 - SwapArray, [763](#)
- gdcmm::System, [763](#)
 - DeleteDirectory, [765](#)
 - EncodeBytes, [765](#)
 - FileExists, [765](#)
 - FileIsDirectory, [765](#)
 - FileIsSymlink, [765](#)
 - FileSize, [765](#)
 - FileTime, [766](#)
 - FormatDateTime, [766](#)
 - GetCWD, [766](#)
 - GetCurrentDateTime, [766](#)
 - GetCurrentModuleFileName, [766](#)
 - GetCurrentProcessFileName, [766](#)
 - GetCurrentResourcesDirectory, [766](#)
 - GetHostName, [767](#)
 - GetLastSystemError, [767](#)
 - GetLocaleCharset, [767](#)
 - GetPermissions, [767](#)
 - GetTimezoneOffsetFromUTC, [767](#)
 - MakeDirectory, [767](#)
 - ParseDateTime, [767](#)
 - RemoveFile, [768](#)
 - SetPermissions, [768](#)
 - StrCaseCmp, [768](#)
 - StrNCaseCmp, [768](#)
 - StrSep, [768](#)
 - StrTokR, [768](#)
- gdcmm::Table, [768](#)
 - ~Table, [769](#)
 - GetTableEntry, [769](#)

- InsertEntry, [769](#)
- MapTableEntry, [769](#)
- operator<<, [770](#)
- Table, [769](#)
- gdcmm::TableEntry, [770](#)
- ~TableEntry, [770](#)
- TableEntry, [770](#)
- gdcmm::TableReader, [771](#)
- ~TableReader, [772](#)
- CharacterDataHandler, [772](#)
- EndElement, [772](#)
- GetDefs, [772](#)
- GetFilename, [772](#)
- HandleIODEntry, [772](#)
- HandleIOD, [772](#)
- HandleMacro, [772](#)
- HandleMacroEntry, [772](#)
- HandleMacroEntryDescription, [772](#)
- HandleModule, [772](#)
- HandleModuleEntry, [772](#)
- HandleModuleEntryDescription, [772](#)
- HandleModuleInclude, [772](#)
- Read, [772](#)
- SetFilename, [772](#)
- StartElement, [772](#)
- TableReader, [772](#)
- gdcmm::Tag, [774](#)
- bytes, [781](#)
- GetElement, [776](#)
- GetElementTag, [776](#)
- GetGroup, [777](#)
- GetLength, [777](#)
- GetPrivateCreator, [777](#)
- IsGroupLength, [777](#)
- IsGroupXX, [777](#)
- IsIllegal, [777](#)
- IsPrivate, [777](#)
- IsPrivateCreator, [778](#)
- IsPublic, [778](#)
- operator!=, [778](#)
- operator<, [778](#)
- operator<<, [781](#)
- operator<=, [778](#)
- operator>>, [781](#)
- operator=, [778](#)
- operator==, [778](#)
- operator[], [779](#)
- PrintAsContinuousString, [779](#)
- PrintAsContinuousUpperCaseString, [779](#)
- PrintAsPipeSeparatedString, [779](#)
- Read, [779](#)
- ReadFromCommaSeparatedString, [779](#)
- ReadFromContinuousString, [779](#)
- ReadFromPipeSeparatedString, [780](#)
- SetElement, [780](#)
- SetElementTag, [780](#)
- SetGroup, [780](#)
- SetPrivateCreator, [780](#)
- Tag, [776](#)
- tag, [781](#)
- tags, [781](#)
- Write, [781](#)
- gdcmm::TagPath, [781](#)
- ~TagPath, [782](#)
- ConstructFromString, [782](#)
- ConstructFromTagList, [782](#)
- IsValid, [782](#)
- Print, [782](#)
- Push, [783](#)
- TagPath, [782](#)
- gdcmm::Testing, [783](#)
- ~Testing, [785](#)
- ComputeFileMD5, [785](#)
- ComputeMD5, [785](#)
- GetDataExtraRoot, [785](#)
- GetDataRoot, [785](#)
- GetFileName, [785](#)
- GetFileNames, [785](#)
- GetLossyFlagFromFile, [786](#)
- GetMD5DataImage, [786](#)
- GetMD5DataImages, [786](#)
- GetMD5FromBrokenFile, [786](#)
- GetMD5FromFile, [786](#)
- GetMediaStorageDataFile, [786](#)
- GetMediaStorageDataFiles, [786](#)
- GetMediaStorageFromFile, [786](#)
- GetNumberOfFileNames, [786](#)
- GetNumberOfMD5DataImages, [786](#)
- GetNumberOfMediaStorageDataFiles, [787](#)
- GetPixelSpacingDataRoot, [787](#)
- GetSelectedPrivateGroupOffsetFromFile, [787](#)
- GetSelectedTagsOffsetFromFile, [787](#)
- GetSourceDirectory, [787](#)
- GetStreamOffsetFromFile, [787](#)
- GetTempDirectory, [787](#)
- GetTempDirectoryW, [787](#)
- GetTempFilename, [787](#)
- GetTempFilenameW, [788](#)
- MD5DataImagesType, [784](#)
- MediaStorageDataFilesType, [784](#)
- Print, [788](#)
- Testing, [785](#)
- gdcmm::Trace, [788](#)
- ~Trace, [790](#)
- DebugOff, [790](#)
- DebugOn, [790](#)
- ErrorOff, [790](#)
- ErrorOn, [790](#)

- GetDebugFlag, [790](#)
- GetDebugStream, [790](#)
- GetErrorFlag, [790](#)
- GetErrorStream, [790](#)
- GetStream, [790](#)
- GetWarningFlag, [790](#)
- GetWarningStream, [790](#)
- SetDebug, [790](#)
- SetDebugStream, [790](#)
- SetError, [791](#)
- SetErrorStream, [791](#)
- SetStream, [791](#)
- SetStreamToFile, [791](#)
- SetWarning, [791](#)
- SetWarningStream, [791](#)
- Trace, [790](#)
- WarningOff, [791](#)
- WarningOn, [792](#)
- gdcmm::TransferSyntax, [792](#)
 - CT_private_ELE, [795](#)
 - CanStoreLossy, [795](#)
 - DeflatedExplicitVRLittleEndian, [795](#)
 - Explicit, [794](#)
 - ExplicitVRBigEndian, [795](#)
 - ExplicitVRLittleEndian, [795](#)
 - GetNegociatedType, [795](#)
 - GetString, [796](#)
 - GetSwapCode, [796](#)
 - GetTSString, [796](#)
 - GetTSType, [796](#)
 - Implicit, [794](#)
 - ImplicitVRBigEndianACRNEMA, [795](#)
 - ImplicitVRBigEndianPrivateGE, [795](#)
 - ImplicitVRLittleEndian, [795](#)
 - IsEncapsulated, [796](#)
 - IsEncoded, [796](#)
 - IsExplicit, [796](#)
 - IsImplicit, [796](#)
 - IsLossless, [796](#)
 - IsLossy, [796](#)
 - IsValid, [796](#)
 - JPEG2000, [795](#)
 - JPEG2000Lossless, [795](#)
 - JPEG2000Part2, [795](#)
 - JPEG2000Part2Lossless, [795](#)
 - JPEGBaselineProcess1, [795](#)
 - JPEGExtendedProcess2_4, [795](#)
 - JPEGExtendedProcess3_5, [795](#)
 - JPEGFullProgressionProcess10_12, [795](#)
 - JPEGLSLossless, [795](#)
 - JPEGLSNearLossless, [795](#)
 - JPEGLosslessProcess14, [795](#)
 - JPEGLosslessProcess14_1, [795](#)
 - JPEGSpectralSelectionProcess6_8, [795](#)
 - JPIPPreferenced, [795](#)
 - MPEG2MainProfile, [795](#)
 - MPEG2MainProfileHighLevel, [795](#)
 - MPEG4AVCH264BDcompatibleHighProfileLevel4↔_1, [795](#)
 - MPEG4AVCH264HighProfileLevel4_1, [795](#)
 - NegociatedType, [794](#)
 - operator TSType, [797](#)
 - operator<<, [797](#)
 - RLELossless, [795](#)
 - TS_END, [795](#)
 - TSType, [794](#)
 - TransferSyntax, [795](#)
 - Unknown, [794](#)
- gdcmm::Type, [800](#)
 - GetTypeString, [802](#)
 - GetTypeType, [802](#)
 - operator TypeType, [802](#)
 - operator<<, [802](#)
 - T1, [801](#)
 - T1C, [801](#)
 - T2, [801](#)
 - T2C, [801](#)
 - T3, [801](#)
 - Type, [802](#)
 - TypeType, [801](#)
 - UNKNOWN, [801](#)
- gdcmm::UIDGenerator, [803](#)
 - Generate, [804](#)
 - GenerateUUID, [804](#)
 - GetGDCMUID, [804](#)
 - GetRoot, [804](#)
 - IsValid, [804](#)
 - SetRoot, [805](#)
 - UIDGenerator, [804](#)
- gdcmm::UIDs, [805](#)
 - AmbulatoryECGWaveformStorage, [813](#)
 - AudioSRStorageTrialRetired, [814](#)
 - BasicAnnotationBoxSOPClass, [812](#)
 - BasicColorImageBoxSOPClass, [812](#)
 - BasicColorPrintManagementMetaSOPClass, [813](#)
 - BasicFilmBoxSOPClass, [812](#)
 - BasicFilmSessionSOPClass, [812](#)
 - BasicGrayscaleImageBoxSOPClass, [812](#)
 - BasicGrayscalePrintManagementMetaSOPClass, [812](#)
 - BasicPrintImageOverlayBoxSOPClassRetired, [813](#)
 - BasicStudyContentNotificationSOPClassRetired, [812](#)
 - BasicTextSRStorage, [814](#)
 - BasicVoiceAudioWaveformStorage, [814](#)
 - BlendingSoftcopyPresentationStateStorageSOP↔Class, [814](#)
 - BreastImagingRelevantPatientInformationQuery, [816](#)

- BreastTomosynthesisImageStorage, 817
- CTImageStorage, 813
- CardiacElectrophysiologyWaveformStorage, 814
- CardiacRelevantPatientInformationQuery, 816
- ChestCADSRStorage, 815
- ColorSoftcopyPresentationStateStorageSOPClass, 814
- ComprehensiveSRStorage, 815
- ComprehensiveSRStorageTrialRetired, 814
- ComputedRadiographyImageStorage, 813
- DICOMApplicationContextName, 812
- DICOMControlledTerminology, 812
- DICOMUIDRegistry, 812
- DeflatedExplicitVRLittleEndian, 810
- DeformableSpatialRegistrationStorage, 814
- DetachedInterpretationManagementSOPClass↔
Retired, 812
- DetachedPatientManagementMetaSOPClass↔
Retired, 812
- DetachedPatientManagementSOPClassRetired, 812
- DetachedResultsManagementMetaSOPClass↔
Retired, 812
- DetachedResultsManagementSOPClassRetired, 812
- DetachedStudyManagementMetaSOPClassRetired, 812
- DetachedStudyManagementSOPClassRetired, 812
- DetachedVisitManagementSOPClassRetired, 812
- DetailSRStorageTrialRetired, 814
- dicomAETitle, 816
- dicomApplicationCluster, 816
- dicomAssociationAcceptor, 816
- dicomAssociationInitiator, 816
- dicomAuthorizedNodeCertificateReference, 816
- dicomConfigurationRoot, 816
- dicomDescription, 816
- dicomDevice, 817
- dicomDeviceName, 816
- dicomDeviceSerialNumber, 816
- dicomDevicesRoot, 816
- dicomHostname, 816
- dicomInstalled, 816
- dicomInstitutionAddress, 816
- dicomInstitutionDepartmentName, 816
- dicomInstitutionName, 816
- dicomIssuerOfPatientID, 816
- dicomManufacturer, 816
- dicomManufacturerModelName, 816
- dicomNetworkAE, 817
- dicomNetworkConnection, 817
- dicomNetworkConnectionReference, 816
- dicomPort, 816
- dicomPreferredCalledAETitle, 816
- dicomPreferredCallingAETitle, 816
- dicomPrimaryDeviceType, 816
- dicomRelatedDeviceReference, 816
- dicomSOPClass, 816
- dicomSoftwareVersion, 816
- dicomStationName, 816
- dicomSupportedCharacterSet, 816
- dicomTLSCyphersuite, 816
- dicomThisNodeCertificateReference, 816
- dicomTransferCapability, 817
- dicomTransferRole, 816
- dicomTransferSyntax, 816
- dicomUniqueAETitle, 817
- dicomUniqueAETitlesRegistryRoot, 817
- dicomVendorData, 816
- DigitalIntraoralXRayImageStorageForPresentation, 813
- DigitalIntraoralXRayImageStorageForProcessing, 813
- DigitalMammographyXRayImageStorageFor↔
Presentation, 813
- DigitalMammographyXRayImageStorageFor↔
Processing, 813
- DigitalXRayImageStorageForPresentation, 813
- DigitalXRayImageStorageForProcessing, 813
- EncapsulatedCDASStorage, 815
- EncapsulatedPDFStorage, 815
- EnhancedCTImageStorage, 813
- EnhancedMRIImageStorage, 813
- EnhancedSRStorage, 814
- EnhancedUSVolumeStorage, 817
- EnhancedXAImageStorage, 814
- EnhancedXRFImageStorage, 814
- ExplicitVRBigEndian, 810
- ExplicitVRLittleEndian, 810
- GeneralECGWaveformStorage, 813
- GeneralPurposePerformedProcedureStepSOP↔
Class, 815
- GeneralPurposeScheduledProcedureStepSOP↔
Class, 815
- GeneralPurposeWorklistInformationModelFIND, 815
- GeneralPurposeWorklistManagementMetaSOP↔
Class, 815
- GeneralRelevantPatientInformationQuery, 816
- GetName, 824
- GetNumberOfTransferSyntaxStrings, 824
- GetString, 824
- GetTransferSyntaxString, 824
- GetTransferSyntaxStrings, 824
- GetUIDName, 824
- GetUIDString, 824
- GrayscaleSoftcopyPresentationStateStorageSOP↔
Class, 814
- HangingProtocolInformationModelFIND, 816
- HangingProtocolInformationModelMOVE, 816

- HangingProtocolStorage, [816](#)
- HardcopyColorImageStorageSOPClassRetired, [813](#)
- HardcopyGrayscaleImageStorageSOPClassRetired, [813](#)
- HemodynamicWaveformStorage, [814](#)
- ICBM452T1FrameofReference, [812](#)
- ICBMSingleSubjectMRIFrameofReference, [812](#)
- ImageOverlayBoxSOPClassRetired, [813](#)
- ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM, [810](#)
- InstanceAvailabilityNotificationSOPClass, [815](#)
- JPEG2000ImageCompression, [811](#)
- JPEG2000ImageCompressionLosslessOnly, [811](#)
- JPEG2000Part2MulticomponentImageCompression, [811](#)
- JPEG2000Part2MulticomponentImageCompressionLosslessOnly, [811](#)
- JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression, [810](#)
- JPEGExtendedHierarchicalProcess1618Retired, [811](#)
- JPEGExtendedHierarchicalProcess1719Retired, [811](#)
- JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only, [810](#)
- JPEGExtendedProcess35Retired, [810](#)
- JPEGFullProgressionHierarchicalProcess2426Retired, [811](#)
- JPEGFullProgressionHierarchicalProcess2527Retired, [811](#)
- JPEGFullProgressionNonHierarchicalProcess1012Retired, [811](#)
- JPEGFullProgressionNonHierarchicalProcess1113Retired, [811](#)
- JPEGLSLosslessImageCompression, [811](#)
- JPEGLSLossyNearLosslessImageCompression, [811](#)
- JPEGLosslessHierarchicalProcess28Retired, [811](#)
- JPEGLosslessHierarchicalProcess29Retired, [811](#)
- JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompression, [811](#)
- JPEGLosslessNonHierarchicalProcess14, [811](#)
- JPEGLosslessNonHierarchicalProcess15Retired, [811](#)
- JPEGSpectralSelectionHierarchicalProcess2022Retired, [811](#)
- JPEGSpectralSelectionHierarchicalProcess2123Retired, [811](#)
- JPEGSpectralSelectionNonHierarchicalProcess68Retired, [810](#)
- JPEGSpectralSelectionNonHierarchicalProcess79Retired, [810](#)
- JPIPReferenced, [811](#)
- JPIPReferencedDeflate, [811](#)
- KeyObjectSelectionDocumentStorage, [815](#)
- MPEG2MainProfileMainLevel, [811](#)
- MRImageStorage, [813](#)
- MRSpectroscopyStorage, [813](#)
- MammographyCADSRStorage, [815](#)
- MediaCreationManagementSOPClassUID, [813](#)
- MediaStorageDirectoryStorage, [811](#)
- ModalityPerformedProcedureStepNotificationSOPClass, [812](#)
- ModalityPerformedProcedureStepRetrieveSOPClass, [812](#)
- ModalityPerformedProcedureStepSOPClass, [812](#)
- ModalityWorklistInformationModelFIND, [815](#)
- MultiframeGrayscaleByteSecondaryCaptureImageStorage, [813](#)
- MultiframeGrayscaleWordSecondaryCaptureImageStorage, [813](#)
- MultiframeSingleBitSecondaryCaptureImageStorage, [813](#)
- MultiframeTrueColorSecondaryCaptureImageStorage, [813](#)
- NuclearMedicineImageStorage, [814](#)
- NuclearMedicineImageStorageRetired, [813](#)
- operator TSType, [824](#)
- OphthalmicPhotography16BitImageStorage, [814](#)
- OphthalmicPhotography8BitImageStorage, [814](#)
- OphthalmicTomographyImageStorage, [814](#)
- PatientRootQueryRetrieveInformationModelFIND, [815](#)
- PatientRootQueryRetrieveInformationModelGET, [815](#)
- PatientRootQueryRetrieveInformationModelMOVE, [815](#)
- PatientStudyOnlyQueryRetrieveInformationModelFINDRetired, [815](#)
- PatientStudyOnlyQueryRetrieveInformationModelGETRetired, [815](#)
- PatientStudyOnlyQueryRetrieveInformationModelMOVERetired, [815](#)
- PositronEmissionTomographyImageStorage, [815](#)
- PresentationLUTSOPClass, [813](#)
- PrintJobSOPClass, [812](#)
- PrintQueueManagementSOPClassRetired, [813](#)
- PrintQueueSOPInstanceRetired, [813](#)
- PrinterConfigurationRetrieveSOPClass, [812](#)
- PrinterConfigurationRetrieveSOPInstance, [813](#)
- PrinterSOPClass, [812](#)
- PrinterSOPInstance, [812](#)
- ProceduralEventLoggingSOPClass, [812](#)
- ProceduralEventLoggingSOPInstance, [812](#)
- ProcedureLogStorage, [815](#)
- ProductCharacteristicsQuerySOPClass, [816](#)
- PseudoColorSoftcopyPresentationStateStorageSOPClass, [814](#)

- PullPrintRequestSOPClassRetired, [813](#)
- PullStoredPrintManagementMetaSOPClassRetired, [813](#)
- RFC2557MIMEencapsulation, [811](#)
- RLELossless, [811](#)
- RTBeamsDeliveryInstructionStorageSupplement74↔
FrozenDraft, [815](#)
- RTBeamsTreatmentRecordStorage, [815](#)
- RTBrachyTreatmentRecordStorage, [815](#)
- RTConventionalMachineVerificationSupplement74↔
FrozenDraft, [815](#)
- RTDoseStorage, [815](#)
- RTImageStorage, [815](#)
- RTIonBeamsTreatmentRecordStorage, [815](#)
- RTIonMachineVerificationSupplement74FrozenDraft, [815](#)
- RTIonPlanStorage, [815](#)
- RTPlanStorage, [815](#)
- RTStructureSetStorage, [815](#)
- RTTreatmentSummaryRecordStorage, [815](#)
- RawDataStorage, [814](#)
- RealWorldValueMappingStorage, [814](#)
- ReferencedColorPrintManagementMetaSOPClass↔
Retired, [813](#)
- ReferencedGrayscalePrintManagementMetaSOP↔
ClassRetired, [812](#)
- ReferencedImageBoxSOPClassRetired, [812](#)
- SPM2AVG152PDFFrameofReference, [812](#)
- SPM2AVG152T1FrameofReference, [811](#)
- SPM2AVG152T2FrameofReference, [812](#)
- SPM2AVG305T1FrameofReference, [811](#)
- SPM2BRAINMASKFrameofReference, [811](#)
- SPM2CSFFFrameofReference, [811](#)
- SPM2EPIFrameofReference, [811](#)
- SPM2FILT1FrameofReference, [811](#)
- SPM2GRAYFrameofReference, [811](#)
- SPM2PDFFrameofReference, [811](#)
- SPM2PETFrameofReference, [811](#)
- SPM2SINGLESUBJT1FrameofReference, [812](#)
- SPM2SPECTFrameofReference, [811](#)
- SPM2T1FrameofReference, [811](#)
- SPM2T2FrameofReference, [811](#)
- SPM2TRANSMFrameofReference, [811](#)
- SPM2WHITEFrameofReference, [811](#)
- SecondaryCaptureImageStorage, [813](#)
- SegmentationStorage, [814](#)
- SetFromUID, [824](#)
- SpatialFiducialsStorage, [814](#)
- SpatialRegistrationStorage, [814](#)
- StandaloneCurveStorageRetired, [813](#)
- StandaloneModalityLUTStorageRetired, [814](#)
- StandaloneOverlayStorageRetired, [813](#)
- StandalonePETCurveStorageRetired, [815](#)
- StandaloneVOILUTStorageRetired, [814](#)
- StereometricRelationshipStorage, [814](#)
- StorageCommitmentPullModelSOPClassRetired, [812](#)
- StorageCommitmentPullModelSOPInstanceRetired, [812](#)
- StorageCommitmentPushModelSOPClass, [812](#)
- StorageCommitmentPushModelSOPInstance, [812](#)
- StorageServiceClass, [812](#)
- StoredPrintStorageSOPClassRetired, [813](#)
- StudyComponentManagementSOPClassRetired, [812](#)
- StudyRootQueryRetrieveInformationModelFIND, [815](#)
- StudyRootQueryRetrieveInformationModelGET, [815](#)
- StudyRootQueryRetrieveInformationModelMOVE, [815](#)
- SubstanceAdministrationLoggingSOPClass, [812](#)
- SubstanceAdministrationLoggingSOPInstance, [812](#)
- SubstanceApprovalQuerySOPClass, [816](#)
- SurfaceSegmentationStorage, [817](#)
- TSName, [810](#)
- TSType, [817](#)
- TalairachBrainAtlasFrameofReference, [811](#)
- TextSRStorageTrialRetired, [814](#)
- TransferSyntaxStringsType, [810](#)
- uid_1_2_840_10008_15_0_3_1, [822](#)
- uid_1_2_840_10008_15_0_3_10, [823](#)
- uid_1_2_840_10008_15_0_3_11, [823](#)
- uid_1_2_840_10008_15_0_3_12, [823](#)
- uid_1_2_840_10008_15_0_3_13, [823](#)
- uid_1_2_840_10008_15_0_3_14, [823](#)
- uid_1_2_840_10008_15_0_3_15, [823](#)
- uid_1_2_840_10008_15_0_3_16, [823](#)
- uid_1_2_840_10008_15_0_3_17, [823](#)
- uid_1_2_840_10008_15_0_3_18, [823](#)
- uid_1_2_840_10008_15_0_3_19, [823](#)
- uid_1_2_840_10008_15_0_3_2, [822](#)
- uid_1_2_840_10008_15_0_3_20, [823](#)
- uid_1_2_840_10008_15_0_3_21, [823](#)
- uid_1_2_840_10008_15_0_3_22, [823](#)
- uid_1_2_840_10008_15_0_3_23, [823](#)
- uid_1_2_840_10008_15_0_3_24, [823](#)
- uid_1_2_840_10008_15_0_3_25, [823](#)
- uid_1_2_840_10008_15_0_3_26, [823](#)
- uid_1_2_840_10008_15_0_3_27, [823](#)
- uid_1_2_840_10008_15_0_3_28, [823](#)
- uid_1_2_840_10008_15_0_3_29, [823](#)
- uid_1_2_840_10008_15_0_3_3, [822](#)
- uid_1_2_840_10008_15_0_3_30, [823](#)
- uid_1_2_840_10008_15_0_3_31, [823](#)
- uid_1_2_840_10008_15_0_3_4, [822](#)
- uid_1_2_840_10008_15_0_3_5, [822](#)
- uid_1_2_840_10008_15_0_3_6, [822](#)
- uid_1_2_840_10008_15_0_3_7, [822](#)
- uid_1_2_840_10008_15_0_3_8, [822](#)

uid_1_2_840_10008_15_0_3_9, 823
uid_1_2_840_10008_15_0_4_1, 823
uid_1_2_840_10008_15_0_4_2, 823
uid_1_2_840_10008_15_0_4_3, 823
uid_1_2_840_10008_15_0_4_4, 823
uid_1_2_840_10008_15_0_4_5, 823
uid_1_2_840_10008_15_0_4_6, 823
uid_1_2_840_10008_15_0_4_7, 823
uid_1_2_840_10008_15_0_4_8, 823
uid_1_2_840_10008_1_1, 817
uid_1_2_840_10008_1_2, 817
uid_1_2_840_10008_1_20_1, 818
uid_1_2_840_10008_1_20_1_1, 818
uid_1_2_840_10008_1_20_2, 818
uid_1_2_840_10008_1_20_2_1, 818
uid_1_2_840_10008_1_2_1, 817
uid_1_2_840_10008_1_2_1_99, 817
uid_1_2_840_10008_1_2_2, 817
uid_1_2_840_10008_1_2_4_100, 818
uid_1_2_840_10008_1_2_4_101, 823
uid_1_2_840_10008_1_2_4_102, 823
uid_1_2_840_10008_1_2_4_103, 823
uid_1_2_840_10008_1_2_4_50, 817
uid_1_2_840_10008_1_2_4_51, 817
uid_1_2_840_10008_1_2_4_52, 817
uid_1_2_840_10008_1_2_4_53, 817
uid_1_2_840_10008_1_2_4_54, 817
uid_1_2_840_10008_1_2_4_55, 817
uid_1_2_840_10008_1_2_4_56, 817
uid_1_2_840_10008_1_2_4_57, 817
uid_1_2_840_10008_1_2_4_58, 817
uid_1_2_840_10008_1_2_4_59, 817
uid_1_2_840_10008_1_2_4_60, 817
uid_1_2_840_10008_1_2_4_61, 817
uid_1_2_840_10008_1_2_4_62, 817
uid_1_2_840_10008_1_2_4_63, 817
uid_1_2_840_10008_1_2_4_64, 817
uid_1_2_840_10008_1_2_4_65, 817
uid_1_2_840_10008_1_2_4_66, 817
uid_1_2_840_10008_1_2_4_70, 817
uid_1_2_840_10008_1_2_4_80, 817
uid_1_2_840_10008_1_2_4_81, 817
uid_1_2_840_10008_1_2_4_90, 817
uid_1_2_840_10008_1_2_4_91, 817
uid_1_2_840_10008_1_2_4_92, 818
uid_1_2_840_10008_1_2_4_93, 818
uid_1_2_840_10008_1_2_4_94, 818
uid_1_2_840_10008_1_2_4_95, 818
uid_1_2_840_10008_1_2_5, 818
uid_1_2_840_10008_1_2_6_1, 818
uid_1_2_840_10008_1_2_6_2, 818
uid_1_2_840_10008_1_3_10, 818
uid_1_2_840_10008_1_40, 818
uid_1_2_840_10008_1_40_1, 818
uid_1_2_840_10008_1_42, 818
uid_1_2_840_10008_1_42_1, 818
uid_1_2_840_10008_1_4_1_1, 818
uid_1_2_840_10008_1_4_1_10, 818
uid_1_2_840_10008_1_4_1_11, 818
uid_1_2_840_10008_1_4_1_12, 818
uid_1_2_840_10008_1_4_1_13, 818
uid_1_2_840_10008_1_4_1_14, 818
uid_1_2_840_10008_1_4_1_15, 818
uid_1_2_840_10008_1_4_1_16, 818
uid_1_2_840_10008_1_4_1_17, 818
uid_1_2_840_10008_1_4_1_18, 818
uid_1_2_840_10008_1_4_1_2, 818
uid_1_2_840_10008_1_4_1_3, 818
uid_1_2_840_10008_1_4_1_4, 818
uid_1_2_840_10008_1_4_1_5, 818
uid_1_2_840_10008_1_4_1_6, 818
uid_1_2_840_10008_1_4_1_7, 818
uid_1_2_840_10008_1_4_1_8, 818
uid_1_2_840_10008_1_4_1_9, 818
uid_1_2_840_10008_1_4_2_1, 818
uid_1_2_840_10008_1_4_2_2, 818
uid_1_2_840_10008_1_9, 818
uid_1_2_840_10008_2_16_4, 818
uid_1_2_840_10008_2_6_1, 818
uid_1_2_840_10008_3_1_1_1, 818
uid_1_2_840_10008_3_1_2_1_1, 818
uid_1_2_840_10008_3_1_2_1_4, 819
uid_1_2_840_10008_3_1_2_2_1, 819
uid_1_2_840_10008_3_1_2_3_1, 819
uid_1_2_840_10008_3_1_2_3_2, 819
uid_1_2_840_10008_3_1_2_3_3, 819
uid_1_2_840_10008_3_1_2_3_4, 819
uid_1_2_840_10008_3_1_2_3_5, 819
uid_1_2_840_10008_3_1_2_5_1, 819
uid_1_2_840_10008_3_1_2_5_4, 819
uid_1_2_840_10008_3_1_2_5_5, 819
uid_1_2_840_10008_3_1_2_6_1, 819
uid_1_2_840_10008_4_2, 819
uid_1_2_840_10008_5_1_1_1, 819
uid_1_2_840_10008_5_1_1_14, 819
uid_1_2_840_10008_5_1_1_15, 819
uid_1_2_840_10008_5_1_1_16, 819
uid_1_2_840_10008_5_1_1_16_376, 819
uid_1_2_840_10008_5_1_1_17, 819
uid_1_2_840_10008_5_1_1_17_376, 819
uid_1_2_840_10008_5_1_1_18, 819
uid_1_2_840_10008_5_1_1_18_1, 819
uid_1_2_840_10008_5_1_1_2, 819
uid_1_2_840_10008_5_1_1_22, 819
uid_1_2_840_10008_5_1_1_23, 819
uid_1_2_840_10008_5_1_1_24, 819
uid_1_2_840_10008_5_1_1_24_1, 819
uid_1_2_840_10008_5_1_1_25, 819

uid_1_2_840_10008_5_1_1_26, [819](#)
uid_1_2_840_10008_5_1_1_27, [819](#)
uid_1_2_840_10008_5_1_1_29, [819](#)
uid_1_2_840_10008_5_1_1_30, [819](#)
uid_1_2_840_10008_5_1_1_31, [819](#)
uid_1_2_840_10008_5_1_1_32, [819](#)
uid_1_2_840_10008_5_1_1_33, [819](#)
uid_1_2_840_10008_5_1_1_4, [819](#)
uid_1_2_840_10008_5_1_1_4_1, [819](#)
uid_1_2_840_10008_5_1_1_4_2, [819](#)
uid_1_2_840_10008_5_1_1_9, [819](#)
uid_1_2_840_10008_5_1_1_9_1, [819](#)
uid_1_2_840_10008_5_1_4_1_1_1, [819](#)
uid_1_2_840_10008_5_1_4_1_1_10, [820](#)
uid_1_2_840_10008_5_1_4_1_1_104_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_104_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_11, [820](#)
uid_1_2_840_10008_5_1_4_1_1_11_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_11_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_11_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_11_4, [820](#)
uid_1_2_840_10008_5_1_4_1_1_128, [821](#)
uid_1_2_840_10008_5_1_4_1_1_129, [821](#)
uid_1_2_840_10008_5_1_4_1_1_12_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_12_1_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_12_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_12_2_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_12_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_13_1_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_13_1_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_13_1_3, [823](#)
uid_1_2_840_10008_5_1_4_1_1_1_1, [819](#)
uid_1_2_840_10008_5_1_4_1_1_1_1_1, [819](#)
uid_1_2_840_10008_5_1_4_1_1_1_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_1_2_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_1_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_1_3_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_20, [820](#)
uid_1_2_840_10008_5_1_4_1_1_2_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_3_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_4, [820](#)
uid_1_2_840_10008_5_1_4_1_1_481_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_3, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_4, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_5, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_6, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_7, [821](#)
uid_1_2_840_10008_5_1_4_1_1_481_8, [822](#)
uid_1_2_840_10008_5_1_4_1_1_481_9, [822](#)
uid_1_2_840_10008_5_1_4_1_1_4_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_4_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_5, [820](#)
uid_1_2_840_10008_5_1_4_1_1_6, [820](#)
uid_1_2_840_10008_5_1_4_1_1_66, [821](#)
uid_1_2_840_10008_5_1_4_1_1_66_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_66_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_66_3, [821](#)
uid_1_2_840_10008_5_1_4_1_1_66_4, [821](#)
uid_1_2_840_10008_5_1_4_1_1_66_5, [823](#)
uid_1_2_840_10008_5_1_4_1_1_67, [821](#)
uid_1_2_840_10008_5_1_4_1_1_6_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_6_2, [823](#)
uid_1_2_840_10008_5_1_4_1_1_7, [820](#)
uid_1_2_840_10008_5_1_4_1_1_77_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_3, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_4, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_5_4, [821](#)
uid_1_2_840_10008_5_1_4_1_1_77_1_6, [823](#)
uid_1_2_840_10008_5_1_4_1_1_77_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_7_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_7_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_7_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_7_4, [820](#)
uid_1_2_840_10008_5_1_4_1_1_8, [820](#)
uid_1_2_840_10008_5_1_4_1_1_88_1, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_11, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_2, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_22, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_3, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_33, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_4, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_40, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_50, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_59, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_65, [821](#)
uid_1_2_840_10008_5_1_4_1_1_88_67, [821](#)
uid_1_2_840_10008_5_1_4_1_1_9, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_1_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_1_2, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_1_3, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_2_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_3_1, [820](#)
uid_1_2_840_10008_5_1_4_1_1_9_4_1, [820](#)
uid_1_2_840_10008_5_1_4_1_2_1_1, [822](#)
uid_1_2_840_10008_5_1_4_1_2_1_2, [822](#)
uid_1_2_840_10008_5_1_4_1_2_1_3, [822](#)

- uid_1_2_840_10008_5_1_4_1_2_2_1, [822](#)
- uid_1_2_840_10008_5_1_4_1_2_2_2, [822](#)
- uid_1_2_840_10008_5_1_4_1_2_2_3, [822](#)
- uid_1_2_840_10008_5_1_4_1_2_3_1, [822](#)
- uid_1_2_840_10008_5_1_4_1_2_3_2, [822](#)
- uid_1_2_840_10008_5_1_4_1_2_3_3, [822](#)
- uid_1_2_840_10008_5_1_4_31, [822](#)
- uid_1_2_840_10008_5_1_4_32, [822](#)
- uid_1_2_840_10008_5_1_4_32_1, [822](#)
- uid_1_2_840_10008_5_1_4_32_2, [822](#)
- uid_1_2_840_10008_5_1_4_32_3, [822](#)
- uid_1_2_840_10008_5_1_4_33, [822](#)
- uid_1_2_840_10008_5_1_4_34_1, [822](#)
- uid_1_2_840_10008_5_1_4_34_2, [822](#)
- uid_1_2_840_10008_5_1_4_34_3, [822](#)
- uid_1_2_840_10008_5_1_4_34_4, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_1, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_2, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_3, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_4, [822](#)
- uid_1_2_840_10008_5_1_4_34_5, [822](#)
- uid_1_2_840_10008_5_1_4_37_1, [822](#)
- uid_1_2_840_10008_5_1_4_37_2, [822](#)
- uid_1_2_840_10008_5_1_4_37_3, [822](#)
- uid_1_2_840_10008_5_1_4_38_1, [822](#)
- uid_1_2_840_10008_5_1_4_38_2, [822](#)
- uid_1_2_840_10008_5_1_4_38_3, [822](#)
- uid_1_2_840_10008_5_1_4_41, [822](#)
- uid_1_2_840_10008_5_1_4_42, [822](#)
- UltrasoundImageStorage, [813](#)
- UltrasoundImageStorageRetired, [813](#)
- UltrasoundMultiframeImageStorage, [813](#)
- UltrasoundMultiframeImageStorageRetired, [813](#)
- UnifiedProcedureStepEventSOPClass, [815](#)
- UnifiedProcedureStepPullSOPClass, [815](#)
- UnifiedProcedureStepPushSOPClass, [815](#)
- UnifiedProcedureStepWatchSOPClass, [815](#)
- UnifiedWorklistandProcedureStepSOPInstance, [816](#)
- UnifiedWorklistandProcedureStepServiceClass, [815](#)
- VLEndoscopicImageStorage, [814](#)
- VLIImageStorageTrialRetired, [814](#)
- VLMicroscopicImageStorage, [814](#)
- VLMultiframeImageStorageTrialRetired, [814](#)
- VLPhotographicImageStorage, [814](#)
- VLSlideCoordinatesMicroscopicImageStorage, [814](#)
- VLWholeSlideMicroscopyImageStorage, [817](#)
- VOILUTBoxSOPClass, [813](#)
- VerificationSOPClass, [810](#)
- VideoEndoscopicImageStorage, [814](#)
- VideoMicroscopicImageStorage, [814](#)
- VideoPhotographicImageStorage, [814](#)
- WaveformStorageTrialRetired, [813](#)
- XMLEncoding, [811](#)
- XRay3DAngiographicImageStorage, [814](#)
- XRay3DCraniofacialImageStorage, [814](#)
- XRayAngiographicBiPlaneImageStorageRetired, [814](#)
- XRayAngiographicImageStorage, [814](#)
- XRayRadiationDoseSRStorage, [815](#)
- XRayRadiofluoroscopicImageStorage, [814](#)
- gdcmm::UNExplicitDataElement, [872](#)
 - GetLength, [874](#)
 - Read, [874](#)
 - ReadPreValue, [874](#)
 - ReadValue, [874](#)
 - ReadWithLength, [874](#)
- gdcmm::UNExplicitImplicitDataElement, [874](#)
 - GetLength, [876](#)
 - Read, [876](#)
 - ReadPreValue, [876](#)
 - ReadValue, [876](#)
- gdcmm::UUIDGenerator, [882](#)
 - Generate, [882](#)
 - IsValid, [882](#)
- gdcmm::UI, [802](#)
 - Internal, [803](#)
 - operator<<, [803](#)
- gdcmm::Unpacker12Bits, [876](#)
 - Pack, [877](#)
 - Unpack, [877](#)
- gdcmm::Usage, [877](#)
 - Conditional, [878](#)
 - GetUsageString, [878](#)
 - GetUsageType, [878](#)
 - Invalid, [878](#)
 - Mandatory, [878](#)
 - operator UsageType, [879](#)
 - operator<<, [879](#)
 - Usage, [878](#)
 - UsageType, [878](#)
 - UserOption, [878](#)
- gdcmm::UserEvent, [879](#)
- gdcmm::VMToLength< T >, [895](#)
- gdcmm::VR16ExplicitDataElement, [900](#)
 - GetLength, [902](#)
 - Read, [902](#)
 - ReadPreValue, [902](#)
 - ReadValue, [902](#)
 - ReadWithLength, [902](#)
- gdcmm::VRToEncoding< T >, [902](#)
- gdcmm::VRToType< T >, [902](#)
- gdcmm::VRVLSize< 0 >, [903](#)
 - Read, [903](#)
 - Write, [903](#)
- gdcmm::VRVLSize< 1 >, [904](#)
 - Read, [904](#)
 - Write, [904](#)
- gdcmm::VRVLSize< T >, [903](#)
- gdcmm::Validate, [883](#)

- ~Validate, [884](#)
- F, [884](#)
- GetValidatedFile, [884](#)
- SetFile, [884](#)
- V, [884](#)
- Validate, [884](#)
- Validation, [884](#)
- gdcM::Value, [884](#)
 - ~Value, [885](#)
 - Clear, [886](#)
 - DataElement, [886](#)
 - GetLength, [886](#)
 - operator==, [886](#)
 - SetLength, [886](#)
 - SetLengthOnly, [886](#)
 - Value, [885](#)
- gdcM::ValueIO< TDE, TSwap, TType >, [886](#)
- gdcM::ValueIO
 - Read, [887](#)
 - Write, [887](#)
- gdcM::Version, [887](#)
 - ~Version, [888](#)
 - GetBuildVersion, [888](#)
 - GetMajorVersion, [888](#)
 - GetMinorVersion, [888](#)
 - GetVersion, [888](#)
 - operator<<, [888](#)
 - Print, [888](#)
 - Version, [888](#)
- gdcM::VL, [888](#)
 - GetLength, [890](#)
 - GetVL16Max, [890](#)
 - GetVL32Max, [890](#)
 - IsOdd, [890](#)
 - IsUndefined, [890](#)
 - operator uint32_t, [890](#)
 - operator<<, [891](#)
 - operator++, [890](#)
 - operator+=, [890](#)
 - Read, [890](#)
 - Read16, [890](#)
 - SetToUndefined, [890](#)
 - Type, [890](#)
 - VL, [890](#)
 - Write, [890](#)
 - Write16, [890](#)
- gdcM::VM, [891](#)
 - Compatible, [894](#)
 - GetIndex, [894](#)
 - GetLength, [895](#)
 - GetNumberOfElementsFromArray, [895](#)
 - GetVMString, [895](#)
 - GetVMType, [895](#)
 - GetVMTypeFromLength, [895](#)
 - IsValid, [895](#)
 - operator VMType, [895](#)
 - operator<<, [895](#)
 - VM0, [893](#)
 - VM1, [893](#)
 - VM10, [893](#)
 - VM12, [893](#)
 - VM16, [893](#)
 - VM18, [893](#)
 - VM1_2, [894](#)
 - VM1_3, [894](#)
 - VM1_32, [894](#)
 - VM1_4, [894](#)
 - VM1_5, [894](#)
 - VM1_8, [894](#)
 - VM1_99, [894](#)
 - VM1_n, [894](#)
 - VM2, [893](#)
 - VM24, [894](#)
 - VM256, [894](#)
 - VM28, [894](#)
 - VM2_2n, [894](#)
 - VM2_n, [894](#)
 - VM3, [893](#)
 - VM30_30n, [894](#)
 - VM32, [894](#)
 - VM35, [894](#)
 - VM3_3n, [894](#)
 - VM3_4, [894](#)
 - VM3_n, [894](#)
 - VM4, [893](#)
 - VM47_47n, [894](#)
 - VM4_4n, [894](#)
 - VM5, [893](#)
 - VM6, [893](#)
 - VM6_6n, [894](#)
 - VM7_7n, [894](#)
 - VM8, [893](#)
 - VM9, [893](#)
 - VM99, [894](#)
 - VM_END, [894](#)
 - VMType, [893](#)
 - VM, [894](#)
- gdcM::VR, [896](#)
 - AE, [898](#)
 - AS, [898](#)
 - AT, [898](#)
 - CanDisplay, [899](#)
 - Compatible, [899](#)
 - CS, [898](#)
 - DA, [898](#)
 - DS, [898](#)
 - DT, [898](#)
 - FD, [898](#)

- FL, [898](#)
- GetLength, [899](#)
- GetSize, [899](#)
- GetSizeof, [899](#)
- GetVRString, [899](#)
- GetVRStringFromFile, [899](#)
- GetVRType, [899](#)
- GetVRTypeFromFile, [899](#)
- INVALID, [898](#)
- IS, [898](#)
- IsASCII2, [899](#)
- IsASCII, [899](#)
- IsBinary, [899](#)
- IsBinary2, [899](#)
- IsDual, [899](#)
- IsSwap, [899](#)
- IsVRFile, [899](#)
- IsValid, [899](#)
- LO, [898](#)
- LT, [898](#)
- OB_OW, [898](#)
- OB, [898](#)
- OD, [898](#)
- OF, [898](#)
- operator VRType, [899](#)
- operator<<, [900](#)
- OW, [898](#)
- PN, [898](#)
- Read, [900](#)
- SH, [898](#)
- SL, [898](#)
- SQ, [898](#)
- SS, [898](#)
- ST, [898](#)
- TM, [898](#)
- US_SS_OW, [898](#)
- US_SS, [898](#)
- UI, [898](#)
- UL, [898](#)
- UN, [898](#)
- US, [898](#)
- UT, [898](#)
- VL16, [898](#)
- VL32, [898](#)
- VR_END, [898](#)
- VR_VM1, [898](#)
- VRALL, [898](#)
- VRASCII, [898](#)
- VRBINARY, [898](#)
- VRType, [898](#)
- VR, [899](#)
- Write, [900](#)
- gdcmm::WLMFindQuery, [966](#)
 - GetAbstractSyntaxUID, [967](#)
 - GetTagListByLevel, [967](#)
 - GetValidDataSet, [968](#)
 - InitializeDataSet, [968](#)
 - QueryFactory, [968](#)
 - ValidateQuery, [968](#)
 - WLMFindQuery, [967](#)
- gdcmm::Waveform, [965](#)
 - Waveform, [966](#)
- gdcmm::Writer, [969](#)
 - ~Writer, [972](#)
 - CheckFileMetaInformationOff, [972](#)
 - CheckFileMetaInformationOn, [972](#)
 - GetFile, [972](#)
 - GetStreamPtr, [972](#)
 - Ofstream, [973](#)
 - SetCheckFileMetaInformation, [972](#)
 - SetFile, [972](#)
 - SetFileName, [972](#)
 - SetStream, [973](#)
 - SetWriteDataSetOnly, [973](#)
 - Stream, [973](#)
 - StreamImageWriter, [973](#)
 - Write, [973](#)
 - Writer, [972](#)
- gdcmm::XMLDictReader, [974](#)
 - ~XMLDictReader, [975](#)
 - CharacterDataHandler, [975](#)
 - EndElement, [975](#)
 - GetDict, [975](#)
 - HandleDescription, [975](#)
 - HandleEntry, [975](#)
 - StartElement, [975](#)
 - XMLDictReader, [975](#)
- gdcmm::XMLPrinter, [976](#)
 - ~XMLPrinter, [977](#)
 - F, [977](#)
 - GetPrintStyle, [977](#)
 - HandleBulkData, [977](#)
 - LOADBULKDATA, [977](#)
 - OnlyUUID, [977](#)
 - Print, [977](#)
 - PrintDataElement, [977](#)
 - PrintDataSet, [977](#)
 - PrintSQ, [977](#)
 - PrintStyle, [977](#)
 - PrintStyles, [977](#)
 - SetFile, [977](#)
 - SetStyle, [977](#)
 - XMLPrinter, [977](#)
- gdcmm::XMLPrivateDictReader, [978](#)
 - ~XMLPrivateDictReader, [979](#)
 - CharacterDataHandler, [979](#)
 - EndElement, [979](#)
 - GetPrivateDict, [979](#)

- HandleDescription, 979
- HandleEntry, 979
- StartElement, 979
- XMLPrivateDictReader, 979
- gdcmm::ignore_char, 380
 - ignore_char, 380
 - m_char, 380
- gdcmm::network, 69
 - cMaxEventID, 75
 - cMaxStateID, 75
 - eAABORTPDUPReceivedOpen, 74
 - eAABORTRequest, 74
 - eAASSOCIATE_RQPDUreceived, 74
 - eAASSOCIATERequestLocalUser, 74
 - eAASSOCIATEResponseAccept, 74
 - eAASSOCIATEResponseReject, 74
 - eARELEASE_RPPDUPReceived, 74
 - eARELEASE_RQPDUReceivedOpen, 74
 - eARELEASERequest, 74
 - eARELEASEResponse, 74
 - eARTIMTimerExpired, 74
 - eASSOCIATE_ACPDUreceived, 74
 - eASSOCIATE_RJPDUreceived, 74
 - eEventDoesNotExist, 74
 - EEventID, 74
 - ePDATATFPDU, 74
 - ePDATArequest, 74
 - eSta10ReleaseCollisionAc, 75
 - eSta11ReleaseCollisionRq, 75
 - eSta12ReleaseCollisionAcLocal, 75
 - eSta13AwaitingClose, 75
 - eSta1Idle, 75
 - eSta2Open, 75
 - eSta3WaitLocalAssoc, 75
 - eSta4LocalAssocDone, 75
 - eSta5WaitRemoteAssoc, 75
 - eSta6TransferReady, 75
 - eSta7WaitRelease, 75
 - eSta8WaitLocalRelease, 75
 - eSta9ReleaseCollisionRqLocal, 75
 - eStaDoesNotExist, 75
 - EStateID, 74
 - eTransportConnConfirmLocal, 74
 - eTransportConnIndicLocal, 74
 - eTransportConnectionClosed, 74
 - eUnrecognizedPDUPReceived, 74
 - GetStateIndex, 75
- gdcmm::network::AAabortPDU, 79
 - AAabortPDU, 80
 - IsLastFragment, 80
 - Print, 80
 - Read, 80
 - SetReason, 80
 - SetSource, 80
 - Size, 80
 - Write, 80
- gdcmm::network::AAssociateACPDU, 81
 - AAssociateACPDU, 82
 - AAssociateRQPDU, 83
 - AddPresentationContextAC, 82
 - GetNumberOfPresentationContextAC, 82
 - GetPresentationContextAC, 82
 - GetUserInformation, 82
 - InitFromRQ, 82
 - IsLastFragment, 83
 - Print, 83
 - Read, 83
 - SetCalledAETitle, 83
 - SetCallingAETitle, 83
 - Size, 83
 - SizeType, 82
 - Write, 83
- gdcmm::network::AAssociateRJPDU, 84
 - AAssociateRJPDU, 85
 - IsLastFragment, 85
 - Print, 85
 - Read, 85
 - Size, 85
 - Write, 85
- gdcmm::network::AAssociateRQPDU, 86
 - AAssociateACPDU, 90
 - AAssociateRQPDU, 88
 - AddPresentationContext, 88
 - GetCalledAETitle, 88
 - GetCallingAETitle, 88
 - GetNumberOfPresentationContext, 88
 - GetPresentationContext, 88
 - GetPresentationContextByAbstractSyntax, 88
 - GetPresentationContextByID, 88
 - GetPresentationContexts, 88
 - GetReserved43_74, 89
 - GetUserInformation, 89
 - IsAETitleValid, 89
 - IsLastFragment, 89
 - PresentationContextArrayType, 88
 - Print, 89
 - Read, 89
 - SetCalledAETitle, 89
 - SetCallingAETitle, 89
 - SetUserInformation, 90
 - Size, 90
 - SizeType, 88
 - Write, 90
- gdcmm::network::ARTIMTimer, 109
 - ARTIMTimer, 110
 - GetElapsedTime, 110
 - GetHasExpired, 110
 - GetTimeout, 110

- SetTimeout, 110
- Start, 110
- Stop, 110
- gdcmm::network::AReleaseRPPDU, 106
 - AReleaseRPPDU, 107
 - IsLastFragment, 107
 - Print, 107
 - Read, 107
 - Size, 107
 - Write, 107
- gdcmm::network::AReleaseRQPDU, 108
 - AReleaseRQPDU, 109
 - IsLastFragment, 109
 - Print, 109
 - Read, 109
 - Size, 109
 - Write, 109
- gdcmm::network::AbstractSyntax, 91
 - AbstractSyntax, 92
 - GetAsDataElement, 92
 - GetName, 92
 - operator==, 92
 - Print, 92
 - Read, 92
 - SetName, 92
 - SetNameFromUID, 92
 - Size, 92
 - Write, 92
- gdcmm::network::ApplicationContext, 102
 - ApplicationContext, 103
 - GetName, 103
 - Print, 103
 - Read, 103
 - SetName, 103
 - Size, 103
 - Write, 103
- gdcmm::network::AsynchronousOperationsWindowSub, 112
 - AsynchronousOperationsWindowSub, 112
 - Print, 112
 - Read, 112
 - Size, 112
 - Write, 112
- gdcmm::network::BaseCompositeMessage, 139
 - ~BaseCompositeMessage, 140
 - ConstructPDV, 140
- gdcmm::network::BaseNormalizedMessage, 140
 - ~BaseNormalizedMessage, 142
 - ConstructPDV, 142
- gdcmm::network::BasePDU, 143
 - ~BasePDU, 144
 - IsLastFragment, 144
 - Print, 144
 - Read, 144
 - Size, 144
 - Write, 145
- gdcmm::network::CEchoRSP, 184
 - ConstructPDVByDataSet, 185
- gdcmm::network::CEchoRQ, 182
 - AffectedSOPClassUID, 183
 - ConstructPDV, 183
 - MessageID, 183
- gdcmm::network::CFind, 185
- gdcmm::network::CFindCancelRQ, 185
 - ConstructPDVByDataSet, 186
- gdcmm::network::CFindRSP, 188
 - ConstructPDVByDataSet, 189
- gdcmm::network::CFindRQ, 186
 - ConstructPDV, 188
- gdcmm::network::CMoveCancelRq, 189
 - ConstructPDVByDataSet, 190
- gdcmm::network::CMoveRSP, 192
 - ConstructPDVByDataSet, 193
- gdcmm::network::CMoveRQ, 190
 - ConstructPDV, 191
- gdcmm::network::CStoreRSP, 229
 - ConstructPDV, 230
- gdcmm::network::CStoreRQ, 227
 - ConstructPDV, 228
- gdcmm::network::CompositeMessageFactory, 202
 - ConstructCEchoRQ, 203
 - ConstructCFindRQ, 203
 - ConstructCMoveRQ, 203
 - ConstructCStoreRSP, 203
 - ConstructCStoreRQ, 203
- gdcmm::network::DIMSE, 279
 - C_CANCEL_RQ, 281
 - C_ECHO_RSP, 280
 - C_ECHO_RQ, 280
 - C_FIND_RSP, 280
 - C_FIND_RQ, 280
 - C_GET_RSP, 280
 - C_GET_RQ, 280
 - C_MOVE_RSP, 280
 - C_MOVE_RQ, 280
 - C_STORE_RSP, 280
 - C_STORE_RQ, 280
 - CommandTypes, 280
 - N_ACTION_RSP, 281
 - N_ACTION_RQ, 281
 - N_CREATE_RSP, 281
 - N_CREATE_RQ, 281
 - N_DELETE_RSP, 281
 - N_DELETE_RQ, 281
 - N_EVENT_REPORT_RSP, 281
 - N_EVENT_REPORT_RQ, 280
 - N_GET_RSP, 281
 - N_GET_RQ, 281

- N_SET_RSP, [281](#)
- N_SET_RQ, [281](#)
- gdcmm::network::ImplementationClassUIDSub, [424](#)
 - ImplementationClassUIDSub, [424](#)
 - Print, [424](#)
 - Read, [424](#)
 - Size, [424](#)
 - Write, [424](#)
- gdcmm::network::ImplementationUIDSub, [425](#)
 - ImplementationUIDSub, [425](#)
 - Write, [425](#)
- gdcmm::network::ImplementationVersionNameSub, [425](#)
 - ImplementationVersionNameSub, [426](#)
 - Print, [426](#)
 - Read, [426](#)
 - Size, [426](#)
 - Write, [426](#)
- gdcmm::network::MaximumLengthSub, [480](#)
 - GetMaximumLength, [481](#)
 - MaximumLengthSub, [481](#)
 - Print, [481](#)
 - Read, [481](#)
 - SetMaximumLength, [481](#)
 - Size, [481](#)
 - Write, [481](#)
- gdcmm::network::NActionRSP, [518](#)
 - ConstructPDVByDataSet, [519](#)
- gdcmm::network::NActionRQ, [517](#)
 - ConstructPDV, [518](#)
- gdcmm::network::NCreateRSP, [521](#)
 - ConstructPDVByDataSet, [522](#)
- gdcmm::network::NCreateRQ, [519](#)
 - ConstructPDV, [521](#)
- gdcmm::network::NDeleteRSP, [524](#)
 - ConstructPDVByDataSet, [525](#)
- gdcmm::network::NDeleteRQ, [522](#)
 - ConstructPDV, [523](#)
- gdcmm::network::NEventReportRSP, [529](#)
 - ConstructPDVByDataSet, [530](#)
- gdcmm::network::NEventReportRQ, [528](#)
 - ConstructPDV, [529](#)
- gdcmm::network::NGetRSP, [532](#)
 - ConstructPDVByDataSet, [533](#)
- gdcmm::network::NGetRQ, [530](#)
 - ConstructPDV, [531](#)
- gdcmm::network::NSetRSP, [538](#)
 - ConstructPDVByDataSet, [539](#)
- gdcmm::network::NSetRQ, [536](#)
 - ConstructPDV, [537](#)
- gdcmm::network::NormalizedMessageFactory, [534](#)
 - ConstructNAction, [534](#)
 - ConstructNCreate, [534](#)
 - ConstructNDelete, [534](#)
 - ConstructNEventReport, [534](#)
 - ConstructNGet, [534](#)
 - ConstructNSet, [534](#)
- gdcmm::network::PDUFactory, [572](#)
 - ConstructAbortPDU, [573](#)
 - ConstructPDU, [573](#)
 - ConstructReleasePDU, [573](#)
 - CreateCEchoPDU, [573](#)
 - CreateCFindPDU, [573](#)
 - CreateCMovePDU, [573](#)
 - CreateCStoreRQPDU, [573](#)
 - CreateCStoreRSPPDU, [573](#)
 - CreateNActionPDU, [573](#)
 - CreateNCreatePDU, [573](#)
 - CreateNDeletePDU, [573](#)
 - CreateNEventReportPDU, [573](#)
 - CreateNGetPDU, [573](#)
 - CreateNSetPDU, [573](#)
 - DetermineEventByPDU, [573](#)
 - GetPDVs, [573](#)
- gdcmm::network::PDataTFPDU, [563](#)
 - AddPresentationDataValue, [564](#)
 - GetNumberOfPresentationDataValues, [564](#)
 - GetPresentationDataValue, [564](#)
 - IsLastFragment, [564](#)
 - PDataTFPDU, [564](#)
 - Print, [564](#)
 - Read, [565](#)
 - ReadInto, [565](#)
 - Size, [565](#)
 - SizeType, [564](#)
 - Write, [565](#)
- gdcmm::network::PresentationContextAC, [604](#)
 - GetPresentationContextID, [605](#)
 - GetReason, [605](#)
 - GetTransferSyntax, [605](#)
 - PresentationContextAC, [605](#)
 - Print, [605](#)
 - Read, [605](#)
 - SetPresentationContextID, [605](#)
 - SetReason, [605](#)
 - SetTransferSyntax, [605](#)
 - Size, [605](#)
 - Write, [605](#)
- gdcmm::network::PresentationContextRQ, [608](#)
 - AddTransferSyntax, [609](#)
 - GetAbstractSyntax, [609](#)
 - GetNumberOfTransferSyntaxes, [609](#)
 - GetPresentationContextID, [609](#)
 - GetTransferSyntax, [609](#)
 - GetTransferSyntaxes, [609](#)
 - operator==, [610](#)
 - PresentationContextRQ, [609](#)
 - Print, [610](#)
 - Read, [610](#)

- SetAbstractSyntax, 610
- SetPresentationContextID, 610
- Size, 610
- SizeType, 609
- Write, 610
- gdcmm::network::PresentationDataValue, 610
 - ConcatenatePDVBlobs, 611
 - ConcatenatePDVBlobsAsExplicit, 611
 - GetBlob, 611
 - GetIsCommand, 611
 - GetIsLastFragment, 611
 - GetMessageHeader, 611
 - GetPresentationContextID, 611
 - PresentationDataValue, 611
 - Print, 611
 - Read, 611
 - ReadInto, 611
 - SetBlob, 611
 - SetCommand, 611
 - SetDataSet, 611
 - SetLastFragment, 611
 - SetMessageHeader, 612
 - SetPresentationContextID, 612
 - Size, 612
 - Write, 612
- gdcmm::network::RoleSelectionSub, 657
 - Print, 658
 - Read, 658
 - RoleSelectionSub, 658
 - SetTuple, 658
 - Size, 658
 - Write, 658
- gdcmm::network::SOPClassExtendedNegociationSub, 709
 - Print, 710
 - Read, 710
 - SOPClassExtendedNegociationSub, 710
 - SetTuple, 710
 - Size, 710
 - Write, 710
- gdcmm::network::ServiceClassApplicationInformation, 693
 - Print, 694
 - Read, 694
 - ServiceClassApplicationInformation, 694
 - SetTuple, 694
 - Size, 694
 - Write, 694
- gdcmm::network::TableRow, 773
 - ~TableRow, 773
 - TableRow, 773
 - transitions, 774
- gdcmm::network::TransferSyntaxSub, 797
 - GetName, 798
 - operator==, 798
 - Print, 798
 - Read, 798
 - SetName, 798
 - SetNameFromUID, 798
 - Size, 798
 - TransferSyntaxSub, 798
 - Write, 798
- gdcmm::network::Transition, 799
 - ~Transition, 799
 - mAction, 800
 - mEnd, 800
 - MakeNew, 800
 - Transition, 799, 800
- gdcmm::network::ULAction, 825
 - ~ULAction, 827
 - PerformAction, 828
 - ULAction, 827
- gdcmm::network::ULActionAA1, 828
 - PerformAction, 829
- gdcmm::network::ULActionAA2, 829
 - PerformAction, 830
- gdcmm::network::ULActionAA3, 830
 - PerformAction, 831
- gdcmm::network::ULActionAA4, 831
 - PerformAction, 832
- gdcmm::network::ULActionAA5, 832
 - PerformAction, 833
- gdcmm::network::ULActionAA6, 833
 - PerformAction, 834
- gdcmm::network::ULActionAA7, 834
 - PerformAction, 835
- gdcmm::network::ULActionAA8, 835
 - PerformAction, 836
- gdcmm::network::ULActionAE1, 836
 - PerformAction, 837
- gdcmm::network::ULActionAE2, 837
 - PerformAction, 838
- gdcmm::network::ULActionAE3, 838
 - PerformAction, 839
- gdcmm::network::ULActionAE4, 839
 - PerformAction, 840
- gdcmm::network::ULActionAE5, 840
 - PerformAction, 841
- gdcmm::network::ULActionAE6, 841
 - PerformAction, 842
- gdcmm::network::ULActionAE7, 842
 - PerformAction, 843
- gdcmm::network::ULActionAE8, 843
 - PerformAction, 844
- gdcmm::network::ULActionAR1, 844
 - PerformAction, 845
- gdcmm::network::ULActionAR10, 845
 - PerformAction, 846
- gdcmm::network::ULActionAR2, 846
 - PerformAction, 847

- gdcmm::network::ULActionAR3, 847
 - PerformAction, 848
- gdcmm::network::ULActionAR4, 848
 - PerformAction, 849
- gdcmm::network::ULActionAR5, 849
 - PerformAction, 850
- gdcmm::network::ULActionAR6, 850
 - PerformAction, 851
- gdcmm::network::ULActionAR7, 851
 - PerformAction, 852
- gdcmm::network::ULActionAR8, 852
 - PerformAction, 853
- gdcmm::network::ULActionAR9, 853
 - PerformAction, 854
- gdcmm::network::ULActionDT1, 854
 - PerformAction, 855
- gdcmm::network::ULActionDT2, 855
 - PerformAction, 856
- gdcmm::network::ULBasicCallback, 856
 - ~ULBasicCallback, 858
 - GetDataSets, 858
 - GetResponses, 858
 - HandleDataSet, 858
 - HandleResponse, 858
 - ULBasicCallback, 858
- gdcmm::network::ULConnection, 858
 - ~ULConnection, 860
 - AddAcceptedPresentationContext, 860
 - FindContext, 860
 - GetAcceptedPresentationContexts, 860
 - GetConnectionInfo, 860
 - GetMaxPDUSize, 860
 - GetPresentationContextACByID, 860
 - GetPresentationContextIDFromPresentationContext, 860
 - GetPresentationContextRQByID, 860
 - GetPresentationContexts, 860
 - GetProtocol, 860
 - GetState, 860
 - GetTimer, 860
 - InitializeConnection, 860
 - InitializeIncomingConnection, 860
 - SetMaxPDUSize, 861
 - SetPresentationContexts, 861
 - SetState, 861
 - StopProtocol, 861
 - ULActionAE6, 861
 - ULConnection, 860
 - ULConnectionManager, 861
- gdcmm::network::ULConnectionCallback, 861
 - ~ULConnectionCallback, 862
 - DataSetHandled, 862
 - DataSetHandles, 862
 - HandleDataSet, 862
 - HandleResponse, 862
 - mImplicit, 863
 - ResetHandledDataSet, 863
 - SetImplicitFlag, 863
 - ULConnectionCallback, 862
- gdcmm::network::ULConnectionInfo, 863
 - GetCalledAETitle, 864
 - GetCalledComputerName, 864
 - GetCalledIPAddress, 864
 - GetCalledIPPort, 864
 - GetCallingAETitle, 864
 - GetMaxPDULength, 864
 - Initialize, 864
 - SetMaxPDULength, 864
 - ULConnectionInfo, 864
- gdcmm::network::ULConnectionManager, 864
 - ~ULConnectionManager, 867
 - BreakConnection, 867
 - BreakConnectionNow, 867
 - EstablishConnection, 867
 - EstablishConnectionMove, 867
 - mConnection, 868
 - mSecondaryConnection, 868
 - mTransitions, 868
 - RunEventLoop, 867
 - RunMoveEventLoop, 867
 - SendEcho, 867
 - SendFind, 867
 - SendMove, 867
 - SendNAction, 867, 868
 - SendNCreate, 868
 - SendNDelete, 868
 - SendNEventReport, 868
 - SendNGet, 868
 - SendNSet, 868
 - SendStore, 868
 - ULConnectionManager, 867
- gdcmm::network::ULEvent, 869
 - ~ULEvent, 869
 - GetDataSetPos, 869
 - GetEvent, 869
 - GetIStream, 869
 - GetPDUs, 869
 - SetEvent, 869
 - SetPDU, 869
 - ULEvent, 869
- gdcmm::network::ULTransitionTable, 870
 - HandleEvent, 870
 - PrintTable, 870
 - ULTransitionTable, 870
- gdcmm::network::ULWritingCallback, 871
 - ~ULWritingCallback, 872
 - HandleDataSet, 872
 - HandleResponse, 872

- SetDirectory, [872](#)
- ULWritingCallback, [872](#)
- gdcmm::network::UserInformation, [880](#)
 - ~UserInformation, [881](#)
 - AddRoleSelectionSub, [881](#)
 - AddSOPClassExtendedNegociationSub, [881](#)
 - GetMaximumLengthSub, [881](#)
 - operator=, [881](#)
 - Print, [881](#)
 - Read, [882](#)
 - Size, [882](#)
 - UserInformation, [881](#)
 - Write, [882](#)
- gdcmm::static_assert_test< x >, [720](#)
- gdcmm::terminal, [76](#)
 - Attribute, [77](#)
 - black, [77](#)
 - blink, [77](#)
 - blue, [77](#)
 - bright, [77](#)
 - CONSOLE, [77](#)
 - Color, [77](#)
 - cyan, [77](#)
 - dim, [77](#)
 - green, [77](#)
 - hidden, [77](#)
 - magenta, [77](#)
 - Mode, [77](#)
 - red, [77](#)
 - reset, [77](#)
 - reverse, [77](#)
 - setattr, [77](#)
 - setbgcolor, [77](#)
 - setfgcolor, [77](#)
 - setmode, [77](#)
 - underline, [77](#)
 - VT100, [77](#)
 - white, [77](#)
 - yellow, [77](#)
- gdcmmAAabortPDU.h, [981](#)
- gdcmmAAAssociateACPDU.h, [982](#)
- gdcmmAAAssociateRJPDU.h, [982](#)
- gdcmmAAAssociateRQPDU.h, [983](#)
- gdcmmARTIMTimer.h, [990](#)
- gdcmmAReleaseRPPDU.h, [988](#)
- gdcmmAReleaseRQPDU.h, [989](#)
- gdcmmASN1.h, [991](#)
- gdcmmAbstractSyntax.h, [984](#)
- gdcmmAnonymizeEvent.h, [985](#)
- gdcmmAnonymizer.h, [986](#)
- gdcmmApplicationContext.h, [987](#)
- gdcmmApplicationEntity.h, [988](#)
- gdcmmAssertAlwaysMacro
 - gdcmmTrace.h, [1217](#)
- gdcmmAssertMacro
 - gdcmmTrace.h, [1217](#)
- gdcmmAsynchronousOperationsWindowSub.h, [992](#)
- gdcmmAttribute.h, [992](#)
- gdcmmAudioCodec.h, [994](#)
- gdcmmBase64.h, [994](#)
- gdcmmBaseCompositeMessage.h, [995](#)
- gdcmmBaseNormalizedMessage.h, [996](#)
- gdcmmBasePDU.h, [997](#)
- gdcmmBaseQuery.h, [998](#)
- gdcmmBaseRootQuery.h, [999](#)
- gdcmmBasicOffsetTable.h, [1000](#)
- gdcmmBitmap.h, [1001](#)
- gdcmmBitmapToBitmapFilter.h, [1002](#)
- gdcmmBoxRegion.h, [1003](#)
- gdcmmByteBuffer.h, [1003](#)
- gdcmmByteSwap.h, [1005](#)
- gdcmmByteSwapFilter.h, [1005](#)
- gdcmmByteValue.h, [1006](#)
- gdcmmCAPICryptoFactory.h, [1007](#)
- gdcmmCAPICryptographicMessageSyntax.h, [1008](#)
- gdcmmCEchoMessages.h, [1008](#)
- gdcmmCFindMessages.h, [1009](#)
- gdcmmCMoveMessages.h, [1010](#)
- gdcmmCP246ExplicitDataElement.h, [1019](#)
- gdcmmCSAElement.h, [1021](#)
- gdcmmCSAHeader.h, [1022](#)
- gdcmmCSAHeaderDict.h, [1023](#)
- gdcmmCSAHeaderDictEntry.h, [1024](#)
- gdcmmCStoreMessages.h, [1026](#)
- gdcmmCodeString.h, [1014](#)
- gdcmmCodec.h, [1011](#)
- gdcmmCoder.h, [1012](#)
- gdcmmCommand.h, [1015](#)
- gdcmmCommandDataSet.h, [1016](#)
- gdcmmCompositeMessageFactory.h, [1017](#)
- gdcmmCompositeNetworkFunctions.h, [1017](#)
- gdcmmConstCharWrapper.h, [1018](#)
- gdcmmCryptoFactory.h, [1019](#)
- gdcmmCryptographicMessageSyntax.h, [1020](#)
- gdcmmCurve.h, [1027](#)
- gdcmmDICOMDIR.h, [1036](#)
- gdcmmDICOMDIRGenerator.h, [1037](#)
- gdcmmDIMSE.h, [1043](#)
- gdcmmDataElement.h, [1028](#)
- gdcmmDataEvent.h, [1029](#)
- gdcmmDataSet.h, [1030](#)
- gdcmmDataSetEvent.h, [1031](#)
- gdcmmDataSetHelper.h, [1031](#)
- gdcmmDebugMacro
 - gdcmmTrace.h, [1218](#)
- gdcmmDecoder.h, [1032](#)
- gdcmmDefinedTerms.h, [1034](#)
- gdcmmDeflateStream.h, [1034](#)

- gdcmDefs.h, [1035](#)
- gdcmDeltaEncodingCodec.h, [1036](#)
- gdcmDict.h, [1038](#)
- gdcmDictConverter.h, [1039](#)
- gdcmDictEntry.h, [1040](#)
- gdcmDictPrinter.h, [1041](#)
- gdcmDicts.h, [1042](#)
- gdcmDirectionCosines.h, [1043](#)
- gdcmDirectory.h, [1044](#)
- gdcmDirectoryHelper.h, [1045](#)
- gdcmDummyValueGenerator.h, [1046](#)
- gdcmDumper.h, [1047](#)
- gdcmElement.h, [1047](#)
 - VRDS16ILLEGAL, [1049](#)
- gdcmEncapsulatedDocument.h, [1049](#)
- gdcmEnumeratedValues.h, [1050](#)
- gdcmErrorMacro
 - gdcmTrace.h, [1218](#)
- gdcmEvent.h, [1050](#)
 - gdcmEventMacro, [1052](#)
- gdcmEventMacro
 - gdcmEvent.h, [1052](#)
- gdcmException.h, [1052](#)
- gdcmExplicitDataElement.h, [1053](#)
- gdcmExplicitImplicitDataElement.h, [1054](#)
- gdcmFiducials.h, [1054](#)
- gdcmFile.h, [1055](#)
- gdcmFileAnonymizer.h, [1056](#)
- gdcmFileChangeTransferSyntax.h, [1057](#)
- gdcmFileDecompressLookupTable.h, [1057](#)
- gdcmFileDerivation.h, [1058](#)
- gdcmFileExplicitFilter.h, [1059](#)
- gdcmFileMetaInformation.h, [1060](#)
- gdcmFileNameEvent.h, [1061](#)
- gdcmFileSet.h, [1063](#)
- gdcmFileStreamer.h, [1064](#)
- gdcmFilename.h, [1061](#)
- gdcmFilenameGenerator.h, [1062](#)
- gdcmFindPatientRootQuery.h, [1065](#)
- gdcmFindStudyRootQuery.h, [1066](#)
- gdcmFragment.h, [1066](#)
- gdcmGlobal.h, [1068](#)
- gdcmGroupDict.h, [1069](#)
- gdcmIOD.h, [1087](#)
- gdcmIODEntry.h, [1089](#)
- gdcmIODs.h, [1091](#)
- gdcmIPPSorter.h, [1092](#)
- gdcmIconImage.h, [1069](#)
- gdcmIconImageFilter.h, [1070](#)
- gdcmIconImageGenerator.h, [1071](#)
- gdcmImage.h, [1072](#)
- gdcmImageApplyLookupTable.h, [1073](#)
- gdcmImageChangePhotometricInterpretation.h, [1074](#)
- gdcmImageChangePlanarConfiguration.h, [1074](#)
- gdcmImageChangeTransferSyntax.h, [1075](#)
- gdcmImageCodec.h, [1076](#)
- gdcmImageConverter.h, [1077](#)
- gdcmImageFragmentSplitter.h, [1078](#)
- gdcmImageHelper.h, [1079](#)
- gdcmImageReader.h, [1080](#)
- gdcmImageRegionReader.h, [1081](#)
- gdcmImageToImageFilter.h, [1081](#)
- gdcmImageWriter.h, [1082](#)
- gdcmImplementationClassUIDSub.h, [1083](#)
- gdcmImplementationUIDSub.h, [1084](#)
- gdcmImplementationVersionNameSub.h, [1085](#)
- gdcmImplicitDataElement.h, [1086](#)
- gdcmItem.h, [1093](#)
- gdcmJPEG12Codec.h, [1094](#)
- gdcmJPEG16Codec.h, [1095](#)
- gdcmJPEG2000Codec.h, [1095](#)
- gdcmJPEG8Codec.h, [1096](#)
- gdcmJPEGCodec.h, [1097](#)
- gdcmJPEGLSCodec.h, [1099](#)
- gdcmJSON.h, [1099](#)
- gdcmKAKADUCodec.h, [1100](#)
- gdcmLO.h, [1102](#)
- gdcmLegacyMacro.h, [1101](#)
 - GDCM_LEGACY_BODY, [1102](#)
 - GDCM_LEGACY_REPLACED_BODY, [1102](#)
 - GDCM_LEGACY, [1102](#)
- gdcmLookupTable.h, [1103](#)
- gdcmMD5.h, [1110](#)
- gdcmMacro.h, [1104](#)
- gdcmMacroEntry.h, [1106](#)
 - GDCMMACROENTRY_H, [1107](#)
- gdcmMacros.h, [1107](#)
- gdcmMaximumLengthSub.h, [1109](#)
- gdcmMediaStorage.h, [1111](#)
- gdcmMeshPrimitive.h, [1112](#)
- gdcmModalityPerformedProcedureStepCreateQuery.h, [1113](#)
- gdcmModalityPerformedProcedureStepSetQuery.h, [1114](#)
- gdcmModule.h, [1114](#)
- gdcmModuleEntry.h, [1116](#)
- gdcmModules.h, [1118](#)
- gdcmMovePatientRootQuery.h, [1119](#)
- gdcmMoveStudyRootQuery.h, [1120](#)
- gdcmNActionMessages.h, [1120](#)
- gdcmNCreateMessages.h, [1121](#)
- gdcmNDeleteMessages.h, [1122](#)
- gdcmNEventReportMessages.h, [1126](#)
- gdcmNGetMessages.h, [1126](#)
- gdcmNSetMessages.h, [1129](#)
- gdcmNestedModuleEntries.h, [1122](#)
- gdcmNetworkEvents.h, [1124](#)
- gdcmNetworkStateID.h, [1125](#)
- gdcmNormalizedMessageFactory.h, [1127](#)

gdcmNormalizedNetworkFunctions.h, 1128
gdcmObject.h, 1129
gdcmOpenSSLCryptoFactory.h, 1131
gdcmOpenSSLCryptographicMessageSyntax.h, 1131
gdcmOpenSSL7CryptoFactory.h, 1133
gdcmOpenSSL7CryptographicMessageSyntax.h, 1133
gdcmOrientation.h, 1135
gdcmOverlay.h, 1135
gdcmPDBElement.h, 1140
gdcmPDBHeader.h, 1141
gdcmPDFCodec.h, 1142
gdcmPDUFactory.h, 1143
gdcmPDataTFPDU.h, 1139
gdcmPGXCodec.h, 1144
gdcmPNMCodec.h, 1151
gdcmPVRGCodec.h, 1161
gdcmParseException.h, 1136
gdcmParser.h, 1138
gdcmPatient.h, 1138
gdcmPersonName.h, 1143
gdcmPhotometricInterpretation.h, 1145
gdcmPixelFormat.h, 1146
gdcmPixmap.h, 1147
gdcmPixmapReader.h, 1148
gdcmPixmapToPixmapFilter.h, 1149
gdcmPixmapWriter.h, 1150
gdcmPreamble.h, 1151
gdcmPresentationContext.h, 1153
gdcmPresentationContextAC.h, 1154
gdcmPresentationContextGenerator.h, 1155
gdcmPresentationContextRQ.h, 1155
gdcmPresentationDataValue.h, 1156
gdcmPrinter.h, 1157
gdcmPrivateTag.h, 1159
gdcmProgressEvent.h, 1160
gdcmPythonFilter.h, 1161
gdcmQueryBase.h, 1162
gdcmQueryFactory.h, 1163
gdcmQueryImage.h, 1164
gdcmQueryPatient.h, 1165
gdcmQuerySeries.h, 1166
gdcmQueryStudy.h, 1167
gdcmRAWCodec.h, 1168
gdcmRLECodec.h, 1172
gdcmReader.h, 1168
gdcmRegion.h, 1170
gdcmRescaler.h, 1171
gdcmRoleSelectionSub.h, 1172
gdcmSHA1.h, 1185
gdcmSOPClassExtendedNegociationSub.h, 1188
gdcmSOPClassUIDToIOD.h, 1189
gdcmScanner.h, 1173
gdcmSegment.h, 1174
gdcmSegmentHelper.h, 1176
gdcmSegmentReader.h, 1177
gdcmSegmentWriter.h, 1179
gdcmSegmentedPaletteColorLookupTable.h, 1175
gdcmSequenceOfFragments.h, 1180
gdcmSequenceOfItems.h, 1180
gdcmSerieHelper.h, 1181
gdcmSeries.h, 1183
gdcmServiceClassApplicationInformation.h, 1184
gdcmServiceClassUser.h, 1185
gdcmSimpleSubjectWatcher.h, 1186
gdcmSmartPointer.h, 1187
gdcmSorter.h, 1190
gdcmSpacing.h, 1192
gdcmSpectroscopy.h, 1192
gdcmSplitMosaicFilter.h, 1193
gdcmStaticAssert.h, 1193
 GDCM_DO_JOIN2, 1194
 GDCM_DO_JOIN, 1194
 GDCM_JOIN, 1194
 GDCM_STATIC_ASSERT, 1194
gdcmStreamImageReader.h, 1195
gdcmStreamImageWriter.h, 1195
gdcmStrictScanner.h, 1196
gdcmString.h, 1197
gdcmStringFilter.h, 1199
gdcmStudy.h, 1199
gdcmSubject.h, 1201
gdcmSurface.h, 1202
gdcmSurfaceHelper.h, 1203
gdcmSurfaceReader.h, 1203
gdcmSurfaceWriter.h, 1204
gdcmSwapCode.h, 1205
gdcmSwapper.h, 1206
gdcmSystem.h, 1207
gdcmTable.h, 1208
gdcmTableEntry.h, 1209
gdcmTableReader.h, 1210
gdcmTag.h, 1211
gdcmTagPath.h, 1212
gdcmTagToVR.h, 1212
gdcmTerminal.h, 1213
gdcmTestDriver.h, 1214
gdcmTesting.h, 1215
gdcmTrace.h, 1216
 GDCM_FUNCTION, 1217
 gdcmAssertAlwaysMacro, 1217
 gdcmAssertMacro, 1217
 gdcmDebugMacro, 1218
 gdcmErrorMacro, 1218
 gdcmWarningMacro, 1219
gdcmTransferSyntax.h, 1219
gdcmTransferSyntaxSub.h, 1221
gdcmType.h, 1222
gdcmTypes.h, 1223

- gdcmUIDGenerator.h, [1223](#)
- gdcmUIDs.h, [1224](#)
- gdcmULAction.h, [1225](#)
- gdcmULActionAA.h, [1226](#)
- gdcmULActionAE.h, [1226](#)
- gdcmULActionAR.h, [1227](#)
- gdcmULActionDT.h, [1228](#)
- gdcmULBasicCallback.h, [1229](#)
- gdcmULConnection.h, [1229](#)
- gdcmULConnectionCallback.h, [1230](#)
- gdcmULConnectionInfo.h, [1231](#)
- gdcmULConnectionManager.h, [1233](#)
- gdcmULEvent.h, [1233](#)
- gdcmULTransitionTable.h, [1235](#)
- gdcmULWritingCallback.h, [1236](#)
- gdcmUNExplicitDataElement.h, [1236](#)
- gdcmUNExplicitImplicitDataElement.h, [1237](#)
- gdcmUUIDGenerator.h, [1241](#)
- gdcmUnpacker12Bits.h, [1238](#)
- gdcmUsage.h, [1238](#)
- gdcmUserInfo.h, [1240](#)
- gdcmVL.h, [1244](#)
- gdcmVM.h, [1245](#)
 - TYPETOLENGTH, [1246](#)
- gdcmVR.h, [1246](#)
 - TYPETOENCODING, [1248](#)
 - VRTypeTemplateCase, [1248](#)
- gdcmVR16ExplicitDataElement.h, [1249](#)
- gdcmValidate.h, [1241](#)
- gdcmValue.h, [1242](#)
- gdcmValueIO.h, [1243](#)
- gdcmVersion.h, [1243](#)
- gdcmWLMFindQuery.h, [1250](#)
- gdcmWarningMacro
 - gdcmTrace.h, [1219](#)
- gdcmWaveform.h, [1249](#)
- gdcmWin32.h, [1250](#)
 - GDCM_EXPORT, [1250](#)
- gdcmWriter.h, [1251](#)
- gdcmXMLDictReader.h, [1252](#)
- gdcmXMLPrinter.h, [1253](#)
- gdcmXMLPrivateDictReader.h, [1253](#)
- GeneralECGWaveformStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [813](#)
- GeneralElectricMagneticResonanceImageStorage
 - gdcm::MediaStorage, [487](#)
- GeneralPurposePerformedProcedureStepSOPClass
 - gdcm::UIDs, [815](#)
- GeneralPurposeScheduledProcedureStepSOPClass
 - gdcm::UIDs, [815](#)
- GeneralPurposeWorklistInformationModelFIND
 - gdcm::UIDs, [815](#)
- GeneralPurposeWorklistManagementMetaSOPClass
 - gdcm::UIDs, [815](#)
- GeneralRelevantPatientInformationQuery
 - gdcm::UIDs, [816](#)
- Generate
 - gdcm::DICOMDIRGenerator, [266](#)
 - gdcm::DummyValueGenerator, [288](#)
 - gdcm::FilenameGenerator, [354](#)
 - gdcm::IconImageGenerator, [378](#)
 - gdcm::UIDGenerator, [804](#)
 - gdcm::UUIDGenerator, [882](#)
- GenerateFromFilenames
 - gdcm::PresentationContextGenerator, [607](#)
- GenerateFromUID
 - gdcm::PresentationContextGenerator, [607](#)
- GenerateUUID
 - gdcm::UIDGenerator, [804](#)
- Get
 - gdcm::ByteBuffer, [171](#)
- GetAETitle
 - gdcm::ServiceClassUser, [697](#)
- GetALGOType
 - gdcm::Segment, [668](#)
- GetALGOTypeString
 - gdcm::Segment, [668](#)
- GetAbbreviation
 - gdcm::GroupDict, [374](#)
- GetAbstractSyntax
 - gdcm::PresentationContext, [603](#)
 - gdcm::network::PresentationContextRQ, [609](#)
- GetAbstractSyntaxUID
 - gdcm::BaseQuery, [147](#)
 - gdcm::FindPatientRootQuery, [364](#)
 - gdcm::FindStudyRootQuery, [366](#)
 - gdcm::ModalityPerformedProcedureStepCreateQuery, [501](#)
 - gdcm::ModalityPerformedProcedureStepSetQuery, [503](#)
 - gdcm::MovePatientRootQuery, [513](#)
 - gdcm::MoveStudyRootQuery, [516](#)
 - gdcm::WLMFindQuery, [967](#)
- GetAcceptedPresentationContexts
 - gdcm::network::ULConnection, [860](#)
- GetAlgorithmFamily
 - gdcm::Surface, [749](#)
- GetAlgorithmName
 - gdcm::Surface, [749](#)
- GetAlgorithmVersion
 - gdcm::Surface, [749](#)
- GetAllFilenamesFromTagToValue
 - gdcm::Scanner, [663](#)
 - gdcm::StrictScanner, [733](#)
- GetAllRequiredTags
 - gdcm::QueryBase, [627](#)
- GetAllTags

- gdcmm::QueryBase, 627
- GetAnatomicRegion
 - gdcmm::Segment, 668
- GetAsDataElement
 - gdcmm::Attribute, 115
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1 >, 120
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, 127
 - gdcmm::Element, 292
 - gdcmm::Element< TVR, VM::VM1_n >, 296
 - gdcmm::PrivateTag, 619
 - gdcmm::network::AbstractSyntax, 92
- GetAsPoints
 - gdcmm::Curve, 232
- GetAsString
 - gdcmm::CodeString, 197
- GetAxisOfRotation
 - gdcmm::Surface, 749
- GetBasicApplicationLevelConfidentialityProfileAttributes
 - gdcmm::Anonymizer, 98
- GetBitPosition
 - gdcmm::Overlay, 554
- GetBitSample
 - gdcmm::LookupTable, 473
- GetBitsAllocated
 - gdcmm::Overlay, 554
 - gdcmm::PixelFormat, 582
- GetBitsStored
 - gdcmm::PixelFormat, 582
- GetBlob
 - gdcmm::network::PresentationDataValue, 611
- GetBuffer
 - gdcmm::Bitmap, 159
 - gdcmm::ByteValue, 176
 - gdcmm::Parser, 562
 - gdcmm::SequenceOfFragments, 681
- GetBuffer2
 - gdcmm::Bitmap, 159
- GetBufferAsRGBA
 - gdcmm::LookupTable, 473
- GetBufferLength
 - gdcmm::Bitmap, 160
 - gdcmm::JPEGLSCodec, 464
 - gdcmm::PNMCodec, 600
 - gdcmm::RLECodec, 656
- GetBuildVersion
 - gdcmm::Version, 888
- GetByteValue
 - gdcmm::CSAElement, 215
 - gdcmm::DataElement, 237
- GetCSADataInfo
 - gdcmm::CSAHeader, 220
- GetCSAEEnd
 - gdcmm::CSAHeader, 221
- GetCSAElementByName
 - gdcmm::CSAHeader, 221
- GetCSAHeaderDict
 - gdcmm::Dicts, 278
- GetCSAHeaderDictEntry
 - gdcmm::CSAHeaderDict, 224
- GetCSAImageHeaderInfoTag
 - gdcmm::CSAHeader, 221
- GetCSASeriesHeaderInfoTag
 - gdcmm::CSAHeader, 221
- GetCTImageSeriesUIDs
 - gdcmm::DirectoryHelper, 287
- GetCWD
 - gdcmm::System, 766
- GetCalledAETitle
 - gdcmm::ServiceClassUser, 697
 - gdcmm::network::AAssociateRQPDU, 88
 - gdcmm::network::ULConnectionInfo, 864
- GetCalledComputerName
 - gdcmm::network::ULConnectionInfo, 864
- GetCalledIPAddress
 - gdcmm::network::ULConnectionInfo, 864
- GetCalledIPPort
 - gdcmm::network::ULConnectionInfo, 864
- GetCallingAETitle
 - gdcmm::network::AAssociateRQPDU, 88
 - gdcmm::network::ULConnectionInfo, 864
- GetCenterOfRotation
 - gdcmm::Surface, 749
- GetCharacterFromCurrentLocale
 - gdcmm::QueryFactory, 629
- GetCipherType
 - gdcmm::CAPICryptographicMessageSyntax, 181
 - gdcmm::CryptographicMessageSyntax, 212
 - gdcmm::OpenSSLCryptographicMessageSyntax, 544
 - gdcmm::OpenSSL7CryptographicMessageSyntax, 548
- GetCodec
 - gdcmm::FileChangeTransferSyntax, 333
- GetColorLevel
 - vtkImageColorViewer, 943
- GetColorWindow
 - vtkImageColorViewer, 943
- GetColumns
 - gdcmm::Bitmap, 160
 - gdcmm::Overlay, 555
- GetCommand
 - gdcmm::Subject, 745
- GetConnectionInfo
 - gdcmm::network::ULConnection, 860
- GetConstructorString
 - gdcmm::Dicts, 278
- GetContourReferencedFrameOfReferenceClassUID

- vtkRTStructSetProperties, [962](#)
- GetContourReferencedFrameOfReferenceInstanceUID
 - vtkRTStructSetProperties, [962](#)
- GetCryptographicMessageSyntax
 - gdcm::Anonymizer, [99](#)
- GetCurrentByteIndex
 - gdcm::Parser, [562](#)
- GetCurrentDateTime
 - gdcm::System, [766](#)
- GetCurrentModuleFileName
 - gdcm::System, [766](#)
- GetCurrentProcessFileName
 - gdcm::System, [766](#)
- GetCurrentResourcesDirectory
 - gdcm::System, [766](#)
- GetCurve
 - gdcm::Pixmap, [588](#)
- GetCurveDataDescriptor
 - gdcm::Curve, [232](#)
- GetDEEnd
 - gdcm::DataSet, [251](#)
- GetDES
 - gdcm::DataSet, [251](#)
- GetData
 - gdcm::DataEvent, [245](#)
- GetDataElement
 - gdcm::Bitmap, [160](#)
 - gdcm::DataSet, [250](#)
 - gdcm::Item, [441](#)
- GetDataExtraRoot
 - gdcm::Testing, [785](#)
- GetDataLength
 - gdcm::DataEvent, [245](#)
- GetDataRoot
 - gdcm::Testing, [785](#)
- GetDataSet
 - gdcm::CSAHeader, [221](#)
 - gdcm::DataSetEvent, [255](#)
 - gdcm::File, [327](#)
- GetDataSetPos
 - gdcm::network::ULEvent, [869](#)
- GetDataSetTransferSyntax
 - gdcm::FileMetaInformation, [345](#)
- GetDataSets
 - gdcm::network::ULBasicCallback, [858](#)
- GetDataValueRepresentation
 - gdcm::Curve, [232](#)
- GetDebugFlag
 - gdcm::Trace, [790](#)
- GetDebugStream
 - gdcm::Trace, [790](#)
- GetDecodeLength
 - gdcm::Base64, [138](#)
- GetDefaultTransferSyntax
 - gdcm::PresentationContextGenerator, [607](#)
- GetDefs
 - gdcm::Global, [371](#)
 - gdcm::TableReader, [772](#)
- GetDescription
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::Exception, [318](#)
 - gdcm::ModuleEntry, [509](#)
 - gdcm::Overlay, [555](#)
- GetDescriptiveName
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [913](#)
 - vtkGDCMImageWriter, [920](#)
- GetDict
 - gdcm::XMLDictReader, [975](#)
- GetDictEntry
 - gdcm::Dict, [268](#)
 - gdcm::Dicts, [278](#)
 - gdcm::PrivateDict, [617](#)
- GetDictEntryByKeyword
 - gdcm::Dict, [268](#)
- GetDictEntryByName
 - gdcm::Dict, [268](#)
- GetDictName
 - gdcm::DictConverter, [271](#)
- GetDictVM
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
- GetDictVR
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
- GetDicts
 - gdcm::Global, [371](#), [372](#)
- GetDimension
 - gdcm::Bitmap, [160](#)
- GetDimensions
 - gdcm::Bitmap, [160](#)
 - gdcm::Curve, [232](#)
 - gdcm::ImageCodec, [401](#)
- GetDimensionsValue
 - gdcm::ImageHelper, [409](#)
- GetDimensionsValueForResolution
 - gdcm::StreamImageReader, [723](#)
- GetDirectionCosines
 - gdcm::Image, [383](#)
- GetDirectionCosinesFromDataSet
 - gdcm::ImageHelper, [409](#)
- GetDirectionCosinesTolerance

- gdcm::IPPSorter, [437](#)
- GetDirectionCosinesValue
 - gdcm::ImageHelper, [409](#)
- GetDirectories
 - gdcm::Directory, [285](#)
- GetElapsedTime
 - gdcm::network::ARTIMTimer, [110](#)
- GetElement
 - gdcm::Tag, [776](#)
- GetElementTag
 - gdcm::Tag, [776](#)
- GetEncodeLength
 - gdcm::Base64, [138](#)
- GetErrorCode
 - gdcm::Parser, [562](#)
- GetErrorFlag
 - gdcm::Trace, [790](#)
- GetErrorStream
 - gdcm::Trace, [790](#)
- GetErrorString
 - gdcm::Parser, [562](#)
- GetEvent
 - gdcm::network::ULEvent, [869](#)
- GetEventName
 - gdcm::AnonymizeEvent, [94](#)
 - gdcm::DataEvent, [245](#)
 - gdcm::DataSetEvent, [255](#)
 - gdcm::Event, [316](#)
 - gdcm::FileNameEvent, [352](#)
 - gdcm::ProgressEvent, [622](#)
- GetExtension
 - gdcm::Filename, [348](#)
- GetFactoryInstance
 - gdcm::CryptoFactory, [211](#)
- GetFile
 - gdcm::Anonymizer, [99](#)
 - gdcm::DICOMDIRGenerator, [266](#)
 - gdcm::FileDecompressLookupTable, [336](#)
 - gdcm::FileDerivation, [338](#)
 - gdcm::FileExplicitFilter, [341](#)
 - gdcm::IconImageFilter, [376](#)
 - gdcm::PythonFilter, [626](#)
 - gdcm::Reader, [644](#)
 - gdcm::SplitMosaicFilter, [718](#), [719](#)
 - gdcm::StreamImageReader, [723](#)
 - gdcm::StringFilter, [741](#)
 - gdcm::Writer, [972](#)
 - vtkGDCMMedicalImageProperties, [924](#)
- GetFileExtensions
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [913](#)
 - vtkGDCMImageWriter, [920](#)
- GetFileMetaInformationVersion
 - gdcm::FileMetaInformation, [345](#)
- GetFileName
 - gdcm::FileNameEvent, [352](#)
 - gdcm::Filename, [349](#)
 - gdcm::Testing, [785](#)
 - vtkGDCMImageWriter, [920](#)
 - vtkGDCMThreadedImageReader2, [937](#)
- GetFileNames
 - gdcm::Testing, [785](#)
- GetFilename
 - gdcm::FilenameGenerator, [354](#)
 - gdcm::TableReader, [772](#)
- GetFilenameFromTagToValue
 - gdcm::Scanner, [663](#)
 - gdcm::StrictScanner, [733](#)
- GetFilenames
 - gdcm::Directory, [285](#)
 - gdcm::FilenameGenerator, [354](#)
 - gdcm::Scanner, [663](#)
 - gdcm::Sorter, [714](#)
 - gdcm::StrictScanner, [733](#)
- GetFilenamesFromSeriesUIDs
 - gdcm::DirectoryHelper, [287](#)
- GetFiles
 - gdcm::FileSet, [356](#)
- GetFiniteVolume
 - gdcm::Surface, [750](#)
- GetFirstSingleSerieUIDFileSet
 - gdcm::SerieHelper, [692](#)
- GetForcePixelSpacing
 - gdcm::ImageHelper, [409](#)
- GetForceRescaleInterceptSlope
 - gdcm::ImageHelper, [409](#)
- GetFormat
 - gdcm::CSAHeader, [221](#)
- GetFragBuffer
 - gdcm::SequenceOfFragments, [681](#)
- GetFragment
 - gdcm::SequenceOfFragments, [681](#)
- GetFragmentSizeMax
 - gdcm::ImageFragmentSplitter, [407](#)
- GetFrameOfReference
 - gdcm::DirectoryHelper, [287](#)
- GetFullLength
 - gdcm::FileMetaInformation, [345](#)
- GetGDCMDataRoot
 - vtkGDCMTesting, [932](#)
- GetGDCMImplementationClassUID
 - gdcm::FileMetaInformation, [345](#)
- GetGDCMImplementationVersionName
 - gdcm::FileMetaInformation, [345](#)
- GetGDCMSourceApplicationEntityTitle
 - gdcm::FileMetaInformation, [345](#)
- GetGDCMUID
 - gdcm::UIDGenerator, [804](#)

- GetGroup
 - gdcm::Curve, [232](#)
 - gdcm::Overlay, [555](#)
 - gdcm::Tag, [777](#)
- GetHasExpired
 - gdcm::network::ARTIMTimer, [110](#)
- GetHeader
 - gdcm::File, [327](#)
- GetHeaderInfo
 - gdcm::ImageCodec, [401](#)
 - gdcm::JPEG12Codec, [445](#)
 - gdcm::JPEG16Codec, [448](#)
 - gdcm::JPEG2000Codec, [451](#)
 - gdcm::JPEG8Codec, [454](#)
 - gdcm::JPEGCodec, [459](#)
 - gdcm::JPEGLSCodec, [464](#)
 - gdcm::PGXCodec, [577](#)
 - gdcm::PNMCodec, [600](#)
 - gdcm::RAWCodec, [640](#)
 - gdcm::RLECodec, [656](#)
- GetHierarchicalSearchTags
 - gdcm::QueryBase, [628](#)
 - gdcm::QueryImage, [631](#)
 - gdcm::QueryPatient, [633](#)
 - gdcm::QuerySeries, [635](#)
 - gdcm::QueryStudy, [637](#)
- GetHighBit
 - gdcm::PixelFormat, [583](#)
- GetHostName
 - gdcm::System, [767](#)
- GetIODEntry
 - gdcm::IOD, [430](#)
- GetIODFromFile
 - gdcm::Defs, [260](#)
- GetIODFromSOPClassUID
 - gdcm::SOPClassUIDToIOD, [711](#)
- GetIODNameFromMediaStorage
 - gdcm::Defs, [260](#)
- GetIODs
 - gdcm::Defs, [260](#), [261](#)
- GetIOD
 - gdcm::IODs, [435](#)
 - gdcm::SOPClassUIDToIOD, [711](#)
- GetIStream
 - gdcm::network::ULEvent, [869](#)
- GetIconImage
 - gdcm::IconImageFilter, [376](#)
 - gdcm::IconImageGenerator, [379](#)
 - gdcm::Pixmap, [588](#)
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [914](#)
- GetIconImagePort
 - vtkGDCMImageReader2, [914](#)
- GetIE
 - gdcm::IODEntry, [432](#)
- GetImage
 - gdcm::ImageReader, [414](#)
 - gdcm::ImageWriter, [423](#)
 - gdcm::PixmapWriter, [596](#)
 - gdcm::SplitMosaicFilter, [719](#)
- GetImplementationClassUID
 - gdcm::FileMetaInformation, [345](#)
- GetImplementationVersionName
 - gdcm::FileMetaInformation, [345](#)
- GetIndex
 - gdcm::SwapCode, [762](#)
 - gdcm::VM, [894](#)
- GetInitialized
 - gdcm::CAPICryptographicMessageSyntax, [181](#)
- GetInput
 - gdcm::ImageToImageFilter, [421](#)
 - gdcm::PixmapToPixmapFilter, [594](#)
 - vtkImageColorViewer, [943](#)
- GetInputFilename
 - gdcm::DictConverter, [271](#)
- GetInstance
 - gdcm::Global, [372](#)
- GetIntercept
 - gdcm::Image, [383](#)
 - gdcm::Rescaler, [652](#)
- GetInterfile
 - gdcm::CSAHeader, [222](#)
- GetInternal
 - gdcm::Preamble, [601](#)
- GetIsCommand
 - gdcm::network::PresentationDataValue, [611](#)
- GetIsLastFragment
 - gdcm::network::PresentationDataValue, [611](#)
- GetItem
 - gdcm::SequenceOfItems, [687](#)
- GetKey
 - gdcm::CSAElement, [215](#)
- GetKeys
 - gdcm::Scanner, [663](#)
 - gdcm::StrictScanner, [734](#)
- GetKeyword
 - gdcm::DictEntry, [273](#)
- GetKeywordFromTag
 - gdcm::Dict, [269](#)
- GetLUTDescriptor
 - gdcm::LookupTable, [474](#)
- GetLUTLength
 - gdcm::LookupTable, [474](#)
- GetLUT
 - gdcm::Bitmap, [160](#)
 - gdcm::ImageCodec, [401](#)
 - gdcm::ImageHelper, [409](#)
 - gdcm::LookupTable, [474](#)

- GetLabel
 - gdcm::Orientation, [550](#)
- GetLastElement
 - gdcm::ParseException, [559](#)
- GetLastSystemError
 - gdcm::System, [767](#)
- GetLength
 - gdcm::ByteValue, [176](#)
 - gdcm::CP246ExplicitDataElement, [209](#)
 - gdcm::DataElement, [237](#)
 - gdcm::DataSet, [251](#)
 - gdcm::Element, [292](#)
 - gdcm::Element< TVR, VM::VM1_n >, [296](#)
 - gdcm::Element< VR::AS, VM::VM5 >, [304](#)
 - gdcm::ExplicitDataElement, [322](#)
 - gdcm::ExplicitImplicitDataElement, [324](#)
 - gdcm::Fragment, [369](#)
 - gdcm::ImplicitDataElement, [428](#)
 - gdcm::Item, [442](#)
 - gdcm::Preamble, [601](#)
 - gdcm::SequenceOfFragments, [681](#)
 - gdcm::SequenceOfItems, [687](#)
 - gdcm::Tag, [777](#)
 - gdcm::UNExplicitDataElement, [874](#)
 - gdcm::UNExplicitImplicitDataElement, [876](#)
 - gdcm::VR16ExplicitDataElement, [902](#)
 - gdcm::Value, [886](#)
 - gdcm::VL, [890](#)
 - gdcm::VM, [895](#)
 - gdcm::VR, [899](#)
- GetLocaleCharSet
 - gdcm::System, [767](#)
- GetLossless
 - gdcm::JPEGCodec, [459](#)
 - gdcm::JPEGLSCoDec, [464](#)
- GetLossyFlag
 - gdcm::ImageCodec, [401](#)
- GetLossyFlagFromFile
 - gdcm::Testing, [786](#)
- GetMD5DataImage
 - gdcm::Testing, [786](#)
- GetMD5DataImages
 - gdcm::Testing, [786](#)
- GetMD5FromBrokenFile
 - gdcm::Testing, [786](#)
- GetMD5FromFile
 - gdcm::Testing, [786](#)
- GetMD5MetaImage
 - vtkGDCMTesting, [932](#)
- GetMHDMD5FromFile
 - vtkGDCMTesting, [932](#)
- GetMPTType
 - gdcm::MeshPrimitive, [497](#)
- GetMPTTypeString
 - gdcm::MeshPrimitive, [497](#)
- GetMRIImageSeriesUIDs
 - gdcm::DirectoryHelper, [287](#)
- GetMSString
 - gdcm::MediaStorage, [489](#)
- GetMSType
 - gdcm::MediaStorage, [489](#)
- GetMTime
 - vtkImageMapToColors16, [948](#)
- GetMacro
 - gdcm::Macros, [480](#)
- GetMacroEntry
 - gdcm::Macro, [478](#)
- GetMacros
 - gdcm::Defs, [261](#)
- GetMajorAxisFromPatientRelativeDirectionCosine
 - gdcm::Orientation, [550](#)
- GetMajorVersion
 - gdcm::Version, [888](#)
- GetManifold
 - gdcm::Surface, [750](#)
- GetMapping
 - gdcm::Scanner, [663](#)
 - gdcm::StrictScanner, [734](#)
- GetMappingFromTagToValue
 - gdcm::Scanner, [663](#)
 - gdcm::StrictScanner, [734](#)
- GetMappings
 - gdcm::Scanner, [664](#)
 - gdcm::StrictScanner, [734](#)
- GetMax
 - gdcm::PixelFormat, [583](#)
- GetMaxLength
 - gdcm::PersonName, [574](#)
- GetMaxPDULength
 - gdcm::network::ULConnectionInfo, [864](#)
- GetMaxPDUSize
 - gdcm::network::ULConnection, [860](#)
- GetMaximumLength
 - gdcm::network::MaximumLengthSub, [481](#)
- GetMaximumLengthSub
 - gdcm::network::UserInformation, [881](#)
- GetMaximumPointDistance
 - gdcm::Surface, [750](#)
- GetMeanPointDistance
 - gdcm::Surface, [750](#)
- GetMediaStorage
 - gdcm::DataSet, [251](#)
 - gdcm::FileMetaInformation, [345](#)
- GetMediaStorageAsString
 - gdcm::FileMetaInformation, [345](#)
- GetMediaStorageDataFile
 - gdcm::Testing, [786](#)
- GetMediaStorageDataFiles

- gdcm::Testing, [786](#)
- GetMediaStorageFromFile
 - gdcm::Testing, [786](#)
- GetMeshPrimitive
 - gdcm::Surface, [750](#)
- GetMessageHeader
 - gdcm::network::PresentationDataValue, [611](#)
- GetMetaInformationTS
 - gdcm::FileMetaInformation, [345](#)
- GetMin
 - gdcm::PixelFormat, [583](#)
- GetMinorVersion
 - gdcm::Version, [888](#)
- GetModality
 - gdcm::MediaStorage, [489](#)
- GetModalityDimension
 - gdcm::MediaStorage, [489](#)
- GetModule
 - gdcm::Modules, [511](#)
- GetModuleEntry
 - gdcm::NestedModuleEntries, [527](#)
- GetModuleEntryInMacros
 - gdcm::Module, [506](#)
- GetModules
 - gdcm::Defs, [261](#)
- GetName
 - gdcm::CSAElement, [216](#)
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::DictEntry, [273](#)
 - gdcm::Filename, [349](#)
 - gdcm::GroupDict, [374](#)
 - gdcm::IODEntry, [432](#)
 - gdcm::Macro, [478](#)
 - gdcm::Module, [506](#)
 - gdcm::ModuleEntry, [509](#)
 - gdcm::PDBelement, [566](#)
 - gdcm::QueryBase, [628](#)
 - gdcm::QueryImage, [631](#)
 - gdcm::QueryPatient, [633](#)
 - gdcm::QuerySeries, [635](#)
 - gdcm::QueryStudy, [637](#)
 - gdcm::UIDs, [824](#)
 - gdcm::network::AbstractSyntax, [92](#)
 - gdcm::network::ApplicationContext, [103](#)
 - gdcm::network::TransferSyntaxSub, [798](#)
- GetNeedByteSwap
 - gdcm::Bitmap, [161](#)
 - gdcm::ImageCodec, [401](#)
- GetNegociatedType
 - gdcm::TransferSyntax, [795](#)
- GetNestedDataSet
 - gdcm::Item, [442](#)
- GetNextSingleSerieUIDFileSet
 - gdcm::SerieHelper, [692](#)
- GetNoOfItems
 - gdcm::CSAElement, [216](#)
- GetNumberOfComponents
 - gdcm::PersonName, [574](#)
- GetNumberOfContourReferencedFrameOfReferences
 - vtkRTStructSetProperties, [963](#)
- GetNumberOfCurves
 - gdcm::Curve, [232](#)
 - gdcm::Pixmap, [588](#)
- GetNumberOfDimensions
 - gdcm::Bitmap, [161](#)
 - gdcm::ImageCodec, [401](#)
- GetNumberOfElementsFromArray
 - gdcm::VM, [895](#)
- GetNumberOfFileNames
 - gdcm::Testing, [786](#)
- GetNumberOfFilenames
 - gdcm::FilenameGenerator, [354](#)
- GetNumberOfFragments
 - gdcm::SequenceOfFragments, [681](#)
- GetNumberOfIODs
 - gdcm::IOD, [430](#)
- GetNumberOfIconImages
 - gdcm::IconImageFilter, [376](#)
- GetNumberOfItems
 - gdcm::SequenceOfItems, [687](#)
- GetNumberOfMD5DataImages
 - gdcm::Testing, [786](#)
- GetNumberOfMD5MetaImages
 - vtkGDCMTesting, [932](#)
- GetNumberOfMSString
 - gdcm::MediaStorage, [489](#)
- GetNumberOfMSType
 - gdcm::MediaStorage, [489](#)
- GetNumberOfMediaStorageDataFiles
 - gdcm::Testing, [787](#)
- GetNumberOfModality
 - gdcm::MediaStorage, [489](#)
- GetNumberOfModuleEntries
 - gdcm::NestedModuleEntries, [527](#)
- GetNumberOfOverlays
 - gdcm::Pixmap, [588](#)
- GetNumberOfPoints
 - gdcm::Curve, [232](#)
- GetNumberOfPresentationContext
 - gdcm::network::AAssociateRQPDU, [88](#)
- GetNumberOfPresentationContextAC
 - gdcm::network::AAssociateACPDU, [82](#)
- GetNumberOfPresentationDataValues
 - gdcm::network::PDataTFPDU, [564](#)
- GetNumberOfPrimitivesData
 - gdcm::MeshPrimitive, [497](#)
- GetNumberOfReferencedFrameOfReferences
 - vtkRTStructSetProperties, [963](#)

- GetNumberOfSOPClassToIOD
 - gdcm::SOPClassUIDToIOD, [711](#)
- GetNumberOfSegments
 - gdcm::SegmentWriter, [677](#)
- GetNumberOfStructureSetROIs
 - vtkRTStructSetProperties, [963](#)
- GetNumberOfSurfacePoints
 - gdcm::Surface, [750](#)
- GetNumberOfSurfaces
 - gdcm::SurfaceReader, [758](#)
 - gdcm::SurfaceWriter, [760](#)
- GetNumberOfTransferSyntaxStrings
 - gdcm::UIDs, [824](#)
- GetNumberOfTransferSyntaxes
 - gdcm::PresentationContext, [603](#)
 - gdcm::network::PresentationContextRQ, [609](#)
- GetNumberOfValues
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
- GetNumberOfVectors
 - gdcm::Surface, [750](#)
- GetObliquityThresholdCosineValue
 - gdcm::Orientation, [550](#)
- GetOffScreenRendering
 - vtkImageColorViewer, [943](#)
- GetOptionalTags
 - gdcm::QueryBase, [628](#)
 - gdcm::QueryImage, [631](#)
 - gdcm::QueryPatient, [633](#)
 - gdcm::QuerySeries, [635](#)
 - gdcm::QueryStudy, [637](#)
- GetOrderedValues
 - gdcm::Scanner, [664](#)
 - gdcm::StrictScanner, [734](#)
- GetOrigin
 - gdcm::Image, [383](#)
 - gdcm::Overlay, [555](#)
- GetOriginValue
 - gdcm::ImageHelper, [409](#)
- GetOutput
 - gdcm::ImageConverter, [405](#)
- GetOutput
 - gdcm::BitmapToBitmapFilter, [166](#)
 - gdcm::ImageToImageFilter, [421](#)
 - gdcm::PixmapToPixmapFilter, [594](#)
- GetOutputAsBitmap
 - gdcm::BitmapToBitmapFilter, [166](#)
- GetOutputAsPixmap
 - gdcm::PixmapToPixmapFilter, [594](#)
- GetOutputFilename
 - gdcm::DictConverter, [271](#)
- GetOutputType
 - gdcm::DictConverter, [271](#)
- GetOverlay
 - gdcm::Pixmap, [588](#)
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [914](#)
- GetOverlayData
 - gdcm::Overlay, [555](#)
- GetOverlayPort
 - vtkGDCMImageReader2, [914](#)
- GetOverlayTypeAsString
 - gdcm::Overlay, [555](#)
- GetOverlayTypeFromString
 - gdcm::Overlay, [555](#)
- GetOverlayVisibility
 - vtkImageColorViewer, [943](#)
- GetOwner
 - gdcm::PrivateTag, [619](#)
- GetPDBEEnd
 - gdcm::PDBHeader, [568](#)
- GetPDBElementByName
 - gdcm::PDBHeader, [569](#)
- GetPDBInfoTag
 - gdcm::PDBHeader, [569](#)
- GetPDUs
 - gdcm::network::ULEvent, [869](#)
- GetPDVs
 - gdcm::network::PDUFactory, [573](#)
- GetPIString
 - gdcm::PhotometricInterpretation, [579](#)
- GetPIType
 - gdcm::PhotometricInterpretation, [579](#)
- GetPMSRescaleInterceptSlope
 - gdcm::ImageHelper, [410](#)
- GetPath
 - gdcm::Filename, [349](#)
- GetPattern
 - gdcm::FilenameGenerator, [354](#)
- GetPermissions
 - gdcm::System, [767](#)
- GetPhotometricInterpretation
 - gdcm::Bitmap, [161](#)
 - gdcm::ImageChangePhotometricInterpretation, [389](#)
 - gdcm::ImageCodec, [401](#)
- GetPhotometricInterpretationValue
 - gdcm::ImageHelper, [409](#)
- GetPixelFormat
 - gdcm::Bitmap, [161](#)
 - gdcm::ImageCodec, [401](#)
- GetPixelFormatValue
 - gdcm::ImageHelper, [410](#)
- GetPixelRepresentation
 - gdcm::PixelFormat, [583](#)
- GetPixelSize

- gdcm::PixelFormat, 583
- GetPixelSpacingDataRoot
 - gdcm::Testing, 787
- GetPixmap
 - gdcm::FileDecompressLookupTable, 336
 - gdcm::IconImageGenerator, 379
 - gdcm::PixmapReader, 591
 - gdcm::PixmapWriter, 596, 597
- GetPlanarConfiguration
 - gdcm::Bitmap, 161
 - gdcm::ImageChangePlanarConfiguration, 392
 - gdcm::ImageCodec, 402
- GetPlanarConfigurationValue
 - gdcm::ImageHelper, 410
- GetPointCoordinatesData
 - gdcm::Surface, 750
- GetPointPositionAccuracy
 - gdcm::Surface, 750
- GetPointer
 - gdcm::ByteValue, 177
 - gdcm::LookupTable, 474
 - gdcm::SmartPointer, 708
 - vtkLookupTable16, 959
- GetPointerFromElement
 - gdcm::ImageHelper, 410
- GetPointsBoundingBoxCoordinates
 - gdcm::Surface, 750
- GetPosition
 - vtkImageColorViewer, 943
- GetPreamble
 - gdcm::FileMetaInformation, 345
- GetPrefix
 - gdcm::FilenameGenerator, 355
- GetPresentationContext
 - gdcm::network::AAssociateRQPDU, 88
- GetPresentationContextACByID
 - gdcm::network::ULConnection, 860
- GetPresentationContextAC
 - gdcm::network::AAssociateACPDU, 82
- GetPresentationContextByAbstractSyntax
 - gdcm::network::AAssociateRQPDU, 88
- GetPresentationContextByID
 - gdcm::network::AAssociateRQPDU, 88
- GetPresentationContextIDFromPresentationContext
 - gdcm::network::ULConnection, 860
- GetPresentationContextID
 - gdcm::PresentationContext, 603
 - gdcm::network::PresentationContextAC, 605
 - gdcm::network::PresentationContextRQ, 609
 - gdcm::network::PresentationDataValue, 611
- GetPresentationContextRQByID
 - gdcm::network::ULConnection, 860
- GetPresentationContexts
 - gdcm::PresentationContextGenerator, 607
- gdcm::network::AAssociateRQPDU, 88
- gdcm::network::ULConnection, 860
- GetPresentationDataValue
 - gdcm::network::PDataTFPDU, 564
- GetPrettyPrint
 - gdcm::JSON, 466
- GetPrimitiveData
 - gdcm::MeshPrimitive, 497, 498
- GetPrimitiveType
 - gdcm::MeshPrimitive, 498
- GetPrimitivesData
 - gdcm::MeshPrimitive, 498
- GetPrintStyle
 - gdcm::Printer, 614
 - gdcm::XMLPrinter, 977
- GetPrivateCreator
 - gdcm::DataSet, 251
 - gdcm::Tag, 777
- GetPrivateDict
 - gdcm::Dicts, 279
 - gdcm::XMLPrivateDictReader, 979
- GetProcessingAlgorithm
 - gdcm::Surface, 750, 751
- GetProgress
 - gdcm::ProgressEvent, 622
- GetPropertyCategory
 - gdcm::Segment, 668, 669
- GetPropertyType
 - gdcm::Segment, 669
- GetProtocol
 - gdcm::network::ULConnection, 860
- GetPublicDict
 - gdcm::Dicts, 279
- GetQuality
 - gdcm::JPEG2000Codec, 451
 - gdcm::JPEGCodec, 459
- GetQueryDataSet
 - gdcm::BaseQuery, 147
- GetQueryLevel
 - gdcm::QueryBase, 628
 - gdcm::QueryImage, 632
 - gdcm::QueryPatient, 634
 - gdcm::QuerySeries, 636
 - gdcm::QueryStudy, 638
- GetQueryLevelFromQueryRoot
 - gdcm::BaseRootQuery, 150
- GetQueryLevelFromString
 - gdcm::BaseRootQuery, 150
- GetQueryLevelString
 - gdcm::BaseRootQuery, 150
- GetRAWMD5FromFile
 - vtkGDCMTesting, 933
- GetRTStructSeriesUIDs
 - gdcm::DirectoryHelper, 287

- GetRate
 - gdcm::JPEG2000Codec, [451](#)
- GetRealWorldValueMappingContent
 - gdcm::ImageHelper, [410](#)
- GetReason
 - gdcm::network::PresentationContextAC, [605](#)
- GetRecommendedDisplayCIELabValue
 - gdcm::Surface, [751](#)
- GetRecommendedDisplayGrayscaleValue
 - gdcm::Surface, [751](#)
- GetRecommendedPresentationOpacity
 - gdcm::Surface, [751](#)
- GetRecommendedPresentationType
 - gdcm::Surface, [751](#)
- GetRef
 - gdcm::IODEntry, [432](#)
- GetReferencedFrameOfReferenceClassUID
 - vtkRTStructSetProperties, [963](#)
- GetReferencedFrameOfReferenceInstanceUID
 - vtkRTStructSetProperties, [963](#)
- GetRegion
 - gdcm::ImageRegionReader, [418](#)
- GetRequiredDataSet
 - gdcm::ModalityPerformedProcedureStepCreateQuery, [501](#)
 - gdcm::ModalityPerformedProcedureStepSetQuery, [503](#)
- GetRequiredTags
 - gdcm::QueryBase, [628](#)
 - gdcm::QueryImage, [632](#)
 - gdcm::QueryPatient, [634](#)
 - gdcm::QuerySeries, [636](#)
 - gdcm::QueryStudy, [638](#)
- GetRescaleInterceptSlopeValue
 - gdcm::ImageHelper, [410](#)
- GetReserved43_74
 - gdcm::network::AAssociateRQPDU, [89](#)
- GetResponses
 - gdcm::network::ULBasicCallback, [858](#)
- GetRetired
 - gdcm::DictEntry, [273](#)
- GetRoot
 - gdcm::UIDGenerator, [804](#)
- GetRows
 - gdcm::Bitmap, [161](#)
 - gdcm::Overlay, [555](#)
- GetSOPClassUIDFromIOD
 - gdcm::SOPClassUIDToIOD, [711](#)
- GetSOPClassUIDToIODs
 - gdcm::SOPClassUIDToIOD, [712](#)
- GetSOPClassUIDToIOD
 - gdcm::SOPClassUIDToIOD, [712](#)
- GetSOPClassUID
 - gdcm::DirectoryHelper, [287](#)
- GetSOPInstanceUID
 - gdcm::BaseQuery, [147](#)
- GetSTATESString
 - gdcm::Surface, [751](#)
- GetSTATES
 - gdcm::Surface, [751](#)
- GetSamplesPerPixel
 - gdcm::PhotometricInterpretation, [579](#)
 - gdcm::PixelFormat, [583](#)
- GetScalarType
 - gdcm::PixelFormat, [584](#)
- GetScalarTypeAsString
 - gdcm::PixelFormat, [584](#)
- GetScanner
 - gdcm::DICOMDIRGenerator, [266](#)
- GetSegment
 - gdcm::SegmentWriter, [677](#)
- GetSegmentAlgorithmName
 - gdcm::Segment, [669](#)
- GetSegmentAlgorithmType
 - gdcm::Segment, [669](#)
- GetSegmentDescription
 - gdcm::Segment, [669](#)
- GetSegmentLabel
 - gdcm::Segment, [669](#)
- GetSegmentNumber
 - gdcm::Segment, [669](#)
- GetSegments
 - gdcm::SegmentReader, [675](#)
 - gdcm::SegmentWriter, [677](#)
- GetSelectedPrivateGroupOffsetFromFile
 - gdcm::Testing, [787](#)
- GetSelectedTagsOffsetFromFile
 - gdcm::Testing, [787](#)
- GetSequenceOfFragments
 - gdcm::DataElement, [238](#)
- GetSeriesUIDsBySOPClassUID
 - gdcm::DirectoryHelper, [287](#)
- GetSize
 - gdcm::VR, [899](#)
 - vtkImageColorViewer, [943](#)
- GetSizeof
 - gdcm::VR, [899](#)
- GetSliceMax
 - vtkImageColorViewer, [943](#)
- GetSliceMin
 - vtkImageColorViewer, [943](#)
- GetSliceRange
 - vtkImageColorViewer, [943](#)
- GetSlope
 - gdcm::Image, [383](#)
 - gdcm::Rescaler, [652](#)
- GetSourceApplicationEntityTitle
 - gdcm::FileMetaInformation, [346](#)

- GetSourceDirectory
 - gdcm::Testing, [787](#)
- GetSpacing
 - gdcm::Image, [383](#)
- GetSpacingTagFromMediaStorage
 - gdcm::ImageHelper, [410](#)
- GetSpacingValue
 - gdcm::ImageHelper, [410](#)
- GetStart
 - gdcm::ByteBuffer, [171](#)
- GetState
 - gdcm::network::ULConnection, [860](#)
- GetStateIndex
 - gdcm::network, [75](#)
- GetStream
 - gdcm::Trace, [790](#)
- GetStreamCurrentPosition
 - gdcm::Reader, [644](#)
- GetStreamOffsetFromFile
 - gdcm::Testing, [787](#)
- GetStreamPtr
 - gdcm::Reader, [644](#)
 - gdcm::Writer, [972](#)
- GetString
 - gdcm::MediaStorage, [489](#)
 - gdcm::PhotometricInterpretation, [579](#)
 - gdcm::TransferSyntax, [796](#)
 - gdcm::UIDs, [824](#)
- GetStringValueFromTag
 - gdcm::DirectoryHelper, [287](#)
- GetStructureSetObservationNumber
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROIDescription
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROIGenerationAlgorithm
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROIName
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROINumber
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROIObservationLabel
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetROIRefFrameRefUID
 - vtkRTStructSetProperties, [963](#)
- GetStructureSetRTROIInterpretedType
 - vtkRTStructSetProperties, [963](#)
- GetSurface
 - gdcm::Segment, [669](#)
- GetSurfaceComments
 - gdcm::Surface, [751](#)
- GetSurfaceCount
 - gdcm::Segment, [669](#)
- GetSurfaceNumber
 - gdcm::Surface, [751](#)
- GetSurfaceProcessing
 - gdcm::Surface, [751](#)
- GetSurfaceProcessingDescription
 - gdcm::Surface, [751](#)
- GetSurfaceProcessingRatio
 - gdcm::Surface, [751](#)
- GetSurfaces
 - gdcm::Segment, [669](#)
- GetSwapCode
 - gdcm::TransferSyntax, [796](#)
- GetSwapCodeString
 - gdcm::SwapCode, [762](#)
- GetSyngoDT
 - gdcm::CSAElement, [216](#)
- GetTSString
 - gdcm::TransferSyntax, [796](#)
- GetTSType
 - gdcm::TransferSyntax, [796](#)
- GetTable
 - gdcm::SequenceOfFragments, [682](#)
- GetTableEntry
 - gdcm::Table, [769](#)
- GetTag
 - gdcm::AnonymizeEvent, [94](#)
 - gdcm::Attribute, [115](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [120](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
 - gdcm::DataElement, [238](#)
- GetTagListByLevel
 - gdcm::BaseRootQuery, [150](#)
 - gdcm::FindPatientRootQuery, [364](#)
 - gdcm::FindStudyRootQuery, [366](#)
 - gdcm::MovePatientRootQuery, [513](#)
 - gdcm::MoveStudyRootQuery, [516](#)
 - gdcm::WLMFindQuery, [967](#)
- GetTempDirectory
 - gdcm::Testing, [787](#)
- GetTempDirectoryW
 - gdcm::Testing, [787](#)
- GetTempFilename
 - gdcm::Testing, [787](#)
- GetTempFilenameW
 - gdcm::Testing, [788](#)
- GetTimeout
 - gdcm::ServiceClassUser, [697](#)
 - gdcm::network::ARTIMTimer, [110](#)
- GetTimer
 - gdcm::network::ULConnection, [860](#)
- GetTimezoneOffsetFromUTC
 - gdcm::System, [767](#)
- GetToplevel
 - gdcm::Directory, [285](#)

- GetTransferSyntax
 - gdcm::Bitmap, [161](#)
 - gdcm::ImageChangeTransferSyntax, [395](#)
 - gdcm::PresentationContext, [603](#)
 - gdcm::network::PresentationContextAC, [605](#)
 - gdcm::network::PresentationContextRQ, [609](#)
- GetTransferSyntaxString
 - gdcm::UIDs, [824](#)
- GetTransferSyntaxStrings
 - gdcm::UIDs, [824](#)
- GetTransferSyntaxes
 - gdcm::network::PresentationContextRQ, [609](#)
- GetType
 - gdcm::ModuleEntry, [509](#)
 - gdcm::Orientation, [550](#)
 - gdcm::Overlay, [555](#)
 - gdcm::PhotometricInterpretation, [579](#)
- GetTypeAsEnum
 - gdcm::Overlay, [555](#)
- GetTypeFromTag
 - gdcm::Defs, [261](#)
 - gdcm::IOD, [431](#)
- GetTypeOfData
 - gdcm::Curve, [232](#)
- GetTypeOfDataDescription
 - gdcm::Curve, [232](#)
- GetTypeString
 - gdcm::Type, [802](#)
- GetTypeType
 - gdcm::Type, [802](#)
- GetUIDName
 - gdcm::UIDs, [824](#)
- GetUIDString
 - gdcm::UIDs, [824](#)
- GetUniqueTags
 - gdcm::QueryBase, [628](#)
 - gdcm::QueryImage, [632](#)
 - gdcm::QueryPatient, [634](#)
 - gdcm::QuerySeries, [636](#)
 - gdcm::QueryStudy, [638](#)
- GetUnpackBuffer
 - gdcm::Overlay, [556](#)
- GetUnpackBufferLength
 - gdcm::Overlay, [556](#)
- GetUsage
 - gdcm::IODEntry, [432](#)
- GetUsageString
 - gdcm::Usage, [878](#)
- GetUsageType
 - gdcm::IODEntry, [433](#)
 - gdcm::Usage, [878](#)
- GetUserData
 - gdcm::Parser, [562](#)
- GetUserInformation
 - gdcm::network::AAssociateACPDU, [82](#)
 - gdcm::network::AAssociateRQPDU, [89](#)
- GetVIEWType
 - gdcm::Surface, [751](#)
- GetVIEWTypeString
 - gdcm::Surface, [751](#)
- GetVL16Max
 - gdcm::VL, [890](#)
- GetVL32Max
 - gdcm::VL, [890](#)
- GetVMString
 - gdcm::VM, [895](#)
- GetVMType
 - gdcm::VM, [895](#)
- GetVMTypeFromLength
 - gdcm::VM, [895](#)
- GetVRFromTag
 - gdcm, [63](#)
- GetVRString
 - gdcm::VR, [899](#)
- GetVRStringFromFile
 - gdcm::VR, [899](#)
- GetVRType
 - gdcm::VR, [899](#)
- GetVRTypeFromFile
 - gdcm::VR, [899](#)
- GetVTKDataRoot
 - vtkGDCMTesting, [933](#)
- GetValidDataSet
 - gdcm::WLMFindQuery, [968](#)
- GetValidatedFile
 - gdcm::Validate, [884](#)
- GetValue
 - gdcm::Attribute, [116](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
 - gdcm::CSAElement, [216](#)
 - gdcm::DataElement, [238](#)
 - gdcm::Element, [292](#)
 - gdcm::Element< TVR, VM::VM1_n >, [297](#)
 - gdcm::PDBElement, [566](#)
 - gdcm::Scanner, [664](#)
 - gdcm::StrictScanner, [734](#)
- GetValueAsSQ
 - gdcm::DataElement, [239](#)
- GetValues
 - gdcm::Attribute, [116](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [127](#)
 - gdcm::Element, [292](#)

- gdcmm::Scanner, 664
- gdcmm::StrictScanner, 734
- GetVectorAccuracy
 - gdcmm::Surface, 751
- GetVectorCoordinateData
 - gdcmm::Surface, 751
- GetVectorDimensionality
 - gdcmm::Surface, 751
- GetVersion
 - gdcmm::Version, 888
- GetVL
 - gdcmm::DataElement, 239
- GetVM
 - gdcmm::Attribute, 116
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1 >, 121
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_3 >, 124
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_8 >, 125
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, 127
 - gdcmm::Attribute< Group, Element, TVR, VM::VM2↔_2n >, 130
 - gdcmm::Attribute< Group, Element, TVR, VM::VM2_n >, 132
 - gdcmm::Attribute< Group, Element, TVR, VM::VM3↔_3n >, 133
 - gdcmm::Attribute< Group, Element, TVR, VM::VM3_n >, 135
 - gdcmm::CSAElement, 216
 - gdcmm::CSAHeaderDictEntry, 226
 - gdcmm::DictEntry, 273
 - gdcmm::Element, 292
 - gdcmm::Element< TVR, VM::VM1_n >, 297
- GetVR
 - gdcmm::Attribute, 116
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1 >, 121
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, 127
 - gdcmm::CSAElement, 216
 - gdcmm::CSAHeaderDictEntry, 226
 - gdcmm::DataElement, 239
 - gdcmm::DictEntry, 273
 - gdcmm::Element, 293
 - gdcmm::Element< TVR, VM::VM1_n >, 297
- GetWarningFlag
 - gdcmm::Trace, 790
- GetWarningStream
 - gdcmm::Trace, 790
- GetWindowName
 - vtkImageColorViewer, 943
- GetXMax
 - gdcmm::BoxRegion, 169
- GetXMin
 - gdcmm::BoxRegion, 169
- GetYMax
 - gdcmm::BoxRegion, 169
- GetYMin
 - gdcmm::BoxRegion, 170
- GetZMax
 - gdcmm::BoxRegion, 170
- GetZMin
 - gdcmm::BoxRegion, 170
- GetZSpacing
 - gdcmm::IPPSorter, 437
- GetZSpacingTagFromMediaStorage
 - gdcmm::ImageHelper, 410
- GetZSpacingTolerance
 - gdcmm::IPPSorter, 437
- Global
 - gdcmm::Defs, 261
 - gdcmm::Dicts, 279
 - gdcmm::Global, 371
- GloablInstance
 - gdcmm, 69
- GrabOverlayFromPixelData
 - gdcmm::Overlay, 556
- Graphics
 - gdcmm::Overlay, 554
- GrayscaleSoftcopyPresentationStateStorageSOPClass
 - gdcmm::MediaStorage, 487
 - gdcmm::UIDs, 814
- green
 - gdcmm::terminal, 77
- group
 - gdcmm::SerieHelper::Rule, 659
- GroupDict
 - gdcmm::GroupDict, 374
- GroupStringVector
 - gdcmm::GroupDict, 374
- GuessFromModality
 - gdcmm::MediaStorage, 489
- HSV
 - gdcmm::PhotometricInterpretation, 578
- HandleBulkData
 - gdcmm::XMLPrinter, 977
- HandleDataSet
 - gdcmm::network::ULBasicCallback, 858
 - gdcmm::network::ULConnectionCallback, 862
 - gdcmm::network::ULWritingCallback, 872
- HandleDescription
 - gdcmm::XMLDictReader, 975
 - gdcmm::XMLPrivateDictReader, 979
- HandleEntry
 - gdcmm::XMLDictReader, 975

- gdcm::XMLPrivateDictReader, [979](#)
- HandleEvent
 - gdcm::network::ULTransitionTable, [870](#)
- HandleIODEntry
 - gdcm::TableReader, [772](#)
- HandleIOD
 - gdcm::TableReader, [772](#)
- HandleMacro
 - gdcm::TableReader, [772](#)
- HandleMacroEntry
 - gdcm::TableReader, [772](#)
- HandleMacroEntryDescription
 - gdcm::TableReader, [772](#)
- HandleModule
 - gdcm::TableReader, [772](#)
- HandleModuleEntry
 - gdcm::TableReader, [772](#)
- HandleModuleEntryDescription
 - gdcm::TableReader, [772](#)
- HandleModuleInclude
 - gdcm::TableReader, [772](#)
- HandleResponse
 - gdcm::network::ULBasicCallback, [858](#)
 - gdcm::network::ULConnectionCallback, [862](#)
 - gdcm::network::ULWritingCallback, [872](#)
- HangingProtocolInformationModelFIND
 - gdcm::UIDs, [816](#)
- HangingProtocolInformationModelMOVE
 - gdcm::UIDs, [816](#)
- HangingProtocolStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [816](#)
- HardcopyColorImageStorageSOPClassRetired
 - gdcm::UIDs, [813](#)
- HardcopyGrayscaleImageStorage
 - gdcm::MediaStorage, [487](#)
- HardcopyGrayscaleImageStorageSOPClassRetired
 - gdcm::UIDs, [813](#)
- HasObserver
 - gdcm::Subject, [745](#)
- HemodynamicWaveformStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- hidden
 - gdcm::terminal, [77](#)
- ICBM452T1FrameofReference
 - gdcm::UIDs, [812](#)
- ICBMSingleSubjectMRIFrameofReference
 - gdcm::UIDs, [812](#)
- INT12
 - gdcm::PixelFormat, [582](#)
- INT16
 - gdcm::PixelFormat, [582](#)
- INT32
 - gdcm::PixelFormat, [582](#)
- INT64
 - gdcm::PixelFormat, [582](#)
- INT8
 - gdcm::PixelFormat, [582](#)
- INTERFILE
 - gdcm::CSAHeader, [220](#)
- INVALID
 - gdcm::VR, [898](#)
- IODEntry
 - gdcm::IODEntry, [432](#)
- IODMapType
 - gdcm::IODs, [434](#)
- IODMapTypeConstIterator
 - gdcm::IODs, [434](#)
- IODName
 - gdcm::IODs, [434](#)
- IODs
 - gdcm::IODs, [434](#)
- IOD
 - gdcm::IOD, [430](#)
- IPPSorter
 - gdcm::IPPSorter, [437](#)
- Icon
 - gdcm::Pixmap, [589](#)
- IconDataScalarType
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- IconImage
 - gdcm, [61](#)
- IconImageDataExtent
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- IconImageFilter
 - gdcm::IconImageFilter, [376](#)
- IconImageGenerator
 - gdcm::IconImageGenerator, [378](#)
- IconNumberOfScalarComponents
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ID
 - gdcm::PresentationContext, [604](#)
- ignore_char
 - gdcm::ignore_char, [380](#)
- Image
 - gdcm::Image, [383](#)
- ImageActor
 - vtkImageColorViewer, [946](#)
- ImageApplyLookupTable
 - gdcm::ImageApplyLookupTable, [387](#)
- ImageChangePhotometricInterpretation
 - gdcm::ImageChangePhotometricInterpretation, [389](#)
 - gdcm::ImageCodec, [403](#)

- ImageChangePlanarConfiguration
 - gdcm::ImageChangePlanarConfiguration, [392](#)
- ImageChangeTransferSyntax
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageChangeTransferSyntax, [395](#)
- ImageCodec
 - gdcm::ImageCodec, [399](#)
- ImageConverter
 - gdcm::ImageConverter, [405](#)
- ImageFormat
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ImageFragmentSplitter
 - gdcm::ImageFragmentSplitter, [407](#)
- ImageOrientationPatient
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ImageOverlayBoxSOPClassRetired
 - gdcm::UIDs, [813](#)
- ImagePositionPatient
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [916](#)
- ImagePositionPatientOrdering
 - gdcm::SerieHelper, [692](#)
- ImageReader
 - gdcm::ImageReader, [414](#)
- ImageRegionReader
 - gdcm::ImageRegionReader, [418](#)
 - gdcm::JPEG2000Codec, [452](#)
 - gdcm::JPEGCodec, [460](#)
 - gdcm::JPEGLSCCodec, [465](#)
 - gdcm::RLECodec, [657](#)
- ImageToImageFilter
 - gdcm::ImageToImageFilter, [421](#)
- ImageWriter
 - gdcm::ImageWriter, [423](#)
- ImplementationClassUIDSub
 - gdcm::network::ImplementationClassUIDSub, [424](#)
- ImplementationUIDSub
 - gdcm::network::ImplementationUIDSub, [425](#)
- ImplementationVersionNameSub
 - gdcm::network::ImplementationVersionNameSub, [426](#)
- Implicit
 - gdcm::TransferSyntax, [794](#)
- ImplicitVRBigEndianACRNEMA
 - gdcm::TransferSyntax, [795](#)
- ImplicitVRBigEndianPrivateGE
 - gdcm::TransferSyntax, [795](#)
- ImplicitVRLittleEndian
 - gdcm::TransferSyntax, [795](#)
- ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM
 - gdcm::UIDs, [810](#)
- IncompleteLUT
 - gdcm::LookupTable, [475](#)
- InitFromRQ
 - gdcm::network::AAssociateACPDU, [82](#)
- InitOpenSSL
 - gdcm::OpenSSLCryptoFactory, [542](#)
- Initialize
 - gdcm::network::ULConnectionInfo, [864](#)
- InitializeBlueLUT
 - gdcm::LookupTable, [474](#)
- InitializeConnection
 - gdcm::ServiceClassUser, [697](#)
 - gdcm::network::ULConnection, [860](#)
- InitializeDataSet
 - gdcm::BaseRootQuery, [150](#)
 - gdcm::FindPatientRootQuery, [364](#)
 - gdcm::FindStudyRootQuery, [367](#)
 - gdcm::MovePatientRootQuery, [514](#)
 - gdcm::MoveStudyRootQuery, [516](#)
 - gdcm::WLMFindQuery, [968](#)
- InitializeGreenLUT
 - gdcm::LookupTable, [474](#)
- InitializeIncomingConnection
 - gdcm::network::ULConnection, [860](#)
- InitializeLUT
 - gdcm::LookupTable, [474](#)
- InitializeRTStructSet
 - vtkGDCMPolyDataWriter, [929](#)
- InitializeRedLUT
 - gdcm::LookupTable, [474](#)
- Initialized
 - gdcm::LookupTable, [474](#)
- Input
 - gdcm::BitmapToBitmapFilter, [166](#)
- Insert
 - gdcm::CommandDataSet, [201](#)
 - gdcm::DataSet, [251](#)
 - gdcm::FileMetaInformation, [346](#)
 - gdcm::GroupDict, [374](#)
- InsertDataElement
 - gdcm::DataSet, [251](#)
 - gdcm::Item, [442](#)
- InsertEntry
 - gdcm::Table, [769](#)
- InstallPipeline
 - vtkImageColorViewer, [943](#)
- InstanceAvailabilityNotificationSOPClass
 - gdcm::UIDs, [815](#)
- Interactor
 - vtkImageColorViewer, [946](#)
- InteractorStyle
 - vtkImageColorViewer, [946](#)
- Internal
 - gdcm::ApplicationEntity, [105](#)
 - gdcm::Attribute, [118](#)

- gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 122
- gdcm::Element, 293
- gdcm::Element< VR::AS, VM::VM5 >, 304
- gdcm::LookupTable, 475
- gdcm::UI, 803
- InternalCode
 - gdcm::Coder, 195
 - gdcm::JPEG12Codec, 445
 - gdcm::JPEG16Codec, 448
 - gdcm::JPEG8Codec, 454
- Internals
 - vtkRTStructSetProperties, 964
- Invalid
 - gdcm::Overlay, 554
 - gdcm::Usage, 878
- InverseRescale
 - gdcm::Rescaler, 652
- InverseRescaleFunctionIntoBestFit
 - gdcm::Rescaler, 652
- InvokeEvent
 - gdcm::Subject, 745
- IS
 - gdcm::VR, 898
- IsAETitleValid
 - gdcm::network::AAssociateRQPDU, 89
- IsASCII2
 - gdcm::VR, 899
- IsASCII
 - gdcm::VR, 899
- IsBinary
 - gdcm::VR, 899
- IsBinary2
 - gdcm::VR, 899
- IsCompatible
 - gdcm::PixelFormat, 584
- IsDual
 - gdcm::VR, 899
- IsEmpty
 - gdcm::Bitmap, 161
 - gdcm::ByteValue, 177
 - gdcm::CSAElement, 216
 - gdcm::CSAHeaderDict, 224
 - gdcm::Curve, 232
 - gdcm::DataElement, 239
 - gdcm::DataSet, 252
 - gdcm::Defs, 261
 - gdcm::Dict, 269
 - gdcm::Dicts, 279
 - gdcm::Filename, 349
 - gdcm::Macros, 480
 - gdcm::Modules, 511
 - gdcm::Overlay, 556
 - gdcm::Preamble, 601
 - gdcm::PrivateDict, 617
 - gdcm::SegmentHelper::BasicCodedEntry, 153
- IsEncapsulated
 - gdcm::TransferSyntax, 796
- IsEncoded
 - gdcm::TransferSyntax, 796
- IsExplicit
 - gdcm::TransferSyntax, 796
- IsFrameEncoder
 - gdcm::ImageCodec, 402
 - gdcm::JPEG2000Codec, 451
 - gdcm::JPEGCodec, 459
 - gdcm::JPEGLSCodec, 464
 - gdcm::RLECodec, 656
- IsGroupLength
 - gdcm::Tag, 777
- IsGroupXX
 - gdcm::Tag, 777
- IsIdentical
 - gdcm::Filename, 349
- IsIllegal
 - gdcm::Tag, 777
- IsImage
 - gdcm::MediaStorage, 490
- IsImplicit
 - gdcm::TransferSyntax, 796
- IsInPixelData
 - gdcm::Overlay, 556
- IsKey
 - gdcm::Scanner, 664
 - gdcm::StrictScanner, 735
- IsLastFragment
 - gdcm::network::AAAbortPDU, 80
 - gdcm::network::AAssociateACPDU, 83
 - gdcm::network::AAssociateRJPDU, 85
 - gdcm::network::AAssociateRQPDU, 89
 - gdcm::network::AReleaseRPPDU, 107
 - gdcm::network::AReleaseRQPDU, 109
 - gdcm::network::BasePDU, 144
 - gdcm::network::PDataTFPDU, 564
- IsLossless
 - gdcm::PhotometricInterpretation, 579
 - gdcm::TransferSyntax, 796
- IsLossy
 - gdcm::Bitmap, 162
 - gdcm::ImageCodec, 402
 - gdcm::PhotometricInterpretation, 579
 - gdcm::TransferSyntax, 796
- IsOdd
 - gdcm::VL, 890
- IsPresentationContextAccepted
 - gdcm::ServiceClassUser, 697
- IsPrintable
 - gdcm::ByteValue, 177

- IsPrivate
 - gdcm::Tag, [777](#)
- IsPrivateCreator
 - gdcm::Tag, [778](#)
- IsPublic
 - gdcm::Tag, [778](#)
- IsRetired
 - gdcm::PhotometricInterpretation, [579](#)
- IsRowEncoder
 - gdcm::ImageCodec, [402](#)
 - gdcm::JPEG2000Codec, [451](#)
 - gdcm::JPEGCodec, [459](#)
 - gdcm::JPEGLSCodec, [464](#)
 - gdcm::RLECodec, [656](#)
- IsSameColorSpace
 - gdcm::PhotometricInterpretation, [579](#)
- IsStateSuspension
 - gdcm::JPEG12Codec, [446](#)
 - gdcm::JPEG16Codec, [448](#)
 - gdcm::JPEG8Codec, [455](#)
 - gdcm::JPEGCodec, [459](#)
- IsSwap
 - gdcm::VR, [899](#)
- IsTransferSyntaxCompatible
 - gdcm::Bitmap, [162](#)
- IsUndefined
 - gdcm::MediaStorage, [490](#)
 - gdcm::VL, [890](#)
- IsUndefinedLength
 - gdcm::DataElement, [240](#)
 - gdcm::SequenceOfItems, [687](#)
- IsUnique
 - gdcm::DictEntry, [273](#)
- IsVRFile
 - gdcm::VR, [899](#)
- IsValid
 - gdcm::ApplicationEntity, [105](#)
 - gdcm::BoxRegion, [170](#)
 - gdcm::CodeString, [197](#)
 - gdcm::DirectionCosines, [282](#)
 - gdcm::FileMetaInformation, [346](#)
 - gdcm::ImageCodec, [402](#)
 - gdcm::JPEGCodec, [459](#)
 - gdcm::LO, [470](#)
 - gdcm::PixelFormat, [584](#)
 - gdcm::Preamble, [601](#)
 - gdcm::Region, [649](#)
 - gdcm::String, [739](#)
 - gdcm::TagPath, [782](#)
 - gdcm::TransferSyntax, [796](#)
 - gdcm::UIDGenerator, [804](#)
 - gdcm::UUIDGenerator, [882](#)
 - gdcm::VM, [895](#)
 - gdcm::VR, [899](#)
- IsZero
 - gdcm::Overlay, [556](#)
- ItFileSetHt
 - gdcm::SerieHelper, [692](#)
- Item
 - gdcm::Item, [441](#)
- ItemVector
 - gdcm::SequenceOfItems, [686](#)
- Items
 - gdcm::SequenceOfItems, [689](#)
- Iterator
 - gdcm::CSAHeaderDict, [224](#)
 - gdcm::DataSet, [249](#)
 - gdcm::Dict, [268](#)
 - gdcm::SequenceOfFragments, [680](#)
 - gdcm::SequenceOfItems, [686](#)
- iterator
 - gdcm::CodeString, [197](#)
 - gdcm::LO, [470](#)
 - gdcm::String, [738](#)
- JPEG12Codec
 - gdcm::JPEG12Codec, [445](#)
- JPEG16Codec
 - gdcm::JPEG16Codec, [447](#)
- JPEG2000
 - gdcm::TransferSyntax, [795](#)
- JPEG2000_COMPRESSION
 - vtkGDCMImageWriter, [919](#)
- JPEG2000Codec
 - gdcm::JPEG2000Codec, [450](#)
- JPEG2000ImageCompression
 - gdcm::UIDs, [811](#)
- JPEG2000ImageCompressionLosslessOnly
 - gdcm::UIDs, [811](#)
- JPEG2000Lossless
 - gdcm::TransferSyntax, [795](#)
- JPEG2000Part2
 - gdcm::TransferSyntax, [795](#)
- JPEG2000Part2Lossless
 - gdcm::TransferSyntax, [795](#)
- JPEG2000Part2MulticomponentImageCompression
 - gdcm::UIDs, [811](#)
- JPEG2000Part2MulticomponentImageCompression↔
 - LosslessOnly
 - gdcm::UIDs, [811](#)
- JPEG8Codec
 - gdcm::JPEG8Codec, [454](#)
- JPEG_COMPRESSION
 - vtkGDCMImageWriter, [919](#)
- JPEGBaselineProcess1
 - gdcm::TransferSyntax, [795](#)
- JPEGBaselineProcess1DefaultTransferSyntaxforLossyJ↔
 - PEG8BitImageCompression

- gdcm::UIDs, [810](#)
- JPEGCodec
 - gdcm::JPEGCodec, [457](#)
- JPEGExtendedHierarchicalProcess1618Retired
 - gdcm::UIDs, [811](#)
- JPEGExtendedHierarchicalProcess1719Retired
 - gdcm::UIDs, [811](#)
- JPEGExtendedProcess24DefaultTransferSyntaxfor↔
 - LossyJPEG12BitImageCompressionProcess4only
 - gdcm::UIDs, [810](#)
- JPEGExtendedProcess2_4
 - gdcm::TransferSyntax, [795](#)
- JPEGExtendedProcess35Retired
 - gdcm::UIDs, [810](#)
- JPEGExtendedProcess3_5
 - gdcm::TransferSyntax, [795](#)
- JPEGFullProgressionHierarchicalProcess2426Retired
 - gdcm::UIDs, [811](#)
- JPEGFullProgressionHierarchicalProcess2527Retired
 - gdcm::UIDs, [811](#)
- JPEGFullProgressionNonHierarchicalProcess1012↔
 - Retired
 - gdcm::UIDs, [811](#)
- JPEGFullProgressionNonHierarchicalProcess1113↔
 - Retired
 - gdcm::UIDs, [811](#)
- JPEGFullProgressionProcess10_12
 - gdcm::TransferSyntax, [795](#)
- JPEGLS_COMPRESSION
 - vtkGDCMImageWriter, [919](#)
- JPEGLSCodec
 - gdcm::JPEGLSCodec, [463](#)
- JPEGLSLossless
 - gdcm::TransferSyntax, [795](#)
- JPEGLSLosslessImageCompression
 - gdcm::UIDs, [811](#)
- JPEGLSLossyNearLosslessImageCompression
 - gdcm::UIDs, [811](#)
- JPEGLSNearLossless
 - gdcm::TransferSyntax, [795](#)
- JPEGLosslessHierarchicalProcess28Retired
 - gdcm::UIDs, [811](#)
- JPEGLosslessHierarchicalProcess29Retired
 - gdcm::UIDs, [811](#)
- JPEGLosslessNonHierarchicalFirstOrderPrediction↔
 - Process14SelectionValue1DefaultTransfer↔
 - SyntaxforLosslessJPEGImageCompression
 - gdcm::UIDs, [811](#)
- JPEGLosslessNonHierarchicalProcess14
 - gdcm::UIDs, [811](#)
- JPEGLosslessNonHierarchicalProcess15Retired
 - gdcm::UIDs, [811](#)
- JPEGLosslessProcess14
 - gdcm::TransferSyntax, [795](#)
- JPEGLosslessProcess14_1
 - gdcm::TransferSyntax, [795](#)
- JPEGSpectralSelectionHierarchicalProcess2022Retired
 - gdcm::UIDs, [811](#)
- JPEGSpectralSelectionHierarchicalProcess2123Retired
 - gdcm::UIDs, [811](#)
- JPEGSpectralSelectionNonHierarchicalProcess68Retired
 - gdcm::UIDs, [810](#)
- JPEGSpectralSelectionNonHierarchicalProcess79Retired
 - gdcm::UIDs, [810](#)
- JPEGSpectralSelectionProcess6_8
 - gdcm::TransferSyntax, [795](#)
- JPIPReferenced
 - gdcm::TransferSyntax, [795](#)
 - gdcm::UIDs, [811](#)
- JPIPReferencedDeflate
 - gdcm::UIDs, [811](#)
- JSON
 - gdcm::JSON, [465](#)
- Join
 - gdcm::Filename, [349](#)
- JunkAfterDocElementError
 - gdcm::Parser, [561](#)
- KAKADUCodec
 - gdcm::KAKADUCodec, [467](#)
- KeyField
 - gdcm::CSAElement, [217](#)
- KeyObjectSelectionDocument
 - gdcm::MediaStorage, [488](#)
- KeyObjectSelectionDocumentStorage
 - gdcm::UIDs, [815](#)
- KeyValuePairArrayType
 - gdcm::CompositeNetworkFunctions, [204](#)
- KeyValuePairType
 - gdcm::CompositeNetworkFunctions, [204](#)
- LD_ALL
 - gdcm, [63](#)
- LD_NOSEQ
 - gdcm, [63](#)
- LD_NOSHADOWSEQ
 - gdcm, [63](#)
- LD_NOSHADOW
 - gdcm, [63](#)
- LINE
 - gdcm::MeshPrimitive, [497](#)
- LOADBULKDATA
 - gdcm::XMLPrinter, [977](#)
- LOComp
 - gdcm, [61](#)
- LTComp
 - gdcm, [61](#)
- LUTPtr
 - gdcm::Bitmap, [159](#)

- gdcmm::ImageCodec, 399
- LUT
 - gdcmm::Bitmap, 164
 - gdcmm::ImageCodec, 403
- LeadECGWaveformStorage
 - gdcmm::MediaStorage, 487
- Level
 - vtkImageMapToWindowLevelColors2, 952
- ListCharSets
 - gdcmm::QueryFactory, 629
- LittleEndian
 - gdcmm::SwapCode, 761
- LO
 - gdcmm::LO, 470
 - gdcmm::VR, 898
- Load
 - gdcmm::Directory, 285
- LoadDefault
 - gdcmm::CSAHeaderDict, 224
 - gdcmm::Dict, 269
 - gdcmm::PrivateDict, 617
- LoadDefaults
 - gdcmm::Defs, 261
 - gdcmm::Dicts, 279
- LoadFromDataElement
 - gdcmm::CSAHeader, 222
 - gdcmm::PDBHeader, 569
- LoadFromFile
 - gdcmm::Defs, 261
- LoadIconImage
 - vtkGDCMImageReader, 910
 - vtkGDCMImageReader2, 916
- LoadImageFromFiles
 - gdcmm::DirectoryHelper, 287
- LoadOverlays
 - vtkGDCMImageReader, 910
 - vtkGDCMImageReader2, 917
- LoadResourcesFiles
 - gdcmm::Global, 372
- LoadSingleFile
 - vtkGDCMImageReader, 907
 - vtkGDCMImageReader2, 914
- Locate
 - gdcmm::Global, 372
- LodModeType
 - gdcmm, 63
- LookupTable
 - gdcmm::LookupTable, 473
 - vtkImageMapToColors16, 949
- LookupTableType
 - gdcmm::LookupTable, 473
- LossyFlag
 - gdcmm::Bitmap, 164
 - gdcmm::ImageCodec, 403
- vtkGDCMImageReader, 910
- vtkGDCMImageReader2, 917
- LT
 - gdcmm::VR, 898
- m_ConstMemberFunction
 - gdcmm::MemberCommand, 494
- m_MemberFunction
 - gdcmm::MemberCommand, 494
 - gdcmm::SimpleMemberCommand, 704
- m_This
 - gdcmm::MemberCommand, 494
 - gdcmm::SimpleMemberCommand, 704
- m_char
 - gdcmm::ignore_char, 380
- MAGNIFIED
 - gdcmm::Spacing, 717
- MANUAL
 - gdcmm::Segment, 668
- mAction
 - gdcmm::network::Transition, 800
- mConnection
 - gdcmm::network::ULConnectionManager, 868
- MD5
 - gdcmm::MD5, 482
- MD5DataImagesType
 - gdcmm::Testing, 784
- MD5MetaImagesType
 - vtkGDCMTesting, 932
- mDataSet
 - gdcmm::BaseQuery, 148
- mElementOffsets
 - gdcmm::StreamImageWriter, 729
- mElementOffsets1
 - gdcmm::StreamImageWriter, 729
- mEnd
 - gdcmm::network::Transition, 800
- mHelpDescription
 - gdcmm::BaseQuery, 148
 - gdcmm::BaseRootQuery, 151
- mImage
 - gdcmm::BaseRootQuery, 151
- mImplicit
 - gdcmm::network::ULConnectionCallback, 863
- MONOCHROME1
 - gdcmm::PhotometricInterpretation, 578
- MONOCHROME2
 - gdcmm::PhotometricInterpretation, 578
- MPEG2MainProfile
 - gdcmm::TransferSyntax, 795
- MPEG2MainProfileHighLevel
 - gdcmm::TransferSyntax, 795
- MPEG2MainProfileMainLevel
 - gdcmm::UIDs, 811

- MPEG4AVCH264BDcompatibleHighProfileLevel4_1
 - gdcm::TransferSyntax, [795](#)
- MPEG4AVCH264HighProfileLevel4_1
 - gdcm::TransferSyntax, [795](#)
- MPTType
 - gdcm::MeshPrimitive, [497](#)
- MPTType_END
 - gdcm::MeshPrimitive, [497](#)
- mPatient
 - gdcm::BaseRootQuery, [151](#)
- MRImageStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- MRSpectroscopyStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- mRootType
 - gdcm::BaseRootQuery, [151](#)
- MS_END
 - gdcm::MediaStorage, [488](#)
- MSType
 - gdcm::MediaStorage, [486](#)
- mSecondaryConnection
 - gdcm::network::ULConnectionManager, [868](#)
- mSeries
 - gdcm::BaseRootQuery, [151](#)
- mSopInstanceUID
 - gdcm::BaseQuery, [148](#)
- mStudy
 - gdcm::BaseRootQuery, [151](#)
- mTransitions
 - gdcm::network::ULConnectionManager, [868](#)
- mWriter
 - gdcm::StreamImageWriter, [729](#)
- mXMax
 - gdcm::StreamImageWriter, [729](#)
- mXMin
 - gdcm::StreamImageWriter, [729](#)
- mYMax
 - gdcm::StreamImageWriter, [729](#)
- mYMin
 - gdcm::StreamImageWriter, [729](#)
- mZMax
 - gdcm::StreamImageWriter, [729](#)
- mZMin
 - gdcm::StreamImageWriter, [729](#)
- Macro
 - gdcm::Macro, [477](#)
- MacroEntry
 - gdcm, [61](#)
- Macros
 - gdcm::Macros, [479](#)
- magenta
 - gdcm::terminal, [77](#)
- MakeDirectory
 - gdcm::System, [767](#)
- MakeNew
 - gdcm::network::Transition, [800](#)
- MakeObject
 - gdcm::AnonymizeEvent, [95](#)
 - gdcm::DataEvent, [245](#)
 - gdcm::DataSetEvent, [255](#)
 - gdcm::Event, [316](#)
 - gdcm::FileNameEvent, [352](#)
 - gdcm::ProgressEvent, [622](#)
- MammographyCADSRStorage
 - gdcm::UIDs, [815](#)
- MammographyCADSR
 - gdcm::MediaStorage, [488](#)
- Mandatory
 - gdcm::Usage, [878](#)
- MapCSAHeaderDictEntry
 - gdcm::CSAHeaderDict, [224](#)
- MapDictEntry
 - gdcm::Dict, [268](#)
- MapIODEntry
 - gdcm::IOD, [430](#)
- MapModuleEntry
 - gdcm::Macro, [477](#)
 - gdcm::Module, [506](#)
- MapScalarsThroughTable2
 - vtkLookupTable16, [959](#)
- MapTableEntry
 - gdcm::Table, [769](#)
- MappingType
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [732](#)
- MaxLength
 - gdcm::ApplicationEntity, [105](#)
 - gdcm::PersonName, [575](#)
- MaxNumberOfComponents
 - gdcm::ApplicationEntity, [105](#)
 - gdcm::PersonName, [575](#)
- MaxPrintLength
 - gdcm::Printer, [616](#)
- MaximumLengthSub
 - gdcm::network::MaximumLengthSub, [481](#)
- MediaCreationManagementSOPClassUID
 - gdcm::UIDs, [813](#)
- MediaStorage
 - gdcm::MediaStorage, [489](#)
- MediaStorageDataFileType
 - gdcm::Testing, [784](#)
- MediaStorageDirectoryStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [811](#)
- MedicalImageProperties
 - vtkGDCMImageReader, [910](#)

- vtkGDCMPolyDataReader, [927](#)
 - vtkGDCMPolyDataWriter, [930](#)
- MemberCommand
 - gdcmm::MemberCommand, [493](#)
- MeshPrimitive
 - gdcmm::MeshPrimitive, [497](#)
- MessageID
 - gdcmm::network::CEchoRQ, [183](#)
- MetaInformationTS
 - gdcmm::FileMetaInformation, [347](#)
- ModalityPerformedProcedureStepCreateQuery
 - gdcmm::ModalityPerformedProcedureStepCreateQuery, [501](#)
- ModalityPerformedProcedureStepNotificationSOPClass
 - gdcmm::UIDs, [812](#)
- ModalityPerformedProcedureStepRetrieveSOPClass
 - gdcmm::UIDs, [812](#)
- ModalityPerformedProcedureStepSOPClass
 - gdcmm::MediaStorage, [488](#)
 - gdcmm::UIDs, [812](#)
- ModalityPerformedProcedureStepSetQuery
 - gdcmm::ModalityPerformedProcedureStepSetQuery, [503](#)
- ModalityWorklistInformationModelFIND
 - gdcmm::UIDs, [815](#)
- Mode
 - gdcmm::terminal, [77](#)
- Module
 - gdcmm::Module, [506](#)
- ModuleEntry
 - gdcmm::ModuleEntry, [509](#)
- ModuleMapType
 - gdcmm::Macros, [479](#)
 - gdcmm::Modules, [511](#)
- Modules
 - gdcmm::Modules, [511](#)
- MovePatientRootQuery
 - gdcmm::MovePatientRootQuery, [513](#)
- MoveStudyRootQuery
 - gdcmm::MoveStudyRootQuery, [516](#)
- mSPFile
 - gdcmm::StreamImageWriter, [729](#)
- MultiframeGrayscaleByteSecondaryCaptureImageStorage
 - gdcmm::MediaStorage, [487](#)
 - gdcmm::UIDs, [813](#)
- MultiframeGrayscaleWordSecondaryCaptureImageStorage
 - gdcmm::MediaStorage, [487](#)
 - gdcmm::UIDs, [813](#)
- MultiframeSingleBitSecondaryCaptureImageStorage
 - gdcmm::MediaStorage, [487](#)
 - gdcmm::UIDs, [813](#)
- MultiframeTrueColorSecondaryCaptureImageStorage
 - gdcmm::MediaStorage, [487](#)
 - gdcmm::UIDs, [813](#)
- N_ACTION_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_ACTION_RQ
 - gdcmm::network::DIMSE, [281](#)
- N_CREATE_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_CREATE_RQ
 - gdcmm::network::DIMSE, [281](#)
- N_DELETE_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_DELETE_RQ
 - gdcmm::network::DIMSE, [281](#)
- N_EVENT_REPORT_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_EVENT_REPORT_RQ
 - gdcmm::network::DIMSE, [280](#)
- N_GET_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_GET_RQ
 - gdcmm::network::DIMSE, [281](#)
- N_SET_RSP
 - gdcmm::network::DIMSE, [281](#)
- N_SET_RQ
 - gdcmm::network::DIMSE, [281](#)
- NAction
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- NCreate
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- NDelete
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- NEventReport
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- NGet
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- NO_COMPRESSION
 - vtkGDCMImageWriter, [919](#)
- NOMAGIC
 - gdcmm::CSAHeader, [220](#)
- NSet
 - gdcmm::NormalizedNetworkFunctions, [536](#)
- Name
 - gdcmm::ModuleEntry, [510](#)
- NameField
 - gdcmm::CSAElement, [218](#)
 - gdcmm::PDBElement, [567](#)
- NeedByteSwap
 - gdcmm::Bitmap, [164](#)
 - gdcmm::ImageCodec, [403](#)
- NeedOverlayCleanup
 - gdcmm::ImageCodec, [403](#)
- NegotiatedType

- gdcm::TransferSyntax, [794](#)
- NestedMacroEntries
 - gdcm, [61](#)
- NestedModuleEntries
 - gdcm::NestedModuleEntries, [527](#)
- New
 - gdcm::Anonymizer, [99](#)
 - gdcm::FileChangeTransferSyntax, [334](#)
 - gdcm::FileStreamer, [360](#)
 - gdcm::MemberCommand, [494](#)
 - gdcm::Scanner, [664](#)
 - gdcm::SequenceOfFragments, [682](#)
 - gdcm::SequenceOfItems, [688](#)
 - gdcm::ServiceClassUser, [697](#)
 - gdcm::SimpleMemberCommand, [704](#)
 - gdcm::StrictScanner, [735](#)
 - vtkGDCMImageReader, [907](#)
 - vtkGDCMImageReader2, [914](#)
 - vtkGDCMImageWriter, [920](#)
 - vtkGDCMMedicalImageProperties, [924](#)
 - vtkGDCMPolyDataReader, [926](#)
 - vtkGDCMPolyDataWriter, [929](#)
 - vtkGDCMTesting, [933](#)
 - vtkGDCMThreadedImageReader, [935](#)
 - vtkGDCMThreadedImageReader2, [937](#)
 - vtkImageColorViewer, [943](#)
 - vtkImageMapToColors16, [948](#)
 - vtkImageMapToWindowLevelColors2, [951](#)
 - vtkImagePlanarComponentsToComponents, [953](#)
 - vtkImageRGBToYBR, [955](#)
 - vtkImageYBRToRGB, [957](#)
 - vtkLookupTable16, [959](#)
 - vtkRTStructSetProperties, [963](#)
- NO
 - gdcm::Surface, [749](#)
- NoElementsError
 - gdcm::Parser, [561](#)
- NoError
 - gdcm::Parser, [561](#)
- NoMemoryError
 - gdcm::Parser, [561](#)
- NoObject
 - gdcm::MediaStorage, [488](#)
- NoOfItemsField
 - gdcm::CSAElement, [218](#)
- Normalize
 - gdcm::DirectionCosines, [282](#)
- NuclearMedicineImageStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- NuclearMedicineImageStorageRetired
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- NumberOfDimensions
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageCodec, [404](#)
- NumberOfIconImages
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [917](#)
- NumberOfOverlays
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [917](#)
- NumberOfSurfaces
 - gdcm::SurfaceWriter, [760](#)
- OB_OW
 - gdcm::VR, [898](#)
- OBLIQUE
 - gdcm::Orientation, [550](#)
- OPENSSL7
 - gdcm::CryptoFactory, [210](#)
- OPENSSL
 - gdcm::CryptoFactory, [210](#)
- OB
 - gdcm::VR, [898](#)
- Object
 - gdcm::Object, [540](#)
- ObjectEnd
 - gdcm::MediaStorage, [488](#)
- ObjectType
 - gdcm::MediaStorage, [488](#)
- OD
 - gdcm::VR, [898](#)
- OF
 - gdcm::VR, [898](#)
- Ofstream
 - gdcm::Writer, [973](#)
- OnlyUUID
 - gdcm::XMLPrinter, [977](#)
- op
 - gdcm::SerieHelper::Rule, [659](#)
- OpenSSLCryptoFactory
 - gdcm::OpenSSLCryptoFactory, [542](#)
- OpenSSLCryptographicMessageSyntax
 - gdcm::OpenSSLCryptographicMessageSyntax, [544](#)
- OpenSSLP7CryptoFactory
 - gdcm::OpenSSLP7CryptoFactory, [546](#)
- OpenSSLP7CryptographicMessageSyntax
 - gdcm::OpenSSLP7CryptographicMessageSyntax, [548](#)
- operator const char *
 - gdcm::ConstCharWrapper, [207](#)
 - gdcm::Filename, [349](#)
 - gdcm::String, [739](#)
- operator const double *
 - gdcm::DirectionCosines, [283](#)
- operator const std::vector< char > &
 - gdcm::ByteValue, [177](#)

- operator MType
 - gdcm::MediaStorage, [490](#)
- operator ObjectType *
 - gdcm::SmartPointer, [708](#)
- operator PType
 - gdcm::PhotometricInterpretation, [579](#)
- operator ScalarType
 - gdcm::PixelFormat, [584](#)
- operator SwapCode::SwapCodeType
 - gdcm::SwapCode, [762](#)
- operator TSType
 - gdcm::TransferSyntax, [797](#)
 - gdcm::UIDs, [824](#)
- operator TypeType
 - gdcm::Type, [802](#)
- operator uint32_t
 - gdcm::VL, [890](#)
- operator UsageType
 - gdcm::Usage, [879](#)
- operator VMType
 - gdcm::VM, [895](#)
- operator VRType
 - gdcm::VR, [899](#)
- operator!=
 - gdcm, [63](#)
 - gdcm::Attribute, [116](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 - gdcm::CodeString, [198](#)
 - gdcm::PixelFormat, [584](#)
 - gdcm::Tag, [778](#)
- operator<
 - gdcm::Attribute, [116](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 - gdcm::CSAElement, [217](#)
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::DataElement, [240](#)
 - gdcm::PrivateTag, [619](#)
 - gdcm::Tag, [778](#)
- operator<<
 - gdcm, [63–68](#)
 - gdcm::BasicOffsetTable, [156](#)
 - gdcm::CSAElement, [217](#)
 - gdcm::CSAHeader, [222](#)
 - gdcm::CSAHeaderDict, [224](#)
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::CodeString, [198](#)
 - gdcm::CommandDataSet, [202](#)
 - gdcm::DataElement, [242](#)
 - gdcm::DataSet, [253](#)
 - gdcm::Dict, [269](#)
 - gdcm::DictEntry, [274](#)
 - gdcm::Dicts, [279](#)
- gdcm::Directory, [286](#)
- gdcm::File, [328](#)
- gdcm::FileMetaInformation, [347](#)
- gdcm::FileSet, [357](#)
- gdcm::Fragment, [370](#)
- gdcm::Global, [373](#)
- gdcm::GroupDict, [374](#)
- gdcm::IODEntry, [433](#)
- gdcm::IODs, [435](#)
- gdcm::IOD, [431](#)
- gdcm::Item, [442](#)
- gdcm::Macro, [478](#)
- gdcm::Macros, [480](#)
- gdcm::MediaStorage, [491](#)
- gdcm::Module, [507](#)
- gdcm::ModuleEntry, [510](#)
- gdcm::Modules, [512](#)
- gdcm::NestedModuleEntries, [527](#)
- gdcm::Object, [541](#)
- gdcm::Orientation, [551](#)
- gdcm::PDBelement, [567](#)
- gdcm::PDBHeader, [569](#)
- gdcm::PhotometricInterpretation, [579](#)
- gdcm::PixelFormat, [585](#)
- gdcm::Preamble, [601](#)
- gdcm::PrivateDict, [617](#)
- gdcm::PrivateTag, [620](#)
- gdcm::Scanner, [665](#)
- gdcm::Sorter, [715](#)
- gdcm::StrictScanner, [735](#)
- gdcm::SwapCode, [762](#)
- gdcm::Table, [770](#)
- gdcm::Tag, [781](#)
- gdcm::TransferSyntax, [797](#)
- gdcm::Type, [802](#)
- gdcm::UI, [803](#)
- gdcm::Usage, [879](#)
- gdcm::Version, [888](#)
- gdcm::VL, [891](#)
- gdcm::VM, [895](#)
- gdcm::VR, [900](#)
- operator<=
 - gdcm::Tag, [778](#)
- operator>>
 - gdcm, [68, 69](#)
 - gdcm::Tag, [781](#)
- operator*
 - gdcm::SmartPointer, [709](#)
- operator()
 - gdcm::DataSet, [252](#)
 - gdcm::Scanner::Itstr, [476](#)
 - gdcm::StrictScanner::Itstr, [476](#)
- operator++
 - gdcm::VL, [890](#)

operator+=
 gdcm::VL, [890](#)
 operator->
 gdcm::SmartPointer, [709](#)
 operator=
 gdcm::BoxRegion, [170](#)
 gdcm::ByteValue, [177](#)
 gdcm::CSAElement, [217](#)
 gdcm::DataElement, [240](#)
 gdcm::DataSet, [252](#)
 gdcm::Element< TVR, VM::VM1_n >, [297](#)
 gdcm::Object, [541](#)
 gdcm::Overlay, [556](#)
 gdcm::ParseException, [559](#)
 gdcm::Preamble, [601](#)
 gdcm::SequenceOfItems, [688](#)
 gdcm::SmartPointer, [709](#)
 gdcm::Tag, [778](#)
 gdcm::network::UserInformation, [881](#)
 operator==
 gdcm, [68](#)
 gdcm::Attribute, [116](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 gdcm::ByteValue, [177](#)
 gdcm::CSAElement, [217](#)
 gdcm::CodeString, [198](#)
 gdcm::DataElement, [240](#)
 gdcm::PDBelement, [566](#)
 gdcm::PixelFormat, [584](#)
 gdcm::PresentationContext, [603](#)
 gdcm::SequenceOfFragments, [682](#)
 gdcm::SequenceOfItems, [688](#)
 gdcm::Tag, [778](#)
 gdcm::Value, [886](#)
 gdcm::network::AbstractSyntax, [92](#)
 gdcm::network::PresentationContextRQ, [610](#)
 gdcm::network::TransferSyntaxSub, [798](#)
 operator[]
 gdcm::Attribute, [116](#), [117](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [128](#)
 gdcm::DataSet, [252](#)
 gdcm::Element, [293](#)
 gdcm::Element< TVR, VM::VM1_n >, [297](#)
 gdcm::Tag, [779](#)
 OphthalmicPhotography16BitImageStorage
 gdcm::UIDs, [814](#)
 OphthalmicPhotography8BitImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [814](#)
 OphthalmicTomographyImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [814](#)
 OrderFileList
 gdcm::SerieHelper, [692](#)
 Orientation
 gdcm::Orientation, [550](#)
 OrientationType
 gdcm::Orientation, [550](#)
 Output
 gdcm::BitmapToBitmapFilter, [166](#)
 OutputFormat
 vtkImageMapToColors16, [949](#)
 OutputTypes
 gdcm::DictConverter, [270](#)
 Overlay
 gdcm::Overlay, [554](#)
 OverlayImageActor
 vtkImageColorViewer, [946](#)
 OverlayType
 gdcm::Overlay, [554](#)
 Overlays
 gdcm::Pixmap, [589](#)
 OW
 gdcm::VR, [898](#)
 PALETTE_COLOR
 gdcm::PhotometricInterpretation, [578](#)
 PDBelement
 gdcm::PDBelement, [566](#)
 PDBHeader
 gdcm::PDBHeader, [568](#)
 PDFCodec
 gdcm::PDFCodec, [571](#)
 PDataTFPDU
 gdcm::network::PDataTFPDU, [564](#)
 PDF
 gdcm::MediaStorage, [488](#)
 PETImageStorage
 gdcm::MediaStorage, [487](#)
 PGXCodec
 gdcm::PGXCodec, [576](#)
 PHILIPS
 gdcm::Dicts, [278](#)
 PI_END
 gdcm::PhotometricInterpretation, [578](#)
 PType
 gdcm::PhotometricInterpretation, [578](#)
 PNComp
 gdcm, [61](#)
 PNMCodec
 gdcm::PNMCodec, [599](#)
 POINTS
 gdcm::Surface, [749](#)
 PVRGCodec
 gdcm::PVRGCodec, [624](#)
 Pack

- gdcmm::Unpacker12Bits, 877
- Padding
 - gdcmm::ApplicationEntity, 105
 - gdcmm::PersonName, 575
- Parent
 - gdcmm::Element< TVR, VM::VM1_2 >, 295
 - gdcmm::Element< TVR, VM::VM2_2n >, 299
 - gdcmm::Element< TVR, VM::VM2_n >, 301
 - gdcmm::Element< TVR, VM::VM3_3n >, 302
 - gdcmm::Element< TVR, VM::VM3_n >, 304
- Parse
 - gdcmm::Parser, 562
- ParseBuffer
 - gdcmm::Parser, 562
- ParseCertificateFile
 - gdcmm::CAPICryptographicMessageSyntax, 182
 - gdcmm::CryptographicMessageSyntax, 213
 - gdcmm::OpenSSLCryptographicMessageSyntax, 544
 - gdcmm::OpenSSL7CryptographicMessageSyntax, 548
- ParseDateTime
 - gdcmm::System, 767
- ParseDump
 - gdcmm::ASN1, 111
- ParseDumpFile
 - gdcmm::ASN1, 111
- ParseException
 - gdcmm::ParseException, 559
- ParseKeyFile
 - gdcmm::CAPICryptographicMessageSyntax, 182
 - gdcmm::CryptographicMessageSyntax, 213
 - gdcmm::OpenSSLCryptographicMessageSyntax, 544
 - gdcmm::OpenSSL7CryptographicMessageSyntax, 548
- Parser
 - gdcmm::Parser, 562
- PassAlphaToOutput
 - vtkImageMapToColors16, 949
- Patient
 - gdcmm::Patient, 563
- PatientRootQueryRetrieveInformationModelFIND
 - gdcmm::UIDs, 815
- PatientRootQueryRetrieveInformationModelGET
 - gdcmm::UIDs, 815
- PatientRootQueryRetrieveInformationModelMOVE
 - gdcmm::UIDs, 815
- PatientStudyOnlyQueryRetrieveInformationModelFIND↔
 - Retired
 - gdcmm::UIDs, 815
- PatientStudyOnlyQueryRetrieveInformationModelGET↔
 - Retired
 - gdcmm::UIDs, 815
- PatientStudyOnlyQueryRetrieveInformationModelMOV↔
 - Retired
- gdcmm::UIDs, 815
- PerformAction
 - gdcmm::network::ULAction, 828
 - gdcmm::network::ULActionAA1, 829
 - gdcmm::network::ULActionAA2, 830
 - gdcmm::network::ULActionAA3, 831
 - gdcmm::network::ULActionAA4, 832
 - gdcmm::network::ULActionAA5, 833
 - gdcmm::network::ULActionAA6, 834
 - gdcmm::network::ULActionAA7, 835
 - gdcmm::network::ULActionAA8, 836
 - gdcmm::network::ULActionAE1, 837
 - gdcmm::network::ULActionAE2, 838
 - gdcmm::network::ULActionAE3, 839
 - gdcmm::network::ULActionAE4, 840
 - gdcmm::network::ULActionAE5, 841
 - gdcmm::network::ULActionAE6, 842
 - gdcmm::network::ULActionAE7, 843
 - gdcmm::network::ULActionAE8, 844
 - gdcmm::network::ULActionAR1, 845
 - gdcmm::network::ULActionAR10, 846
 - gdcmm::network::ULActionAR2, 847
 - gdcmm::network::ULActionAR3, 848
 - gdcmm::network::ULActionAR4, 849
 - gdcmm::network::ULActionAR5, 850
 - gdcmm::network::ULActionAR6, 851
 - gdcmm::network::ULActionAR7, 852
 - gdcmm::network::ULActionAR8, 853
 - gdcmm::network::ULActionAR9, 854
 - gdcmm::network::ULActionDT1, 855
 - gdcmm::network::ULActionDT2, 856
- PF
 - gdcmm::Bitmap, 164
 - gdcmm::ImageCodec, 404
- Philips3D
 - gdcmm::MediaStorage, 487
- PhilipsPrivateMRSyntheticImageStorage
 - gdcmm::MediaStorage, 488
- PhotometricInterpretation
 - gdcmm::PhotometricInterpretation, 579
- PI
 - gdcmm::Bitmap, 164
 - gdcmm::ImageCodec, 404
- PixelData
 - gdcmm::Bitmap, 164
 - gdcmm::PixmapReader, 592
 - gdcmm::PixmapWriter, 597
- PixelFormat
 - gdcmm::PixelFormat, 582
- Pixmap
 - gdcmm::Pixmap, 588
- PixmapReader
 - gdcmm::Bitmap, 164
 - gdcmm::PixmapReader, 591

- PixmapToPixmapFilter
 - gdcm::PixmapToPixmapFilter, [594](#)
- PixmapWriter
 - gdcm::PixmapWriter, [596](#)
- PlanarConfiguration
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageCodec, [404](#)
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [917](#)
- PN
 - gdcm::VR, [898](#)
- pointer
 - gdcm::CodeString, [197](#)
 - gdcm::LO, [470](#)
 - gdcm::String, [738](#)
- PositronEmissionTomographyImageStorage
 - gdcm::UIDs, [815](#)
- Preamble
 - gdcm::Preamble, [601](#)
- PrepareWrite
 - gdcm::PixmapWriter, [597](#)
 - gdcm::SegmentWriter, [677](#)
 - gdcm::SurfaceWriter, [760](#)
- PrepareWritePointMacro
 - gdcm::SurfaceWriter, [760](#)
- Prepend
 - gdcm::Global, [372](#)
- PresentationContext
 - gdcm::PresentationContext, [603](#)
- PresentationContextAC
 - gdcm::network::PresentationContextAC, [605](#)
- PresentationContextArrayType
 - gdcm::PresentationContextGenerator, [607](#)
 - gdcm::network::AAssociateRQPDU, [88](#)
- PresentationContextGenerator
 - gdcm::PresentationContextGenerator, [607](#)
- PresentationContextRQ
 - gdcm::network::PresentationContextRQ, [609](#)
- PresentationDataValue
 - gdcm::network::PresentationDataValue, [611](#)
- PresentationLUTSOPClass
 - gdcm::UIDs, [813](#)
- PrettyPrintOff
 - gdcm::JSON, [466](#)
- PrettyPrintOn
 - gdcm::JSON, [466](#)
- PrimitiveData
 - gdcm::MeshPrimitive, [498](#)
- PrimitiveType
 - gdcm::MeshPrimitive, [498](#)
- PrimitivesData
 - gdcm::MeshPrimitive, [497](#)
- Print
 - gdcm::ApplicationEntity, [105](#)
 - gdcm::Attribute, [117](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [121](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [128](#)
 - gdcm::BaseQuery, [147](#)
 - gdcm::Bitmap, [162](#)
 - gdcm::BoxRegion, [170](#)
 - gdcm::ByteValue, [177](#)
 - gdcm::CSAHeader, [222](#)
 - gdcm::Curve, [232](#)
 - gdcm::DataSet, [252](#)
 - gdcm::DictPrinter, [276](#)
 - gdcm::DirectionCosines, [283](#)
 - gdcm::Directory, [285](#)
 - gdcm::Element, [293](#)
 - gdcm::Element< TVR, VM::VM1_n >, [297](#)
 - gdcm::Element< VR::AS, VM::VM5 >, [304](#)
 - gdcm::Event, [316](#)
 - gdcm::Image, [384](#)
 - gdcm::LookupTable, [474](#)
 - gdcm::Object, [541](#)
 - gdcm::Orientation, [550](#)
 - gdcm::Overlay, [556](#)
 - gdcm::PDBHeader, [569](#)
 - gdcm::PersonName, [574](#)
 - gdcm::PixelFormat, [584](#)
 - gdcm::Pixmap, [588](#)
 - gdcm::Preamble, [601](#)
 - gdcm::PresentationContext, [603](#)
 - gdcm::Printer, [614](#)
 - gdcm::Region, [649](#)
 - gdcm::Scanner, [665](#)
 - gdcm::SegmentedPaletteColorLookupTable, [672](#)
 - gdcm::SequenceOfFragments, [682](#)
 - gdcm::SequenceOfItems, [688](#)
 - gdcm::Sorter, [714](#)
 - gdcm::StrictScanner, [735](#)
 - gdcm::TagPath, [782](#)
 - gdcm::Testing, [788](#)
 - gdcm::Version, [888](#)
 - gdcm::XMLPrinter, [977](#)
 - gdcm::network::AAAbortPDU, [80](#)
 - gdcm::network::AAssociateACPDU, [83](#)
 - gdcm::network::AAssociateRJPDU, [85](#)
 - gdcm::network::AAssociateRQPDU, [89](#)
 - gdcm::network::AReleaseRPPDU, [107](#)
 - gdcm::network::AReleaseRQPDU, [109](#)
 - gdcm::network::AbstractSyntax, [92](#)
 - gdcm::network::ApplicationContext, [103](#)
 - gdcm::network::AsynchronousOperationsWindow↵
Sub, [112](#)
 - gdcm::network::BasePDU, [144](#)
 - gdcm::network::ImplementationClassUIDSub, [424](#)

- gdcm::network::ImplementationVersionNameSub, 426
- gdcm::network::MaximumLengthSub, 481
- gdcm::network::PDataTFPDU, 564
- gdcm::network::PresentationContextAC, 605
- gdcm::network::PresentationContextRQ, 610
- gdcm::network::PresentationDataValue, 611
- gdcm::network::RoleSelectionSub, 658
- gdcm::network::SOPClassExtendedNegociationSub, 710
- gdcm::network::ServiceClassApplicationInformation, 694
- gdcm::network::TransferSyntaxSub, 798
- gdcm::network::UserInformation, 881
- PrintASCIIXML
 - gdcm::ByteValue, 178
- PrintASCII
 - gdcm::ByteValue, 178
- PrintAsContinuousString
 - gdcm::Tag, 779
- PrintAsContinuousUpperCaseString
 - gdcm::Tag, 779
- PrintAsPipeSeparatedString
 - gdcm::Tag, 779
- PrintDataElement
 - gdcm::Printer, 615
 - gdcm::XMLPrinter, 977
- PrintDataElement2
 - gdcm::DictPrinter, 276
- PrintDataSet
 - gdcm::Printer, 615
 - gdcm::XMLPrinter, 977
- PrintDataSet2
 - gdcm::DictPrinter, 276
- PrintGroupLength
 - gdcm::ByteValue, 178
- PrintHex
 - gdcm::ByteValue, 178
- PrintHexXML
 - gdcm::ByteValue, 178
- PrintJobSOPClass
 - gdcm::UIDs, 812
- PrintPNXML
 - gdcm::ByteValue, 178
- PrintQueueManagementSOPClassRetired
 - gdcm::UIDs, 813
- PrintQueueSOPInstanceRetired
 - gdcm::UIDs, 813
- PrintSelf
 - vtkGDCMImageReader, 907
 - vtkGDCMImageReader2, 914
 - vtkGDCMImageWriter, 920
 - vtkGDCMMedicalImageProperties, 924
 - vtkGDCMPolyDataReader, 926
 - vtkGDCMPolyDataWriter, 929
 - vtkGDCMTesting, 933
 - vtkGDCMThreadedImageReader, 935
 - vtkGDCMThreadedImageReader2, 938
 - vtkImageColorViewer, 943
 - vtkImageMapToColors16, 948
 - vtkImageMapToWindowLevelColors2, 951
 - vtkImagePlanarComponentsToComponents, 953
 - vtkImageRGBToYBR, 955
 - vtkImageYBRToRGB, 957
 - vtkLookupTable16, 959
 - vtkRTStructSetProperties, 963
- PrintSQ
 - gdcm::Printer, 615
 - gdcm::XMLPrinter, 977
- PrintStyle
 - gdcm::Printer, 616
 - gdcm::XMLPrinter, 977
- PrintStyles
 - gdcm::Printer, 614
 - gdcm::XMLPrinter, 977
- PrintTable
 - gdcm::network::ULTransitionTable, 870
- PrintXML
 - gdcm::PrivateDict, 617
- Printer
 - gdcm::Printer, 614
- PrinterConfigurationRetrievalSOPClass
 - gdcm::UIDs, 812
- PrinterConfigurationRetrievalSOPInstance
 - gdcm::UIDs, 813
- PrinterSOPClass
 - gdcm::UIDs, 812
- PrinterSOPInstance
 - gdcm::UIDs, 812
- PrivateDict
 - gdcm::PrivateDict, 617
- PrivateTag
 - gdcm::PrivateTag, 619
- ProceduralEventLoggingSOPClass
 - gdcm::UIDs, 812
- ProceduralEventLoggingSOPInstance
 - gdcm::UIDs, 812
- ProcedureLogStorage
 - gdcm::UIDs, 815
- Process
 - gdcm::Parser, 562
- ProcessDataSet
 - gdcm::FileExplicitFilter, 341
- ProcessPublicTag
 - gdcm::Scanner, 665
 - gdcm::StrictScanner, 735
- ProcessRequest
 - vtkGDCMImageReader2, 914

- ProduceCharacterSetDataElement
 - gdcm::QueryFactory, [629](#)
- ProduceQuery
 - gdcm::QueryFactory, [630](#)
- ProductCharacteristicsQuerySOPClass
 - gdcm::UIDs, [816](#)
- ProgressEvent
 - gdcm::ProgressEvent, [622](#)
- PropertyCategory
 - gdcm::Segment, [670](#)
- PropertyType
 - gdcm::Segment, [670](#)
- PseudoColorSoftcopyPresentationStateStorageSOP↔
 - Class
 - gdcm::UIDs, [814](#)
- PullPrintRequestSOPClassRetired
 - gdcm::UIDs, [813](#)
- PullStoredPrintManagementMetaSOPClassRetired
 - gdcm::UIDs, [813](#)
- Push
 - gdcm::TagPath, [783](#)
- PushBackFile
 - vtkGDCMMedicalImageProperties, [924](#)
- PythonFilter
 - gdcm::PythonFilter, [626](#)
- Quality
 - gdcm::JPEGCodec, [460](#)
- QueryFactory
 - gdcm::BaseQuery, [148](#)
 - gdcm::BaseRootQuery, [151](#)
 - gdcm::FindPatientRootQuery, [365](#)
 - gdcm::FindStudyRootQuery, [367](#)
 - gdcm::ModalityPerformedProcedureStepCreate↔
 - Query, [501](#)
 - gdcm::ModalityPerformedProcedureStepSetQuery, [503](#)
 - gdcm::MovePatientRootQuery, [514](#)
 - gdcm::MoveStudyRootQuery, [517](#)
 - gdcm::WLMFindQuery, [968](#)
- RAWCodec
 - gdcm::RAWCodec, [639](#)
- README.txt, [1254](#)
- RED
 - gdcm::LookupTable, [473](#)
- RFC2557MIMEencapsulation
 - gdcm::UIDs, [811](#)
- RGB2YBR
 - gdcm::ImageChangePhotometricInterpretation, [389](#)
- RGBPixelsToRGBPlanes
 - gdcm::ImageChangePlanarConfiguration, [392](#)
- RGBPlanesToRGBPixels
 - gdcm::ImageChangePlanarConfiguration, [392](#)
- RGBToRecommendedDisplayCIELab
 - gdcm::SurfaceHelper, [755](#)
- RGBToRecommendedDisplayGrayscale
 - gdcm::SurfaceHelper, [755](#)
- RGB
 - gdcm::PhotometricInterpretation, [578](#)
- RLE_COMPRESSION
 - vtkGDCMImageWriter, [919](#)
- RLECodec
 - gdcm::RLECodec, [655](#)
- RLELossless
 - gdcm::TransferSyntax, [795](#)
 - gdcm::UIDs, [811](#)
- ROI
 - gdcm::Overlay, [554](#)
- RTBeamsDeliveryInstructionStorageSupplement74↔
 - FrozenDraft
 - gdcm::UIDs, [815](#)
- RTBeamsTreatmentRecordStorage
 - gdcm::UIDs, [815](#)
- RTBrachyTreatmentRecordStorage
 - gdcm::UIDs, [815](#)
- RTConventionalMachineVerificationSupplement74↔
 - FrozenDraft
 - gdcm::UIDs, [815](#)
- RTDoseStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [815](#)
- RTImageStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [815](#)
- RTIonBeamsTreatmentRecordStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [815](#)
- RTIonMachineVerificationSupplement74FrozenDraft
 - gdcm::UIDs, [815](#)
- RTIonPlanStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [815](#)
- RTPlanStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [815](#)
- RTStructSetProperties
 - vtkGDCMPolyDataReader, [927](#)
 - vtkGDCMPolyDataWriter, [930](#)
- RTStructureSetStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [815](#)
- RTTreatmentSummaryRecordStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [815](#)
- RawDataStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- Read

gdcm::BasicOffsetTable, 156
 gdcm::ByteValue, 178
 gdcm::CP246ExplicitDataElement, 209
 gdcm::CSAHeader, 222
 gdcm::CommandDataSet, 201
 gdcm::DataElement, 240
 gdcm::DataSet, 252
 gdcm::Element, 293
 gdcm::Element< TVR, VM::VM1_n >, 297
 gdcm::EncodingImplementation< VR::VRASCII >, 311
 gdcm::EncodingImplementation< VR::VRBINARY >, 312
 gdcm::ExplicitDataElement, 322
 gdcm::ExplicitImplicitDataElement, 324
 gdcm::File, 327
 gdcm::FileMetaInformation, 346
 gdcm::Fragment, 369
 gdcm::ImageReader, 415
 gdcm::ImageRegionReader, 418
 gdcm::ImplicitDataElement, 428
 gdcm::Item, 442
 gdcm::PGXCodec, 577
 gdcm::PNMCodec, 600
 gdcm::PixmapReader, 591
 gdcm::Preamble, 601
 gdcm::Reader, 645
 gdcm::SegmentReader, 675
 gdcm::SequenceOfFragments, 682
 gdcm::SequenceOfItems, 688
 gdcm::StreamImageReader, 723
 gdcm::SurfaceReader, 758
 gdcm::TableReader, 772
 gdcm::Tag, 779
 gdcm::UNExplicitDataElement, 874
 gdcm::UNExplicitImplicitDataElement, 876
 gdcm::VR16ExplicitDataElement, 902
 gdcm::VRVLSIZE< 0 >, 903
 gdcm::VRVLSIZE< 1 >, 904
 gdcm::ValueIO, 887
 gdcm::VL, 890
 gdcm::VR, 900
 gdcm::network::AAAbortPDU, 80
 gdcm::network::AAAssociateACPDU, 83
 gdcm::network::AAAssociateRJPDU, 85
 gdcm::network::AAAssociateRQPDU, 89
 gdcm::network::AReleaseRPPDU, 107
 gdcm::network::AReleaseRQPDU, 109
 gdcm::network::AbstractSyntax, 92
 gdcm::network::ApplicationContext, 103
 gdcm::network::AsynchronousOperationsWindow↵
 Sub, 112
 gdcm::network::BasePDU, 144
 gdcm::network::ImplementationClassUIDSub, 424
 gdcm::network::ImplementationVersionNameSub, 426
 gdcm::network::MaximumLengthSub, 481
 gdcm::network::PDataTFPDU, 565
 gdcm::network::PresentationContextAC, 605
 gdcm::network::PresentationContextRQ, 610
 gdcm::network::PresentationDataValue, 611
 gdcm::network::RoleSelectionSub, 658
 gdcm::network::SOPClassExtendedNegotiationSub, 710
 gdcm::network::ServiceClassApplicationInformation, 694
 gdcm::network::TransferSyntaxSub, 798
 gdcm::network::UserInformation, 882
 Read16
 gdcm::VL, 890
 ReadACRNEMAIImage
 gdcm::ImageReader, 415
 gdcm::PixmapReader, 591
 ReadBacktrack
 gdcm::Fragment, 369
 ReadCompat
 gdcm::FileMetaInformation, 346
 ReadCompatInternal
 gdcm::FileMetaInformation, 346
 ReadComputeLength
 gdcm::EncodingImplementation< VR::VRASCII >, 311
 gdcm::EncodingImplementation< VR::VRBINARY >, 312
 ReadDataSet
 gdcm::Reader, 645
 ReadFiles
 vtkGDCMThreadedImageReader, 935
 ReadFromCommaSeparatedString
 gdcm::PrivateTag, 619
 gdcm::Tag, 779
 ReadFromContinuousString
 gdcm::Tag, 779
 ReadFromPipeSeparatedString
 gdcm::Tag, 780
 ReadImage
 gdcm::ImageReader, 415
 gdcm::PixmapReader, 592
 ReadImageInformation
 gdcm::StreamImageReader, 723
 ReadImageInternal
 gdcm::PixmapReader, 592
 ReadInformation
 gdcm::ImageRegionReader, 418
 ReadInto
 gdcm::network::PDataTFPDU, 565
 gdcm::network::PresentationDataValue, 611
 ReadIntoBuffer

- gdcm::ImageRegionReader, [419](#)
- ReadMetaInformation
 - gdcm::Reader, [645](#)
- ReadNested
 - gdcm::DataSet, [252](#)
- ReadNoSwap
 - gdcm::EncodingImplementation< VR::VRASCII >, [311](#)
 - gdcm::EncodingImplementation< VR::VRBINARY >, [312](#)
- ReadOrSkip
 - gdcm::DataElement, [240](#)
- ReadPointMacro
 - gdcm::SurfaceReader, [758](#)
- ReadPreValue
 - gdcm::CP246ExplicitDataElement, [209](#)
 - gdcm::DataElement, [240](#)
 - gdcm::ExplicitDataElement, [322](#)
 - gdcm::ExplicitImplicitDataElement, [324](#)
 - gdcm::Fragment, [369](#)
 - gdcm::ImplicitDataElement, [428](#)
 - gdcm::SequenceOfFragments, [682](#)
 - gdcm::UNExplicitDataElement, [874](#)
 - gdcm::UNExplicitImplicitDataElement, [876](#)
 - gdcm::VR16ExplicitDataElement, [902](#)
- ReadPreamble
 - gdcm::Reader, [645](#)
- ReadSegment
 - gdcm::SegmentReader, [675](#)
- ReadSegments
 - gdcm::SegmentReader, [675](#)
- ReadSelectedPrivateTags
 - gdcm::DataSet, [252](#)
 - gdcm::Reader, [645](#)
- ReadSelectedPrivateTagsWithLength
 - gdcm::DataSet, [252](#)
- ReadSelectedTags
 - gdcm::DataSet, [252](#)
 - gdcm::Reader, [645](#)
- ReadSelectedTagsWithLength
 - gdcm::DataSet, [252](#)
- ReadSurface
 - gdcm::SurfaceReader, [758](#)
- ReadSurfaces
 - gdcm::SurfaceReader, [758](#)
- ReadUpToTag
 - gdcm::DataSet, [252](#)
 - gdcm::Reader, [645](#)
- ReadUpToTagWithLength
 - gdcm::DataSet, [252](#)
- ReadValue
 - gdcm::CP246ExplicitDataElement, [209](#)
 - gdcm::DataElement, [240](#)
 - gdcm::ExplicitDataElement, [322](#)
 - gdcm::ExplicitImplicitDataElement, [324](#)
 - gdcm::Fragment, [370](#)
 - gdcm::ImplicitDataElement, [428](#)
 - gdcm::SequenceOfFragments, [682](#)
 - gdcm::UNExplicitDataElement, [874](#)
 - gdcm::UNExplicitImplicitDataElement, [876](#)
 - gdcm::VR16ExplicitDataElement, [902](#)
- ReadValueWithLength
 - gdcm::DataElement, [240](#)
 - gdcm::ImplicitDataElement, [428](#)
- ReadVM
 - gdcm::DictConverter, [271](#)
- ReadVR
 - gdcm::DictConverter, [271](#)
- ReadWithLength
 - gdcm::CP246ExplicitDataElement, [209](#)
 - gdcm::DataElement, [240](#)
 - gdcm::DataSet, [252](#)
 - gdcm::ExplicitDataElement, [322](#)
 - gdcm::ExplicitImplicitDataElement, [324](#)
 - gdcm::ImplicitDataElement, [428](#)
 - gdcm::UNExplicitDataElement, [874](#)
 - gdcm::VR16ExplicitDataElement, [902](#)
- Reader
 - gdcm::Reader, [644](#)
- Readuint16
 - gdcm::DictConverter, [271](#)
- RealWorldValueIntercept
 - gdcm::RealWorldValueMappingContent, [647](#)
- RealWorldValueMappingStorage
 - gdcm::UIDs, [814](#)
- RealWorldValueSlope
 - gdcm::RealWorldValueMappingContent, [647](#)
- RecommendedDisplayCIELabToRGB
 - gdcm::SurfaceHelper, [754](#)
- RecurseDataSet
 - gdcm::Anonymizer, [99](#)
- red
 - gdcm::terminal, [77](#)
- reference
 - gdcm::CodeString, [197](#)
 - gdcm::LO, [470](#)
 - gdcm::String, [738](#)
- ReferenceFrameOfReferenceUID
 - vtkRTStructSetProperties, [965](#)
- ReferenceSeriesInstanceUID
 - vtkRTStructSetProperties, [965](#)
- ReferencedColorPrintManagementMetaSOPClassRetired
 - gdcm::UIDs, [813](#)
- ReferencedGrayscalePrintManagementMetaSOPClassRetired
 - gdcm::UIDs, [812](#)
- ReferencedImageBoxSOPClassRetired
 - gdcm::UIDs, [812](#)

- Region
 - gdcm::Region, [649](#)
- Register
 - gdcm::Object, [541](#)
- Remove
 - gdcm::Anonymizer, [99](#)
 - gdcm::DataSet, [252](#)
 - gdcm::FileAnonymizer, [330](#)
 - gdcm::Preamble, [601](#)
- RemoveAllObservers
 - gdcm::Subject, [745](#)
- RemoveDictEntry
 - gdcm::PrivateDict, [617](#)
- RemoveFile
 - gdcm::System, [768](#)
- RemoveGroupLength
 - gdcm::Anonymizer, [99](#)
- RemoveItemByIndex
 - gdcm::SequenceOfItems, [688](#)
- RemoveObserver
 - gdcm::Subject, [745](#)
- RemoveOverlay
 - gdcm::Pixmap, [588](#)
- RemovePrivateTags
 - gdcm::Anonymizer, [99](#)
- RemoveRetired
 - gdcm::Anonymizer, [99](#)
- Render
 - vtkImageColorViewer, [944](#)
- RenderWindow
 - vtkImageColorViewer, [946](#)
- Renderer
 - vtkImageColorViewer, [946](#)
- Replace
 - gdcm::Anonymizer, [99](#), [100](#)
 - gdcm::CommandDataSet, [201](#)
 - gdcm::DataSet, [252](#)
 - gdcm::FileAnonymizer, [330](#)
 - gdcm::FileMetaInformation, [346](#)
- ReplaceEmpty
 - gdcm::DataSet, [253](#)
- RequestData
 - vtkGDCMImageReader2, [914](#)
 - vtkGDCMPolyDataReader, [927](#)
 - vtkImageMapToColors16, [948](#)
 - vtkImageMapToWindowLevelColors2, [951](#)
 - vtkImagePlanarComponentsToComponents, [954](#)
- RequestData_HemodynamicWaveformStorage
 - vtkGDCMPolyDataReader, [927](#)
- RequestData_RTStructureSetStorage
 - vtkGDCMPolyDataReader, [927](#)
- RequestDataCompat
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
- vtkGDCMThreadedImageReader, [935](#)
- RequestInformation
 - vtkGDCMImageReader2, [914](#)
 - vtkGDCMPolyDataReader, [927](#)
 - vtkGDCMThreadedImageReader2, [938](#)
 - vtkImageMapToColors16, [949](#)
 - vtkImageMapToWindowLevelColors2, [951](#)
- RequestInformation_HemodynamicWaveformStorage
 - vtkGDCMPolyDataReader, [927](#)
- RequestInformation_RTStructureSetStorage
 - vtkGDCMPolyDataReader, [927](#)
- RequestInformationCompat
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
- RequestPaddedCompositePixelCode
 - gdcm::ImageCodec, [404](#)
- RequestPlanarConfiguration
 - gdcm::ImageCodec, [404](#)
- Rescale
 - gdcm::Rescaler, [652](#)
- RescaleFunctionIntoBestFit
 - gdcm::Rescaler, [652](#)
- Rescaler
 - gdcm::Rescaler, [651](#)
- ReserveDataElement
 - gdcm::FileStreamer, [360](#)
- ReserveGroupDataElement
 - gdcm::FileStreamer, [360](#)
- reset
 - gdcm::terminal, [77](#)
- ResetHandledDataSet
 - gdcm::network::ULConnectionCallback, [863](#)
- RetrieveSOPInstanceUIDFromIndex
 - gdcm::DirectoryHelper, [287](#)
- RetrieveSOPInstanceUIDFromZPosition
 - gdcm::DirectoryHelper, [287](#)
- reverse
 - gdcm::terminal, [77](#)
- reverse_iterator
 - gdcm::CodeString, [197](#)
 - gdcm::LO, [470](#)
 - gdcm::String, [738](#)
- RoleSelectionSub
 - gdcm::network::RoleSelectionSub, [658](#)
- RunEventLoop
 - gdcm::network::ULConnectionManager, [867](#)
- RunMoveEventLoop
 - gdcm::network::ULConnectionManager, [867](#)
- SAGITTAL
 - gdcm::Orientation, [550](#)
- SHA1
 - gdcm::SHA1, [701](#)
- SHComp

- gdcm, [61](#)
- SIEMENS
 - gdcm::Dicts, [278](#)
- SINGLEBIT
 - gdcm::PixelFormat, [582](#)
- SLICE_ORIENTATION_XY
 - vtkImageColorViewer, [942](#)
- SLICE_ORIENTATION_XZ
 - vtkImageColorViewer, [942](#)
- SLICE_ORIENTATION_YZ
 - vtkImageColorViewer, [942](#)
- SOPClassExtendedNegociationSub
 - gdcm::network::SOPClassExtendedNegociationSub, [710](#)
- SOPInstanceUID
 - vtkRTStructSetProperties, [965](#)
- SPM2AVG152PDFrameofReference
 - gdcm::UIDs, [812](#)
- SPM2AVG152T1FrameofReference
 - gdcm::UIDs, [811](#)
- SPM2AVG152T2FrameofReference
 - gdcm::UIDs, [812](#)
- SPM2AVG305T1FrameofReference
 - gdcm::UIDs, [811](#)
- SPM2BRAINMASKFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2CSFFFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2EPIFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2FILT1FrameofReference
 - gdcm::UIDs, [811](#)
- SPM2GRAYFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2PDFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2PETFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2SINGLESUBJT1FrameofReference
 - gdcm::UIDs, [812](#)
- SPM2SPECTFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2T1FrameofReference
 - gdcm::UIDs, [811](#)
- SPM2T2FrameofReference
 - gdcm::UIDs, [811](#)
- SPM2TRANSMFrameofReference
 - gdcm::UIDs, [811](#)
- SPM2WHITEFrameofReference
 - gdcm::UIDs, [811](#)
- STATES_END
 - gdcm::Surface, [749](#)
- STATES
 - gdcm::Surface, [749](#)
- STComp
 - gdcm, [61](#)
- SURFACE
 - gdcm::Surface, [749](#)
- SV10
 - gdcm::CSAHeader, [220](#)
- ScalarType
 - gdcm::PixelFormat, [582](#)
- Scale
 - vtkGDCMImageReader, [910](#)
 - vtkGDCMImageReader2, [917](#)
- Scan
 - gdcm::Scanner, [665](#)
 - gdcm::StrictScanner, [735](#)
- Scanner
 - gdcm::Scanner, [662](#)
- SecondaryCaptureImageStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- Segment
 - gdcm::Segment, [668](#)
- SegmentAlgorithmName
 - gdcm::Segment, [670](#)
- SegmentAlgorithmType
 - gdcm::Segment, [670](#)
- SegmentDescription
 - gdcm::Segment, [670](#)
- SegmentLabel
 - gdcm::Segment, [670](#)
- SegmentMap
 - gdcm::SegmentReader, [675](#)
- SegmentNumber
 - gdcm::Segment, [670](#)
- SegmentReader
 - gdcm::SegmentReader, [675](#)
- SegmentVector
 - gdcm::SegmentReader, [675](#)
 - gdcm::SegmentWriter, [677](#)
- SegmentWriter
 - gdcm::SegmentWriter, [677](#)
- Segmentation
 - gdcm::MediaStorage, [488](#)
- SegmentationStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [814](#)
- SegmentedPaletteColorLookupTable
 - gdcm::SegmentedPaletteColorLookupTable, [672](#)
- Segments
 - gdcm::SegmentReader, [675](#)
 - gdcm::SegmentWriter, [678](#)
- Selection
 - gdcm::Sorter, [715](#)
- SelectionMap
 - gdcm::Sorter, [714](#)

Self

gdcm::AnonymizeEvent, [94](#)
 gdcm::DataEvent, [245](#)
 gdcm::DataSetEvent, [255](#)
 gdcm::FileNameEvent, [352](#)
 gdcm::MemberCommand, [493](#)
 gdcm::ProgressEvent, [622](#)
 gdcm::SimpleMemberCommand, [703](#)

SendEcho

gdcm::ServiceClassUser, [697](#)
 gdcm::network::ULConnectionManager, [867](#)

SendFind

gdcm::ServiceClassUser, [697](#)
 gdcm::network::ULConnectionManager, [867](#)

SendMove

gdcm::ServiceClassUser, [697](#), [698](#)
 gdcm::network::ULConnectionManager, [867](#)

SendNAction

gdcm::network::ULConnectionManager, [867](#), [868](#)

SendNCreate

gdcm::network::ULConnectionManager, [868](#)

SendNDelete

gdcm::network::ULConnectionManager, [868](#)

SendNEventReport

gdcm::network::ULConnectionManager, [868](#)

SendNGet

gdcm::network::ULConnectionManager, [868](#)

SendNSet

gdcm::network::ULConnectionManager, [868](#)

SendStore

gdcm::ServiceClassUser, [698](#)
 gdcm::network::ULConnectionManager, [868](#)

Separator

gdcm::ApplicationEntity, [105](#)
 gdcm::PersonName, [575](#)

SequenceLengthField

gdcm::SequenceOfItems, [689](#)

SequenceOfFragments

gdcm::SequenceOfFragments, [680](#)

SequenceOfItems

gdcm::SequenceOfItems, [686](#)

SerieHelper

gdcm::SerieHelper, [691](#)

SerieRestrictions

gdcm::SerieHelper, [691](#)

Series

gdcm::Series, [693](#)

SeriesInstanceUID

vtkRTStructSetProperties, [965](#)

ServiceClassApplicationInformation

gdcm::network::ServiceClassApplicationInformation,
[694](#)

ServiceClassUser

gdcm::ServiceClassUser, [696](#)

Set

gdcm::Attribute, [117](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1 >,
[121](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1_n
 >, [128](#)
 gdcm::Element, [293](#)
 gdcm::Element< TVR, VM::VM1_n >, [297](#)

SetAETitle

gdcm::ServiceClassUser, [698](#)

SetAbstractSyntax

gdcm::PresentationContext, [604](#)
 gdcm::network::PresentationContextRQ, [610](#)

SetAlgorithmFamily

gdcm::Surface, [751](#)

SetAlgorithmName

gdcm::Surface, [751](#)

SetAlgorithmVersion

gdcm::Surface, [752](#)

SetAnatomicRegion

gdcm::Segment, [669](#)

SetArray

gdcm::Element< TVR, VM::VM1_n >, [297](#)

SetAxisOfRotation

gdcm::Surface, [752](#)

SetBitPosition

gdcm::Overlay, [556](#)

SetBitSample

gdcm::JPEGCodec, [459](#)

SetBitsAllocated

gdcm::Overlay, [556](#)
 gdcm::PixelFormat, [584](#)

SetBitsStored

gdcm::PixelFormat, [585](#)

SetBlob

gdcm::ApplicationEntity, [105](#)
 gdcm::PersonName, [574](#)
 gdcm::network::PresentationDataValue, [611](#)

SetBlueLUT

gdcm::LookupTable, [475](#)

SetBufferLength

gdcm::JPEGLSCCodec, [464](#)
 gdcm::PNMCodec, [600](#)
 gdcm::RLECodec, [656](#)

SetByteSwapTag

gdcm::ByteSwapFilter, [173](#)

SetByteValue

gdcm::Attribute, [117](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1 >,
[121](#)
 gdcm::Attribute< Group, Element, TVR, VM::VM1_n
 >, [128](#)
 gdcm::CSAElement, [217](#)
 gdcm::DataElement, [240](#)

- SetByteValueNoSwap
 - gdcm::Attribute, [117](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [122](#)
- SetCallbackFunction
 - gdcm::MemberCommand, [494](#)
 - gdcm::SimpleMemberCommand, [704](#)
- SetCalledAETitle
 - gdcm::ServiceClassUser, [698](#)
 - gdcm::network::AAAssociateACPDU, [83](#)
 - gdcm::network::AAAssociateRQPDU, [89](#)
- SetCallingAETitle
 - gdcm::network::AAAssociateACPDU, [83](#)
 - gdcm::network::AAAssociateRQPDU, [89](#)
- SetCenterOfRotation
 - gdcm::Surface, [752](#)
- SetChangePrivateTags
 - gdcm::FileExplicitFilter, [341](#)
- SetCheckFileMetaInformation
 - gdcm::Writer, [972](#)
- SetCipherType
 - gdcm::CAPICryptographicMessageSyntax, [182](#)
 - gdcm::CryptographicMessageSyntax, [213](#)
 - gdcm::OpenSSLCryptographicMessageSyntax, [544](#)
 - gdcm::OpenSSLP7CryptographicMessageSyntax, [548](#)
- SetColor
 - gdcm::Printer, [615](#)
- SetColorLevel
 - vtkImageColorViewer, [944](#)
- SetColorWindow
 - vtkImageColorViewer, [944](#)
- SetColumns
 - gdcm::Bitmap, [162](#)
 - gdcm::Overlay, [557](#)
- SetCommand
 - gdcm::network::PresentationDataValue, [611](#)
- SetComponents
 - gdcm::PersonName, [574](#), [575](#)
- SetCompressIconImage
 - gdcm::ImageChangeTransferSyntax, [396](#)
- SetComputeZSpacing
 - gdcm::IPPSorter, [438](#)
- SetCoordinateStartValue
 - gdcm::Curve, [232](#)
- SetCoordinateStepValue
 - gdcm::Curve, [233](#)
- SetCryptographicMessageSyntax
 - gdcm::Anonymizer, [100](#)
- SetCurve
 - gdcm::Curve, [233](#)
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
- SetCurveDataDescriptor
 - gdcm::Curve, [233](#)
- SetCurveDescription
 - gdcm::Curve, [233](#)
- SetData
 - gdcm::DataEvent, [246](#)
- SetDataElement
 - gdcm::Bitmap, [162](#)
- SetDataSet
 - gdcm::File, [328](#)
 - gdcm::network::PresentationDataValue, [611](#)
- SetDataSetTransferSyntax
 - gdcm::FileMetaInformation, [346](#)
- SetDataValueRepresentation
 - gdcm::Curve, [233](#)
- SetDebug
 - gdcm::Trace, [790](#)
- SetDebugStream
 - gdcm::Trace, [790](#)
- SetDefaultTransferSyntax
 - gdcm::PresentationContextGenerator, [607](#)
- SetDerivationCodeSequenceCodeValue
 - gdcm::FileDerivation, [339](#)
- SetDerivationDescription
 - gdcm::FileDerivation, [339](#)
- SetDescription
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::ModuleEntry, [509](#)
 - gdcm::Overlay, [557](#)
- SetDescriptor
 - gdcm::DICOMDIRGenerator, [266](#)
- SetDictName
 - gdcm::DictConverter, [271](#)
- SetDicts
 - gdcm::PythonFilter, [626](#)
 - gdcm::StringFilter, [741](#)
- SetDimension
 - gdcm::Bitmap, [162](#)
- SetDimensions
 - gdcm::Bitmap, [162](#)
 - gdcm::Curve, [233](#)
 - gdcm::ImageCodec, [402](#)
- SetDimensionsValue
 - gdcm::ImageHelper, [410](#)
- SetDirectionCosines
 - gdcm::Image, [384](#)
 - vtkGDCMImageWriter, [920](#)
- SetDirectionCosinesFromImageOrientationPatient
 - vtkGDCMImageWriter, [920](#)
- SetDirectionCosinesTolerance
 - gdcm::IPPSorter, [438](#)
- SetDirectionCosinesValue
 - gdcm::ImageHelper, [410](#)
- SetDirectory
 - gdcm::SerieHelper, [692](#)

- gdcm::network::ULWritingCallback, [872](#)
- SetDisplayId
 - vtkImageColorViewer, [944](#)
- SetDomain
 - gdcm::BoxRegion, [170](#)
- SetDropDuplicatePositions
 - gdcm::IPPSorter, [438](#)
- SetElement
 - gdcm::Tag, [780](#)
- SetElementHandler
 - gdcm::Parser, [562](#)
- SetElementTag
 - gdcm::Tag, [780](#)
- SetElementXX
 - gdcm::DictEntry, [274](#)
- SetError
 - gdcm::Trace, [791](#)
- SetErrorStream
 - gdcm::Trace, [791](#)
- SetEvent
 - gdcm::network::ULEvent, [869](#)
- SetFile
 - gdcm::Anonymizer, [100](#)
 - gdcm::DICOMDIRGenerator, [266](#)
 - gdcm::FileDecompressLookupTable, [336](#)
 - gdcm::FileDerivation, [339](#)
 - gdcm::FileExplicitFilter, [341](#)
 - gdcm::IconImageFilter, [377](#)
 - gdcm::Printer, [615](#)
 - gdcm::PythonFilter, [626](#)
 - gdcm::Reader, [646](#)
 - gdcm::SplitMosaicFilter, [719](#)
 - gdcm::StreamImageWriter, [727](#)
 - gdcm::StringFilter, [741](#)
 - gdcm::Validate, [884](#)
 - gdcm::Writer, [972](#)
 - gdcm::XMLPrinter, [977](#)
- SetFileName
 - gdcm::FileNameEvent, [352](#)
 - gdcm::Reader, [646](#)
 - gdcm::StreamImageReader, [723](#)
 - gdcm::StreamImageWriter, [727](#)
 - gdcm::Writer, [972](#)
 - vtkGDCMThreadedImageReader2, [938](#)
- SetFileNames
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageWriter, [920](#)
 - vtkGDCMThreadedImageReader2, [938](#)
- SetFilePattern
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
- SetFilePrefix
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
- SetFilename
 - gdcm::TableReader, [772](#)
- SetFileNames
 - gdcm::DICOMDIRGenerator, [266](#)
- SetFiles
 - gdcm::FileSet, [357](#)
- SetFiniteVolume
 - gdcm::Surface, [752](#)
- SetForce
 - gdcm::ImageChangeTransferSyntax, [396](#)
 - gdcm::ImageFragmentSplitter, [407](#)
- SetForcePixelSpacing
 - gdcm::ImageHelper, [410](#)
- SetForceRescaleInterceptSlope
 - gdcm::ImageHelper, [411](#)
- SetFragmentSizeMax
 - gdcm::ImageFragmentSplitter, [407](#)
- SetFrameOrigin
 - gdcm::Overlay, [557](#)
- SetFromDataElement
 - gdcm::Attribute, [117](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [122](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [128](#)
 - gdcm::Element, [293](#)
 - gdcm::Element< TVR, VM::VM1_n >, [297](#)
- SetFromDataSet
 - gdcm::Attribute, [117](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1 >, [122](#)
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, [128](#)
 - gdcm::MediaStorage, [490](#)
- SetFromFile
 - gdcm::MediaStorage, [490](#)
- SetFromHeader
 - gdcm::MediaStorage, [490](#)
- SetFromModality
 - gdcm::MediaStorage, [491](#)
- SetFromSourceImageSequence
 - gdcm::MediaStorage, [491](#)
- SetFromString
 - gdcm::DirectionCosines, [283](#)
- SetFromUID
 - gdcm::UIDs, [824](#)
- SetGreenLUT
 - gdcm::LookupTable, [475](#)
- SetGroup
 - gdcm::Curve, [233](#)
 - gdcm::Overlay, [557](#)
 - gdcm::Tag, [780](#)
- SetGroupXX
 - gdcm::DictEntry, [274](#)

- SetHeader
 - gdcm::File, [328](#)
- SetHighBit
 - gdcm::PixelFormat, [585](#)
- SetHostname
 - gdcm::ServiceClassUser, [698](#)
- SetIconImage
 - gdcm::Pixmap, [589](#)
- SetIE
 - gdcm::IODEntry, [433](#)
- SetImage
 - gdcm::PixmapWriter, [597](#)
 - gdcm::SplitMosaicFilter, [719](#)
- SetImplementationClassUID
 - gdcm::FileMetaInformation, [346](#)
- SetImplementationVersionName
 - gdcm::FileMetaInformation, [346](#)
- SetImplicitFlag
 - gdcm::network::ULConnectionCallback, [863](#)
- SetInput
 - gdcm::BitmapToBitmapFilter, [166](#)
 - gdcm::ImageConverter, [405](#)
 - vtkImageColorViewer, [944](#)
- SetInputConnection
 - vtkImageColorViewer, [944](#)
- SetInputFileName
 - gdcm::DictConverter, [271](#)
 - gdcm::FileAnonymizer, [331](#)
 - gdcm::FileChangeTransferSyntax, [334](#)
- SetIntercept
 - gdcm::Image, [384](#)
 - gdcm::Rescaler, [652](#)
- SetKey
 - gdcm::CSAElement, [217](#)
- SetKeyword
 - gdcm::DictEntry, [274](#)
- SetLUT
 - gdcm::Bitmap, [162](#)
 - gdcm::ImageCodec, [402](#)
 - gdcm::LookupTable, [475](#)
 - gdcm::SegmentedPaletteColorLookupTable, [672](#)
- SetLastElement
 - gdcm::ParseException, [559](#)
- SetLastFragment
 - gdcm::network::PresentationDataValue, [611](#)
- SetLength
 - gdcm::ByteValue, [178](#)
 - gdcm::Element< TVR, VM::VM1_2 >, [295](#)
 - gdcm::Element< TVR, VM::VM1_n >, [297](#)
 - gdcm::Element< TVR, VM::VM2_2n >, [299](#)
 - gdcm::Element< TVR, VM::VM2_n >, [301](#)
 - gdcm::Element< TVR, VM::VM3_3n >, [302](#)
 - gdcm::Element< TVR, VM::VM3_n >, [304](#)
 - gdcm::RLECodec, [657](#)
 - gdcm::SequenceOfFragments, [682](#)
 - gdcm::SequenceOfItems, [688](#)
 - gdcm::Value, [886](#)
- SetLengthOnly
 - gdcm::ByteValue, [178](#)
 - gdcm::Value, [886](#)
- SetLengthToUndefined
 - gdcm::SequenceOfItems, [689](#)
- SetLoadMode
 - gdcm::SerieHelper, [692](#)
- SetLookupTable
 - vtkImageMapToColors16, [949](#)
- SetLossless
 - gdcm::JPEGCodec, [460](#)
 - gdcm::JPEGLSCodec, [464](#)
- SetLossyError
 - gdcm::JPEGLSCodec, [464](#)
- SetLossyFlag
 - gdcm::Bitmap, [162](#)
 - gdcm::ImageCodec, [402](#)
 - gdcm::PVRGCodec, [625](#)
- SetManifold
 - gdcm::Surface, [752](#)
- SetMaxPDULength
 - gdcm::network::ULConnectionInfo, [864](#)
- SetMaxPDUSize
 - gdcm::network::ULConnection, [861](#)
- SetMaximumLength
 - gdcm::network::MaximumLengthSub, [481](#)
- SetMaximumPointDistance
 - gdcm::Surface, [752](#)
- SetMeanPointDistance
 - gdcm::Surface, [752](#)
- SetMedicalImageProperties
 - vtkGDCMImageReader, [908](#)
 - vtkGDCMImageReader2, [914](#)
 - vtkGDCMImageWriter, [920](#)
 - vtkGDCMPolyDataWriter, [930](#)
- SetMergeModeToAbstractSyntax
 - gdcm::PresentationContextGenerator, [608](#)
- SetMergeModeToTransferSyntax
 - gdcm::PresentationContextGenerator, [608](#)
- SetMeshPrimitive
 - gdcm::Surface, [752](#)
- SetMessageHeader
 - gdcm::network::PresentationDataValue, [612](#)
- SetMinMaxForPixelFormatType
 - gdcm::Rescaler, [652](#)
- SetName
 - gdcm::CSAElement, [217](#)
 - gdcm::CSAHeaderDictEntry, [226](#)
 - gdcm::DictEntry, [274](#)
 - gdcm::IODEntry, [433](#)
 - gdcm::Macro, [478](#)

- gdcm::Module, 507
- gdcm::ModuleEntry, 510
- gdcm::PDBElement, 567
- gdcm::network::AbstractSyntax, 92
- gdcm::network::ApplicationContext, 103
- gdcm::network::TransferSyntaxSub, 798
- SetNameFromUID
 - gdcm::network::AbstractSyntax, 92
 - gdcm::network::TransferSyntaxSub, 798
- SetNeedByteSwap
 - gdcm::Bitmap, 163
 - gdcm::ImageCodec, 402
- SetNeedOverlayCleanup
 - gdcm::ImageCodec, 402
- SetNestedDataSet
 - gdcm::Item, 442
- SetNoOfItems
 - gdcm::CSAElement, 217
- SetNoSwap
 - gdcm::Element, 293
 - gdcm::Element< TVR, VM::VM1_n >, 297
- SetNumberOfCurves
 - gdcm::Pixmap, 589
- SetNumberOfDimensions
 - gdcm::Bitmap, 163
 - gdcm::ImageCodec, 402
- SetNumberOfFilenames
 - gdcm::FilenameGenerator, 355
- SetNumberOfFrames
 - gdcm::Overlay, 557
- SetNumberOfInputPorts
 - vtkGDCMPolyDataWriter, 930
- SetNumberOfItems
 - gdcm::SequenceOfItems, 689
- SetNumberOfOverlays
 - gdcm::Pixmap, 589
- SetNumberOfPoints
 - gdcm::Curve, 233
- SetNumberOfResolutions
 - gdcm::JPEG2000Codec, 452
- SetNumberOfSegments
 - gdcm::SegmentWriter, 677
- SetNumberOfSurfacePoints
 - gdcm::Surface, 752
- SetNumberOfSurfaces
 - gdcm::SurfaceWriter, 760
- SetNumberOfTableValues
 - vtkLookupTable16, 959
- SetNumberOfValues
 - gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 128
- SetNumberOfVectors
 - gdcm::Surface, 752
- SetObliquityThresholdCosineValue
 - gdcm::Orientation, 551
- SetOffScreenRendering
 - vtkImageColorViewer, 944
- SetOrigin
 - gdcm::Image, 384
 - gdcm::Overlay, 557
- SetOriginValue
 - gdcm::ImageHelper, 411
- SetOutputDimensions
 - gdcm::IconImageGenerator, 379
- SetOutputFileName
 - gdcm::DictConverter, 271
 - gdcm::FileAnonymizer, 331
 - gdcm::FileChangeTransferSyntax, 334
 - gdcm::FileStreamer, 360
- SetOutputFormatToLuminance
 - vtkImageMapToColors16, 949
- SetOutputFormatToLuminanceAlpha
 - vtkImageMapToColors16, 949
- SetOutputFormatToRGBA
 - vtkImageMapToColors16, 949
- SetOutputFormatToRGB
 - vtkImageMapToColors16, 949
- SetOutputType
 - gdcm::DictConverter, 271
- SetOutsideValuePixel
 - gdcm::IconImageGenerator, 379
- SetOverlay
 - gdcm::Overlay, 557
- SetOverlayVisibility
 - vtkImageColorViewer, 944
- SetOwner
 - gdcm::PrivateTag, 619
- SetPDU
 - gdcm::network::ULEvent, 869
- SetPMSRescaleInterceptSlope
 - gdcm::ImageHelper, 411
- SetParentId
 - vtkImageColorViewer, 944
- SetPassword
 - gdcm::CAPICryptographicMessageSyntax, 182
 - gdcm::CryptographicMessageSyntax, 213
 - gdcm::OpenSSLCryptographicMessageSyntax, 545
 - gdcm::OpenSSL7CryptographicMessageSyntax, 548
- SetPattern
 - gdcm::FilenameGenerator, 355
- SetPermissions
 - gdcm::System, 768
- SetPhotometricInterpretation
 - gdcm::Bitmap, 163
 - gdcm::ImageChangePhotometricInterpretation, 389
 - gdcm::ImageCodec, 402
- SetPixelFormat

- gdcm::Bitmap, [163](#)
- gdcm::ImageCodec, [402](#)
- gdcm::JPEGCodec, [460](#)
- gdcm::Rescaler, [652](#)
- SetPixelMinMax
 - gdcm::IconImageGenerator, [379](#)
- SetPixelRepresentation
 - gdcm::PixelFormat, [585](#)
- SetPixmap
 - gdcm::FileDecompressLookupTable, [336](#)
 - gdcm::IconImageGenerator, [379](#)
 - gdcm::PixmapWriter, [597](#)
- SetPlanarConfiguration
 - gdcm::Bitmap, [163](#)
 - gdcm::ImageChangePlanarConfiguration, [392](#)
 - gdcm::ImageCodec, [403](#)
- SetPointCoordinatesData
 - gdcm::Surface, [752](#)
- SetPointPositionAccuracy
 - gdcm::Surface, [752](#)
- SetPointsBoundingBoxCoordinates
 - gdcm::Surface, [752](#)
- SetPort
 - gdcm::ServiceClassUser, [699](#)
- SetPortSCP
 - gdcm::ServiceClassUser, [699](#)
- SetPosition
 - vtkImageColorViewer, [944](#)
- SetPreamble
 - gdcm::FileMetaInformation, [347](#)
- SetPrefix
 - gdcm::FilenameGenerator, [355](#)
- SetPresentationContextID
 - gdcm::PresentationContext, [604](#)
 - gdcm::network::PresentationContextAC, [605](#)
 - gdcm::network::PresentationContextRQ, [610](#)
 - gdcm::network::PresentationDataValue, [612](#)
- SetPresentationContexts
 - gdcm::ServiceClassUser, [699](#)
 - gdcm::network::ULConnection, [861](#)
- SetPrettyPrint
 - gdcm::JSON, [466](#)
- SetPrimitiveData
 - gdcm::MeshPrimitive, [498](#)
- SetPrimitiveType
 - gdcm::MeshPrimitive, [498](#)
- SetPrimitivesData
 - gdcm::MeshPrimitive, [498](#)
- SetPrivateCreator
 - gdcm::Tag, [780](#)
- SetProcessingAlgorithm
 - gdcm::Surface, [752](#)
- SetProgress
 - gdcm::ProgressEvent, [622](#)
- SetPropertyCategory
 - gdcm::Segment, [669](#)
- SetPropertyType
 - gdcm::Segment, [669](#)
- SetPurposeOfReferenceCodeSequenceCodeValue
 - gdcm::FileDerivation, [339](#)
- SetQuality
 - gdcm::JPEG2000Codec, [452](#)
 - gdcm::JPEGCodec, [460](#)
- SetRTStructSetProperties
 - vtkGDCMPolyDataWriter, [930](#)
- SetRate
 - gdcm::JPEG2000Codec, [452](#)
- SetReason
 - gdcm::network::AAAbortPDU, [80](#)
 - gdcm::network::PresentationContextAC, [605](#)
- SetRecommendedDisplayCIELabValue
 - gdcm::Surface, [752](#)
- SetRecommendedDisplayGrayscaleValue
 - gdcm::Surface, [752](#)
- SetRecommendedPresentationOpacity
 - gdcm::Surface, [752](#)
- SetRecommendedPresentationType
 - gdcm::Surface, [752](#)
- SetRecomputeItemLength
 - gdcm::FileExplicitFilter, [341](#)
- SetRecomputeSequenceLength
 - gdcm::FileExplicitFilter, [341](#)
- SetRedLUT
 - gdcm::LookupTable, [475](#)
- SetRef
 - gdcm::IODEntry, [433](#)
- SetRegion
 - gdcm::ImageRegionReader, [419](#)
- SetRenderWindow
 - vtkImageColorViewer, [944](#)
- SetRenderer
 - vtkImageColorViewer, [944](#)
- SetRescaleInterceptSlopeValue
 - gdcm::ImageHelper, [411](#)
- SetRetired
 - gdcm::DictEntry, [274](#)
- SetReversible
 - gdcm::JPEG2000Codec, [452](#)
- SetRoot
 - gdcm::UIDGenerator, [805](#)
- SetRootDirectory
 - gdcm::DICOMDIRGenerator, [266](#)
- SetRows
 - gdcm::Bitmap, [163](#)
 - gdcm::Overlay, [557](#)
- SetSOPInstanceUID
 - gdcm::BaseQuery, [148](#)
- SetSamplesPerPixel

- gdcm::PixelFormat, [585](#)
- SetScalarType
 - gdcm::PixelFormat, [585](#)
- SetSearchParameter
 - gdcm::BaseQuery, [147](#), [148](#)
- SetSegmentAlgorithmName
 - gdcm::Segment, [669](#)
- SetSegmentAlgorithmType
 - gdcm::Segment, [669](#)
- SetSegmentDescription
 - gdcm::Segment, [669](#)
- SetSegmentLabel
 - gdcm::Segment, [669](#)
- SetSegmentNumber
 - gdcm::Segment, [669](#)
- SetSegments
 - gdcm::SegmentWriter, [677](#)
- SetSize
 - vtkImageColorViewer, [944](#)
- SetSlice
 - vtkImageColorViewer, [945](#)
- SetSliceOrientation
 - vtkImageColorViewer, [945](#)
- SetSliceOrientationToXY
 - vtkImageColorViewer, [945](#)
- SetSliceOrientationToXZ
 - vtkImageColorViewer, [945](#)
- SetSliceOrientationToYZ
 - vtkImageColorViewer, [945](#)
- SetSlope
 - gdcm::Image, [384](#)
 - gdcm::Rescaler, [652](#)
- SetSortFunction
 - gdcm::Sorter, [714](#)
- SetSource
 - gdcm::network::AAAbortPDU, [80](#)
- SetSourceApplicationEntityTitle
 - gdcm::FileMetaInformation, [347](#)
- SetSpacing
 - gdcm::Image, [384](#)
- SetSpacingValue
 - gdcm::ImageHelper, [411](#)
- SetState
 - gdcm::network::ULConnection, [861](#)
- SetStream
 - gdcm::Reader, [646](#)
 - gdcm::StreamImageReader, [724](#)
 - gdcm::StreamImageWriter, [728](#)
 - gdcm::Trace, [791](#)
 - gdcm::Writer, [973](#)
- SetStreamToFile
 - gdcm::Trace, [791](#)
- SetStyle
 - gdcm::Printer, [615](#)
- gdcm::XMLPrinter, [977](#)
- SetSurfaceComments
 - gdcm::Surface, [752](#)
- SetSurfaceCount
 - gdcm::Segment, [670](#)
- SetSurfaceNumber
 - gdcm::Surface, [753](#)
- SetSurfaceProcessing
 - gdcm::Surface, [753](#)
- SetSurfaceProcessingDescription
 - gdcm::Surface, [753](#)
- SetSurfaceProcessingRatio
 - gdcm::Surface, [753](#)
- SetSyngoDT
 - gdcm::CSAElement, [217](#)
- SetTag
 - gdcm::AnonymizeEvent, [95](#)
 - gdcm::DataElement, [241](#)
- SetTargetPixelType
 - gdcm::Rescaler, [652](#)
- SetTemplateFileName
 - gdcm::FileStreamer, [360](#)
- SetTileSize
 - gdcm::JPEG2000Codec, [452](#)
- SetTimeout
 - gdcm::ServiceClassUser, [699](#)
 - gdcm::network::ARTIMTimer, [110](#)
- SetToUndefined
 - gdcm::VL, [890](#)
- SetTransferSyntax
 - gdcm::Bitmap, [163](#)
 - gdcm::FileChangeTransferSyntax, [334](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
 - gdcm::network::PresentationContextAC, [605](#)
- SetTuple
 - gdcm::network::RoleSelectionSub, [658](#)
 - gdcm::network::SOPClassExtendedNegociationSub, [710](#)
 - gdcm::network::ServiceClassApplicationInformation, [694](#)
- SetType
 - gdcm::ModuleEntry, [510](#)
 - gdcm::Overlay, [557](#)
- SetTypeOfData
 - gdcm::Curve, [233](#)
- SetUsage
 - gdcm::LODEntry, [433](#)
- SetUseSeriesDetails
 - gdcm::SerieHelper, [692](#)
- SetUseTargetPixelType
 - gdcm::Rescaler, [653](#)
- SetUseVRUN
 - gdcm::FileExplicitFilter, [342](#)
- SetUserCodec

- gdcmm::ImageChangeTransferSyntax, 396
- SetUserData
 - gdcmm::Parser, 562
- SetUserInformation
 - gdcmm::network::AAssociateRQPDU, 90
- SetVLToUndefined
 - gdcmm::DataElement, 241
- SetValue
 - gdcmm::Attribute, 117
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1 >, 122
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, 128
 - gdcmm::CSAElement, 217
 - gdcmm::DataElement, 241
 - gdcmm::Element, 293
 - gdcmm::Element< TVR, VM::VM1_n >, 297
 - gdcmm::PDBelement, 567
- SetValueFieldLength
 - gdcmm::DataElement, 241
- SetValues
 - gdcmm::Attribute, 118
 - gdcmm::Attribute< Group, Element, TVR, VM::VM1_n >, 128
- SetVectorAccuracy
 - gdcmm::Surface, 753
- SetVectorCoordinateData
 - gdcmm::Surface, 753
- SetVectorDimensionality
 - gdcmm::Surface, 753
- SetVL
 - gdcmm::DataElement, 241
- SetVM
 - gdcmm::CSAElement, 217
 - gdcmm::CSAHeaderDictEntry, 226
 - gdcmm::DictEntry, 274
- SetVR
 - gdcmm::CSAElement, 217
 - gdcmm::CSAHeaderDictEntry, 226
 - gdcmm::DataElement, 242
 - gdcmm::DictEntry, 274
- SetWarning
 - gdcmm::Trace, 791
- SetWarningStream
 - gdcmm::Trace, 791
- SetWindowId
 - vtkImageColorViewer, 945
- SetWriteDataSetOnly
 - gdcmm::Writer, 973
- SetZSpacingTolerance
 - gdcmm::IPPSorter, 438
- setattribute
 - gdcmm::terminal, 77
- setbgcolor
 - gdcmm::terminal, 77
- setfgcolor
 - gdcmm::terminal, 77
- setmode
 - gdcmm::terminal, 77
- SetupInteractor
 - vtkImageColorViewer, 945
- SH
 - gdcmm::VR, 898
- Shift
 - vtkGDCMImageReader, 910
 - vtkGDCMImageReader2, 917
- ShiftEnd
 - gdcmm::ByteBuffer, 171
- ShowAbort
 - gdcmm::SimpleSubjectWatcher, 705
- ShowAnonymization
 - gdcmm::SimpleSubjectWatcher, 705
- ShowData
 - gdcmm::SimpleSubjectWatcher, 705
- ShowDataSet
 - gdcmm::SimpleSubjectWatcher, 705
- ShowFileName
 - gdcmm::SimpleSubjectWatcher, 705
- ShowIteration
 - gdcmm::SimpleSubjectWatcher, 705
- ShowProgress
 - gdcmm::SimpleSubjectWatcher, 706
- SimpleMemberCommand
 - gdcmm::SimpleMemberCommand, 703
- SimpleSubjectWatcher
 - gdcmm::SimpleSubjectWatcher, 705
- SingleSerieUIDFileSetHT
 - gdcmm::SerieHelper, 692
- SingleSerieUIDFileSetmap
 - gdcmm::SerieHelper, 691
- Size
 - gdcmm::CodeString, 198
 - gdcmm::DataSet, 253
 - gdcmm::GroupDict, 374
 - gdcmm::network::AAbortPDU, 80
 - gdcmm::network::AAssociateACPDU, 83
 - gdcmm::network::AAssociateRJPDU, 85
 - gdcmm::network::AAssociateRQPDU, 90
 - gdcmm::network::AReleaseRPPDU, 107
 - gdcmm::network::AReleaseRQPDU, 109
 - gdcmm::network::AbstractSyntax, 92
 - gdcmm::network::ApplicationContext, 103
 - gdcmm::network::AsynchronousOperationsWindow↵
 - Sub, 112
 - gdcmm::network::BasePDU, 144
 - gdcmm::network::ImplementationClassUIDSub, 424
 - gdcmm::network::ImplementationVersionNameSub, 426

- gdcmm::network::MaximumLengthSub, 481
- gdcmm::network::PDataTFPDU, 565
- gdcmm::network::PresentationContextAC, 605
- gdcmm::network::PresentationContextRQ, 610
- gdcmm::network::PresentationDataValue, 612
- gdcmm::network::RoleSelectionSub, 658
- gdcmm::network::SOPClassExtendedNegociationSub, 710
- gdcmm::network::ServiceClassApplicationInformation, 694
- gdcmm::network::TransferSyntaxSub, 798
- gdcmm::network::UserInformation, 882
- size_type
 - gdcmm::CodeString, 197
 - gdcmm::LO, 470
 - gdcmm::String, 738
- SizeType
 - gdcmm::DataSet, 249
 - gdcmm::FilenameGenerator, 354
 - gdcmm::IOD, 430
 - gdcmm::NestedModuleEntries, 527
 - gdcmm::PresentationContext, 603
 - gdcmm::PresentationContextGenerator, 607
 - gdcmm::SequenceOfFragments, 680
 - gdcmm::SequenceOfItems, 686
 - gdcmm::network::AAssociateACPDU, 82
 - gdcmm::network::AAssociateRQPDU, 88
 - gdcmm::network::PDataTFPDU, 564
 - gdcmm::network::PresentationContextRQ, 609
- SL
 - gdcmm::VR, 898
- Slice
 - vtkImageColorViewer, 946
- SliceOrientation
 - vtkImageColorViewer, 946
- SmartPointer
 - gdcmm::Object, 541
 - gdcmm::SmartPointer, 708
- Sort
 - gdcmm::IPPSorter, 438
 - gdcmm::Sorter, 714
- SortFunc
 - gdcmm::Sorter, 715
- SortFunction
 - gdcmm::Sorter, 714
- Sorter
 - gdcmm::Sorter, 714
- SpatialFiducialsStorage
 - gdcmm::MediaStorage, 487
- SpatialRegistrationStorage
 - gdcmm::MediaStorage, 487
- Spacing
 - gdcmm::Spacing, 717
- SpacingType
 - gdcmm::Spacing, 717
- SpatialFiducialsStorage
 - gdcmm::UIDs, 814
- SpatialRegistrationStorage
 - gdcmm::UIDs, 814
- Spectroscopy
 - gdcmm::Spectroscopy, 718
- Split
 - gdcmm::ImageFragmentSplitter, 407
 - gdcmm::SplitMosaicFilter, 719
- SplitExtent
 - vtkGDCMThreadedImageReader2, 938
- SplitMosaicFilter
 - gdcmm::SplitMosaicFilter, 718
- SQ
 - gdcmm::VR, 898
- Squeeze
 - gdcmm::ApplicationEntity, 105
- SS
 - gdcmm::VR, 898
- ST
 - gdcmm::VR, 898
- StableSort
 - gdcmm::Sorter, 715
- StandaloneCurveStorage
 - gdcmm::MediaStorage, 487
- StandaloneCurveStorageRetired
 - gdcmm::UIDs, 813
- StandaloneModalityLUTStorage
 - gdcmm::MediaStorage, 487
- StandaloneModalityLUTStorageRetired
 - gdcmm::UIDs, 814
- StandaloneOverlayStorage
 - gdcmm::MediaStorage, 487
- StandaloneOverlayStorageRetired
 - gdcmm::UIDs, 813
- StandalonePETCurveStorageRetired
 - gdcmm::UIDs, 815
- StandaloneVOILUTStorage
 - gdcmm::MediaStorage, 487
- StandaloneVOILUTStorageRetired
 - gdcmm::UIDs, 814
- Start
 - gdcmm::network::ARTIMTimer, 110
- StartAssociation
 - gdcmm::ServiceClassUser, 699
- StartDataElement
 - gdcmm::FileStreamer, 360
- StartElement
 - gdcmm::TableReader, 772
 - gdcmm::XMLDictReader, 975
 - gdcmm::XMLPrivateDictReader, 979
- StartElementHandler
 - gdcmm::Parser, 561

- StartEncode
 - gdcm::ImageCodec, [403](#)
 - gdcm::JPEG2000Codec, [452](#)
 - gdcm::JPEGCodec, [460](#)
 - gdcm::JPEGLSCodec, [464](#)
 - gdcm::RLECodec, [657](#)
- StartFilter
 - gdcm::SimpleSubjectWatcher, [706](#)
- StartGroupDataElement
 - gdcm::FileStreamer, [360](#)
- StereometricRelationshipStorage
 - gdcm::UIDs, [814](#)
- Stop
 - gdcm::network::ARTIMTimer, [110](#)
- StopAssociation
 - gdcm::ServiceClassUser, [699](#)
- StopDataElement
 - gdcm::FileStreamer, [361](#)
- StopEncode
 - gdcm::ImageCodec, [403](#)
 - gdcm::JPEG2000Codec, [452](#)
 - gdcm::JPEGCodec, [460](#)
 - gdcm::JPEGLSCodec, [464](#)
 - gdcm::RLECodec, [657](#)
- StopGroupDataElement
 - gdcm::FileStreamer, [361](#)
- StopProtocol
 - gdcm::network::ULConnection, [861](#)
- StorageCommitmentPullModelSOPClassRetired
 - gdcm::UIDs, [812](#)
- StorageCommitmentPullModelSOPInstanceRetired
 - gdcm::UIDs, [812](#)
- StorageCommitmentPushModelSOPClass
 - gdcm::UIDs, [812](#)
- StorageCommitmentPushModelSOPInstance
 - gdcm::UIDs, [812](#)
- StorageServiceClass
 - gdcm::UIDs, [812](#)
- StoredPrintStorageSOPClassRetired
 - gdcm::UIDs, [813](#)
- StrCaseCmp
 - gdcm::System, [768](#)
- StrNCaseCmp
 - gdcm::System, [768](#)
- StrSep
 - gdcm::System, [768](#)
- StrTokR
 - gdcm::System, [768](#)
- Stream
 - gdcm::Writer, [973](#)
- StreamImageReader
 - gdcm::Reader, [646](#)
 - gdcm::StreamImageReader, [722](#)
- StreamImageWriter
 - gdcm::StreamImageWriter, [727](#)
 - gdcm::Writer, [973](#)
- StrictScanner
 - gdcm::StrictScanner, [733](#)
- String
 - gdcm::String, [738](#), [739](#)
- StringFilter
 - gdcm::StringFilter, [741](#)
- StructureSetDate
 - vtkRTStructSetProperties, [965](#)
- StructureSetLabel
 - vtkRTStructSetProperties, [965](#)
- StructureSetName
 - vtkRTStructSetProperties, [965](#)
- StructureSetTime
 - vtkRTStructSetProperties, [965](#)
- Study
 - gdcm::Study, [743](#)
- StudyComponentManagementSOPClass
 - gdcm::MediaStorage, [487](#)
- StudyComponentManagementSOPClassRetired
 - gdcm::UIDs, [812](#)
- StudyInstanceUID
 - vtkRTStructSetProperties, [965](#)
- StudyRootQueryRetrieveInformationModelFIND
 - gdcm::UIDs, [815](#)
- StudyRootQueryRetrieveInformationModelGET
 - gdcm::UIDs, [815](#)
- StudyRootQueryRetrieveInformationModelMOVE
 - gdcm::UIDs, [815](#)
- Subject
 - gdcm::Subject, [745](#)
- SubstanceAdministrationLoggingSOPClass
 - gdcm::UIDs, [812](#)
- SubstanceAdministrationLoggingSOPInstance
 - gdcm::UIDs, [812](#)
- SubstanceApprovalQuerySOPClass
 - gdcm::UIDs, [816](#)
- Superclass
 - gdcm::AnonymizeEvent, [94](#)
 - gdcm::DataEvent, [245](#)
 - gdcm::DataSetEvent, [255](#)
 - gdcm::FileNameEvent, [352](#)
 - gdcm::LO, [470](#)
 - gdcm::ProgressEvent, [622](#)
- Surface
 - gdcm::Surface, [749](#)
- SurfaceCount
 - gdcm::Segment, [670](#)
- SurfaceReader
 - gdcm::SurfaceReader, [758](#)
- SurfaceSegmentationStorage
 - gdcm::MediaStorage, [488](#)
 - gdcm::UIDs, [817](#)

- SurfaceVector
 - gdcm::Segment, [668](#)
- SurfaceWriter
 - gdcm::SurfaceWriter, [760](#)
- Surfaces
 - gdcm::Segment, [670](#)
- Swap
 - gdcm::ByteSwap, [172](#)
 - gdcm::SwapperDoOp, [763](#)
 - gdcm::SwapperNoOp, [763](#)
- SwapArray
 - gdcm::SwapperDoOp, [763](#)
 - gdcm::SwapperNoOp, [763](#)
- SwapCode
 - gdcm::SwapCode, [762](#)
- SwapCodeType
 - gdcm::SwapCode, [761](#)
- SwapFromSwapCodeIntoSystem
 - gdcm::ByteSwap, [172](#)
- SwapRange
 - gdcm::ByteSwap, [172](#)
- SwapRangeFromSwapCodeIntoSystem
 - gdcm::ByteSwap, [172](#)
- SyngoDTField
 - gdcm::CSAElement, [218](#)
- SyntaxError
 - gdcm::Parser, [561](#)
- SystemIsBigEndian
 - gdcm::ByteSwap, [172](#)
- SystemIsLittleEndian
 - gdcm::ByteSwap, [172](#)
- T1
 - gdcm::Type, [801](#)
- T1C
 - gdcm::Type, [801](#)
- T2
 - gdcm::Type, [801](#)
- T2C
 - gdcm::Type, [801](#)
- T3
 - gdcm::Type, [801](#)
- TConstMemberFunctionPointer
 - gdcm::MemberCommand, [493](#)
- TMComp
 - gdcm, [61](#)
- TMemberFunctionPointer
 - gdcm::MemberCommand, [493](#)
 - gdcm::SimpleMemberCommand, [703](#)
- TRIANGLE_FAN
 - gdcm::MeshPrimitive, [497](#)
- TRIANGLE_STRIP
 - gdcm::MeshPrimitive, [497](#)
- TRIANGLE
 - gdcm::MeshPrimitive, [497](#)
- TS_END
 - gdcm::TransferSyntax, [795](#)
- TSName
 - gdcm::UIDs, [810](#)
- TSType
 - gdcm::TransferSyntax, [794](#)
 - gdcm::UIDs, [817](#)
- TYPETOENCODING
 - gdcm, [69](#)
 - gdcmVR.h, [1248](#)
- TYPETOLENGTH
 - gdcmVM.h, [1246](#)
- Table
 - gdcm::Table, [769](#)
- Table16
 - vtkLookupTable16, [959](#)
- TableEntry
 - gdcm::TableEntry, [770](#)
- TableReader
 - gdcm::TableReader, [772](#)
- TableRow
 - gdcm::network::TableRow, [773](#)
- Tag
 - gdcm::Tag, [776](#)
- tag
 - gdcm::Tag, [781](#)
- TagField
 - gdcm::DataElement, [242](#)
- TagMismatchError
 - gdcm::Parser, [561](#)
- TagPath
 - gdcm::TagPath, [782](#)
- TagToValue
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [732](#)
- TagToValueValueType
 - gdcm::Scanner, [662](#)
 - gdcm::StrictScanner, [732](#)
- tags
 - gdcm::Tag, [781](#)
- TalairachBrainAtlasFrameofReference
 - gdcm::UIDs, [811](#)
- TestAbortOff
 - gdcm::SimpleSubjectWatcher, [706](#)
- TestAbortOn
 - gdcm::SimpleSubjectWatcher, [706](#)
- TestPBKDF2
 - gdcm::ASN1, [111](#)
- Testing
 - gdcm::Testing, [785](#)
- TestsList.txt, [1254](#)
- TextSRStorageTrialRetired
 - gdcm::UIDs, [814](#)

- ThreadedExecute
 - vtkImageRGBToYBR, [955](#)
 - vtkImageYBRToRGB, [957](#)
- ThreadedRequestData
 - vtkGDCMThreadedImageReader2, [938](#)
 - vtkImageMapToColors16, [949](#)
 - vtkImageMapToWindowLevelColors2, [951](#)
- TM
 - gdcm::VR, [898](#)
- to_string
 - gdcm, [69](#)
- ToPyObject
 - gdcm::PythonFilter, [626](#)
- ToString
 - gdcm::StringFilter, [741](#), [742](#)
- ToStringPair
 - gdcm::StringFilter, [742](#)
- ToUnixSlashes
 - gdcm::Filename, [349](#)
- ToWindowsSlashes
 - gdcm::Filename, [350](#)
- ToshibaPrivateDataStorage
 - gdcm::MediaStorage, [488](#)
- Trace
 - gdcm::Trace, [790](#)
- TransferSyntax
 - gdcm::TransferSyntax, [795](#)
- TransferSyntaxArrayType
 - gdcm::PresentationContext, [603](#)
- TransferSyntaxStringsType
 - gdcm::UIDs, [810](#)
- TransferSyntaxSub
 - gdcm::network::TransferSyntaxSub, [798](#)
- TransferSyntaxes
 - gdcm::PresentationContext, [604](#)
- Transition
 - gdcm::network::Transition, [799](#), [800](#)
- transitions
 - gdcm::network::TableRow, [774](#)
- Trim
 - gdcm::String, [739](#)
- TrimInternal
 - gdcm::CodeString, [198](#)
- Truncate
 - gdcm::String, [739](#)
- TryJPEG2000Codec
 - gdcm::Bitmap, [163](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
- TryJPEG2000Codec2
 - gdcm::Bitmap, [164](#)
- TryJPEGCodec
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
- TryJPEGCodec2
 - gdcm::Bitmap, [164](#)
- TryJPEGLSCodec
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
- TryKAKADUCodec
 - gdcm::Bitmap, [164](#)
- TryPVRGCodec
 - gdcm::Bitmap, [164](#)
- TryRAWCodec
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
- TryRLECodec
 - gdcm::Bitmap, [164](#)
 - gdcm::ImageChangeTransferSyntax, [396](#)
- TS
 - gdcm::Bitmap, [164](#)
- Type
 - gdcm::Element, [292](#)
 - gdcm::Element< TVR, VM::VM1_n >, [296](#)
 - gdcm::Type, [802](#)
 - gdcm::VL, [890](#)
- TypeType
 - gdcm::Type, [801](#)
- UIComp
 - gdcm, [61](#)
- UIDGenerator
 - gdcm::UIDGenerator, [804](#)
- UINT12
 - gdcm::PixelFormat, [582](#)
- UINT16
 - gdcm::PixelFormat, [582](#)
- UINT32
 - gdcm::PixelFormat, [582](#)
- UINT64
 - gdcm::PixelFormat, [582](#)
- UINT8
 - gdcm::PixelFormat, [582](#)
- ULAction
 - gdcm::network::ULAction, [827](#)
- ULActionAE6
 - gdcm::network::ULConnection, [861](#)
- ULBasicCallback
 - gdcm::network::ULBasicCallback, [858](#)
- ULConnection
 - gdcm::network::ULConnection, [860](#)
- ULConnectionCallback
 - gdcm::network::ULConnectionCallback, [862](#)
- ULConnectionInfo
 - gdcm::network::ULConnectionInfo, [864](#)
- ULConnectionManager
 - gdcm::network::ULConnection, [861](#)
 - gdcm::network::ULConnectionManager, [867](#)
- ULEvent

- gdcm::network::ULEvent, [869](#)
- ULTransitionTable
 - gdcm::network::ULTransitionTable, [870](#)
- ULWritingCallback
 - gdcm::network::ULWritingCallback, [872](#)
- UNKNOWN
 - gdcm::CSAHeader, [220](#)
 - gdcm::LookupTable, [473](#)
 - gdcm::Orientation, [550](#)
 - gdcm::PhotometricInterpretation, [578](#)
 - gdcm::PixelFormat, [582](#)
 - gdcm::Spacing, [717](#)
 - gdcm::Surface, [749](#)
 - gdcm::Type, [801](#)
- URI
 - gdcm::MediaStorage, [488](#)
- US_SS_OW
 - gdcm::VR, [898](#)
- US_SS
 - gdcm::VR, [898](#)
- UTComp
 - gdcm, [61](#)
- UI
 - gdcm::VR, [898](#)
- uid_1_2_840_10008_15_0_3_1
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_10
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_11
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_12
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_13
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_14
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_15
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_16
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_17
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_18
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_19
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_2
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_20
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_21
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_22
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_23
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_24
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_25
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_26
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_27
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_28
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_29
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_3
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_30
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_31
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_3_4
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_5
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_6
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_7
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_8
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_15_0_3_9
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_1
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_2
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_3
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_4
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_5
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_6
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_7
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_15_0_4_8
 - gdcm::UIDs, [823](#)
- uid_1_2_840_10008_1_1
 - gdcm::UIDs, [817](#)
- uid_1_2_840_10008_1_2
 - gdcm::UIDs, [817](#)
- uid_1_2_840_10008_1_20_1
 - gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_20_1_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_20_2
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_20_2_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_1
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_1_99
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_2
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_100
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_4_101
gdcm::UIDs, [823](#)

uid_1_2_840_10008_1_2_4_102
gdcm::UIDs, [823](#)

uid_1_2_840_10008_1_2_4_103
gdcm::UIDs, [823](#)

uid_1_2_840_10008_1_2_4_50
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_51
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_52
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_53
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_54
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_55
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_56
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_57
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_58
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_59
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_60
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_61
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_62
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_63
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_64
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_65
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_66
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_70
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_80
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_81
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_90
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_91
gdcm::UIDs, [817](#)

uid_1_2_840_10008_1_2_4_92
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_4_93
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_4_94
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_4_95
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_5
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_6_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_2_6_2
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_3_10
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_40
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_40_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_42
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_42_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_10
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_11
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_12
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_13
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_14
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_15
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_16
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_17
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_18
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_2
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_3
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_4
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_5
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_6
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_7
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_8
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_1_9
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_2_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_4_2_2
gdcm::UIDs, [818](#)

uid_1_2_840_10008_1_9
gdcm::UIDs, [818](#)

uid_1_2_840_10008_2_16_4
gdcm::UIDs, [818](#)

uid_1_2_840_10008_2_6_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_3_1_1_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_3_1_2_1_1
gdcm::UIDs, [818](#)

uid_1_2_840_10008_3_1_2_1_4
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_2_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_3_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_3_2
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_3_3
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_3_4
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_3_5
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_5_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_5_4
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_5_5
gdcm::UIDs, [819](#)

uid_1_2_840_10008_3_1_2_6_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_4_2
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_14
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_15
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_16
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_16_376
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_17
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_17_376
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_18
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_18_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_2
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_22
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_23
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_24
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_24_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_25
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_26
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_27
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_29
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_30
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_31
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_32
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_33
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_4
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_4_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_4_2
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_9
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_1_9_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_4_1_1_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_4_1_1_10
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_104_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_104_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_11
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_11_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_11_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_11_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_11_4
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_128
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_129
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_12_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_12_1_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_12_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_12_2_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_12_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_13_1_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_13_1_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_13_1_3
gdcm::UIDs, [823](#)

uid_1_2_840_10008_5_1_4_1_1_1_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_4_1_1_1_1_1
gdcm::UIDs, [819](#)

uid_1_2_840_10008_5_1_4_1_1_1_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_1_2_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_1_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_1_3_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_20
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_2_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_3_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_3_1_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_3_1_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_3_1_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_4
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_5
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_6
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_7
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_481_8
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_1_481_9
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_1_4_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_4_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_5
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_6
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_66
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_66_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_66_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_66_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_66_4
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_66_5
gdcm::UIDs, [823](#)

uid_1_2_840_10008_5_1_4_1_1_67
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_6_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_6_2
gdcm::UIDs, [823](#)

uid_1_2_840_10008_5_1_4_1_1_7
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_77_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_1_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_2_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_4
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_4_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_5_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_5_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_5_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_5_4
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_77_1_6
gdcm::UIDs, [823](#)

uid_1_2_840_10008_5_1_4_1_1_77_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_7_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_7_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_7_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_7_4
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_8
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_88_1
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_11
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_2
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_22
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_3
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_33
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_4
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_40
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_50
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_59
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_65
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_88_67
gdcm::UIDs, [821](#)

uid_1_2_840_10008_5_1_4_1_1_9
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_1_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_1_2
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_1_3
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_2_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_3_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_1_9_4_1
gdcm::UIDs, [820](#)

uid_1_2_840_10008_5_1_4_1_2_1_1
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_1_2
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_1_3
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_2_1
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_2_2
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_2_3
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_3_1
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_3_2
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_1_2_3_3
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_31
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_32
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_32_1
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_32_2
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_32_3
gdcm::UIDs, [822](#)

uid_1_2_840_10008_5_1_4_33
gdcm::UIDs, [822](#)

- uid_1_2_840_10008_5_1_4_34_1
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_2
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_3
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_4
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_1
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_2
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_3
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_4_4
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_34_5
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_37_1
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_37_2
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_37_3
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_38_1
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_38_2
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_38_3
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_41
 - gdcm::UIDs, [822](#)
- uid_1_2_840_10008_5_1_4_42
 - gdcm::UIDs, [822](#)
- UL
 - gdcm::VR, [898](#)
- UltrasoundImageStorage
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- UltrasoundImageStorageRetired
 - gdcm::MediaStorage, [486](#)
 - gdcm::UIDs, [813](#)
- UltrasoundMultiFrameImageStorage
 - gdcm::MediaStorage, [486](#)
- UltrasoundMultiFrameImageStorageRetired
 - gdcm::MediaStorage, [486](#)
- UltrasoundMultiframeImageStorage
 - gdcm::UIDs, [813](#)
- UltrasoundMultiframeImageStorageRetired
 - gdcm::UIDs, [813](#)
- UN
 - gdcm::VR, [898](#)
- UnInstallPipeline
 - vtkImageColorViewer, [945](#)
- UnRegister
 - gdcm::Object, [541](#)
- UndefinedEntityError
 - gdcm::Parser, [561](#)
- underline
 - gdcm::terminal, [77](#)
- UnexpectedStateError
 - gdcm::Parser, [561](#)
- UnifiedProcedureStepEventSOPClass
 - gdcm::UIDs, [815](#)
- UnifiedProcedureStepPullSOPClass
 - gdcm::UIDs, [815](#)
- UnifiedProcedureStepPushSOPClass
 - gdcm::UIDs, [815](#)
- UnifiedProcedureStepWatchSOPClass
 - gdcm::UIDs, [815](#)
- UnifiedWorklistandProcedureStepSOPInstance
 - gdcm::UIDs, [816](#)
- UnifiedWorklistandProcedureStepServiceClass
 - gdcm::UIDs, [815](#)
- Unknown
 - gdcm::SwapCode, [761](#)
 - gdcm::TransferSyntax, [794](#)
- Unpack
 - gdcm::Unpacker12Bits, [877](#)
- Update
 - gdcm::Curve, [233](#)
 - gdcm::Overlay, [557](#)
- UpdateDisplayExtent
 - vtkImageColorViewer, [945](#)
- UpdateOrientation
 - vtkImageColorViewer, [945](#)
- UpdatePosition
 - gdcm::ByteBuffer, [171](#)
- US
 - gdcm::VR, [898](#)
- Usage
 - gdcm::Usage, [878](#)
- UsageType
 - gdcm::Usage, [878](#)
- UseDictAlways
 - gdcm::PythonFilter, [626](#)
 - gdcm::StringFilter, [742](#)
- UserInfoation
 - gdcm::network::UserInfoation, [881](#)
- UserOption
 - gdcm::Usage, [878](#)
- UserOrdering
 - gdcm::SerieHelper, [692](#)
- UT
 - gdcm::VR, [898](#)
- V
 - gdcm::Validate, [884](#)

VERBOSE_STYLE
 gdcm::Printer, [614](#)
 VERTEX
 gdcm::MeshPrimitive, [497](#)
 VIEWType
 gdcm::Surface, [749](#)
 VIEWType_END
 gdcm::Surface, [749](#)
 VL16
 gdcm::VR, [898](#)
 VL32
 gdcm::VR, [898](#)
 VLEndoscopicImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [814](#)
 VLImageStorageTrialRetired
 gdcm::UIDs, [814](#)
 VLMicroscopicImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [814](#)
 VLMultiframeImageStorageTrialRetired
 gdcm::UIDs, [814](#)
 VLPhotographicImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [814](#)
 VLSlideCoordinatesMicroscopicImageStorage
 gdcm::UIDs, [814](#)
 VLWholeSlideMicroscopyImageStorage
 gdcm::MediaStorage, [488](#)
 gdcm::UIDs, [817](#)
 VM0
 gdcm::VM, [893](#)
 VM1
 gdcm::VM, [893](#)
 VM10
 gdcm::VM, [893](#)
 VM12
 gdcm::VM, [893](#)
 VM16
 gdcm::VM, [893](#)
 VM18
 gdcm::VM, [893](#)
 VM1_2
 gdcm::VM, [894](#)
 VM1_3
 gdcm::VM, [894](#)
 VM1_32
 gdcm::VM, [894](#)
 VM1_4
 gdcm::VM, [894](#)
 VM1_5
 gdcm::VM, [894](#)
 VM1_8
 gdcm::VM, [894](#)
 VM1_99
 gdcm::VM, [894](#)
 VM1_n
 gdcm::VM, [894](#)
 VM2
 gdcm::VM, [893](#)
 VM24
 gdcm::VM, [894](#)
 VM256
 gdcm::VM, [894](#)
 VM28
 gdcm::VM, [894](#)
 VM2_2n
 gdcm::VM, [894](#)
 VM2_n
 gdcm::VM, [894](#)
 VM3
 gdcm::VM, [893](#)
 VM30_30n
 gdcm::VM, [894](#)
 VM32
 gdcm::VM, [894](#)
 VM35
 gdcm::VM, [894](#)
 VM3_3n
 gdcm::VM, [894](#)
 VM3_4
 gdcm::VM, [894](#)
 VM3_n
 gdcm::VM, [894](#)
 VM4
 gdcm::VM, [893](#)
 VM47_47n
 gdcm::VM, [894](#)
 VM4_4n
 gdcm::VM, [894](#)
 VM5
 gdcm::VM, [893](#)
 VM6
 gdcm::VM, [893](#)
 VM6_6n
 gdcm::VM, [894](#)
 VM7_7n
 gdcm::VM, [894](#)
 VM8
 gdcm::VM, [893](#)
 VM9
 gdcm::VM, [893](#)
 VM99
 gdcm::VM, [894](#)
 VM_END
 gdcm::VM, [894](#)
 VMType
 gdcm::Attribute, [115](#)

- gdcM::Attribute< Group, Element, TVR, VM::VM1 >, 120
- gdcM::VM, 893
- VOILUTBoxSOPClass
 - gdcM::UIDs, 813
- VR_END
 - gdcM::VR, 898
- VR_VM1
 - gdcM::VR, 898
- VRALL
 - gdcM::VR, 898
- VRASCII
 - gdcM::VR, 898
- VRBINARY
 - gdcM, 69
 - gdcM::VR, 898
- VRDS16ILLEGAL
 - gdcMElement.h, 1049
- VRField
 - gdcM::CSAElement, 218
 - gdcM::DataElement, 243
- VRType
 - gdcM::VR, 898
- VRTypeTemplateCase
 - gdcMVR.h, 1248
- VT100
 - gdcM::terminal, 77
- VTK_CMYK
 - vtkGDCMImageReader.h, 1255
 - vtkGDCMImageReader2.h, 1256
- VTK_INVERSE_LUMINANCE
 - vtkGDCMImageReader.h, 1255
 - vtkGDCMImageReader2.h, 1256
- VTK_LEGACY
 - vtkImageColorViewer, 945, 946
- VTK_LOOKUP_TABLE
 - vtkGDCMImageReader.h, 1255
 - vtkGDCMImageReader2.h, 1256
- VTK_YBR
 - vtkGDCMImageReader.h, 1255
 - vtkGDCMImageReader2.h, 1256
- Valid
 - gdcM::Preamble, 601
- ValidDataSet
 - gdcM::BaseQuery, 148
- Validate
 - gdcM::PixelFormat, 585
 - gdcM::Validate, 884
- ValidateQuery
 - gdcM::BaseQuery, 148
 - gdcM::BaseRootQuery, 151
 - gdcM::FindPatientRootQuery, 364
 - gdcM::FindStudyRootQuery, 367
- gdcM::ModalityPerformedProcedureStepCreate←Query, 501
- gdcM::ModalityPerformedProcedureStepSetQuery, 503
- gdcM::MovePatientRootQuery, 514
- gdcM::MoveStudyRootQuery, 516
- gdcM::WLMFindQuery, 968
- Validation
 - gdcM::Validate, 884
- Value
 - gdcM::Value, 885
- value
 - gdcM::STATIC_ASSERTION_FAILURE< true >, 721
 - gdcM::SerieHelper::Rule, 659
- value_type
 - gdcM::CodeString, 197
 - gdcM::LO, 470
 - gdcM::String, 738
- ValueField
 - gdcM::DataElement, 242
 - gdcM::PDBelement, 567
- ValueLengthField
 - gdcM::DataElement, 242
- ValueMultiplicityField
 - gdcM::CSAElement, 218
- ValuePtr
 - gdcM::DataElement, 237
- ValueType
 - gdcM::Scanner, 662
 - gdcM::StrictScanner, 733
- VerificationSOPClass
 - gdcM::UIDs, 810
- Verify
 - gdcM::Defs, 261
 - gdcM::Macro, 478
 - gdcM::Module, 507
- Version
 - gdcM::Version, 888
- Video
 - gdcM::MediaStorage, 488
- VideoEndoscopicImageStorage
 - gdcM::MediaStorage, 487
 - gdcM::UIDs, 814
- VideoMicroscopicImageStorage
 - gdcM::UIDs, 814
- VideoPhotographicImageStorage
 - gdcM::MediaStorage, 488
 - gdcM::UIDs, 814
- VL
 - gdcM::VL, 890
- VM
 - gdcM::VM, 894
- VR

- gdcmm::VR, 899
- vtkBooleanMacro
 - vtkGDCMImageReader, 908
 - vtkGDCMImageReader2, 914, 915
 - vtkGDCMImageWriter, 921
 - vtkGDCMThreadedImageReader, 935
 - vtkGDCMThreadedImageReader2, 938
 - vtkImageColorViewer, 946
 - vtkImageMapToColors16, 949
- vtkGDCMImageReader, 904
 - ~vtkGDCMImageReader, 907
 - ApplyInverseVideo, 910
 - ApplyLookupTable, 910
 - ApplyPlanarConfiguration, 910
 - ApplyShiftScale, 910
 - ApplyYBRToRGB, 910
 - CanReadFile, 907
 - Curve, 910
 - DirectionCosines, 910
 - ExecuteData, 907
 - ExecuteInformation, 907
 - FileNames, 910
 - FillMedicalImageInformation, 907
 - ForceRescale, 910
 - GetDescriptiveName, 907
 - GetFileExtensions, 907
 - GetIconImage, 907
 - GetOverlay, 907
 - IconDataScalarType, 910
 - IconImageDataExtent, 910
 - IconNumberOfScalarComponents, 910
 - ImageFormat, 910
 - ImageOrientationPatient, 910
 - ImagePositionPatient, 910
 - LoadIconImage, 910
 - LoadOverlays, 910
 - LoadSingleFile, 907
 - LossyFlag, 910
 - MedicalImageProperties, 910
 - New, 907
 - NumberOfIconImages, 910
 - NumberOfOverlays, 910
 - PlanarConfiguration, 910
 - PrintSelf, 907
 - RequestDataCompat, 908
 - RequestInformationCompat, 908
 - Scale, 910
 - SetCurve, 908
 - SetFileNames, 908
 - SetFilePattern, 908
 - SetFilePrefix, 908
 - SetMedicalImageProperties, 908
 - Shift, 910
 - vtkBooleanMacro, 908
 - vtkGDCMImageReader, 907
 - vtkGDCMMedicalImageProperties, 924
 - vtkGetMacro, 908, 909
 - vtkGetObjectMacro, 909
 - vtkGetStringMacro, 909
 - vtkGetVector3Macro, 909
 - vtkGetVector6Macro, 909
 - vtkSetMacro, 909
 - vtkSetVector6Macro, 909
 - vtkTypeMacro, 909
- vtkGDCMImageReader.h, 1254
 - VTK_CMYK, 1255
 - VTK_INVERSE_LUMINANCE, 1255
 - VTK_LOOKUP_TABLE, 1255
 - VTK_YBR, 1255
- vtkGDCMImageReader2, 911
 - ~vtkGDCMImageReader2, 913
 - ApplyInverseVideo, 916
 - ApplyLookupTable, 916
 - ApplyPlanarConfiguration, 916
 - ApplyShiftScale, 916
 - ApplyYBRToRGB, 916
 - CanReadFile, 913
 - Curve, 916
 - DirectionCosines, 916
 - FillMedicalImageInformation, 913
 - ForceRescale, 916
 - GetDescriptiveName, 913
 - GetFileExtensions, 913
 - GetIconImage, 914
 - GetIconImagePort, 914
 - GetOverlay, 914
 - GetOverlayPort, 914
 - IconDataScalarType, 916
 - IconImageDataExtent, 916
 - IconNumberOfScalarComponents, 916
 - ImageFormat, 916
 - ImageOrientationPatient, 916
 - ImagePositionPatient, 916
 - LoadIconImage, 916
 - LoadOverlays, 917
 - LoadSingleFile, 914
 - LossyFlag, 917
 - New, 914
 - NumberOfIconImages, 917
 - NumberOfOverlays, 917
 - PlanarConfiguration, 917
 - PrintSelf, 914
 - ProcessRequest, 914
 - RequestData, 914
 - RequestDataCompat, 914
 - RequestInformation, 914
 - RequestInformationCompat, 914
 - Scale, 917

- SetCurve, [914](#)
- SetFilePattern, [914](#)
- SetFilePrefix, [914](#)
- SetMedicalImageProperties, [914](#)
- Shift, [917](#)
- vtkBooleanMacro, [914](#), [915](#)
- vtkGDCMImageReader2, [913](#)
- vtkGDCMMedicalImageProperties, [924](#)
- vtkGetMacro, [915](#)
- vtkGetObjectMacro, [915](#)
- vtkGetStringMacro, [915](#)
- vtkGetVector3Macro, [915](#)
- vtkGetVector6Macro, [915](#)
- vtkSetMacro, [915](#), [916](#)
- vtkSetVector6Macro, [916](#)
- vtkTypeMacro, [916](#)
- vtkGDCMImageReader2.h, [1255](#)
 - VTK_CMYK, [1256](#)
 - VTK_INVERSE_LUMINANCE, [1256](#)
 - VTK_LOOKUP_TABLE, [1256](#)
 - VTK_YBR, [1256](#)
- vtkGDCMImageWriter, [917](#)
 - ~vtkGDCMImageWriter, [920](#)
 - CompressionTypes, [919](#)
 - GetDescriptiveName, [920](#)
 - GetFileExtensions, [920](#)
 - GetFileName, [920](#)
 - JPEG2000_COMPRESSION, [919](#)
 - JPEG_COMPRESSION, [919](#)
 - JPEGLS_COMPRESSION, [919](#)
 - NO_COMPRESSION, [919](#)
 - New, [920](#)
 - PrintSelf, [920](#)
 - RLE_COMPRESSION, [919](#)
 - SetDirectionCosines, [920](#)
 - SetDirectionCosinesFromImageOrientationPatient, [920](#)
 - SetFileNames, [920](#)
 - SetMedicalImageProperties, [920](#)
 - vtkBooleanMacro, [921](#)
 - vtkGDCMImageWriter, [920](#)
 - vtkGDCMMedicalImageProperties, [924](#)
 - vtkGetMacro, [921](#)
 - vtkGetObjectMacro, [921](#)
 - vtkGetStringMacro, [921](#)
 - vtkSetMacro, [921](#), [922](#)
 - vtkSetStringMacro, [922](#)
 - vtkTypeMacro, [922](#)
 - Write, [922](#)
 - WriteGDCMData, [922](#)
 - WriteSlice, [922](#)
- vtkGDCMImageWriter.h, [1256](#)
- vtkGDCMMedicalImageProperties, [922](#)
 - ~vtkGDCMMedicalImageProperties, [924](#)
- Clear, [924](#)
- GetFile, [924](#)
- New, [924](#)
- PrintSelf, [924](#)
- PushBackFile, [924](#)
- vtkGDCMImageReader, [924](#)
- vtkGDCMImageReader2, [924](#)
- vtkGDCMImageWriter, [924](#)
- vtkGDCMMedicalImageProperties, [924](#)
- vtkTypeMacro, [924](#)
- vtkGDCMMedicalImageProperties.h, [1257](#)
- vtkGDCMPolyDataReader, [925](#)
 - ~vtkGDCMPolyDataReader, [926](#)
 - FileName, [927](#)
 - FillMedicalImageInformation, [926](#)
 - MedicalImageProperties, [927](#)
 - New, [926](#)
 - PrintSelf, [926](#)
 - RTStructSetProperties, [927](#)
 - RequestData, [927](#)
 - RequestData_HemodynamicWaveformStorage, [927](#)
 - RequestData_RTStructureSetStorage, [927](#)
 - RequestInformation, [927](#)
 - RequestInformation_HemodynamicWaveformStorage, [927](#)
 - RequestInformation_RTStructureSetStorage, [927](#)
 - vtkGDCMPolyDataReader, [926](#)
 - vtkGetObjectMacro, [927](#)
 - vtkGetStringMacro, [927](#)
 - vtkSetStringMacro, [927](#)
 - vtkTypeMacro, [927](#)
- vtkGDCMPolyDataReader.h, [1257](#)
- vtkGDCMPolyDataWriter, [928](#)
 - ~vtkGDCMPolyDataWriter, [929](#)
 - InitializeRTStructSet, [929](#)
 - MedicalImageProperties, [930](#)
 - New, [929](#)
 - PrintSelf, [929](#)
 - RTStructSetProperties, [930](#)
 - SetMedicalImageProperties, [930](#)
 - SetNumberOfInputPorts, [930](#)
 - SetRTStructSetProperties, [930](#)
 - vtkGDCMPolyDataWriter, [929](#)
 - vtkTypeMacro, [930](#)
 - WriteData, [930](#)
 - WriteRTSTRUCTData, [930](#)
 - WriteRTSTRUCTInfo, [930](#)
- vtkGDCMPolyDataWriter.h, [1258](#)
- vtkGDCMTesting, [931](#)
 - ~vtkGDCMTesting, [932](#)
 - GetGDCMDataRoot, [932](#)
 - GetMD5MetaImage, [932](#)
 - GetMHDMD5FromFile, [932](#)
 - GetNumberOfMD5MetaImages, [932](#)

- GetRAWMD5FromFile, 933
- GetVTKDataRoot, 933
- MD5MetalImagesType, 932
- New, 933
- PrintSelf, 933
- vtkGDCMTesting, 932
- vtkTypeMacro, 933
- vtkGDCMTesting.h, 1259
- vtkGDCMThreadedImageReader, 933
 - ~vtkGDCMThreadedImageReader, 935
 - ExecuteData, 935
 - ExecuteInformation, 935
 - New, 935
 - PrintSelf, 935
 - ReadFiles, 935
 - RequestDataCompat, 935
 - vtkBooleanMacro, 935
 - vtkGDCMThreadedImageReader, 935
 - vtkGetMacro, 935
 - vtkSetMacro, 935
 - vtkTypeMacro, 935
- vtkGDCMThreadedImageReader.h, 1259
- vtkGDCMThreadedImageReader2, 936
 - ~vtkGDCMThreadedImageReader2, 937
 - GetFileName, 937
 - New, 937
 - PrintSelf, 938
 - RequestInformation, 938
 - SetFileName, 938
 - SetFileNames, 938
 - SplitExtent, 938
 - ThreadedRequestData, 938
 - vtkBooleanMacro, 938
 - vtkGDCMThreadedImageReader2, 937
 - vtkGetMacro, 938
 - vtkGetObjectMacro, 938
 - vtkGetVector3Macro, 938
 - vtkGetVector6Macro, 939
 - vtkSetMacro, 939
 - vtkSetVector3Macro, 939
 - vtkSetVector6Macro, 939
 - vtkTypeMacro, 939
- vtkGDCMThreadedImageReader2.h, 1260
- vtkGetMacro
 - vtkGDCMImageReader, 908, 909
 - vtkGDCMImageReader2, 915
 - vtkGDCMImageWriter, 921
 - vtkGDCMThreadedImageReader, 935
 - vtkGDCMThreadedImageReader2, 938
 - vtkImageColorViewer, 946
 - vtkImageMapToColors16, 949
 - vtkImageMapToWindowLevelColors2, 951
- vtkGetObjectMacro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 915
 - vtkGDCMImageWriter, 921
 - vtkGDCMPolyDataReader, 927
 - vtkGDCMThreadedImageReader2, 938
 - vtkImageColorViewer, 946
 - vtkImageMapToColors16, 949
- vtkGetStringMacro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 915
 - vtkGDCMImageWriter, 921
 - vtkGDCMPolyDataReader, 927
 - vtkRTStructSetProperties, 964
- vtkGetVector3Macro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 915
 - vtkGDCMThreadedImageReader2, 938
- vtkGetVector6Macro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 915
 - vtkGDCMThreadedImageReader2, 939
- vtkImageColorViewer, 940
 - ~vtkImageColorViewer, 943
 - AddInput, 943
 - AddInputConnection, 943
 - FirstRender, 946
 - GetColorLevel, 943
 - GetColorWindow, 943
 - GetInput, 943
 - GetOffScreenRendering, 943
 - GetOverlayVisibility, 943
 - GetPosition, 943
 - GetSize, 943
 - GetSliceMax, 943
 - GetSliceMin, 943
 - GetSliceRange, 943
 - GetWindowName, 943
 - ImageActor, 946
 - InstallPipeline, 943
 - Interactor, 946
 - InteractorStyle, 946
 - New, 943
 - OverlayImageActor, 946
 - PrintSelf, 943
 - Render, 944
 - RenderWindow, 946
 - Renderer, 946
 - SLICE_ORIENTATION_XY, 942
 - SLICE_ORIENTATION_XZ, 942
 - SLICE_ORIENTATION_YZ, 942
 - SetColorLevel, 944
 - SetColorWindow, 944
 - SetDisplayId, 944
 - SetInput, 944
 - SetInputConnection, 944

- SetOffScreenRendering, [944](#)
- SetOverlayVisibility, [944](#)
- SetParentId, [944](#)
- SetPosition, [944](#)
- SetRenderWindow, [944](#)
- SetRenderer, [944](#)
- SetSize, [944](#)
- SetSlice, [945](#)
- SetSliceOrientation, [945](#)
- SetSliceOrientationToXY, [945](#)
- SetSliceOrientationToXZ, [945](#)
- SetSliceOrientationToYZ, [945](#)
- SetWindowId, [945](#)
- SetupInteractor, [945](#)
- Slice, [946](#)
- SliceOrientation, [946](#)
- UnInstallPipeline, [945](#)
- UpdateDisplayExtent, [945](#)
- UpdateOrientation, [945](#)
- VTK_LEGACY, [945](#), [946](#)
- vtkBooleanMacro, [946](#)
- vtkGetMacro, [946](#)
- vtkGetObjectMacro, [946](#)
- vtkImageColorViewer, [943](#)
- vtkImageColorViewerCallback, [946](#)
- vtkTypeMacro, [946](#)
- WindowLevel, [946](#)
- vtkImageColorViewer.h, [1260](#)
- vtkImageColorViewerCallback
 - vtkImageColorViewer, [946](#)
- vtkImageMapToColors16, [947](#)
 - ~vtkImageMapToColors16, [948](#)
 - ActiveComponent, [949](#)
 - DataWasPassed, [949](#)
 - GetMTime, [948](#)
 - LookupTable, [949](#)
 - New, [948](#)
 - OutputFormat, [949](#)
 - PassAlphaToOutput, [949](#)
 - PrintSelf, [948](#)
 - RequestData, [948](#)
 - RequestInformation, [949](#)
 - SetLookupTable, [949](#)
 - SetOutputFormatToLuminance, [949](#)
 - SetOutputFormatToLuminanceAlpha, [949](#)
 - SetOutputFormatToRGBA, [949](#)
 - SetOutputFormatToRGB, [949](#)
 - ThreadedRequestData, [949](#)
 - vtkBooleanMacro, [949](#)
 - vtkGetMacro, [949](#)
 - vtkGetObjectMacro, [949](#)
 - vtkImageMapToColors16, [948](#)
 - vtkSetMacro, [949](#)
 - vtkTypeMacro, [949](#)
- vtkImageMapToColors16.h, [1261](#)
- vtkImageMapToWindowLevelColors2, [950](#)
 - ~vtkImageMapToWindowLevelColors2, [951](#)
 - Level, [952](#)
 - New, [951](#)
 - PrintSelf, [951](#)
 - RequestData, [951](#)
 - RequestInformation, [951](#)
 - ThreadedRequestData, [951](#)
 - vtkGetMacro, [951](#)
 - vtkImageMapToWindowLevelColors2, [951](#)
 - vtkSetMacro, [952](#)
 - vtkTypeMacro, [952](#)
 - Window, [952](#)
- vtkImageMapToWindowLevelColors2.h, [1261](#)
- vtkImagePlanarComponentsToComponents, [952](#)
 - ~vtkImagePlanarComponentsToComponents, [953](#)
 - New, [953](#)
 - PrintSelf, [953](#)
 - RequestData, [954](#)
 - vtkImagePlanarComponentsToComponents, [953](#)
 - vtkTypeMacro, [954](#)
- vtkImagePlanarComponentsToComponents.h, [1262](#)
- vtkImageRGBToYBR.h, [1262](#)
- vtkImageRGBToYBR, [954](#)
 - ~vtkImageRGBToYBR, [955](#)
 - New, [955](#)
 - PrintSelf, [955](#)
 - ThreadedExecute, [955](#)
 - vtkImageRGBToYBR, [955](#)
 - vtkTypeMacro, [955](#)
- vtkImageYBRToRGB.h, [1263](#)
- vtkImageYBRToRGB, [956](#)
 - ~vtkImageYBRToRGB, [957](#)
 - New, [957](#)
 - PrintSelf, [957](#)
 - ThreadedExecute, [957](#)
 - vtkImageYBRToRGB, [957](#)
 - vtkTypeMacro, [957](#)
- vtkLookupTable16, [957](#)
 - ~vtkLookupTable16, [959](#)
 - Build, [959](#)
 - GetPointer, [959](#)
 - MapScalarsThroughTable2, [959](#)
 - New, [959](#)
 - PrintSelf, [959](#)
 - SetNumberOfTableValues, [959](#)
 - Table16, [959](#)
 - vtkLookupTable16, [959](#)
 - vtkTypeMacro, [959](#)
 - WritePointer, [959](#)
- vtkLookupTable16.h, [1263](#)
- vtkRTStructSetProperties, [960](#)
 - ~vtkRTStructSetProperties, [962](#)

- AddContourReferencedFrameOfReference, 962
- AddReferencedFrameOfReference, 962
- AddStructureSetROIObservation, 962
- AddStructureSetROI, 962
- Clear, 962
- DeepCopy, 962
- GetContourReferencedFrameOfReferenceClassUID, 962
- GetContourReferencedFrameOfReferenceInstanceUID, 962
- GetNumberOfContourReferencedFrameOfReferences, 963
- GetNumberOfReferencedFrameOfReferences, 963
- GetNumberOfStructureSetROIs, 963
- GetReferencedFrameOfReferenceClassUID, 963
- GetReferencedFrameOfReferenceInstanceUID, 963
- GetStructureSetObservationNumber, 963
- GetStructureSetROIDescription, 963
- GetStructureSetROIGenerationAlgorithm, 963
- GetStructureSetROIName, 963
- GetStructureSetROINumber, 963
- GetStructureSetROIObservationLabel, 963
- GetStructureSetROIRefFrameRefUID, 963
- GetStructureSetRTROIInterpretedType, 963
- Internals, 964
- New, 963
- PrintSelf, 963
- ReferenceFrameOfReferenceUID, 965
- ReferenceSeriesInstanceUID, 965
- SOPInstanceUID, 965
- SeriesInstanceUID, 965
- StructureSetDate, 965
- StructureSetLabel, 965
- StructureSetName, 965
- StructureSetTime, 965
- StudyInstanceUID, 965
- vtkGetStringMacro, 964
- vtkRTStructSetProperties, 962
- vtkSetStringMacro, 964
- vtkTypeMacro, 964
- vtkRTStructSetProperties.h, 1264
- vtkSetMacro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 915, 916
 - vtkGDCMImageWriter, 921, 922
 - vtkGDCMThreadedImageReader, 935
 - vtkGDCMThreadedImageReader2, 939
 - vtkImageMapToColors16, 949
 - vtkImageMapToWindowLevelColors2, 952
- vtkSetStringMacro
 - vtkGDCMImageWriter, 922
 - vtkGDCMPolyDataReader, 927
 - vtkRTStructSetProperties, 964
- vtkSetVector3Macro
 - vtkGDCMThreadedImageReader2, 939
- vtkSetVector6Macro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 916
 - vtkGDCMThreadedImageReader2, 939
- vtkTypeMacro
 - vtkGDCMImageReader, 909
 - vtkGDCMImageReader2, 916
 - vtkGDCMImageWriter, 922
 - vtkGDCMMedicalImageProperties, 924
 - vtkGDCMPolyDataReader, 927
 - vtkGDCMPolyDataWriter, 930
 - vtkGDCMTesting, 933
 - vtkGDCMThreadedImageReader, 935
 - vtkGDCMThreadedImageReader2, 939
 - vtkImageColorViewer, 946
 - vtkImageMapToColors16, 949
 - vtkImageMapToWindowLevelColors2, 952
 - vtkImagePlanarComponentsToComponents, 954
 - vtkImageRGBToYBR, 955
 - vtkImageYBRToRGB, 957
 - vtkLookupTable16, 959
 - vtkRTStructSetProperties, 964
- WIREFRAME
 - gdcm::Surface, 749
- WLMFindQuery
 - gdcm::WLMFindQuery, 967
- WarningOff
 - gdcm::Trace, 791
- WarningOn
 - gdcm::Trace, 792
- Waveform
 - gdcm::MediaStorage, 488
 - gdcm::Waveform, 966
- WaveformStorageTrialRetired
 - gdcm::UIDs, 813
- what
 - gdcm::Exception, 318
- white
 - gdcm::terminal, 77
- Window
 - vtkImageMapToWindowLevelColors2, 952
- WindowLevel
 - vtkImageColorViewer, 946
- Write
 - gdcm::ByteValue, 178
 - gdcm::CSAHeader, 222
 - gdcm::CommandDataSet, 202
 - gdcm::DataElement, 242
 - gdcm::DataSet, 253
 - gdcm::Element, 293
 - gdcm::Element< TVR, VM::VM1_n >, 298

- gdcm::EncodingImplementation< VR::VRASCII >, 311
- gdcm::EncodingImplementation< VR::VRBINARY >, 312
- gdcm::ExplicitDataElement, 322
- gdcm::File, 328
- gdcm::FileAnonymizer, 331
- gdcm::FileMetaInformation, 347
- gdcm::Fragment, 370
- gdcm::ImageWriter, 423
- gdcm::ImplicitDataElement, 428
- gdcm::Item, 442
- gdcm::PGXCodec, 577
- gdcm::PNMCodec, 600
- gdcm::PixmapWriter, 597
- gdcm::Preamble, 601
- gdcm::SegmentWriter, 677
- gdcm::SequenceOfFragments, 682
- gdcm::SequenceOfItems, 689
- gdcm::StreamImageWriter, 728
- gdcm::SurfaceWriter, 760
- gdcm::Tag, 781
- gdcm::VRVLSize< 0 >, 903
- gdcm::VRVLSize< 1 >, 904
- gdcm::ValueIO, 887
- gdcm::VL, 890
- gdcm::VR, 900
- gdcm::Writer, 973
- gdcm::network::AAAbortPDU, 80
- gdcm::network::AAAssociateACPDU, 83
- gdcm::network::AAAssociateRJPDU, 85
- gdcm::network::AAAssociateRQPDU, 90
- gdcm::network::AReleaseRPPDU, 107
- gdcm::network::AReleaseRQPDU, 109
- gdcm::network::AbstractSyntax, 92
- gdcm::network::ApplicationContext, 103
- gdcm::network::AsynchronousOperationsWindow← Sub, 112
- gdcm::network::BasePDU, 145
- gdcm::network::ImplementationClassUIDSub, 424
- gdcm::network::ImplementationUIDSub, 425
- gdcm::network::ImplementationVersionNameSub, 426
- gdcm::network::MaximumLengthSub, 481
- gdcm::network::PDataTFPDU, 565
- gdcm::network::PresentationContextAC, 605
- gdcm::network::PresentationContextRQ, 610
- gdcm::network::PresentationDataValue, 612
- gdcm::network::RoleSelectionSub, 658
- gdcm::network::SOPClassExtendedNegociationSub, 710
- gdcm::network::ServiceClassApplicationInformation, 694
- gdcm::network::TransferSyntaxSub, 798
- gdcm::network::UserInformation, 882
- vtkGDCMImageWriter, 922
- Write16
 - gdcm::VL, 890
- WriteASCII
 - gdcm::Element< TVR, VM::VM1_n >, 298
- WriteBuffer
 - gdcm::ByteValue, 178
 - gdcm::SequenceOfFragments, 683
- WriteBufferAsRGBA
 - gdcm::LookupTable, 475
- WriteData
 - vtkGDCMPolyDataWriter, 930
- WriteFooter
 - gdcm::DictConverter, 271
- WriteGDCMData
 - vtkGDCMImageWriter, 922
- WriteHeader
 - gdcm::DictConverter, 271
- WriteHelpFile
 - gdcm::BaseQuery, 148
- WriteImageInformation
 - gdcm::StreamImageWriter, 728
- WriteImageSubregionRAW
 - gdcm::StreamImageWriter, 728
- WritePointer
 - vtkLookupTable16, 959
- WriteQuery
 - gdcm::BaseQuery, 148
- WriteRTSTRUCTData
 - vtkGDCMPolyDataWriter, 930
- WriteRTSTRUCTInfo
 - vtkGDCMPolyDataWriter, 930
- WriteRawHeader
 - gdcm::StreamImageWriter, 728
- WriteSlice
 - vtkGDCMImageWriter, 922
- Writer
 - gdcm::Writer, 972
- XMLDictReader
 - gdcm::XMLDictReader, 975
- XMLEncoding
 - gdcm::UIDs, 811
- XMLPrinter
 - gdcm::XMLPrinter, 977
- XMLPrivateDictReader
 - gdcm::XMLPrivateDictReader, 979
- XML
 - gdcm::Printer, 614
- XRay3DAngiographicImageStorage
 - gdcm::MediaStorage, 488
 - gdcm::UIDs, 814
- XRay3DCraniofacialImageStorage

- gdcm::UIDs, [814](#)
- XRayAngiographicBiPlaneImageStorageRetired
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- XRayAngiographicImageStorage
 - gdcm::MediaStorage, [487](#)
 - gdcm::UIDs, [814](#)
- XRayRadiationDoseSRStorage
 - gdcm::UIDs, [815](#)
- XRayRadiationDoseSR
 - gdcm::MediaStorage, [488](#)
- XRayRadiofluoroscopicImageStorage
 - gdcm::UIDs, [814](#)
- XRayRadiofluoroscopicImageStorage
 - gdcm::MediaStorage, [487](#)
- YBR2RGB
 - gdcm::ImageChangePhotometricInterpretation, [390](#)
- YBR_FULL_422
 - gdcm::PhotometricInterpretation, [578](#)
- YBR_FULL
 - gdcm::PhotometricInterpretation, [578](#)
- YBR_ICT
 - gdcm::PhotometricInterpretation, [578](#)
- YBR_PARTIAL_420
 - gdcm::PhotometricInterpretation, [578](#)
- YBR_PARTIAL_422
 - gdcm::PhotometricInterpretation, [578](#)
- YBR_RCT
 - gdcm::PhotometricInterpretation, [578](#)
- YES
 - gdcm::Surface, [749](#)
- yellow
 - gdcm::terminal, [77](#)
- ZEROED_OUT
 - gdcm::CSAHeader, [220](#)
- ZSpacing
 - gdcm::IPPSorter, [439](#)
- ZTolerance
 - gdcm::IPPSorter, [439](#)