GE Medical Systems

Technical Publications

Direction 5146235-100
Revision 3

Reporting Tool

DICOM CONFORMANCE STATEMENT

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REVISION HISTORY

REV	DATE	REASON FOR CHANGE
A	Jul 12, 2005	Initial revision
B	Sep 2, 2005	Review
C	Sep 7, 2005	After informal HII review
1	Sep 23, 2005	• Missing page numbers • Wrong reference for General Equipment Module in 5.1.
2	Jan 12, 2006	• Added sections SOP Classes and Implementation Identifying Information in AE SPECIFICATIONS. • Updated Image Pixel Module with RGB Secondary Capture Image related attributes. • Updated BASIC TEXT, ENHANCED and COMPREHENSIVE SR - INFORMATION MODULE DEFINITIONS.
3	Jan 19, 2006	• Updated SR Document General Module and SOP Common Module.

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1. INTRODUCTION

1.1 OVERVIEW

This DICOM Conformance Statement is divided into Sections as described below:

Section 1 (Introduction), which describes the overall structure, intent, and references for this Conformance Statement

Section 2 (Network Conformance Statement), which specifies the GEMS equipment compliance to the DICOM requirements for the implementation of Networking features.

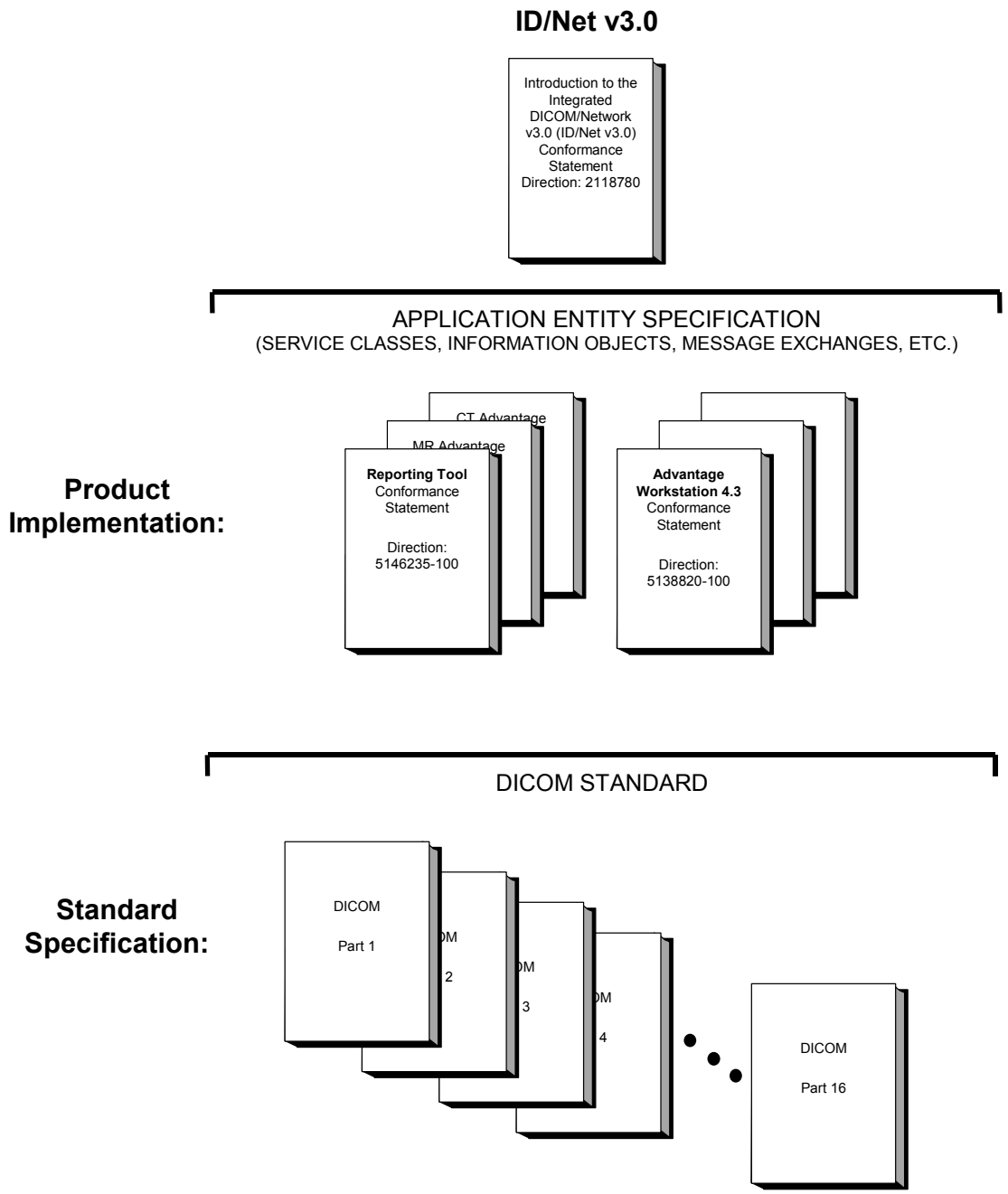
Section 3 (Media Storage Conformance Statement), which specifies the GEMS equipment compliance to the DICOM requirements for the implementation of Media Storage features.

Section 4 (Structured Report Document Information Object Implementation), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of a Structured Report Document Information Object.

Section 5 (Secondary Capture Information Object Implementation), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of a Secondary Capture Information Object.

1.2 OVERALL DICOM CONFORMANCE STATEMENT DOCUMENT STRUCTURE

The Documentation Structure of the GEMS Conformance Statements and their relationship with the DICOM v3.0 Conformance Statements is shown in the Illustration below.



This document specifies the DICOM implementation. It is entitled:

Reporting Tool
Conformance Statement for DICOM
Direction: ***5146235-100***

This DICOM Conformance Statement documents the DICOM Conformance Statement and Technical Specification required to interoperate with the GEMS network interface. Introductory information, which is applicable to all GEMS Conformance Statements, is described in the document:

Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0)
Conformance Statement
Direction: 2118780

This Introduction familiarizes the reader with DICOM terminology and general concepts. It should be read prior to reading the individual products' GEMS Conformance Statements.

The GEMS Conformance Statement, contained in this document, also specifies the Lower Layer communications, which it supports (e.g., TCP/IP). However, the Technical Specifications are defined in the DICOM Part 8 standard.

For more information including Network Architecture and basic DICOM concepts, please refer to the Introduction.

For more information regarding DICOM, copies of the Standard may be obtained on the Internet at http://medical.nema.org. Comments on the Standard may be addressed to:

DICOM Secretariat
NEMA
1300 N. 17th Street, Suite 1847
Rosslyn, VA 22209
USA
Phone: +1.703.841.3200

1.3 INTENDED AUDIENCE

The reader of this document is concerned with software design and/or system integration issues. It is assumed that the reader of this document is familiar with the DICOM Standard and with the terminology and concepts, which are used in that Standard.

If readers are unfamiliar with DICOM terminology they should first refer to the document listed below, then read the DICOM Standard itself, prior to reading this DICOM Conformance Statement document.

Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0)
Conformance Statement
Direction: 2118780

1.4 SCOPE AND FIELD OF APPLICATION

It is the intent of this document, in conjunction with the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*, to provide an unambiguous specification for GEMS implementations. This specification, called a Conformance Statement, includes a DICOM Conformance Statement and is necessary to ensure proper processing and interpretation of GEMS medical data exchanged using DICOM v3.0. The GEMS Conformance Statements are available to the public.

The reader of this DICOM Conformance Statement should be aware that different GEMS devices are capable of using different Information Object Definitions. For example, a GEMS CT Scanner may send images using the CT Information Object, MR Information Object, Secondary Capture Object, etc.

Included in this DICOM Conformance Statement are the Module Definitions, which define all data elements, used by this GEMS implementation. If the user encounters unspecified private data elements while parsing a GEMS Data Set, the user is well advised to ignore those data elements (per the DICOM standard). Unspecified private data element information is subject to change without notice. If, however, the device is acting as a "full fidelity storage device", it should retain and re-transmit all of the private data elements, which are sent by GEMS devices.

1.5 IMPORTANT REMARKS

The use of these DICOM Conformance Statements, in conjunction with the DICOM Standards, is intended to facilitate communication with GE imaging equipment. However, **by itself, it is not sufficient to ensure that inter-operation will be successful**. The **user (or user's agent)** needs to proceed with caution and address at least four issues:

- **Integration** - The integration of any device into an overall system of interconnected devices goes beyond the scope of standards (DICOM v3.0), and of this introduction and associated DICOM Conformance Statements when interoperability with non-GE equipment is desired. The responsibility to analyze the applications requirements and to design a solution that integrates GE imaging equipment with non–GE systems is the **user's** responsibility and should not be underestimated. The **user** is strongly advised to ensure that such an integration analysis is correctly performed.
- **Validation** - Testing the complete range of possible interactions between any GE device and non–GE devices, before the connection is declared operational, should not be overlooked. Therefore, the **user** should ensure that any non–GE provider accepts full responsibility for all validation required for their connection with GE devices. This includes the accuracy of the image data once it has crossed the interface between the GE imaging equipment and the non–GE device and the stability of the image data for the intended applications.

  Such a validation is required before any clinical use (diagnosis and/or treatment) is performed. It applies when images acquired on GE imaging equipment are processed/displayed on a non-GE device, as well as when images acquired on non-GE equipment is processed/displayed on a GE console or workstation.

- **Future Evolution** - GE understands that the DICOM Standard will evolve to meet the user's growing requirements. GE is actively involved in the development of the DICOM Standard. DICOM will incorporate new features and technologies and GE may follow the evolution of the Standard. The GEMS protocol is based on DICOM as specified in each DICOM Conformance Statement. Evolution of the Standard may require changes to devices, which have implemented DICOM. **In addition, GE reserves the right to discontinue or make changes to the support of communications features (on its products) described by these DICOM Conformance Statements**. The **user** should ensure that any non–GE provider, which connects with GE devices, also plans for the future evolution of the DICOM Standard. Failure to do so will likely result in the loss of function and/or connectivity as the DICOM Standard changes and GE Products are enhanced to support these changes.
- **Interaction** - It is the sole responsibility of the **non–GE provider** to ensure that communication with the interfaced equipment does not cause degradation of GE imaging equipment performance and/or function.

1.6 REFERENCES

A list of references, which is applicable, to all GEMS Conformance Statements is included in the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*.

The Secondary Capture image implementation refers to:

- DICOM PS3.3-2004: Information Object Definitions

The Structured Report Document implementation refers to:

- DICOM PS3.3-2004: Information Object Definitions
- DICOM PS 3.16-2004: Content Mapping Resource

1.7 DEFINITIONS

A set of definitions which is applicable to all GEMS Conformance Statements is included in *the Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780.*

A list of definitions can also be found in the references.

1.8 SYMBOLS AND ABBREVIATIONS

A list of symbols and abbreviations which is applicable to all GEMS Conformance Statements is included in the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780.*

A list of symbols and abbreviations can also be found in the references.

2. NETWORK CONFORMANCE STATEMENT

2.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the **Reporting Tool** compliance to DICOM requirements for **Networking** features.

Reporting Tool is a DICOM Structured Report (SR) rendering and editing application designed to run on Advantage Workstation 4.3 (a Networked Medical Imaging Console). It doesn't have own Networking features these are inherited from Advantage Workstation 4.3.

For a complete description of the Networking features conformance refer to *Advantage Workstation 4.3 Conformance Statement for DICOM Direction 5138820-100.*

Note that the format of this section strictly follows the format defined in DICOM Standard PS 3.2 (Conformance). Please refer to that part of the standard while reading this section.

2.2 IMPLEMENTATION MODEL

Refer to *Advantage Workstation 4.3 Conformance Statement for DICOM Direction 5138820-100.*

2.3 AE SPECIFICATIONS

2.3.1 Reporting Tool

Reporting Tool creates new SR instances when:

- an existing report is modified and saved
- a patient questionnaire is filled out and saved.

Reporting Tool creates Secondary Capture (SC) Image Storage instances from the pages of a PDF report generated from a SR.

2.3.1.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Class(es):

TABLE 2.3-1
SOP CLASS(ES) FOR REPORTING TOOL

SOP Class Name	SOP Class UID	SCU	SCP
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes

Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes

2.3.1.2 Association Policies

2.3.1.2.1 Implementation Identifying Information

TABLE 2.3-2
DICOM IMPLEMENTATION CLASS AND VERSION FOR REPORTING TOOL

Implementation Class UID	1.2.840.113619.6.211
Implementation Version Name	RPT_<software version>

2.3.1.3 Association Initiation Policy

2.3.1.3.1 Presentation Context Table

TABLE 2.3-3
PRESENTATION CONTEXTS FOR REPORTING TOOL

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

2.4 COMMUNICATION PROFILES

Refer to *Advantage Workstation 4.3 Conformance Statement for DICOM Direction 5138820-100.*

2.5 SUPPORT OF EXTENDED CHARACTER SETS

Refer to *Advantage Workstation 4.3 Conformance Statement for DICOM Direction 5138820-100.*

2.6 CODES AND CONTROLLED TERMINOLOGY

2.6.1 Standard coding scheme designators

This implementation makes use of the following standard coding scheme designators:

- **DCM**: DICOM Controlled Terminology; DICOM PS 3.16-2004: Content Mapping Resource, Annex D
- **SRT**: SNOMED-RT (Referenced Terminology)
- **SNM3**: SNOMED Version 3
- **UCUM**: Unified Code for Units of Measure

2.6.2 Private coding scheme designators

This implementation makes use of the following private coding scheme designators:

- **99GEMS**

2.7 SECURITY PROFILES

The product does not conform to any defined DICOM Security Profiles.

It is assumed that the product is used within a secured environment. It is assumed that a secured environment includes at a minimum:

1. Firewall or router protections to ensure that only approved external hosts have network access to the product.
2. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.
3. Any communications with external hosts and services outside the locally secured environment use appropriate secure network channels (such as a Virtual Private Network (VPN))

3. MEDIA STORAGE CONFORMANCE STATEMENT

3.1 INTRODUCTION

This section of the DICOM conformance statement specifies the **Reporting Tool** compliance to DICOM requirements for **Media Interchange**. It details the DICOM Media Storage Application Profiles and roles, which are supported by this product.

Reporting Tool is a DICOM Structured Report (SR) rendering and editing application designed to run on Advantage Workstation 4.3 (a Networked Medical Imaging Console). It doesn't have own Media Interchange implementation it is inherited from Advantage Workstation 4.3.

For a complete description of the Media Interchange conformance refer to *Advantage Workstation 4.3 Conformance Statement for DICOM Direction 5138820-100.*

Note that the format of this section strictly follows the format defined in DICOM Standard PS 3.2 (Conformance). Please refer to that part of the standard while reading this section.

4. SECONDARY CAPTURE INFORMATION OBJECT IMPLEMENTATION

Reporting Tool creates Secondary Capture (SC) Image Storage instances from the pages of a PDF report generated from a SR.

4.1 IOD MODULE TABLE

The Secondary Capture Information Object Definition comprises the modules of the following table, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 4.3.

TABLE 4.1-1
SC IMAGE IOD MODULES

Information Entity	Module Name	Usage	Reference
Patient	Patient	Used	4.2.1
	Clinical Trial Subject	Not used	N/A
Study	General Study	Used	4.2.2
	Patient Study	Not used	N/A
	Clinical Trial Study	Not used	N/A
Series	General Series	Used	4.2.3
	Clinical Trial Series	Not used	N/A
Equipment	General Equipment	Used	4.2.4
	SC Equipment	Used	4.2.5
Image	General Image	Used	4.2.6
	Image Pixel	Used	4.2.7
	SC Image	Used	4.2.8
	Overlay Plane	Not used	N/A
	Modality LUT	Not used	N/A
	VOI LUT	Not used	N/A
	SOP Common	Used	4.2.9

4.2 INFORMATION MODULE DEFINITIONS

Please refer to DICOM v3.0 Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the SC Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from. It should be noted that they are the same ones as defined in the DICOM v3.0 Standard Part 3 (Information Object Definitions).

4.2.1 Patient Module

TABLE 4.2-1
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Copied from source header.
Patient ID	(0010,0020)	2	Copied from source header.
Patient's Birth Date	(0010,0030)	2	Copied from source header.
Patient's Sex	(0010,0040)	2	Copied from source header. Enumerated Values: M = male F = female O = other

4.2.2 General Study Module

TABLE 4.2-2
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Copied from source header.
Study Date	(0008,0020)	2	Copied from source header.
Study Time	(0008,0030)	2	Copied from source header.
Referring Physician's Name	(0008,0090)	2	Copied from source header.
Study ID	(0020,0010)	2	Copied from source header.
Accession Number	(0008,0050)	2	Copied from source header.

4.2.3 General Series Module

TABLE 4.2-3
GENERAL SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Copied from source header. Enumerated Value: SR = SR Document
Series Instance UID	(0020,000E)	1	Generated with format `1.2.840.113619.2.211.id` where `id` is a unique identifier of the instance with station information and timestamp.
Series Number	(0020,0011)	2	Copied from source header.

4.2.4 General Equipment Module

TABLE 4.2-4
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	"GE MEDICAL SYSTEMS"
Institution Name	(0008,0080)	3	Copied from source header.
Manufacturer's Model Name	(0008,1090)	3	Reporting Tool
Software Versions	(0018,1020)	3	Current software version.

4.2.5 SC Equipment Module

TABLE 4.2-5
SC EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Conversion Type	(0008,0064)	1	SYN = Synthetic Image
Modality	(0008,0060)	3	Copied from source header. Enumerated Value: SR = SR Document
Secondary Capture Device Manufacturer	(0018,1016)	3	"GE MEDICAL SYSTEMS"

4.2.6 General Image Module

TABLE 4.2-6
GENERAL IMAGE MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	2	Generated.
Content Date	(0008,0023)	2C	Current date of creation.
Content Time	(0008,0033)	2C	Current time of creation.
Image Type	(0008,0008)	3	DERIVED\SECONDARY
Burned In Annotation	(0028,0301)	2	NO

4.2.7 Image Pixel Module

TABLE 4.2-7
IMAGE PIXEL MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
Samples per Pixel	(0028,0002)	1	1 – for MONOCHROME2 3 – for RGB
Photometric Interpretation	(0028,0004)	1	MONOCHROME2 – when Samples per Pixel (0028,0002) has value 1 RGB – when Samples per Pixel (0028,0002) has value 3
Rows	(0028,0010)	1	Depends on PDF paper size and conversion resolution. E.g. with 72 dpi resolution: • 842 for A4 (210x297 mm) • 792 for Letter (8.5x11 in)
Columns	(0028,0011)	1	Depends on PDF paper size and conversion resolution. E.g. with 72 dpi resolution: • 595 for A4 (210x297 mm) • 612 for Letter (8.5x11 in)
Bits Allocated	(0028,0100)	1	8
Bits Stored	(0028,0101)	1	8
High Bit	(0028,0102)	1	7
Pixel Representation	(0028,0103)	1	000H
Pixel Data	(7FE0,0010)	1	Derived from BMP generated from a PDF page.
Planar Configuration	(0028,0006)	1C	0 if Samples per Pixel (0028,0002) has a value greater than 1. Not present otherwise.

4.2.8 SC Image Module

TABLE 4.2-8
SC IMAGE MODULE ATTRIBUTES

Attribute Name	Tag	Type	Use
Date of Secondary Capture	(0018,1012)	3	Current date of creation.
Time of Secondary Capture	(0018,1014)	3	Current time of creation.

4.2.9 SOP Common Module

TABLE 4.2-9
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Enumerated Values: 1.2.840.10008.5.1.4.1.1.7
SOP Instance UID	(0008,0018)	1	Generated with format `1.2.840.113619.2.211.id` where `id` is a unique identifier of the instance with station information and timestamp.
Specific Character Set	(0008,0005)	1C	Copied from source header if it contains non-empty value.
Instance Number	(0020,0013)	3	Generated.

4.3 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

Not used.

4.4 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

5. BASIC TEXT, ENHANCED, AND COMPREHENSIVE STRUCTURED REPORT INFORMATION OBJECT IMPLEMENTATION

Reporting Tool creates new SR instances when:

- an existing report is modified and saved
- a patient questionnaire is filled out and saved.

5.1 IOD MODULE TABLE

The **Basic Text**, **Enhanced**, and **Comprehensive** Structured Report Information Object Definitions comprise the modules of the following tables, plus Standard Extended and Private attributes. SR specific modules are described in Section 5.2. Standard Extended and Private attributes are described in Section 5.3.

The contents of the SR Document Content are constrained by the supported template, as identified in Section 5.2.7.1.2. Standard Extended and Private templates are further described in Section 5.5.

TABLE 5.1-1
BASIC TEXT, ENHANCED AND COMPREHENSIVE SR IOD MODULES

Information Entity	Module	Usage	Reference
Patient	Patient	Used	5.2.1
	Specimen Identification	Not used	N/A
	Clinical Trial Subject	Not used	N/A
Study	General Study	Used	5.2.2
	Patient Study	Used	5.2.3
	Clinical Trial Study	Not used	N/A
Series	SR Document Series	Used	5.2.4
	Clinical Trial Series	Not used	N/A
Equipment	General Equipment	Used	5.2.5
Document	SR Document General	Used	5.2.6
	SR Document Content	Used	5.2.7
	SOP Common	Used	5.2.8

5.2 BASIC TEXT, ENHANCED AND COMPREHENSIVE SR - INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the SR Information Objects.

Displaying of data elements is configurable i.e. they can be rendered in the report or stay hidden. The "Displayed" column in the following tables describe the elements Reporting Tool can display.

5.2.1 Patient Module

TABLE 5.2-1
PATIENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Patient's Name	(0010,0010)	2	Copied from source header.	Yes
Patient ID	(0010,0020)	2	Copied from source header.	Yes
Patient's Birth Date	(0010,0030)	2	Copied from source header.	Yes
Patient's Sex	(0010,0040)	2	Copied from source header. Enumerated Values: M = male F = female O = other	Yes
Patient's Birth Time	(0010,0032)	3	Copied from source header.	No
Ethnic Group	(0010,2160)	3	Copied from source header or entered by the user.	Yes
Patient Comments	(0010,4000)	3	Copied from source header.	No

5.2.2 General Study Module

TABLE 5.2-2
GENERAL STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Study Instance UID	(0020,000D)	1	Copied from source header.	No
Study Date	(0008,0020)	2	Copied from source header.	Yes
Study Time	(0008,0030)	2	Copied from source header.	Yes
Referring Physician's Name	(0008,0090)	2	Copied from source header or entered by the user.	Yes
Study ID	(0020,0010)	2	Copied from source header.	Yes
Accession Number	(0008,0050)	2	Copied from source header or entered by the user.	Yes
Study Description	(0008,1030)	3	Copied from source header or empty.	No

5.2.3 Patient Study Module

TABLE 5.2-3
PATIENT STUDY MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Patient's Age	(0010,1010)	3	Copied from source header or empty.	Yes
Patient's Size	(0010,1020)	3	Copied from source header or entered by the user.	Yes
Patient's Weight	(0010,1030)	3	Copied from source header or entered by the user.	Yes

Occupation	(0010,2180)	3	Copied from source header or empty.	No
Additional Patient's History	(0010,21B0)	3	Copied from source header or empty.	No

5.2.4 SR Document Series Module

TABLE 5.2-4
SR DOCUMENT SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Modality	(0008,0060)	1	Copied from source header. Enumerated Value: SR = SR Document	No
Series Instance UID	(0020,000E)	1	Copied from source header or generated if the SR is created from scratch with format `1.2.840.113619.2.211.id` where `id` is a unique identifier of the instance with station information and timestamp.	No
Series Number	(0020,0011)	1	Copied from source header or set to "1" if the SR is created from scratch.	No
Referenced Performed Procedure Step Sequence	(0008,1111)	2	Not used.	No

5.2.5 General Equipment Module

TABLE 5.2-5
GENERAL EQUIPMENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Manufacturer	(0008,0070)	2	Copied from source header or "GE MEDICAL SYSTEMS" if the SR is created from scratch.	No
Institution Name	(0008,0080)	3	Copied from source header or empty.	No
Institution Address	(0008,0081)	3	Copied from source header or empty.	No
Station Name	(0008,1010)	3	Copied from source header or empty.	No
Institutional Department Name	(0008,1040)	3	Copied from source header or empty.	No
Manufacturer's Model Name	(0008,1090)	3	Copied from source header or "Reporting Tool".	No
Device Serial Number	(0018,1000)	3	Copied from source header or empty.	No

5.2.6 SR Document General Module

TABLE 5.2-6
SR DOCUMENT GENERAL MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Instance Number	(0020,0013)	1	Copied from source header or set to "1" if the SR is created from scratch.	No
Completion Flag	(0040,A491)	1	Copied from source header or selected by the user. Enumerated Values: PARTIAL = Partial content. COMPLETE = Complete content.	Yes
Completion Flag Description	(0040,A492)	3	Copied from source header or empty.	No
Verification Flag	(0040,A493)	1	Copied from source header or selected by the user. Enumerated Values: UNVERIFIED = Not attested to. VERIFIED = Attested to by a Verifying Observer Name (0040,A075) who is accountable for its content.	Yes
Content Date	(0008,0023)	1	Current date of creation.	Yes
Content Time	(0008,0033)	1	Current time of creation.	Yes
Verifying Observer Sequence	(0040,A073)	1C		Yes
>Verifying Observer Name	(0040,A075)	1	Copied from source header or entered by the user.	Yes
>Verifying Observer Identification Code Sequence	(0040,A088)	2	Empty.	No
>Verifying Organization	(0040,A027)	1	Copied from source header or entered by the user.	Yes
>Verification DateTime	(0040,A030)	1	Current date and time of verification.	Yes
Predecessor Documents Sequence	(0040,A360)	1C	Reference to source SR when an existing report is amended. Not present if the SR is created from scratch.	Yes
>Study Instance UID	(0020,000D)	1	The Study Instance UID of the source SR.	No
>Referenced Series Sequence	(0008,1115)	1		No
>>Series Instance UID	(0020,000E)	1	The Series Instance UID of the source SR.	No
>>Retrieve AE Title	(0008,0054)	3	Empty.	No
>>Storage Media File-Set ID	(0088,0130)	3	Empty.	No
>>Storage Media File-Set UID	(0088,0140)	3	Empty.	No
>>Referenced SOP Sequence	(0008,1199)	1		No
>>>Referenced SOP Class UID	(0008,1150)	1	The SOP Class UID of the source SR.	No
>>>Referenced SOP Instance UID	(0008,1155)	1	The SOP Instance UID of the source SR	No
Identical Documents Sequence	(0040,A525)	1C	Copied from source header or not present if the SR is created from scratch.	No

Referenced Request Sequence	(0040,A370)	1C	Not present.	No
Performed Procedure Code Sequence	(0040,A372)	2	Copied from source header or empty if the SR is created from scratch.	No
Current Requested Procedure Evidence Sequence	(0040,A375)	1C	Copied from source header or not present if the SR is created from scratch.	No
Pertinent Other Evidence Sequence	(0040,A385)	1C	Copied from source header or not present if the SR is created from scratch.	No

5.2.7 SR Document Content Module

TABLE 5.2-7
SR DOCUMENT CONTENT MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Include Document Content Macro Table 5.2-8 with a Value Type (0040,A040) of CONTAINER.				
Include Document Relationship Macro Table 5.2-9.				

TABLE 5.2-8
DOCUMENT CONTENT MACRO ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Value Type	(0040,A040)	1	Copied from source header or CONTAINER if the SR is created from scratch. Defined Terms: TEXT NUM CODE DATETIME DATE TIME UIDREF PNAME COMPOSITE IMAGE WAVEFORM SCOORD TCOORD CONTAINER	No
Concept Name Code Sequence	(0040,A043)	1C	Conveys Document Title. Copied from source header or set to the triplet below for patient questionnaires created from scratch.	Yes

> Code Value	(0008,0100)	1C	Copied from source header or "PQ-100" for patient questionnaires created from scratch.	No
> Coding Scheme Designator	(0008,0102)	1C	Copied from source header or "99GEMS" for patient questionnaires created from scratch.	No
> Code Meaning	(0008,0104)	1C	Copied from source header or "Questionnaire" for patient questionnaires created from scratch.	Yes
Continuity of Content	(0040,A050)	1C	Copied from source header or "SEPARATE" if the SR is created from scratch. Enumerated Values: SEPARATE CONTINUOUS	No

TABLE 5.2-9
DOCUMENT RELATIONSHIP MACRO ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description	Displayed
Observation DateTime	(0040,A032)	1C	Copied from source header or current date and time.	No
Content Template Sequence	(0040,A504)	1C	Not present.	No
Content Sequence	(0040,A730)	1C	SR content, the sequence of top-level content items.	Yes
> Relationship Type	(0040,A010)	1	Copied from source header. Defined Terms: CONTAINS HAS PROPERTIES HAS OBS CONTEXT HAS ACQ CONTEXT INFERRED FROM SELECTED FROM HAS CONCEPT MOD	No
> Referenced Content Item Identifier	(0040,DB73)	1C	Not used. Note: Comprehensive SRs are displayed and editable but the references between the content items are not handled.	No

5.2.7.1 SR Document Content Descriptions

5.2.7.1.1 Value Type rendering and editing

Table 5.2-10 describes how the different content item types are rendered in a generic format and which one is editable. The generic layout is an indented display of the nested content items' recursive traversal.

Each content item's **Code Meaning** (0008,0104) in the corresponding Concept Name Code Sequence (0040,A043) is displayed together with the actual value itself.

Reference Value Types are not editable, which means that it's not possible to add, update or remove reference to an IMAGE, WAVEFORM, COMPOSITE or UIDREF content item.

TABLE 5.2-10
RENDERING AND EDITING BY VALUE TYPES

Value Type (0040,A040)	Rendering	Editable
TEXT	**Text Value** (0040,A160)	Yes
NUM	**Numeric Value** (0040,A30A) and **Code Value** (0008,0100) from Measurement Units Code Sequence (0040,08EA)	No
CODE	**Code Meaning** (0008,0104) of Concept Code Sequence (0040,A168)	No
DATETIME	**Date Time** (0040,A120) in YYYY-MM-DD, hh:mm:ss format	Yes
DATE	**Date** (0040,A121) in YYYY-MM-DD format	Yes
TIME	**Time** (0040,A122) in hh:mm:ss format	Yes
UIDREF	**UID** (0040,A124)	No
PNAME	**Person Name** (0040,A123) in name_prefix given_name_complex middle_name family_name_complex name_suffix format	No
COMPOSITE	Not rendered	N/A
IMAGE	JPEG image of the DICOM object identified by Referenced SOP Instance UID (0008,1155)	No
WAVEFORM	**Referenced SOP Instance UID** (0008,1155)	No
SCOORD	Not rendered	N/A
TCOORD	Not rendered	N/A
CONTAINER	Recursive rendering of child content items	N/A

5.2.7.1.2 Content Template

The product supports the following root Templates for SR SOP Instances created, processed, or displayed by the product.

TABLE 5.2-11
SR ROOT TEMPLATES

SOP Class	Template ID	Template Name	Use
Basic Text SR	Any		Display / Update
Enhanced SR	Any		Display / Update
Comprehensive SR	Any		Display / Update

5.2.8 SOP Common Module

TABLE 5.2-12
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Enumerated Values: 1.2.840.10008.5.1.4.1.1.88.11 1.2.840.10008.5.1.4.1.1.88.22 1.2.840.10008.5.1.4.1.1.88.33
SOP Instance UID	(0008,0018)	1	Generated with format `1.2.840.113619.2.211.id` where `id` is a unique identifier of the instance with station information and timestamp.
Specific Character Set	(0008,0005)	1C	Copied from source header or “ISO_IR 100”.
Instance Creation Date	(0008,0012)	3	Current date of creation.
Instance Creation Time	(0008,0013)	3	Current time of creation.
Instance Creator UID	(0008,0014)	3	Empty.

5.3 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

The Product supports the Standard and Private Attributes defined in the following sections in Standard Extended SR SOP Instances as Type 3 data elements.

5.3.1 Private Group GEMS_0039

TABLE 5.3-1
PRIVATE GROUP GEMS_0039

Attribute Name	Tag	VR	VM	Attribute Description and Use
Application specific data	(0039,1095)	LO	1	VV#<application_version>#<application_name>

Reporting Tool is expecting only (0039,1095).

This data is used to render the report in application specific format, which is different from the generic format described in 5.2.7.1.1.

5.4 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

Not used.

5.5 STANDARD EXTENDED AND PRIVATE TEMPLATES

Not used.