Canon

No. 2G985-119EN*A

DICOM CONFORMANCE STATEMENT

FOR

Vantage Galan 3T,
Vantage Centurian
(MRT-3020)

V12.0

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1 Overview

Vantage Galan 3T and Centurian are Magnetic Resonance Imaging and implements DICOM Workflow management, Storage, Query/Retrieve, Print and Media services.

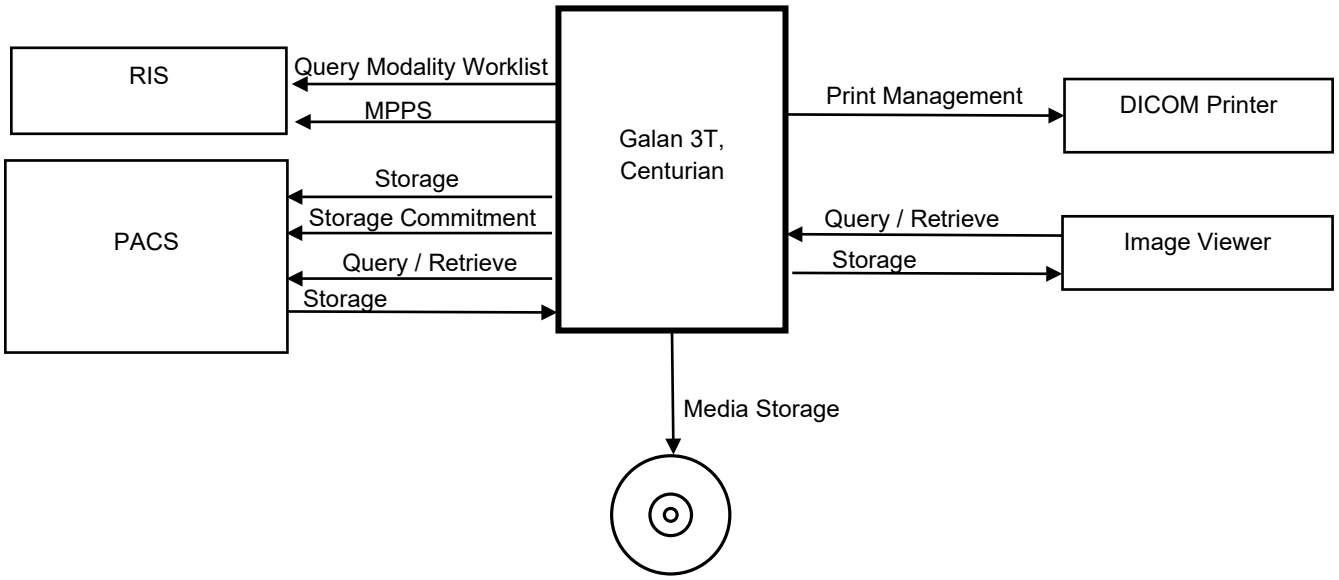

Figure 1-1 Overview of Implemented Services

1.1 Content and Transfer

Table 1-1 lists all Storage SOP Classes and the supported transfer mechanisms as well as the usage scenarios for those instances.

The "Transfer Syntax Set" column lists the sets of Transfer Syntaxes defined in Table 1-2 that are applicable to each SOP Class. The "DIMSE", "DICOM Web" and "Media Services" columns indicate the roles supported for each SOP Class.

The "Function" columns indicate how the instances are used by the system:

- Create: The system creates instances of the SOP Class. The type of the created SOP Class is indicated by one of the following abbreviations:
  - S: Standard SOP Class
  - SE: Standard Extended SOP Class
  - SP: Specialized SOP Class
  - P: Private SOP Class
- Display: The system displays the instances of the SOP Class to the user, either by displaying the SOP Instances natively or by applying instances of another suitable SOP Class to the image instances (e.g., a Presentation State or CAD SR).
- Process: The system processes the instances of the SOP Class to derive some further information that is made available to the user (e.g., a CAD processing algorithm, or a 3D Rendering).
- Archive: The system stores the instances of the SOP Class and makes them available again.

Table 1-1 Storage SOP Classes

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Media Storage Directory Storage	1.2.840.10008.1.3.10	LE	N	N	N	N	Y	Y	Y	SE	N	N	N
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	LE	Y	Y	N	N	Y	Y	Y	SE	Y	Y	N
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	LE	Y	N	N	N	Y	Y	Y	SE	Y	N	N
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	LE	Y	N	N	N	Y	Y	Y	SE	Y	N	N
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	LE	Y	Y	N	N	Y	Y	Y	SE	Y	N	N
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	LE	Y	N	N	N	N	N	N	SE	Y	N	N
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	LE	Y	Y	N	N	Y	Y	Y	N	Y	N	N
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	LE	Y	Y	N	N	Y	Y	Y	N	N	N	N
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	LE	Y	Y	N	N	Y	Y	Y	N	N	N	N

Table 1-2 Supported Transfer Syntaxes

Transfer Syntax Set	Transfer Syntax Name	Transfer Syntax UID	DICOM Web Service Bulkdata Media Type
Little Endian Transfer Syntax Set (**LE**)	Implicit VR Little Endian	1.2.840.10008.1.2	N/A
	Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A

1.1.1 Structured Reporting Root Template IDs - N/A

NA

1.2 DIMSE Services

1.2.1 Verification

Table 1-3 lists support for the Verification SOP Class.

Table 1-3 Verification SOP Class

SOP Classes		Transfer Syntax		SCU	SCP
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y

1.2.2 Storage

For details on supported Storage SOP Classes, see Section 1.1.

1.2.3 Workflow Management

Table 1-4 lists all supported Workflow Management SOP Classes.

Table 1-4 Workflow Management SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y

1.2.4 Query/Retrieve

Table 1-5 lists all supported Query/Retrieve SOP Classes.

Table 1-5 Query/Retrieve SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y*
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y*
Study Root Query/Retrieve - Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y*	Y*
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	Y*
Patient Root Query/Retrieve - Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y*
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y*
Study Root Query/Retrieve - Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	Y*	Y*
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y*	Y*

* Option

1.2.5 Printing

Table 1-6 lists all supported Printing SOP Classes.

Table 1-6 Printing SOP Classes

SOP Classes		Transfer Syntax		SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Film Session	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N

SOP Classes		Transfer Syntax		SCU	SCP
Basic Film Box	1.2.840.10008.5.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Printer	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N

1.3 DICOM Web Services - N/A

N/A

1.4 Media Services

Table 1-7 lists all supported Media Storage Application Profiles.

Table 1-7 Supported Media Application Profiles

Media Storage Application Profile	FSC	FSR	FSU
USB			
PRI-GEN-USB	Y	Y	Y
STD-GEN-USB-JPEG	Y	N	Y

1.5 Real Time Video Service - N/A

N/A

1.6 De-identification Profiles

Table 1-8 lists all supported de-identification profiles and options.

Table 1-8 De-Identification Profiles

Profile	Option
Basic Application Level Confidentiality	

1.7 Specific Character Sets

Table 1-9 Supported Specific Character Sets

Defined Term	IANA	Description
Single-Byte Character Sets without Code Extensions		
none	ISO-646 or US-ASCII	Default Repertoire
ISO_IR 100	ISO-8859-1	Latin Alphabet No.1 (West Europe)
ISO_IR 101	ISO-8859-2	Latin Alphabet No. 2 (Central Europe)
ISO_IR 144	ISO-8859-5	Cyrillic
ISO_IR 126	ISO-8859-7	Greek
ISO_IR 148	ISO-8859-9	Latin Alphabet No. 5 (Turkey)
Single-Byte Character Sets with Code Extension		
ISO 2022 IR 6	ISO-646 or US-ASCII	Default Repertoire
Multi-Byte Character Sets without Code Extensions		
GB18030	GB18030	GB18030-2022 Implementation Level 1
Multi-Byte Character Sets with Code Extensions		
ISO 2022 IR 87	ISO-2022-JP	JIS X 0208: Japanese Kanji

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3 Introduction

3.1 Revision History

Revision	Date	Product Version(s)	Change
	May. 2026	V12.0	Initial Version
A	Sep. 2026	V12.0	Deleted the description of optical media

3.2 Audience

This document is intended for the audience listed below. It is assumed that the reader has a working knowledge of the DICOM Standard.

The document structure was designed for easier access to relevant information for different user groups:

- Clinical Users, who want to get an overview of the implemented interoperability features of the system can see Section 4 Implementation Model.
- Personnel involved in Sales can use the information in Section 1 to assess the compatibility between different systems involved in a sales situation.
- System Integrators can use information in Section 6 during system installation and also information from Section 0 Service and Interoperability Description for details regarding the implemented services.
- Field Service Engineers can use the details from Section 0 Service and Interoperability Description and from Section 7 Network and Media Communication Details for troubleshooting.
- Hospital IT staff focusing on security can use the details provided in Section 8 Security regarding implemented Security features.
- Research Personnel may be interested in using information provided in Annex A Information Object Definitions (IODs) or Annex B Structured Report Content Encoding to get detailed imaging and measurement information.

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between Galan 3T, Centurian and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [1]. DICOM by itself does not guarantee interoperability.

- The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.
- This Conformance Statement should not replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, it is the user's responsibility to perform the following validation activities:
  - The comparison of Conformance Statements from Galan 3T, Centurian and other DICOM conformant equipment is the first step towards assessing interconnectivity and interoperability between those systems.
  - Test procedures should be defined and executed to validate the required level of interoperability with specific DICOM conformant equipment, as established by the healthcare facility.

Galan 3T, Centurian has participated in an industry-wide testing program sponsored by Integrating the Healthcare Enterprise (IHE). The IHE Integration Statement of Galan 3T, Centurian together with the IHE Technical Framework may facilitate the process of validation testing.

3.4 Terms and Definitions

The following list includes DICOM Terms, that are used throughout this Conformance Statement:

Abstract Syntax	The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.
Application Context	The specification of the type of communication used between Application Entities. Example: DICOM network protocol.
Association	A network communication channel set up between Application Entities.
Attribute	A unit of information in an Information Object Definition; a Data Element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower-level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).
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
Information Object Definition (IOD)	The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. Examples: MR Image IOD, CT Image IOD, Print Job IOD. The Attributes within an IOD may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).
Media Application Profile	The specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs).
Module	A set of Attributes within an Information Object Definition that are logically related to each other. Example: Patient Module includes Patient's Name, Patient ID, Patient' Birth Date, and Patient's Sex.
Negotiation	First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.
Origin Server	Refers to the program that can originate authoritative responses to HTTP requests for a given Target Resource. The term "server" refers to any implementation that receives a web service request message from a user agent.
Presentation Context	The set of DICOM Network Services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.
Private SOP Class	A SOP Class that is not defined in the DICOM Standard but is published in an implementation's Conformance Statement.
Security Profile	A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data.
Specialized SOP Class	A SOP Class that is derived from the Standard that is specialized by additional type 1, 1C, 2, 2C, or 3 Attributes, by enumeration of specific permitted Values for Attributes, or by enumeration of specific permitted Templates. The additional Attributes may either be drawn from the Data Dictionary in PS3.6 or may be Private Attributes.

Standard SOP Class	A SOP Class defined in the Standard, and that is implemented and used without any modifications.
Standard Extended SOP Class	A SOP Class that is defined in the standard, and that is extended by additional type 3 Attributes. The additional Attributes may either be drawn from the DICOM Data Dictionary in PS3.6 or may be Private Attributes.
Tag	A 32-bit identifier for a Data Element, represented as a pair of four-digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element].
Transfer Syntax	The encoding used for exchange of DICOM information objects and messages. Examples: JPEG compressed (images), Little Endian Explicit Value Representation.
TLS-Secured Port	TCP port on which an implementation accepts TLS connections to exchange DICOM information.
User Agent	A client in a network protocol used in communications within a client-server distributed computing system. In particular, the Hypertext Transfer Protocol (HTTP) identifies the client software originating the request, using a user-agent header, even when the client is not operated by a user.

3.5 Abbreviations

Abbreviations that are used in this DICOM Conformance Statement are listed here.

AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DHCP	Dynamic Host Configuration Protocol
DICOM	Digital Imaging and Communications in Medicine
ELE	Explicit VR Little Endian
FSC	File-Set Creator
FSU	File-Set Updater
FSR	File-Set Reader
IANA	Internet Assigned Numbers Authority
IHE	Integrating the Healthcare Enterprise
ILE	Implicit VR Little Endian
IOD	Information Object Definition
IPv6	Internet Protocol version 6
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
MWL	Modality Worklist

NEMA	National Electrical Manufacturers Association
NTP	Network Time Protocol
OS	Origin Server
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
PPS	Performed Procedure Step
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
RIS	Radiological Information System
RTV	Real-Time Video
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
TID	Template Identifier
UA	User Agent
UI	User Interface
UID	Unique Identifier
UL	Upper Layer
VR	Value Representation
WADO-URI	Web Access to DICOM Objects by URI

3.6 References

[1]National Electrical Manufacturers Association (NEMA), Rosslyn, VA USA. PS3 / ISO 12052 Digital Imaging and Communications in Medicine (DICOM) Standard. https://www.dicomstandard.org/ .

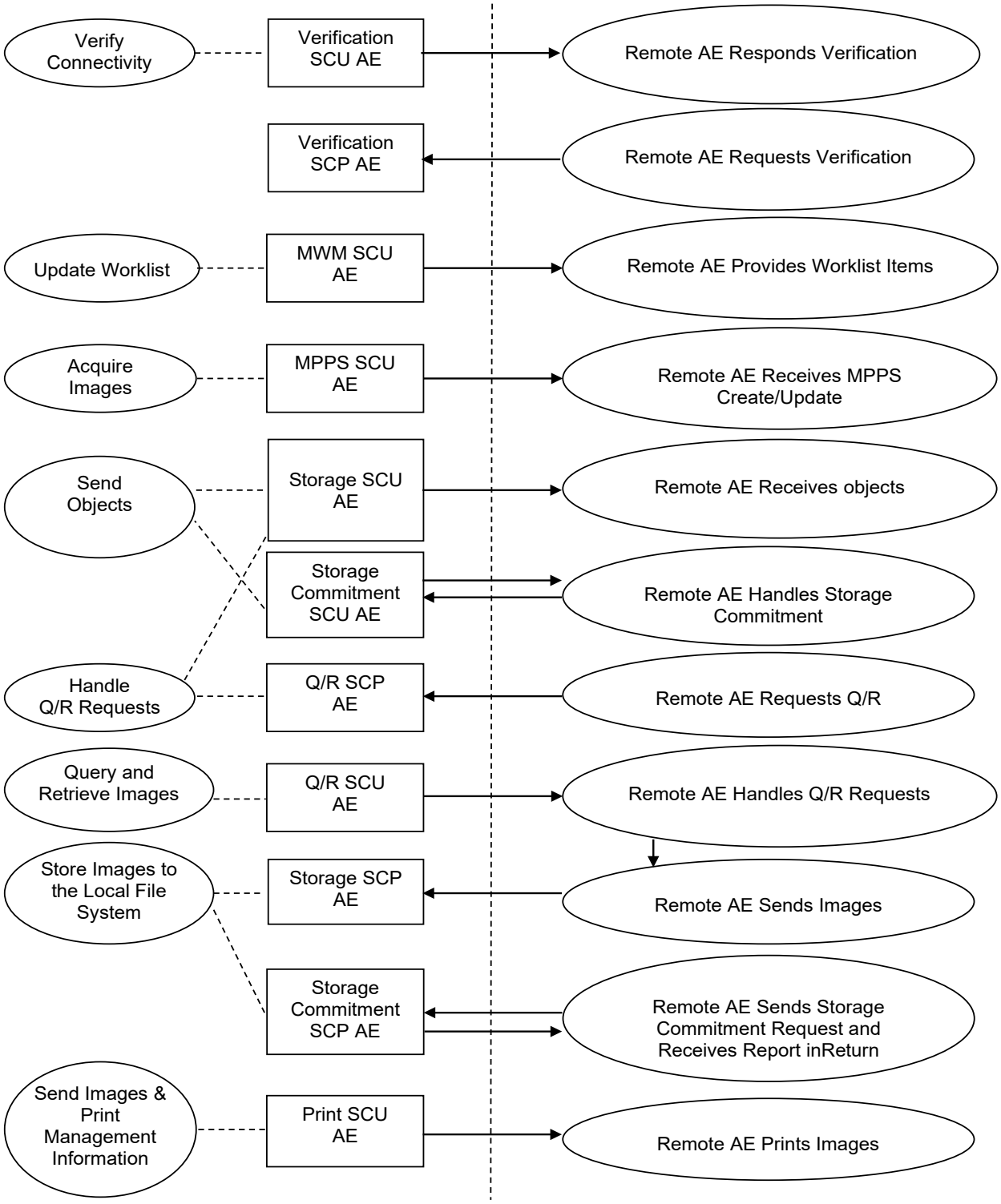
[2]Integrating the Healthcare Enterprise (IHE). IHE Radiology Technical Framework. https://www.ihe.net/Resources/technical_frameworks/#radiology .

4 Implementation Model

The Vantage series provides users with MRI diagnostic images and MRI examination operations. It acquires patient and examination information from a RIS equipped with modality worklist management functionality and captures images. At the start and end of an examination, it sends notifications to the RIS through the modality completion procedure steps.
Furthermore, its storage functionality transfers various images and reports to PACS and other systems. Images can also be transferred to USB drives. It can send images in response to image list requests from PACS and outsource data storage to PACS. Also, images can be exported to film via the Imager, which supports DICOM printing.

4.1 Application Entities and Data Flow

The network and media interchange application model for the Galan 3T, Centurian is shown in Figure 4-1 Galan 3T, Centurian Application Data Flow Diagram.



DICOM Standard Interface

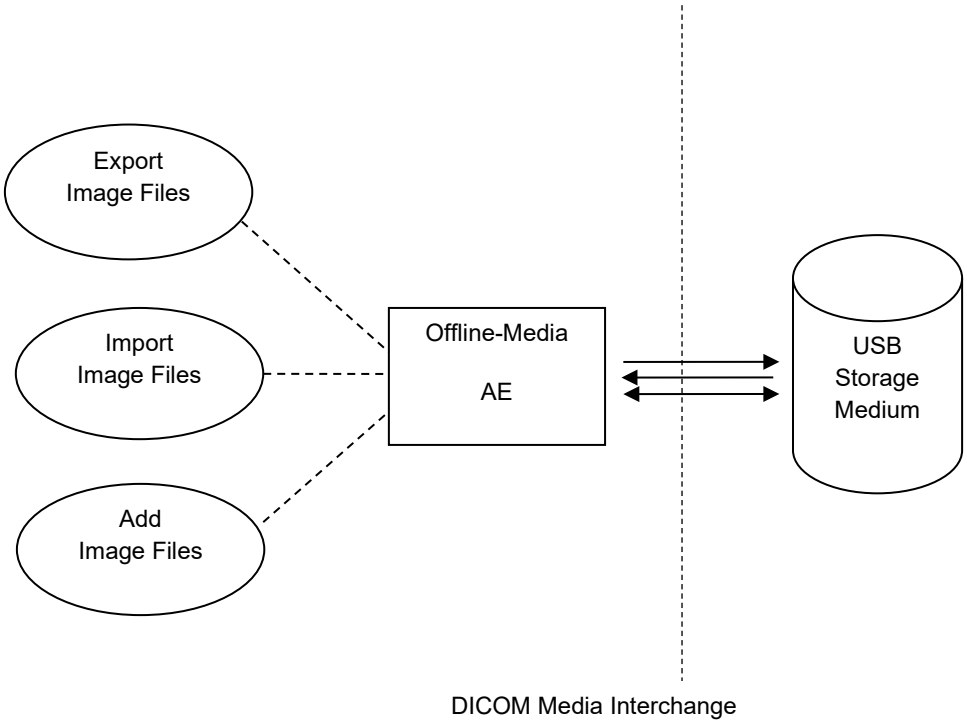


Figure 4-1 Galan 3T, Centurian Application Data Flow Diagram

This section describes the organization of the supported Services into Application Entities based on the default configuration of the system. This may change based on the actual setup at the customer site. See Section 6 for details about the configurability of Services into AEs.

4.1.1 Functional Definition of Verification SCU AE

The existence of a verification request with associated network destination will activate the Verification SCU AE. An Association request is sent to the destination AE and upon successful negotiation of a Presentation Context the verification is started. If the verification fails, the Verification SCU AE will show the error message.

4.1.2 Functional Definition of Verification SCP AE

The Verification SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. The Verification SCP AE will accept Associations with Presentation Contexts for SOP Classes of the Verification Service Classes.

4.1.3 Functional Definition of MWM SCU AE

The MWM SCU AE attempts to download a worklist from a remote node. If the MWM SCU AE establishes an Association to a remote AE, it will transfer patient's information and worklist items via the open Association. The results will be displayed in a separate list. The patient's information will be used for the patient registration.

4.1.4 Functional Definition of MPPS SCU AE

The MPPS SCU AE performs the creation of an MPPS Instance automatically whenever images are acquired. Further updates on the MPPS data can be performed automatically or interactively. If the remote AE is configured as an MPPSR SCP, the MPPS SCU AE can receive MPPSR information.

4.1.5 Functional Definition of Storage SCU AE

The existence of a send-job queue entry with associated network destination will activate the Storage SCU AE. An Association request is sent to the destination AE and upon successful negotiation of a Presentation Context the image, MR Spectroscopy data & GSPS transfer is started. If the image, MR Spectroscopy data & GSPS transfer fails, the Storage SCU AE will retry this send-job automatically. If the remote AE is configured as an archive device, the storage SCU AE will send a storage commitment request to the Storage Commitment SCU AE.

4.1.6 Functional Definition of Storage Commitment SCU AE

Receiving the storage commitment request from the Storage SCU AE, the Storage Commitment SCU AE will request Storage Commitment and if a commitment is successfully obtained will record this information in the local database.

4.1.7 Functional Definition of Q/R SCP AE

The Q/R SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. The Q/R SCP AE will accept Associations with Presentation Contexts for SOP Class of the Query/Retrieve Service Class. It will handle query and retrieve requests on these Presentation Contexts and respond with data objects with values corresponding to the contents of the local file system. When a retrieval request is received, the Q/R SCP AE issues a command to the Storage SCU AE to send the specified images to the destination.

4.1.8 Functional Definition of Q/R SCU AE

The Q/R SCU AE is activated when the user selects a remote node to query and enters some key information, Patient's Name, Patient ID and/or Study Date. The user can select studies, series and images to be retrieved. The images will be received at the Storage SCP AE.

4.1.9 Functional Definition of Storage SCP AE

The Storage SCP AE waits for another application to connect at the presentation address configured for its Application Entity Title. The Storage SCP AE will accept Associations with Presentation Contexts for SOP Classes of the Storage Service Classes. Any images received on such Presentation Contexts will be stored to the local file system.

4.1.10 Functional Definition of Storage Commitment SCP AE

If the Storage Commitment request is received then Storage Commitment SCP AE will immediately check if the referenced Composite SOP Instances are in the local database and return Report Notification.

4.1.11 Functional Definition of Print SCU AE

The existence of a print-job in the print queue will activate the Print SCU AE. An Association is established with the printer and the printer's status determined. If the printer is operating normally, the film sheets described within the print-job will be printed. If the printer is not operating normally, an error message will be displayed and this print-job can be canceled or restarted by the user operations.

4.1.12 Functional Definition of Offline-Media AE

The Offline-Media AE is performed upon user request for selected studies /series/images to/from an offline DICOM USB medium. It therefore performs the following tasks:

Export:

Builds DICOM Information Objects.

Creates a DICOMDIR file that represents the contents of the DICOM Information Objects to be recorded.

Records DICOM Information Objects and the DICOMDIR file to the USB medium.

Import:

Reads the DICOMDIR file that represents the contents of the data as recorded.

Displays the ordered list of studies/series/images, identifying information.

Loads the selected studies/series/images from the USB medium and displays them on the screen.

Add:

Reads a File-set of the USB medium and writes it to the local storage device.

Adds the studies/series/images to the File-Set, and then writes it to the medium.

Modifies the DICOMDIR file.

5 Service and Interoperability Description

5.1 Mapping of Services to Application Entities

Table 5-1 provides an overview of the Application Entities and the Services supported by each AE.

Table 5-1 Service to AE Mapping

Application Entity	Supported Services	Role								
		DIMSE		DICOM Web		DICOM Media			Real-Time Video	
		SCU	SCP	Origin Server	User Agent	FSC	FSU	FSR	SCU	SCP
Verification SCU	Verification	Y	N	N	N	N	N	N	N	N
Verification SCP	Verification	N	Y	N	N	N	N	N	N	N
MWM_AE	Basic Worklist Management	Y	N	N	N	N	N	N	N	N
	MPPS	Y	N	N	N	N	N	N	N	N
Storage SCU	Storage	Y	N	N	N	N	N	N	N	N
	Storage Commitment	Y	N	N	N	N	N	N	N	N
	Query/Retrieve	Y	N	N	N	N	N	N	N	N
Storage SCP	Storage	N	Y	N	N	N	N	N	N	N
	Storage Commitment	N	Y	N	N	N	N	N	N	N
	Query/Retrieve	N	Y	N	N	N	N	N	N	N
Print_AE	Print Management	Y	N	N	N	N	N	N	N	N
Offline-Media_AE	Media Storage	N	N	N	N	Y	Y	Y	N	N

5.2 DIMSE Services

5.2.1 Basic Worklist Management Service

5.2.1.1 SCU of the Modality Worklist Information Model - FIND SOP Class

As a Service Class User of the Modality Worklist Information Model - FIND SOP Class, the Galan 3T, Centurian uses the C-FIND-RQ message to query the SCP. It supports the Query Keys listed in Table 5-2.

In the "Matching Type" column, the following Values can be used:

- SINGLE_VALUE: SCU can request single Value matching on this Attribute.
- UID: SCU can request List of UID matching on this Attribute.
- WILDCARD: SCU can request Wildcard matching on this Attribute.
- RANGE: SCU can request Range matching on this Attribute.
- SEQUENCE: SCU can request sequence matching on this Attribute.
- UNIVERSAL: SCU can request that the Attribute be a return Value (universal matching).

In the "Query Value Source" column, the following Values can be used:

- FIXED: The query Value cannot be modified by the user or by configuration.
- GENERATED: The query Value is generated by the system (e.g., current date as the study date).
- CONFIGURATION: The query Value is dependent on system configuration.
- USER: The query Value is entered by the user.
- SCANNED: The query Value is read from a barcode scanner or similar device.
- EMPTY: The query Value is sent with a zero-length Value to indicate it is a return key only.

In the "Display on UI" column the following Values can be used:

- D: the return Value is displayed on the main UI by default.
- C: the return Value is displayed on the main UI if configured.
- N: the return Value is never displayed.

Table 5-2 Supported C-FIND Query Parameters for Modality Worklist - SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Scheduled Procedure Step						
Scheduled Procedure Step Sequence	(0040,0100)	SEQUENCE	EMPTY		N	
>Scheduled Station AE Title	(0040,0001)	SINGLE_VALUE; UNIVERSAL	CONFIGURATION; EMPTY	e.g. "MWMSCU_AE"	D	AE title of the system performing the query
>Scheduled Station Name	(0040,0010)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step Location	(0040,0011)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step Start date	(0040,0002)	SINGLE_VALUE; RANGE; UNIVERSAL	GENERATED	e.g. "20260326-20260411"	D	Current date and time minus 1 hour plus 24 hours ahead
>Scheduled Procedure Step Start Time	(0040,0003)	UNIVERSAL	EMPTY		D	Current date and time minus 1 hour plus 24 hours ahead
>Scheduled Procedure Step End date	(0040,0004)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step End Time	(0040,0005)	UNIVERSAL	EMPTY		N	
>Scheduled Performing Physician's Name	(0040,0006)	UNIVERSAL	EMPTY		D	
>Scheduled Procedure Step Description	(0040,0007)	UNIVERSAL	EMPTY		N	
>Scheduled Protocol Code Sequence	(0040,0008)	UNIVERSAL	EMPTY		N	
>>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step ID	(0040,0009)	UNIVERSAL	EMPTY		D	
>Scheduled Procedure Step Status	(0040,0020)	UNIVERSAL	EMPTY		N	
>Comments on Scheduled Procedure Step	(0040,0400)	UNIVERSAL	EMPTY		N	
>Modality	(0008,0060)	SINGLE_VALUE; UNIVERSAL	FIXED	e.g. "MR"	D	
>Requested Contrast Agent	(0032,1070)	UNIVERSAL	EMPTY		N	
>Pre-Medication	(0040,0012)	UNIVERSAL	EMPTY		N	
Requested Procedure						
Requested Procedure ID	(0040,1001)	SINGLE_VALUE; WILDCARD; UNIVERSAL	USER		D	
Reason for the Requested Procedure	(0040,1002)	UNIVERSAL	EMPTY		N	
Requested Procedure Comments	(0040,1400)	UNIVERSAL	EMPTY		N	
Requested Procedure Code Sequence	(0032,1064)	UNIVERSAL	EMPTY		N	
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Requested Procedure Description	(0032,1060)	UNIVERSAL	EMPTY		D	
Study Instance UID	(0020,000D)	UNIVERSAL	EMPTY		N	
Referenced Study Sequence	(0008,1110)		EMPTY		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Requested Procedure Priority	(0040,1003)	UNIVERSAL	EMPTY		N	
Patient Transport Arrangements	(0040,1004)	UNIVERSAL	EMPTY		N	
Requested Procedure Location	(0040,1005)	UNIVERSAL	EMPTY		N	
Confidentiality Code	(0040,1008)	UNIVERSAL	EMPTY		N	
Reporting Priority	(0040,1009)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Names of Intended Recipients of Results	(0040,1010)	UNIVERSAL	EMPTY		N	
Imaging Service Request						
Reason for the Imaging Service Request	(0040,2001)	UNIVERSAL	EMPTY		N	
Imaging Service Request Comments	(0040,2400)	UNIVERSAL	EMPTY		N	
Requesting Physician	(0032,1032)	UNIVERSAL	EMPTY		D	
Referring Physician's Name	(0008,0090)	UNIVERSAL	EMPTY		N	
Requesting Service	(0032,1033)	UNIVERSAL			N	
Accession Number	(0008,0050)	SINGLE VALUE; WILDCARD; UNIVERSAL	USER	e.g. “12345”	D	See Annex D for details
Issuer of Accession Number Sequence	(0008,0051)	UNIVERSAL	EMPTY		N	
>Local Namespace Entity ID	(0040,0031)	UNIVERSAL	EMPTY		D	
>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		D	
>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		D	
Issue Date of Imaging Service Request	(0040,2004)	UNIVERSAL	EMPTY		N	
Issue Time of Imaging Service Request	(0040,2005)	UNIVERSAL	EMPTY		N	
Order Entered By	(0040,2008)	UNIVERSAL	EMPTY		N	
Order Enterer's Location	(0040,2009)	UNIVERSAL	EMPTY		N	
Order Callback Phone Number	(0040,2010)	UNIVERSAL	EMPTY		N	
Placer Order Number	(0040,2016)	UNIVERSAL	EMPTY		N	
Filler Order Number	(0040,2017)	UNIVERSAL	EMPTY		N	
Confidentiality Constraint on Patient Data	(0040,3001)	UNIVERSAL	EMPTY		N	
Visit Relationship						
Referenced Patient Sequence	(0008,1120)	UNIVERSAL	EMPTY		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Visit Identification						
Institution Name	(0008,0080)	UNIVERSAL	EMPTY		N	
Institution Address	(0008,0081)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Institution Code Sequence	(0008,0082)	UNIVERSAL	EMPTY		N	
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Admission ID	(0038,0010)	UNIVERSAL	EMPTY		N	
Issuer of Admission ID	(0038,0011)	UNIVERSAL	EMPTY		N	
Visit Status						
Visit Status ID	(0038,0008)	UNIVERSAL	EMPTY		N	
Current Patient Location	(0038,0300)	UNIVERSAL	EMPTY		N	
Patient's Institution Residence	(0038,0400)	UNIVERSAL	EMPTY		N	
Visit Comments	(0038,4000)	UNIVERSAL	EMPTY		N	
Visit Admission						
Referring Physician's Address	(0008,0092)	UNIVERSAL	EMPTY		N	
Referring Physician's Telephone Number	(0008,0094)	UNIVERSAL	EMPTY		N	
Admitting Diagnosis Description	(0008,1080)	UNIVERSAL	EMPTY		N	
Admitting Diagnosis Code Sequence	(0008,1084)	UNIVERSAL	EMPTY		N	
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Route of Admissions	(0038,0016)	UNIVERSAL	EMPTY		N	
Admitting Date	(0038,0020)	UNIVERSAL	EMPTY		N	
Admitting Time	(0038,0021)	UNIVERSAL	EMPTY		N	
Patient Relationship						
Referenced Patient Alias Sequence	(0038,0004)	UNIVERSAL	EMPTY		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Patient Identification						
Patient's Name	(0010,0010)	WILDCARD; UNIVERSAL	USER	e.g. “LastNam	D	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
				e^FirstNam e”		
Patient ID	(0010,0020)	SINGLE_VALUE; UNIVERSAL	USER	e.g. “PatientID”	D	
Issuer of Patient ID	(0010,0021)	UNIVERSAL	EMPTY		D	
Issuer of Patient ID Qualifiers Sequence	(0010,0024)	UNIVERSAL	EMPTY		N	
>Universal Entity ID	(0040,0032)	UNIVERSAL	EMPTY		D	
>Universal Entity ID Type	(0040,0033)	UNIVERSAL	EMPTY		D	
>Identifier Type Code	(0040,0035)	UNIVERSAL	EMPTY		N	
Other Patient IDs	(0010,1000)	UNIVERSAL	EMPTY		D	
Other Patient Names	(0010,1001)	UNIVERSAL	EMPTY		N	
Patient's Birth Name	(0010,1005)	UNIVERSAL	EMPTY		N	
Patient's Mother's Birth Name	(0010,1060)	UNIVERSAL	EMPTY		N	
Medical Record Locator	(0010,1090)	UNIVERSAL	EMPTY		N	
Patient Demographics						
Patient's Age	(0010,1010)	UNIVERSAL	USER		D	
Occupation	(0010,2180)	UNIVERSAL	EMPTY		N	
Confidentiality Constraint on Patient Data Description	(0040,3001)	UNIVERSAL	EMPTY		N	
Patient's Birth Date	(0010,0030)	UNIVERSAL	USER		D	
Patient's Birth Time	(0010,0032)	UNIVERSAL	EMPTY		N	
Patient's Sex	(0010,0040)	UNIVERSAL	USER		D	
Patient's Insurance Plan Code Sequence	(0010,0050)	UNIVERSAL	EMPTY		N	
>Code Value	(0008,0100)	UNIVERSAL	EMPTY		N	
>Coding Scheme Designator	(0008,0102)	UNIVERSAL	EMPTY		N	
>Coding Scheme Version	(0008,0103)	UNIVERSAL	EMPTY		N	
>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
Patient's Size	(0010,1020)	UNIVERSAL	USER		D	
Patient's Weight	(0010,1030)	UNIVERSAL	USER		D	
Patient's Address	(0010,1040)	UNIVERSAL	EMPTY		N	
Military Rank	(0010,1080)	UNIVERSAL	EMPTY		N	
Branch of Service	(0010,1081)	UNIVERSAL	EMPTY		N	
Country Residence	(0010,2150)	UNIVERSAL	EMPTY		N	
Region of Residence	(0010,2152)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient's Telephone Numbers	(0010,2154)	UNIVERSAL	EMPTY		N	
Ethnic Group	(0010,2160)	UNIVERSAL	EMPTY		N	
Patient's Religious Reference	(0010,21f0)	UNIVERSAL	EMPTY		N	
Patient Comment	(0010,4000)	UNIVERSAL	USER		D	
Patient Medical						
Medical Alerts	(0010,2000)	UNIVERSAL	USER		D	
Allergies	(0010,2110)	UNIVERSAL	EMPTY		N	
Smoking Status	(0010,21A0)	UNIVERSAL	EMPTY		N	
Additional Patient History	(0010,21B0)	UNIVERSAL	EMPTY		N	
Pregnancy Status	(0010,21C0)	UNIVERSAL	USER		D	
Last Menstrual Date	(0010,21D0)	UNIVERSAL	EMPTY		N	
Special Needs	(0038,0050)	UNIVERSAL	EMPTY		N	
Patient State	(0038,0500)	UNIVERSAL	EMPTY		N	
Other Extended Attributes						
Study Description	(0008,1030)	UNIVERSAL	USER		D	
Institutional Department Name	(0008,1040)	UNIVERSAL	USER		D	
Performing Physician's Name	(0008,1050)	UNIVERSAL	USER		D	
Name of Physician(s) Reading Study	(0008,1060)	UNIVERSAL	USER		D	
Operators' Name	(0008,1070)	UNIVERSAL	USER		D	

This product issues C-FIND-CANCEL requests when initiated by user.

If the cancellation request is ignored by the SCP and the SCP continues sending responses, this product waits till receiving the C-FIND-RSP that status is Cancel or other, but does not display the received worklists.

5.2.1.2 SCP of the Modality Worklist Information Model - FIND SOP Class - N/A

N/A

5.2.2 Modality Performed Procedure Step Service

5.2.2.1 SCU of the Modality Performed Procedure Step SOP Class

As a Service Class User of the Modality Performed Procedure Step SOP Class, the Galan 3T, Centurian supports the Attributes listed in Table 5-3 in the N-CREATE-RQ and N-SET-RQ messages, if it creates the message.

In the "Source" column the following Values can be used:

- FIXED: the Value is pre-defined and cannot be modified.

- GENERATED: the Value is generated by the system.
- CONFIGURATION: the Value is copied from system configuration.
- MWL: the Value is copied from modality worklist entry.
- USER: the Value is entered by the user.
- SCANNED: the Value is read from a barcode scanner or similar device.
- EMPTY: The Attribute is sent with a zero-length Value

Table 5-3 Supported N-CREATE and N-SET Attributes for Modality Performed Procedure Step - SCU

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
Specific Character Set	(0008,0005)	CONFIGURATION	Created, if an extended or replacement character set is used. Refer to 1.7 Specific Character Sets	Created, if an extended or replacement character set is used. Refer to 1.7 Specific Character Sets	User configuratio n
Performed Procedure Step Relationship					
Scheduled Step Attribute Sequence	(0040,0270)	GENERATED			Always Set
>Study Instance UID	(0020,000D)	GENERATED; MWL	e.g. "1.2.392.200036.9116.4 .... "		
>Accession Number	(0008,0050)	MWL; USER; EMPTY	e.g. "AccessionNo"		
>Issuer of Accession Number Sequence	(0008,0051)	MWL			
>>Local Namespace Entity ID	(0040,0031)	MWL			
>>Universal Entity ID	(0040,0032)	MWL			
>>Universal Entity ID Type	(0040,0033)	MWL			
> Referenced Study Sequence	(0008,1110)	MWL			
>> Referenced SOP Class UID	(0008,1150)	MWL			
>> Referenced SOP Instance UID	(0008,1155)	MWL			
> Requested Procedure ID	(0040,1001)	MWL	e.g. "12345678"		
> Requested Procedure Description	(0032,1060)	MWL	e.g. "ProcedureDescription "		
> Scheduled Procedure Step ID	(0040,0009)	MWL	e.g. "12345678"		
> Scheduled Procedure Step Description	(0040,0007)	MWL	e.g. " Scheduled Procedure Step Description "		

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
> Scheduled Protocol Code Sequence	(0040,0008)	MWL			
>>Code Value	(0008,0100)	MWL			
>>Coding Scheme Designator	(0008,0102)	MWL			
>>Coding Scheme Version	(0008,0103)	MWL			
>>Code Meaning	(0008,0104)	MWL			
> Placer Order Number / Imaging Service Request	(0040,2016)	EMPTY			
> Filler Order Number / Imaging Service Request	(0040,2017)	EMPTY			
Patient's Name	(0010,0010)	MWL; USER	e.g. "LastName^FirstName "		
Patient ID	(0010,0020)	MWL; USER	e.g."PatientID "		
Issuer of Patient ID	(0010,0021)	MWL			
Issuer of Patient ID Qualifiers Sequence	(0010,0024)	MWL			
>Universal Entity ID	(0040,0032)	MWL			
>Universal Entity ID Type	(0040,0033)	MWL			
>Identifier Type Code	(0040,0035)	MWL			
Patient's Birth Date	(0010,0030)	MWL; USER	e.g. "19990401"		
Patient's Sex	(0010,0040)	MWL; USER	e.g. "M"		
Referenced Patient Sequence	(0008,1120)	EMPTY			
> Referenced SOP Class UID	(0008,1150)	MWL			
> Referenced SOP Instance UID	(0008,1155)	MWL			
Performed Procedure Step Information					
Performed Procedure Step ID	(0040,0253)	GENERATED			
Performed Station AE Title	(0040,0241)	GENERATED	e.g. " MPPS AE Title "		
Performed Station Name	(0040,0242)	CONFIGURATION	e.g. " Station Name "		
Performed Location	(0040,0243)	CONFIGURATION			

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
Performed Procedure Step Start Date	(0040,0244)	GENERATED	e.g. "20260401"		Actual start date
Performed Procedure Step Start Time	(0040,0245)	GENERATED	e.g. "123015.000"		Actual start time
Performed Procedure Step Status	(0040,0252)	GENERATED	e.g. " IN PROGRESS "	COMPLETED; DISCONTINUED	
Performed Procedure Step Description	(0040,0254)	GENERATED; EMPTY	e.g. " Scheduled Procedure Step Description "	Zero or more items	
Performed Procedure Type Description	(0040,0255)	EMPTY		Zero or more items	
Procedure Code Sequence	(0008,1032)	GENERATED; EMPTY		Zero or more items	
>Code Value	(0008,0100)	MWL		x	"x" indicates that an appropriate value will be sent.
>Coding Scheme Designator	(0008,0102)	MWL		x	"x" indicates that an appropriate value will be sent.
>Coding Scheme Version	(0008,0103)	MWL		x	"x" indicates that an appropriate value will be sent.
>Code Meaning	(0008,0104)	MWL		x	"x" indicates that an appropriate value will be sent.
Performed Procedure Step End Date	(0040,0250)	EMPTY	EMPTY	e.g. "20260401"	Actual end date
Performed Procedure Step End Time	(0040,0251)	EMPTY	EMPTY	e.g. "130030.000"	Actual end time
Comments on the Performed Procedure Step	(0040,0280)	EMPTY	EMPTY	EMPTY	
Performed Procedure Step Discontinuation Reason Code Sequence	(0040,0281)	GENERATED		COMPLETED; DISCONTINUED	
>Code Value	(0008,0100)	MWL		x	"x" indicates that an appropriate

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
					value will be sent.
>Coding Scheme Designator	(0008,0102)	MWL		x	"x" indicates that an appropriate value will be sent.
>Coding Scheme Version	(0008,0103)	MWL		x	"x" indicates that an appropriate value will be sent.
>Code Meaning	(0008,0104)	MWL		x	"x" indicates that an appropriate value will be sent.
Image Acquisition Results					
Modality	(0008,0060)	GENERATED	MR		
Study ID	(0020,0010)	GENERATED	Copied from Requested Procedure ID		
Performed Protocol Code Sequence	(0040,0260)	GENERATED; EMPTY		Zero or more items	
>Code Value	(0008,0100)	MWL			
>Coding Scheme Designator	(0008,0102)	CONFIGURATION			
>Coding Scheme Version	(0008,0103)	CONFIGURATION			
>Code Meaning	(0008,0104)	MWL			
Performed Series Sequence	(0040,0340)	GENERATED	One item	One or more items	
> Performing Physician's Name	(0008,1050)	MWL; USER			
> Protocol Name	(0018,1030)	USER			
> Operators' Name	(0008,1070)	MWL; USER			
> Series Instance UID	(0020,000E)	GENERATED	e.g. " 1.2.392.200036.9116 ...."		
> Series Description	(0008,103E)	USER	e.g. "FE_slt"		
> Retrieve AE Title	(0008,0054)	EMPTY			
> Referenced Image Sequence	(0008,1140)	EMPTY			

Attribute Name	Tag	Source	Value N-CREATE	Value N-SET	Comments
>> Referenced SOP Class UID	(0008,1150)	MWL			
>> Referenced SOP Instance UID	(0008,1155)	MWL			
> Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	EMPTY			
>> Referenced SOP Class UID	(0008,1150)	MWL			
>> Referenced SOP Instance UID	(0008,1155)	MWL			
Billing and Material Code					
Billing Procedure Step Sequence	(0040,0320)	EMPTY			
Film Consumption Sequence	(0040,0321)	GENERATED; EMPTY	Zero or more items	Zero or more items	
>Number of Films	(2100,0170)	MWL			
>Medium Type	(2000,0030)	MWL			
>Film Size ID	(2010,0050)	MWL			
Billing Supplies and Devices Sequence	(0040,0324)	EMPTY			

This product sends N-CREATE requests when user push the “Study Start” button.

This product does not forward the MPPS messages.

5.2.2.2 SCP of the Modality Performed Procedure Step SOP Class - N/A

N/A

5.2.3 Unified Worklist and Procedure Step Service - N/A

N/A

5.2.4 Instance Availability Notification Service - N/A

N/A

5.2.5 Storage Service

5.2.5.1 SCU of the Storage SOP Classes

As a Service Class User of the Storage Service Class, the Galan 3T, Centurian uses the C-STORE-RQ message to request storage of DICOM objects by a remote SCP. See Section 1.1 Content and Transfer in the Overview for the list of supported SOP Classes.

For details regarding the content of SOP Instances that are created by the system, see Annex A, which describes the underlying IOD of the supported SOP Classes.

5.2.5.1.1 Transcoding of Transfer Syntaxes

Table 5-4 describes supported transcodings between the locally stored encoding of SOP Instances and the negotiated Transfer Syntax. The following Values can be used:

- SUPPORTED: Transcoding is possible and same SOP Instance UID is re-used.
- NEW_UID: Transcoding is possible; however a new SOP Instance is created for transfer, e.g., due to lossy compression.
- NOT_SUPPORTED: Transcoding is not possible.

Table 5-4 Transcoding of Transfer Syntaxes

Stored Transfer Syntax	Sent Transfer Syntax			
	Implicit VR Little Endian	**Explicit VR Little Endian**	**JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)**	**JPEG Baseline (Process 1)**
Internal Private Transfer Syntax	SUPPORTED	SUPPORTED	NOT_SUPPORTED	NOT_SUPPORTED

Note

1. Explanation of the details of the transcoding (e.g., for known Private Attributes, the correct VR will be used. All others will be encoded as VR UN)
2. This Private Transfer Syntax is using Explicit VR Little Endian with compressed pixel data.

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, the Galan 3T, Centurian receives the C-STORE-RQ message from remote SCUs. See Section 1.1 Content and Transfer in the Section 1 for the list of supported SOP Classes.
Table 5-5 defines the conformance levels of Galan 3T, Centurian.

Table 5-5 Levels of Conformance

Levels of Storage Support	2
Level of Digital Signature Support	1

See PS3.4 B.4.1 Conformance as an SCP for level definition.

Table 5-6 lists any limitations on displaying or processing instances, e.g., display or processing of the respective SOP Instances is prevented by an unsupported Value for an Attribute or the absence of that Attribute.

The "Effect" column describes what happens if the limitation is encountered. The following Values are used:

- ND: Display is not possible
- LD: Display is limited
- NP: Processing is not possible
- LP: Processing is limited
- OT: Other effects described in the "Comments" column

Table 5-6 Display and Processing Limitations for Storage SCP

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
MR Image Storage (1.2.840.10008.5.1.4.1.1.4)				
Private Creator Code	(0029,00xx)	CANON_MEC_MR3	LD	
Private Creator Code	(700D,00xx)	CANON_MEC_MR3		

Table 5-7 lists the actions performed upon receiving instances from a remote AE and the system behavior when certain conditions are encountered

Table 5-7 Behavior when storing Instances

Action upon Receiving	Condition	System Behavior
Perform Attribute Validation	Minor DICOM inconsistencies	Update error and log warning messages.
	Duplicate Instance	Overwrite Instances
	DICOM Validation error	Send failure code on Association
	Success	Instances are stored in an internal database
Add to an existing study	Mismatch in patient identifying information detected	Instances are stored and logged warning/error
	Duplicate Study	Overwrite Study if the first component group of Patient's Name, Patient ID, Patient's Birth Date and Patient's Sex are same
	Success	Instances are stored in a local database
Localize Patient Information	Patient mismatch detected	Instances are stored and display message
	Success	Instances are stored in an internal database

5.2.6 Storage Commitment Service

5.2.6.1 SCU of the Storage Commitment SOP Class

As a Service Class User of the Storage Commitment SOP Class, the Galan 3T, Centurian uses the N-ACTION-RQ message to request storage commitment to a remote SCP. In turn, it receives N-EVENT-REPORT-RQ messages from the SCP indicating success or failure of the request.

For a list of supported SOP Classes, see Section 1.1 in the Overview. It is also configurable.

As a Service Class User of the Storage Commitment Push Model SOP Classes the product supports committing all Storage SOP Classes listed in Section 1.1 Content and Transfer are supported.

Receiving N-EVENT-REPORT within the same association as N-ACTION is not supported.

Table 5-8 lists the behavior of Galan 3T, Centurian for each possible Failure Reason (0008,1197) in the Failed SOP Sequence (0008,1198) upon receiving an N-EVENT-REPORT request from the SCP with an Event Type ID of 2 (Storage Commitment Request Complete - Failures Exist).

Table 5-8 Failure Behavior for Storage Commitment SCU

Status Code	Description	Behavior
0211	Unrecognized Operation	The Transaction UID in the N-EVENT-REPORT request is not recognized (was never issued within an N-ACTION request).
0213	Resource Limitation	The Transaction UID in the N-EVENT-REPORT request has expired (no N-EVENT-REPORT was received within a configurable time limit).
0113	No Such Event Type	An invalid Event Type ID was supplied in the N-EVENT-REPORT request.
0110	Processing Failure	An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902).
0115	Invalid Argument Value	One or more SOP Instance UIDs with the Referenced SOP Sequence (0008,1199) or Failed SOP Sequence (0008,1198) was not included in the Storage Commitment Request associated with this Transaction UID. The unrecognized SOP Instance UIDs will be returned within the Event Information of the N-EVENT-REPORT response.
Any other status code.		The send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.

Table 5-9 Failure Behavior for Storage Commitment SCU

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.

5.2.6.2 SCP of the Storage Commitment SOP Class

As a Service Class Provider of the Storage Commitment SOP Class, the Galan 3T, Centurian receives the N-ACTION-RQ message to request storage commitment from a remote SCU. In turn it initiates the N-EVENT_REPORT-RQ messages to the SCU indicating success or failure of the request.

Table 5-10 lists conditions upon which an error code is sent in the Failure Reason (0008,1197) Attribute in the Failed SOP Sequence (0008,1198) of the N-EVEN-REPORT request.

Table 5-10 Failure Conditions on Storage Commitment SCP

Status Code	Description	Conditions
0107	Attribute List Error	This condition applies when a problem occurs while receiving the N-EVENT-REPORT response dataset. Transmission of Storage Commitment Push Model N-EVENT-REPORT Request is considered successful. Warning indication message is output to the Service Logs. No message is posted to the User Interface.

Status Code	Description	Conditions
Any other status code.		This is treated as a permanent Failure. Error indication message is output to the Service Logs. No message is posted to the User Interface.

5.2.7 Query/Retrieve Service Class

5.2.7.1 SCU of the Study Root Q/R Information Model - FIND SOP Class

As a Service Class User of the Study Root Q/R - Information Model - FIND SOP Class, the Galan 3T, Centurian uses the C-FIND-RQ message and supports the Query Keys listed in Table 5-11 for hierarchical queries.

In the "Matching Type" column the following Values can be used:

- SINGLE_VALUE: SCU can request Single Value matching on this Attribute.
- UID: SCU can request List of UID matching on this Attribute.
- WILDCARD: SCU can request Wildcard matching on this Attribute.
- RANGE: SCU can request Range matching on this Attribute.
- SEQUENCE: SCU can request Sequence matching on this Attribute.
- UNIVERSAL: SCU can request that the Attribute be a return Value (universal matching).

In the "Query Value Source" column the following Values can be used:

- FIXED: The query Value cannot be modified by the user or by configuration.
- GENERATED: The query Value is generated by the system (e.g., current date as the study date).
- CONFIGURATION: The query Value is dependent on system configuration.
- USER: The query Value is entered by the user.
- SCANNED: The query Value is read from a barcode scanner or similar device.
- EMPTY: The query Value is sent with a zero-length value to indicate it is a return key only.

In the "Display on UI" column the following Values can be used:

- D: the return Value is displayed on the main UI by default.
- C: the return Value is displayed on the main UI if configured.
- N: the return Value is never displayed.

Table 5-11 Supported C-FIND Attribute Matching for Study Root Q/R Model -SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Study Level						
Study Date	(0008,0020)	SINGLE_VALUE; WILDCARD; UNIVERSAL; RANGE	USER		D	
Study Time	(0008,0030)	UNIVERSAL	USER		D	
Accession Number	(0008,0050)	UNIVERSAL	USER		D	
Patient's Name	(0010,0010)	UNIVERSAL	USER		D	
Patient ID	(0010,0020)	SINGLE_VALUE; WILDCARD;	USER, GENERATED		D	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
		UNIVERSAL				
Study Instance UID	(0020,000D)	SINGLE_VALUE; UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	UNIVERSAL	USER		D	
Study Description	(0008,1030)	UNIVERSAL	USER		D	
Referring Physician's Name	(0008,0090)	UNIVERSAL				
Study Description	(0008,1030)	UNIVERSAL				
Procedure Code Sequence	(0008,1032)	UNIVERSAL				
>Code Value	(0008,0100)	UNIVERSAL				
>Coding Scheme Designator	(0008,0102)	UNIVERSAL				
>Coding Scheme Version	(0008,0103)	UNIVERSAL				
>Code Meaning	(0008,0104)	UNIVERSAL				
Name of Physician(s) Reading Study	(0008,1060)	UNIVERSAL				
Referenced Study Sequence	(0008,1110)	UNIVERSAL				
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL				
> Referenced SOP Instance UID	(0008,1155)	UNIVERSAL				
Referenced Patient Sequence	(0008,1120)	UNIVERSAL				
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL				
> Referenced SOP Instance UID	(0008,1155)	UNIVERSAL				
Patient's Birth Date	(0010,0030)	SINGLE_VALUE; WILDCARD; UNIVERSAL				
Patient's Birth Time	(0010,0032)	UNIVERSAL				
Patient's Sex	(0010,0040)	UNIVERSAL				
Other Patient IDs	(0010,1000)	UNIVERSAL				
Other Patient Names	(0010,1001)	UNIVERSAL				
Patient's Age	(0010,1010)	UNIVERSAL				
Patient's Size	(0010,1020)	UNIVERSAL				

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient's Weight	(0010,1030)	UNIVERSAL				
Ethnic Group	(0010,2160)	UNIVERSAL				
Occupation	(0010,2180)	UNIVERSAL				
Additional Patient History	(0010,21B0)	UNIVERSAL				
Patient Comments	(0010,4000)	UNIVERSAL				
Study ID	(0020,0010)	UNIVERSAL				
Other Study Numbers (RET)	(0020,1070)	UNIVERSAL				
Number of Study Related Series	(0020,1206)	UNIVERSAL				
Number of Study Related Instances	(0020,1208)	UNIVERSAL				
Interpretation Author (RET)	(4008,010C)	UNIVERSAL				
Series Level						
Modality	(0008,0060)	SINGLE_VALUE; WILDCARD; UNIVERSAL	USER		D	
Body Part Examined	(0018,0015)	SINGLE_VALUE	USER		C	
Series Date	(0008,0021)	UNIVERSAL				
Series Time	(0008,0031)	UNIVERSAL				
Station Name	(0008,1010)	SINGLE_VALUE; WILDCARD; UNIVERSAL				
Institutional Department Name	(0008,1040)	UNIVERSAL				
Performing Physician's Name	(0008,1050)	UNIVERSAL				
Operators' Name	(0008,1070)	UNIVERSAL				
Series Instance UID	(0020,000E)	SINGLE_VALUE; UNIVERSAL				
Series Number	(0020,0011)	SINGLE_VALUE; WILDCARD; UNIVERSAL				
Number of Series Related Instances	(0020,1209)	UNIVERSAL				
Instance Level						
SOP Class UID	(0008,0016)	UNIVERSAL				

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
SOP Instance UID	(0008,0018)	SINGLE_VALUE; UNIVERSAL				
Content Date	(0008,0023)	UNIVERSAL				
Content Time	(0008,0033)	UNIVERSAL				
Referenced SOP Class UI	(0008,1150)	UNIVERSAL				
Referenced SOP Instance UID	(0008,1155)	UNIVERSAL				
Instance Number	(0020,0013)	UNIVERSAL				
Overlay Number (RET)	(0020,0022)	UNIVERSAL				
Curve Number (RET)	(0020,0024)	UNIVERSAL				
LUT Number (RET)	(0020,0026)	UNIVERSAL				

*The value received by the upper level query is set (Upper level Unique Key).

This product does not support C-FIND-CANCEL requests.

5.2.7.2 SCU of the Patient Root Q/R Information Model - FIND SOP Class -N/A

N/A

5.2.7.3 SCU of the Study Root Q/R Information Model - MOVE SOP Class

This product can retrieve instances to own AE only and doesn't support C-MOVE-CANCEL request.

Galan 3T, Centurian expects to receive a C-STORE request within a configurable timeframe after sending a C-MOVE request. If a C-STORE request is not received within this configurable timeframe, the association is aborted using A-ABORT, and the retrieval is marked as a failure. For interactive queries, the reason is logged and reported to the user.

5.2.7.4 SCU of the Patient Root Q/R Information Model - MOVE SOP Class -N/A

N/A

5.2.7.5 SCP of the Study Root Q/R Information Model - FIND SOP Class

As a Service Class Provider of the Study Root Q/R - Information Model - FIND SOP Class, the Galan 3T, Centurian uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5-12 for hierarchical queries.

In the "Matching Type" column, the following Values can be used:

- SINGLE_VALUE: SCP can perform single Value matching on this Attribute.
- UID: SCP can perform List of UID matching on this Attribute.
- WILDCARD: SCP can perform Wildcard matching on this Attribute.
- RANGE: SCP can perform Range matching on this Attribute.
- SEQUENCE: SCP can perform sequence matching on this Attribute.
- UNIVERSAL: SCP can provide the Attribute in the C-FIND response (universal matching).

Table 5-12 Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP

Attribute Name	Tag	Matching Type	Comments
Study Level			
Study Date	(0008,0020)	SINGLE_VALUE; RANGE; UNIVERSAL	
Patient's Name	(0010,0010)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Patient ID	(0010,0020)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study Instance UID	(0020,000D)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study Time	(0008,0030)	RANGE; UNIVERSAL	
Accession Number	(0008,0050)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study ID	(0020,0010)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Level			
Modality	(0008,0060)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Number	(0020,0011)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Instance UID	(0020,000E)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Instance Level			
SOP Instance UID	(0008,0018)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Instance Number	(0020,0013)	SINGLE_VALUE; WILDCARD; UNIVERSAL	

5.2.7.6 SCP of the Patient Root Q/R Information Model - FIND SOP Class

Table 5-13 Supported C-FIND Attribute Matching for Patient Root Q/R Model - SCP

Attribute Name	Tag	Matching Type	Comments
Patient Level			
Patient's Name	(0010,0010)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Patient ID	(0010,0020)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study Level			
Study Date	(0008,0020)	SINGLE_VALUE; RANGE; UNIVERSAL	
Study Instance UID	(0020,000D)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study Time	(0008,0030)	RANGE; UNIVERSAL	
Accession Number	(0008,0050)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Study ID	(0020,0010)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Level			
Modality	(0008,0060)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Number	(0020,0011)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Series Instance UID	(0020,000E)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Number of Series Related Instances	(0020,1209)	UNIVERSAL	
Instance Level			
SOP Instance UID	(0008,0018)	SINGLE_VALUE; WILDCARD; UNIVERSAL	
Instance Number	(0020,0013)	SINGLE_VALUE; WILDCARD; UNIVERSAL	

5.2.7.7 SCP of the Study Root Q/R Information Model - MOVE SOP Class

As the SCP of the Study Root Q/R - Information Model -MOVE, the Galan 3T, Centurian receives the C-MOVE-RQ and in turn uses the C-STORE-RQ sub operation to send matching SOP Instances to the Move Destination AE included in the C-MOVE-RQ.

For storage service class SCPs, please refer to Table 1-1 for supported storage SOP classes.

5.2.7.8 SCP of the Patient Root Q/R - Information Model - MOVE SOP Class

For storage service class SCPs, please refer to Table 1-1 for supported storage SOP classes.

5.2.8 Print Management Service

5.2.8.1 SCU of the Basic Grayscale Print Management Meta SOP Class

The Basic Grayscale Print Management Meta SOP Class is composed of the mandatory SOP Classes listed in Table 5-14.

Table 5-14 Basic Grayscale Print Management Meta SOP Class - SCU

SOP Class Name	SOP Class UID
Basic Film Session	1.2.840.10008.5.1.1.1
Basic Film Box	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4
Printer	1.2.840.10008.5.1.1.16

5.2.8.1.1 Basic Film Session SOP Class

Table 5-15 lists the supported DIMSE Services for the Basic Film Session SOP Class:

Table 5-15 Services for the Basic Film Session SOP Class - SCU

DIMSE Service Element	Purpose
N-CREATE	Create the Film Session

Table 5-16 lists the supported N-CREATE and N-SET Attributes for Basic Film Session:

Table 5-16 Supported N-CREATE and N-SET Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Values	Default
Number of Copies	(2000,0010)	1 .. 99	1
Print Priority	(2000,0020)	MED	
Medium Type	(2000,0030)	BLUE FILM CLEAR FILM PAPER	
Film Destination	(2000,0040)	MAGAZINE PROCESSOR	PROCESSOR
Film Session Label	(2000,0050)		

5.2.8.1.2 Basic Film Box SOP Class

Table 5-17 lists the supported DIMSE Services for the Basic Film Box SOP Class:

Table 5-17 Supported Services for the Basic Film Box SOP Class

DIMSE Service Element	Purpose
N-CREATE	Create the Film Box in a previously created Film Session
N-ACTION	Print the Film Box

Table 5-18 lists the supported N-CREATE and N-SET Attributes for Basic Film Box:

Table 5-18 Supported N-CREATE and N-SET Attributes for the Basic Film Box SOP Class - SCU

Attribute Name	Tag	Values	Default
Image Display Format	(2010,0010)	STANDARD\C,R	STANDARD\1,1
Film Orientation	(2010,0040)	PORTRAIT LANDSCAPE	PORTRAIT
Film Size ID	(2010,0050)	8INX10IN 11INX14IN 14INX14IN 14INX17IN	
Magnification Type	(2010,0060)	REPLICATE BILINEAR CUBIC NONE	CUBIC
Smoothing Type	(2010,0080)	<possible Values or range>	
Border Density	(2010,0100)	BLACK WHITE	BLACK
Empty Image Density	(2010,0110)	BLACK WHITE	BLACK
Minimum Density	(2010,0120)	0 .. 9999	
Maximum Density	(2010,0130)	0 .. 9999	300
Trim	(2010,0140)	YES NO	NO
Configuration Information	(2010,0150)		
Referenced Film Session Sequence	(2010,0500)	<possible Values or range>	
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.1	
>Referenced SOP Instance UID	(0008,1155)	From created Film Session SOP Instance	

5.2.8.1.3 Basic Grayscale Image Box SOP Class

Table 5-19 lists the supported DIMSE Service for the Basic Grayscale Image Box SOP Class:

Table 5-19 Services for the Basic Grayscale Image Box SOP Class

DIMSE Service Element	Purpose
N-SET	Set Image Attributes for a previously created Film Box

Table 5-20 lists the supported N-SET Attributes for Basic Grayscale Image Box:

Table 5-20 Supported N-SET Attributes for the Basic Grayscale Image Box SOP Class -SCU

Attribute Name	Tag	Values	Default
Magnification Type	(2010,0060)	REPLICATE BILINEAR CUBIC NONE	Auto
Smoothing Type	(2010,0080)		User
Image Box Position	(2020,0010)	1 .. 36	User
Polarity	(2020,0020)	NORMAL REVERSE	User
Basic Grayscale Image Sequence	(2020,0110)		Auto
>Samples per Pixel	(0028,0002)	1	Auto
>Photometric Interpretation	(0028,0004)	MONOCHROME2	Auto
>Rows	(0028,0010)		Auto
>Columns	(0028,0011)		Auto
>Pixel Aspect Ratio	(0028,0034)	1\1	Auto
>Bits Allocated	(0028,0100)	8	Auto
>Bits Stored	(0028,0101)	8	Auto
>High Bit	(0028,0102)	7	Auto
>Pixel Representation	(0028,0103)	1	Auto
>Pixel Data	(7FE0,0010)		Auto

5.2.8.1.4 Printer SOP Class

Table 5-21 lists the supported DIMSE Services for the Printer SOP Class:

Table 5-21 Services for the Printer SOP Class

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report the printer status in an asynchronous way
N-GET	Retrieve printer information and status.

An N-EVENT-REPORT request can be received by the SCU at any time during an Association.
Table 5-22 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5-22 Printer SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	

Event Type Name	Event Type ID	Behavior
Warning	2	
Failure	3	

Table 5-23 lists the supported N-GET Attributes for Printer SOP Class:

Table 5-23 Supported N-GET Attributes for the Printer SOP Class - SCU

Attribute Name	Tag	Behavior
Printer Status	(2110,0010)	NORMAL: The print-job continues to be printed. WARNING: The print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job ¬control application. FAILURE: The print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job¬ control application.
Printer Status Info	(2110,0020)	NORMAL: print job was success. other: The contents is logged and reported to the user via the job control application.
Printer Name	(2110,0030)	
Manufacturer	(0008,0070)	
Manufacturer's Model Name	(0008,1090)	
Device Serial Number	(0018,1000)	
Software Versions	(0018,1020)	
Date Last Calibration	(0018,1200)	
Time Last Calibration	(0018,1201)	

5.2.8.2 SCU of the Basic Color Print Management Meta SOP Class - N/A
N/A

5.2.8.3 SCU of the Basic Annotation Box SOP Class - N/A
N/A

5.2.8.4 SCU of the Print Job SOP Class Print - N/A
N/A

5.2.8.5 SCU of the Presentation LUT SOP Class - N/A
N/A

5.2.8.6 SCU of the Printer Configuration Retrieval SOP Class - N/A
N/A

5.2.8.7 SCP of the Basic Grayscale Print Management Meta SOP Class - N/A
N/A

5.2.8.8 SCP of the Basic Color Print Management Meta SOP Class - N/A
N/A

5.2.8.9 SCP of the Basic Annotation Box SOP Class - N/A
N/A

5.2.8.10 SCP of the Print Job SOP Class - N/A
N/A

5.2.8.11 SCP of the Presentation LUT SOP Class - N/A
N/A

5.2.8.12 SCP of the Printer Configuration Retrieval SOP Class - N/A
N/A

5.3 DICOM Web Services - N/A

N/A

5.4 Media Service

5.4.1 File Set Creator (FSC)

Galan 3T, Centurian supports creating the Basic Directory IOD as a File Set Creator as defined in Annex A.7.

For a list of supported Media Storage Application Profiles, see Section 1.4 in the Overview.

For a list of supported SOP Classes, see Section 1.1 in the Overview.

Select the Media type from UI on the screen.

5.4.2 File Set Reader (FSR)

Galan 3T, Centurian supports the Media Storage Application Profiles listed in Section 1.4 in the Overview.

For a list of supported SOP Classes, see Section 1.1 in the Overview.

To display or process DICOM Instances contained on the Media, see Section 5.2.5.2.

5.4.3 File Set Updater (FSU) - N/A

N/A

5.5 Real Time Video Service - N/A

N/A

5.6 Cross Service Considerations

N/A

5.7 Specific Character Sets

See Section 1.7 for supported Values for Specific Character Set (0008,0005).

Generic configuration for Specific Character Sets is covered in Section 6.1. Service specific configuration for Specific Character Sets is addressed in respective subsections of Section 6.2 or Section 6.3.

Galan 3T, Centurian supports character sets beyond the default character repertoire (ISO-IR 6) for display on all displayed attributes. Galan 3T, Centurian supports editing character sets beyond the default character repertoire (ISO-IR 6) for the attributes listed in Table 5-24.

Table 5-24 Specific Character Set – Supported Attributes

Attribute Name	Tag	VR
Referring Physician's Name	(0008,0090)	PN
Performing Physician's Name	(0008,1050)	PN
Name of Physician(s) Reading Study	(0008,1060)	PN

Attribute Name	Tag	VR
Operators' Name	(0008,1070)	PN
Patient's Name	(0010,0010)	PN
Patient Comments	(0010,4000)	LT
Contrast/Bolus Agent	(0018,0010)	LO
Image Comments *	(0020,4000)	LT

* The Image Comments value does not support ISO-IR 101, ISO-IR 126 and ISO-IR 148.

6 Configuration

Throughout all subsections the following Values can be used in the "Configurable" column:

- USER: The parameter is configurable by the user.
- SERVICE: The parameter is configurable by service personnel.
- FIXED: The parameter is not configurable (it has a fixed Value). The Value is required for the configuration of the remote system.
- N/A: The parameter is not applicable for the local or the remote system.

6.1 General Configuration Parameters

Table 6-1 lists general configuration parameters applicable across all supported DICOM Services.

Table 6-1 General Configuration Parameters

Parameter	Configurable	Default Value	Comments
Network Parameters			
Physical Network Interface	FIXED	1000BASE-T 100BASE-TX	Auto negotiation
IPv6 support	FIXED	No	Only support IPv4
General Parameters			
Max PDU Receive Size	SERVICE	64 Kbytes	[1-999999]
Max PDU Send Size	SERVICE	64 Kbytes	[1-999999]
Timeout waiting for acceptance or rejection Response to an Association Open Request. (Application-Level timeout)	SERVICE	30 sec	[1-999999]
Time-out waiting for a response to an Association release request (Application Level Timeout)	SERVICE	15 sec	[1-999999]
Time-out waiting for completion of a TCP/IP connect request (Low-level timeout)	SERVICE	15 sec	[1-999999]
Time-out awaiting a Response to a DIMSE Request (Low-Level Timeout)	SERVICE	15 sec	[1-999999]
Time-out for waiting for data between TCP/IP-packets (Low Level Timeout)	SERVICE	15 sec	[1-999999]
Supported Transfer Syntaxes (separately configurable for each service class and remote AE)	SERVICE	Implicit VR Little Endian(ILE)	[ILE,ELE]
Implementation Version Name	SERVICE	CM_MR_DCM_V3.0	[CM_MR_DCM_V3.0, TM_MR_DCM_V3.0]
Private Creator Code	SERVICE	CANON_MEC_MR3	[CANON_MEC_MR3, TOSHIBA_MEC_MR3]

Manufacturer	SERVICE	CANON_MEC	[CANON_MEC, TOSHIBA]
TCP/IP Settings			
TCP/IP Send Buffer	SERVICE	65535 Bytes	Range: 16Kb - 128Kb
TCP/IP Receive Buffer	FIXED	65535 Bytes	
DICOM Services Parameters			
Maximum number of simultaneous Associations accepted	SERVICE	4	10
Specific Character Set	SERVICE	ISO-646 or US-ASCII ISO_IR 100	ISO-646 or US-ASCII ISO_IR 100 ISO_IR 101 ISO_IR 144 ISO_IR 126 ISO_IR 148 ISO 2022 IR 6 GB18030 ISO 2022 IR 87

6.2 Configuration of DIMSE Services

The tables in the following subsections show the configuration parameters required for DIMSE Services.

In order to identify whether Galan 3T, Centurian is an SCU and / or an SCP, the following applies:

- SCU: The (Secured) Local Calling AET and Remote Called AET parameters are present.
- SCP: The (Secured) Local Called AET and Remote Calling AET parameters are present.

6.2.1 Basic Worklist Management Service Configuration

Table 6-2 lists Worklist Service configuration parameters:

Table 6-2 Worklist Service Parameters

Local Configuration Parameters - Worklist Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	CM_MR_DCM_V1.2	Configure using the utility tool.
Default Modality type	USER	MR	Used to query the MWL SCP. Possible choices are CR, DX, RF
Default Scheduled Station AE Title	SERVICE	CM_MR_DCM_V1.2	Configure using the utility tool.
Modality Worklist SCU time-out waiting for the final response to a C-FIND-RQ	SERVICE	30sec	Configure using the utility tool.
Maximum number of simultaneously initiated Associations by the MWM SCU AE	FIXED	1	Configure using the utility tool.
Remote Configuration Parameters - Worklist Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		Configure using the utility tool. Using the same AE title is prohibited.

Port	SERVICE		Configure using the utility tool.
TLS-Secured Port	FIXED	2762	
Host	SERVICE		Configure using the utility tool.

6.2.2 Modality Performed Procedure Step Service Configuration

Table 6-3 lists Modality Performed Procedure Step Service configuration parameters:

Table 6-3 MPPS Service Parameters

Local Configuration Parameters - MPPS Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	CM_MR_DCM_V1.2	The system uses the same Calling AE Title as for the Storage SCU service by default Configure using the utility tool.
MPPS SCU time-out waiting for a response to a N-CREATE-RQ	SERVICE	30sec	Configure using the utility tool.
MPPS SCU time-out waiting for a response to a N-SET-RQ	SERVICE	30sec	Configure using the utility tool.
MPPS SCU time-out waiting for a response to a N-GET-RQ	SERVICE	30sec	Configure using the utility tool.
Maximum number of simultaneously initiated Associations by the MPPS SCU AE	FIXED	1	
Supported Transfer Syntaxes (separately configurable for each remote AE)	SERVICE	Implicit VR Little Endian(ILE)	
Behavior when receiving the Warning "Attribute Value Out of Range" as service status.	SERVICE	Considered as Failure	
Remote Configuration Parameters - MPPS Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		The system uses the same Calling AE Title as for the Storage SCU service by default
Called AE Title (SCP)	SERVICE		The system uses the same Calling AE Title as for the Storage SCU service by default
Port	SERVICE		The system uses the same Calling AE Title as for the Storage SCU service by default
TLS-Secured Port	SERVICE	2762	
Host	SERVICE		The system uses the same Calling AE Title as for the Storage SCU service by default
Rely on MPPS complete sent by modality	SERVICE	unchecked	If checked the PPS will be considered as completed when the modality sends the MPPS N-SET COMPLETED

6.2.3 Unified Worklist and Procedure Step Service Configuration - N/A

N/A

6.2.4 Instance Availability Notification Service Configuration - N/A

N/A

6.2.5 Storage Service Configuration

Table 6-4 lists Storage Service configuration parameters:

Table 6-4 Storage Service Parameters

Local Configuration Parameters - Storage Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	CM_MR_DCM_V1.2	
Called AE Title (SCP)	SERVICE	CM_MR_DCM_V1.2	List of AE Titles can be configured depending on the usage (study to be verified or not; studies not to be archived; study to be displayed only…)
Port	FIXED	104	For studies to be displayed only (not imported in DB/cache, the default port is 110)
TLS-Secured Port	FIXED	2762	
Supported Transfer Syntax as SCP	SERVICE	See Table 1-2	Can force to accept ILE only
Supported Storage SOP Classes as SCP	SERVICE	See Table 1-1	Can add or remove Storage SOP Classes
Storage SCU Parameters			
Storage SCU time-out waiting for a response to a C-STORE-RQ	SERVICE	30sec	
Number of times a failed send job may be retried	SERVICE	10 times	
Delay between retrying failed send jobs	SERVICE	60sec	
Maximum number of simultaneously initiated Associations by the Storage SCU AE	FIXED	1	
Behavior when receiving the Warning "Coercion of Data Elements" as service status.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Data Set does not match SOP Class" as service status.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Elements Discarded" as service status.	SERVICE	Considered as Failure	

Storage SCP parameters			
Maximum number of simultaneously accepted Associations by the Storage SCP AE	FIXED	10	
Remote Configuration Parameters - Storage Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	
Host	SERVICE		
Inbound PID / issuer to use	SERVICE		In case the remote Storage SCU does not send an issuer of Patient ID, you can define a default inbound Patient ID issuer.
Outbound Issuer of Patient ID default	SERVICE		In case there are several PID/issuers for the study to send, the default PID/issuer can be selected to be sent as the primary Patient ID to the remote storage SCP

6.2.6 Storage Commitment Service Configuration

Table 6-5 lists Storage Commitment Service configuration parameters:

Table 6-5 Storage Commitment Service Parameters

Local Configuration Parameters - Storage Commitment Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	CM_MR_DCM_V1.2	The system uses the same Calling AE Title as for the Storage SCU service by default
Called AE Title (SCP)	SERVICE	CM_MR_DCM_V1.2	The system uses the same Called AE Title as for the Storage SCP service by default
Port	SERVICE	104	
TLS-Secured Port	FIXED	2762	
Delay to send N-ACTION-RQ	SERVICE	300	
Delay to send N-EVENT-REPORT-RQ	FIXED	immediately	As soon as the N-ACTION-RQ is received the system will initiate an Association to send the N-EVENT-REPORT
N-EVENT-REPORT on same Association	FIXED	asynchronous	When the system receives a N-ACTION, it will open a new Association to send the N-EVENT-REPORT. When the system sends an N-ACTION, it expects to receive the N-EVENT-REPORT in a separate Association.

Storage Commitment SCU time-out waiting for a response to a N-ACTIION-RQ	SERVICE	30 sec	
Maximum number of simultaneously initiated Associations by the Storage Commitment SCU AE	FIXED	1	
Timeout waiting for a Storage Commitment Notification (maximum duration of applicability for a Storage Commitment Transaction UID).	SERVICE	3 min	
Maximum number of simultaneously accepted Associations by the Storage Commitment SCU AE	FIXED	10	
Delay association release after sending a Storage Commitment Request (wait for a Storage Commitment Notification over the same association).	FIXED	0	
Behavior when receiving N-EVENT Report - the Storage Commitment Request Successful.	SERVICE	Permit the operator (s) to delete the Instances	
Remote Configuration Parameters - Storage commitment Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
port	SERVICE	104	
TLS-Secured Port	SERVICE	2762	
Host	SERVICE		

6.2.7 Query/Retrieve Service Configuration

Table 6-6 lists Query/Retrieve Service configuration parameters:

Table 6-6 Query/Retrieve Service Parameters

Local Configuration Parameters - Query/Retrieve Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	CM_MR_DCM_V1.2	The same Calling AET is used for Query and Retrieve
Called AE Title (SCP)	SERVICE	CM_MR_DCM_V1.2	The same Called AET is used for Query and Retrieve
Port	FIXED	104	
TLS-Secured Port	FIXED	2762	
Send C-MOVE RSPs with Pending Status to the C-MOVE SCU during the retrieve process	FIXED	5 seconds	

Remote Configuration Parameters - Query/Retrieve Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
Port	SERVICE		
TLS-Secured Port	SERVICE		
Host	SERVICE		

6.2.8 Print Management Service Configuration

Table 6-7 lists Print Management Service configuration parameters:

Table 6-7 Print Management Service Parameters

Local Configuration Parameters - Print Management Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	FIXED	CM_MR_DCM_V1.2	
Print SCU time-out waiting for a response to a N-GET-RQ	FIXED	30sec	
Print SCU time-out waiting for a response to a N-CREATE-RQ	FIXED	30sec	
Print SCU time-out waiting for a response to a N-SET-RQ	FIXED	30sec	
Print SCU time-out waiting for a response to a N-ACTION-RQ	FIXED	30sec	
Maximum number of simultaneously initiated Associations by the Print SCU AE	FIXED	1	
Supported Transfer Syntaxes (separately configurable for each remote printer)	SERVICE	Implicit VR Little Endian	
Behavior when receiving the Warning "Attribute Value Out of Range" as service status of the Film Session N-CREATE.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Attribute List Error" as service status of the Film Session N-CREATE.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Requested Min Density or Max Density outside of printer's operating range" as service status of the Film Box N-CREATE.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)" as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	

Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been demagnified." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been cropped to fit." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit." as service status of the Film Box N-ACTION.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been demagnified. " as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Requested Min Density or Max Density outside of printer's operating range." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been cropped to fit." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit." as service status of the Grayscale Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been demagnified. " as service status of the Color Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Requested Min Density or Max Density outside of printer's operating range." as service status of the Color Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size is larger than Image Box size. The image has been cropped to fit." as service status of the Color Image Box N-SET.	SERVICE	Considered as Failure	
Behavior when receiving the Warning "Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit." as service	SERVICE	Considered as Failure	

status of the Color Image Box N-SET.			
Remote Configuration Parameters - Print Management Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	
Host	SERVICE		
printer template	SERVICE		A pre-defined printer template can be selected in a drop down list. Select "generic" if the printer template does not exist
Film sizes supported by the Print SCP	USER	All film sizes available	Select the film sizes which are relevant for the connected printer

6.3 Configuration of DICOM Web Services - N/A

N/A

6.4 Configuration of Media Storage Service

There is no configuration parameters for the Media Storage service.

6.5 Configuration of Real Time Video Service - N/A

N/A

6.6 Configuration of Audit Trail - Syslog

Table 6-8 lists configuration parameters for the Audit Trail Originator.

Table 6-8 Audit Trail Originator Parameters

Originator Audit Trail Message Transmission-SYSLOG Parameters			
Parameter	**Configurable**	**Default Value**	**Comments**
Remote Port number	SERVICE	514	Can configure multiple remote syslog repository
Remote secured port number	SERVICE	6514	
Remote Host name/IP	SERVICE		
UDP Protocol	N/A		
TLS Protocol	FIXED	TLS	only TLS is supported
Maximum Size sent	N/A		

Table 6-9 lists configuration parameters for the Audit Trail Collector.

Table 6-9 Audit Trail Collector Parameters

Collector Audit Trail Message Transmission-SYSLOG Parameters			
Parameter	**Configurable**	**Default Value**	**Comments**
Local Listening Port Number	SERVICE	514	
Local Listening Secured port number	FIXED	6514	
Local Host Name/IP	SERVICE		
UDP Protocol	N/A		UDP not supported
TLS Protocol	FIXED	TLS	only TLS is supported
Maximum Size Received	N/A		

7 Network and Media Communication Details

7.1 General

The cross interaction between the AEs is depicted in the diagrams below. Note. except for Verification SCU and SCP.

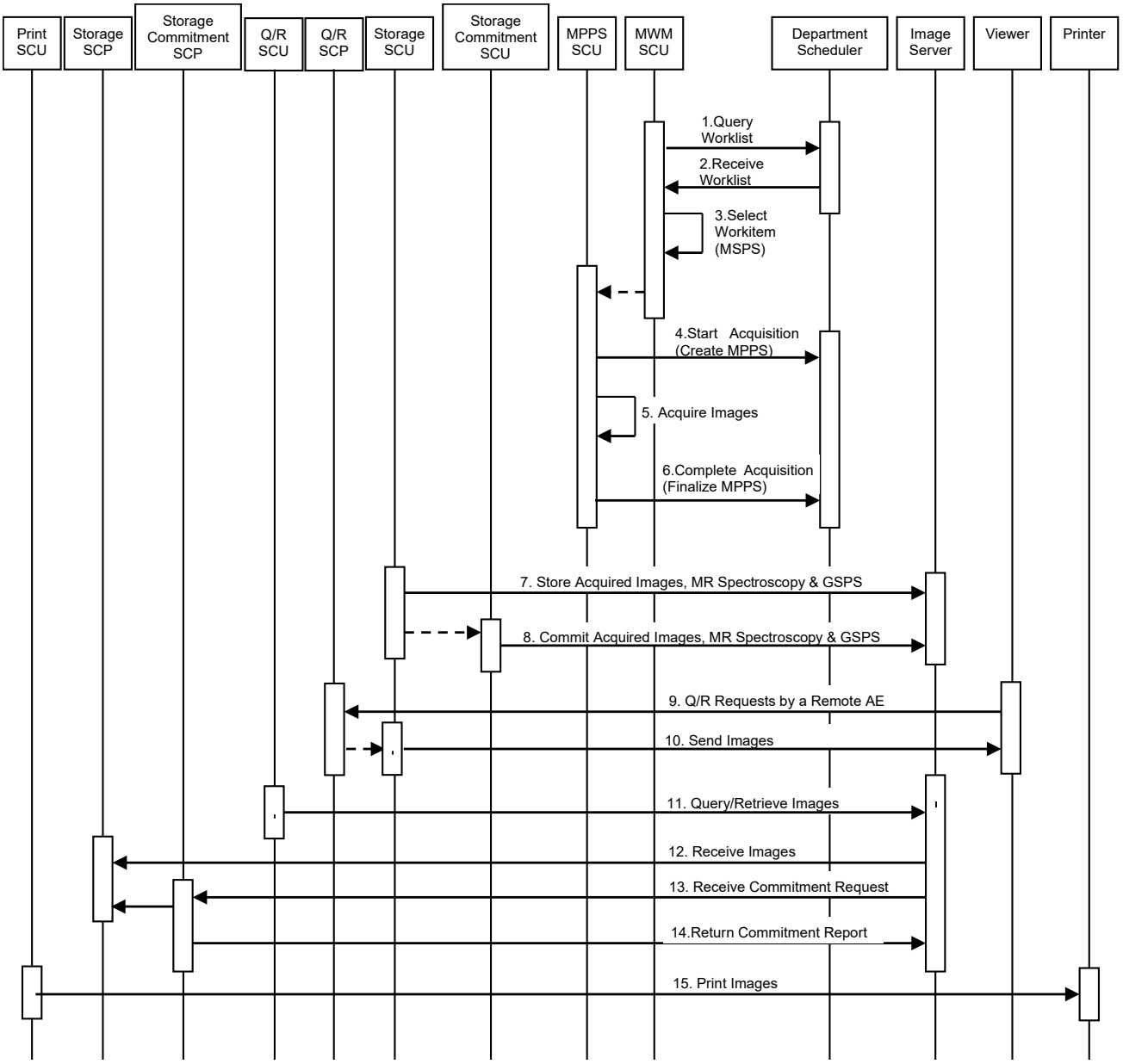


Figure 7-1 Real-World Activity and Cross AE interaction

7.1.1 General Association Parameters

Table 7-1 lists Association parameters applicable to all AEs on the system.

Table 7-1 General Association Parameters

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0
	Maximum PDU Length	Default: 64234
	ARTIM Timeout	Default: 30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	1
	Maximum number of outstanding asynchronous Transactions	1
Media Services	File Meta Information Version	1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0

7.2 Specifications

7.2.1 Verification SCU Application Entity

7.2.1.1 Sequencing of Real-World Activities for Verification SCU AE

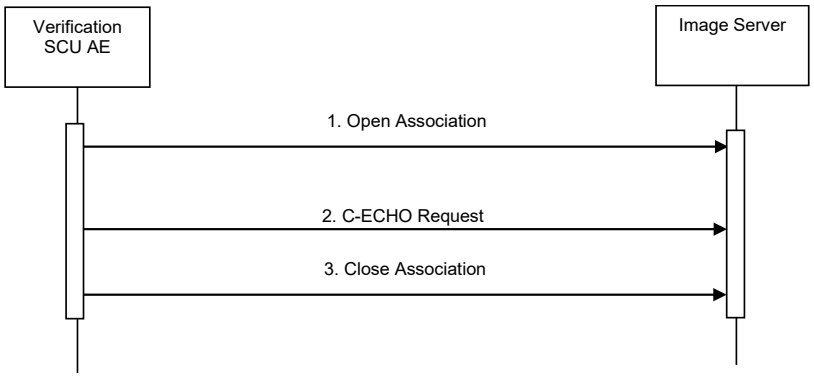


Figure 7-2 Sequencing of Real-World Activities for Verification SCU AE

7.2.1.2 Association Parameters of Verification SCU AE

Table 7-2 lists Association parameters applicable to Verification SCU AE.

Table 7-2 Association Parameters for Verification SCU AE

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0
	Maximum PDU Length	Default: 64234

	Name	Value
	ARTIM Timeout	Default: 30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	1
	Maximum number of outstanding asynchronous Transactions	1

7.2.1.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.1.3.1 Real-World Activity “Verify Connectivity (C-ECHO)”

This AE creates an Association that includes only Verification abstract syntax with the supported Transfer Syntaxes.

Extended Negotiation- N/A

N/A

Role Negotiation- N/A

N/A

7.2.1.4 Association Acceptance - N/A

N/A

7.2.2 Verification SCP Application Entity

7.2.2.1 Sequencing of Real-World Activities for Verification SCP AE

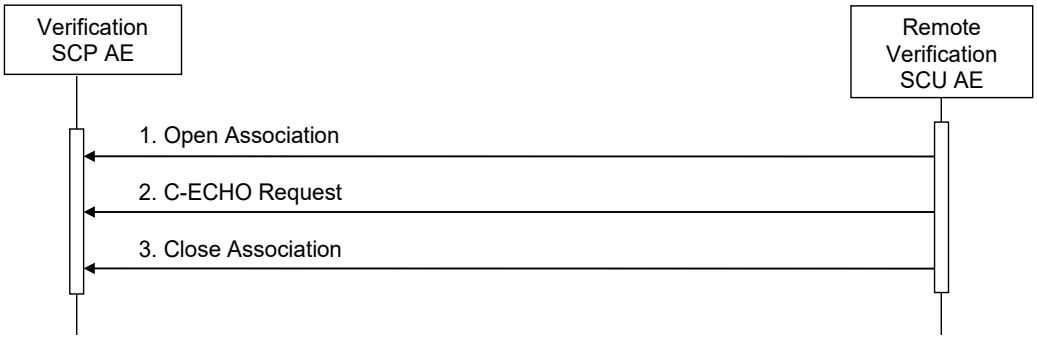


Figure 7-3 Sequencing of Real-World Activities for Verification SCP AE

A possible sequence of interactions between the Verification SCP AE and a Verification SCU AE is illustrated in the Figure above:

1. The remote Verification SCU AE opens a new association with the Verification SCP AE.

2. The remote Verification SCU AE sends C-ECHO requests. The Verification SCP AE replies with a C-ECHO response (status success).

3. The remote Verification SCU AE closes the Association.

7.2.2.2 Association Parameters of Verification SCP AE

Table 7-2 lists Association parameters applicable to Verification SCP AE.

Table 7-3 Association Parameters for Verification SCP AE

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0
	Maximum PDU Length	Default: 64234
	ARTIM Timeout	Default: 30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	1
	Maximum number of outstanding asynchronous Transactions	1

7.2.2.3 Association Initiation – N/A

N/A

7.2.2.4 Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.2.4.1 Real-World Activity “Verify Connectivity (C-ECHO)”

This AE receives C-ECHO request and replies it.

Extended Negotiation – N/A

N/A

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity “Verify Connectivity (C-ECHO)”of Verification SCP AE of the system.

Table 7-4 Transfer Syntax Selection Preference Order - Image SOP Classes for Verification SCP AE

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2.1	
2	Implicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.3 MWM SCU Application Entity

7.2.3.1 Sequencing of Real-World Activities for MWM SCU AE

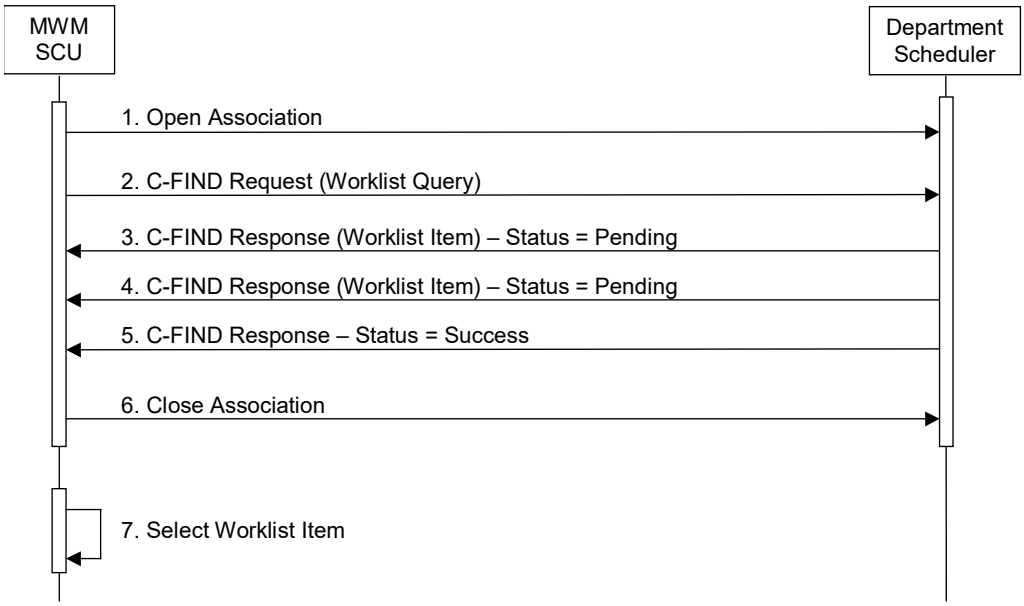


Figure 7-4 Sequencing of Real-World Activities for MWM SCU AE

The MPPS SCU AE performs the creation of a MPPS Instance automatically whenever images are acquired. Further updates on the MPPS data can be performed automatically or interactively.

The MPPS SCU AE will initiate an Association to issue an:

N-CREATE request according to the CREATE Modality Performed Procedure Step SOP Instance operation, or an:

N-SET request to update the contents and state of the MPPS according to the SET Modality Performed Procedure Step Information operation.

A possible sequence of interactions between the MWM SCU AE and a Department Scheduler (e.g. a device such as a RIS or HIS which supports the Modality Worklist SOP Class as an SCP) is illustrated in the Figure above:

1. The MWM SCU AE opens an association with the Department Scheduler
2. The MWM SCU AE sends a C-FIND request to the Department Scheduler containing the Worklist Query attributes.
3. The Department Scheduler returns a C-FIND response containing the requested attributes of the first matching Worklist Item.
4. The Department Scheduler returns another C-FIND response containing the requested attributes of the second matching Worklist Item.
5. The Department Scheduler returns another C-FIND response with status Success indicating that no further matching Worklist Items exist. This example assumes that only 2 Worklist items match the Worklist Query.
6. The MWM SCU AE closes the association with the Department Scheduler.
7. The user selects a Worklist Item from the Worklist and prepares to acquire new images.

7.2.3.2 Association Parameters of MWM SCU AE

See Table 7-1 for Association parameters applicable to MWM SCU AE.

7.2.3.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.3.3.1 Real-World Activity "Update Worklist"

This AE creates an Association that includes only MWM abstract syntax with the supported Transfer Syntaxes.

Extended Negotiation – N/A

N/A

Role Negotiation- N/A

N/A

7.2.3.4 Association Acceptance – N/A

N/A

7.2.4 MPPS SCU Application Entity

7.2.4.1 Sequencing of Real-World Activities for MPPS SCU AE

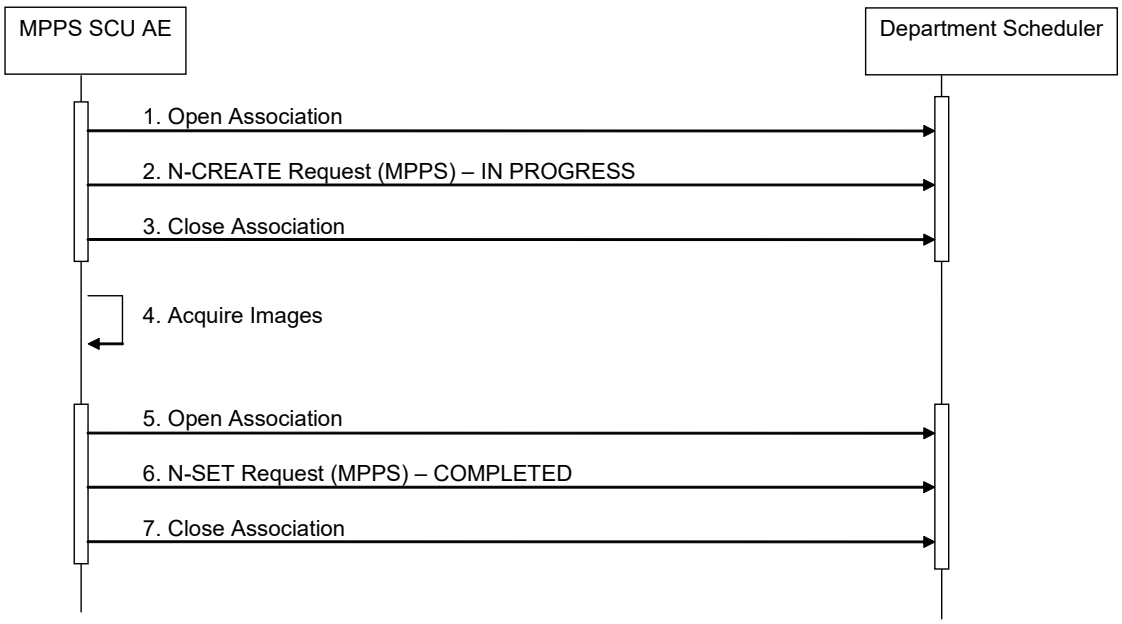


Figure 7-5 Sequencing of Real-World Activities for MPPS SCU AE

The MPPS SCU AE performs the creation of a MPPS Instance automatically whenever images are acquired. Further updates on the MPPS data can be performed automatically or interactively.

The MPPS SCU AE will initiate an Association to issue an:

N-CREATE request according to the CREATE Modality Performed Procedure Step SOP Instance operation, or an:

N-SET request to update the contents and state of the MPPS according to the SET Modality Performed Procedure Step Information operation.

A possible sequence of interactions between the MPPS SCU AE and a Department Scheduler (e.g. a device such as a RIS or HIS which supports the MPPS SOP Class and MPPSR SCP Class as an SCP) is illustrated in the Figure above:

1. The MPPS SCU AE opens an association with the Department Scheduler
2. The MPPS SCU AE sends an N-CREATE request to the Department Scheduler to create an MPPS instance with status of "IN PROGRESS" and create all necessary attributes. The Department Scheduler acknowledges the MPPS creation with an N-CREATE response (status success).
3. The MPPS SCU AE closes the association with the Department Scheduler.
4. All images are acquired and stored in the local database. (Figure 7-5
5. The MPPS SCU AE opens an association with the Department Scheduler.
6. The MPPS SCU AE sends an N-SET request to the Department Scheduler to update the MPPS instance with status of "COMPLETED" and set all necessary attributes. The Department Scheduler acknowledges the MPPS update with an N-SET response (status success).
7. The MPPS SCU AE closes the association with the Department Scheduler.

7.2.4.2 Association Parameters of MPPS SCU AE

See Table 7-1 for Association parameters applicable to MPPS SCU AE.

7.2.4.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.4.3.1 Real-World Activity “Acquire Images”

This AE creates an Association that includes only MPPS abstract syntax with the supported Transfer Syntaxes.

Extended Negotiation – N/A

N/A

Role Negotiation -N/A

N/A

7.2.4.4 Association Acceptance-N/A

N/A

7.2.5 Storage SCU Application Entity

7.2.5.1 Sequencing of Real-World Activities for MPPS SCU AE

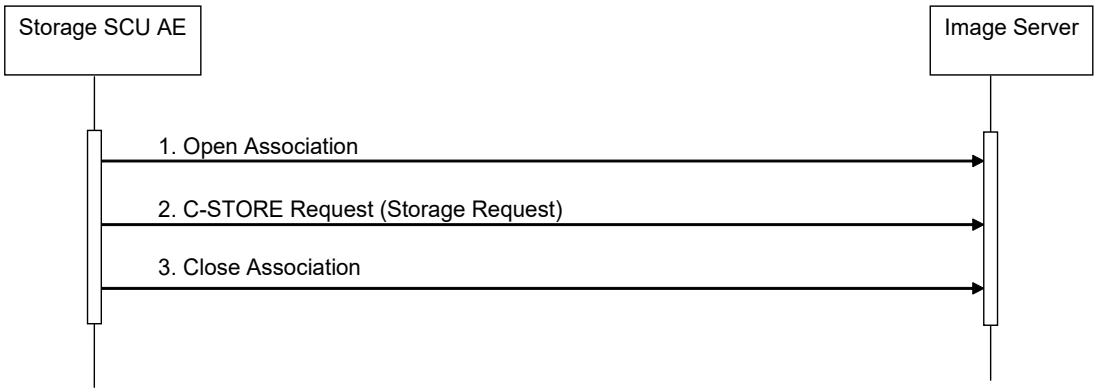


Figure 7-6 Sequencing of Real-World Activities for Storage SCU AE

The Storage SCU AE attempts to initiate a new Association in order to issue a Storage request (C-STORE). If the job contains multiple objects then multiple C-STORE requests will be issued over the same Association. If the object transfer fails, the Storage SCU AE will retry this send-job automatically.

A possible sequence of interactions between the Storage SCU AE and an Image Server (e.g. a storage or archive device supporting the Storage SOP Classes as an SCP) is illustrated in the Figure above:

1. The Storage SCU AE opens an Association with the Image Server
2. Acquired images, spectroscopy data or generated GSPS are transmitted to the Image Server using a Storage request (C-STORE) and the Image Server replies with a C-STORE response (status success).
3. The Storage SCU AE closes the Association with the Image Server

7.2.5.2 Association Parameters of Storage SCU AE

See Table 7-1 for Association parameters applicable to Storage SCU AE.

7.2.5.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.5.3.1 Real-World Activity “Send Objects”

For image instance this AE creates an Association with presentation context of the SOP Class to send with the supported Transfer Syntaxes for this Image.
This AE initiates a new Association request for each instance. The association policy is same in case Transfer is triggered manually and when transfer occurs automatically (based on auto-send configuration).
If this AE can not establish an Association with remote SCP, the job queue is marked as Fail. User can retry it via the job control application.

Extended Negotiation – N/A

N/A

Role Negotiation– N/A

N/A

7.2.5.4 Association Acceptance– N/A

N/A

7.2.6 Storage Commitment SCU Application Entity

7.2.6.1 Sequencing of Real-World Activities for Storage Commitment SCU AE

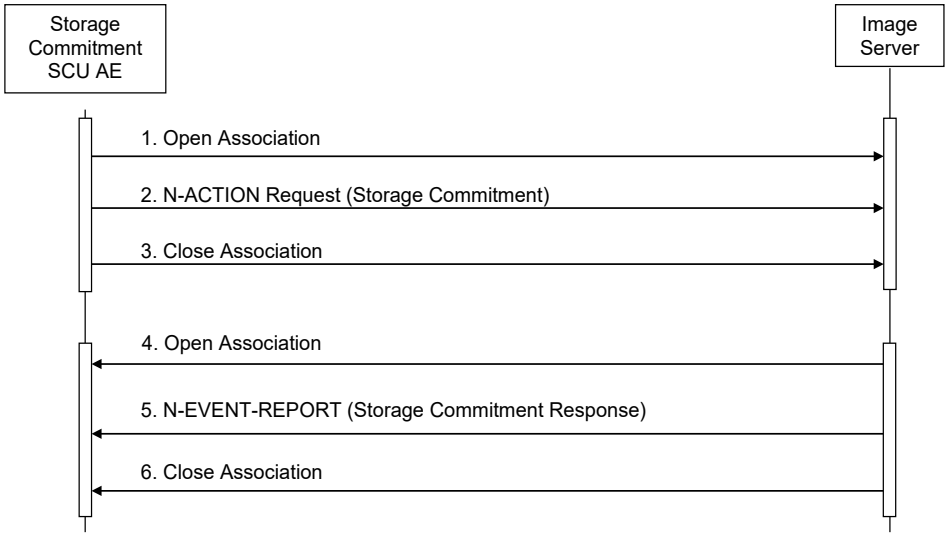


Figure 7-7 Sequencing of Real-World Activities for Storage Commitment SCU AE

If the remote AE is configured as an archive device the Storage Commitment SCU AE will, after all objects have been sent, transmit a single Storage Commitment request (N-ACTION). Upon receiving the N-ACTION response the Storage Commitment SCU AE will release the Association. The notification of Storage commitment (N-EVENT-REPORT) will be received over a separate Association.

A possible sequence of interactions between the Storage Commitment SCU AE and an Image Server (e.g. a storage or archive device supporting the Storage Commitment SOP Classes as an SCP) is illustrated in the Figure above:

1. The Storage Commitment SCU AE opens an Association with the Image Server.
2. A Storage Commitment request (N-ACTION) is transmitted to the Image Server to obtain Storage Commitment of previously transmitted objects. The Image Server replies with an N-ACTION response indicating the request has been received and is being processed.
3. The Storage Commitment AE closes the Association with the Image Server.
4. The Image Server opens an Association with the Storage Commitment SCU AE.
5. The Image Server sends an N-EVENT-REPORT request notifying the Storage Commitment SCU AE of the status of a previous Storage Commitment Request. The Storage SCU AE replies with an N-EVENT-REPORT response confirming receipt.
6. The Image Server closes the Association with the Storage Commitment SCU AE.

7.2.6.2 Association Parameters of Storage Commitment SCU AE

Table 7-2 lists Association parameters applicable to Storage Commitment SCP AE.

Table 7-5 Association Parameters for Storage Commitment SCP AE

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0

	Name	Value
	Maximum PDU Length	Default: 64234
	ARTIM Timeout	Default: 30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	10
	Maximum number of outstanding asynchronous Transactions	1

7.2.6.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.6.3.1 Real-World Activity “Send Objects”

After sending the instances by Storage service, this AE creates an Association with presentation context of the Storage Commitment Push model SOP Class to send N-ACTION request for these instances.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.6.4 Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.6.4.1 Real-World Activity “Send Objects”

This AE accepts the Association request of a Storage Commitment Push model. then, it receives N-EVENT-REPORT request and return success/failure.

This AE expects the N-EVENT-REPORT request on a different Association of N-ACTION request.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity “Send Objects” of Storage Commitment SCU of the system.

Table 7-6 Transfer Syntax Selection Preference Order - Image SOP Classes for Storage Commitment SCP AE

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2.1	
2	Implicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.7 Q/R SCU Application Entity

7.2.7.1 Sequencing of Real-World Activities for Q/R SCU AE

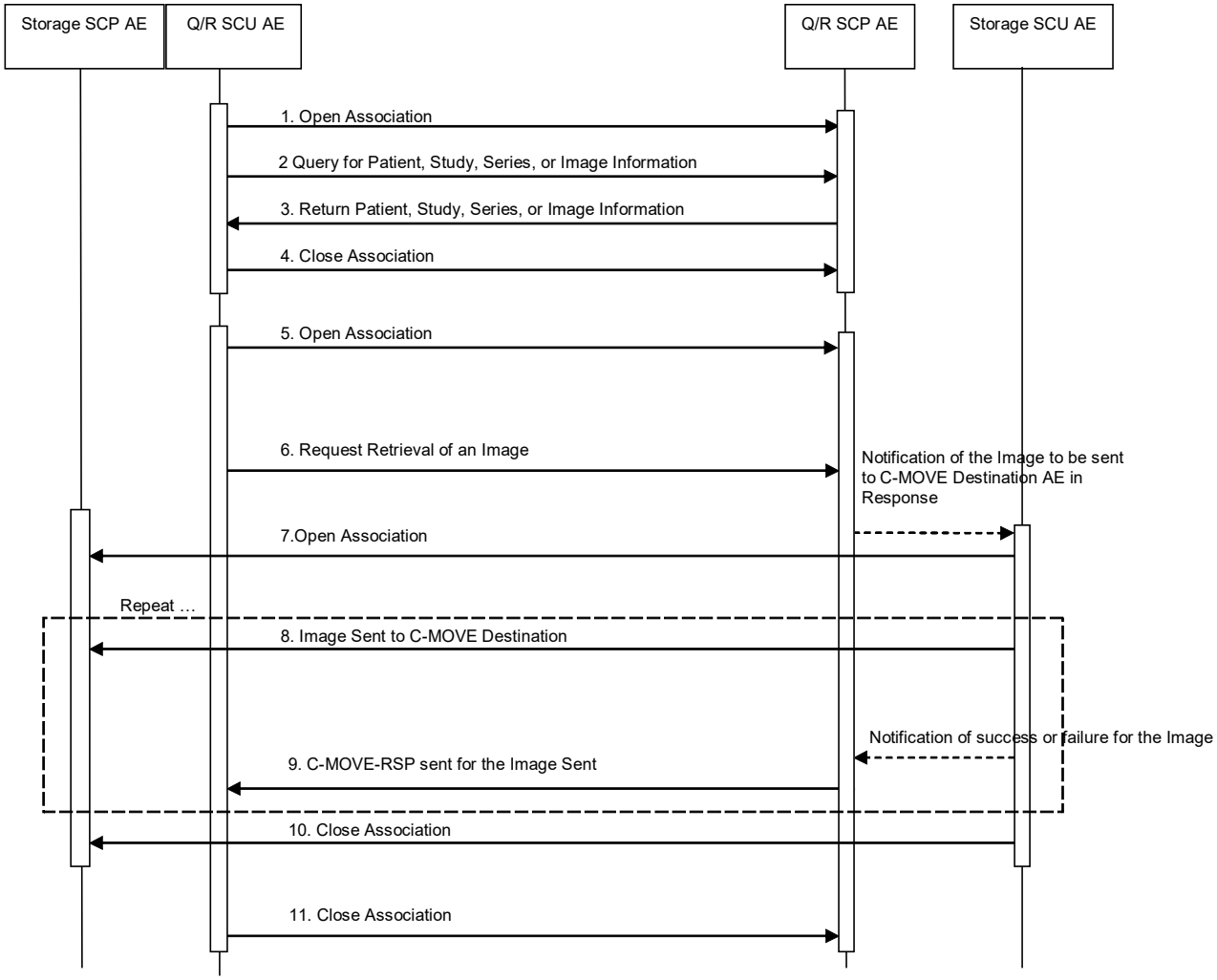


Figure 7-8 Sequencing of Real-World Activities for Q/R SCU AE

The following sequencing constraints illustrated in the Figure above:

1. The Q/R SCU AE opens an Association with the Q/R SCP AE.
2. The Q/R SCU AE sends a C-FIND-RQ Message
3. The Q/R SCP AE returns a C-FIND-RSP Message to the Q/R SCU AE with matching information. A C-FIND-RSP is sent for each entity matching the identifier specified in the C-FIND-RQ. A final C-FIND-RSP is sent indicating that the matching is complete.
4. The Q/R SCU AE closes the Association.
5. The Q/R SCU AE opens an Association with the Q/R SCP AE.
6. The Q/R SCU AE sends a C-MOVE-RQ Message. The Q/R SCP AE notifies the Storage SCU AE to send the Composite SOP Instances to the peer C-MOVE Destination AE as indicated in the C-MOVE-RQ.
7. The Storage SCU AE opens an Association with the C-MOVE Destination AE.

8. The Storage SCU AE sends images to the C-MOVE Destination AE. The Storage SCU AE indicates to the Q/R SCP AE whether the transfer succeeded or failed.

9. The Q/R SCP AE then returns a C-MOVE-RSP indicating this success or failure.

10. The Storage SCU AE closes the Association.

11. The Q/R SCU AE closes the Association.

7.2.7.2 Association Parameters of Q/R SCU AE

See Table 7-1 for Association parameters applicable to Q/R SCU AE.

7.2.7.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.7.3.1 Real-World Activity "Query and Retrieve Images"

This AE creates an Association that includes presentation contexts of the supported Query/Retrieve abstract syntax with the supported Transfer Syntaxes.
This AE does not support a retry mechanism for Query/Retrieve.

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.7.4 Association Acceptance – N/A

N/A

7.2.8 Storage SCP Application Entity

7.2.8.1 Sequencing of Real-World Activities for Storage SCP AE

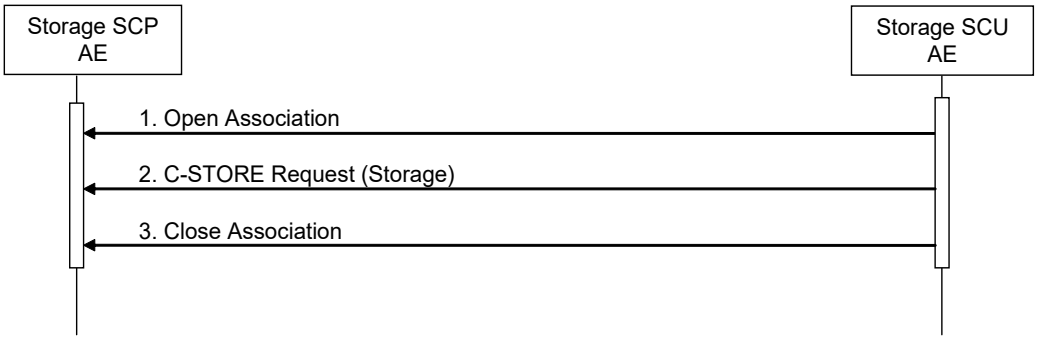


Figure 7-9 Sequencing of Real-World Activities for Storage SCP AE - Storage

The Storage SCP AE accepts Associations only if they have valid Presentation Contexts. If none of the requested Presentation Contexts are accepted then the Association Request itself is rejected. It can be configured to only accept Associations with certain hosts (using TCP/IP address) and/or Application Entity Titles.

A possible sequence of interactions between the Storage SCP AE and a Storage SCU AE is illustrated in the

Figure above:

1. The Storage SCU AE opens an Association with the Storage SCP AE.
2. The Storage SCU AE sends images to the Storage SCP AE using a Storage request (C-STORE) and the Storage SCP AE replies with a C-STORE response (status success).
3. The Storage SCU AE closes the Association with the Storage SCP AE.

7.2.8.2 Association Parameters of Storage SCP AE

Table 7-7 lists Association parameters applicable to Storage SCP AE.

Table 7-7 Association Parameters for Storage SCP AE

	Name	Value
Networking Services	Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0
	Maximum PDU Length	Default: 64234
	ARTIM Timeout	Default: 30s
	Maximum number of simultaneous Associations as Association Initiator	1
	Maximum number of simultaneous Associations as Association Acceptor	10
	Maximum number of outstanding asynchronous Transactions	1

7.2.8.3 Association Initiation – N/A

N/A

7.2.8.4 Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.8.4.1 Real-World Activity “Store Images to the Local File System”

This AE receives instances from remote AE, then, it saves into local file system.

Extended Negotiation – N/A

N/A

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there
are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity “Store Local File System” of Storage SCP AE of the system.

Table 7-8 Transfer Syntax Selection Preference Order - Image SOP Classes for Storage SCP AE

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2.1	
2	Implicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.9 Storage Commitment SCP Application Entity

7.2.9.1 Sequencing of Real-World Activities for Storage Commitment SCP AE

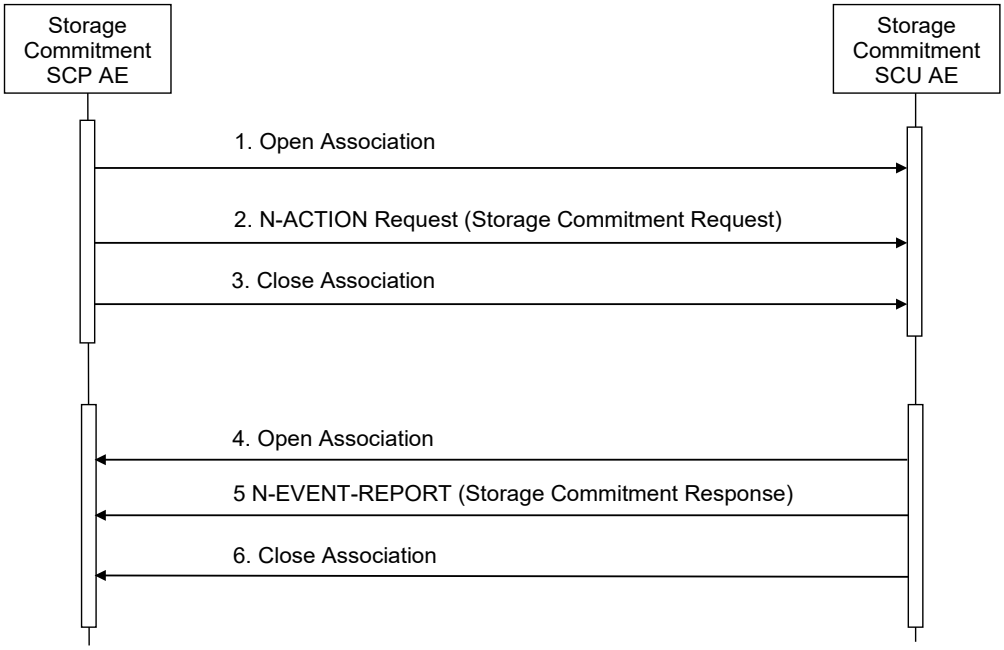


Figure 7-10 Sequencing of Real-World Activities for Storage Commitment SCP AE Storage

The Storage Commitment SCP AE will initiate Associations in order to send responses to a Storage Commitment Response(N-EVENT-REPORT).

A possible sequence of interactions between the Storage Commitment SCP AE and Storage Commitment SCU AE is illustrated in the Figure above:

1. The Storage Commitment SCU AE opens an Association with the Storage Commitment SCP AE.
2. A Storage Commitment request (N-ACTION) is transmitted to the Storage Commitment SCP AE to obtain Storage Commitment of previously transmitted objects. The Storage Commitment SCP AE replies with an N-ACTION response indicating the request has been received and is being processed.
3. The Storage Commitment SCU AE closes the Association with the Storage Commitment SCP AE.
4. The Storage Commitment SCP AE opens an Association with the Storage Commitment SCU AE.
5. The Storage Commitment SCP AE sends an N-EVENT-REPORT request notifying the Storage Commitment SCU AE of the status of a previous Storage Commitment Request. The Storage SCU AE replies with an N-EVENT-REPORT response confirming receipt.
6. The Storage Commitment SCP AE closes the Association with the Storage Commitment SCU AE.

7.2.9.2 Association Parameters of Storage Commitment SCP AE

See Table 7-1 for Association parameters applicable to Storage Commitment SCP SCU AE.

7.2.9.3 Association Initiation

The Storage Commitment SCP AE will initiate Associations in order to send responses to a Storage Commitment Response(N-EVENT-REPORT).

7.2.9.3.1 Real-World Activity “Store Images to the Local File System”

The Storage Commitment SCP AE will initiate Associations in order to send responses to a Storage Commitment Response(N-EVENT-REPORT).

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.9.4 Association Acceptance

This section details the Association policies of the Application Entity when it is the acceptor of an Association.

7.2.9.4.1 Real-World Activity “Store Images to the Local File System”

The Storage Commitment SCP AE will accept Associations in order to receive responses to a Storage Commitment Request(N-ACTION).

Extended Negotiation – N/A

N/A

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there
are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity “Store Local File System” of Storage Commitment SCP AE of the system.

Table 7-9 Transfer Syntax Selection Preference Order - Image SOP Classes for Storage Commitment SCP AE

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2.1	
2	Implicit VR Little-Endian Transfer Syntax	1.2.840.10008.1.2	

7.2.10 Print SCU Application Entity

7.2.10.1 Sequencing of Real-World Activities for Print SCU AE

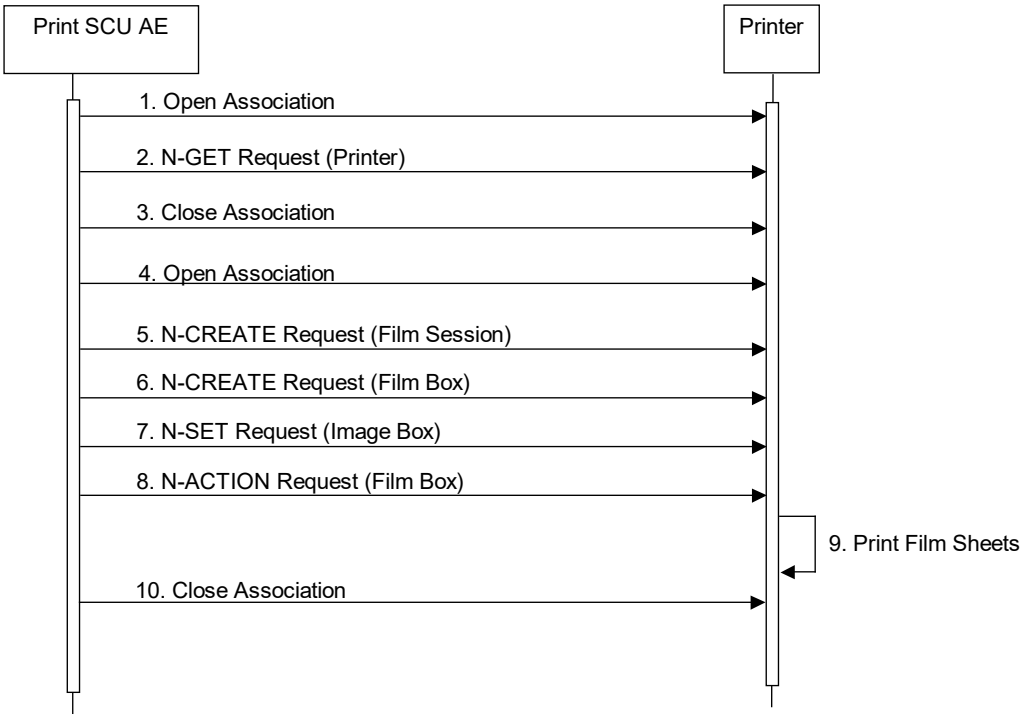


Figure 7-11 Sequencing of Real-World Activities for Print SCU AE Storage

A typical sequence of DIMSE messages sent over an association between the Print SCU AE and a Printer is illustrated in the Figure above:

1. The Print SCU AE opens an Association with the Printer.
2. N-GET on the Printer SOP Class is used to obtain current printer status information.
3. The Print SCU AE closes the Association with the Printer.
4. The Print SCU AE opens an Association with the Printer.
5. N-CREATE on the Film Session SOP Class creates a Film Session.
6. N-CREATE on the Film Box SOP Class creates a Film Box linked to the Film Session.
7. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer.
8. N-ACTION on the Film Box SOP Class instructs the Printer to print the Film Box.
9. The Printer prints the requested number of film sheets.

   The Printer asynchronously reports its status via N-EVENT-REPORT notification (Printer SOP Class). The printer can send this message at any time. The Print SCU AE does not require the N-EVENT-REPORT to be sent. The Print SCU AE is capable of receiving an N-EVENT-REPORT notification at any time during an association.
10. The Print SCU AE closes the Association with the Printer.

7.2.10.2 Association Parameters of Print SCU AE

See Table 7-1 for Association parameters applicable to Print SCU AE.

7.2.10.3 Association Initiation

This section details the Association policies of the Application Entity when it is initiating an Association.

7.2.10.3.1 Real-World Activity “Send Images & Print Management Information”

This AE creates an Association that includes presentation contexts of the Basic Grayscale Print Management Meta SOP Class and Print Job SOP Class with the supported Transfer Syntaxes.
If print job is fail, the print request are sent again by a retry mechanism

Extended Negotiation – N/A

N/A

Role Negotiation – N/A

N/A

7.2.10.4 Association Acceptance – N/A

N/A

7.2.11 Offline-Media Application Entity

Table 7-1 lists Association parameters applicable to all AEs on the system.

Table 7-10 General Association Parameters

	Name	Value
Media Services	File Meta Information Version	1
	Implementation Class UID	1.2.392.200036.9116.4.2.10
	Implementation Version Name	CM_MR_DCM_V3.0

7.2.10.3 Association Initiation – N/A

N/A

7.2.10.4 Association Acceptance – N/A

N/A

7.3 Status Codes

The following sections describe the Status Codes supported by the system for each implemented service as well as the reason for issuing specific Status Codes or the associated behavior when receiving it.

7.3.1 General AE Communication and Failure Behavior and Handling

7.3.1.1 Communication Failure Behavior as Association Initiator

Table 7-11 describes behavior of the AE if a communication failure occurs when it initiated an Association.

Table 7-11 DICOM Communication Failure Behavior as Association Initiator

Failure	Failure Behavior
Timeout	The Association is aborted using A-ABORT and the service is marked as failed. The reason is logged and reported to the user.
Association aborted by the SCP or network layers	The service is marked as failed. The reason is logged and reported to the user.
Association aborted by the SCU or network layers	The send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.

7.3.1.2 Communication Failure Handling as Association Acceptor

Table 7-12 describes how the AE responds when it receives an Association request that leads to a failure in communication.

Table 7-12 DICOM Communication Failure Handling as Association Acceptor

Exception	Failure response
Failure during processing of an Association request	ABORT message is sent out and the connection is closed
Unrecognized Called AE	AE responds with Association-RJ
Exceed limit for number of connections supported	AE responds with Association-RJ

7.3.2 DIMSE Services

7.3.2.1 Basic Worklist Management Service

7.3.2.1.1 SCU of the Modality Worklist Information Model Find SOP Class - C-FIND

Table 7-13 lists the Status Codes that the SCU of the Modality Worklist Information Model Find SOP Class supports for the C-FIND message and defines the application behavior when encountering the listed Status Codes.

Table 7-13 Status Codes for C-FIND of the Modality Worklist Information Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Matching is complete	0000	The SCP has completed the matches. Worklist items are available for display or further processing.
Refused	Out of Resources	A700	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported

Service Status	Further Meaning	Status Code	Behavior
			to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Identifier does not match SOP Class	A900	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Unable to Process	C000-CFFF	The Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Cancel	Matching terminated due to Cancel request	FE00	If the query was cancelled due to too many worklist items then the SCP has completed the matches. Worklist items are available for display or further processing. Otherwise, the Association is aborted using A-ABORT and the worklist query is marked as failed. The status meaning is logged and reported to the user if an interactive query.
Pending	Matches are continuing	FF00	The worklist item contained in the Identifier is collected for later display or further processing.
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported	FF01	The worklist item contained in the Identifier is collected for later display or further processing. The status meaning is logged only once for each C-FIND operation.
*	*	Any other status code.	The Association is aborted using A-ABORT and the worklist is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.

7.3.2.1.2 SCP of the Modality Worklist Information Model Find SOP Class - C-FIND - N/A

N/A

7.3.2.2 Modality Performed Procedure Step Service

7.3.2.2.1 SCU of the Modality Performed Procedure Step SOP Class - N-CREATE

Table 7-14 lists the Status Codes that the SCU of the Modality Performed Procedure Step SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7-14 Status Codes for N-CREATE of the Modality Performed Procedure Step SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Failure	Processing Failure - Performed Procedure Step Object may no longer be updated	0110	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user. Additional information in the Response will be logged (i.e. Error Comment and Error ID).

Service Status	Further Meaning	Status Code	Behavior
Warning	Attribute Value Out of Range	0116	The MPPS operation is considered successful but the status meaning is logged. Additional information in the response identifying the attributes out of range is logged. (I.e., Elements in the Modification List/Attribute List)
*	*	Any other status code.	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user.

7.3.2.2.2 SCU of the Modality Performed Procedure Step SOP Class - N-SET

Table 7-15 lists the Status Codes that the SCU of the Modality Performed Procedure Step SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7-15 Status Codes for N-SET of the Modality Performed Procedure Step SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Failure	Processing Failure - Performed Procedure Step Object may no longer be updated	0110	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user. Additional information in the Response will be logged (i.e. Error Comment and Error ID).
Warning	Attribute Value Out of Range	0116	The MPPS operation is considered successful but the status meaning is logged. Additional information in the response identifying the attributes out of range is logged. (I.e., Elements in the Modification List/Attribute List)
*	*	Any other status code.	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user.

7.3.2.2.3 SCP of the Modality Performed Procedure Step SOP Class - N-CREATE - N/A

N/A

7.3.2.2.4 SCP of the Modality Performed Procedure Step SOP Class - N-SET - N/A

N/A

7.3.2.3 Unified Worklist und Procedure Step Service - N/A

N/A

7.3.2.4 Instance Availability Notification Service - N/A

N/A

7.3.2.5 Storage Service

7.3.2.5.1 SCU of the Storage SOP Classes - C-STORE

Table 7-16 lists the Status Codes that the SCU of the Storage SOP Class supports for the C-STORE message and defines the application behavior when encountering the listed Status Codes.

Table 7-16 Status Codes C-STORE for the Storage SOP Classes - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has successfully stored the SOP Instance. If all SOP Instances in a send job have status success then the job is marked as complete.
Refused	Out of Resources	A700-A7FF	The Association is aborted using A-ABORT and the send job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application. This is a transient failure.
Error	Data Set does not match SOP Class	A900-A9FF	The Association is aborted using A-ABORT and the send job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
	Cannot Understand	C000-CFFF	The Association is aborted using A-ABORT and the send job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
*	*	Any other status code.	The Association is aborted using A-ABORT and the send job is marked as failed. The status code is logged and the job failure is reported to the user via the job control application.

7.3.2.5.2 SCP of the Storage SOP Classes - C-STORE

Table 7-17 lists the Status Codes that the SCP of the Storage SOP Classes supports for the C-STORE message and defines conditions in which the listed Status Codes are sent.

Table 7-17 Status Codes C-STORE of the Storage SOP Classes - SCP

Service Status	Further Meaning	Status Codes	Related Fields	Condition (and Comments on Related fields)
Success	Success	0000	N/A	The Composite SOP Instance was successfully received, verified, and stored in the system database.
Refused	Out of Resources	A700	N/A	Indicates that there were not enough local resources.
Error	Data Set does not match SOP Class	A901	N/A	Indicates that the Data Set does not encode a valid instance of the SOP Class specified.
	Processing Failed	B006	N/A	Indicates that some elements discarded.

Service Status	Further Meaning	Status Codes	Related Fields	Condition (and Comments on Related fields)
	Processing failed	B007	N/A	Indicates that the Data Set does not match a supported SOP Class.
	Cannot understand	C000	N/A	Indicates that the Storage SCP AE cannot parse the Data Set into Elements.

7.3.2.6 Storage Commitment Service

7.3.2.6.1 SCU of the Storage Commitment Push Model SOP Class - N-ACTION

Table 7-18 lists the Status Codes that the SCU of the Storage Commitment Push Model SOP Class supports for the N-ACTION message and defines the application behavior when encountering the listed Status Codes.

Table 7-18 Status Codes for N-ACTION of the Storage Commitment Push Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The request for storage commitment is considered successfully sent. A timer is started which will expire if no N-EVENT-REPORT for the Transaction UID is received within a configurable timeout period.
*	*	Any other status code.	The Association is aborted using A-ABORT and the request for storage commitment is marked as failed.

7.3.2.6.2 SCU of the Storage Commitment Push Model SOP Class - N-EVENT-REPORT

Table 7-19 lists the Status Codes that the SCU of the Storage Commitment Push Model SOP Class supports for the N-EVENT-REPORT message and defines the application behavior when encountering the listed Status Codes.

Table 7-19 Status Codes for N-EVENT-REPORT for the Storage Commitment Push Model SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The storage commitment result has been successfully received.
Failure	Unrecognized Operation	0211	The Transaction UID in the N-EVENT-REPORT request is not recognized (was never issued within an N-ACTION request).
	Resource Limitation	0213	The Transaction UID in the N-EVENT-REPORT request has expired (no N-EVENT-REPORT was received within a configurable time limit).
	No Such Event Type	0113	An invalid Event Type ID was supplied in the N-EVENT-REPORT request.
	Processing Failure	0110	An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902).
	Invalid Argument Value	0115	One or more SOP Instance UIDs with the Referenced SOP Sequence (0008,1199) or Failed SOP Sequence (0008,1198) was not included in the Storage Commitment Request associated with

Service Status	Further Meaning	Status Code	Behavior
			this Transaction UID. The unrecognized SOP Instance UIDs will be returned within the Event Information of the N-EVENT-REPORT response.

7.3.2.6.3 SCP of the Storage Commitment Push Model SOP Class - N-ACTION

Table 7-20 lists the Status Codes that the SCP of the Storage Commitment Push Model SOP Class supports for the N-ACTION message and defines conditions in which the listed Status Codes are sent.

Table 7-20 Status Codes for N-ACTION for the Storage Commitment Push Model SOP Class - SCP

Service Status	Further Meaning	Status Code	Condition
Success	Success	0000	The SCP has successfully received the Storage Commitment Push Model N-ACTION Request and can process the commitment request for the indicated SOP Instances.
Error	Processing Failure	0110	Indicates that the Storage Commitment Push Model N-ACTION Request cannot be parsed or fully processed due to a database or system failure.
Error	Missing Attribute	0120	Indicates that the Storage Commitment Push Model N-ACTION Request cannot be processed because a required attribute is missing from the N-ACTION Request Data Set.
Error	Missing Attribute Value	0121	Indicates that the Storage Commitment Push Model N-ACTION Request cannot be processed because a Type 1 attribute in the N-ACTION Request Data Set does not specify a value.

7.3.2.6.4 SCP of the Storage Commitment Push Model SOP Class - N-EVENT-REPORT

Table 7-21 lists the Status Codes that the SCP of the Storage Commitment Push Model SOP Class supports for the N-EVENT-REPORT message and defines conditions in which the listed Status Codes are sent.

Table 7-21 Status Codes for N-EVENT-REPORT for the Storage Commitment Push Model SOP Class - SCP

Service Status	Further Meaning	Status Code	Condition
Success	Success	0000	The SCU has successfully received the Storage Commitment Push Model N-EVENT-REPORT Request. Success indication message is output to the Service Logs. No message is posted to the User Interface.
Warning	Attribute List Error	0107	Transmission of Storage Commitment Push Model N-EVENT-REPORT Request is considered successful. Warning indication message is output to the Service Logs. No message is posted to the User Interface.
*	*	Any other status code.	This is treated as a permanent Failure. Error indication message is output to the Service Logs. No message is posted to the User Interface.

7.3.2.7 Query/Retrieve Service

7.3.2.7.1 SCU of the Query/Retrieve FIND SOP Classes - C-FIND

Table 7-22 lists the Status Codes that the SCU of any of the Query/Retrieve FIND SOP Class supports for the C-FIND message and defines the application behavior when encountering the listed Status Codes.

Table 7-22 Status Codes C-FIND for Query/Retrieve FIND SOP Classes - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Matching is complete	0000	The SCP has completed the matches. Study, Series or Image information items are available for display or further processing.
Refused	Out of Resources	A700	The Association is aborted using A-ABORT and the Study, Series, or Image information query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Identifier does not match SOP Class	A900	The Association is aborted using A-ABORT and the Study, Series, or Image information query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Failed	Unable to Process	C000-CFFF	The Association is aborted using A-ABORT and the Study, Series, or Image information query is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.
Cancel	Matching terminated due to Cancel request	FE00	The Association is aborted using A-ABORT and the Study, Series, or Image information query is marked as failed. The status meaning is logged and reported to the user if an interactive query.
Pending	Matches are continuing	FF00	The Study, Series, or Image information items contained in the Identifier is collected for later display or further processing.
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported	FF01	The Study, Series, or Image information items contained in the Identifier is collected for later display or further processing.
*	*	Any other status code.	The Association is aborted using A-ABORT and the Study, Series, or Image information is marked as failed. The status meaning is logged and reported to the user if an interactive query. Any additional error information in the Response will be logged.

7.3.2.7.2 SCU of the Query/Retrieve MOVE SOP Classes - C-MOVE

Table 7-23 lists the Status Codes that the SCU of any of the Query/Retrieve MOVE SOP Class supports for the C-MOVE message and defines the application behavior when encountering the listed Status Codes.

Table 7-23 Status Codes C-MOVE for Query/Retrieve MOVE SOP Classes - SCU

Service Status	Further Meaning	Status Codes	Related Fields	Behavior
Success	Sub-operations complete - No Failures	0000	N/A	The Storage SCP AE has successfully received the SOP Instance. If all SOP Instances in a move job have status success then the job is marked as complete.
Refused	Out of Resources - Unable to calculate number of matches	A701	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application. This is a transient failure.
	Out of Resources - Unable to perform sub-operations	A702	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
	Move destination unknown	A801	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
Failed	Identifier does not match SOP Class	A900	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
Warning	Sub-operations complete but one or more failures.	B000	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application.
Pending	Current Match is supplied. Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	The Association continues and the concurrent progress is reported to user with the value of (0000,1020), (0000,1021), (0000,1022) and (0000,1023).
*	*	Any other status code.	N/A	The Association is aborted using A-ABORT and the move job is marked as failed. The status meaning is logged and the job failure.is reported to the user via the job control application.

7.3.2.7.3 SCP of the Query/Retrieve FIND SOP Classes - C-FIND

Table 7-24 lists the Status Codes that the SCP of any of the Query/Retrieve FIND SOP Classes supports for the C-FIND message and defines conditions in which the listed Status Codes are sent.

Table 7-24 Status Codes C-FIND for Query/Retrieve FIND SOP Classes - SCP

Service Status	Further Meaning	Status Code	Related Fields	Related Fields
Success	Success	0000	N/A	Matching is complete. No final identifier is supplied.
Refused	Out of Resources	A700	N/A	System reached the limit in disk space or memory usage. Error message is output to the Service Log.

Service Status	Further Meaning	Status Code	Related Fields	Related Fields
Failed	Identifier does not match SOP Class	A900	N/A	The C-FIND query identifier contains invalid Elements or values, or is missing mandatory Elements or values for the specified SOP Class. Error message is output to the Service Log.
	Unable to process	C000 C001	N/A	The C-FIND query identifier is valid for the specified SOP Class but cannot be used to query the database. For example, this can occur if received data contains unsupported character sets. (See section 1.7.)
Cancel	Matching terminated due to Cancel Request	FE00	N/A	The C-FIND SCU sent a Cancel Request. This has been acknowledged and the search for matches has been halted.
Pending	Matches are continuing and current match is supplied.	FF00	N/A	Indicates that the search for further matches is continuing. This is returned when each successful match is returned and when further matches are forthcoming. This status code is returned if all Optional keys in the query identifier are actually supported.
	Matches are continuing but one or more Optional Keys were not supported.	FF01	N/A	Indicates that the search for further matches is continuing. This is returned when each successful match is returned and when further matches are forthcoming. This status code is returned if there are Optional keys in the query identifier that are not supported.

7.3.2.7.4 SCP of the Query/Retrieve MOVE SOP Classes - C-MOVE

Table 7-25 lists the Status Codes that the SCP of any of the Query/Retrieve MOVE SOP Classes supports for the C-MOVE message and defines conditions in which the listed Status Codes are sent.

Table 7-25 Status Codes C-MOVE for Query/Retrieve MOVE SOP Classes - SCP

Service Status	Further Meaning	Status Codes	Related Fields sent in the response	Condition	Action on the Store due the condition.
Success	Sub-operations complete - No Failures	0000	N/A	All the Composite SOP Instances have been successfully sent to the C-MOVE Destination AE.	
Refused	Out of Resources - Unable to calculate number of matches	A701	N/A	Number of matches cannot be determined due to system failure. Returned if the server's database is not functioning so the search for matches to the C-MOVE Request cannot be found. Error message is output to the Service Log.	

Service Status	Further Meaning	Status Codes	Related Fields sent in the response	Condition	Action on the Store due the condition.
	Out of Resources - Unable to perform sub-operations	A702	N/A	C-STORE sub-operations cannot be performed due to failure to access Composite SOP Instances in archive, or failure of a C-STORE Request. Error message is output to the Service Log.	
	Move destination unknown	A801	N/A	The Destination Application Entity named in the C-MOVE Request is unknown to Q/R SCP AE. Error message is output to the Service Log.	
Failed	Identifier does not match SOP Class	A900	N/A	The C-MOVE identifier contains invalid Elements or values, or is missing mandatory Elements or values for the specified SOP Class or retrieval level. Error message is output to the Service Log.	
Cancel	Matching terminated due to Cancel Request	FE00	N/A	The C-MOVE SCU sent a Cancel Request. This has been acknowledged and the export of Composite SOP Instances to the C-MOVE Destination AE has been halted.	

7.3.2.8 Print Management Service

7.3.2.8.1 SCU of the Basic Film Session SOP Class

7.3.2.8.1.1 SCU of the Basic Film Session SOP Class - N-CREATE

Table 7-26 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7-26 Status Codes for N-CREATE of the Basic Film Session SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Attribute Value Out of Range	0116	The N-CREATE operation is considered successful but the status meaning is logged. Additional information in the response identifying the attribute out of range is logged.(I.e., Elements in the modification list/Attribute list)
Warning	Attribute List Error	0107	The N-CREATE operation is considered successful but the status meaning is logged. Additional information in the response identifying the attribute out of range is logged.(I.e., Elements in the Attribute identifier list)
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.1.2 SCU of the Basic Film Session SOP Class - N-SET – N/A

N/A

7.3.2.8.1.3 SCU of the Basic Film Session SOP Class - N-DELETE– N/A

N/A

7.3.2.8.1.4 SCU of the Basic Film Session SOP Class - N-ACTION– N/A

N/A

7.3.2.8.2 SCU of the Basic Box Session SOP Class– N/A

N/A

7.3.2.8.3 SCU of the Basic Grayscale Image Box SOP Class - N-SET

Table 7-27 lists the Status Codes that the SCU of the Basic Grayscale Image Box SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7-27 Status Codes for N-SET of the Grayscale Image Box SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. Image successfully stored in Image Box.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604	The N-SET operation is considered successful but the status meaning is logged.
	Requested Min Density or Max Density outside of printer's operating range.	B605	The N-SET operation is considered successful but the status meaning is logged.
	Image size is larger than Image Box size. The image has been cropped to fit.	B609	The N-SET operation is considered successful but the status meaning is logged.
	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60A	The N-SET operation is considered successful but the status meaning is logged.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

Service Status	Further Meaning	Status Code	Behavior
	Insufficient memory in printer to store the image.	C605	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.4 SCU of the Basic Color Image Box SOP Class - N-SET– N/A

N/A

7.3.2.8.5 SCU of the Printer SOP Class

7.3.2.8.5.1 SCU of the Printer SOP Class - N-EVENT-REPORT– N/A

N/A

7.3.2.8.5.2 SCU of the Printer SOP Class - N-GET

Table 7-28 lists the Status Codes that the SCU of the Printer SOP Class supports for the N-GET message and defines the application behavior when encountering the listed Status Codes.

Table 7-28 Status Codes for N-GET of the Printer SOP Class - SCU

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The request to get printer status information was success.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

7.3.2.8.6 SCU of the Basic Annotation Box SOP Class - N-SET– N/A

N/A

7.3.2.8.7 SCU of the Print Job SOP Class– N/A

N/A

7.3.2.8.8 SCU of the Presentation LUT SOP Class– N/A

N/A

7.3.2.8.9 SCU of the Printer Configuration Retrieval SOP Class - N-GET– N/A

N/A

7.3.2.8.10 SCP of the Basic Film Session SOP Class - N/A

N/A

7.3.2.8.11 SCP of the Basic Film Box SOP Class - N/A

N/A

7.3.2.8.12 SCP of the Basic Grayscale Image Box SOP Class - N-SET - N/A

N/A

7.3.2.8.13 SCP of the Basic Color Image Box SOP Class - N-SET - N/A
N/A

7.3.2.8.14 SCP of the Printer SOP Class - N/A
N/A

7.3.2.8.15 SCP the Basic Annotation Box SOP Class - N-SET - N/A
N/A

7.3.2.8.16 SCP of the Print Job SOP Class - N/A
N/A

7.3.2.8.17 SCP of the Presentation LUT SOP Class - N/A
N/A

7.3.2.8.18 SCP of the Printer Configuration Retrieval SOP Class - N-GET - N/A
N/A

7.3.3 DICOM Web Services - N/A
N/A

8 Security

8.1 Introduction

The security section describes security features implemented by this product. It includes descriptions of non-DICOM network protocols, information to configure firewalls and application whitelists, lists of supported DICOM security profiles as well as Web Security features. Additionally, secured media storage, VPN, etc. are also specified in this security section.

8.2 External Network Requirements

Table 8-1 describes additional non-DICOM network protocols that are used by Galan 3T, Centurian.

Table 8-1 External Network Requirements

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
Basic Time Synchronization	NTP Client	Maintain Time	NTP	RFC5905		N/A

8.3 TCP Port Configuration

See Section 6 Configuration for information on the usage of ports for DICOM and other protocols. This section contains helpful information for product administrators to configure firewalls, application whitelists, etc.

8.4 DICOM Security Profiles Support

8.4.1 Secure Use and User Identity Profiles

Table 8-2 lists the Secure Use and User Identity Profiles:

Table 8-2 Secure Use and User Identity Profiles

Profile	Creator/Sender	Consumer/Receiver	Reference
Audit Trail Message Format	Y	N	C.2.2
Audit Trail Message Transmission Profile - SYSLOG-TLS	Y	N	C.2.3
Audit Trail Message Transmission Profile - SYSLOG-UDP	Y	N	C.2.4

8.4.2 Secure Transport Connection Profiles

Table 8-3 describes the Secure Transport Connection Profiles supported by the product. Accepted cipher suites are described in the section listed in the "Reference" column.

Table 8-3 Secure Transport Connection Profiles

Profile	Secured AE	Sender	Receiver	Reference
BCP 195 RFC 8996 TLS Secure Transport Connection Profile(TLS 1.3)	Verification SCP, Storage SCP, Storage Commitment SCP, Q/R SCP,	Y	Y	C.2.5
Non-Downgrading BCP195 TLS Secure Transport Connection Profile(TLS 1.3)		Y	Y	C.2.5
Extended BCP195 TLS Profile Secure Transport Connection Profile(TLS 1.2)		Y	Y	C.2.5

Profile	Secured AE	Sender	Receiver	Reference
	MWM SCU, MPPS SCU, Q/R SCU, Storage SCU, Storage Commitment SCU			

8.4.3 Media Storage Security Profiles - N/A

N/A

8.4.4 Attribute Confidentiality Profiles

Table 8-4 lists supported Attribute Confidentiality Profiles and options:

Table 8-4 Attribute Confidentiality Profiles

Profile	Option	AE	De-identifier	Re-identifier	Configurable
Basic Application Level Confidentiality		ALL	Y	N	N
	Basic Profile	ALL	Y	N	N

See Annex C.2.6 for implementation details.

8.4.5 Digital Signature Profiles - N/A

N/A

8.4.6 Additional DICOM Security Profiles - N/A

N/A

8.5 User Identity Negotiation Support - N/A

N/A

8.6 Web Services Security Features - N/A

N/A

8.7 Other Security Features - N/A

N/A

Annexes

A Information Object Definitions (IODs)

This section describes all the SOP Instances natively created by Galan 3T, Centurian, e.g., images created by an acquisition modality or evidence documents created on a review workstation (i.e., all SOP Classes that are marked in the "Created" column in Table 1-1). Details on Attribute coercion are defined in Section 5.2.5.2.

In the "Source" column, the following Values can be used:

- FIXED: The Value is pre-defined and cannot be modified.
- GENERATED: The Value is generated by the system.
- CONFIGURATION: The Value is copied from the system configuration.
- MWL: The Value is copied from a Modality Worklist entry.
- QUERY: The Value is determined by performing a query of any of the supported Query/Retrieve Services.
- USER: The Value is entered by the user.
- SCANNED: The Value is read from a barcode scanner or similar device.
- EMPTY: The Attribute is sent with a zero-length Value.
- SRC_INSTANCE: The Value is copied from previously created/received SOP Instances.

The "Presence" columns reflect the usage of the Module, Functional Group Macro, Attributes, or Value in the Galan 3T, Centurian Implementation and is not necessarily the same as defined in the DICOM Standard. For the "Presence" column the following Values can be used:

- ALWAYS: the module, functional group macro, Attributes or Value is always present.
- CONDITIONAL: the presence of the module, functional group macro, Attributes or Value is dependent on a condition. The condition must be listed in the "Conditions" column.
- SRC_COPY: The presence of the Attributes and Values depends on the availability of these in the source instances, which are used for copying this information.
- EMPTY: The Attribute is present but without a Value (zero length).
- NEVER: the module or functional group macro is not present.

A.1 Information Shared Across Multiple IODs – N/A

N/A

A.2 MR Image IOD

Table below defines the structure of MR Image IOD.

Table A-1 MR Image IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-2
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-3
	Patient Study	ALWAYS		Table A-4
	Clinical Trial Study	NEVER		

Series	General Series	ALWAYS		Table A-5
	Clinical Trial Series	NEVER		
Frame of Reference	Frame of Reference	ALWAYS		Table A-6
Equipment	General Equipment	ALWAYS		Table A-7
Acquisition	General Acquisition	ALWAYS		Table A-8
Image	General Image	ALWAYS		Table A-9
	General Reference	CONDITIONAL	Only if specific color images	Table A-10
	Image Plane	ALWAYS		Table A-11
	Image Pixel	ALWAYS		Table A-12
	Contrast/Bolus	NEVER		
	Device	NEVER		
	Specimen	NEVER		
	MR Image	ALWAYS		Table A-13
	Overlay Plane	CONDITIONAL	Only if a ROI exists, the Overlay is output. However, if the image is rotated, zoomed, or translated, it will not be output.	Table A-14
	VOI LUT	ALWAYS		Table A-15
	SOP Common	ALWAYS		Table A-16
	Common Instance Reference	NEVER		
	Rescale	CONDITIONAL	Only if the PHASE MAP and PHASE SUBTRACT formats for phase images, and the STIFF, WAVE, and CONFIDE formats for MR elastography images will be output. Alternatively, this is only possible if a Rescale value is set.	Table A-18
	Standard Extended	ALWAYS		Table A-17
	Private Application	CONDITIONAL	By configuration	Table A-19

A.2.1 MR Image IOD Specific Modules

The following tables list Modules and Attributes specific for MR Image IOD:

Table A-2 Patient Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_MN000058"		
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_ID000058"		
Issuer of Patient ID	(0010,0021)	EMPTY	ALWAYS	EMPTY			
Patient's Birth Date	(0010,0030)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Sex	(0010,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "O"		
Patient's Birth Time	(0010,0032)	EMPTY	ALWAYS	EMPTY			
Other Patient Names	(0010,1001)	EMPTY	ALWAYS	EMPTY			
Ethnic Group	(0010,2160)	EMPTY	ALWAYS	EMPTY			
Patient Comments	(0010,4000)	EMPTY	ALWAYS	EMPTY			

Table A-3 General Study Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000D)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.2169.20250825024143098.9.5"		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "114331.000"		
Referring Physician's Name	(0008,0090)	EMPTY	ALWAYS	EMPTY			
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS	e.g. "50957"		
Accession Number	(0008,0050)	EMPTY	ALWAYS	EMPTY			
Study Description	(0008,1030)	EMPTY	ALWAYS	EMPTY			
Physician(s) of Record	(0008,1048)	EMPTY	ALWAYS	EMPTY			
Name of Physician(s) Reading Study	(0008,1060)	EMPTY	ALWAYS	EMPTY			
Requesting Service	(0032,1033)	EMPTY	ALWAYS	EMPTY			

Table A-4 Patient Study Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	EMPTY	ALWAYS	EMPTY			
Patient's Age	(0010,1010)	EMPTY	ALWAYS	EMPTY			
Patient's Size	(0010,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "1.23"		
Patient's Weight	(0010,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "36.0"		
Medical Alerts	(0010,2000)	EMPTY	ALWAYS	EMPTY			
Allergies	(0010,2110)	EMPTY	ALWAYS	EMPTY			
Smoking Status	(0010,21A0)	EMPTY	ALWAYS	EMPTY			
Last Menstrual Date	(0010,21D0)	EMPTY	ALWAYS	EMPTY			
Patient State	(0038,0500)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Occupation	(0010,2180)	EMPTY	ALWAYS	EMPTY			
Additional Patient History	(0010,21B0)	EMPTY	ALWAYS	EMPTY			

Table A-5 General Series Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.1002"		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "1001"		
Laterality	(0020,0060)	GENERATED	CONDITIONAL	CONDITIONAL		Generated if Scanned body part examined is a paired structure.	
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "114331.000"		
Protocol Name	(0018,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "FE_slt"		
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS	e.g. "FE_slt"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825024143107.3.2"		
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS	e.g. "HEAD"		
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS	e.g. "HFS"		
Performed Procedure Step ID	(0040,0253)	GENERATED	ALWAYS	ALWAYS	e.g. "MR20250825114143"		
Performed Procedure Step Start Date	(0040,0244)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Performed Procedure Step Start Time	(0040,0245)	GENERATED	ALWAYS	ALWAYS	e.g. "114330.036"		
Performed Procedure Step Description	(0040,0254)	EMPTY	ALWAYS	EMPTY			

Table A-6 Frame of Reference Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.0.1.2.2"		
Position Reference Indicator	(0020,1040)	EMPTY	ALWAYS	EMPTY			

Table A-7 General Equipment Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "HospitalName"		
Institution Address	(0008,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "----------"		
Station Name	(0008,1010)	GENERATED	ALWAYS	ALWAYS	e.g. " Galan 3T"		
Institutional Department Name	(0008,1040)	GENERATED	ALWAYS	ALWAYS	e.g. "Department"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. " Galan 3T"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "5000"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V12.0SP0011*0609"		

Table A-8 General Acquisition Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
Acquisition Date	(0008,0022)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Acquisition Time	(0008,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "114331.000"		

Table A-9 General Image Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "114331.000"		
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\GDC"		
Image Comments	(0020,4000)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "Magnitude"	Generated by	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						application or from user input. Maximum 44 characters.	

Table A-10 General Reference Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4…		

Table A-11 Image Plane Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0\1.0"		
Image Orientation (Patient)	(0020,0037)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0\0.0\0.0\0.0\1.0\0.0"		
Image Position (Patient)	(0020,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "-128.0\-128.0\0.0"		
Slice Thickness	(0018,0050)	GENERATED	ALWAYS	ALWAYS	e.g. "8.0"		
Spacing Between Slices	(0018,0088)	GENERATED	ALWAYS	ALWAYS	e.g. "8.0"		
Slice Location	(0020,1041)	GENERATED	ALWAYS	ALWAYS	e.g. "0.0"		

Table A-12 Image Pixel Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 256		
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 256		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 16		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 15		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Smallest Image Pixel Value	(0028,0106)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
Largest Image Pixel Value	(0028,0107)	GENERATED	ALWAYS	ALWAYS	e.g. 16383		

Table A-13 MR Image Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\GDC"		
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Scanning Sequence	(0018,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "GR"		
Sequence Variant	(0018,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Scan Options	(0018,0022)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "SP"	Gating Options: "RG","CG","PPG","RCG","RPG" Other Options: "PER","FC","PFF","PFP","SP","FS"	
MR Acquisition Type	(0018,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "2D"		
Repetition Time	(0018,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "50.0"		
Echo Time	(0018,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "5.0"		
Echo Train Length	(0018,0091)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Sequence Name	(0018,0024)	GENERATED	ALWAYS	ALWAYS	e.g. "FE2D"		
Number of Averages	(0018,0083)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0"		
Imaging Frequency	(0018,0084)	GENERATED	ALWAYS	ALWAYS	e.g. "63.81234"		
Echo Number(s)	(0018,0086)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Magnetic Field Strength	(0018,0087)	GENERATED	ALWAYS	ALWAYS	e.g. "1.5"		
Number of Phase Encoding Steps	(0018,0089)	GENERATED	ALWAYS	ALWAYS	e.g. "256"		
Percent Phase Field of View	(0018,0094)	GENERATED	ALWAYS	ALWAYS	e.g. "100.0"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	ALWAYS	e.g. "244.0"		
Beat Rejection Flag	(0018,1080)	GENERATED	ALWAYS	ALWAYS	e.g. "N"		
Reconstruction Diameter	(0018,1100)	GENERATED	ALWAYS	ALWAYS	e.g. "256.0"		
Receive Coil Name	(0018,1250)	GENERATED	ALWAYS	ALWAYS	e.g. "Atlas Cervical"		
Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	ALWAYS	e.g. "QD Whole Body"		
Acquisition Matrix	(0018,1310)	GENERATED	ALWAYS	ALWAYS	e.g. 0,256,256,0		
In-plane Phase Encoding Direction	(0018,1312)	GENERATED	ALWAYS	ALWAYS	e.g. "ROW"		
Flip Angle	(0018,1314)	GENERATED	ALWAYS	ALWAYS	e.g. "60.0"		
SAR	(0018,1316)	GENERATED	ALWAYS	ALWAYS	e.g. "0.0020"		
dB/dt	(0018,1318)	GENERATED	ALWAYS	ALWAYS	e.g. "0.0"		
Temporal Position Identifier	(0020,0100)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. "0"	Assign to Dynamic data	
Number of Temporal Positions	(0020,0105)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		

Table A-14 Overlay Plane Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Rows (Retired)	(6000,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 256		
Overlay Columns (Retired)	(6000,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 256		
Overlay Type (Retired)	(6000,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "G"		
Overlay Origin (Retired)	(6000,0050)	GENERATED	ALWAYS	ALWAYS	e.g. 1,1		
Overlay Bits Allocated (Retired)	(6000,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Overlay Bit Position (Retired)	(6000,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
Number of Frames in Overlay (Retired)	(6000,0015)	GENERATED	ALWAYS	ALWAYS			
Image Frame Origin (Retired)	(6000,0051)	GENERATED	ALWAYS	ALWAYS			

Table A-15 VOI LUT Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS	e.g. "8191.5"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS	e.g. "16383.0"		
Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS	e.g. "8191.5"		
Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS	e.g. "16383.0"		

Table A-16 SOP Common Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.1.2001.1"		
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "114331.000"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		

Table A-17 Standard Extended Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	GENERATED	ALWAYS	EMPTY			
Patient's Birth Name	(0010,1005)	GENERATED	ALWAYS	EMPTY			
Patient's Address	(0010,1040)	GENERATED	ALWAYS	EMPTY			
Patient's Mother's Birth Name	(0010,1060)	GENERATED	ALWAYS	EMPTY			
Military Rank	(0010,1080)	GENERATED	ALWAYS	EMPTY			
Branch of Service	(0010,1081)	GENERATED	ALWAYS	EMPTY			
Medical Record Locator	(0010,1090)	GENERATED	ALWAYS	EMPTY			
Country of Residence	(0010,2150)	GENERATED	ALWAYS	EMPTY			
Region of Residence	(0010,2152)	GENERATED	ALWAYS	EMPTY			
Patient's Telephone Numbers	(0010,2154)	GENERATED	ALWAYS	EMPTY			
Patient's Religious Preference	(0010,21f0)	GENERATED	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Duration	(0018,9073)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Date	(0032,1000)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Time	(0032,1001)	GENERATED	ALWAYS	EMPTY			
Requesting Physician	(0032,1032)	GENERATED	ALWAYS	EMPTY			
Study Comments	(0032,4000)	GENERATED	ALWAYS	EMPTY			
Special Needs	(0038,0050)	GENERATED	ALWAYS	EMPTY			
Confidentiality Constraint on Patient Data Description	(0040,3001)	GENERATED	ALWAYS	EMPTY			
Parallel Reduction Factor In-plane	(0018,9069)	GENERATED	ALWAYS	EMPTY			
Parallel Acquisition	(0018,9077)	GENERATED	ALWAYS	EMPTY			
Parallel Acquisition Technique	(0018,9078)	GENERATED	ALWAYS	EMPTY			
Stack ID	(0020,9056)	GENERATED	ALWAYS	EMPTY		This output is only displayed if a Stack ID Set is configured.	
In-Stack Position Number	(0020,9057)	GENERATED	ALWAYS	EMPTY		This output is only displayed if a Stack ID Set is configured.	
Temporal Position Index	(0020,9128)	GENERATED	ALWAYS	EMPTY		This output is only displayed if a Stack ID Set is configured.	
MR Velocity Encoding Sequence	(0018,9197)	GENERATED	ALWAYS	EMPTY			
> Velocity Encoding Direction	(0018,9090)	GENERATED	ALWAYS	EMPTY			
> Velocity Encoding Minimum Value	(0018,9091)	GENERATED	ALWAYS	EMPTY			
> Velocity Encoding Maximum Value	(0018,9217)	GENERATED	ALWAYS	EMPTY			
Diffusion b-value	(0018,9087)	GENERATED	ALWAYS	EMPTY			
Diffusion Gradient Orientation	(0018,9089)	GENERATED	ALWAYS	EMPTY			

Table A-18 Rescale Module for MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS			
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	e.g. "10^-2DEG"	Outputs only the PHASE MAP and PHASE SUBTRACT of the phase image.	

A.2.2 MR Image IOD Functional Group Macros - N/A

N/A

A.2.3 MR Image IOD Private Modules

Table below lists private Modules and Attributes for MR Image IOD:

Table A-19 Private Module for MR Image IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
OT_MPLUS_PRIVATE	(0029,xx01)	SQ	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g.		
OT_MPLUS_PACKFILE	(0029,xx90)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00,0x02,0x00,0x00		
Private Creator	(700D,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
Private Creator	(700D,00yy)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3^10"		
<MR>MR_SCALE_FACTOR	(700D,xx00)	DS	1		GENERATED	ALWAYS	ALWAYS	e.g. "2.1899397"		
<MR>MR_FOV_SET	(700D,xx05)	DS	4		GENERATED	ALWAYS	ALWAYS	e.g. "0.256\0.256\0.256\0.256"		
<MR>MR_RGN_CHECK_FLAG	(700D,xx0C)	CS	1		GENERATED	ALWAYS	ALWAYS	e.g. "Y"		
MR_ACQ_INNER_MATRIX	(700D,yy11)	US	2		GENERATED	ALWAYS	ALWAYS	e.g. 0x0084,0x0100		
MR_NUM_DUMMY_SHOT	(700D,yy14)	SL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00000000		

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR_PAS_NAME	(700D,yy16)	LO	3		GENERATED	ALWAYS	ALWAYS	e.g. "USER PAS\SEQUENCE\FE"		
MR_ORIENTATION_ID	(700D,yy18)	SS	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x0000		
MR_PAS_REPRODUCT_INFO	(700D,yy19)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x3c,0x3f,0x78,0x6d		
MR_MRE_PARAMS	(700D,yy93)	OB	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g. 0x3c,0x3f,0x78,0x6d,0x6c,0x20,0x76,0x65,0x72,0x73,0x69,0x6f,0x6e,0x3d		

A.2.4 MR Image IOD Coded Values

Table below lists Coded Values referenced from the "Value" column of the tables above for MR Image IOD:

Table A-20 Values and Code Sets for MR Image IOD

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	ORIGINAL DERIVED	Value 1	
		PRIMARY SECONDARY	Value 2	
		GDC	Value 3	Reconstruction image
		OTHER	Value 3	Other original image
		PCA_P	Value 3	Phase image
		PCA_M	Value 3	Proton image
		PCA/P	Value 3	Phase image. Only for specific DICOM workstation by special setting.
		PCA/M	Value 3	Proton image. Only for specific DICOM workstation by special setting.
		STIFF WAVE CONFIDE RMSMAG	Value 3	MR Elastography image

		DWI_ALIGN	Value 3	DWI aligned image
		ISODWI	Value 3	Isotropic image
		ADC	Value 3	ADC image
		DCI	Value 3	Post processed image of DCI
		FA RA VR LAMBDA TRACE	Value 3	Post processed image of Tensor
		BOLD_MEAN BOLD_CORR BOLD_T BOLD_PRECENT	Value 3	Post processed image of BOLD
		CALC	Value 3	Post processed image of Calculation
		STITCH AUTO	Value 3	Post processed image of Stitching
		MPR	Value 3	Post processed image of MPR
		REFINE REFINE2 LSI BEST SINC GOP	Value 3	Post processed image of Filter
		PROJECTION IMAGE PREVIEWMIP3	Value 3	Auto MIP image
		FSVW MPR	Value 3	Post processed image of ForeSee View
		CALA MPR CALA BATCH MPR HALA MPR KNEE BATCH MPR SPINE BATCH MPR SLBL STITCHING SLBL BATCH MPR SLBL MPR LIVER BATCH MPR PROSTATE BATCH MPR	Value 3	Post processed image of Auto Scan Assist
		PHASE MAP	Value 3	Phase images only

		PHASE SUBTRACT	Value 3	Phase images only
Body Part Examined	(0018,0015)	SKULL		
		CSPINE		
		TSPINE		
		LSPINE		
		SSPINE		
		COCCYX		
		CHEST		
		CLAVICLE		
		BREAST		
		ABDOMEN		
		PELVIS		
		HIP		
		SHOULDER		
		ELBOW		
		KNEE		
		ANKLE		
		HAND		
		FOOT		
		EXTREMITY		
		HEAD		
		HEART		
		LEG		
		ARM		
		NECK		

A.3 Enhanced MR Image IOD

Table below defines the structure of Enhanced MR Image IOD.

Table A-21 Enhanced MR Image IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-23
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-24
	Patient Study	ALWAYS		Table A-25
	Clinical Trial Study	NEVER		
Series	General Series	ALWAYS		Table A-26
	Clinical Trial Series	NEVER		
	MR Series	ALWAYS		Table A-27
Frame of Reference	Frame of Reference	ALWAYS		Table A-28
	Synchronization	NEVER		
Equipment	General Equipment	ALWAYS		Table A-29
	Enhanced General Equipment	ALWAYS		Table A-30
Image	Image Pixel	ALWAYS		Table A-31
	Enhanced Contrast/Bolus	NEVER		
	Multi-frame Functional Groups	ALWAYS		Table A-32
	Multi-frame Dimension	ALWAYS		Table A-33
	Cardiac Synchronization	NEVER		
	Respiratory Synchronization	NEVER		
	Bulk Motion Synchronization	NEVER		
	Supplemental Palette Color Lookup Table	NEVER		
	Acquisition Context	ALWAYS		Table A-34
	Device	NEVER		
	Specimen	NEVER		
	Enhanced MR Image	ALWAYS		Table A-35
	MR Pulse Sequence	ALWAYS		Table A-36
	ICC Profile	NEVER		
	SOP Common	ALWAYS		Table A-37
	Common Instance Reference	NEVER		
	Frame Extraction	NEVER		
	Standard Extended	ALWAYS		Table A-38

Table A-22 lists the Functional group macros used in Enhanced MR Image IOD. The "Usage" column defines whether a Macro is used as a shared Macro, on a per frame base or whether depending on the acquisition context can be used in both contexts. The following Values are supported:

- PER_FRAME: The macro is used on a per frame basis, the Attributes are included in the Per-frame Functional Groups Sequence (5200,9230)
- SHARED: The macro is shared across all frames; the Attributes are included in the Shared Functional Groups Sequence (5200,9229)
- CONTEXT_DEPENDENT: Depending on the acquisition context the macro can either be used on a per frame basis or be shared across all frames.

Table A-22 Functional Group Macros used in Enhanced MR Image IOD

Functional Group Macro	Presence	Condition	Usage	Reference
Pixel Measures Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-39
Plane Position Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-40
Plane Orientation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-41
Referenced Image Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-42
Derivation Image Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-43
Cardiac Trigger Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-44
Frame Anatomy Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-45
Pixel Value Transformation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-46
Frame VOI LUT Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-47
Contrast/Bolus Usage Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-48
MR Image Frame Type Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-49
MR Timing And Related Parameters Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-50
MR FOV Geometry Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-51
MR Echo Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-52
MR Modifier Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-53
MR Imaging Modifier Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-54
MR Receive Coil Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-55
MR Transmit Coil Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-56
MR Diffusion Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-57
MR Averages Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-58
MR Spatial Saturation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-59
Frame Content Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-60
MR Velocity Encoding Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-61

A.3.1 Enhanced MR Image IOD Specific Modules

The following tables list Modules and Attributes specific for Enhanced MR Image IOD:

Table A-23 Patient Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_MN000053"		
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_ID000053"		
Issuer of Patient ID	(0010,0021)	EMPTY	ALWAYS	EMPTY			
Patient's Birth Date	(0010,0030)	EMPTY	ALWAYS	EMPTY			
Patient's Sex	(0010,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "O"		
Patient's Birth Time	(0010,0032)	EMPTY	ALWAYS	EMPTY			
Other Patient Names	(0010,1001)	EMPTY	ALWAYS	EMPTY			
Ethnic Group	(0010,2160)	EMPTY	ALWAYS	EMPTY			
Patient Comments	(0010,4000)	EMPTY	ALWAYS	EMPTY			

Table A-24 General Study Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000D)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1467.20250825014453405.2.2"		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "104602"		
Referring Physician's Name	(0008,0090)	EMPTY	ALWAYS	EMPTY			
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS	e.g. "50952"		
Accession Number	(0008,0050)	EMPTY	ALWAYS	EMPTY			
Study Description	(0008,1030)	EMPTY	ALWAYS	EMPTY			
Physician(s) of Record	(0008,1048)	EMPTY	ALWAYS	EMPTY			
Name of Physician(s) Reading Study	(0008,1060)	EMPTY	ALWAYS	EMPTY			
Requesting Service	(0032,1033)	EMPTY	ALWAYS	EMPTY			

Table A-25 Patient Study Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Age	(0010,1010)	EMPTY	ALWAYS	EMPTY			
Patient's Size	(0010,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "1.23"		
Patient's Weight	(0010,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "36.00"		
Medical Alerts	(0010,2000)	EMPTY	ALWAYS	EMPTY			
Allergies	(0010,2110)	EMPTY	ALWAYS	EMPTY			
Smoking Status	(0010,21A0)	EMPTY	ALWAYS	EMPTY			
Last Menstrual Date	(0010,21D0)	EMPTY	ALWAYS	EMPTY			
Patient State	(0038,0500)	EMPTY	ALWAYS	EMPTY			
Occupation	(0010,2180)	EMPTY	ALWAYS	EMPTY			
Additional Patient History	(0010,21B0)	EMPTY	ALWAYS	EMPTY			

Table A-26 General Series Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50952.1001"		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "1000"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "104602"		
Protocol Name	(0018,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "FEEPI2D"		
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS	e.g. "FEEPI2D"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825014453434.3.1"		
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS	e.g. "CHEST"		
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS	e.g. "HFS"		
Performed Procedure Step ID	(0040,0253)	GENERATED	ALWAYS	ALWAYS	e.g. "MR20250825104453"		
Performed Procedure Step Start Date	(0040,0244)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performed Procedure Step Start Time	(0040,0245)	GENERATED	ALWAYS	ALWAYS	e.g. "104521.490"		
Performed Procedure Step Description	(0040,0254)	EMPTY	ALWAYS	EMPTY			

Table A-27 MR Series Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825014453434.3.1"		

Table A-28 Frame of Reference Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50952.0.1.2.2"		
Position Reference Indicator	(0020,1040)	EMPTY	ALWAYS	EMPTY			

Table A-29 General Equipment Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "HospitalName"		
Institution Address	(0008,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "----------"		
Station Name	(0008,1010)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Institutional Department Name	(0008,1040)	GENERATED	ALWAYS	ALWAYS	e.g. "Department"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "5000"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.5SP0000*0722"		
Pixel Padding Value	(0028,0120)	GENERATED	ALWAYS	ALWAYS	e.g. 0		

Table A-30 Enhanced General Equipment Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "5000"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.5SP0000*0722"		

Table A-31 Image Pixel Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 64		
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 64		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 15		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 1		

Table A-32 Multi-frame Functional Groups Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "104602"		
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "20"		
Shared Functional Groups Sequence	(5200,9229)	GENERATED	ALWAYS	ALWAYS			
> Include one more Functional Group Macros							See Table A-22

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Per-Frame Functional Groups Sequence	(5200,9230)	GENERATED	ALWAYS	ALWAYS			
> Include one more Functional Group Macros							See Table A-22

Table A-33 Multi-frame Dimension Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	GENERATED	ALWAYS	ALWAYS			
> Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50952.1000.1"		
Dimension Index Sequence	(0020,9222)	GENERATED	ALWAYS	ALWAYS			
> Dimension Index Pointer	(0020,9165)	GENERATED	ALWAYS	ALWAYS	e.g. (0020,9128)		
> Dimension Index Private Creator	(0020,9213)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
> Functional Group Pointer	(0020,9167)	GENERATED	ALWAYS	ALWAYS	e.g. (0020,9111)		
> Functional Group Private Creator	(0020,9238)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
> Dimension Description Label	(0020,9421)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	

Table A-34 Acquisition Context Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	GENERATED	ALWAYS	ALWAYS			

Table A-35 Enhanced MR Image Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Acquisition Date Time	(0008,002D)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825104602"		
Acquisition Duration	(0018,9073)	GENERATED	ALWAYS	ALWAYS	e.g. 40		
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS	e.g. "PRODUCT"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Resonant Nucleus	(0018,9100)	GENERATED	ALWAYS	ALWAYS	e.g. "1H"		
k-space Filtering	(0018,9064)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Magnetic Field Strength	(0018,0087)	GENERATED	ALWAYS	ALWAYS	e.g. "1.5"		
Applicable Safety Standard Agency	(0018,9174)	GENERATED	ALWAYS	ALWAYS	e.g. "IEC"		
Image Comments	(0020,4000)	GENERATED	ALWAYS	ALWAYS	e.g. "Magnitude"		
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY \GDC\NONE"		
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME"		
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS	e.g. "MIXED"		
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS	e.g. "MAGNITUDE"		
Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS	e.g. "UNKNOWN"		
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME2"		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 15		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Burned In Annotation	(0028,0301)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Lossy Image Compression	(0028,2110)	GENERATED	ALWAYS	ALWAYS	e.g. "00"		
Presentation LUT Shape	(2050,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "IDENTITY"		

Table A-36 MR Pulse Sequence Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pulse Sequence Name	(0018,9005)	GENERATED	ALWAYS	ALWAYS	e.g. "FEEPI2D"		
MR Acquisition Type	(0018,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "2D"		
Echo Pulse Sequence	(0018,9008)	GENERATED	ALWAYS	ALWAYS	e.g. "GRADIENT"		
Multi-planar Excitation	(0018,9012)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Phase Contrast	(0018,9014)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Time of Flight Contrast	(0018,9015)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Steady State Pulse Sequence	(0018,9017)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Echo Planar Pulse Sequence	(0018,9018)	GENERATED	ALWAYS	ALWAYS	e.g. "YES"		
Saturation Recovery	(0018,9024)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Spectrally Selected Suppression	(0018,9025)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Oversampling Phase	(0018,9029)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Geometry of k-Space Traversal	(0018,9032)	GENERATED	ALWAYS	ALWAYS	e.g. "RECTILINEAR"		
Rectilinear Phase Encode Reordering	(0018,9034)	GENERATED	ALWAYS	ALWAYS	e.g. "LINEAR"		
Segmented k-Space Traversal	(0018,9033)	GENERATED	ALWAYS	ALWAYS	e.g. "SINGLE"		
Number of k-Space Trajectories	(0018,9093)	GENERATED	ALWAYS	ALWAYS	e.g. 1		

Table A-37 SOP Common Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4.1"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825050456721.3.1"		
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "104453.403"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS	e.g. "PRODUCT"		

Table A-38 Standard Extended Module for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	GENERATED	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Birth Name	(0010,1005)	GENERATED	ALWAYS	EMPTY			
Patient's Address	(0010,1040)	GENERATED	ALWAYS	EMPTY			
Patient's Mother's Birth Name	(0010,1060)	GENERATED	ALWAYS	EMPTY			
Military Rank	(0010,1080)	GENERATED	ALWAYS	EMPTY			
Branch of Service	(0010,1081)	GENERATED	ALWAYS	EMPTY			
Medical Record Locator	(0010,1090)	GENERATED	ALWAYS	EMPTY			
Country of Residence	(0010,2150)	GENERATED	ALWAYS	EMPTY			
Region of Residence	(0010,2152)	GENERATED	ALWAYS	EMPTY			
Patient's Telephone Numbers	(0010,2154)	GENERATED	ALWAYS	EMPTY			
Patient's Religious Preference	(0010,21f0)	GENERATED	ALWAYS	EMPTY			
Window Center	(0028,1050)	GENERATED	ALWAYS	EMPTY			
Window Width	(0028,1051)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Date	(0032,1000)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Time	(0032,1001)	GENERATED	ALWAYS	EMPTY			
Requesting Physician	(0032,1032)	GENERATED	ALWAYS	EMPTY			
Study Comments	(0032,4000)	GENERATED	ALWAYS	EMPTY			
Special Needs	(0038,0050)	GENERATED	ALWAYS	EMPTY			
Confidentiality Constraint on Patient Data Description	(0040,3001)	GENERATED	ALWAYS	EMPTY			

A.3.2 Enhanced MR Image IOD Functional Group Macros

The tables below list functional group macros and Attributes for Enhanced MR Image IOD:

Table A-39 Pixel Measures Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Measures Sequence	(0028,9110)	GENERATED	ALWAYS	ALWAYS			
>Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "6.2500\6.2500"		
>Slice Thickness	(0018,0050)	GENERATED	ALWAYS	ALWAYS	e.g. "5.0000"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Spacing Between Slices	(0018,0088)	EMPTY	EMPTY	EMPTY			

Table A-40 Plane Position Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Position Sequence	(0020,9113)	GENERATED	ALWAYS	ALWAYS			
>Image Position (Patient)	(0020,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "-200.00000000\-200.00000000\20.00000000"		

Table A-41 Plane Orientation Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Orientation Sequence	(0020,9116)	GENERATED	ALWAYS	ALWAYS			
>Image Orientation (Patient)	(0020,0037)	GENERATED	ALWAYS	ALWAYS	e.g. "1.00000000\0.00000000\0.00000000\0.00000000\1.00000000\0.00000000"		

Table A-42 Referenced Image Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.5.2001.8"		
>Referenced Frame Number	(0008,1160)	EMPTY	EMPTY	EMPTY			
>Referenced Segment Number	(0062,000b)	EMPTY	EMPTY	EMPTY			
>Purpose Of Reference Code Sequence	(0040,A170)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "121311"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	e.g. "DCM"		
>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	e.g. "Localizer"		
>Long Code Value	(0008,0119)	GENERATED	CONDITIONAL	CONDITIONAL			
>URN Code Value	(0008,0120)	GENERATED	CONDITIONAL	CONDITIONAL			
>Equivalent Code Sequence	(0008,0121)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Identifier	(0008,010F)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context UID	(0008,0117)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource	(0008,0105)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource UID	(0008,0118)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource Name	(0008,0122)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Version	(0008,0106)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Extension Flag	(0008,010B)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Local Version	(0008,0107)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Extension Creator UID	(0008,010d)	GENERATED	CONDITIONAL	CONDITIONAL			
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.1.2001.1"		
>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	CONDITIONAL			
>Referenced Segment Number	(0062,000B)	GENERATED	CONDITIONAL	CONDITIONAL			

Table A-43 Derivation Image Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Derivation Image Sequence	(0008,9124)	EMPTY	EMPTY	EMPTY			
>Derivation Description	(0008,2111)	GENERATED	CONDITIONAL	CONDITIONAL			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Source Image Sequence	(0008,2112)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Referenced SOP Class UID	(0008,1150)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	CONDITIONAL	CONDITIONAL			
>>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL			
>>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL			
>>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL			
>>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL			
>Derivation Code Sequence	(0008,9215)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL			

Table A-44 Cardiac Synchronization Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Sequence	(0018,9118)	GENERATED	ALWAYS	ALWAYS			
>Nominal Percentage Of Cardiac Phase	(0020,9241)	EMPTY	EMPTY	EMPTY			
>Nominal Cardiac Trigger Delay Time	(0020,9153)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Actual Cardiac Trigger Delay Time	(0020,9252)	EMPTY	EMPTY	EMPTY			
>Intervals Acquired	(0018,1083)	EMPTY	EMPTY	EMPTY			
>Intervals Rejected	(0018,1084)	EMPTY	EMPTY	EMPTY			
>Heart Rate	(0018,1088)	EMPTY	EMPTY	EMPTY			
>RR Interval Time Nominal	(0020,9251)	EMPTY	EMPTY	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Low RR Value	(0018,1081)	EMPTY	EMPTY	EMPTY			
>High RR Value	(0018,1082)	EMPTY	EMPTY	EMPTY			

Table A-45 Frame Anatomy Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Anatomy Sequence	(0020,9071)	GENERATED	ALWAYS	ALWAYS			
>Frame Laterality	(0020,9072)	GENERATED	ALWAYS	ALWAYS	e.g. "U"		
>Anatomic Region Sequence	(0008,2218)	GENERATED	ALWAYS	ALWAYS			
>Primary Anatomic Structure Sequence	(0008,2228)	EMPTY	EMPTY	EMPTY			
>Anatomic Region Modifier Sequence	(0008,2220)	EMPTY	EMPTY	EMPTY			
>Primary Anatomic Structure Modifier Sequence	(0008,2230)	EMPTY	EMPTY	EMPTY			

Table A-46 Pixel Value Transformation Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Value Transformation Sequence	(0028,9145)	GENERATED	ALWAYS	ALWAYS			
>Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	e.g. "US"		

Table A-47 Frame VOI LUT Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame VOI LUT Sequence	(0028,9132)	GENERATED	ALWAYS	ALWAYS			
>Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS	e.g. "8191.50000"		
>Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS	e.g. "16383.0000"		
>Window Center Width Explanation	(0028,1055)	EMPTY	EMPTY	EMPTY			
>VOI LUT Function	(0028,1056)	EMPTY	EMPTY	EMPTY			

Table A-48 Contrast/Bolus Usage Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent Sequence	(0018,0012)	GENERATED	CONDITIONAL	CONDITIONAL			
>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL			
>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL			
>Coding Scheme Version	(0008,0103)	EMPTY	EMPTY	EMPTY			
>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL			
>Contrast/Bolus Administration Route Sequence	(0018,0014)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL			
>>Coding Scheme Version	(0008,0103)	EMPTY	EMPTY	EMPTY			
>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL			
>Contrast/Bolus Volume	(0018,1041)	EMPTY	EMPTY	EMPTY			
>Contrast/Bolus Ingredient Concentration	(0018,1049)	EMPTY	EMPTY	EMPTY			
>Contrast/Bolus Agent Number	(0018,9337)	GENERATED	EMPTY	EMPTY			
>Contrast/Bolus Ingredient Code Sequence	(0018,9338)	EMPTY	EMPTY	EMPTY			
>Contrast Administration Profile Sequence	(0018,9340)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Volume	(0018,1041)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Start Time	(0018,1042)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Stop Time	(0018,1043)	EMPTY	EMPTY	EMPTY			
>>Contrast Flow Rate	(0018,1046)	EMPTY	EMPTY	EMPTY			
>>Contrast Flow Duration	(0018,1047)	EMPTY	EMPTY	EMPTY			
>Contrast/Bolus Ingredient Opaque	(0018,9425)	EMPTY	EMPTY	EMPTY			

Table A-49 MR Image Frame Type Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Image Frame Type Sequence	(0018,9226)	GENERATED	ALWAYS	ALWAYS			
>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\GDC\NONE"		
>Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS	e.g. "MONOCHROME"		
>Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS	e.g. "MIXED"		
>Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS	e.g. "MAGNITUDE"		
>Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS	e.g. "UNKNOWN"		
>Functional Settling Phase Frames Present	(0018,9622)	EMPTY	EMPTY	EMPTY			

Table A-50 MR Timing And Related Parameters Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Timing and Related Parameters Sequence	(0018,9112)	GENERATED	ALWAYS	ALWAYS			
>Repetition Time	(0018,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "2000.000"		
>Flip Angle	(0018,1314)	GENERATED	ALWAYS	ALWAYS	e.g. "90"		
>Echo Train Length	(0018,0091)	GENERATED	ALWAYS	ALWAYS	e.g. "56"		
>RF Echo Train Length	(0018,9240)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
>Gradient Echo Train Length	(0018,9241)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Specific Absorption Rate Sequence	(0018,9239)	GENERATED	ALWAYS	ALWAYS			
>Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS	e.g. "IEC_WHOLE_BODY"		
>Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS	e.g. 0.005		
>Gradient Output Type	(0018,9180)	GENERATED	ALWAYS	ALWAYS	e.g. "DB_DT"		
>Gradient Output	(0018,9182)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Operating Mode Sequence	(0018,9176)	GENERATED	ALWAYS	ALWAYS			
>Operating Mode Type	(0018,9177)	GENERATED	ALWAYS	ALWAYS	e.g. "RF"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Operating Mode	(0018,9178)	GENERATED	ALWAYS	ALWAYS	e.g. "IEC_NORMAL"		

Table A-51 MR FOV Geometry Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR FOV/Geometry Sequence	(0018,9125)	GENERATED	ALWAYS	ALWAYS			
>In-plane Phase Encoding Direction	(0018,1312)	GENERATED	ALWAYS	ALWAYS	e.g. "COLUMN"		
>MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	ALWAYS	ALWAYS	e.g. 64		
>MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	ALWAYS	ALWAYS	e.g. 64		
>MR Acquisition Phase Encoding Steps out-of-plane	(0018,9232)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Percent Sampling	(0018,0093)	GENERATED	ALWAYS	ALWAYS	e.g. "100"		
>Percent Phase Field of View	(0018,0094)	GENERATED	ALWAYS	ALWAYS	e.g. "100.0000"		

Table A-52 MR Echo Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Echo Sequence	(0018,9114)	GENERATED	ALWAYS	ALWAYS			
>Effective Echo Time	(0018,9082)	GENERATED	ALWAYS	ALWAYS	e.g. 25		

Table A-53 MR Modifier Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Modifier Sequence	(0018,9115)	GENERATED	ALWAYS	ALWAYS			
>Inversion Recovery	(0018,9009)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Inversion Times	(0018,9079)	EMPTY	EMPTY	EMPTY			
>Flow Compensation	(0018,9010)	GENERATED	ALWAYS	ALWAYS	e.g. "OTHER"		
>Flow Compensation Direction	(0018,9183)	GENERATED	ALWAYS	ALWAYS	e.g. "OTHER"		
>Spoiling	(0018,9016)	GENERATED	ALWAYS	ALWAYS	e.g. "RF"		
>T2 Preparation	(0018,9021)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Spectrally Selected Excitation	(0018,9026)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Spatial Pre-saturation	(0018,9027)	GENERATED	ALWAYS	ALWAYS	e.g. "SLAB"		
>Partial Fourier	(0018,9081)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Partial Fourier Direction	(0018,9036)	EMPTY	EMPTY	EMPTY			
>Parallel Acquisition	(0018,9077)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Parallel Acquisition Technique	(0018,9078)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor In Plane	(0018,9069)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor Out Of Plane	(0018,9155)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor Second In Plane	(0018,9168)	EMPTY	EMPTY	EMPTY			

Table A-54 MR Imaging Modifier Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Imaging Modifier Sequence	(0018,9006)	GENERATED	ALWAYS	ALWAYS			
>Magnetization Transfer	(0018,9020)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Blood Signal Nulling	(0018,9022)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Tagging	(0018,9028)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Tag Spacing First Dimension	(0018,9030)	EMPTY	EMPTY	EMPTY			
>Tag Spacing Second Dimension	(0018,9218)	EMPTY	EMPTY	EMPTY			
>Tag Angle First Axis	(0018,9019)	EMPTY	EMPTY	EMPTY			
>Tag Angle Second Axis	(0018,9219)	EMPTY	EMPTY	EMPTY			
>Tag Thickness	(0018,9035)	EMPTY	EMPTY	EMPTY			
>Tagging Delay	(0018,9184)	EMPTY	EMPTY	EMPTY			
>Transmitter Frequency	(0018,9098)	GENERATED	ALWAYS	ALWAYS	e.g. 63.8093		
>Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	ALWAYS	e.g. "1953.125000"		

Table A-55 MR Receive Coil Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Receive Coil Sequence	(0018,9042)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Receive Coil Name	(0018,1250)	GENERATED	ALWAYS	ALWAYS	e.g. "Atlas Cervical"		
>Receive Coil Manufacturer Name	(0018,9041)	GENERATED	ALWAYS	ALWAYS	e.g. "TOSHIBA"		
>Receive Coil Type	(0018,9043)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		
>Quadrature Receive Coil	(0018,9044)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Multi Coil Definition Sequence	(0018,9045)	EMPTY	EMPTY	EMPTY			
>Multi Coil Configuration	(0018,9046)	EMPTY	EMPTY	EMPTY			

Table A-56 MR Transmit Coil Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Transmit Coil Sequence	(0018,9049)	GENERATED	ALWAYS	ALWAYS			
>Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	ALWAYS	e.g. "QD Whole Body"		
>Transmit Coil Manufacturer Name	(0018,9050)	GENERATED	ALWAYS	ALWAYS	e.g. "TOSHIBA"		
>Transmit Coil Type	(0018,9051)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		

Table A-57 MR Diffusion Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Diffusion Sequence	(0018,9117)	GENERATED	ALWAYS	ALWAYS			
>Diffusion b-value	(0018,9087)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Diffusion Directionality	(0018,9075)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Diffusion Gradient Direction Sequence	(0018,9076)	EMPTY	EMPTY	EMPTY			
>Diffusion B Matrix Sequence	(0018,9601)	EMPTY	EMPTY	EMPTY			
>Diffusion Anisotropy Type	(0018,9147)	EMPTY	EMPTY	EMPTY			

Table A-58 MR Averages Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Averages Sequence	(0018,9119)	GENERATED	ALWAYS	ALWAYS			
>Number of Averages	(0018,0083)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0000"		

Table A-59 MR Spatial Saturation Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spatial Saturation Sequence	(0018,9107)	GENERATED	ALWAYS	ALWAYS			

Table A-60 Frame Content Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Content Sequence	(0020,9111)	GENERATED	ALWAYS	ALWAYS			
>Frame Acquisition Number	(0020,9156)	EMPTY	EMPTY	EMPTY			
>Frame Reference Date Time	(0018,9151)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825104602.000"		
>Frame Acquisition Date Time	(0018,9074)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825104602.000"		
>Frame Acquisition Duration	(0018,9220)	GENERATED	ALWAYS	ALWAYS	e.g. 2000		
>Cardiac Cycle Position	(0018,9236)	EMPTY	EMPTY	EMPTY			
>Respiratory Cycle Position	(0018,9214)	EMPTY	EMPTY	EMPTY			
>Dimension Index Values	(0020,9157)	GENERATED	ALWAYS	ALWAYS	e.g. 1,1,1,1		
>Temporal Position Index	(0020,9128)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
>Stack ID	(0020,9056)	EMPTY	EMPTY	EMPTY			
>In Stack Position Number	(0020,9057)	EMPTY	EMPTY	EMPTY			
>Frame Comments	(0020,9158)	EMPTY	EMPTY	EMPTY			
>Frame Label	(0020,9453)	EMPTY	EMPTY	EMPTY			

Table A-61 MR Velocity Encoding Functional Group Macro for Enhanced MR Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Velocity Encoding Sequence	(0018,9197)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Phase Contrast (0018,9014) equals YES and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED.	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Velocity Encoding Maximum Value	(0018,9217)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	

A.3.3 Enhanced MR Image IOD Private Modules - N/A

N/A

A.3.4 Enhanced MR Image IOD Coded Values - N/A

N/A

A.4 Secondary Capture Image IOD

Table below defines the structure of Secondary Capture Image IOD.

Table A-62 Secondary Capture Image IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-63
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-64
	Patient Study	ALWAYS		Table A-65
	Clinical Trial Study	NEVER		
Series	General Series	ALWAYS		Table A-66
	Clinical Trial Series	NEVER		
	Frame Of Reference	ALWAYS		Table A-67
	Synchronization	NEVER		
Equipment	General Equipment	ALWAYS		Table A-68
	SC Equipment	ALWAYS		Table A-69
Acquisition	General Acquisition	ALWAYS		Table A-70
Image	General Image	ALWAYS		Table A-71
	General Reference	NEVER		
	Image Plane	NEVER		
Image	Image Pixel	ALWAYS		Table A-72
	Device	NEVER		
	Specimen	NEVER		
Image	SC Image	ALWAYS		Table A-28
	Overlay Plane	NEVER		
	Modality LUT	NEVER		

	VOI LUT	NEVER		
	ICC Profile	NEVER		
	SOP Common	ALWAYS		Table A-73
	Common Instance Reference	NEVER		
	Standard Extended	ALWAYS		Table A-74
	Private Application	CONDITIONAL	By configuration	Table A-75

A.4.1 Secondary Capture Image IOD Specific Modules

The following tables list Modules and Attributes specific for Secondary Capture Image IOD:

Table A-63 Patient Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_MN000053"		
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_ID000053"		
Issuer of Patient ID	(0010,0021)	EMPTY	ALWAYS	EMPTY			
Patient's Birth Date	(0010,0030)	EMPTY	ALWAYS	EMPTY			
Patient's Sex	(0010,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "O"		
Patient's Birth Time	(0010,0032)	EMPTY	ALWAYS	EMPTY			
Other Patient Names	(0010,1001)	EMPTY	ALWAYS	EMPTY			
Ethnic Group	(0010,2160)	EMPTY	ALWAYS	EMPTY			
Patient Comments	(0010,4000)	EMPTY	ALWAYS	EMPTY			

Table A-64 General Study Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000D)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1467.20250825014453405.2.2"		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "104602.000"		
Referring Physician's Name	(0008,0090)	EMPTY	ALWAYS	EMPTY			
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS	e.g. "50952"		
Accession Number	(0008,0050)	EMPTY	ALWAYS	EMPTY			
Study Description	(0008,1030)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Physician(s) of Record	(0008,1048)	EMPTY	ALWAYS	EMPTY			
Name of Physician(s) Reading Study	(0008,1060)	EMPTY	ALWAYS	EMPTY			
Requesting Service	(0032,1033)	EMPTY	ALWAYS	EMPTY			

Table A-65 Patient Study Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	EMPTY	ALWAYS	EMPTY			
Patient's Age	(0010,1010)	EMPTY	ALWAYS	EMPTY			
Patient's Size	(0010,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "1.23"		
Patient's Weight	(0010,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "36.0"		
Medical Alerts	(0010,2000)	EMPTY	ALWAYS	EMPTY			
Allergies	(0010,2110)	EMPTY	ALWAYS	EMPTY			
Smoking Status	(0010,21A0)	EMPTY	ALWAYS	EMPTY			
Last Menstrual Date	(0010,21D0)	EMPTY	ALWAYS	EMPTY			
Patient State	(0038,0500)	EMPTY	ALWAYS	EMPTY			
Occupation	(0010,2180)	EMPTY	ALWAYS	EMPTY			
Additional Patient History	(0010,21B0)	EMPTY	ALWAYS	EMPTY			

Table A-66 General Series Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50952.1002"		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "1001"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "140757.000"		
Protocol Name	(0018,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "FEEPI2D"		
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS	e.g. "Capture"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825014453434.3.1"		
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS	e.g. "CHEST"		
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS	e.g. "HFS"		

Table A-67 Frame Of Reference Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50952.0.1.2.2"		
Position Reference Indicator	(0020,1040)	EMPTY	ALWAYS	EMPTY			

Table A-68 General Equipment Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "HospitalName"		
Institution Address	(0008,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "----------"		
Station Name	(0008,1010)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Institutional Department Name	(0008,1040)	GENERATED	ALWAYS	ALWAYS	e.g. "Department"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.5"		

Table A-69 SC Equipment Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Conversion Type	(0008,0064)	GENERATED	ALWAYS	ALWAYS	e.g. "WSD"		
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		

Table A-70 General Acquisition Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Date	(0008,0022)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Acquisition Time	(0008,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "104624.220"		

Table A-71 General Image Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Patient Orientation	(0020,0020)	EMPTY	ALWAYS	EMPTY			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "140757.000"		
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "DERIVED\SECONDARY\SAVED IMAGE"		

Table A-72 Image Pixel Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	e.g. 3		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	e.g. "RGB"		
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 512		
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 512		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	e.g. 7		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
Planar Configuration	(0028,0006)	GENERATED	ALWAYS	ALWAYS	e.g. 0		

Table A-73 SOP Common Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.7"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1467.20250825050757228.2.2"		
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "104602.000"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		

Table A-74 Standard Extended Module for Secondary Capture Image IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	GENERATED	ALWAYS	EMPTY			
Patient's Birth Name	(0010,1005)	GENERATED	ALWAYS	EMPTY			
Patient's Address	(0010,1040)	GENERATED	ALWAYS	EMPTY			
Patient's Mother's Birth Name	(0010,1060)	GENERATED	ALWAYS	EMPTY			
Military Rank	(0010,1080)	GENERATED	ALWAYS	EMPTY			
Branch of Service	(0010,1081)	GENERATED	ALWAYS	EMPTY			
Medical Record Locator	(0010,1090)	GENERATED	ALWAYS	EMPTY			
Country of Residence	(0010,2150)	GENERATED	ALWAYS	EMPTY			
Region of Residence	(0010,2152)	GENERATED	ALWAYS	EMPTY			
Patient's Telephone Numbers	(0010,2154)	GENERATED	ALWAYS	EMPTY			
Patient's Religious Preference	(0010,21F0)	GENERATED	ALWAYS	EMPTY			
Scanning Sequence	(0018,0020)	GENERATED	ALWAYS	EMPTY			
Sequence Variant	(0018,0021)	GENERATED	ALWAYS	EMPTY			
Scan Options	(0018,0022)	GENERATED	ALWAYS	EMPTY			
MR Acquisition Type	(0018,0023)	GENERATED	ALWAYS	EMPTY			
Sequence Name	(0018,0024)	GENERATED	ALWAYS	EMPTY			
Slice Thickness	(0018,0050)	GENERATED	ALWAYS	EMPTY			
Repetition Time	(0018,0080)	GENERATED	ALWAYS	EMPTY			
Echo Time	(0018,0081)	GENERATED	ALWAYS	EMPTY			
Number of Averages	(0018,0083)	GENERATED	ALWAYS	EMPTY			
Imaging Frequency	(0018,0084)	GENERATED	ALWAYS	EMPTY			
Echo Number(s)	(0018,0086)	GENERATED	ALWAYS	EMPTY			
Magnetic Field Strength	(0018,0087)	GENERATED	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spacing Between Slices	(0018,0088)	GENERATED	ALWAYS	EMPTY			
Number of Phase Encoding Steps	(0018,0089)	GENERATED	ALWAYS	EMPTY			
Echo Train Length	(0018,0091)	GENERATED	ALWAYS	EMPTY			
Percent Phase Field of View	(0018,0094)	GENERATED	ALWAYS	EMPTY			
Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	EMPTY			
Beat Rejection Flag	(0018,1080)	GENERATED	ALWAYS	EMPTY			
Reconstruction Diameter	(0018,1100)	GENERATED	ALWAYS	EMPTY			
Receive Coil Name	(0018,1250)	GENERATED	ALWAYS	EMPTY			
Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	EMPTY			
Acquisition Matrix	(0018,1310)	GENERATED	ALWAYS	EMPTY			
Flip Angle	(0018,1314)	GENERATED	ALWAYS	EMPTY			
SAR	(0018,1316)	GENERATED	ALWAYS	EMPTY			
dB/dt	(0018,1318)	GENERATED	ALWAYS	EMPTY			
Acquisition Duration	(0018,9073)	GENERATED	ALWAYS	EMPTY			
Temporal Position Identifier	(0020,0100)	GENERATED	ALWAYS	EMPTY			
Number of Temporal Positions	(0020,0105)	GENERATED	ALWAYS	EMPTY			
Slice Location	(0020,1041)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Date	(0032,1000)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Time	(0032,1001)	GENERATED	ALWAYS	EMPTY			
Requesting Physician	(0032,1032)	GENERATED	ALWAYS	EMPTY			
Study Comments	(0032,4000)	GENERATED	ALWAYS	EMPTY			
Special Needs	(0038,0050)	GENERATED	ALWAYS	EMPTY			
Confidentiality Constraint on Patient Data Description	(0040,3001)	GENERATED	ALWAYS	EMPTY			

A.4.2 Secondary Capture Image IOD Functional Group Macros - N/A

N/A

A.4.3 Secondary Capture Image IOD Private Modules

Table below lists private Modules and Attributes for Secondary Capture Image IOD:

Table A-75 Private Module for Secondary Capture Image IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
OT_MPLUS_PRIVATE	(0029,xx01)	SQ	1		GENERATED	ALWAYS	ALWAYS	e.g.		
OT_MPLUS_PACKFILE	(0029,xx90)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00,0x01,0x00,0x00		
Private Creator	(700D,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3^10"		
MR_ACQ_INNER_MATRIX	(700D,xx11)	US	2		GENERATED	ALWAYS	ALWAYS	e.g. 0x0001,0x0038		
MR_NUM_DUMMY_SHOT	(700D,xx14)	SL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00000000		
MR_PAS_NAME	(700D,xx16)	LO	3		GENERATED	ALWAYS	ALWAYS	e.g. "USER PAS\CHEST\777"		
MR_ORIENTATION_ID	(700D,xx18)	SS	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x0000		
MR_PAS_REPRODUCT_INFO	(700D,xx19)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x3c,0x3f,0x78,0x6d,0x6c,0x20,0x76,0x65,0x72,0x73		

A.4.4 Secondary Capture Image IOD Coded Values

Table below lists Coded Values referenced from the "Value" column of the tables above for Secondary Capture Image IOD:

Table A-76 Values and Code Sets for Secondary Capture Image IOD

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED	Value 1	
		SECONDARY	Value 2	
		SAVED IMAGE	Value 3	Captured image of any post process
		APPDATA_PWI	Value 3	Job Data for DCI
		APPDATA_DTI	Value 3	Job Data for Tensor

		APPDATA_FMRI	Value 3	Job Data for BOLD
		MRS SINGLE VOXEL MRS MULTI VOXEL	Value 3	Job Data for MRS
		APPDATA_CARDIAC	Value 3	Job Data for Cardiac
		CALC	Value 3	Post processed image of Calculation
		STITCH MANUAL	Value 3	Post processed image of Stitching
		3D	Value 3	Captured image of 3D
		MPR_SAVED_IMAGE	Value 3	Captured image of MPR
		FUSION	Value 3	Captured image of Fusion
		COMPOSITE	Value 3	Captured image of Composite
		STIFF WAVE CONFIDE RMSMAG	Value 3	Captured image of MR Elastography
Body Part Examined	(0018,0015)	SKULL		
		CSPINE		
		TSPINE		
		LSPINE		
		SSPINE		
		COCCYX		
		CHEST		
		CLAVICLE		
		BREAST		
		ABDOMEN		
		PELVIS		
		HIP		
		SHOULDER		
		ELBOW		
		KNEE		
		ANKLE		
		HAND		
		FOOT		
		EXTREMITY		

		HEAD		
		HEART		
		LEG		
		ARM		
		NECK		

A.5 Grayscale Softcopy Presentation State IOD

Table below defines the structure of Grayscale Softcopy Presentation State IOD.

Table A-77 Grayscale Softcopy Presentation State IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-78
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-79
	Patient Study	ALWAYS		Table A-80
	Clinical Trial Study	NEVER		
Series	General Series	ALWAYS		Table A-81
	Clinical Trial Series	NEVER		
	Presentation Series	ALWAYS		Table A-82
Equipment	General Equipment	ALWAYS		Table A-83
Presentation State	Presentation State Identification	ALWAYS		Table A-84
	Presentation State Relationship	ALWAYS		Table A-85
	Presentation State Shutter	ALWAYS		
	Presentation State Mask	ALWAYS		
	Mask	NEVER		
	Display Shutter	NEVER		
	Bitmap Display Shutter	NEVER		
	Overlay Plane	NEVER		
	Overlay Activation	NEVER		
	Displayed Area	ALWAYS		Table A-86
	Graphic Annotation	ALWAYS		Table A-87
	Spatial Transformation	ALWAYS		Table A-88
	Graphic Layer	ALWAYS		Table A-89
	Graphic Group	NEVER		
	Modality LUT	ALWAYS		Table A-90
	Softcopy VOI LUT	ALWAYS		Table A-91
	Softcopy Presentation LUT	ALWAYS		Table A-92

	Specimen	NEVER		
Presentation State	SOP Common	ALWAYS		Table A-93
	Standard Extended	ALWAYS		Table A-94
	Private Application	CONDITIONAL	By configuration	Table A-95

A.5.1 Grayscale Softcopy Presentation State IOD Specific Modules

The following tables list Modules and Attributes specific for Grayscale Softcopy Presentation State IOD:

Table A-78 Patient Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_MN000058"		
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "EM_ID000058"		
Issuer of Patient ID	(0010,0021)	EMPTY	ALWAYS	EMPTY			
Patient's Birth Date	(0010,0030)	EMPTY	ALWAYS	EMPTY			
Patient's Sex	(0010,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "O"		
Patient's Birth Time	(0010,0032)	EMPTY	ALWAYS	EMPTY			
Other Patient Names	(0010,1001)	EMPTY	ALWAYS	EMPTY			
Ethnic Group	(0010,2160)	EMPTY	ALWAYS	EMPTY			
Patient Comments	(0010,4000)	EMPTY	ALWAYS	EMPTY			

Table A-79 General Study Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000D)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.2169.20250825024143098.9.5"		
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Study Time	(0008,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "114331"		
Referring Physician's Name	(0008,0090)	EMPTY	ALWAYS	EMPTY			
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS	e.g. "50957"		
Accession Number	(0008,0050)	EMPTY	ALWAYS	EMPTY			
Study Description	(0008,1030)	EMPTY	ALWAYS	EMPTY			
Physician(s) of Record	(0008,1048)	EMPTY	ALWAYS	EMPTY			
Name of Physician(s) Reading Study	(0008,1060)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Requesting Service	(0032,1033)	EMPTY	ALWAYS	EMPTY			

Table A-80 Patient Study Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	EMPTY	ALWAYS	EMPTY			
Patient's Age	(0010,1010)	EMPTY	ALWAYS	EMPTY			
Patient's Size	(0010,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "1.23"		
Patient's Weight	(0010,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "36.00"		
Medical Alerts	(0010,2000)	EMPTY	ALWAYS	EMPTY			
Allergies	(0010,2110)	EMPTY	ALWAYS	EMPTY			
Smoking Status	(0010,21A0)	EMPTY	ALWAYS	EMPTY			
Last Menstrual Date	(0010,21D0)	EMPTY	ALWAYS	EMPTY			
Patient State	(0038,0500)	EMPTY	ALWAYS	EMPTY			
Occupation	(0010,2180)	EMPTY	ALWAYS	EMPTY			
Additional Patient History	(0010,21B0)	EMPTY	ALWAYS	EMPTY			

Table A-81 General Series Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "PR"		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2004"		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "2003"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "141630.000368"		
Protocol Name	(0018,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "Protocol"		
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS	e.g. "FE_slt"		
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.3.1.2.3.3"		
> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
					.4.2.5000.1041.20250825024143107.3.2"		
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS	e.g. "HEAD"		
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS	e.g. "HFS"		
Performed Procedure Step ID	(0040,0253)	GENERATED	ALWAYS	ALWAYS	e.g. "MR20250825114143"		
Performed Procedure Step Start Date	(0040,0244)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Performed Procedure Step Start Time	(0040,0245)	GENERATED	ALWAYS	ALWAYS	e.g. "114330.036"		
Performed Procedure Step Description	(0040,0254)	EMPTY	ALWAYS	EMPTY			

Table A-82 Presentation Series Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "PR"		

Table A-83 General Equipment Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "HospitalName"		
Institution Address	(0008,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "----------"		
Station Name	(0008,1010)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Institutional Department Name	(0008,1040)	GENERATED	ALWAYS	ALWAYS	e.g. "Department"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Orian"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "0000000000"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.5"		

Table A-84 Presentation State Identification Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Presentation Creation Date	(0070,0082)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Presentation Creation Time	(0070,0083)	GENERATED	ALWAYS	ALWAYS	e.g. "141630.000363"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "2"		
Content Label	(0070,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "LABEL"		
Content Description	(0070,0081)	GENERATED	ALWAYS	ALWAYS	e.g. "Description"		
Content Creator's Name	(0070,0084)	GENERATED	ALWAYS	ALWAYS	e.g. "arai"		

Table A-85 Presentation State Relationship Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			
> Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2002"		
> Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2.2001.1"		

Table A-86 Displayed Area Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Displayed Area Selection Sequence	(0070,005A)	GENERATED	ALWAYS	ALWAYS			
> Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2.2001.1"		
>> Displayed Area Top Left Hand Corner	(0070,0052)	GENERATED	ALWAYS	ALWAYS	e.g. 0,0		
>> Displayed Area Bottom Right Hand Corner	(0070,0053)	GENERATED	ALWAYS	ALWAYS	e.g. 256,256		
>> Presentation Size Mode	(0070,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "MAGNIFY"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>> Presentation Pixel Spacing	(0070,0101)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0000\1.0000"		
>> Presentation Pixel Magnification Ratio	(0070,0103)	GENERATED	ALWAYS	ALWAYS	e.g. 1.22474		

Table A-87 Graphic Annotation Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Annotation Sequence	(0070,0001)	GENERATED	ALWAYS	ALWAYS			
> Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2.2001.1"		
>> Graphic Layer	(0070,0002)	GENERATED	ALWAYS	ALWAYS	e.g. "GRAPHIC LAYER"		
> Text Object Sequence	(0070,0008)	GENERATED	ALWAYS	ALWAYS			
>> Bounding Box Annotation Units	(0070,0003)	GENERATED	ALWAYS	ALWAYS	e.g. "PIXEL"		
>> Unformatted Text Value	(0070,0006)	GENERATED	ALWAYS	ALWAYS	e.g. "abcd1234"		
>> Bounding Box Top Left Hand Corner	(0070,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 97.1092,200.804		
>> Bounding Box Bottom Right Hand Corner	(0070,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 183.109,222.804		
>> Bounding Box Text Horizontal Justification	(0070,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "LEFT"		
>> Compound Graphic Instance ID	(0070,0226)	GENERATED	CONDITIONAL	CONDITIONAL			
>> Graphic Group ID	(0070,0295)	GENERATED	CONDITIONAL	CONDITIONAL			
>> Tracking ID	(0062,0020)	GENERATED	CONDITIONAL	CONDITIONAL			
>> Tracking UID	(0062,0021)	GENERATED	CONDITIONAL	CONDITIONAL			
> Graphic Object Sequence	(0070,0009)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>> Graphic Annotation Units	(0070,0005)	GENERATED	ALWAYS	ALWAYS	e.g. "PIXEL"		
>> Graphic Dimensions	(0070,0020)	GENERATED	ALWAYS	ALWAYS	e.g. 2		
>> Number of Graphic Points	(0070,0021)	GENERATED	ALWAYS	ALWAYS	e.g. 2		
>> Graphic Data	(0070,0022)	GENERATED	ALWAYS	ALWAYS	e.g. 39.5,81.1671,39.5,51.1671		
>> Graphic Type	(0070,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "CIRCLE"		
Line Style Sequence	(0070,0232)	GENERATED	CONDITIONAL	CONDITIONAL			
>> Graphic Filled	(0070,0024)	GENERATED	ALWAYS	ALWAYS	e.g. "N"		
Fill Style Sequence	(0070,0233)	GENERATED	CONDITIONAL	CONDITIONAL			

Table A-88 Spatial Transformation Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Rotation	(0070,0042)	GENERATED	ALWAYS	ALWAYS	e.g. 90		
Image Horizontal Flip	(0070,0041)	GENERATED	ALWAYS	ALWAYS	e.g. "N"		

Table A-89 Graphic Layer Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Layer Sequence	(0070,0060)	GENERATED	ALWAYS	ALWAYS			
> Graphic Layer	(0070,0002)	GENERATED	ALWAYS	ALWAYS	e.g. "GRAPHIC LAYER"		
> Graphic Layer Order	(0070,0062)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		

Table A-90 Modality LUT Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	e.g. "0.000000"		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	e.g. "US"		

Table A-91 Softcopy VOI LUT Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Softcopy VOI LUT Sequence	(0028,3110)	GENERATED	ALWAYS	ALWAYS			
> Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>> Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>> Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.50957.2.2001.1"		
Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS	e.g. "8191.50000"		
Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS	e.g. "16383.0000"		
Window Center & Width Explanation	(0028,1055)	EMPTY	ALWAYS	EMPTY			

Table A-92 Softcopy Presentation LUT Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Presentation LUT Shape	(2050,0020)	GENERATED	ALWAYS	ALWAYS	e.g. "IDENTITY"		

Table A-93 SOP Common Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.11.1"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.1041.20250825051630362.3.1"		
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "141630.000367"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "2"		

Table A-94 Standard Extended Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	GENERATED	ALWAYS	EMPTY			
Patient's Birth Name	(0010,1005)	GENERATED	ALWAYS	EMPTY			
Patient's Address	(0010,1040)	GENERATED	ALWAYS	EMPTY			
Patient's Mother's Birth Name	(0010,1060)	GENERATED	ALWAYS	EMPTY			
Military Rank	(0010,1080)	GENERATED	ALWAYS	EMPTY			
Branch of Service	(0010,1081)	GENERATED	ALWAYS	EMPTY			
Medical Record Locator	(0010,1090)	GENERATED	ALWAYS	EMPTY			
Country of Residence	(0010,2150)	GENERATED	ALWAYS	EMPTY			
Region of Residence	(0010,2152)	GENERATED	ALWAYS	EMPTY			
Patient's Telephone Numbers	(0010,2154)	GENERATED	ALWAYS	EMPTY			
Patient's Religious Preference	(0010,21F0)	GENERATED	ALWAYS	EMPTY			
Patient Orientation	(0020,0020)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Date	(0032,1000)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Time	(0032,1001)	GENERATED	ALWAYS	EMPTY			
Requesting Physician	(0032,1032)	GENERATED	ALWAYS	EMPTY			
Study Comments	(0032,4000)	GENERATED	ALWAYS	EMPTY			
Special Needs	(0038,0050)	GENERATED	ALWAYS	EMPTY			
Confidentiality Constraint on Patient Data Description	(0040,3001)	GENERATED	ALWAYS	EMPTY			

A.5.2 Grayscale Softcopy Presentation State IOD Functional Group Macros - N/A

N/A

A.5.3 Grayscale Softcopy Presentation State IOD Private Modules

Table below lists private Modules and Attributes for Grayscale Softcopy Presentation State IOD:

Table A-95 Private Module for Grayscale Softcopy Presentation State IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"TOSHIBA MDW NON-IMAGE"		
Private Creator	(0029,00yy)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
OT_MPLUS_PRIVATE	(0029,yy01)	SQ	1		GENERATED	ALWAYS	ALWAYS	e.g.		
OT_MPLUS_PACKFILE	(0029,xx90)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00,0x02,0x00,0x00		
Private Creator	(700D,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3^10"		
MR_PAS_NAME	(700D,xx16)	LO	3		GENERATED	ALWAYS	ALWAYS	e.g. "USER PAS\SEQUENCE\FE"		

A.5.4 Grayscale Softcopy Presentation State IOD Coded Values - N/A

N/A

A.6 MR Spectroscopy IOD

Table below defines the structure of MR Spectroscopy IOD.

Table A-96 MR Spectroscopy IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient	ALWAYS		Table A-98
	Clinical Trial Subject	NEVER		
Study	General Study	ALWAYS		Table A-99
	Patient Study	ALWAYS		Table A-100
	Clinical Trial Study	NEVER		
Series	General Series	ALWAYS		Table A-101
	Clinical Trial Series	NEVER		
	MR Series	ALWAYS		Table A-102
Frame of Reference	Frame of Reference	ALWAYS		Table A-103
	Synchronization	NEVER		
Equipment	General Equipment	ALWAYS		Table A-104
	Enhanced General Equipment	ALWAYS		Table A-105
MR Spectroscopy	Enhanced Contrast/Bolus	NEVER		
	Multi-frame Functional Groups	ALWAYS		Table A-106
	Multi-frame Dimension	ALWAYS		Table A-107

	Cardiac Synchronization	NEVER		
	Respiratory Synchronization	ALWAYS		Table A-108
	Bulk Motion Synchronization	ALWAYS		Table A-109
	Acquisition Context	ALWAYS		Table A-110
	Specimen	NEVER		
	MR Spectroscopy	ALWAYS		Table A-111
	MR Spectroscopy Pulse Sequence	ALWAYS		Table A-112
	MR Spectroscopy Data	ALWAYS		Table A-113
	SOP Common	ALWAYS		Table A-114
	Frame Extraction	NEVER		
	Standard Extended	ALWAYS		Table A-115
	Private Application	CONDITIONAL	By configuration	Table A-138

Table A-97 lists the Functional group macros used in MR Spectroscopy IOD. The "Usage" column defines whether a Macro is used as a shared Macro, on a per frame base or whether depending on the acquisition context can be used in both contexts. The following Values are supported:

- PER_FRAME: The macro is used on a per frame basis, the Attributes are included in the Per-frame Functional Groups Sequence (5200,9230)
- SHARED: The macro is shared across all frames; the Attributes are included in the Shared Functional Groups Sequence (5200,9229)
- CONTEXT_DEPENDENT: Depending on the acquisition context the macro can either be used on a per frame basis or be shared across all frames.

Table A-97 Functional Group Macros used in MR Spectroscopy IOD

Functional Group Macro	Presence	Condition	Usage	Reference
Pixel Measures Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-116
Plane Position Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-117
Plane Orientation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-118
Referenced Image Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-119
Derivation Image Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-120
Cardiac Synchronization Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-121
Frame Anatomy Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-122
Pixel value Transformation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-123
Contrast/Bolus Usage Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-124
Respiratory Synchronization Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-125
MR Spectroscopy Frame Type Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-126

Functional Group Macro	Presence	Condition	Usage	Reference
MR Timing And Related Parameters Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-127
MR Spectroscopy FOV Geometry Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-128
MR Echo Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-129
MR Modifier Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-130
MR Receive Coil Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-131
MR Transmit Coil Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-132
MR Diffusion Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-133
MR Averages Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-134
MR Spatial Saturation Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-135
Frame Content Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-136
MR Velocity Encoding Macro	ALWAYS		CONTEXT_DEPENDENT	Table A-137

A.6.1 MR Spectroscopy IOD Specific Modules

The following tables list Modules and Attributes specific for MR Spectroscopy IOD:

Table A-98 Patient Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL;USER	ALWAYS	ALWAYS	e.g. "2025.08.25_15.26.30 "		
Patient ID	(0010,0020)	MWL;USER	ALWAYS	ALWAYS	e.g. "2025.08.25_15.26.30 "		
Patient's Birth Date	(0010,0030)	EMPTY	ALWAYS	EMPTY			
Patient's Sex	(0010,0040)	GENERATED	ALWAYS	ALWAYS	e.g. "O"		
Ethnic Group	(0010,2160)	EMPTY	ALWAYS	EMPTY			
Patient Comments	(0010,4000)	EMPTY	ALWAYS	EMPTY			

Table A-99 General Study Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0020,000D)	GENERATED; MWL	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116 .4.2.105003.1467.202 50825062532848.1.2"		
Study Date	(0008,0020)	EMPTY	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Time	(0008,0030)	EMPTY	ALWAYS	EMPTY			
Referring Physician's Name	(0008,0090)	EMPTY	ALWAYS	EMPTY			
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS	e.g. "9999"		
Accession Number	(0008,0050)	EMPTY	ALWAYS	EMPTY			
Study Description	(0008,1030)	EMPTY	ALWAYS	EMPTY			
Physician(s) of Record	(0008,1048)	EMPTY	ALWAYS	EMPTY			
Name of Physician(s) Reading Study	(0008,1060)	EMPTY	ALWAYS	EMPTY			

Table A-100 Patient Study Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Age	(0010,1010)	EMPTY	ALWAYS	EMPTY			
Patient's Size	(0010,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "1.80"		
Patient's Weight	(0010,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "180.00"		
Occupation	(0010,2180)	EMPTY	ALWAYS	EMPTY			
Additional Patient History	(0010,21B0)	EMPTY	ALWAYS	EMPTY			

Table A-101 General Series Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.8001"		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS	e.g. "8000"		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS	e.g. "20101111"		
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS	e.g. "153520"		
Protocol Name	(0018,1030)	GENERATED	ALWAYS	ALWAYS	e.g. "Multi MRS"		
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS	e.g. "Multi MRS TE=136"		
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS	e.g. "HEAD"		
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS	e.g. "HFS"		

Table A-102 MR Series Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS	e.g. "MR"		

Table A-103 Frame of Reference Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.2.1.2.2"		
Position Reference Indicator	(0020,1040)	EMPTY	ALWAYS	EMPTY			

Table A-104 General Equipment Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Institution Name	(0008,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "ANONYMIZED SITE"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Fortian"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "-5003"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.4SP5000*0730"		

Table A-105 Enhanced General Equipment Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	e.g. "CANON_MEC"		
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS	e.g. "Fortian"		
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS	e.g. "-5003"		
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS	e.g. "V6.4SP5000*0730"		

Table A-106 Multi-frame Functional Groups Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS	e.g. "20101111"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS	e.g. "153520"		
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Shared Functional Groups Sequence	(5200,9229)	GENERATED	ALWAYS	ALWAYS			
> Include one more Functional Group Macros							See Table A-97
Per-Frame Functional Groups Sequence	(5200,9230)	GENERATED	ALWAYS	ALWAYS			
> Include one more Functional Group Macros							See Table A-97

Table A-107 Multi-frame Dimension Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	GENERATED	ALWAYS	ALWAYS			
> Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.9500.20250827005617827.3.4"		
Dimension Index Sequence	(0020,9222)	GENERATED	ALWAYS	ALWAYS			
> Dimension Index Pointer	(0020,9165)	GENERATED	ALWAYS	ALWAYS	e.g. (0020,9128)		
> Dimension Index Private Creator	(0020,9213)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
> Functional Group Pointer	(0020,9167)	GENERATED	ALWAYS	ALWAYS	e.g. (0020,9111)		
> Functional Group Private Creator	(0020,9238)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
> Dimension Description Label	(0020,9421)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	

Table A-108 Respiratory Synchronization Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Respiratory Trigger Delay Threshold	(0020,9256)	GENERATED	ALWAYS	ALWAYS	e.g. 0		

Table A-109 Bulk Motion Synchronization Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Bulk Motion Compensation Technique	(0018,9172)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		

Table A-110 Acquisition Context Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	GENERATED	ALWAYS	ALWAYS			

Table A-111 MR Spectroscopy Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "7"		
Acquisition Date Time	(0008,002A)	GENERATED	ALWAYS	ALWAYS	e.g. "20101111153520"		
Acquisition Duration	(0018,9073)	GENERATED	ALWAYS	ALWAYS	e.g. 74		
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS	e.g. "PRODUCT"		
Resonant Nucleus	(0018,9100)	GENERATED	ALWAYS	ALWAYS	e.g. "1H"		
k-space Filtering	(0018,9064)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Magnetic Field Strength	(0018,0087)	GENERATED	ALWAYS	ALWAYS	e.g. "1.5"		
Applicable Safety Standard Agency	(0018,9174)	GENERATED	ALWAYS	ALWAYS	e.g. "FDA"		
Image Comments	(0020,4000)	EMPTY	ALWAYS	EMPTY			
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\SPECTROSCOPY\NONE"		
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS	e.g. "COMPLEX"		
Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS	e.g. "UNKNOWN"		
Transmitter Frequency	(0018,9098)	GENERATED	ALWAYS	ALWAYS	e.g. 63.7915		
Spectral Width	(0018,9052)	GENERATED	ALWAYS	ALWAYS	e.g. 1302.08		
Chemical Shift Reference	(0018,9053)	GENERATED	ALWAYS	ALWAYS	e.g. 4.644		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Volume Localization Technique	(0018,9054)	GENERATED	ALWAYS	ALWAYS	e.g. "PRESS"		
Volume Localization Sequence	(0018,9126)	GENERATED	ALWAYS	ALWAYS			
> Slab Thickness	(0018,9104)	GENERATED	ALWAYS	ALWAYS	e.g. 0.017		
> Slab Orientation	(0018,9105)	GENERATED	ALWAYS	ALWAYS	e.g. 0,0,1		
> Mid Slab Position	(0018,9106)	GENERATED	ALWAYS	ALWAYS	e.g. -15.1022,10.5717,0		
> De-coupling	(0018,9059)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
> Time Domain Filtering	(0018,9065)	GENERATED	ALWAYS	ALWAYS	e.g. "LORENTZIAN"		
> Number of Zero Fills	(0018,9066)	GENERATED	ALWAYS	ALWAYS	e.g. 1024		
> Baseline Correction	(0018,9067)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
> Frequency Correction	(0018,9101)	GENERATED	ALWAYS	ALWAYS	e.g. "YES"		
> First Order Phase Correction	(0018,9198)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
> Water Referenced Phase Correction	(0018,9199)	GENERATED	ALWAYS	ALWAYS	e.g. "YES"		

Table A-112 MR Spectroscopy Pulse Sequence Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pulse Sequence Name	(0018,9005)	GENERATED	ALWAYS	ALWAYS	e.g. "MRS_CSI"		
MR Spectroscopy Acquisition Type	(0018,9200)	GENERATED	ALWAYS	ALWAYS	e.g. "PLANE"		
Echo Pulse Sequence	(0018,9008)	GENERATED	ALWAYS	ALWAYS	e.g. "SPIN"		
Multiple Spin Echo	(0018,9011)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Multi-planar Excitation	(0018,9012)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Steady State Pulse Sequence	(0018,9017)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Echo Planar Pulse Sequence	(0018,9018)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
Spectrally Selected Suppression	(0018,9025)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
Geometry of k-Space Traversal	(0018,9032)	GENERATED	ALWAYS	ALWAYS	e.g. "RECTILINEAR"		
Rectilinear Phase Encode Reordering	(0018,9034)	GENERATED	ALWAYS	ALWAYS	e.g. "LINEAR"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segmented k-Space Traversal	(0018,9033)	GENERATED	ALWAYS	ALWAYS	e.g. "SINGLE"		
Number of k-Space Trajectories	(0018,9093)	GENERATED	ALWAYS	ALWAYS	e.g. 64		

Table A-113 MR Spectroscopy Data Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
Data Point Rows	(0028,9001)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
Data Point Columns	(0028,9002)	GENERATED	ALWAYS	ALWAYS	e.g. 2048		
Data Representation	(0028,9108)	GENERATED	ALWAYS	ALWAYS	e.g. "COMPLEX"		
Signal Domain Columns	(0028,9003)	GENERATED	ALWAYS	ALWAYS	e.g. "TIME"		
Spectroscopy Data	(5600,0020)	GENERATED	ALWAYS	ALWAYS	e.g. ...		

Table A-114 SOP Common Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4.2"		
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.5000.7334.20250827005617826.3.3"		
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS	e.g. "20250825"		
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "153520.000"		
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2"		
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS	e.g. "PRODUCT"		

Table A-115 Standard Extended Module for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shutter Presentation Value	(0018,1622)	GENERATED	ALWAYS	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shutter Overlay Group	(0018,1623)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Date	(0032,1000)	GENERATED	ALWAYS	EMPTY			
Scheduled Study Start Time	(0032,1001)	GENERATED	ALWAYS	EMPTY			
Study Comments	(0032,4000)	GENERATED	ALWAYS	EMPTY			

A.6.2 MR Spectroscopy IOD Functional Group Macros

The tables below list functional group macros and Attributes for MR Spectroscopy IOD:

Table A-116 Pixel Measures Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Measures Sequence	(0028,9110)	GENERATED	ALWAYS	ALWAYS			
>Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS	e.g. "22.0000\22.0000"		
>Slice Thickness	(0018,0050)	GENERATED	ALWAYS	ALWAYS	e.g. "17.0000"		
>Spacing Between Slices	(0018,0088)	EMPTY	EMPTY	EMPTY			

Table A-117 Plane Position Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Position Sequence	(0020,9113)	GENERATED	ALWAYS	ALWAYS			
>Image Position (Patient)	(0020,0032)	GENERATED	ALWAYS	ALWAYS	e.g. "-48.10217285\-44.42831421\0.00000000"		

Table A-118 Plane Orientation Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Orientation Sequence	(0020,9116)	GENERATED	ALWAYS	ALWAYS			
>Image Orientation (Patient)	(0020,0037)	GENERATED	ALWAYS	ALWAYS	e.g. "1.00000000\0.00000000\0.00000000\0.00000000\1.00000000\0.00000000"		

Table A-119 Referenced Image Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.5.2001.8"		
>Referenced Frame Number	(0008,1160)	EMPTY	EMPTY	EMPTY			
>Referenced Segment Number	(0062,000b)	EMPTY	EMPTY	EMPTY			
>Purpose Of Reference Code Sequence	(0040,A170)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	e.g. "121311"		
>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	e.g. "DCM"		
>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL		Not Set	
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	e.g. "Localizer"		
>Long Code Value	(0008,0119)	GENERATED	CONDITIONAL	CONDITIONAL			
>URN Code Value	(0008,0120)	GENERATED	CONDITIONAL	CONDITIONAL			
>Equivalent Code Sequence	(0008,0121)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Identifier	(0008,010F)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context UID	(0008,0117)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource	(0008,0105)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource UID	(0008,0118)	GENERATED	CONDITIONAL	CONDITIONAL			
>Mapping Resource Name	(0008,0122)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Version	(0008,0106)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Extension Flag	(0008,010B)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Local Version	(0008,0107)	GENERATED	CONDITIONAL	CONDITIONAL			
>Context Group Extension Creator UID	(0008,010D)	GENERATED	CONDITIONAL	CONDITIONAL			
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.840.10008.5.1.4.1.1.4"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS	e.g. "1.2.392.200036.9116.4.2.105003.32841.1.2001.1"		
>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	CONDITIONAL			
>Referenced Segment Number	(0062,000B)	GENERATED	CONDITIONAL	CONDITIONAL			

Table A-120 Derivation Image Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Derivation Image Sequence	(0008,9124)	EMPTY	EMPTY	EMPTY			
>Derivation Description	(0008,2111)	GENERATED	CONDITIONAL	CONDITIONAL		Only If the derived image.	
>Source Image Sequence	(0008,2112)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Referenced SOP Class UID	(0008,1150)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Derivation Code Sequence	(0008,9215)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	

Table A-121 Cardiac Synchronization Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Sequence	(0018,9118)	GENERATED	ALWAYS	ALWAYS			
>Nominal Percentage Of Cardiac Phase	(0020,9241)	EMPTY	EMPTY	EMPTY			
>Nominal Cardiac Trigger Delay Time	(0020,9153)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Actual Cardiac Trigger Delay Time	(0020,9252)	EMPTY	EMPTY	EMPTY			
>Intervals Acquired	(0018,1083)	EMPTY	EMPTY	EMPTY			
>Intervals Rejected	(0018,1084)	EMPTY	EMPTY	EMPTY			
>Heart Rate	(0018,1088)	EMPTY	EMPTY	EMPTY			
>RR Interval Time Nominal	(0020,9251)	EMPTY	EMPTY	EMPTY			
>Low RR Value	(0018,1081)	EMPTY	EMPTY	EMPTY			
>High RR Value	(0018,1082)	EMPTY	EMPTY	EMPTY			

Table A-122 Frame Anatomy Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Anatomy Sequence	(0020,9071)	GENERATED	ALWAYS	ALWAYS			
>Frame Laterality	(0020,9072)	GENERATED	ALWAYS	ALWAYS	e.g. "U"		
>Anatomic Region Sequence	(0008,2218)	GENERATED	ALWAYS	ALWAYS			
>Primary Anatomic Structure Sequence	(0008,2228)	EMPTY	EMPTY	EMPTY			
>Anatomic Region Modifier Sequence	(0008,2220)	EMPTY	EMPTY	EMPTY			
>Primary Anatomic Structure Modifier Sequence	(0008,2230)	EMPTY	EMPTY	EMPTY			

Table A-123 Pixel Value Transformation Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Value Transformation Sequence	(0028,9145)	GENERATED	ALWAYS	ALWAYS			
>Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	e.g. "0"		
>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	e.g. "US"		

Table A-124 Contrast/Bolus Usage Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent Sequence	(0018,0012)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Contrast/Bolus Agent Sequence (0018, 0012) is used.	
>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Coding Scheme Version	(0008,0103)	EMPTY	EMPTY	EMPTY			
>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Contrast/Bolus Agent Sequence (0018, 0012) is used.	
>Contrast/Bolus Administration Route Sequence	(0018,0014)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>>Coding Scheme Version	(0008,0103)	EMPTY	EMPTY	EMPTY			
>>Code Meaning	(0008,0104)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Contrast/Bolus Agent Sequence (0018, 0012) is used.	
>Contrast/Bolus Volume	(0018,1041)	EMPTY	EMPTY	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Contrast/Bolus Ingredient Concentration	(0018,1049)	EMPTY	EMPTY	EMPTY			
>Contrast/Bolus Agent Number	(0018,9337)	GENERATED	EMPTY	EMPTY			
>Contrast/Bolus Ingredient Code Sequence	(0018,9338)	EMPTY	EMPTY	EMPTY			
>Contrast Administration Profile Sequence	(0018,9340)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Volume	(0018,1041)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Start Time	(0018,1042)	EMPTY	EMPTY	EMPTY			
>>Contrast/Bolus Stop Time	(0018,1043)	EMPTY	EMPTY	EMPTY			
>>Contrast Flow Rate	(0018,1046)	EMPTY	EMPTY	EMPTY			
>>Contrast Flow Duration	(0018,1047)	EMPTY	EMPTY	EMPTY			
>Contrast/Bolus Ingredient Opaque	(0018,9425)	EMPTY	EMPTY	EMPTY			

Table A-125 Respiratory Synchronization Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Respiratory Motion Compensation Technique (0018,9170) equals other than NONE, REALTIME or BREATH_HOLD and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED.	
Respiratory Signal Source	(0018,9171)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
Respiratory Trigger Delay Threshold	(0020,9256)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	

Table A-126 MR Spectroscopy Frame Type Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spectroscopy Frame Type Sequence	(0018,9227)	GENERATED	ALWAYS	ALWAYS			
>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS	e.g. "ORIGINAL\PRIMARY\SPECTROSCOPY\NONE"		
>Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		
>Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS	e.g. "COMPLEX"		
>Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS	e.g. "UNKNOWN"		

Table A-127 MR Timing And Related Parameters Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Timing and Related Parameters Sequence	(0018,9112)	GENERATED	ALWAYS	ALWAYS			
>Repetition Time	(0018,0080)	GENERATED	ALWAYS	ALWAYS	e.g. "1500.000"		
>Flip Angle	(0018,1314)	GENERATED	ALWAYS	ALWAYS	e.g. "90"		
>Echo Train Length	(0018,0091)	GENERATED	ALWAYS	ALWAYS	e.g. "1"		
>RF Echo Train Length	(0018,9240)	GENERATED	ALWAYS	ALWAYS	e.g. 1		
>Gradient Echo Train Length	(0018,9241)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Specific Absorption Rate Sequence	(0018,9239)	GENERATED	ALWAYS	ALWAYS			
>Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS	e.g. "IEC_WHOLE_BODY"		
>Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS	e.g. 0.045		
>Gradient Output Type	(0018,9180)	GENERATED	ALWAYS	ALWAYS	e.g. "DB_DT"		
>Gradient Output	(0018,9182)	GENERATED	ALWAYS	ALWAYS	e.g. 6.16		
>Operating Mode Sequence	(0018,9176)	GENERATED	ALWAYS	ALWAYS			
>Operating Mode Type	(0018,9177)	GENERATED	ALWAYS	ALWAYS	e.g. "RF"		
>Operating Mode	(0018,9178)	GENERATED	ALWAYS	ALWAYS	e.g. "IEC_NORMAL"		

Table A-128 MR Spectroscopy FOV Geometry Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spectroscopy FOV/Geometry Sequence	(0018,9103)	GENERATED	ALWAYS	ALWAYS			
>Spectroscopy Acquisition Data Columns	(0018,9127)	GENERATED	ALWAYS	ALWAYS	e.g. 2048		
>Spectroscopy Acquisition Phase Rows	(0018,9095)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
>Spectroscopy Acquisition Phase Columns	(0018,9234)	GENERATED	ALWAYS	ALWAYS	e.g. 8		
>Spectroscopy Acquisition Out-of-plane Phase Steps	(0018,9159)	GENERATED	CONDITIONAL	CONDITIONAL	e.g. 1	Required if the k-space traversal (0018, 9032) is RECTILINEAR and the value of (0008, 0008) is 1 if it is ORIGINAL or MIXED.	
>Percent Sampling	(0018,0093)	GENERATED	ALWAYS	ALWAYS	e.g. "100"		
>Percent Phase Field of View	(0018,0094)	GENERATED	ALWAYS	ALWAYS	e.g. "100"		

Table A-129 MR Echo Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Echo Sequence	(0018,9114)	GENERATED	ALWAYS	ALWAYS			
>Effective Echo Time	(0018,9082)	GENERATED	ALWAYS	ALWAYS	e.g. 136		

Table A-130 MR Modifier Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Modifier Sequence	(0018,9115)	GENERATED	ALWAYS	ALWAYS			
>Inversion Recovery	(0018,9009)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Inversion Times	(0018,9079)	EMPTY	EMPTY	EMPTY			
>Flow Compensation	(0018,9010)	GENERATED	ALWAYS	ALWAYS	e.g. "OTHER"		
>Flow Compensation Direction	(0018,9183)	GENERATED	ALWAYS	ALWAYS	e.g. "OTHER"		
>Spoiling	(0018,9016)	EMPTY	EMPTY	EMPTY			
>T2 Preparation	(0018,9021)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Spectrally Selected Excitation	(0018,9026)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Spatial Pre-saturation	(0018,9027)	GENERATED	ALWAYS	ALWAYS	e.g. "SLAB"		
>Partial Fourier	(0018,9081)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Partial Fourier Direction	(0018,9036)	EMPTY	EMPTY	EMPTY			
>Parallel Acquisition	(0018,9077)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Parallel Acquisition Technique	(0018,9078)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor In Plane	(0018,9069)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor Out Of Plane	(0018,9155)	EMPTY	EMPTY	EMPTY			
>Parallel Reduction Factor Second In Plane	(0018,9168)	EMPTY	EMPTY	EMPTY			

Table A-131 MR Receive Coil Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Receive Coil Sequence	(0018,9042)	GENERATED	ALWAYS	ALWAYS			
>Receive Coil Name	(0018,1250)	GENERATED	ALWAYS	ALWAYS	e.g. "Atlas Head Neck"		
>Receive Coil Manufacturer Name	(0018,9041)	GENERATED	ALWAYS	ALWAYS	e.g. "TOSHIBA"		
>Receive Coil Type	(0018,9043)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		
>Quadrature Receive Coil	(0018,9044)	GENERATED	ALWAYS	ALWAYS	e.g. "NO"		
>Multi Coil Definition Sequence	(0018,9045)	EMPTY	EMPTY	EMPTY			
>Multi Coil Configuration	(0018,9046)	EMPTY	EMPTY	EMPTY			

Table A-132 MR Transmit Coil Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Transmit Coil Sequence	(0018,9049)	GENERATED	ALWAYS	ALWAYS			
>Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	ALWAYS	e.g. "QD Whole Body"		
>Transmit Coil Manufacturer Name	(0018,9050)	GENERATED	ALWAYS	ALWAYS	e.g. "TOSHIBA"		
>Transmit Coil Type	(0018,9051)	GENERATED	ALWAYS	ALWAYS	e.g. "VOLUME"		

Table A-133 MR Diffusion Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Diffusion Sequence	(0018,9117)	GENERATED	ALWAYS	ALWAYS			
>Diffusion b-value	(0018,9087)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Diffusion Directionality	(0018,9075)	GENERATED	ALWAYS	ALWAYS	e.g. "NONE"		
>Diffusion Gradient Direction Sequence	(0018,9076)	EMPTY	EMPTY	EMPTY			
>Diffusion B Matrix Sequence	(0018,9601)	EMPTY	EMPTY	EMPTY			
>Diffusion Anisotropy Type	(0018,9147)	EMPTY	EMPTY	EMPTY			

Table A-134 MR Averages Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Averages Sequence	(0018,9119)	GENERATED	ALWAYS	ALWAYS			
>Number of Averages	(0018,0083)	GENERATED	ALWAYS	ALWAYS	e.g. "1.0000"		

Table A-135 MR Spatial Saturation Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spatial Saturation Sequence	(0018,9107)	GENERATED	ALWAYS	ALWAYS			

Table A-136 Frame Content Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Content Sequence	(0020,9111)	GENERATED	ALWAYS	ALWAYS			
>Frame Acquisition Number	(0020,9156)	EMPTY	EMPTY	EMPTY			
>Frame Reference Date Time	(0018,9151)	GENERATED	ALWAYS	ALWAYS	e.g. "20101111153520"		
>Frame Acquisition Date Time	(0018,9074)	GENERATED	ALWAYS	ALWAYS	e.g. "20101111153520"		
>Frame Acquisition Duration	(0018,9220)	GENERATED	ALWAYS	ALWAYS	e.g. 74000		
>Cardiac Cycle Position	(0018,9236)	EMPTY	EMPTY	EMPTY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Respiratory Cycle Position	(0018,9214)	EMPTY	EMPTY	EMPTY			
>Dimension Index Values	(0020,9157)	GENERATED	ALWAYS	ALWAYS	e.g. 1,1,1,1		
>Temporal Position Index	(0020,9128)	EMPTY	EMPTY	EMPTY			
>Stack ID	(0020,9056)	EMPTY	EMPTY	EMPTY			
>In Stack Position Number	(0020,9057)	EMPTY	EMPTY	EMPTY			
>Frame Comments	(0020,9158)	EMPTY	EMPTY	EMPTY			
>Frame Label	(0020,9453)	EMPTY	EMPTY	EMPTY			

Table A-137 MR Velocity Encoding Functional Group Macro for MR Spectroscopy IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Velocity Encoding Sequence	(0018,9197)	GENERATED	CONDITIONAL	CONDITIONAL		Required if Phase Contrast (0018, 9014) equals YES and Image Type (0008, 0008) Value 1 is ORIGINAL or MIXED.	
>Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	
>Velocity Encoding Maximum Value	(0018,9217)	GENERATED	CONDITIONAL	CONDITIONAL		same as above	

A.6.3 MR Spectroscopy IOD Private Modules

Table below lists private Modules and Attributes for MR Spectroscopy IOD:

Table A-138 Private Module for MR Spectroscopy IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
OT_MPLUS_PRIVATE	(0029,xx01)	SQ	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g.		
OT_MPLUS_PACKFILE	(0029,xx90)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00,0x0a,0x		

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
								00,0x09,0x00,0x08,0x00,0x06,0x00,0x04,0x00,0x02,0x00,0x01,0x00,0x00		
Private Creator	(700D,00xx)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3"		
Private Creator	(700D,00yy)	LO	1		GENERATED	ALWAYS	ALWAYS	"CANON_MEC_MR3^10"		
<MR>MRS_NUM_PAC_SCAN	(700D,xx80)	US	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x000c		
<MR>MRS_REF_MODE	(700D,xx81)	US	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x000b		
<MR>MRS_GAIN_VALUE	(700D,xx82)	SQ	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g.		
<MR>MRS_CHANNEL_GAIN	(700D,xx83)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 1		
<MR>MRS_CHANNEL_PHASE	(700D,xx84)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0		
<MR>MRS_REF_CHANNEL_GAIN	(700D,xx85)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 1		
<MR>MRS_REF_CHANNEL_PHASE	(700D,xx86)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0		
<MR>MRS_REF_CHANNEL_GAIN	(700D,xx87)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 8		
<MR>MRS_WATER_SAT_PULSE	(700D,xx88)	UL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x00000001		
<MR>MRS_SELECTED_CONTRAST_TE	(700D,xx89)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 0.136		
<MR>MRS_RAW_DATA_SET_SQ	(700D,xx8A)	SQ	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g.		
<MR>MRS_SLICE_NUM	(700D,xx8B)	DS	1		GENERATED	ALWAYS	ALWAYS	e.g. "1"		
<MR>MRS_Coverage_NUM	(700D,xx8C)	DS	1		GENERATED	ALWAYS	ALWAYS	e.g. "1"		
<MR>MRS_RAW_DATA_SQ	(700D,xx8D)	SQ	1		GENERATED	CONDITIONAL	CONDITIONAL	e.g.		

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
><MR>MRS_COIL_CHANNEL_NUM	(700D,xx8E)	DS	1		GENERATED	ALWAYS	ALWAYS	e.g. "1"		
><MR>MRS_RAW_DATA	(700D,xx8F)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x50,0xf0,0x91,0x15,0xbb,0xf1,0xaf,0x13,0x39,0xf1,0xac,0x13,0xe7,0xf0,0x93,0x13		
><MR>MRS_REF_RAW_DATA	(700D,xx90)	OF	1		GENERATED	ALWAYS	ALWAYS	e.g. ...		
><MR>MRS_RAW_DATA_TYPE	(700D,xx92)	US	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x0000		
<MR>MRS_PRESCAN_RGN_VALUE	(700D,xx91)	FL	1		GENERATED	ALWAYS	ALWAYS	e.g. 8		
MR_ACQ_INNER_MATRIX	(700D,yy11)	US	2		GENERATED	ALWAYS	ALWAYS	e.g. 0x0005,0x0008		
MR_PAS_NAME	(700D,yy16)	LO	3		GENERATED	ALWAYS	ALWAYS	e.g. "USER PAS\SEQUENCE\FE"		
MR_ORIENTATION_ID	(700D,yy18)	SS	2		GENERATED	ALWAYS	ALWAYS	e.g. 0x0000,0xffff		
MR_PAS_REPRODUCT_INFO	(700D,yy19)	OB	1		GENERATED	ALWAYS	ALWAYS	e.g. 0x3c,0x3f		

A.6.4 MR Spectroscopy IOD Coded Values - N/A

N/A

A.7 Basic Directory IOD

Table A-139 defines the structure of the Basic Directory IOD.

Table A-139 Basic Directory IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
File Set identification Module							
File-set ID	(0004,1130)	GENERATED	ALWAYS	ALWAYS	e.g. "1442280011"		
Directory Information Module							
Offset of the First Directory Record of the Root Directory Entity	(0004,1200)	GENERATED	ALWAYS	ALWAYS	e.g. 5714		
Offset of the Last Directory Record of the Root Directory Entity	(0004,1202)	GENERATED	ALWAYS	ALWAYS	e.g. 5714		
File-set Consistency Flag	(0004,1212)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
Directory Record Sequence	(0004,1220)	GENERATED	ALWAYS	ALWAYS			
>Offset of the Next Directory Record	(0004,1400)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Record In-use Flag	(0004,1410)	GENERATED	ALWAYS	ALWAYS	e.g. 65535		
>Offset of Referenced Lower-Level Directory Entity	(0004,1420)	GENERATED	ALWAYS	ALWAYS	e.g. 0		
>Directory Record Type	(0004,1430)	GENERATED	ALWAYS	ALWAYS	e.g. "IMAGE";"SERIES";"STUDY";"PATIENT"		
>Referenced File ID	(0004,1500)	GENERATED	ALWAYS	ALWAYS	e.g. "DICOM\CANON\20251001\144227\A0000"		
>Referenced SOP Class UID in File	(0004,1510)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>Referenced SOP Instance UID in File	(0004,1511)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116.4.2.5000.50974.1.2001.1"		
>Referenced Transfer Syntax UID in File	(0004,1512)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.840.10008.1.2.1"		
"PATIENT" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87"		

>Patient's Name	(0010,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "EM_MN000074"		
>Patient ID	(0010,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "EM_ID000074"		
>Patient's Birth Date	(0010,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. ""		
>Patient's Sex	(0010,0040)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "O"		
>Ethnic Group	(0010,2160)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. ""		
>Patient Comments	(0010,4000)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. ""		
"STUDY" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87"		
>Study Date	(0008,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "20251001"		
>Study Time	(0008,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "103832"		
>Accession Number	(0008,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. ""		
>Study Description	(0008,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. ""		
>Study Instance UID	(0020,000D)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116.4.2.5000.1467.20251001013757493.2.2"		
>Study ID	(0020,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "50974"		
"SERIES" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87"		
>Series Date	(0008,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "20251001"		
>Series Time	(0008,0031)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "103832"		
>Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "MR"		
>Institution Name	(0008,0080)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "HospitalName"		
>Institution Address	(0008,0081)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "----------"		
>Series Description	(0008,103E)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "FE_slt"		
>Protocol Name	(0018,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "FE_slt"		

>Series Instance UID	(0020,000E)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116.4.2.5000.50974.1002"		
>Series Number	(0020,0011)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1001"		
"IMAGE" Keys							
>Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "\ISO 2022 IR 87"		
>Image Type	(0008,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "ORIGINAL\PRIMARY\GDC"		
>SOP Class UID	(0008,0016)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.840.10008.5.1.4.1.1.4"		
>SOP Instance UID	(0008,0018)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116.4.2.5000.50974.1.2001.1"		
>Content Date	(0008,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "20251001"		
>Content Time	(0008,0033)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "103832.000"		
>Acquisition Number	(0020,0012)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "0"		
>Instance Number	(0020,0013)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1"		
>Image Position (Patient)	(0020,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "-128.00000000\-128.00000000\0.00000000"		
>Image Orientation (Patient)	(0020,0037)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.00000000\0.00000000\0.00000000\0.00000000\1.00000000\0.00000000"		
>Frame of Reference UID	(0020,0052)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.2.392.200036.9116.4.2.5000.50974.0.1.2.2"		
>Rows	(0028,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 256		
>Columns	(0028,0011)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 256		
>Pixel Spacing	(0028,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "1.0000\1.0000"		
>Icon Image Sequence	(0088,0200)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Samples per Pixel	(0028,0002)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 1		
>>Photometric Interpretation	(0028,0004)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. "MONOCHROME2"		

>>Rows	(0028,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 64		
>>Columns	(0028,0011)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 64		
>>Bits Allocated	(0028,0100)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 8		
>>Bits Stored	(0028,0101)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 8		
>>High Bit	(0028,0102)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 7		
>>Pixel Representation	(0028,0103)	SRC_INSTANCE	SRC_COPY	SRC_COPY	e.g. 0		
>>Pixel Data	(7FE0,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

B Structured Report Content Encoding - N/A

N/A

C Security Details

This section provides additional details about security features that are formally described in Section 8.

C.1 External Network Requirement Details – N/A

N/A

C.2 DICOM Security Profile Details

C.2.1 Online Electronic Storage Secure Use - N/A

N/A

C.2.2 Audit Trail Messages

Table C-140 specifies the DICOM Audit Messages that Galan 3T, Centurian can detect and report. It defines the list of triggers that will cause the Audit Message to be generated and if these triggers can be configured or not. It also specifies whether the content of the Audit Message can be configured or not.

Table C-140 DICOM Specific Audit Messages

Audit Message	Used	Supported Triggers	Configurable Triggers	Configurable Message	Comments
Application Activity	Used	Startup/ Shutdown of product	N	N	
Audit Log Used	Used	Back up audit messages	N	N	
Begin Transferring DICOM Instances	Not Used	N/A	N	N	
Data Export	Used	Network/Media storage, Print, MPPS	N	N	
Data Import	Used	Network/Media retrieve	N	N	
DICOM Instance Accessed	Used	PHI of the local store or the media is corrected or removed	N	N	
DICOM Instance Transferred	Used	PHI is imported as MWM	N	N	
DICOM Study Deleted	Not Used	N/A	N	N	
Network Entry	Not Used	N/A	N	N	
Query	Used	PHI is queried	N	N	

Audit Message	Used	Supported Triggers	Configurable Triggers	Configurable Message	Comments
Security Alert	Used	The local user login problem, the secure connection establishment failure, the security configuration or PHI transfer configuration update	N	N	
User Authentication	Used	The local user authentication is processing	N	N	
Order Record	Used	the locally scheduled PHI is stored or removed	N	N	
Patient Record	Used	locally unscheduled PHI is stored	N	N	
Procedure Record	Not Used	N/A	N	N	

Table C-141 specifies the implementation details of each audit message supported by this product.

Table C-141 Audit Message Details

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	M	EV (110100, DCM, "Application Activity")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	M	DT (110120, DCM, "Application Start") DT (110121, DCM, "Application Stop")
Active Participant: Application started (1)	UserID	M	The security application role name
	UserIDTypeCode	U	EV (110150, DCM, "Application")
	AlternativeUserID	MC	Process ID of the security application
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant: Persons and or processes that started the Application (0..1)	UserID	M	The person to start or stop the security application
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Audit Log Used Message			
Event	EventID	M	EV (110101, DCM, "Audit Log Used")
	EventActionCode	M	EV R = read
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Persons and or processes that started the Application (1..2)	UserID	M	The person and application to access the audit logs
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Identity of the audit log (1)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 13 = security resource
	ParticipantObjectDataLifeCycle	U	EV 6 = Access/Use

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectIDTypeCode	M	EV 12 = URI
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The URI of the audit log file to be accessed.
	ParticipantObjectName	U	"Security Audit Log"
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
	ParticipantObjectContainsStudy	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Begin Transferring DICOM Instances Message			
Event	EventID	M	EV (110102, DCM, "Begin Transferring DICOM Instances")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Process Sending the Data (1)	UserID	M	The AE Title of Archive Device used in the association
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	Process ID of the participant application
	UserName	U	not specialized
	UserIsRequestor	M	False when other Participants as person is available, else True with including the automated operation
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	1 = Machine Name, including DNS name 2 = IP Address

Real-World Entities	Field Name	Supported	Value Constraints
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Process receiving the data (1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, 'Station AE Title')
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: Other Participants (0..1)	UserID	M	The person to perform the triggered event
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies being transferred (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	13 = Archiving
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	MC	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	True when the operation is in the Anonymized context, else False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 13 = Archiving
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Data Export Message			
Event	EventID	M	EV (110106, DCM, "Export")
	EventActionCode	M	EV R = Read
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Remote Users and Processes (0..1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
	UserID	M	The person and application to export the data.

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant: User or Process Exporting the data(1..2)	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Media (1)	UserID	M	The alias name for the destination media
	UserIDTypeCode	U	EV (113877, DCM, "Device Name")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110154, DCM, "Destination Media")
	NetworkAccessPointTypeCode	MC	EV 1 = Machine Name, including DNS name 2 = IP Address 5 = URI (user directory, HTTP-PUT, ftp, etc.) when Media Type is 110037 and 110010
	NetworkAccessPointID	MC	Host name or IP address of the destination when Media Type is 110037 and 110010
	MediaIdentifier	MC	Volume ID, URI, or other identifier for media when Media Type is 10030, 110032, 110033, 110035 and 110038
	MediaType	M	EV (110030, DCM, "USB Disk Emulation") EV (110035, DCM, "Multi-media Card") EV (110037, DCM, "URI") EV (110010, DCM, "Film") EV (110038, DCM, "Paper Document")
Participating Object: Studies (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 10 = Export
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	MC	The SOP Class UID
	Accession	U	Accession Number
	NumberOfInstances	U	Instance Number
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	True when the operation is in the Anonymized context, else False
Participating Object: Patients (1..N)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 10 = Export
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Data Import			
Event	EventID	M	EV (110107, DCM, "Import")
	EventActionCode	M	EV C = Create
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: User or Process Importing the data (1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: Source Media (1)	UserID	M	The alias name for the destination media
	UserIDTypeCode	U	EV (113877, DCM, "Device Name")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110155, DCM, "Source Media")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address 5 = URI (user directory, HTTP-PUT, ftp, etc.) when Media Type is 110037
	NetworkAccessPointID	MC	Host name or IP address of the destination when Media Type is 110037
	MediaIdentifier	M	Volume ID, URI, or other identifier for media when Media Type is 10030, 110032, 110033 and 110035
	MediaType	M	EV (110030, DCM, "USB Disk Emulation") EV (110035, DCM, "Multi-media Card") EV (110037, DCM, "URI")
Active Participant: Source (1..n)	UserID	M	The person and application to export the data.
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	MC	Host name or IP address of this product
Participating Object: Studies (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	not specialized
	SOPClass	MC	The SOP Class UID
	Accession	U	Accession Number
	NumberOfInstances	U	Instance Number
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	True when the operation is in the Anonymized context, else False
Participating Object: Patients (1..N)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
DICOM Instances Accessed			
Event	EventID	M	EV (110103, DCM, "DICOM Instances Accessed")
	EventActionCode	M	EV C = create R = read U = update D = delete

Real-World Entities	Field Name	Supported	Value Constraints
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Person and or Process manipulating the data (1..2)	UserID	M	The person and application to correct the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 6 = Access or Use 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized
	SOPClass	MC	Not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDataLifeCycle	U	EV 6 = Access or Use 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
DICOM Instances Transferred			
Event	EventID	M	EV (110104, DCM, "DICOM Instances Transferred")
	EventActionCode	M	EV C = create R = read U = update
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Process that sent the data (1)	UserID	M	not specialized
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	not specialized
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized
Active Participant: The process that received the data. (1)	UserID	M	The AE Title of Destination Device
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")

Real-World Entities	Field Name	Supported	Value Constraints
	NetworkAccessPointTypeCode	U	EV name 1 = Machine Name, including DNS 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the destination
Active Participant: Other participants that are known, especially third parties that are the requestor (1..N)	UserID	M	The person and application to handle the data.
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV name 1 = Machine Name, including DNS 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies being transferred (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized
	SOPClass	MC	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
DICOM Study Deleted			
Event	EventID	M	EV (110105, DCM, "DICOM Study Deleted")
	EventActionCode	M	EV D = delete
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: the person or process deleting the study (1..2)	UserID	M	The person and application to remove the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Participating Object: Studies being transferred (1..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized
	SOPClass	MC	Not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Participating Object: Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 14 = Logical Deletion 15 = Permanent erasure or physical destruction
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Network Entry			
Event	EventID	M	EV (110108, DCM, "Network Entry")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	M	EV (110124, DCM, "Attach") EV (110125, DCM, "Detach")
Active Participant: Node or System entering or leaving the network (1)	UserID	M	The person and application to correct the PHI
	UserIDTypeCode	U	EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application

Real-World Entities	Field Name	Supported	Value Constraints
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Query			
Event	EventID	M	EV (110112, DCM, "Query")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
Active Participant: Process Issuing the Query (1)	UserID	M	The AE Title of requesting query
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	Process ID of the requesting application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	Ture
	RoleIDCode	M	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the requesting application
Active Participant: The process that will respond to the query (1)	UserID	M	The AE Title of replying query
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title")
	AlternativeUserID	U	Process ID of the replying application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110152, DCM, "Destination Role ID")

Real-World Entities	Field Name	Supported	Value Constraints
	NetworkAccessPointTypeCode	U	EV name 1 = Machine Name, including DNS 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the replying application
Active Participant: Other Participants that are known, especially third parties that requested the query (0..1)	UserID	M	The person and application to request the query
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the requesting application if it is in this product
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	U	EV name 1 = Machine Name, including DNS 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of the requesting application
Participating Object: SOP Queried and the Query (1)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 2 = Import or Copy from original
	ParticipantObjectIDTypeCode	M	DT (110181, DCM, "SOP Class UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The UID of the SOP Class being queried
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	M	The ascii dump of the DICOM query in xs:base64Binary encoded.
	ParticipantObjectDetail	MC	not specialized as ParticipantObjectQuery keeps the ascii dump
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	True when the operation is in the secure transport connection, else False
	Anonymized	U	False
	AuditSourceID	M	Host name of this product

Real-World Entities	Field Name	Supported	Value Constraints
Audit Source	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Security Alert: Authentication			
Event	EventID	M	EV (110113, DCM, "Security Alert")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure
	EventTypeCode	M	DT (110126, DCM, "Node Authentication") DT (110122, DCM, "LogIn")
Active Participant: Reporting Person and/or Process (1..2)	UserID	M	The person and application to perform the local logon or node authentication
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	M	False when the node authentication in the SCP context. Otherwise True.
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Active Participant: Performing Persons or Processes (0)	UserID	M	not specialized
	UserIDTypeCode	U	not specialized
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	U	not specialized
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized
Participating Object: Alert Subject (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	U	EV 13 = security resource
	ParticipantObjectDataLifeCycle	U	4 = Verification
	ParticipantObjectIDTypeCode	M	DT(110182, DCM, "Node ID")
	ParticipantObjectSensitivity	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectID	M	node_name@domain_name or an IP address of the node authentication problem username@hostname or IP address of this product of the local log on problem.
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	M	type=Alert Description value=<Base-64 encoded authentication problem>
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Security Alert: Configuration update			
Event	EventID	M	EV (110113, DCM, "Security Alert")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	M	DT (110128, DCM, "Network Configuration") DT (110129, DCM, "Security Configuration") DT (110130, DCM, "Hardware Configuration") DT (110131, DCM, "Software Configuration")
Active Participant: Reporting Person and/or Process (1..2)	UserID	M	The AE Titles of this product or the configuration application name
	UserIDTypeCode	U	EV (110119, DCM, "Station AE Title") EV (110150, DCM, "Application")
	AlternativeUserID	MC	Process ID of the security application
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	M	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name
	NetworkAccessPointID	U	Host name of this product

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant: Performing Persons or Processes (0..1)	UserID	M	The person to configure the security settings
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	M	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name
	NetworkAccessPointID	U	Host name of this product
Participating Object: Alert Subject (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	U	EV 13 = security resource
	ParticipantObjectDataLifeCycle	U	EV 1 = C (Create) 3 = U (Update) 6 = R (Read/View/Print/Query Display or print data) or 6 = E (Perform a system or application function such as log-on, program execution, or use of an object's method) 14 = D (Delete)
	ParticipantObjectIDTypeCode	M	EV (110182, DCM, "Node ID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	IP address.of this product
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	M	type=Alert Description value=<Base-64 encoded configuration changes>
	ParticipantObjectDescription	U	not specialized
	SOPClass	U	not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
User Authentication			

Real-World Entities	Field Name	Supported	Value Constraints
Event	EventID	M	EV (110114, DCM, "User Authentication")
	EventActionCode	M	EV E = Execute
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success
	EventTypeCode	M	EV (110122, DCM, "Login") EV (110123, DCM, "Logout")
Active Participant: Person Authenticated or claimed (1)	UserID	M	User name of logged in user
	UserIDTypeCode	U	EV (113871, DCM, "Person ID")
	AlternativeUserID	U	not specialized
	UserName	U	not specialized
	UserIsRequestor	M	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher")
	NetworkAccessPointTypeCode	M	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	M	Host name or IP address of this product
Active Participant: Node or System performing authentication (1)	UserID	M	The security application role name to handle Login and Logout
	UserIDTypeCode	U	EV (110150, DCM, "Application")
	AlternativeUserID	U	Process ID of the security application
	UserName	U	not specialized
	UserIsRequestor	M	False
	RoleIDCode	U	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	Host name of this product
	NetworkAccessPointID	U	1 = Machine Name, including DNS name
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Order Record			
Event	EventID	M	EV (110109, DCM, "Order Record")
	EventActionCode	M	EV C = create R = read U = update D = delete
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure

Real-World Entities	Field Name	Supported	Value Constraints
			8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
User (1..2)	UserID	M	The person and application to store the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternateUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	U	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 1 = Origination, Creation 6 = Access or Use 14 = Logical Deletion
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Patient Record			
Event	EventID	M	EV (110110, DCM, "Patient Record")
	EventActionCode	M	EV C = create
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
User (1..2)	UserID	M	The person and application to store the PHI
	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternateUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	U	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 1 = Origination, Creation
	ParticipantObjectIDTypeCode	M	EV 2 = patient ID
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument
Procedure Record			
Event	EventID	M	EV (110111, DCM, "Procedure Record")
	EventActionCode	C	EV C = create R = read U = update D = delete
	EventDateTime	M	Date and Time formatted with RFC3881. e.g. 2017-03-16T14:23:25+09:00
	EventOutcomeIndicator	M	EV 0 = Success 4 = Minor failure 8 = Serious failure 12 = Major failure
	EventTypeCode	U	not specialized
	UserID	M	The person and application to store the PHI

Real-World Entities	Field Name	Supported	Value Constraints
User (1..2)	UserIDTypeCode	U	EV (113871, DCM, "Person ID") EV (110150, DCM, "Application")
	AlternateUserID	U	Process ID of the application
	UserName	U	not specialized
	UserIsRequestor	U	True
	RoleIDCode	U	EV (110151, DCM, "Application Launcher") EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	U	EV 1 = Machine Name, including DNS name 2 = IP Address
	NetworkAccessPointID	U	Host name or IP address of this product
Study (0..N)	ParticipantObjectTypeCode	M	EV 2 = system object
	ParticipantObjectTypeCodeRole	M	EV 3 = report
	ParticipantObjectDataLifeCycle	U	EV 1 = Origination, Creation 6 = Access or Use 14 = Logical Deletion
	ParticipantObjectIDTypeCode	M	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The Study Instance UID
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	Not specialized
	ParticipantObjectDescription	U	Not specialized
	SOPClass	MC	Not specialized
	Accession	U	not specialized
	NumberOfInstances	U	not specialized
	Instances	U	not specialized
	Encrypted	U	False
	Anonymized	U	False
Patient (1)	ParticipantObjectTypeCode	M	EV 1 = person
	ParticipantObjectTypeCodeRole	M	EV 1 = patient
	ParticipantObjectDataLifeCycle	U	EV 2 = patient ID
	ParticipantObjectIDTypeCode	M	1 = Origination, Creation 6 = Access or Use 14 = Logical Deletion
	ParticipantObjectSensitivity	U	The patient ID
	ParticipantObjectID	M	not specialized

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	U	not specialized
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not specialized
Audit Source	AuditSourceID	M	Host name of this product
	AuditSourceTypeCode	U	EV 2 = Data acquisition device or instrument

C.2.3 Audit Trail Message Transmission Profile - SYSLOG - TLS

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-TLS parameters.

C.2.4 Audit Trail Message Transmission Profile - SYSLOG - UDP

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-UDP parameters.

C.2.5 Secure Transport Connection Details

Table C-142 lists the secure transport connection profiles and cipher suites supported for TLS 1.3:

Table C-142 Secure Transport Connection Profiles and Cipher Suites

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
BCP195 TLS Secure Transport Connection Profile (TLS 1.3)	TLS_AES_128_GCM_SHA256	1
	TLS_AES_256_GCM_SHA384	2
	TLS_CHACHA20_POLY1305_SHA256	3
Non-Downgrading BCP195 TLS Secure Transport Connection Profile(TLS 1.3)	TLS_AES_128_GCM_SHA256	1
	TLS_AES_256_GCM_SHA384	2
	TLS_CHACHA20_POLY1305_SHA256	3

Table C-143 lists the secure transport connection profiles and cipher suites supported for TLS 1.2:

Table C-143 Secure Transport Connection Profiles and Cipher Suites

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
BCP195 TLS Secure Transport Connection Profile (TLS 1.2)	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	4
	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	5
	TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256	6
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	7

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	8
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	9
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	10
	TLS_DHE_DSS_WITH_AES_256_GCM_SHA384	11
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	12
	TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	13
	TLS_DHE_DSS_WITH_AES_256_CBC_SHA256	14
	TLS_DH_anon_WITH_AES_256_GCM_SHA384	15
	TLS_DH_anon_WITH_AES_256_CBC_SHA256	16
	TLS_RSA_WITH_AES_256_GCM_SHA384	17
	TLS_RSA_WITH_AES_256_CBC_SHA256	18
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	19
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	20
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	21
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	22
	TLS_DHE_DSS_WITH_AES_128_GCM_SHA256	23
	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	24
	TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	25
	TLS_DHE_DSS_WITH_AES_128_CBC_SHA256	26
	TLS_RSA_WITH_CAMELLIA_256_CBC_SHA256	27
	TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA256	28
	TLS_DHE_DSS_WITH_CAMELLIA_256_CBC_SHA256	29
	TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA256	30
	TLS_DHE_DSS_WITH_CAMELLIA_128_CBC_SHA256	31
	TLS_DH_anon_WITH_AES_128_GCM_SHA256	32
	TLS_DH_anon_WITH_AES_128_CBC_SHA256	33
	TLS_DH_anon_WITH_CAMELLIA_128_CBC_SHA256	34
	TLS_RSA_WITH_AES_128_GCM_SHA256	35
	TLS_RSA_WITH_AES_128_CBC_SHA256	36
	TLS_RSA_WITH_CAMELLIA_128_CBC_SHA256	37
	TLS_RSA_WITH_NULL_SHA256	38
BCP195 TLS Secure Transport Connection Profile (TLS 1.1/TLS 1.0)	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	39
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA	40
	TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA	41

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
	TLS_DHE_DSS_WITH_CAMELLIA_256_CBC_SHA	42
	TLS_GOSTR341001_WITH_28147_CNT_IMIT	43
	TLS_GOSTR341094_WITH_NULL_GOSTR3411	44
	TLS_ECDH_anon_WITH_AES_256_CBC_SHA	45
	TLS_DH_anon_WITH_AES_256_CBC_SHA	46
	TLS_DH_anon_WITH_CAMELLIA_256_CBC_SHA	47
	TLS_RSA_WITH_AES_256_CBC_SHA	48
	TLS_DHE_RSA_WITH_AES_256_CBC_SHA	49
	TLS_DHE_DSS_WITH_AES_256_CBC_SHA	50
	TLS_RSA_WITH_CAMELLIA_256_CBC_SHA	51
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	52
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA	53
	TLS_DHE_RSA_WITH_AES_128_CBC_SHA	54
	TLS_DHE_DSS_WITH_AES_128_CBC_SHA	55
	TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA	56
	TLS_DHE_DSS_WITH_CAMELLIA_128_CBC_SHA	57
	TLS_ECDH_anon_WITH_AES_128_CBC_SHA	58
	TLS_DH_anon_WITH_AES_128_CBC_SHA	59
	TLS_DH_anon_WITH_CAMELLIA_128_CBC_SHA	60
	TLS_RSA_WITH_AES_128_CBC_SHA	61
	TLS_RSA_WITH_CAMELLIA_128_CBC_SHA	62
	TLS_ECDHE_RSA_WITH_RC4_128_SHA	63
	TLS_ECDHE_ECDSA_WITH_RC4_128_SHA	64
	TLS_ECDH_anon_WITH_RC4_128_SHA	65
	TLS_DH_anon_WITH_RC4_128_MD5	66
	TLS_RSA_WITH_RC4_128_SHA	67
	TLS_RSA_WITH_RC4_128_MD5	68
	SSL_CK_RC4_128_WITH_MD5	69
	TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA	70
	TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA	71
	TLS_DHE_RSA_WITH_3DES_EDE_CBC_SHA	72
	TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA	73
	TLS_ECDH_anon_WITH_3DES_EDE_CBC_SHA	74
	TLS_DH_anon_WITH_3DES_EDE_CBC_SHA	75

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
	TLS_RSA_WITH_3DES_EDE_CBC_SHA	76
	TLS_DHE_RSA_WITH_DES_CBC_SHA	77
	TLS_DHE_DSS_WITH_DES_CBC_SHA	78
	TLS_DH_anon_WITH_DES_CBC_SHA	79
	TLS_RSA_WITH_DES_CBC_SHA	80
	TLS_ECDHE_RSA_WITH_NULL_SHA	81
	TLS_ECDHE_ECDSA_WITH_NULL_SHA	82
	TLS_ECDH_anon_WITH_NULL_SHA	83
	TLS_RSA_WITH_NULL_SHA	84
	TLS_NULL_WITH_NULL_NULL	85
	TLS_RSA_WITH_NULL_MD5	86
Non-Downgrading BCP195 TLS Secure Transport Connection Profile (TLS 1.2)	TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256	4
	TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256	5
	TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256	6
	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	7
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	8
	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	9
	TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384	10
	TLS_DHE_DSS_WITH_AES_256_GCM_SHA384	11
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	12
	TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	13
	TLS_DHE_DSS_WITH_AES_256_CBC_SHA256	14
	TLS_DH_anon_WITH_AES_256_GCM_SHA384	15
	TLS_DH_anon_WITH_AES_256_CBC_SHA256	16
	TLS_RSA_WITH_AES_256_GCM_SHA384	17
	TLS_RSA_WITH_AES_256_CBC_SHA256	18
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	19
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	20
	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	21
	TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256	22
	TLS_DHE_DSS_WITH_AES_128_GCM_SHA256	23
	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	24
	TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	25
	TLS_DHE_DSS_WITH_AES_128_CBC_SHA256	26

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
	TLS_RSA_WITH_CAMELLIA_256_CBC_SHA256	27
	TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA256	28
	TLS_DHE_DSS_WITH_CAMELLIA_256_CBC_SHA256	29
	TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA256	30
	TLS_DHE_DSS_WITH_CAMELLIA_128_CBC_SHA256	31
	TLS_DH_anon_WITH_AES_128_GCM_SHA256	32
	TLS_DH_anon_WITH_AES_128_CBC_SHA256	33
	TLS_DH_anon_WITH_CAMELLIA_128_CBC_SHA256	34
	TLS_RSA_WITH_AES_128_GCM_SHA256	35
	TLS_RSA_WITH_AES_128_CBC_SHA256	36
	TLS_RSA_WITH_CAMELLIA_128_CBC_SHA256	37
	TLS_RSA_WITH_NULL_SHA256	38
Extended BCP195 TLS Profile Secure Transport Connection Profile (TLS 1.2)	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	7
	TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384	8
	TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	12
	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	19
	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256	20
	TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	24

Table C-144 describes the configurable parameters and behaviors supported by this product for the Secure Transport Connection:

Table C-144 Secure Transport Connection Configuration

Local Secure Transport Connection Configuration			
Parameter/Behavior	**Configurable**	**Default Value**	**Comments**
Common Secure Transport Connection parameters			
Port	See Section 6 Configuration		
Remote Secure Transport Connection Configuration Parameters			
Parameter	Configurable	Default Value	Comments
Common Secure Transport Connection Parameters			
See Section 6 Configuration			

C.2.6 Attribute Confidentiality Details

Table C-145 provides the list of Attributes and the action when de-identifying instances. Supported Action Codes are defined in PS 3.15 Section E.1.

- D: replace with a non-zero length Value that may be a dummy Value and consistent with the VR
- Z: replace with a zero-length Value, or a non-zero length Value that may be a dummy Value and consistent with the VR
- X: remove
- K: keep (unchanged for non-sequence Attributes, cleaned for sequences)
- C: clean, that is replace with Values of similar meaning known not to contain identifying information and consistent with the VR
- U: replace with a non-zero length UID that is internally consistent within a set of Instances
- Z/D: Z unless D is required to maintain IOD conformance (Type 2 versus Type 1)
- X/Z: X unless Z is required to maintain IOD conformance (Type 3 versus Type 2)
- X/D: X unless D is required to maintain IOD conformance (Type 3 versus Type 1)
- X/Z/D: X unless Z or D is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1)
- X/Z/U*: X unless Z or replacement of contained instance UIDs (U) is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1 sequences containing UID references)

Table C-145 De-identified Elements and Actions

Attribute Name	Tag	Action	Encrypted	Comments
Basic Profile Option				
Patient's Name	(0010,0010)	D	N	e.g." LastName_20260421330322^ FirstName_20260421330322"
Patient ID	(0010,0020)	D	N	e.g." D_20260421330322"
Issuer of Patient ID	(0010,0021)	X	N	
Patient's Birth Date	(0010,0030)	D	N	e.g." 20010521"
Patient's Birth Time	(0010,0032)	X	N	
Other Patient IDs	(0010,1000)	X	N	
Other Patient Names	(0010,1001)	X	N	
Patient Comments	(0010,4000)	D	N	e.g." Patient Comments "
Instance Creator UID	(0008,0014)	U	N	e.g." 1.2.392.200036.9116.4
Institution Code Sequence	(0008,0082)	X	N	
Referring Physician's Address	(0008,0092)	X	N	
Referring Physician's Telephone Numbers	(0008,0094)	X	N	
Admitting Diagnoses Description	(0008,1080)	X	N	
Admitting Diagnoses Code Sequence	(0008,1084)	X	N	
Patient's Insurance Plan Code Sequence	(0010,0050)	X	N	
Patient's Birth Name	(0010,1005)	X	N	
Patient Address	(0010,1040)	X	N	
Patient's Mother's Birth Name	(0010,1060)	X	N	
Military Rank	(0010,1080)	X	N	
Branch of Service	(0010,1081)	X	N	
Medical Record Locator	(0010,1090)	X	N	
Medical Alerts	(0010,2000)	X	N	

Allergies	(0010,2110)	X	N	
Country of Residence	(0010,2150)	X	N	
Region of Residence	(0010,2152)	X	N	
Patient's Telephone Number	(0010,2154)	X	N	
Smoking Status	(0010,21A0)	X	N	
Pregnancy Status	(0010,21C0)	X	N	
Last Menstrual Date	(0010,21D0)	X	N	
Patient's Religious Preference	(0010,21F0)	X	N	
Admission ID	(0038,0010)	X	N	
Issuer of Admission ID	(0038,0011)	X	N	
Admitting Date	(0038,0020)	X	N	
Admitting Time	(0038,0021)	X	N	
Special Needs	(0038,0050)	X	N	
Current Patient Location	(0038,0300)	X	N	
Patient's Institution Residence	(0038,0400)	X	N	
Patient State	(0038,0500)	X	N	
Visit Comments	(0038,4000)	X	N	
Confidentiality Constraint on Patient Data Description	(0040,3001)	X	N	
Study Date	(0008,0020)	Z	N	
Study Time	(0008,0030)	Z	N	
Accession Number	(0008,0050)	Z	N	
Referring Physician's Name	(0008,0090)	Z	N	
Referenced Study Sequence	(0008,1110)	X	N	
Study Instance UID	(0020,000D)	U	N	e.g."1.2.392.200036.9116.4...."
Study ID	(0020,0010)	D	N	e.g."8642"
Requesting Physician	(0032,1032)	X	N	
Requesting Service	(0032,1033)	X	N	
Requested Procedure Description	(0032,1060)	X	N	
Requested Contrast Agent	(0032,1070)	X	N	
Scheduled Station AE Title	(0040,0001)	X	N	
Scheduled Procedure Step Start Date	(0040,0002)	X	N	
Scheduled Procedure Step Start Time	(0040,0003)	X	N	
Scheduled Procedure Step End Date	(0040,0004)	X	N	
Scheduled Procedure Step End Time	(0040,0005)	X	N	
Scheduled Performing Physician Name	(0040,0006)	X	N	
Scheduled Station Name	(0040,0010)	X	N	
Scheduled Procedure Step Location	(0040,0011)	X	N	
Pre-Medication	(0040,0012)	X	N	
Patient Transport Arrangements	(0040,1004)	X	N	
Requested Procedure Location	(0040,1005)	X	N	

Names of Intended Recipient of Results	(0040,1010)	X	N	
Requested Procedure Comments	(0040,1400)	X	N	
Reason for Imaging Service Request	(0040,2001)	X	N	
Order Entered By	(0040,2008)	X	N	
Order Enterer Location	(0040,2009)	X	N	
Order Callback Phone Number	(0040,2010)	X	N	
Placer Order Number of Imaging Service Request	(0040,2016)	Z	N	
Filler Order Number of Imaging Service Request	(0040,2017)	Z	N	
Imaging Service Request Comments	(0040,2400)	X	N	
MR/SC Image IOD Profile Option				
Series Date	(0008,0021)	D	N	e.g." 20260421"
Performing Physician's Name	(0008,1050)	X	N	
Operators' Name	(0008,1070)	X	N	
Referenced Performed Procedure Step Sequence	(0008,1111)	X	N	
Performed Procedure Step Date	(0040,0244)	X	N	
Performed Procedure Step Time	(0040,0245)	X	N	
Performed Procedure Step ID	(0040,0253)	X	N	
Performed Procedure Step Description	(0040,0254)	X	N	
Request Attributes Sequence	(0040,0275)	X	N	
Institution Name	(0008,0080)	D	N	e.g." Institution Name "
Institution Address	(0008,0081)	X	N	
Station Name	(0008,1010)	X	N	
Institutional Department Name	(0008,1040)	X	N	
Acquisition Date	(0008,0022)	X	N	
Enhanced MR Image IOD Profile Option				
Series Date	(0008,0021)	D	N	e.g." 20260421"
Performing Physician's Name	(0008,1050)	X	N	
Operators' Name	(0008,1070)	X	N	
Referenced Performed Procedure Step Sequence	(0008,1111)	X	N	
Performed Procedure Step Date	(0040,0244)	X	N	
Performed Procedure Step Time	(0040,0245)	X	N	
Performed Procedure Step ID	(0040,0253)	X	N	
Performed Procedure Step Description	(0040,0254)	X	N	
Request Attributes Sequence	(0040,0275)	X	N	
Referenced Performed Procedure Step Sequence	(0008,1111)	X	N	
Institution Name	(0008,0080)	D	N	e.g." Institution Name "
Institution Address	(0008,0081)	X	N	
Station Name	(0008,1010)	X	N	

Institutional Department Name	(0008,1040)	X	N	
Institution Name	(0008,0080)	D	N	e.g." Institution Name "
Institution Address	(0008,0081)	X	N	
Station Name	(0008,1010)	X	N	
Acquisition Context Sequence	(0040,0555)	X	N	
Icon Image Sequence	(0088,0200)	X	N	
Frame Comments	(0020,9158)	X	N	
Acquisition Date	(0008,0022)	X	N	

C.2.7 Digital Signature Details - N/A

N/A

C.2.8 Additional DICOM Security Profile Details - N/A

N/A

D Mapping of Attributes

D.1 Mapping Between Modality Worklist Instances and MPPS

Table D-1 describes the mapping of Attributes between Modality Worklist Instances and MPPS messages.

In the "Scenario" column the following Values are used:

- SCHEDULED: The image acquisition was scheduled at the RIS and procedure details have been communicated in the MWL query)
- UNSCHEDULED: The image acquisition was performed without Modality Worklist information
- APPEND: Instances acquired are added to an existing study after the initial procedure was finalized
- GROUP: Multiple requested procedures are grouped into one study.

In the "Value Source" columns, the following Values are used. The column cell may additionally contain an Attribute Tag if the value is copied from a different Attribute.

- GENERATED: The Value is generated by the system.
- SRC_INSTANCE: The Value is copied from previously created instances.
- MWL: The Value is copied from a Modality Worklist entry.
- USER: The Value is entered by the user.
- SCANNED: The Value is read from a barcode scanner or similar device.
- EMPTY: The Attribute is sent with a zero-length Value.

The "Destination" columns either contain TOP, if the Attribute is added to the top level Data Set of the Instance, or contain the Attribute Tag of the Sequence the Attribute will be added to. The "Comments" column can be used to provide additional information regarding the Values added to the Instance or MPPS.

Table D-1 Mapping of Attributes from Modality Worklist to Instance and MPPS

Attribute Name in Image/MPPS	Tag	Scenario	Image		MPPS		Comments
			Value Source	Destination	Value Source	Destination	
Study Instance UID	(0020,000D)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	GENERATED	TOP	GENERATED	(0040,0270)	
		APPEND					
		GROUP					
Accession Number	(0008,0050)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY	TOP	USER	(0040,0270)	
		APPEND					
		GROUP					
Requested Procedure ID	(0040,1001)	SCHEDULED	MWL	(0040,0275) [(a)] (0040,A370) [(b)]	SRC_INSTANCE	(0040,0270)	[(a)] for use in Image IODs [(b)] for use in Evidence Documents
		UNSCHEDULED			EMPTY	(0040,0270)	
		APPEND					

Attribute Name in Image/MPPS	Tag	Scenario	Image		MPPS		Comments
			Value Source	Destination	Value Source	Destination	
		GROUP					
Study ID	(0020,0010)	SCHEDULED	GENERATED	TOP	EMPTY		
		UNSCHEDULED	GENERATED	TOP	EMPTY		
		APPEND					
		GROUP					
Requested Procedure Description	(0032,1060)	SCHEDULED	MWL(0008,1030)	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	USER	TOP	SRC_INSTANCE	(0040,0270)	
		APPEND					
		GROUP					
Scheduled Procedure Step ID	(0040,0009)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY		EMPTY		
		APPEND					
		GROUP					
Scheduled Procedure Step Description	(0040,0007)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY		EMPTY		
		APPEND					
		GROUP					
Referenced Study Sequence	(0008,1110)	SCHEDULED	MWL	TOP	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY		EMPTY		
		APPEND					
		GROUP					
Scheduled Procedure Step ID	(0040,0009)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY		EMPTY		
		APPEND					
		GROUP					
Scheduled Procedure Step Description	(0040,0007)	SCHEDULED	MWL	(0040,0275)	SRC_INSTANCE	(0040,0270)	
		UNSCHEDULED	EMPTY		EMPTY		
		APPEND					
		GROUP					
Scheduled Procedure Step ID	(0040,0009)	SCHEDULED	MWL(0040,0253)	TOP	SRC_INSTANCE(0040,0253)	TOP	
		UNSCHEDULED	GENERATED(0040,0253)	TOP	SRC_INSTANCE(0040,0253)	TOP	
		APPEND					
		GROUP					

E Code Set Usage - N/A

N/A