DICOM Conformance Statement

syngo.via VC10

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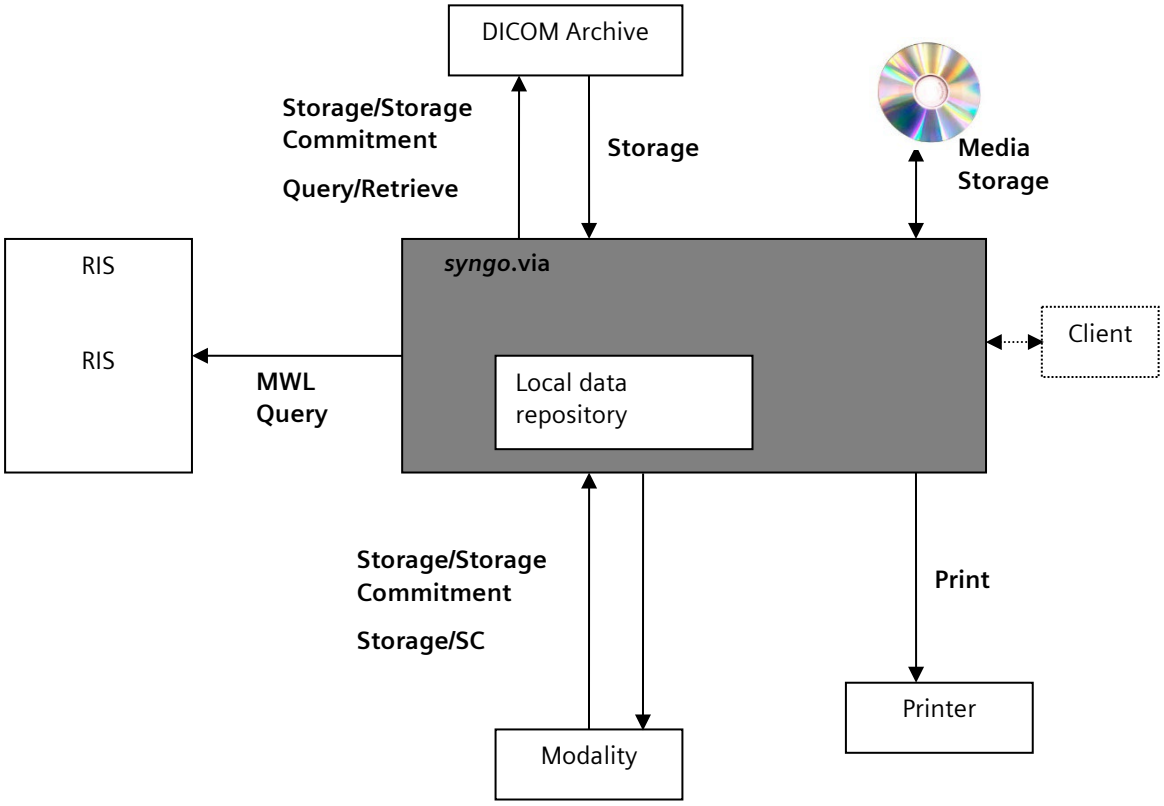
SIEMENS Healthineers

1 DICOM Conformance Statement Overview

The ***syngo*.via** is comprised of a storage system (***syngo*.via** Application Server), client review workstations (***syngo*.via** Client) and connectivity to DICOM modalities and healthcare information systems. By default, one ***syngo*.via** (AE) is used. It is possible to configure usage of multiple different AEs for the individual DICOM services.
The ***syngo*.via**:

- requests and provides storage of objects (images, reports, encapsulated PDF)
- requests and provides Storage Commitment for the stored objects
- supports query and retrieval of objects from a remote node
- displays images to a user
- sends/transmits images to a printer
- imports and exports objects from portable interchange media
- retrieves requested procedures including scheduled procedure steps from RIS

Figure 1-1: Overview of Implemented Services



1.1 Content and Transfer

Table 1.1-1 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 1.1-2 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 1.1-1 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	U	N	N	N	N	Y	Y	Y	Y	Y	N	N
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	C ,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Digital Intra-Oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	C,U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	C,U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Grayscale Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.6	U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Compositing Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.7	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Advanced Blending Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.8	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.9	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Segmented Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.10	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Multiple Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.11	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	C,U	Y	Y	N	N	Y	Y	Y	N	N	N	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	C,U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Breast Projection X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Breast Projection X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.13.1.5	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	U	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	U	Y	Y	N	N	Y	Y	Y	SE	N	N	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	U	Y	Y	N	N	Y	Y	Y	See Table 1.1-3			
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	U	Y	Y	N	N	Y	Y	Y	See Table 1.1-3			
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	U	Y	Y	N	N	Y	Y	Y	See Table 1.1-3			
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	C,U	Y	Y	N	N	Y	Y	Y	SE	Y	Y	Y
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	C,U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	U	Y	Y	N	N	Y	Y	Y	N	Y	N	Y

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	U	Y	Y	N	N	Y	Y	Y	N	N	N	Y
Syngo Non-Image Storage	1.3.12.2.1107.5.9.1	C, U	Y	Y	N	N	Y	Y	Y	N	N	N	Y

Table 1.1-2 Supported Transfer Syntaxes

Transfer Syntax Set	Transfer Syntax Name	Transfer Syntax UID	DICOM Web Service Bulkdata Media Type
Compressed Transfer Syntax Set (C)	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	jpeg
	JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	jpeg
	JPEG Lossless, Non-Hierarchical (Process 14)*	1.2.840.10008.1.2.4.57	jpeg
	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	jpeg
	JPEG 2000 Image Compression (Lossless Only)*	1.2.840.10008.1.2.4.90	Jp2
	JPEG 2000 Image Compression *	1.2.840.10008.1.2.4.91	Jp2
	RLE Lossless	1.2.840.10008.1.2.5	x-dicom-rle
Uncompressed Transfer Syntax Set (U)	Implicit VR Little Endian	1.2.840.10008.1.2	N/A
	Explicit VR Little Endian	1.2.840.10008.1.2.1	application
	Explicit VR Big Endian (Retired) *	1.2.840.10008.1.2.2	N/A

* - not supported with MAMMOVISTA B.smart

1.1.1 Structured Reporting Root Template IDs

Table 1.1-3 lists all Template IDs (TID) of Root Templates that are supported by the system. The "Function" column indicates how the system uses the content of the DICOM SR:

- CREATE: The system creates instances using the specified TID.
- RENDER: The system displays the content of the SR, without using the data for any processing.
- EXTRACT_DATA: The system can extract structured data from the content and use the data for subsequent processing (e.g., reporting).
- OVERLAY: The system uses the information in the SR to display information directly on the images (e.g., Mammography CAD markers).
- ARCHIVE: The system stores instances for later retrieval.

The "SOP Class UID" column indicates which of the SR Storage SOP Classes are used to encode the information or to store it. If multiple SOP Classes are supported the "Condition" column describes the conditions for using the different SOP Classes.

Table 1.1-3 Supported Root SR Template IDs (TID)

Name	Root TID	Function	SOP Classes		Condition
Basic Diagnostic Imaging Report (TID 2000)	2000	CREATE	Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	N/A
Measurement Report for Comprehensive DICOM SR (TID 1500)	1500	CREATE	Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	N/A

Name	Root TID	Function	SOP Classes		Condition
Mammography CAD SR (TID 4000)	4000	OVERLAY	Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	N/A

1.2 DIMSE Services

1.2.1 Verification

Table 1.2-1 lists support for the Verification SOP Class.

Table 1.2-1 Verification SOP Class

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

1.2.2 Storage

For details on supported Storage SOP Classes see Section 1.1.

1.2.3 Workflow Management

Table 1.2-2 lists all supported Workflow Management SOP Classes.

Table 1.2-2 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
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Storage Commitment Push Model SOP Class	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
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y

1.2.4 Query/Retrieve

Table 1.2-3 lists all supported Query/Retrieve SOP Classes.

Table 1.2-3 Query/Retrieve SOP Classes

SOP Classes		Transfer Syntax		DIMSE	
				SCU	SCP
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
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	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
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y
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	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	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	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y
Patient/Study Only Query/Retrieve	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	Y

SOP Classes		Transfer Syntax		DIMSE	
				SCU	SCP
Information Model - FIND		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	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
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y

1.2.5 Printing

Table 1.2-4 lists all supported Printing SOP Classes.

Table 1.2-4 Printing SOP Classes

SOP Classes	SOP Class UID	Transfer Syntax		SCU	SCP
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Printer SOP Class	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Print Job SOP Class	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N

1.3 DICOM Web Services

N/A

1.4 Media Services

Table 1.4-1 lists all supported Media Application Profiles.

Table 1.4-1 Supported Media Application Profiles

Media Storage Application Profile	FSC	FSR	FSU
Compact Disk – Recordable			
STD-GEN-CD	Y[1)]	Y	N
AUG-GEN-CD	Y	Y	N
DVD			
STD-GEN-DVD-RAM	Y[1)]	Y	N
STD-GEN-DVD-JPEG	Y[1)]	Y	N
STD-GEN-DVD-J2K	Y[1)]	Y	N
AUG-GEN-DVD-RAM	Y	Y	N
Blue Ray			
STD-GEN-BD-JPEG	Y[1)]	Y	N
STD-GEN-BD-J2K	Y[1)]	Y	N
AUG-GEN-BD-JPEG	Y	Y	N
AUG-GEN-BD-J2K	Y	Y	N
USB			
STD-GEN-USB-JPEG	Y[1)]	Y	Y[1)]
STD-GEN-USB-J2K	Y[1)]	Y	Y[1)]
AUG-GEN-USB-J2K	Y	Y	Y

[1)] The STD profiles only apply if High Profile Data Minimization is applied (which removes all the Private DICOM Attributes). This can be combined with any compression setting (except for STD-GEN-CD).

1.5 Real Time Video Service

N/A

1.6 De-Identification Profiles

De-Identification as described in DICOM PS3.15 is not supported. To protect PHI/PII a Data Minimization mechanism as described in Section 8.8 is implemented.

1.7 Specific Character Sets

Table 1.7-1:Supported Specific Character Sets

Defined Term	Code	Description
Single-Byte Character Sets without Code Extensions		
ISO_IR 6	ISO-646	Default Repertoire
ISO_IR 100	ISO-8859-1	Latin Alphabet No. 1 (West European)
ISO_IR 101	ISO-8859-2	Latin Alphabet No. 2 (Central European)
ISO_IR 109	ISO-8859-3	Latin Alphabet No 3 (South European)
ISO_IR 110	ISO-8859-4	Latin Alphabet No 4 (North European)
ISO_IR 144	ISO-8859-5	Cyrillic
ISO_IR 127	ISO-8859-6	Arabic
ISO_IR 126	ISO-8859-7	Greek
ISO_IR 138	ISO-8859-8	Hebrew

Defined Term	Code	Description
ISO_IR 148	ISO-8859-9	Turkish
ISO_IR 13	JIS X 0201	Japanese (half-width Katakana)
ISO_IR 166	ISO-8859-11	Thai
Single-Byte Character Sets with Code Extension		
ISO 2022 IR 6		Default repertoire
ISO 2022 IR 100		Latin Alphabet No. 1 (West European)
ISO 2022 IR 101		Latin Alphabet No. 2 (Central European)
ISO 2022 IR 109		Latin Alphabet No 3 (South European)
ISO 2022 IR 110		Latin Alphabet No 4 (North European)
Multi-Byte Character Sets without Code Extensions		
GB18030[1)]	GB18030	GB18030-2000 (P.R China Norm GB18030)
ISO_IR 192	ISO 10646	Unicode in UTF-8
Multi-Byte Character Sets with Code Extensions		
ISO 2022 IR 87	ISO-2022-JP	Japanese (full-width Katakana, Hiragana and Kanji)
ISO 2022 IR 149	ISO-2022-KR	Korean (Hangul and Hanja)

[1)] syngo.via supports GB18030:2022 (implementation level 1 and 2) if the underlying OS is GB18030:2022 compliant.

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3 Introduction

3.1 Revision History

Revision	Date	Product Version(s)	Change
1.0	2025-01-10	VC10	VC10 CUT Release
2.0	2025-04-04	VC10	VC10A Release
3.0	2025-07-22	VC10	VC10B Release

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 5 Service and Interoperability Description for details regarding the implemented services.
- **Field Service Engineers** can use the details from Section 5 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 syngo.via 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 syngo.via 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.

3.4 Terms and Definitions

The following list includes DICOM Terms, which are used throughout this conformance statement:

Abstract Syntax	The information agreed to be exchanged between applications, 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 Entity (AE)	A representation of the external behavior of an application process in terms of DICOM Network Services, Web Services and/or media exchange capabilities implemented in one or more roles. A single device may have multiple Application Entities.
Application Entity Title (AET)	The externally known name of an Application Entity, used to identify a DICOM application to other DICOM applications on the network.
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 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).
RIS	Radiology Information System
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 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.
Protocol Data Unit (PDU)	A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
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.
Service Class Provider (SCP)	Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).
Service Class User (SCU)	Role of an Application Entity that uses a DICOM Network Service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU).

Service/Object Pair Class (SOP Class)	The specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
Service/Object Pair Instance (SOP Instance)	An information object: a specific occurrence of information exchanged in a SOP Class. E.g., a specific X-ray image.
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.
Unique Identifier (UID)	A globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.
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 a user does not operate the client.
Value Representation (VR)	The format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.
Logging	Activity records, which are public and do not contain PHI and PII, just technical data to help to find out afterwards, what exactly happened or to the root cause of eventual issues. The logging cannot be switched off.
Tracing	A detailed, code level activity record, which can only be used for debugging purposes. Tracing is switched off by default. Switching the tracing on will affect the performance and a warning is going to be displayed on the GUI with the text “Nor for clinical use.”

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
RIS	Radiology Information System
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
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISO	International Organization for Standardization
MWL	Modality Worklist
NEMA	National Electrical Manufacturers Association
NTP	Network Time Protocol
OID	Object Identifier
OS	Origin Server
PDU	Protocol Data Unit
PHI	Protected Health Information
PII	Personal Identifiable Information
PPS	Performed Procedure Step
RIS	Radiology Information System
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SPP	Spectral Post Processing
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
UPS	Unified Procedure Step
VR	Value Representation

3.6 References

1. NEMA PS3 / ISO 12052, Digital Imaging and Communications in Medicine (DICOM) Standard, National Electrical Manufacturers Association, Rosslyn, VA, USA (available free at http://www.dicomstandard.org/current)
2. IHE Radiology Technical Framework available at https://www.ihe.net/Resources/technical_frameworks/#radiology

4 Implementation Model

syngo.via supports storing DICOM images to remote nodes like workstations or archiving systems. Using the Storage Commitment Service, it can request safe keeping of previously stored instances from an archiving system. Additionally, the syngo.via can query remote notes, retrieve, and store selected instances from that node. Using the Modality Worklist Service the syngo.via can query a HIS/RIS for scheduled procedures. Furthermore, printing of color and grayscale images is supported.

4.1 Application Entities and Data Flow

The network and media interchange application model for the syngo.via is shown in Figure 4.1-1: syngo.via Application Data Flow Diagram.

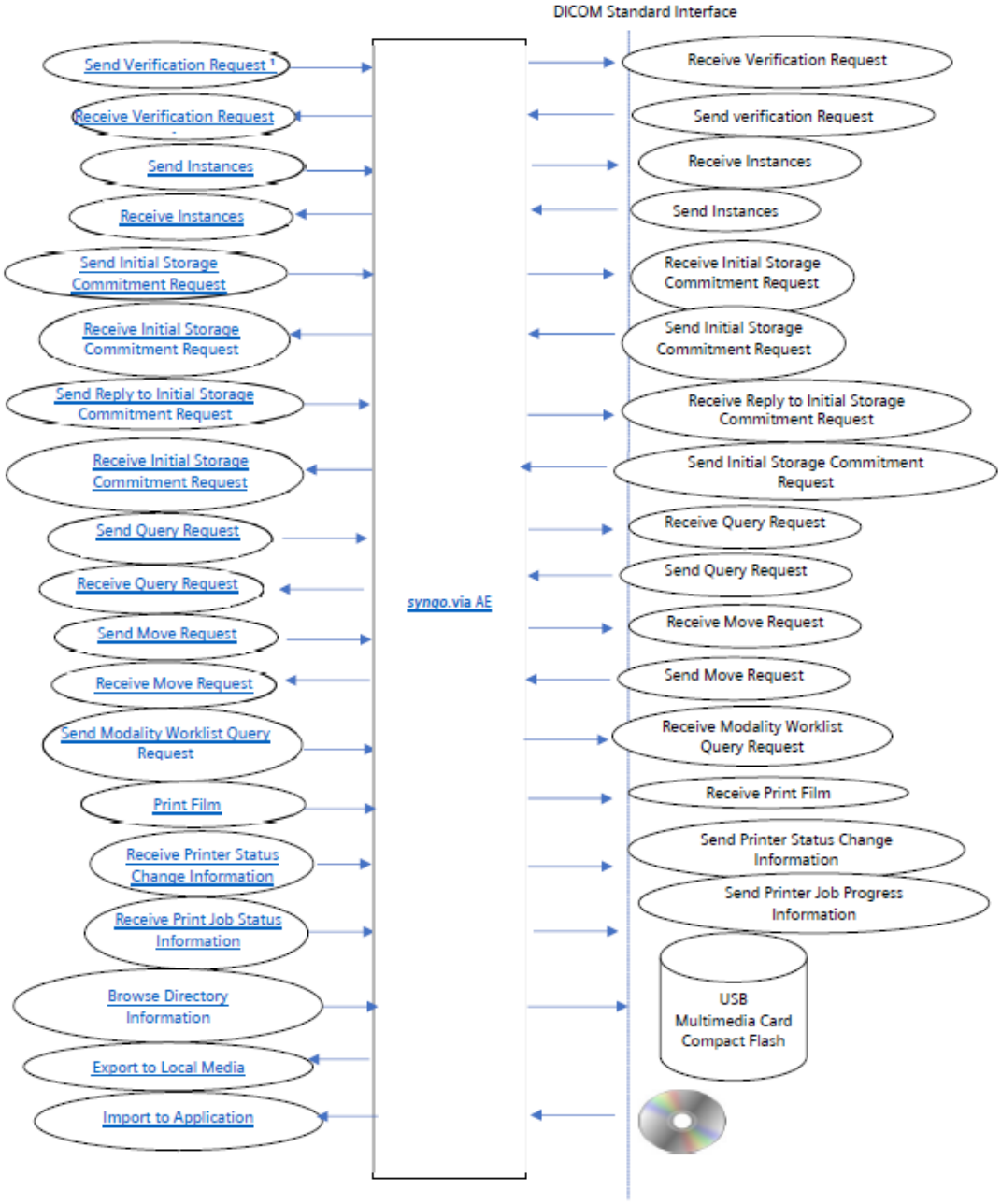


Figure 4.1-1: syngo.via Application Data Flow Diagram

[1] The "Send Verification Request" and "Receive Verification Request" Activities are supported by syngo.via AE using DIMSE services. For ease of documentation these activities are described once at the beginning of the diagram.

4.1.1 Functional Definition of syngo.via AE

The syngo.via allows flexible configuration of DIMSE services. The configurations can vary at customer sites depending on the local setup.

The SCU components of the Application Entity are invoked upon requests from the user interface or indirect by trigger from internal processes.

The SCP components of the Application Entity of the syngo.via operate as background server processes. They exist as soon as the system is powered up and wait for association requests. Upon accepting an association with a negotiated Presentation Context, they start to receive and process the requests.

The syngo.via supports the Verification Service as an SCP and SCU. As an SCU, Verification can be activated from the Administrator Portal during system configuration by sending a C-ECHO-RQ for each configured remote AE.

As an SCP of the Verification Service the syngo.via processes and responds to incoming verification requests using the C-ECHO-RSP.

The Send and Receive Instance Service of syngo.via AE is invoked directly by the user, by an auto-archive trigger or internally by the Query/Retrieve functionality of syngo.via that is responsible for processing retrieve requests. The job consists of data describing the composite objects selected for Storage and the destination Application Entity Title. An association is negotiated with the destination Application Entity and the imaging data is transferred using the C-STORE-RQ. The transfer status is reported to the initiator of the Storage request.

The Receive Instance service of syngo.via starts to receive the Composite Objects and imports them into the database after accepting an association with a negotiated Presentation Context. The system responds to the Storage Request immediately after reception of the Data.

If configured, the syngo.via can serve as an SCU for the DICOM Storage Commitment Service. Upon successful completion of a Storage SCU job, the system uses the N-ACTION-RQ to request Storage Commitment from a remote DICOM Storage Commitment SCP. This can either be the same as the Storage destination or a different system depending on the system configuration. Storage Commitment Requests are sent after a configurable delay after storing the objects. The syngo.via can receive the N-EVENT-REPORT-RQ on the same or a different association. In this case a reverse role negotiation takes place.

syngo.via can also serve as an SCP for the DICOM Storage Commitment Service.

The syngo.via supports Patient Root Query Information Model, Study Root Query Information Model and the retired Patient/Study Only Query Information Model for SCU and SCP.

The syngo.via supports DICOM Query/Retrieve as an SCU: The user can initiate a query to a remote node using the C-FIND-RQ and the results returned from the remote SCP will be displayed to the user.

Furthermore, the SCU Services may issue relational queries, if supported by the remote Query/Retrieve SCP node and required by the querying Application. The same set of keys are used as in the Study Root Query Model.

The syngo.via leaves the Association for the C-MOVE-RQ from the SCU side open until all requested data has arrived. The timeout is by default 20 minutes (which is configurable in the template of the Remote Node, which includes the option of no waiting time).

The syngo.via provides the possibility to configure what is considered “all requested data has arrived.”

The syngo.via DICOM Query/Retrieve SCP accepts C-FIND RQ, queries the local database based on the provided matching keys and returns the matches in the C-FIND-RSPs. Depending on further request from the remote Query/Retrieve SCU, the syngo.via responds to C-MOVE-RQs by initiating a C-STORE sub-operation to send image objects to the Storage SCP of the querying system.

The syngo.via Modality Worklist SCU issues DICOM Modality Worklist requests using C-FIND-RQs. The results in the C-FIND-RSPs are stored in internal database.

The Print Film Service of the syngo.via is invoked by the user interface to setup film-sheet layout and whenever an image is ready to be printed on film. The Print SCU will hold and maintain all data needed to compile a complete film-sheet from the data (images, layout, configuration) received. Whenever a film-sheet is ready to print, the related data is used to supply the Information to the SOP Classes of the Print Management Service Class. A queue is maintained to intermediately store several film-sheets in case of resource problems on printer. The SCU will only supply and require the mandatory SOP Classes of the Print Management Service Class.

The syngo.via Media Application provides the functionality to Import or Export DICOM Instances from and into the File System. During export, a DICOMDIR may also be generated (user selection). The functionalities offered:

- providing browsing windows for Import from and Export to the File System
- creating a new File-set into the File System (Export to ...)
- importing SOP Instances from the medium onto local Storage
- A complete ISO Image ready-to-burn can also be generated
- writing the File-sets DICOMDIR information into the file system and joining it to an ISO image.

5 Service and Interoperability Description

5.1 Mapping of Services to Application Entities

Table 5.1-1 provides an overview of DICOM Services supported by syngo.via AE.

Table 5.1-1 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
syngo.via AE	Storage	Y	Y	N	N	N	N	N	N	N
	Storage Commitment	Y	Y	N	N	N	N	N	N	N
	Query Retrieve	Y	Y	N	N	N	N	N	N	N
	Basic Worklist Management	Y	N	N	N	N	N	N	N	N
	Print Management	Y	N	N	N	N	N	N	N	N
	Media	N	N	N	N	Y	Y[1)]	Y	N	N

[1)] Does not apply for CD, DVD and Blu-ray Media Profiles.

5.2 Supported 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 syngo.via uses the C-FIND-RQ message to query the SCP. It supports the Query Keys listed in Table 5.2-1.

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 Attribute as 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 user enters the query Value.
- SCANNED: The query Value is read from a barcode scanner or similar device.
- EMPTY: The query Value is left empty 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 5.2-1 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						
Schedule Procedure Step Sequence	(0040,0100)	SEQUENCE	GENERATED		N	
>Modality	(0008,0060)	SINGLE_VALUE	USER		D	Can be set in the Patient Query
>Scheduled Station AE Title	(0040,0001)	WILDCARD	USER		D	Can be set in the Patient Query
>Scheduled Procedure Step Status	(0040,0020)	SINGLE_VALUE	USER		D	Can be set on the Administration Portal
>Scheduled Procedure Step Location	(0040,0011)	SINGLE_VALUE	USER		D	Can be set on the Administration Portal
>Scheduled Station Name	(0040,0010)	SINGLE_VALUE	USER		D	Can be set on the Administration Portal
>Scheduled Performing Physician’s Name	(0040,0006)	SINGLE_VALUE	USER		D	
>Scheduled Procedure Step Start Date	(0040,0002)	RANGE	USER		D	Can be set in the Patient Query
>Scheduled Procedure Step Start Time	(0040,0003)	RANGE	USER		N	
>Scheduled Procedure Step End Date	(0040,0004)	RANGE	USER		D	Can be set in the Patient Query
>Scheduled Procedure Step End Time	(0040,0005)	UNIVERSAL	EMPTY		N	
>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	
>>Code Meaning	(0008,0104)	UNIVERSAL	EMPTY		N	
>>Mapping Resource	(0008,0105)	UNIVERSAL	EMPTY		N	
>>Context Group Version	(0008,0106)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
>>Context Group Local Version	(0008,0107)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Flag	(0008,010B)	UNIVERSAL	EMPTY		N	
>>Context Group Extension Creator UID	(0008,010D)	UNIVERSAL	EMPTY		N	
>>Context Identifier	(0008,010F)	UNIVERSAL	EMPTY		N	
>Scheduled Procedure Step ID	(0040,0009)	UNIVERSAL	EMPTY		N	
>Comments on the Scheduled Procedure Step	(0040,0400)	UNIVERSAL	EMPTY		N	
Requested Procedure						
Requested Procedure Comments	(0040,1400)	WILDCARD	USER		D	Can be set on the Administration Portal
Patient Transport Arrangements	(0040,1004)	WILDCARD	USER		D	Can be set on the Administration Portal
Requested Procedure Priority	(0040,1003)	WILDCARD	USER		D	Can be set on the Administration Portal
Requested Procedure Sequence	(0032,1064)	SEQUENCE	GENERATED		N	
>Coding Scheme Designator	(0008,0102)	SINGLE_VALUE	GENERATED		N	
>Coding Scheme Version	(0008,0103)	SINGLE_VALUE	GENERATED		N	
>Code Meaning	(0008,0104)	SINGLE_VALUE	GENERATED		N	
>Mapping Resource	(0008,0105)	SINGLE_VALUE	GENERATED		N	
>Context Group Version	(0008,0106)	SINGLE_VALUE	GENERATED		N	
>Context Group Local Version	(0008,0107)	SINGLE_VALUE	GENERATED		N	
>Context Group Extension Flag	(0008,010B)	SINGLE_VALUE	GENERATED		N	
>Context Group Extension Creator UID	(0008,010D)	SINGLE_VALUE	GENERATED		N	
>Context Identifier	(0008,010F)	SINGLE_VALUE	GENERATED		N	
>Code Value	(0008,0100)	SINGLE_VALUE	GENERATED		N	
Requested Procedure Description	(0032,1060)	WILDCARD	USER		D	Can be set on the Administration Portal
Referring Physician's Name	(0008,0090)	WILDCARD	USER		D	Can be set on the Administration Portal

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Requesting Physician	(0032,1032)	WILDCARD	USER		D	Can be set both on the Administration Portal and in the Patient Query
Study Date	(0008,0020)	UNIVERSAL	EMPTY		N	
Study Time	(0008,0030)	UNIVERSAL	EMPTY		N	
Referenced Study Sequence	(0008,1110)	UNIVERSAL	EMPTY		N	
>Referenced SOP Class UID	(0008,1150)	UNIVERSAL	EMPTY		N	
>Referenced SOP Instance UID	(0008,1155)	UNIVERSAL	EMPTY		N	
Study Instance UID	(0020,000D)	UNIVERSAL	EMPTY		N	
Requested Procedure ID	(0040,1001)	SINGLE_VALUE	USER		D	Can be set in the Patient Query
Reason for the Requested Procedure	(0040,1002)	UNIVERSAL	EMPTY		N	
Confidentiality Code	(0040,1008)	UNIVERSAL	EMPTY		N	
Reporting Priority	(0040,1009)	UNIVERSAL	EMPTY		N	
Names of intended Recipients of Results	(0040,1010)	UNIVERSAL	EMPTY		N	
Imaging Service Request						
Accession Number	(0008,0050)	WILDCARD	USER		D	Can be set in the Patient Query
Requesting Service	(0032,1033)	UNIVERSAL	EMPTY		N	
Admitting Diagnoses Description	(0008,1080)	UNIVERSAL	EMPTY		N	
Issuing Date of Imaging Service Request	(0040,2004)	UNIVERSAL	EMPTY		N	
Issuing Time of Imaging Service Request	(0040,2005)	UNIVERSAL	EMPTY		N	
Placer Order Number / Imaging Service Request	(0040,2016)	UNIVERSAL	EMPTY		N	
Filler Order Number / Imaging Service Request	(0040,2017)	UNIVERSAL	EMPTY		N	
Order entered by ...	(0040,2008)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Order Enterer's location	(0040,2009)	UNIVERSAL	EMPTY		N	
Order Callback Phone Number	(0040,2010)	UNIVERSAL	EMPTY		N	
Imaging Service Request Comments	(0040,2400)	UNIVERSAL	EMPTY		N	
Visit Identification						
Current Patient Location	(0038,0300)	WILDCARD	USER		D	Can be set on the Administration Portal
Admission ID	(0038,0010)	UNIVERSAL	EMPTY		N	
Institution Name	(0008,0080)	UNIVERSAL	EMPTY		N	
Institution Address	(0008,0081)	UNIVERSAL	EMPTY		N	
Issuer of Admission ID	(0038,0011)	UNIVERSAL	EMPTY		N	
Admitting Date	(0038,0020)	UNIVERSAL	EMPTY		N	
Visit Status						
Patient Identification						
Patient's Name	(0010,0010)	WILDCARD	USER		D	Can be set in the Patient Query
Patient ID	(0010,0020)	WILDCARD	USER		D	Can be set in the Patient Query
Issuer of Patient ID	(0010,0021)	UNIVERSAL	EMPTY		N	
Other Patient IDs	(0010,1000)	UNIVERSAL	EMPTY		N	
Other Patient Names	(0010,1001)	UNIVERSAL	EMPTY		N	
Patient's Birth Name	(0010,1005)	UNIVERSAL	EMPTY		N	
Performing Physicians' Name	(0008,1050)	UNIVERSAL	EMPTY		N	
Current Patient Location	(0038,0300)	UNIVERSAL	EMPTY		N	
Patient Demographics						
Patient's Birth Date	(0010,0030)	UNIVERSAL	EMPTY		N	
Patient's Birth Time	(0010,0032)	UNIVERSAL	EMPTY		N	
Patient's Sex	(0010,0040)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient's Insurance Plan Code Sequence	(0010,0050)	UNIVERSAL	EMPTY		N	
Patient's Age	(0010,1010)	UNIVERSAL	EMPTY		N	
Patient's Size	(0010,1020)	UNIVERSAL	EMPTY		N	
Patient's Weight	(0010,1030)	UNIVERSAL	EMPTY		N	
Patient's Address	(0010,1040)	UNIVERSAL	EMPTY		N	
Military Rank	(0010,1080)	UNIVERSAL	EMPTY		N	
Branch of Service	(0010,1081)	UNIVERSAL	EMPTY		N	
Ethnic Group	(0010,2160)	UNIVERSAL	EMPTY		N	
Patient Comments	(0010,4000)	UNIVERSAL	EMPTY		N	
Patient Medical						
Pregnancy Status	(0010,21C0)	SINGLE_VALUE	USER		D	Can be set on the Administration Portal
Medical Alerts	(0010,2000)	WILDCARD	USER		D	Can be set on the Administration Portal
Allergies	(0010,2110)	WILDCARD	USER		D	Can be set on the Administration Portal
Smoking Status	(0010,21A0)	UNIVERSAL	EMPTY		N	
Additional Patient History	(0010,21B0)	UNIVERSAL	EMPTY		N	
Last Menstrual Date	(0010,21D0)	UNIVERSAL	EMPTY		N	
Special Needs	(0038,0050)	UNIVERSAL	EMPTY		N	

The User can cancel any running Query. In this case C-CANCEL-RQ will be sent to the SCP. The processing of the data, which are received in the respective Association is stopped. The Association is closed if a Confirmation for the Cancelling is received as C-FIND-RSP, Status Cancelled, or if the Confirmation does not arrive in the Transfer Inactivity Timeout (see Table 6.1-1).

An automatic Modality Worklist Query can be configured from the Administration Portal.

5.2.1.2 SCP of the Modality Worklist Information Model – FIND SOP Class

N/A

5.2.2 Modality Performed Procedure Step Service

N/A

5.2.3 Unified Worklist and Procedure Step Service

N/A

5.2.4 Instance Availability Notification Service

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 syngo.via 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 5.2-2: Transcoding of Transfer Syntaxes describes supported transcoding 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 5.2-2: Transcoding of Transfer Syntaxes

Sent Transfer Syntax / Stored Transfer Syntax	Implicit VR Little Endian	Explicit VR Little Endian	Explicit VR Big Endian	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)	JPEG Lossless, Non-Hierarchical (Processes 14)	JPEG 2000 Image Compression (Lossless Only)	RLE Lossless	JPEG Extended (Process 2 & 4)	JPEG Baseline (Process 1)	JPEG 2000 Image Compression
Implicit VR Little Endian		SUPPORTED	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID
Explicit VR Little Endian	SUPPORTED		SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED
Explicit VR Big Endian	NEW_UID	SUPORTED		SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)	NEW_UID	SUPPORTED	SUPPORTED		SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED

Sent Transfer Syntax / Stored Transfer Syntax	Implicit VR Little Endian	Explicit VR Little Endian	Explicit VR Big Endian	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)	JPEG Lossless, Non-Hierarchical (Processes 14)	JPEG 2000 Image Compression (Lossless Only)	RLE Lossless	JPEG Extended (Process 2 & 4)	JPEG Baseline (Process 1)	JPEG 2000 Image Compression
JPEG Lossless, Non-Hierarchical (Processes 14)	NEW_UID	SUPPORTED	SUPPORTED	SUPPORTED		SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED
JPEG 2000 Image Compression (Lossless Only)	NEW_UID	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED		SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED
RLE Lossless	NEW_UID	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED		SUPPORTED	SUPPORTED	SUPPORTED
JPEG Extended (Process 2 & 4)	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID		NOT_ SUPPORTED [1)]	NEW_UID
JPEG Baseline (Process 1)	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NOT_ SUPPORTED [1)]		NEW_UID
JPEG 2000 Image Compression	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	NEW_UID	SUPPORTED	

[1)] JPEG Baseline (Process 1) is made for 8 Bit images, JPEG Extended (Process 2 & 4) is made for 12 Bit images. Since the same image cannot be 8 Bit and 12 Bit, the two compression algorithms are not compatible. As such, not every image undergoes every kind of transcoding. Using only lossy compression may result in incorrect diagnosis due to insufficient image quality.

Every transcoding is noted in the DICOM Data in the Tags (0008,2111) Derivation Description and (0008,2112) Source Image Sequence

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, the syngo.via receives the C-STORE-RQ message from remote SCUs. See Section 1.1 Content and Transfer in the Overview for the list of supported SOP Classes.

All Presentation Contexts are accepted if they contain at least one suitable Transfer Syntax. All other Presentation Contexts are rejected.

Table 5.2-3 defines the conformance levels of syngo.via

Table 5.2-3: Levels of Conformance

Levels of Conformance	2[1)]
Level of Digital Signature Support	N/A

[1)]The level of Conformance is by default 2, however the user has the possibility to configure Header Correction Rulesets, which contains deletion. If such a Header Correction Ruleset is selected, the Level of Conformance is 0 (Local).

The following header attributes must be available and filled for data to be processed during receive instance.

- SOP Class UID - (0008,0016),
- SOP Instance UID - (0008,0018)
- Study Instance UID - (0020,000D),
- Series Instance UID - (0020,000E)
- Number of Frames - (0028,0008), applies for multi frame images only and
- Rows – (0028,0010).

Table 5.2-4 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.

If there are no restrictions on display or processing requirements, replace the sentence above with No restriction to display or post processing apply.

Table 5.2-4: Display and Processing Limitations for Storage SCP

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
Grayscale Softcopy Presentation States (GSPS): 1.2.840.10008.5.1.4.1.1.11.1 Only data with graphical annotations is recognized. The following constraints must be met to recognize objects as grayscale softcopy presentation states:				
Graphic Type	(0070,0023)	Any value other than CIRCLE, ELLIPSE and POLYLINE	ND	For MAMMOVISTA B.smart application.
Digital Mammography Image Storage – For Presentation: 1.2.840.10008.5.1.4.1.1.1.2 The following constraints must be met to recognize images as digital mammography. Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.				

Limitation Case				Effect	Comments
Attribute Name	**Tag**	**Value**			
Patient Orientation	(0020,0020)	ABSENT or INVALID		NP	syngo.Breast Care and MAMMOVISTA B.smart General Image Module
DX Image Module					
Image Type	(0008,0008)	Value 1	NOT “DERIVED”	LP	
		Value 2	NOT “PRIMARY”		
		Value 3	NOT “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application if the Image is Low Energy images
			NOT “RECOMBINED”	LP	For MAMMOVISTA B.smart application if the Image is Subtraction images
		Value 4	NOT “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application if the Image is Low Energy images
			NOT “LOW_E_PRE_CON”	LP	For MAMMOVISTA B.smart application if the Image is Low Energy images AND Manufacturer (0008, 0070) is “Hologic, Inc.”
			NOT “LOW_E_POST_CON”		
			NOT “SUBTRACTION”	LP	For MAMMOVISTA B.smart application if the Image is Subtraction images AND Manufacturer (0008,0070) is “Hologic, Inc.”
			NOT “CONTRAST_IMAGE”	LP	
		Value 5	NOT “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application if the Image is Low Energy images
Pixel Representation	(0028,0103)	NOT “0”		NP	
Bits allocated	(0028,0100)	NOT “8”		NP	
		NOT “16”			
Bits Stored	(0028,0101)	Other value than 8, 10, 12, 14, 15,16		NP	
High Bit	(0028,0102)	Other than Bit Stored (0028,0101) - 1		NP	
Samples per Pixel	(0028,0002)	NOT “1”		NP	
Photometric Interpretation	(0028,0004)	NOT “MONOCHROME1”		NP	
		NOT “MONOCHROME2”			
DX Detector Module					
Imager Pixel Spacing	(0018,1164)	Non-squared values		NP	Applicable for MAMMOVISTA B.smart
Pixel Spacing	(0028,0030)	ABSENT OR non-squared values		NP	Applicable for MAMMOVISTA B.smart if image has been calibrated.

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
		non-squared values	NP	Applicable for MAMMOVISTA B.smart if value is present
Breast Tomosynthesis Images encoded as CT Image Storage: 1.2.840.10008.5.1.4.1.1.2 The following constraints must be met to recognize images as breast tomosynthesis slices. Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.				
SOP class UID	(0008,0016)	NOT "1.2.840.10008.5.1.4.1.1.2"	NP	
Modality	(0008,0060)	NOT "CT"	NP	
Manufacturer	(0008,0070)	NOT "SIEMENS"	LP	
		NOT "Hologic, Inc."		
Image Type	(0008,0008)	NOT "Tomo"	LP	For manufacturer "Hologic, Inc."
Manufacturer's model name	(0008,1090)	NOT "MAMMOMAT Inspiration"	LP	For manufacturer "SIEMENS"
		NOT "MAMMOMAT Revelation"		
		NOT "Selenia Dimensions"	LP	For manufacturer "Hologic, Inc."
Series Instance UID	(0020,000E)	multiple volumes in one series.	NP	Must unambiguously identify one volume
Image Orientation	(0020,0037)	ABSENT OR INVALID	NP	
Pixel Spacing	(0028,0030)	Non-squared values	NP	
Software Version(s)	(0018,1020)	value < "VB41A"	OT	If Manufacturer (0008,0070) "SIEMENS" and Manufacturer's model name (0008,0090) "MAMMOMAT Inspiration": if value < VB41A position related tools are disabled
Pixel representation	(0028,0103)	NOT "0"	NP	
Bits allocated	(0028,0100)	NOT "8"	NP	
		NOT "16"		
Bits stored	(0028,0101)	Other Value than 8, 10, 12, 14, 15, 16	NP	
High bit	(0028,0102)	Other than Bits stored (0028,0101) - 1	NP	
Samples per pixel	(0028,0002)	NOT "1"	NP	
		NOT "MONOCHROME1"	NP	

Limitation Case				Effect	Comments
Attribute Name	**Tag**	**Value**			
Photometric interpretation	(0028,0004)	NOT "MONOCHROME2"			
Breast Tomosynthesis Image Storage – 1.2.840.10008.5.1.4.1.1.13.1.3 Only data with Frame Anatomy Macro (which includes the Frame Laterality) in Shared Functional Group (i.e., not in Per Frame Functional Group) are supported. For volumes, all frames contained must build exactly one volume, i.e., multiple volumes in one instance are not supported. The following constraints must be med to recognize images as GENERATED_2D mammography: Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.					
Image Type	(0008,0008)	Value 1	NOT "DERIVED"	LP	For GENERATED_2D Mammography (Standard)
		Value 2	NOT "SECONDARY"		
		Value 3	NOT "TOMOSYNTHESIS"		
		Value 4	NOT "GENERATED_2D"		
SOP Class UID	(0008,0016)	NOT "1.2.840.10008.5.1.4.1.1.13.1.3"		NP	
Number of frames	(0028,0008)	NOT "1"		LP	
SOP Class UID	(0008,0016)	NOT "1.2.840.10008.5.1.4.1.1.13.1.3"		NP	For GENERATED_2D Mammography (Hologic C-View)
Manufacturer	(0008,0070)	NOT "HOLOGIC, Inc."		LP	
Manufacturer's model name	(0008,1090)	NOT "Selenia Dimensions"		LP	
Series Description	(0008,103E)	Value contains not "C-View"		LP	
Series Number	(0020,0011)	NOT "73300000"		LP	
Number of Frames	(0028,0008)	NOT "1"		LP	
SOP Class UID	(0008,0016)	NOT "1.2.840.10008.5.1.4.1.1.13.1.3"		NP	For Breast Tomosynthesis Images
Xray 3D Image Module					
Image Type	(0008,0008)	Value 1	NOT "DERIVED"	LP	For GENERATED_2D Mammography (Standard)
		Value 2	NOT "PRIMARY"		

Limitation Case				Effect	Comments
Attribute Name	**Tag**	**Value**			
		Value 3	NOT "TOMOSYNTHESIS"		
		Value 4	NOT "GENERATED_2D"		
Pixel Representation	(0028,0103)	NOT "0"		NP	For Breast Tomosynthesis Images
Bits allocated	(0028,0100)	NOT "8"		NP	
		NOT "16"			
Bits Stored	(0028,0101)	Other Value than 8, 10, 12, 14, 15, 16		NP	
High Bit	(0028,0102)	Other than Bits stored (0028,0101) - 1		NP	
Samples per Pixel	(0028,0002)	NOT "1"		NP	
Photometric Interpretation	(0028,0004)	NOT "MONOCHROME1"		NP	
		NOT "MONOCHROME2"			
MAMMOVISTA B.smart application can only process, and display data that fulfills following restrictions: Only data with Frame Anatomy Macro (which includes the Frame Laterality) in Shared Functional Group (i.e., not in Per Frame Functional Group (5200,9230)) are supported. Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.					
Multi-frame Functional Groups					
Shared Functional Groups Sequence	(5200,9229)				
>Pixel Measures Sequence	(0028,9110)				
>>Pixel Spacing	(0028,0030)	Non-squared values		NP	If present

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
>Frame Anatomy Sequence	(0020,9071)			Sequence that identifies the anatomic region of interest in this Instance (i.e., external anatomy, surface anatomy, or general region of the body). Only a single Item shall be included in this Sequence.
>>Anatomy Region Sequence	(0008,2218)		NP	
>>Frame Laterality	(0020,9072)	Other than enumerated values R – right L – left U – unpaired B – both left and right	NP	Laterality of (paired) body parts (as described in Anatomic Region Sequence (0008,2218)) examined. This Attribute is mandatory, to ensure that frames are positioned correctly relative to one another for display.
Per-Frame Functional Groups Sequence	(5200,9230)			
>Pixel Measures Sequence	(0028,9110)			
>>Pixel Spacing	(0028,0030)	Non-squared values	NP	If present. For Perspective volumes it must not be identical for each slice
Image Pixel Module				
Pixel Representation	(0028,0103)	NOT “0”	NP	
Bits allocated	(0028,0100)	NOT “8”	NP	
		NOT “16”		
Bits Stored	(0028,0101)	Other Value than 8, 10, 12, 14, 15, 16	NP	

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
High Bit	(0028,0102)	Other than Bits stored (0028,0101) - 1	NP	
Samples per Pixel	(0028,0002)	NOT “1”	NP	
Photometric Interpretation	(0028,0004)	NOT “MONOCHROME1”	NP	
		NOT “MONOCHROME2”		
syngo.Breast Care application can only process, and display data that fulfills following restrictions: Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.				
Image Pixel Module				
Pixel Representation	(0028,0103)	NOT “0”	NP	
Bits allocated	(0028,0100)	NOT “8”	NP	
		NOT “16”		
Bits Stored	(0028,0101)	Other Value than 8, 10, 12, 14, 15, 16	NP	
High Bit	(0028,0102)	Other than Bits stored (0028,0101) - 1Bit Stored (0028,0101) - 1	NP	
Samples per Pixel	(0028,0002)	NOT “1”	NP	
Photometric Interpretation	(0028,0004)	NOT “MONOCHROME1”	NP	
		NOT “MONOCHROME2”		
MR Image Storage – 1.2.840.10008.5.1.4.1.1.4 **Enhanced MR Image Storage – 1.2.840.10008.5.1.4.1.1.4.1** MAMMOVISTA B.smart application can only process, and display data that fulfills following restrictions: Only image data meeting all requirements is displayed correctly. If any constraints are violated, the image data may not be automatically displayed, displayed with reduced information, or not be displayed at all. In this case a warning message is displayed to the user.				
Multi-frame Functional Groups				

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
Shared Functional Groups Sequence	(5200,9229)			
>Pixel Measures Sequence	(0028,9110)			
>>Pixel Spacing	(0028,0030)	Non-squared values	NP	If present
Per-Frame Functional Groups Sequence	(5200,9230)			
>Pixel Measures Sequence	(0028,9110)			
>>Pixel Spacing	(0028,0030)	Non squared values	NP	If present
Mammography CAD SR – 1.2.840.10008.5.1.4.1.1.88.50 CAD structured reports of manufacturers or other software versions of the listed manufacturers may or may not be displayed correctly. A warning message is not displayed to the user in this case.				
SOP Class UID	(0008,0016)	NOT “1.2.840.10008.5.1.4.1.1.88.50”		
Manufacturer	(0008,0070)	NOT “SIEMENS”	LP	
		NOT “iCAD, Inc.”		
		NOT “VuCOMP”		
		NOT “R2 Technology, Inc.”		
		NOT “ScreenPoint Medical”		
Software Versions	(0018,1020)	NOT “syngo MammoCAD”	LP	For Manufacturer “SIEMENS”
		NOT “7.2-H+”	LP	For Manufacturer “iCAD, Inc.” Applicable for syngo.Breast Care
		NOT “Premier-D”		
		NOT “7.2-H+”	LP	For Manufacturer “iCAD, Inc.” Applicable for MAMMOVISTA B.smart
		NOT “Premier-D”		
		NOT “3.0.*”		

Limitation Case			Effect	Comments
Attribute Name	Tag	Value		
		NOT "3.1.*"		
		NOT "CAD 2.0.0.0"	LP	For Manufacturer "VuCOMP"
		NOT "CAD 2.1.0.0"		
		NOT "1.5.1.5"	LP	For Manufacturer "R2 Technology, Inc."
		NOT "1.2.0.27"		
		NOT "1.5.0.43"		
		NOT "2.1.0.30"		
		NOT "1.2.1"	LP	For Manufacturer "ScreenPoint Medical"
		NOT "Transpara 1.4.0"		
		NOT "Transpara 1.6.0 or higher compatible versions"		
Ultrasound Image Storage: 1.2.840.10008.5.1.4.1.1.6.1 **Ultrasound Multi-frame Image Storage: 1.2.840.10008.5.1.4.1.1.3.1** The following constraints must be met to recognize images as Ultrasound Image and Ultrasound Multi-frame Image Storage generated with MAMMOVISTA B.smart application				
Manufacturer	(0008,0070)	ABSENT OR INVALID	LP	
Manufacturer's model name	(0008,1090)	Invenia	NP	For Manufacturer "GE Healthcare,"
		Somo-V		

Table 5.2-5 lists actions performed upon receiving instances from a remote AE and system behavior when certain conditions are encountered.

Table 5.2-5: Behavior when storing Instances

Action upon Receiving	Condition	System behavior
Perform Attribute Validation	Minor DICOM inconsistencies	Incorrect characters are replaced with "?"
	Duplicate Instance	The new Instances are ignored. The sender receives the DIMSE Code Duplicate SOP Instance (0111) as an instance response only if the duplicate Instances are received in the same Association. If Late Response[1)] option is set (a response is only sent, after all the instances are stored in the persistent storage), this code is sent as soon as the duplication is detected (during indexing). The processing continues with the next instance.
	DICOM Validation error	Returns the DIMSE error code 0110 in the response. The processing continues with the next instance.
	Success	Instances are stored in internal database

Action upon Receiving	Condition	System behavior
Add to an existing study	Mismatch in patient identifying information detected	In case of a PII mismatch a new patient will be created.
	Success	Instances are stored in local database
Localize Patient Information	Patient mismatch detected	A new patient is created.
	Success	Original patient identity information is copied to Other Patient ID Sequence (0010,1002) Instances are stored in internal database.
Coerce non-patient-identifying Attributes	Success	Original Values of coerced Attributes are copied to Original Attributes Sequence (0040,0561). Instances are stored in local database

[1)] In an Early Response scenario, the C-STORE-RSP is sent immediately. In a Late Response scenario, the C-STORE-RSP is sent after the received instance is stored in the persistent storage.

A compression can be enforced by storing instances by Transfer Syntax exclusion on the Administration Portal.

Table 5.2-6 describes how the SCP handles compression for stored instances.

The following Values are used in the “Behavior” column:

- AS_IS: Images are stored as received.
- CONFIGURATION: Images are compressed based on internal configuration settings.
- OTHER: All other conditions, which are further described in the “Comments” column.

The Transfer Syntax is used to describe the compression mechanism applied.

Table 5.2-6: Image Compression by Storage SCP

SOP Class	Behavior	Transfer Syntax		Comments
All Supported SOP Classes (except for Media Storage Directory Storage - 1.2.840.10008.1.3.10)	CONFIGURATION	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50 1	
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	
		JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
		JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	
		JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
		JPEG 2000 Image Compression	1.2.840.10008.1.2.4.9	
		RLE Lossless	1.2.840.10008.1.2.5	

Please note, that the DICOM Objects may or may not be compatible with the enforced Compressions, depending on the values of their defined Attributes.

If the DICOM Object is not compatible with the enforced Compression, the Storage Operation will fail.

Following Compression algorithms are supported:

Excluding for the SCP side each non-compressed Transfer Syntaxes will result in a mandatory compression of all received data. If for the received data none of the compression algorithms are applicable, the network transfer will fail.

5.2.5.3 Attribute Coercion

It is possible to configure Attribute Coercion for the remote DICOM nodes, both for SCU (Attribute Coercion for the data received from the *remote SCU*) and SCP (Attribute Coercion before sending the data to the *remote SCP*) side.

The syngo.via coerces the Attributes listed in Table 5.2-7, Table 5.2-8, Table 5.2-9, Table 5.2-10, Table 5.2-11 and Table 5.2-12 before sending them to other systems or upon receiving them from other systems.

The syngo.via offers the user an extendable list of Header Correction Rulesets. The very same set can be applied on the SCP and SCU Side.

Header Correction Ruleset can be added, removed, and changed. They are file based and can be changed. No re-installation is required.

Beside the corrections that needs to be done, pre-conditions can be defined for the operations performed on Attributes.

The “SOP Class UID” column indicates whether the coercion is applicable to specific SOP Classes or to “ALL” SOP Classes. The syngo.via only provides correction rules for ALL SOP Classes. A restriction to specific SOP Classes is not supported.

The “Type of Change” column defines the coercion done to the Attributes, the following Values can be used:

- MODIFIED: The Value of the Attribute is changed; the new Value is described in the “New Value” column.
- ADDED: The Attribute is added with the Value defined in the “New Value” column.
- REMOVED: That Attribute is completely removed from the instance.

The “Condition” column defines the condition under which coercion is performed. The following Values can be used:

- ALWAYS: Data coercion is performed on each instance of the specified SOP Class that is sent or received by the system.
- EXTERNAL: Data coercion is performed on instances sent to or received from systems external to the institution.
- CONFIGURATION: Data coercion is performed based on system configuration.
- OTHER: Data coercion is performed for other conditions. Details are defined in the “Comments” column.

Table 5.2-7, Table 5.2-8, Table 5.2-9, Table 5.2-10,

Table 5.2-11 and Table 5.2-12 describe the standard set of the Header Correction Rules provided.

The names of the Header Correction Sets, included between quotation marks, is the name the Service User can select by configuring the Storage Service behavior for remote DICOM nodes.

By default, no Header Correction Rule Set is applied. The selection of the applicable Header Correction Rule Set is performed by the user. Not all Rule Sets should be applied to all kinds of data. This Document provides a detailed description of the capabilities and features of each Header Correction Rule Set. It is the responsibility of the Service User to apply the correct one for the respective operation.

Different Header Correction Rule Sets may handle the same Tag in different ways.

The Service User can select one or more Header Correction Rule Sets to be applied to the data transferred. In this case they are applied sequentially, in alphabetical order of their name.

The syntagm “Standard” in, for example, “Standard Header Correction Ruleset” means, that this is something, that is delivered with the product. The Service User can create and apply additional Header Correction Rulesets. All Header Correction Rules described below are delivered with the product.

Table 5.2-7: Standard Header Correction Set *“Handle Acquisition Time”*

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Acquisition Time	(0008,0032)	ALL	ADDED, MODIFIED	Current Data and Time	OTHER	Added, if the Attribute is missing. Modified, if the Attribute does not have any value.

Table 5.2-8: Standard Header Correction Set *“Handle Patient’s Age”*

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Patient's Age	(0010,1010)	ALL	MODIFIED	Normalized Age String	ALWAYS	

Table 5.2-9: Standard Header Correction Set *"Handle Patient's Sex"*

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Patient's Sex	(0010,0040)	ALL	MODIFIED	The values expected by the DICOM Standard	OTHER	This is configured to replace standard values written in small case or to replace nonstandard values (such as w or W for female in German).

Table 5.2-10: Standard Header Correction Set *"Handle Patient's Weight and Size"*

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Patient's Size	(0010,1020)	ALL	REMOVED		OTHER	The Attribute is removed if its value is 0 with a tolerance of +/- 0.1 (invalid value).
Patient's Weight	(0010,1030)	ALL	REMOVED		OTHER	The Attribute is removed if its value is 0 with a tolerance of +/- 0.1 (invalid value).

Table 5.2-11: Standard Header Correction Set "Remove All Private Data Elements (Tag Based)"

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Instance Coercion DateTime	(0008,0015)	ALL	REMOVED		ALWAYS	
Study Date	(0008,0020)	ALL	MODIFY	Current Date	ALWAYS	
Series Date	(0008,0021)	ALL	MODIFY	Current Date	ALWAYS	
Acquisition Date	(0008,0022)	ALL	MODIFY	Current Date	ALWAYS	
Content Date	(0008,0023)	ALL	MODIFY	Current Date	ALWAYS	
Overlay Date	(0008,0024)	ALL	REMOVED		ALWAYS	This Tag is retired
Curve Date	(0008,0025)	ALL	REMOVED		ALWAYS	This Tag is retired
Acquisition DateTime	(0008,002A)	ALL	MODIFY	Current Date and Time	ALWAYS	
Study Time	(0008,0030)	ALL	MODIFY	Current Time	ALWAYS	
Acquisition Time	(0008,0032)	ALL	MODIFY	Current Time	ALWAYS	
Content Time	(0008,0033)	ALL	MODIFY	Current Time	ALWAYS	
Overlay Time	(0008,0034)	ALL	REMOVED		ALWAYS	This Tag is retired
Curve Time	(0008,0035)	ALL	REMOVED		ALWAYS	This Tag is retired
Accession Number	(0008,0050)	ALL	MODIFY	Empty Value	OTHER	If the Tag has a value

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Institution Name	(0008,0080)	ALL	MODIFY	Empty Value	OTHER	If the Tag has a value
Institution Address	(0008,0081)	ALL	REMOVED		ALWAYS	
Institution Code Sequence	(0008,0082)	ALL	REMOVED		ALWAYS	
Referring Physician's Name	(0008,0090)	ALL	MODIFY	Empty Value	If the Tag has a value	
Referring Physician's Address	(0008,0092)	ALL	REMOVED		ALWAYS	
Referring Physician's Telephone Numbers	(0008,0094)	ALL	REMOVED		ALWAYS	
Referring Physician Identification Sequence	(0008,0096)	ALL	REMOVED		ALWAYS	
Timezone Offset From UTC	(0008,0201)	ALL	REMOVED		ALWAYS	
Study Description	(0008,1030)	ALL	REMOVED		ALWAYS	
Series Description	(0008,103E)	ALL	REMOVED		ALWAYS	
Institutional Department Name	(0008,1040)	ALL	REMOVED		ALWAYS	
Physician(s) of Record	(0008,1048)	ALL	REMOVED		ALWAYS	
Physician(s) of Record Identification Sequence	(0008,1049)	ALL	REMOVED		ALWAYS	
Performing Physician's Name	(0008,1050)	ALL	REMOVED		ALWAYS	
Performing Physician Identification Sequence	(0008,1052)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Name of Physician(s) Reading Study	(0008,1060)	ALL	REMOVED		ALWAYS	
Physician(s) Reading Study Identification Sequence	(0008,1062)	ALL	REMOVED		ALWAYS	
Operators' Name	(0008,1070)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a value
Operator Identification Sequence	(0008,1072)	ALL	REMOVED		ALWAYS	
Admitting Diagnoses Description	(0008,1080)	ALL	REMOVED		ALWAYS	
Admitting Diagnoses Code Sequence	(0008,1084)	ALL	REMOVED		ALWAYS	
Referenced Study Sequence	(0008,1110)	ALL	REMOVED		ALWAYS	
Referenced Performed Procedure Step Sequence	(0008,1111)	ALL	REMOVED		ALWAYS	
Referenced Patient Sequence	(0008,1120)	ALL	REMOVED		ALWAYS	
Referenced Image Sequence	(0008,1140)	ALL	REMOVED		ALWAYS	
Derivation Description	(0008,2111)	ALL	REMOVED		ALWAYS	
Source Image Sequence	(0008,2112)	ALL	REMOVED		ALWAYS	
Identifying Comments	(0008,4000)	ALL	REMOVED		ALWAYS	This Tag is retired
Patient's Name	(0010,0010)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a value
Patient ID	(0010,0020)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a value

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Issuer of Patient ID	(0010,0021)	ALL	REMOVED		ALWAYS	
Patient's Birth Date	(0010,0030)	ALL	MODIFIED	The current Date	ALWAYS	
Patient's Sex	(0010,0040)	ALL	MODIFIED	O	OTHER	If the Tag has a value
Patient's Insurance Plan Code Sequence	(0010,0050)	ALL	REMOVED		ALWAYS	
Patient's Primary Language Code Sequence	(0010,0101)	ALL	REMOVED		ALWAYS	
Patient's Primary Language Modifier Code Sequence	(0010,0102)	ALL	REMOVED		ALWAYS	
Other Patient IDs	(0010,1000)	ALL	REMOVED		ALWAYS	This Tag is retired
Other Patient Names	(0010,1001)	ALL	REMOVED		ALWAYS	
Other Patient IDs Sequence	(0010,1002)	ALL	REMOVED		ALWAYS	
Patient's Birth Name	(0010,1005)	ALL	REMOVED		ALWAYS	
Patient's Age	(0010,1010)	ALL	REMOVED		ALWAYS	
Patient's Size	(0010,1020)	ALL	REMOVED		ALWAYS	
Patient's Weight	(0010,1030)	ALL	REMOVED		ALWAYS	
Patient's Address	(0010,1040)	ALL	REMOVED		ALWAYS	
Insurance Plan Identification	(0010,1050)	ALL	REMOVED		ALWAYS	
Patient's Mother's Birth Name	(0010,1060)	ALL	REMOVED		ALWAYS	
Military Rank	(0010,1080)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Branch of Service	(0010,1081)	ALL	REMOVED		ALWAYS	
Medical Record Locator	(0010,1090)	ALL	REMOVED		ALWAYS	This Tag is retired
Referenced Patient Photo Sequence	(0010,1100)	ALL	REMOVED		ALWAYS	
Medical Alerts	(0010,2000)	ALL	REMOVED		ALWAYS	
Allergies	(0010,2110)	ALL	REMOVED		ALWAYS	
Country of Residence	(0010,2150)	ALL	REMOVED		ALWAYS	
Region of Residence	(0010,2152)	ALL	REMOVED		ALWAYS	
Patient's Telephone Numbers	(0010,2154)	ALL	REMOVED		ALWAYS	
Ethnic Group	(0010,2160)	ALL	REMOVED		ALWAYS	
Occupation	(0010,2180)	ALL	REMOVED		ALWAYS	
Smoking Status	(0010,21A0)	ALL	REMOVED		ALWAYS	
Additional Patient History	(0010,21B0)	ALL	REMOVED		ALWAYS	
Pregnancy Status	(0010,21C0)	ALL	REMOVED		ALWAYS	
Last Menstrual Date	(0010,21D0)	ALL	REMOVED		ALWAYS	
Patient's Religious Preference	(0010,21F0)	ALL	REMOVED		ALWAYS	
Patient's Sex Neutered	(0010,2203)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Responsible Person	(0010,2297)	ALL	REMOVED		ALWAYS	
Responsible Organization	(0010,2299)	ALL	REMOVED		ALWAYS	
Patient Comments	(0010,4000)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Patient Identity Removed	(0012,0062)	ALL	MODIFIED	YES	ALWAYS	
De-identification Method	(0012,0063)	ALL	ADDED	Deidentified\Basic Application Confidentiality Profile applied	ALWAYS	
De-identification Method Code Sequence	(0012,0064)	ALL	ADDED	(0008,0100) set to 113100 (0008,0102) set to DCM (0008,0104) set to Basic Application Confidentiality Profile	ALWAYS	
Contrast/Bolus Agent	(0018,0010)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Device Serial Number	(0018,1000)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Plate ID	(0018,1004)	ALL	REMOVED		ALWAYS	
Generator ID	(0018,1005)	ALL	REMOVED		ALWAYS	
Cassette ID	(0018,1007)	ALL	REMOVED		ALWAYS	
Gantry ID	(0018,1008)	ALL	REMOVED		ALWAYS	
Protocol Name	(0018,1030)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Acquisition Device Processing Description	(0018,1400)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Acquisition Comments	(0018,4000)	ALL	REMOVED		ALWAYS	This Tag is retired
Detector ID	(0018,700A)	ALL	MODIFIED	DeIdenified	OTHER	If the Tag has a Value
Acquisition Protocol Description	(0018,9424)	ALL	REMOVED		ALWAYS	
Start Acquisition DateTime	(0018,9516)	ALL	MODIFY	Current Date and Time	ALWAYS	
End Acquisition DateTime	(0018,9517)	ALL	MODIFY	Current Date and Time	ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Contribution Description	(0018,A003)	ALL	REMOVED		ALWAYS	
Study ID	(0020,0010)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Modifying Device ID	(0020,3401)	ALL	REMOVED		ALWAYS	This Tag is retired
Modifying Device Manufacturer	(0020,3404)	ALL	REMOVED		ALWAYS	This Tag is retired
Modified Image Description	(0020,3406)	ALL	REMOVED			This Tag is retired
Image Comments	(0020,4000)	ALL	REMOVED		ALWAYS	
Frame Comments	(0020,9158)	ALL	REMOVED		ALWAYS	
Image Presentation Comments	(0028,4000)	ALL	REMOVED		ALWAYS	This Tag is retired
Study ID Issuer	(0032,0012)	ALL	REMOVED		ALWAYS	This Tag is retired
Scheduled Study Location	(0032,1020)	ALL	REMOVED		ALWAYS	This Tag is retired
Scheduled Study Location AE Title	(0032,1021)	ALL	REMOVED		ALWAYS	This Tag is retired
Reason for Study	(0032,1030)	ALL	REMOVED		ALWAYS	This Tag is retired
Requesting Physician	(0032,1032)	ALL	REMOVED		ALWAYS	
Requesting Service	(0032,1033)	ALL	REMOVED		ALWAYS	
Requested Procedure Description	(0032,1060)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Requested Contrast Agent	(0032,1070)	ALL	REMOVED		ALWAYS	
Study Comments	(0032,4000)	ALL	REMOVED		ALWAYS	This Tag is retired

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Referenced Patient Alias Sequence	(0038,0004)	ALL	REMOVED		ALWAYS	
Admission ID	(0038,0010)	ALL	REMOVED		ALWAYS	
Issuer of Admission ID	(0038,0011)	ALL	REMOVED		ALWAYS	This Tag is retired
Scheduled Patient Institution Residence	(0038,001E)	ALL	REMOVED		ALWAYS	This Tag is retired
Admitting Date	(0038,0020)	ALL	REMOVED		ALWAYS	
Admitting Time	(0038,0021)	ALL	REMOVED		ALWAYS	
Discharge Diagnosis Description	(0038,0040)	ALL	REMOVED		ALWAYS	This Tag is retired
Special Needs	(0038,0050)	ALL	REMOVED		ALWAYS	
Service Episode ID	(0038,0060)	ALL	REMOVED		ALWAYS	
Issuer of Service Episode ID	(0038,0061)	ALL	REMOVED		ALWAYS	This Tag is retired
Service Episode Description	(0038,0062)	ALL	REMOVED		ALWAYS	
Current Patient Location	(0038,0300)	ALL	REMOVED		ALWAYS	
Patient's Institution Residence	(0038,0400)	ALL	REMOVED		ALWAYS	
Patient State	(0038,0500)	ALL	REMOVED		ALWAYS	
Visit Comments	(0038,4000)	ALL	REMOVED		ALWAYS	
Scheduled Station AE Title	(0040,0001)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step Start Date	(0040,0002)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Scheduled Procedure Step Start Time	(0040,0003)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step End Date	(0040,0004)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step End Time	(0040,0005)	ALL	REMOVED		ALWAYS	
Scheduled Performing Physician's Name	(0040,0006)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step Description	(0040,0007)	ALL	REMOVED		ALWAYS	
Scheduled Performing Physician Identification Sequence	(0040,000B)	ALL	REMOVED		ALWAYS	
Scheduled Station Name	(0040,0010)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step Location	(0040,0011)	ALL	REMOVED		ALWAYS	
Pre-Medication	(0040,0012)	ALL	REMOVED		ALWAYS	
Performed Station AE Title	(0040,0241)	ALL	REMOVED		ALWAYS	
Performed Station Name	(0040,0242)	ALL	REMOVED		ALWAYS	
Performed Location	(0040,0243)	ALL	REMOVED		ALWAYS	
Performed Procedure Step Start Date	(0040,0244)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Performed Procedure Step End Date	(0040,0250)	ALL	REMOVED		ALWAYS	
Performed Procedure Step End Time	(0040,0251)	ALL	REMOVED		ALWAYS	
Performed Procedure Step ID	(0040,0253)	ALL	REMOVED		ALWAYS	
Performed Procedure Step Description	(0040,0254)	ALL	REMOVED		ALWAYS	
Request Attributes Sequence	(0040,0275)	ALL	REMOVED		ALWAYS	
Comments on the Performed Procedure Step	(0040,0280)	ALL	REMOVED		ALWAYS	
Requested Procedure ID	'(0040,1001)	ALL	REMOVED		ALWAYS	
Patient Transport Arrangements	(0040,1004)	ALL	REMOVED		ALWAYS	
Requested Procedure Location	(0040,1005)	ALL	REMOVED		ALWAYS	
Names of Intended Recipients of Results	(0040,1010)	ALL	REMOVED		ALWAYS	
Intended Recipients of Results Identification Sequence	(0040,1011)	ALL	REMOVED		ALWAYS	
Person Identification Code Sequence	(0040,1101)	ALL	REMOVED		ALWAYS	
Person's Address	(0040,1102)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Person's Telephone Numbers	(0040,1103)	ALL	REMOVED		ALWAYS	
Requested Procedure Comments	(0040,1400)	ALL	REMOVED		ALWAYS	
Reason for the Imaging Service Request	(0040,2001)	ALL	REMOVED		ALWAYS	This Tag is retired
Order Entered By	(0040,2008)	ALL	REMOVED		ALWAYS	
Order Enterer's Location	(0040,2009)	ALL	REMOVED		ALWAYS	
Order Callback Phone Number	(0040,2010)	ALL	REMOVED		ALWAYS	
Placer Order Number / Imaging Service Request	(0040,2016)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Filler Order Number / Imaging Service Request	(0040,2017)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Scheduled Procedure Step Start DateTime	(0040,4005)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step Modification DateTime	(0040,4010)	ALL	REMOVED		ALWAYS	
Expected Completion DateTime	(0040,4011)	ALL	REMOVED		ALWAYS	
Verifying Organization	(0040,A027)	ALL	REMOVED		ALWAYS	
Performed Station Name Code Sequence	(0040,4028)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Human Performer's Name	(0040,4037)	ALL	REMOVED		ALWAYS	
Performed Procedure Step Start DateTime	(0040,4050)	ALL	REMOVED		ALWAYS	
Procedure Step Cancellation DateTime	(0040,4052)	ALL	REMOVED		ALWAYS	
Verifying Observer Sequence	(0040,A073)	ALL	REMOVED		ALWAYS	
Verifying Observer Name	(0040,A075)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Author Observer Sequence	(0040,A078)	ALL	REMOVED		ALWAYS	
Participant Sequence	(0040,A07A)	ALL	REMOVED		ALWAYS	
Custodial Organization Sequence	(0040,A07C)	ALL	REMOVED		ALWAYS	
Verifying Observer Identification Code Sequence	(0040,A088)	ALL	REMOVED		ALWAYS	
Person Name	(0040,A123)	ALL	MODIFIED	DeIdentified	OTHER	If the Tag has a Value
Observation Date '(Trial)	(0040,A192)	ALL	REMOVED		ALWAYS	This Tag is retired
Observation Time '(Trial)	(0040,A193)	ALL	REMOVED		ALWAYS	This Tag is retired
Current Observer '(Trial)	(0040,A307)	ALL	REMOVED		ALWAYS	This Tag is retired
Verbal Source '(Trial)	(0040,A352)	ALL	REMOVE		ALWAYS	This Tag is retired
Address '(Trial)	(0040,A353)	ALL	REMOVED		ALWAYS	This Tag is retired

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Telephone Number '(Trial)	(0040,A354)	ALL	REMOVED		ALWAYS	This Tag is retired
Verbal Source Identifier Code Sequence '(Trial)	(0040,A358)	ALL	REMOVED		ALWAYS	This Tag is retired
Graphic Annotation Sequence	(0070,0001)	ALL	REMOVED		ALWAYS	
Content Creator's Name	(0070,0084)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Icon Image Sequence	(0088,0200)	ALL	REMOVED		ALWAYS	
Topic Title	(0088,0904)	ALL	REMOVED		ALWAYS	This Tag is retired
Topic Subject	(0088,0906)	ALL	REMOVED		ALWAYS	This Tag is retired
Topic Author	(0088,0910)	ALL	REMOVED		ALWAYS	This Tag is retired
Topic Keywords	(0088,0912)	ALL	REMOVED		ALWAYS	This Tag is retired
Digital Signature UID	(0400,0100)	ALL	REMOVED		ALWAYS	
Referenced Digital Signature Sequence	(0400,0402)	ALL	REMOVED		ALWAYS	
Referenced SOP Instance MAC Sequence	(0400,0403)	ALL	REMOVED		ALWAYS	
MAC	(0400,0404)	ALL	REMOVED		ALWAYS	
Modified Attributes Sequence	(0400,0550)	ALL	REMOVED		ALWAYS	
Original Attributes Sequence	(0400,0561)	ALL	REMOVED		ALWAYS	
Text String	(2030,0020)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Source Serial Number	(3008,0105)	ALL	REMOVED		ALWAYS	
Reviewer Name	(300E,0008)	ALL	MODIFIED	Empty Value	OTHER	If the Tag has a Value
Arbitrary	(4000,0010)	ALL	REMOVED		ALWAYS	This Tag is retired
Text Comments	(4000,4000)	ALL	REMOVED		ALWAYS	This Tag is retired
Results ID Issuer	(4008,0042)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Recorder	(4008,0102)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Transcriber	(4008,010A)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Text	(4008,010B)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Author	(4008,010C)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Approver Sequence	(4008,0111)	ALL	REMOVED		ALWAYS	This Tag is retired
Physician Approving Interpretation	(4008,0114)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation Diagnosis Description	(4008,0115)	ALL	REMOVED		ALWAYS	This Tag is retired
Results Distribution List Sequence	(4008,0118)	ALL	REMOVED		ALWAYS	This Tag is retired
Distribution Name	(4008,0119)	ALL	REMOVED		ALWAYS	This Tag is retired
Distribution Address	(4008,011A)	ALL	REMOVED		ALWAYS	This Tag is retired
Interpretation ID Issuer	(4008,0202)	ALL	REMOVED		ALWAYS	This Tag is retired
Impressions	(4008,0300)	ALL	REMOVED		ALWAYS	This Tag is retired
Results Comments	(4008,4000)	ALL	REMOVED		ALWAYS	This Tag is retired

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Digital Signatures Sequence	(FFFA,FFFA)	ALL	REMOVED		ALWAYS	
Data Set Trailing Padding	(FFFC,FFFC)	ALL	REMOVED		ALWAYS	
In addition, all Private Data Attributes are removed.						

Table 5.2-12: Standard Header Correction Set *"Remove All Private Data Elements (Pattern Based)"*

Pattern	SOP Class UID	Type of Change	New Value	Condition	Comments
(0008,0080) Institution Name	ALL	REMOVED		ALWAYS	
(0008,0081) Institution Address	ALL	REMOVED		ALWAYS	
(0008,1010) Station Name	ALL	REMOVED		ALWAYS	
(0008,1040) Institutional Department Name	ALL	REMOVED		ALWAYS	
(0008,1070) Operators' Name	ALL	REMOVED		ALWAYS	
(0018,1000) Device Serial Number	ALL	REMOVED		ALWAYS	
(0018,A003) Contribution Description	ALL	REMOVED		ALWAYS	
(50**,****)	ALL	REMOVED		ALWAYS	
(60**,0100)	ALL	REMOVED		ALWAYS	
(60**,0102)	ALL	REMOVED		ALWAYS	
(60**,3000)	ALL	REMOVED		ALWAYS	
(60**,4000)	ALL	REMOVED		ALWAYS	
In addition, all Private Data Attributes are removed.					

The character * stands for any single digit in the given position in the Tag. If no * is in the pattern, the entire Tag must be indicated. In this case only exact matches are considered.

Please note, that the Pattern Based removal proceeds recursively – it removes the corresponding Tags also from Sequences and Sub-Sequences.

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 syngo.via uses the N-ACTION-RQ message to request storage commitment from a remote SCP for all previously stored instances. In turn, it receives N-EVENT-REPORT-RQ messages from the SCP indicating success or failure of the request.

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.

The Storage Commitment Request will be sent out with a delay after the Storage Request, to ensure that the remote node properly indexes received instances. The delay time is configurable with a default delay of 10 minutes.

The system may issue one N-ACTION-RQ for a complete set (bundle) of instances or issue one N-ACTION-RQ per instance. This behavior is configurable; the default value is "bundled."

The syngo.via does not support the Storage Media File-Set ID and UID attributes.

The syngo.via will accept the N-EVENT-REPORT-RQ on the same association if sent immediately after the N-ACTION-RSP. However, it will not wait for it. The association is closed after three seconds (this is a hard coded value). In this case a reverse role negotiation takes place. syngo.via will serve as an Association Acceptor for the confirmation sent by the remote DICOM node.

Table 5.2-13 lists the behavior of syngo.via for 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 5.2-13: Failure Behavior for Storage Commitment SCU

Status Code	Description	Behavior
0110	Processing failure: A general failure in processing the operation was encountered.	Following processing is in place: • All the incoming Status Codes are logged. • All the incoming Status Codes can be traced. • Providing the Status Codes to the users • The activity provides for the users an API to get all the Status Codes
0122	No such object instance: One or more of the elements in the Referenced SOP Instance Sequence was not available.	
0119	Class / Instance conflict: The SOP Class of an element in the Referenced SOP Instance Sequence did not correspond to the SOP Class registered for this SOP Instance at the SCP.	
0122	Referenced SOP Class not supported: Storage Commitment has been requested for a SOP Instance with a SOP Class that is not supported by the SCP	
0131	Duplicate transaction UID: The Transaction UID of the Storage Commitment Request is already in use.	
0213	Resource limitation: The SCP does not currently have enough resources to store the requested SOP Instance(s).	

The syngo.via has a configurable expiration timeout for the Transaction UID. By default, the timeout for the Transaction UID is 60 minutes. If the N-EVENT-REPORT does not arrive in this time interval, the Archive Operation is considered failed.

5.2.6.2 SCP of the Storage Commitment SOP Class

As a Service Class Provider of the Storage Commitment SOP Class, syngo.via receives the storage commitment request via the N-ACTION-RQ message from a remote SCU. In turn SCP initiates a new association request to the remote SCU via the N-EVENT-REPORT-RQ message indicating success or failure of the request, after checking for the presence of the required instances in the internal database.

The SCU is responsible for creating a unique Transaction UID. The SCP will not check whether the UID is already in use or not.

Table 5.2-14 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 5.2-14: Failure Conditions on Storage Commitment SCP

Status Code	Description	Conditions
0110	Processing failure: A general failure in processing the operation was encountered.	This error code is sent on any error, which might occur on processing the incoming request.

The syngo.via does not support the Storage Media File-Set ID and UID attributes.

Persistence of Storage

The instances received for Storage Commitment are kept till they are explicitly deleted by the user. This does not happen automatically. There is no way to configure automatic deletions for archived Instances.

Capacity

The capacity available for Storage Commitment operations is limited only by the hardware used by the syngo.via. syngo.via does not manage the Storage capacity.

Volatility

Once the instances received for Storage Commitment are processed, it is saved in the Storage of the syngo.via. The Storage is permanent. To remove any data from the Storage, an explicit delete operation must be carried out by the user.

The N-EVENT-REPORT-RQ will follow on the N-ACTION-RQ by default after 60 Minutes. This interval is configurable.

The data saved can be retrieved using the Query/Retrieve mechanism.

5.2.7 Query/Retrieve Service

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 syngo.via uses the C-FIND-RQ message and supports the Query Keys listed in Table 5.2-15 for hierarchical queries.

If the data received on the C-FIND-RQ does not specify a Specific Character Set (SCS), it is interpreted according to the default SCS set for the syngo.via. If the data received does specify an SCS in the header, it is interpreted accordingly.

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 Attribute as 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 left empty 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 5.2-15: 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						
Patient's Name	(0010,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient ID	(0010,0020)	WILDCARD	USER		D	An * is always added to the end of the search string.
Issuer of Patient ID	(0010,0021)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient's Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	USER		D	If only the starting date is available, a SINGLE_VALUE search is executed.
Patient's Birth Time	(0010,0032)	RANGE	USER		D	Only used together with the Patient's Birth Date.
Patient's Sex	(0010,0040)	SINGLE_VALUE	USER		D	
Accession Number	(0008,0050)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study ID	(0020,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Instance UID	(0020,000D)	UID	USER		D	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	USER		D	If only the from starting is available, a SINGLE_VALUE search is executed.
Study Time	(0008,0030)	RANGE	USER		D	Only used together with the Study Date.
Referring Physician' s Name	(0008,0090)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Description	(0008,1030)	WILDCARD	USER		D	An * is always added to the end of the search string.
Number of Study related Instances	(0020,1208)	UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	SEQUENCE	USER		D	
Number of Study Related Series	(0020,1206)	UNIVERSAL	EMPTY		N	
Series Level						
Modality	(0008,0060)	RANGE	USER		C	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	USER		C	If only the starting date is available, a SINGLE_VALUE search is executed.
Series Time	(0008,0031)	RANGE	USER		C	Only used together with the Series Date.
Series Number	(0020,0011)	SINGLE_VALUE	USER		C	
Series Description	(0008,103E)	WILDCARD	USER		C	An * is always added to the end of the search string.
Request Attributes Sequence	(0040,0275)	WILDCARD	USER		C	An * is always added to the end of the search string.
> Requested Procedure ID	(0040,1001)	WILDCARD	USER		C	An * is always added to the end of the search string.
> Scheduled Procedure Step ID	(0040,0009)	WILDCARD	USER		C	An * is always added to the end of the search string.
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE VALUE	USER		C	If only the starting date is available, a SINGLE_VALUE search is executed.
Performed Procedure Step Start Time	(0040,0245)	RANGE	USER		C	Only used together with the Performed Procedure Step Date.
Series Instance UID	(0020,000E)	UNIVERSAL	EMPTY		D	

The user can cancel any running Query. In this case C-CANCEL-FIND-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-FIND-RSP is received with the Status Canceled. If the confirmation for C-CANCEL-FIND-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

The user has the possibility to set explicitly an SCS, which will be used to handle every incoming DICOM message. By default, no such SCS is set.

5.2.7.2 SCU of the Patient Root Q/R Information Model – FIND SOP Class

As a Service Class User of the Patient Root Q/R - Information Model - FIND SOP Class, the syngo.via uses the C-FIND-RQ message and supports the Query Keys listed in Table 5.2-16 for hierarchical queries.

If the data received on the C-FIND-RQ does not specify a Specific Character Set (SCS), it is interpreted according to the default SCS set for the syngo.via. If the data received does specify an SCS in the header, it is interpreted accordingly.

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 Attribute as 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 left empty 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 5.2-16: Supported C-FIND Attribute Matching for Patient Root Q/R Model - SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient Level						
Patient’s Name	(0010,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient ID	(0010,0020)	WILDCARD	USER		D	An * is always added to the end of the search string.
Issuer of Patient ID	(0010,0021)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient’s Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	USER		D	If only the starting date is available, a SINGLE_VALUE search is executed.
Patient’s Birth Time	(0010,0032)	RANGE	USER		D	Only used together with the Patient’s Birth Date.
Patient’s Sex	(0010,0040)	SINGLE_VALUE	USER		D	
Study Level						
Accession Number	(0008,0050)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study ID	(0020,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Instance UID	(0020,000D)	UID	USER		D	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	USER		D	If only the from starting is available, a SINGLE_VALUE search is executed.
Study Time	(0008,0030)	RANGE	USER		D	Only used together with the Study Date.
Referring Physician’ s Name	(0008,0090)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Description	(0008,1030)	WILDCARD	USER		D	An * is always added to the end of the search string.

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Number of Study related Instances	(0020,1208)	UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	SEQUENCE	USER		D	
Number of Study Related Series	(0020,1206)	UNIVERSAL	EMPTY		N	
Series Level						
Modality	(0008,0060)	RANGE	USER		C	
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	USER		C	If only the starting date is available, a SINGLE_VALUE search is executed.
Series Time	(0008,0031)	RANGE	USER		C	Only used together with the Series Date.
Series Number	(0020,0011)	SINGLE_VALUE	USER		C	
Series Description	(0008,103E)	WILDCARD	USER		C	An * is always added to the end of the search string.
Request Attributes Sequence	(0040,0275)	WILDCARD	USER		C	An * is always added to the end of the search string.
> Requested Procedure ID	(0040,1001)	WILDCARD	USER		C	An * is always added to the end of the search string.
> Scheduled Procedure Step ID	(0040,0009)	WILDCARD	USER		C	An * is always added to the end of the search string.
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE VALUE	USER		C	If only the starting date is available, a SINGLE_VALUE search is executed.
Performed Procedure Step Start Time	(0040,0245)	RANGE	USER		C	Only used together with the Performed Procedure Step Date.
Series Instance UID	(0020,000E)	UNIVERSAL	EMPTY		D	

- The user can cancel any running Query. In this case C-CANCEL-FIND-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-FIND-RSP is received with the Status Canceled. If the confirmation for C-CANCEL-FIND-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

- The user has the possibility to set explicitly an SCS, which will be used to handle every incoming DICOM message. By default, no such SCS is set.

5.2.7.3 SCU of the Patient/Study Only Q/R Information Model – FIND SOP Class

As a Service Class User of the Patient Root Q/R - Information Model - FIND SOP Class, the syngo.via uses the C-FIND-RQ message and supports the Query Keys listed in Table 5.2-17 for hierarchical queries.

If the data received on the C-FIND-RQ does not specify a Specific Character Set (SCS), it is interpreted according to the default SCS set for the syngo.via. If the data received does specify an SCS in the header, it is interpreted accordingly.

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 Attribute as 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 left empty 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 5.2-17: Supported C-FIND Attribute Matching for Patient/Study Only Root Q/R Model - SCU

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient Level						
Patient's Name	(0010,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient ID	(0010,0020)	WILDCARD	USER		D	An * is always added to the end of the search string.
Issuer of Patient ID	(0010,0021)	WILDCARD	USER		D	An * is always added to the end of the search string.
Patient's Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	USER		D	If only the starting date is available, a SINGLE_VALUE search is executed.

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient's Birth Time	(0010,0032)	RANGE	USER		D	Only used together with the Patient's Birth Date.
Patient's Sex	(0010,0040)	SINGLE_VALUE	USER		D	
Study Level						
Accession Number	(0008,0050)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study ID	(0020,0010)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Instance UID	(0020,000D)	UID	USER		D	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	USER		D	If only the from starting is available, a SINGLE_VALUE search is executed.
Study Time	(0008,0030)	RANGE	USER		D	Only used together with the Study Date.
Referring Physician' s Name	(0008,0090)	WILDCARD	USER		D	An * is always added to the end of the search string.
Study Description	(0008,1030)	WILDCARD	USER		D	An * is always added to the end of the search string.
Number of Study related Instances	(0020,1208)	UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	SEQUENCE	USER		D	
Number of Study Related Series	(0020,1206)	UNIVERSAL	EMPTY		N	

- The user can cancel any running Query. In this case C-CANCEL-FIND-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-FIND-RSP is received with the Status Canceled. If the confirmation for C-CANCEL-FIND-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

The user has the possibility to set explicitly an SCS, which will be used to handle every incoming DICOM message. By default, no such SCS is set.

5.2.7.4 SCU of the Study Root Q/R Information Model – MOVE SOP Class

The syngo.via allows the retrieval of multiple entries. Retrieval is possible on Study or Series level. Retrieving on Image Level is not supported. This means, that for a selected Study or Series, every Instance will be retrieved.

The user can cancel any ongoing Retrieve. In this case C-CANCEL-MOVE-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-MOVE-RSP is received with the Status Cancel. If the confirmation for C-CANCEL-MOVE-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

Sending matching instances to a different AE Title is possible, if requested in the C-MOVE-RQ (Move Destination AE).

If C-MOVE is sent, but no C-STORE-RQ arrives during the Retrieve Transfer Activity Timeout (configurable in the in the config.net repository), the Association is closed, and the job fails. The default timeout value is 20 Minutes.

If the data arrived on the C-MOVE-RQ does contain a reference to an Specific Character Set, syngo.via will handle the binary data accordingly. Is the SCS Information missing in the incoming DICOM message, syngo.via will handle the binary data based on its central SCS setting.

5.2.7.5 SCU of the Patient Root Q/R Information Model – MOVE SOP Class

The syngo.via allows the retrieval multiple entries. Query is possible on Patient, Study or Series level. Querying on Image Level is not supported.

The user can cancel any running Query. In this case C-CANCEL-MOVE-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-FIND-RSP is received with the Status Canceled. If the confirmation for C-CANCEL-MOVE-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

Sending matching instances to a different AE Title is possible, if requested in the C-MOVE-RQ (Move Destination AE).

If C-MOVE is sent, but no C-STORE-RQ arrives during the Retrieve Transfer Activity Timeout (configurable in the in the config.net repository), the Association is closed, and the job fails. The default timeout value is 20 Minutes.

5.2.7.6 SCU of the Patient/Study Only Q/R Information Model – MOVE SOP Class

The syngo.via allows the retrieval multiple entries. Query is possible on Patient, Study level.

The user can cancel any running Query. In this case C-CANCEL-MOVE-RQ is sent to the SCP. The processing of the data received in the respective Association is stopped and the Association is closed if C-FIND-RSP is received with the Status Canceled. If the confirmation for C-CANCEL-MOVE-RQ does not arrive during the Transfer Inactivity Timeout (see Table 6.1-1) the Association will be closed.

Sending matching instances to a different AE Title is possible, if requested in the C-MOVE-RQ (Move Destination AE).

If C-MOVE is sent, but no C-STORE-RQ arrives during the Retrieve Transfer Activity Timeout (configurable in the in the config.net repository), the Association is closed, and the job fails. The default timeout value is 20 Minutes.

5.2.7.7 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 syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-18 for hierarchical queries. As a response to an incoming C-FIND-RQ the data is sent with the SCS specified in the DICOM Header.

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 5.2-18: Supported C-FIND Attribute Matching for Study Root Q/R Model – SCP

Attribute Name	Tag	Matching Type	Comments
Study Level			
Patient's Name	(0010,0010)	WILDCARD	
Patient ID	(0010,0020)	WILDCARD	
Issuer of Patient ID	(0010,0021)	WILDCARD	
Patient's Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	
Patient's Birth Time	(0010,0032)	RANGE	
Patient's Sex	(0010,0040)	SINGLE_VALUE	
Accession Number	(0008,0050)	WILDCARD	
Study ID	(0020,0010)	WILDCARD	
Study Instance UID	(0020,000D)	UID	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE	
Referring Physician' s Name	(0008,0090)	WILDCARD	
Study Description	(0008,1030)	WILDCARD	
Modalities in Study	(0008,0061)	SEQUENCE	
Series Level			
Modality	(0008,0060)	SEQUENCE	
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	
Series Time	(0008,0031)	RANGE	
Series Number	(0020,0011)	SINGLE_VALUE	
Series Description	(0008,103E)	WILDCARD	
Request Attributes Sequence	(0040,0275)	WILDCARD	
> Requested Procedure ID	(0040,1001)	WILDCARD	
> Scheduled Procedure Step ID	(0040,0009)	WILDCARD	
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE VALUE	
Performed Procedure Step Start Time	(0040,0245)	RANGE	
Series Instance UID	(0020,000E)	UID	
Instance Level			
Instance Number	(0020,0013)	WILDCARD	
SOP Instance UID	(0008,0018)	UID	
SOP Class UID	(0008,0016)	UID	

If a C-CANCEL-FIND-RQ is received, the processing of the Query is stopped, and a Confirmation is sent (in form of a C-FIND-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

5.2.7.8 SCP of the Patient Root Q/R Information Model – FIND SOP Class

As a Service Class Provider of the Patient Root Q/R - Information Model - FIND SOP Class, the syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-19 for hierarchical queries. As a response to an incoming C-FIND-RQ the data is sent with the SCS specified in the DICOM Header.

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 5.2-19: 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)	WILDCARD	
Patient ID	(0010,0020)	WILDCARD	
Issuer of Patient ID	(0010,0021)	WILDCARD	
Patient's Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	
Patient's Birth Time	(0010,0032)	RANGE	
Patient's Sex	(0010,0040)	SINGLE_VALUE	
Study Level			
Accession Number	(0008,0050)	WILDCARD	
Study ID	(0020,0010)	WILDCARD	
Study Instance UID	(0020,000D)	UID	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE	
Referring Physician' s Name	(0008,0090)	WILDCARD	
Study Description	(0008,1030)	WILDCARD	
Modalities in Study	(0008,0061)	SEQUENCE	
Series Level			
Modality	(0008,0060)	SEQUENCE	
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	
Series Time	(0008,0031)	RANGE	
Series Number	(0020,0011)	SINGLE_VALUE	
Series Description	(0008,103E)	WILDCARD	
Request Attributes Sequence	(0040,0275)	WILDCARD	
> Requested Procedure ID	(0040,1001)	WILDCARD	
> Scheduled Procedure Step ID	(0040,0009)	WILDCARD	
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE VALUE	
Performed Procedure Step Start Time	(0040,0245)	RANGE	

Attribute Name	Tag	Matching Type	Comments
Series Instance UID	(0020,000E)	UID	
Instance Level			
Instance Number	(0020,0013)	WILDCARD	
SOP Instance UID	(0008,0018)	UID	
SOP Class UID	(0008,0016)	UID	

If a C-CANCEL-FIND-RQ is received, the processing of the Query is stopped, and a Confirmation is sent (in form of a C-FIND-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

5.2.7.9 SCP of the Patient/Study Only Query Information Model - FIND SOP Class

As a Service Class Provider of the Patient/Study Only Root Q/R - Information Model - FIND SOP Class, the syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-20 for hierarchical queries. As a response to an incoming C-FIND-RQ the data is sent with the SCS specified in the DICOM Header.

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 5.2-20: Supported C-FIND Attribute Matching for Patient/Study Only Root Q/R Model – SCP

Attribute Name	Tag	Matching Type	Comments
Patient Level			
Patient's Name	(0010,0010)	WILDCARD	
Patient ID	(0010,0020)	WILDCARD	
Issuer of Patient ID	(0010,0021)	WILDCARD	
Patient's Birth Date	(0010,0030)	RANGE, SINGLE_VALUE	
Patient's Birth Time	(0010,0032)	RANGE	
Patient's Sex	(0010,0040)	SINGLE_VALUE	
Study Level			
Accession Number	(0008,0050)	WILDCARD	
Study ID	(0020,0010)	WILDCARD	
Study Instance UID	(0020,000D)	UID	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE	
Referring Physician' s Name	(0008,0090)	WILDCARD	
Study Description	(0008,1030)	WILDCARD	
Modalities in Study	(0008,0061)	SEQUENCE	

If a C-CANCEL-FIND-RQ is received, the processing of the Query is stopped, and a Confirmation is sent (in form of a C-FIND-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

5.2.7.10 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 syngo.via 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.

If a C-CANCEL-MOVE-RQ is received, the processing is stopped, and a Confirmation is sent (in form of a C-MOVE-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

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

As the SCP of the Patient Root Q/R – Information Model –MOVE, the syngo.via 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.

If a C-CANCEL-MOVE-RQ is received, the processing is stopped, and a Confirmation is sent (in form of a C-MOCE-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

5.2.7.12 SCP of the Patient/Study Only Q/R - Information Model – MOVE SOP Class

As the SCP of the Patient/Study Root Q/R – Information Model –MOVE, the syngo.via 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.

If a C-CANCEL-MOVE-RQ is received, the processing is stopped, and a Confirmation is sent (in form of a C-MOVE-RSP with the Status Cancelled). After sending the Confirmation, the Association is closed.

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 5.2-21.

Table 5.2-21: Basic Grayscale Print Management Meta SOP Classes - 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

The Basic Film Session describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer.

Table 5.2-22 lists the supported DIMSE Services for the Basic Film Session SOP Class:

Table 5.2-22: Services for the Basic Film Session SOP Class - SCU

DIMSE Service Element	Purpose
N-CREATE	Create the Film Session
N-DELETE	Delete the Film Session

Table 5.2-23 lists the supported N-CREATE Attributes for Basic Film Session:

Table 5.2-23: Supported N-CREATE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Values	Default
Number of Copies	(2000,0010)	1	
Medium Type	(2000,0030)	BLUE FILM CLEAR FILM MAMMO BLUE FILM MAMMO CLEAR FILM PAPER	

The Affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g., N-DELETE-RQ) on the Basic Film Session.

The N-DELETE-RQ on the Basic Film Session SOP Class is used to remove the complete Basic Film Session SOP Instance hierarchy.

Table 5.2-24 lists the supported N-DELETE Attributes for Basic Film Session:

Table 5.2-24: Supported N-DELETE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Values	Default
Message ID	(0000,0110)		
Requested SOP Class UID	(0000,1001)	1.2.840.10008.5.1.1.1	
Requested SOP Instance UID	(0000,1001)		

5.2.8.1.2 Basic Film Box SOP Class

The Basic Film Box describes all user-defined parameters of one film of the film session including presentation parameters, which are common for all images on a given film sheet.

The Basic Film Box refers to one or more Image Boxes.

Table 5.2-25 lists the supported DIMSE Services for the Basic Film Box SOP Class:

Table 5.2-25: Supported Services for the Basic Film Box SOP Classes

DIMSE Service Element	Purpose
N-CREATE	Create the Film box in a previously created film session
N-ACTION	Print the Film Box
N-DELETE	Delete the Film Box

Table 5.2-26 lists the supported N-CREATE Attributes for Basic Film Box. The actual values for each attribute depend on DICOM printer configuration within the syngo.via DICOM Print Management SCU:

Table 5.2-26: Supported N-CREATE Attributes for the Basic Film Box SOP Class - SCU

Attribute Name	Tag	Values	Default
Image Display Format	(2010,0010)	STANDARD\1,1	
Film Orientation	(2010,0040)	PORTRAIT LANDSCAPE	
Film Size ID	(2010,0050)	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM	

Attribute Name	Tag	Values	Default
Magnification Type	(2010,0060)	REPLICATE BILINEAR CUBIC NONE	
Border Density	(2010,0100)	BLACK WHITE	
Minimum Density	(2010,0120)	0 < value	
Maximum Density	(2010,0130)	0..50	
Illumination [1)]	(2010,015E)	0 < value	
Reflective Ambient Light [1)]	(2010,0160)	0 < value	
Ref. Film Session Seq.	(2010,0500)		
>Ref. SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.1	
>Ref. SOP Instance UID	(0008,1155)		
Ref. Presentation LUT Seq. [1)]	(2050,0500)		
>Ref. SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.23	
>Ref. SOP Instance UID	(0008,1155)		

[1)] Required if Presentation LUT is present

The N-CREATE-RSP message from the Print SCP includes the Referenced Image Box Sequence with SOP Class/Instance UID pairs which will be kept internally to be further used for the subsequent Basic Image Box SOP Class N-SET-RQ messages.

When all Image Boxes (including parameters) for the film-sheet have been set, the syngo.via print manager will issue an N-ACTION-RQ message with the SOP Instance UID of the Basic Film Box and the Action Type ID of 1.

The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g., N-DELETE-RQ) on the Basic Film Box.

Table 5.2-27 lists the supported N-ACTION Attributes for Basic Film Box SOP Class:

Table 5.2-27: Supported N-ACTION Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Value	Default
Message ID	(0000,0110)		
Requested SOP Class UID	(0000,1001)	1.2.840.10008.5.1.1.2	
Requested SOP Instance UID	(0000,1001)		
Action Type ID	(0000,1008)	1 (Print)	

Table 5.2-28 lists the supported N-DELETE Attributes for Basic Film Box Class:

Table 5.2-28: Supported N-DELETE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Value	Default
Message ID	(0000,0110)		
Requested SOP Class UID	(0000,1001)	1.2.840.10008.5.1.1.2	
Requested SOP Instance UID	(0000,1001)		

5.2.8.1.3 Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box is the presentation of an image and image related data in the image area of a film. The Basic Image Box describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

Table 5.2-29 lists the supported DIMSE Service for the Basic Grayscale Image Box SOP Class:

Table 5.2-29: 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 5.2-30 lists the supported N-SET Attributes for Basic Grayscale Image Box:

Table 5.2-30: Supported N-SET Attributes for the Basic Grayscale Image Box SOP Class -SCU

Attribute Name	Tag	Values	Default
Image Box Position	(2020,0010)	1	
Basic Grayscale Image Sequence	(2020,0110)		
>Samples per Pixel	(0028,0002)	1	
>Photometric Interpretation	(0028,0004)	MONOCHROME2	
>Rows	(0028,0010)		
>Columns	(0028,0011)		
>Pixel Aspect Ratio	(0028,0034)		
>Bits Allocated	(0028,0100)	8 16	
>Bits Stored	(0028,0101)	8 12	
>High Bit	(0028,0102)	7 11	
>Pixel Representation	(0028,0103)	0	0
>Pixel Data	(7FE0,0010)		

5.2.8.1.4 Printer SOP Class

Table 5.2-31 lists the supported DIMSE Services for the Printer SOP Class:

Table 5.2-31: Services for the Printer SOP Class

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report the printer status in an asynchronous way
N-GET	Explicit request to find out the printer status.

Before the N-CREATE messages are sent to set up the Basic Film Session, an N-GET message is sent to the DICOM Printer so request its status.

An N-EVENT-REPORT request can be received by the SCU at any time during an Association using reverse role negotiation.

All incoming N-EVENT-REPORT-RQ are managed and analyzed, during the Printing process. Every Printer Status notification is forwarded to the user via the DICOM Print Service if the Status has changed since the last notification.

Table 5.2-32 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5.2-32: Printer SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	
Warning	2	
Failure	3	If a Print job is running, it will be cancelled.

Table 5.2-33: Supported N-GET Attributes for the Printer SOP Class - SCU lists the supported N-GET Attributes for Printer SOP Class:

Table 5.2-33: Supported N-GET Attributes for the Printer SOP Class - SCU

Attribute Name	Tag	Behavior
Printer Status	(2110,0010)	NORMAL WARNING FAILURE
Printer Status Info	(2110,0020)	See the documentation of the printer for the possible values.

5.2.8.2 SCU of the Basic Color Print Management Meta SOP Class

The Basic Color Print Management Meta SOP Class is composed of the mandatory SOP Classes listed in Table 5.2-34:

Table 5.2-34: Basic Color Print Management Meta SOP Classes

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 Color Image Box	1.2.840.10008.5.1.1.4.1
Printer	1.2.840.10008.5.1.1.16

5.2.8.2.1 Basic Film Session SOP Class

The parameters for the Basic Film Session SOP Class of the Basic Color Print Management Meta SOP Class are the same as described for the Basic Grayscale Print Management Meta SOP Class in Section 5.2.8.1.1.

5.2.8.2.2 Basic Film Box SOP Class

The parameters for the Basic Film Box SOP Class of the Basic Color Print Management Meta SOP Class are the same as described for the Basic Grayscale Print Management Meta SOP Class in Section 5.2.8.1.2.

5.2.8.2.3 Basic Color Image Box SOP Class

Table 5.2-35 lists the supported DIMSE Service for the Basic Color Image Box SOP Class:

Table 5.2-35:Services for the Basic Color Image Box SOP Class - SCU

DIMSE Service Element	Purpose
N-SET	Set each Image Attributes for a previously created film box

Table 5.2-36 lists the supported N-SET Attributes for Basic Color Image Box:

Table 5.2-36: Supported N-SET Attributes for the Basic Color Image Box SOP Class - SCU

Attribute Name	Tag	Values	Default
Image Box Position	(2020,0010)		
Basic Color Image Sequence	(2020,0111)		
>Samples per Pixel	(0028,0002)	1, 3	3
>Photometric Interpretation	(0028,0004)	MONOCHROME1, MONOCHROME2, RGB	RGB
>Planar Configuration	(0028,0006)	0	0
>Rows	(0028,0010)		
>Columns	(0028,0011)		
>Pixel Aspect Ratio	(0028,0034)		
>Bits Allocated	(0028,0100)	8, 16	8
>Bits Stored	(0028,0101)	8, 10, 12, 14, 15, 16	8
>High Bit	(0028,0102)	7, 15	7
>Pixel Representation	(0028,0103)	0	0
>Pixel Data	(7FE0,0010)		

5.2.8.2.4 Printer SOP Class

The parameters for the Printer SOP Class of the Basic Color Print Management Meta SOP Class are the same as described for the Basic Grayscale Print Management Meta SOP Class in Section 5.2.8.1.4.

5.2.8.3 SCU of the Basic Annotation Box SOP Class

N/A

5.2.8.4 SCU of the Print Job SOP Class

Every incoming N-EVENT-REPORT-RQ message is processed and analyzed if a printing is in progress. Is a print job already running and the DIMSE Status received does point to a Failure or a Warning, a Job Status Notification is issued to the user (via the DICOM Print Service). Additionally, the job gets cancelled.

Table 5.2-37 lists the supported DIMSE Services for the Print Job SOP Class:

Table 5.2-37: Services for the Print Job SOP Class - SCU

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report the printer status in an asynchronous way

An N-EVENT-REPORT request can be received by the SCU at any time during an Association if the Print Job SOP Class has been negotiated by the SCU.

Table 5.2-38 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5.2-38: Print Job SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Pending	1	No action taken
Printing	2	No action taken
Done	3	No action taken
Failure	4	The failure code is reported to the user and the Print Job itself is cancelled.

5.2.8.5 SCU of the Presentation LUT SOP Class

Table 5.2-39 lists the supported DIMSE Services for the Presentation LUT SOP Class:

Table 5.2-39 Services for the Presentation LUT SOP Class - SCU

DIMSE Service Element	Purpose
N-CREATE	Create the Presentation LUT Instance
N-DELETE	Delete the Presentation LUT Instance

Table 5.2-40 lists the supported N-CREATE Attributes for Presentation LUT:

Table 5.2-40 Supported N-CREATE Attributes for the Presentation LUT SOP Class-SCU

Attribute Name	Tag	Values	Default
Presentation LUT Shape	(2050,0020)	IDENTITY	

The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and is used for later requests on the Basic Film Box (N-CREATE-RQ) and on the Presentation LUT (N-DELETE-RQ).

Table 5.2-41 lists the supported N-DELETE Attributes for Presentation LUT.

Table 5.2-41: Supported N-DELETE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Value	Default
Message ID	(0000,0110)		
Requested SOP Class UID	(0000,1001)	1.2.840.10008.5.1.1.23	
Requested SOP Instance UID	(0000,1001)		

5.2.8.6 SCU of the Printer Configuration Retrieval SOP Class

N/A

5.2.8.7 SCP of the Basic Grayscale Print Management Meta SOP Class

N/A

5.2.8.8 SCP of the Basic Color Print Management Meta SOP Class

N/A

5.2.8.9 SCP of the Basic Annotation Box SOP Class

N/A

5.2.8.10 SCP of the Print Job SOP Class

N/A

5.2.8.11 SCP of the Presentation LUT SOP Class

N/A

5.2.8.12 SCP of the Printer Configuration Retrieval SOP Class

N/A

5.3 Supported DICOM Web Services

N/A

5.4 Media Service

5.4.1 File Set Creator (FSC)

syngo.via supports creating the Basic Directory IOD as a File Set Creator as defined in Annex A.2, Basic Directory IOD.

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

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

5.4.1.1 Media Profile Selection Mechanism

syngo.via provides following options for a data export to a physical medium:

1. If the data exported should or should not be compressed.
2. If the data should be exported in a DICOM File System (DICOMDIR) or not.
3. If a DICOM Viewer should be written on the medium or not (this option is only available if the data should be exported in a DICOM File System (DICOMDIR)).
4. What kind of Image Conversion should be used (applicable only for MR multi-frame images).
5. Data Minimization options: High Privacy, Reduced Privacy and Low Privacy. Additionally, a Pseudonym can be indicated, which will be used in the Data Minimization process.

The compression algorithm is selected from a user definable prioritized list of three algorithms. The list can be edited on the Administration Portal. The highest priority algorithm, which fits the data to be compressed will be applied.

For data export to optical drives the options above are combined in Media Burning Profiles, which are configurable on the Configuration Panel. Only one Media Burning Profile can be selected for an export operation to an optical drive.

On the GUI of the syngo.via any kind of process, which writes DICOM Data to a data storage, that is not its internal database is called Export.

DICOM Data can be exported to:

- Optical Disc
- File System
- Network (send)

The syngo.via does not provide any distinction whatsoever between the type of the Optical Disc used. As a result, CDs, DVDs, and Blu-Ray disks are handled alike. Since only augmented Media Storage Application profiles permit compression, only those are supported. The compression algorithm cannot be explicitly selected for the Media Burning Profile, since it is selected based on configuration (see Table 6.4-1 for further details).

In the same way the syngo.via does handle any kind of Export to File System alike. The destination can be a local hard disk, a pen drive or any USB connected data storage.

In case of an Export to File System, the user can directly configure the different options to request the syngo.via to:

- Use or not to use compression;
- Create or not to create a DICOM File System (DICOMDIR);
- Include or not to include a DICOM Viewer on the Disc;
- Use or not to use Image Conversion (only applies for MR images);
- Use or not to use Data Minimization. If Data Minimization is used, one must provide by configuring the Media Burning Profile, to which extend the Data Minimization should occur (Full, Reduced, Service) and what string should be used as substitution for sensitive data (see Chapter 8.8 for further details).

Therefore, only the general augmented profile is supported.

The selection of the applicable Media Profile is based on the options described in Table 5.4-1.

Table 5.4-1 Media Profile Selection

Destination	Compression algorithm applied [1)]	DICOM File System (DICOMDIR) used	Image Conversion applied	Data Minimization	Selected Media Profile
General Purpose USB media	JPEG lossy JPEG lossless	Yes	Enhanced	Yes (Profile High)	STD-GEN-USB-JPEG

Destination	Compression algorithm applied [1)]	DICOM File System (DICOM DIR) used	Image Conversion applied	Data Minimization	Selected Media Profile
	JPEG 2000	Yes	Enhanced	Yes (Profile High)	STD-GEN-USB-J2K
	JPEG 2000	Yes	(not relevant)	(No or any other Profile)	AUG-GEN-USB-J2K
General Purpose Blu-ray media	JPEG lossy JPEG lossless	Yes	Enhanced	Yes (Profile High)	STD-GEN-BD-JPEG
	JPEG 2000	Yes	Enhanced	Yes (Profile High)	STD-GEN-BD-J2K
	JPEG lossy JPEG lossless	Yes	(not relevant)	(No or any other Profile)	AUG-GEN-DB-JPEG
	JPEG 2000	Yes	(not relevant)	(No or any other Profile)	AUG-GEN-DB-J2K
	(none)	Yes	Enhanced	Yes (Profile High)	STD-GEN-DVD-RAM
General Purpose DVD media	JPEG lossy JPEG lossless	Yes	Enhanced	Yes (Profile High)	STD-GEN-DVD-JPEG
	JPEG 2000	Yes	Enhanced	Yes (Profile High)	STD-GEN-DVD-J2K
	(not relevant)	Yes	(not relevant)	(No or any other Profile)	AUG-GEN-DVD-RAM
	(none)	Yes	Enhanced	Yes (Profile High)	STD-GEN-CD
General Purpose CD media	(not relevant)	Yes	(not relevant)	(No or any other Profile)	AUG-GEN-CD

[1)] The exact Transfer Syntax applied in this case is decided by the Configuration (see Default Media Compression in Table 6.4-1).

5.4.2 File Set Reader (FSR)

syngo.via supports the Media 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)

syngo.via does not support the update of previously created Basic Directory IODs.

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

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

5.5 Real Time Video Service

N/A

5.6 Cross Service Considerations

This section describes Interactions between the implementation of different DICOM Services in this product. Details internal to an individual service are addressed in previous Service Sections.

Note: The DICOM Standard typically does not define cross-service requirements. Therefore, this section provides implementation descriptions and not strictly DICOM Conformance.

5.6.1 PACS initiated Archiving

syngo.via provides an additional Archiving possibility, which is based on a retrieve request from a remote DICOM node, which is registered as a PACS.

Following the Retrieve Request of the PACS machine, a Network Transfer, in form of a storage request (C-STORE-RQ) will be initiated by syngo.via.

5.6.2 Archiving with Derived Objects

If a destination is system is not able to store certain types of DICOM data, syngo.via encodes the payload of that object in an attribute of an IOD accepted by the receiving system. This mechanism is called encapsulation.

In case encapsulated DICOM Data is received from a remote system, syngo.via de-encapsulates it.

For example, if a PACS is not able to receive a PDF Document containing the findings, this object will be encapsulated as binary data in an Encapsulated PDF IOD.

If a destination system is not able to handle enhanced Multi-frame Images syngo.via can split the enhanced object and send a series of single frame images to the remote system.

In case split DICOM Data is received from a remote system, syngo.via unifies them to a single DICOM Instance (for example single frames to a multi-frame).

In case of Encapsulation or Split occurs during the archiving process, syngo.via provides a possibility for the UID mapping. The UID mapping connects the UIDs from the database of the syngo.via with those sent to the Archive. As soon as the confirmation of the Storage Commitment arrives, this mapping enables syngo.via to find, which UID from its database was archived.

The Encapsulation is described in the configuration parameters, in Table 6.2-3.

The splitting is in the responsibility of the Filters (add-ons, which change the data sent or received before sending and after receiving), which are user defined.

5.6.3 Auto-routing

syngo.via provides a possibility to configure Auto-routing rules.

An Auto-routing rule allows to automatically relay (forward) DICOM Instances to one or more remote DICOM nodes. The decision of forwarding can be based on the AET of the sender node or the value of certain Tags in the DICOM Instance.

Such a rule can be applied immediately or during the default archiving (or sending) process.

The applicability can be further restricted to imported media objects, received, and retrieved objects or saved and sent objects.

The configuration can be done on the Administration Portal.

5.6.4 Correction and re-arrangement

The user has the possibility to perform corrections on the DICOM Data stored in the System. If after such an operation the data leaves the system (via Export or Send), the original data is stored according to the DICOM Standard [1] and the corrections are applied.

5.7 Specific Character Sets

For Specific Character Sets in addition to the default character repertoire, refer to Section 1.7 for the Values for Specific Character Set (0008,0005).

All Specific Character Sets (SCS) listed in Section 1.7 are supported for incoming Data. When creating new Instances, the system will use the default SCS (or SCS List) configured on the machine.

When there is a mismatch between the given character set in attribute (0008,0005) and the characters in an IOD received by the system, then the following measures are taken to make the characters DICOM conform:

- Convert each illegal character to '?'

There are three categories of character sets which must be differentiated because of their different encoding formats:

- Conventional ISO character sets: ISO_IR 6, ISO 2022 IR 6, ISO_IR 100, etc. → encoded in ISO 2022
- ISO_IR 192 → encoded in UTF-8
- GB18030 → encoded in GB18030.

It is not possible to recognize the following mismatches automatically on receiving or importing:

- An attribute value is encoded in ISO_IR 192 ←→ (0008,0005) contains a conventional ISO character set as primary character set.
- An attribute value is encoded in GB18030 ←→ (0008,0005) contains a conventional ISO character set as primary character set.
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains ISO_IR 192.
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains GB18030.

An IOD that contains one of the above-mentioned inconsistencies is not DICOM conform. As these kinds of inconsistencies cannot be recognized by the system, the IOD will not be rejected but the character data might be corrupted.

The syngo.via supports Kanji characters in the byte zones after 74 (79, 7A, 7B and 7C).

syngo.via does not support Conversion or Mapping to Non-Default Specific Character Sets.

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.

syngo.via does not limit the number of the configurable Remote Nodes. This applies to all the DIMSE Services. The communication capability is only limited by the Operation System.

Please note, that having lots of Remote Nodes (2000 or more) can affect the loading speed of the different GUIs.

Every Configuration where IP-Addresses are implied, IPv4 or IPv6 can be used.

6.1 General Configuration Parameters

Table 6.1-1 lists general configuration parameters applicable across all supported DICOM Services.

Table 6.1-1: General Configuration Parameters

Parameter	Configurable	Default Value	Comments
General Parameters			
Timeout waiting for acceptance or rejection Response to an Association Open Request. (Association Negotiation Timeout, Application-Level)	USER	30 seconds	Value range: 1 – 120 seconds
Timeout waiting for a response to an Association release request (Transfer Inactivity Timeout, Application-Level)	USER	30 seconds	Value range: 1 – 120 seconds The value of the timeout waiting for acceptance or rejection Response to an Association Open Request will be used.
General DIMSE level timeout Values	USER	30 Seconds	Value range 1 – 300 seconds
TCP/IP Settings			
TCP/IP Send Buffer	FIXED	65535 Bytes	
TCP/IP Receive Buffer	FIXED	65535 Bytes	
TCP/IP Socket Timeout	USER	5 seconds	Value range: 1 – 60 Seconds.
Maximum PDU size	USER	32 KB	Value range: 16 – 512 KB
DICOM Services Parameters			
Maximum number of simultaneous Associations accepted	SERVICE		Please find the data in the respective chapters describing the Service.
Specific Character Set	USER	ISO IR 100	

Please do note, that the default values and some of the value ranges are provided by the templates for the different Remote Nodes of different types. The set of templates is extendable. This is applicable for the general and special parameters.

6.2 Configuration of DIMSE Services

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

To identify whether syngo.via is an SCP and / or an SCU, the following applies:

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

6.2.1 Basic Worklist Management Service Configuration

Table 6.2-1 lists Worklist Service configuration parameters:

Table 6.2-1: Worklist Service Parameters

Local Configuration Parameters – Worklist			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	Machine name	
Only allow encrypted DICOM communication for incoming connections	SERVICE	(not set)	
Logical Name	SERVICE		
Location	SERVICE		
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Worklist provider (RIS)	SERVICE	None	A Remote Node can be selected from the list of Remote Nodes, which do have configured a Worklist AE as SCP.
Query interval	SERVICE	0 Minutes	The default setting (0 Minute) means, that no query will be initiated (off).
Time to keep unassigned worklist items after disappearance from RIS	SERVICE	180 Minutes	
Time window for scheduled procedure step start date	SERVICE	1 day into the past 1 day into the future	
Worklist Query Attributes and their Values	SERVICE		The user can select the return key attributes for Worklist Queries.
Matching criteria to use for Worklist Query	SERVICE		The user can add matching criteria for Modality (0008.0060), Application Entity Title (0040,0001) and Performing Physician (0040,0006). The user can select two additional DICOM tags from a list and provide some matching criteria for them.
Remote Configuration Parameters – Worklist			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE		Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Hostname	SERVICE		
IP Address	SERVICE		

Use encrypted DICOM communication for outgoing connections	SERVICE	(not set)	

6.2.2 Modality Performed Procedure Step Service Configuration

N/A

6.2.3 Unified Worklist and Procedure Step Service Configuration

N/A

6.2.4 Instance Availability Notification Service Configuration

N/A

6.2.5 Storage Service Configuration

Table 6.2-2 lists Storage Service configuration parameters:

Table 6.2-2: Storage Service Parameters

Local Configuration Parameters – Storage			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	Machine name	
Called AE Title (SCP)	SERVICE	Machine name	
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Only allow encrypted DICOM communication for incoming connections	SERVICE	False	If set, the Local Node will only accept encrypted communication (TLS handshake).
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Transfer Syntax Optimization	SERVICE	Uncompressed Format (low CPU load)	The user can select, if syngo.via should favor compressed or uncompressed syntax.
Remote Configuration Parameters – Storage			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		

Only allow encrypted DICOM communication for outgoing connections	SERVICE	(not set)	
Hostname	SERVICE		
IP Address	SERVICE		
Transfer Syntaxes to be Excluded (SCU)	SERVICE		Transfer Syntaxes can be excluded for all SOP Classes or for specific SOP Classes. If excluded, no Association Request with the excluded Transfer Syntaxes will be sent.
Header Correction Ruleset (SCU)	SERVICE		The selected Header Correction Ruleset will be applied for DICOM Data to be sent. Beside a default list of Header Correction Ruleset, the User can define own Header Correction Rulesets.
Storage Commitment (SCU)	SERVICE	ENABLED	If Storage Commitment is disabled, the archive state is only updated based on the transfer result. Permanent data storage is not ensured, and data loss may result.
Encapsulate Non-Supported Objects (SCU)	SERVICE	ENABLED (Basic Text Structured Report Format)	If the User enable this option, non-supported objects will be encapsulated in the "Basic Text Structured Report" or "Secondary Capture Image" format depending on the user's selection.
Transfer Syntaxes to be Excluded (SCP)	SERVICE		Transfer Syntaxes can be excluded for all SOP Classes or for specific SOP Classes. Presentation Contexts for excluded Transfer Syntaxes in incoming Association Requests will be rejected.
Header Correction Ruleset (SCP)	SERVICE		The selected Header Correction Ruleset will be applied for DICOM Data received. Beside a default list of Header Correction Ruleset, the User can define own Header Correction Rulesets.
Series Complete Delay (SCP)	SERVICE	0	Delay between a Receive Job is finished, and the received series are considered as complete

6.2.6 Storage Commitment Service Configuration

Table 6.2-3 lists Storage Commitment Service configuration parameters:

Table 6.2-3: Storage Commitment Service Parameters

Local Configuration Parameters – Storage Commitment			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	Machine name	
Called AE Title (SCP)	SERVICE	Machine name	
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Use encrypted DICOM communication for incoming connections	SERVICE	(not set)	
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Remote Configuration Parameters – Storage Commitment			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Only allow encrypted DICOM communication for outgoing connections	SERVICE	(not set)	Allow encryption is set once for the local node
Hostname	SERVICE		
IP Address	SERVICE		
Timeouts and Retries – Delay Time	SERVICE	10 Minutes	Value range: 0 – 14400 Minutes
Timeouts and Retries – Result Timeout	SERVICE	60 Minutes	Value range: 0 – 14400 Minutes
Timeouts and Retries – Number of Retries	SERVICE	1	Value range 1 – 100

6.2.7 Query/Retrieve Service Configuration

Table 6.2-4 lists Query/Retrieve Service configuration parameters:

Table 6.2-4: Query/Retrieve Service Parameters

Local Configuration Parameters – Query/Retrieve			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	Machine name	
Called AE Title (SCP)	SERVICE	Machine name	
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Use encrypted DICOM communication for incoming connections	SERVICE	(not set)	
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Remote Configuration Parameters – Query/Retrieve			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	Value range: 1 – 65536
TLS-Secured Port	SERVICE	2762	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Only allow encrypted DICOM communication for outgoing connections	SERVICE	(not set)	
Hostname	SERVICE		
IP Address	SERVICE		

6.2.8 Print Management Service Configuration

Table 6.2-5 lists Print Management Service configuration parameters:

Table 6.2-5: Print Management Service Parameters

Local Configuration Parameters – Print			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	The machine name	
Logical Name	SERVICE		If this is set, the user will see the Logical Name in the list of the Remote Nodes (otherwise the Host Name).
Location	SERVICE		

Only allow encrypted DICOM communication for outgoing connections	SERVICE	(not set)	
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Look Up Tables (LUT)	SERVICE		For every image type the user can select a Correction Look Up Table and a Density. The standard set of Look Up Tables can be extended by the consumer of <program>
Remote Configuration Parameters – Print			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		
Port	SERVICE	104	Value range: 1 – 65536
Logical Name	SERVICE		
Location	SERVICE		
Only allow encrypted DICOM communication for outgoing connections	SERVICE	(not set)	If set, the Local Node will only accept encrypted communication (TLS handshake).
Hostname	SERVICE		
IP Address	SERVICE		
Composing Parameter – Attached LUT Mode	SERVICE	LinearLut 12-bit support	Value range: LinearLut, BartenLut, CorrectionLut. For every LUT Mode the user can select 8- or 12-bit support
Composing Parameter – Illumination	SERVICE	2000 cd/m²	Value range: 1 – 10000 cd/m² This value can only be set, if the Attached LUT Mode is set to BartenLut.
Composing Parameter – Reflected Ambient Light	SERVICE	10 cd/m²	Value range: 0 – 100000 cd/m² This value can only be set, if the Attached LUT Mode is set to BartenLut.
Composing Parameter – Supported Films/Papers	SERVICE	(all selected)	The user can select, which Films and/or Papers are supported. For each format, the width and height (both for Portrait and Landscape format) and the Medium (Paper, ColorPaper, ClearFilm, BlueFilm) can be selected.
Supported Mediums	SERVICE	ColorPaper selected	The user can select the Supported Media and for each one the Pixel Width and Height in µm, Min and Max Density and the Background Color (White or Black)
Timeout & Delay – Printer Status Polling Interval	SERVICE	300 Seconds	Value range: 60 – 300 Seconds
Timeout & Delay – Inactivity Timeout	SERVICE	60 Seconds	Value range: 5 – 180 Seconds

6.3 Configuration of DICOM Web Services

N/A

6.4 Configuration of Media Storage Service

Table 6.4-1 lists configuration parameters for the Media Storage service.

Table 6.4-1: Media Storage Service Parameters

Local Configuration Parameters - Media Storage Service			
Parameter	**Configurable**	**Default Value**	**Comments**
Default Media Compression	SERVICE	Priority 1: JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14) Priority 2: (not set) Priority 3: (not set)	The values can be selected from a list. All three values must be different or not set.
DICOM Export Path	SERVICE		Beside entering the target path of the export operation, the user can select from a list pre-defined DICOM Export Path value.
Compressed	SERVICE		If set, the first fitting compression algorithm will be selected from the Default Media Compression list. If nothing fits, no compression will take place.
Create DICOM File System (DICOMDIR)	SERVICE	Set	If set, the export will create a DICOM File System (DICOMDIR). If not set, the data will be exported in the selected directory as one file per instance.
Include Image Viewer on Disc	SERVICE		If set, a viewer will be placed on the target medium. This option is only available, if a DICOM File System (DICOMDIR) is created.
Image Conversion	SERVICE	Enhanced	This option is only relevant if MR Multi-frame images are exported. Setting it to Enhanced will result in the export of MR Multi-frame Images as they are. Setting it to Interoperability will result in the export of MR Multi-frame Image split up.
Data Minimization	SERVICE		If set, a data minimization of the exported data takes place.

Profile	SERVICE	High Privacy	Only relevant if Data Minimization is set. Selects the type of the Data Minimization to be applied. High Privacy, Reduced Privacy and Low Privacy.
Pseudonym	SERVICE		Specifies the Pseudonym that is going to be used in the Data Minimization process.
Media Burning Profiles	SERVICE	Patient Medium	It is an extendable list of profiles, which contain a set of following settings: Compressed, Create DICOM Files System, Include Image Viewer on Disc, Image Conversion, Data Minimization, Profile and Pseudonym. Those Profiles are only used by burning data on optical drives.

6.5 Configuration of Real Time Video Service

N/A

6.6 Configuration of Audit Trail - Syslog

Audit Trails can be created locally and remotely. The last one consists of sending the log records to an external server. The remote logging can be switched on or off. This does not affect the local logging behavior.

Table 6.6-1 lists configuration parameters for the Audit Trail Originator.

Table 6.6-1: Audit Trail Collector Parameters

Originator Audit Trail Message Transmission-SYSLOG Parameters			
Parameter	**Configurable**	**Default Value**	**Comments**
Host Name	SERVICE		This is the name of the remote host.
Port	SERVICE	0	
Protocol	SERIVCE	TCP	The possible values are: Secure TCP, TCP and UDP
Certificate Thumbprint	SERVICE		

7 Network and Media Communication Details

7.1 General

The cross interaction between syngo.via AE and remote AEs is depicted in the diagrams below.

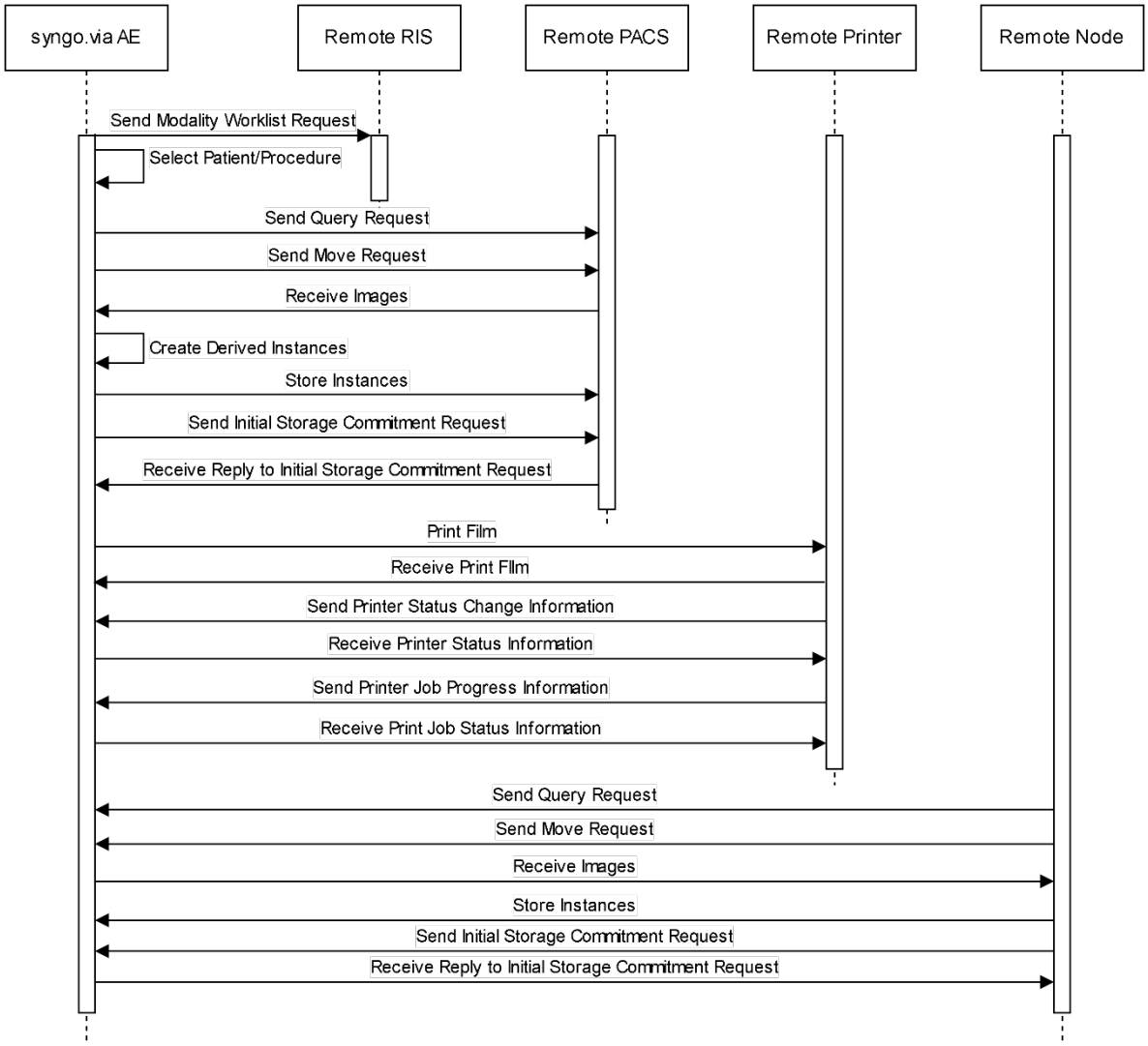


Figure 7.1-1: ***Real-World Activity and Cross AE interaction***

7.1.1 General Association Parameters

Table 7.1-1 lists Association parameters applicable to syngo.via AE.

Table 7.1-1: General Association Parameters

Type	Name	Value
Networking Services	DICOM Application Context Name	1.2.840.10008.3.1.1.1
	Implementation Class UID	1.3.12.2.1107.5.99.3.20080101
	Implementation Version Name	**syngo.via**
	PDU size	Default 32kb
	Maximum PDU Length	512kb
	ARTIM Timeout	30 seconds
	Maximum number of simultaneous Associations as Association Initiator	unlimited[1)]
	Maximum number of simultaneous Associations as Association Acceptor	12[2)]
	Maximum number of outstanding asynchronous Transactions	10[3)]
	Time out for waiting for data between TCP/IP-packets [4)]	5 seconds (Refer Table 6.1-1: General Configuration Parameters for row “TCP/IP Socket Timeout”)
	Time out for accepting/rejecting an association request [4)]	30 seconds (Refer Table 6.1-1: General Configuration Parameter for row “Timeout waiting for acceptance or rejection Response to an Association Open Request. (Association Negotiation Timeout, Application-Level)”)
	Time out for responding to an association open/close request [4)]	30 seconds (Refer Table 6.1-1: General Configuration Parameter for row “Timeout waiting for acceptance or rejection Response to an Association Open Request. (Association Negotiation Timeout, Application-Level)”)
	time-out for accepting a message over network [4)]	30 seconds (Refer Table 6.1-1: General Configuration Parameter for row “General DIMSE level timeout Values”)
	time-outs for waiting for a Service Request/Response message from the remote node (Storage SCP/SCU) [4)]	30 seconds (Refer Table 6.1-1: General Configuration Parameter for row “General DIMSE level timeout Values”)
	time-outs for waiting for a Service Request/Response message from the remote node (Query/Retrieve SCP/SCU) [4)]	30 seconds (Refer Table 6.1-1: General Configuration Parameter for row “General DIMSE level timeout Values”)
	number of image collection before saving to database	20
	time-out for waiting for a C-MOVE-RSP	1200 seconds
	max matches query limit	100
Media Services	File Meta Information Version	0001
	Implementation Class UID	1.3.12.2.1107.5.99.3.20080101
	Implementation Version Name	**syngo.via**

[1)] There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

[2)] The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

[3)] The syngo.via supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP side any size is supported.

[4)] All these configurations are user defined configuration.

7.2 Specifications

7.2.1 syngo.via Application Entity

7.2.1.1 Sequencing of Real-World Activities for syngo.via AE

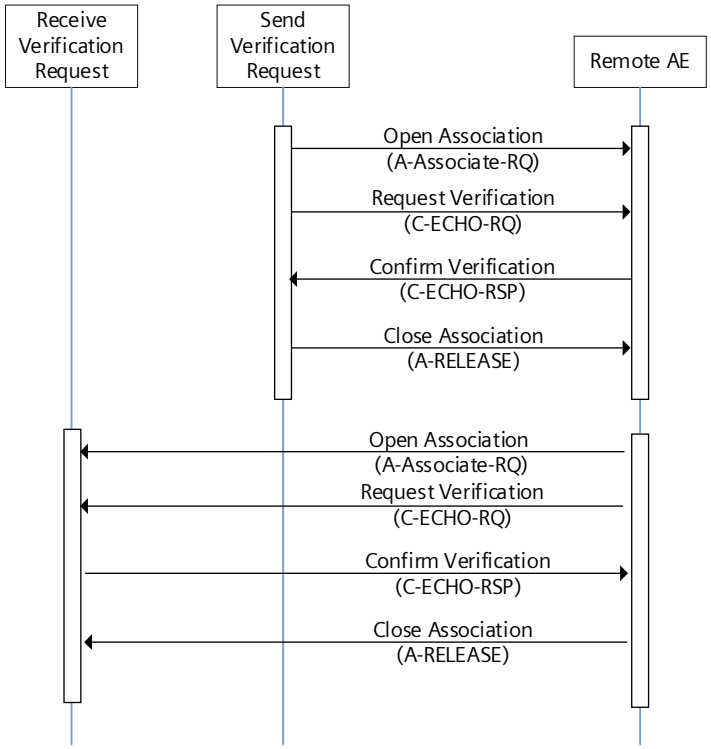


Figure 7.2.1-1: Sequencing of Real-World Activities for syngo.via AE (Common)

Error! Reference source not found. provides sequence of Real-World Activities common for all syngo.via AE activities described below.

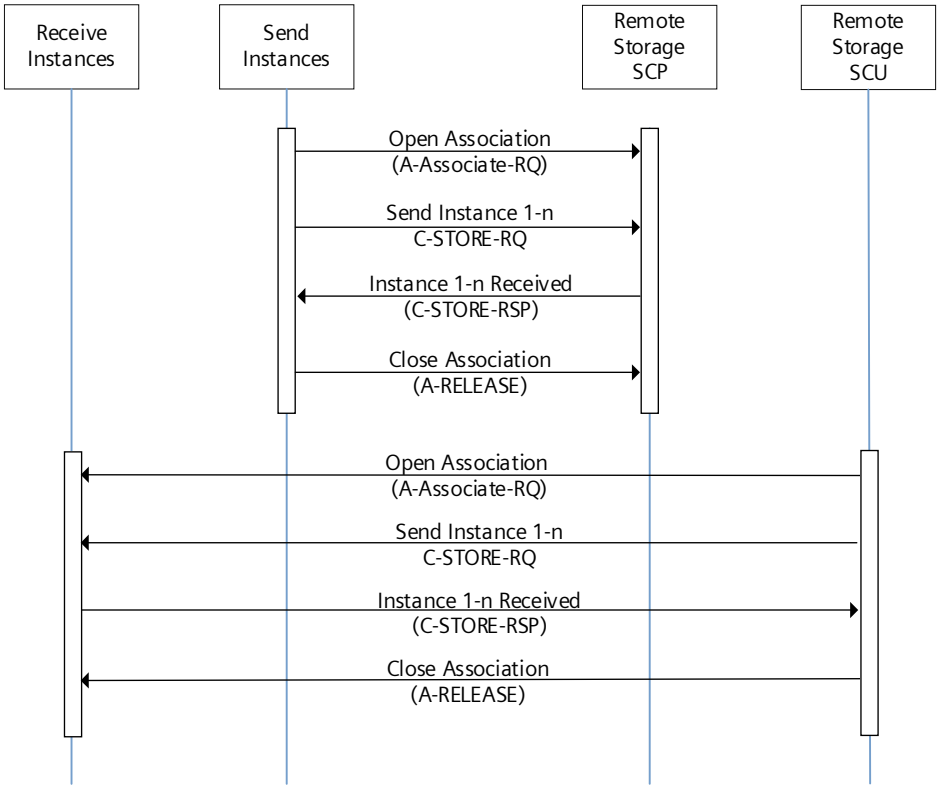


Figure 7.2.1-2: Sequencing of Real-World Activities for syngo.via AE (Storage Activity)

As a SCU, syngo.via starts sending the selected instances after the association has been accepted. After all instances are sent, syngo.via closes the association.

As a SCP, syngo.via starts receiving instances in the negotiated transfer syntax, after the association has been accepted.

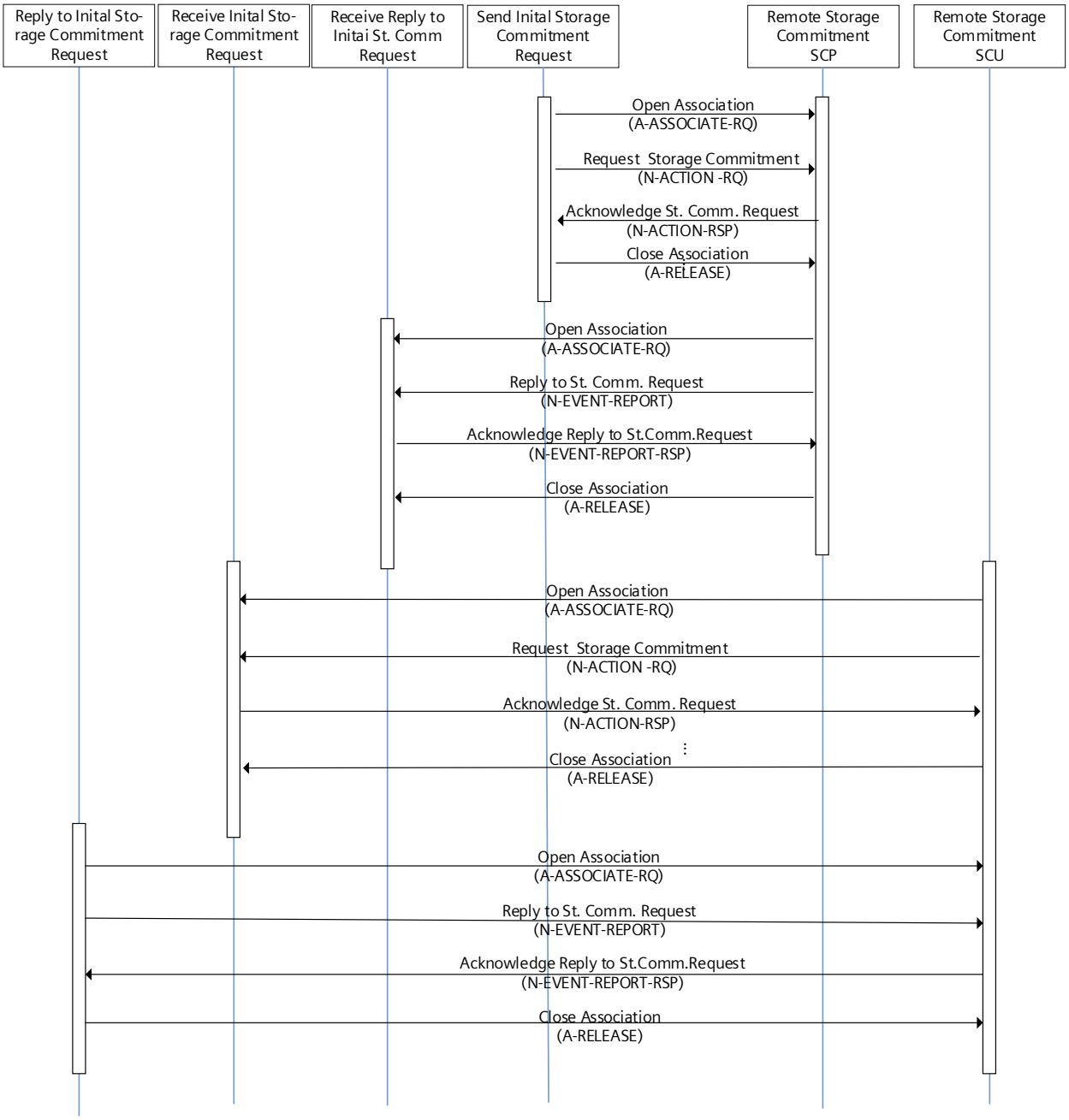
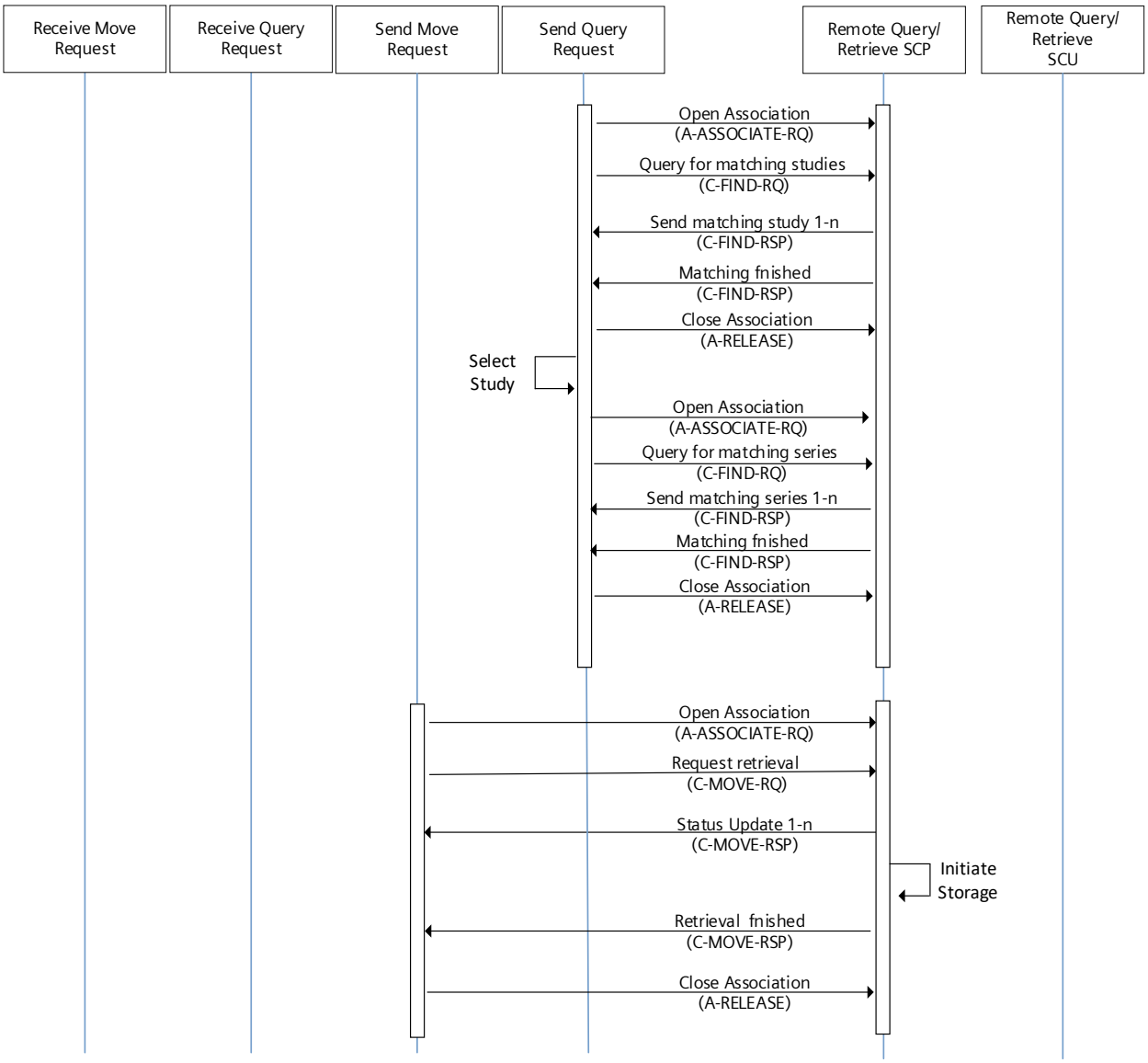


Figure 7.2.1-3: Sequencing of Real-World Activities for syngo.via AE (Storage Commitment Activity)

Every Storage Commitment process starts with sending Imaging Data to a remote DICOM node. If the respective remote DICOM node is configured as Archive (PACS), the sender will ask for Permanent storage request (N-ACTION-RQ). Depending on the Storage Commitment setting for the Remote Node, this can be sent for all instances once (Bundled Call) or for each instance separately. The Remote Node will answer accordingly.

If the request to confirm the long-term storage (N-EVENT-REPORT-RQ) is sent immediately (within 3 seconds) it will be received on the same association. Otherwise, the Remote Storage Commitment SCP must open the Association to send the request.


Receive Move Request
Receive Query Request
Send Move Request
Send Query Request
Remote Query/ Retrieve SCP
Remote Query/ Retrieve SCU
Open Association (A-ASSOCIATE-RQ)
Query for matching studies (C-FIND-RQ)
Send matching study 1-n (C-FIND-RSP)
Matching fnished (C-FIND-RSP)
Close Association (A-RELEASE)
Select Study
Open Association (A-ASSOCIATE-RQ)
Query for matching series (C-FIND-RQ)
Send matching series 1-n (C-FIND-RSP)
Matching fnished (C-FIND-RSP)
Close Association (A-RELEASE)
Open Association (A-ASSOCIATE-RQ)
Request retrieval (C-MOVE-RQ)
Status Update 1-n (C-MOVE-RSP)
Initiate Storage
Retrieval fnished (C-MOVE-RSP)
Close Association (A-RELEASE)

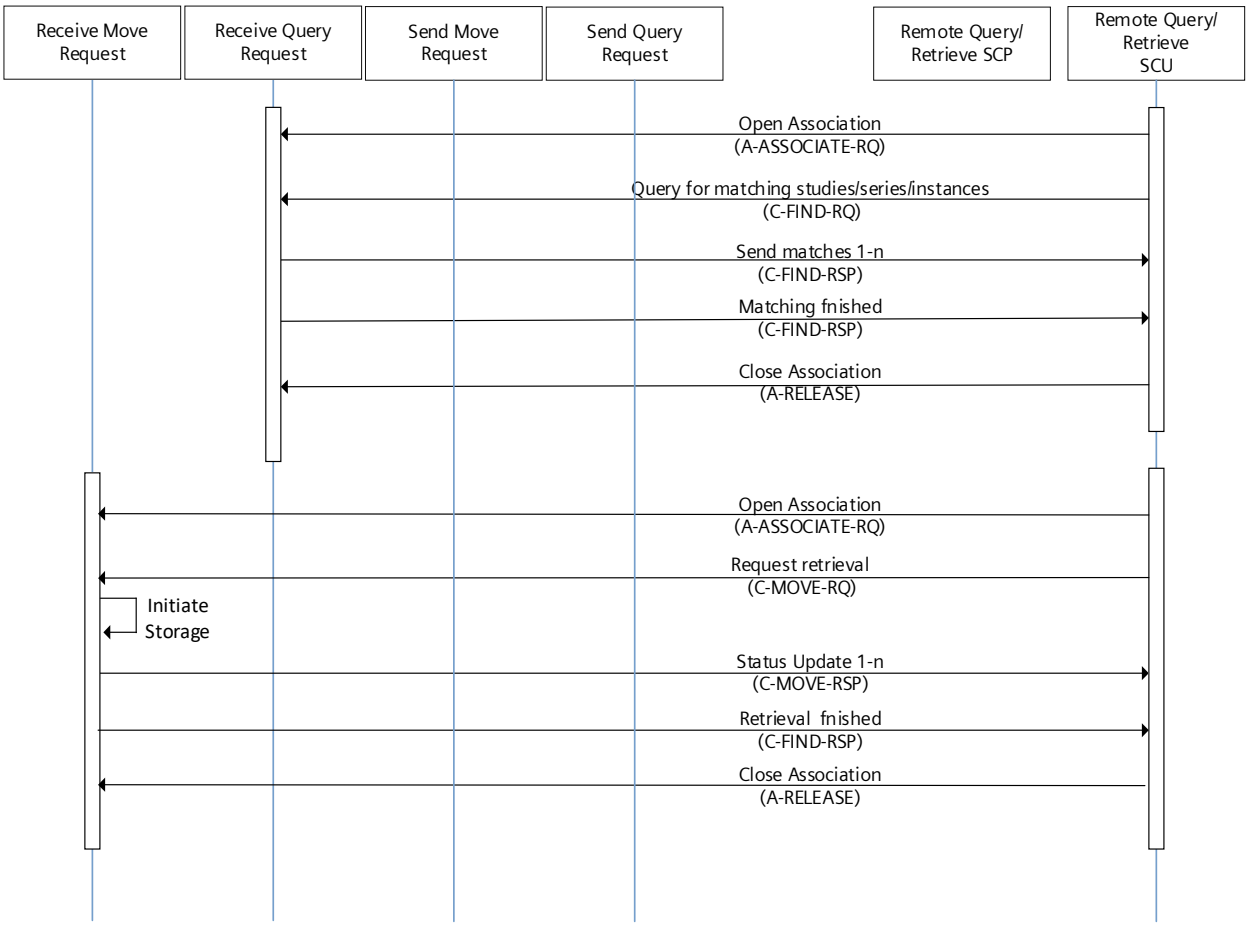


Figure 7.2.1-4: Sequencing of Real-World Activities for syngo.via AE (Query/Retrieve Activity)

As an SCU, the syngo.via opens the association using the negotiated FIND based on configured Q/R Model. SCU sends a C-FIND-RQ including query keys provided by the user and waits for the matches in the C-FIND-RSP. In subsequent associations the system will issue C-FIND-RQ to query further levels.

After the system finalized all queries and closed the association for querying, the user makes his selection for retrieval. The syngo.via opens an association and issues a C-MOVE-RQ. After receiving a final status code, the association is closed. Selecting a series will retrieve its study too.

Receiving the Instances via C-STORE is performed by the Storage Activity (Refer Figure 7.2.1-2)

As an SCP, syngo.via accepts association requests for Study Root, Patient Root, and Patient/Study Only Q/R Models. Upon receiving a C-FIND-RQ it returns matches for the provided keys using the C-FIND-RSP messages. Queries on all Levels (Study, Series, and Instance) are processed and answered. After all matches have been communicated a C-FIND-RSP with a status of SUCCESS is sent.

Upon receiving a C-MOVE-RQ the syngo.via will trigger the Storage Activity to send the requested Instance(s).

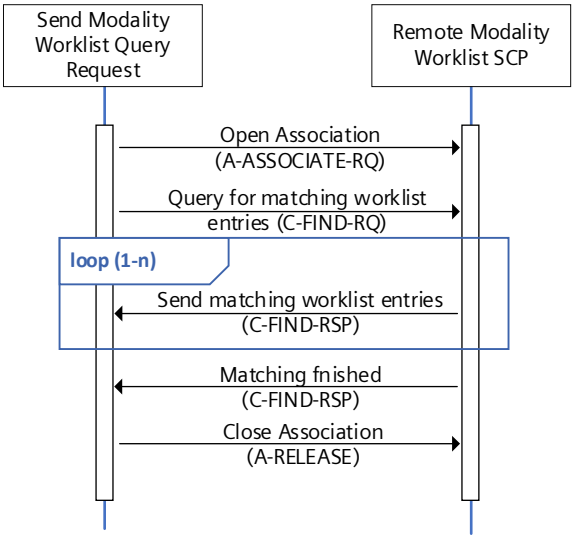


Figure 7.2.1-5: Sequencing of Real-World Activities for syngo.via AE (Modality Worklist Activity)

As a SCU, the syngo.via opens an association for querying the Modality Worklist by issuing C-FIND-RQ. It receives the matching worklist entries in a C-FIND-RSP with a "Pending status." Matching worklist entries will be displayed in the patient browser. Upon receiving final C-FIND-RSP with "Success status" the association is closed.

For every remote DICOM node, the events which shall trigger the sending of the message can be configured (scheduled or unscheduled/locally created). The user can also configure if the syngo.via should send progress notifications or a message on completion.

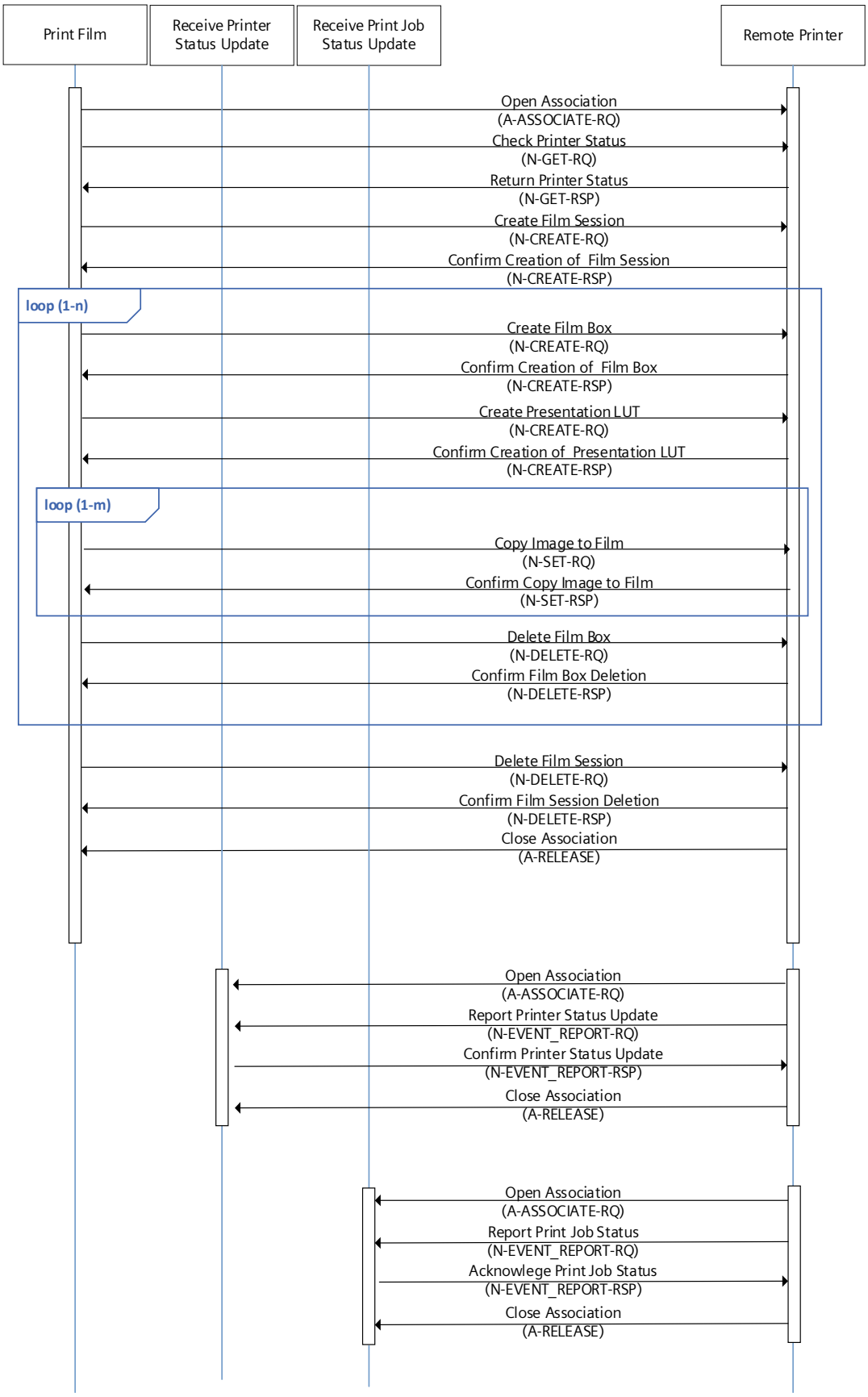


Figure 7.2.1-6: Sequencing of Real-World Activities for syngo.via AE (Print Activity)

As an SCU syngo.via starts the Print Film activity after checking the Printer Status using the N-GET-RQ of the Printer SOP Class. If the printer is alive, a film session will be created using the N-CREATE-RQ of the Basic Film

Box SOP Class. Within the created film session all necessary films will be created using the N-CREATE-RQ of the Basic Film Box SOP Class. Afterwards all images will be copied to the film using the N-SET-RQ of either the Basic Grayscale Image Box or the Basic Color Image Box. It is possible to set a Presentation LUT for each Film using the N-CREATE-RQ of the Presentation LUT SOP Class. After the print job has been finished, all film boxes and the film session will be deleted using the N-DELETE-RQ of the respective SOP Class.

Furthermore syngo.via can asynchronously receive N-EVENT-REPORT- RQs of either the Printer SOP Class or of the Print Job SOP Class in order receive updates about the printer status or a print job status.

7.2.1.2 Association Parameters of syngo.via AE

Association parameters common for all activities of syngo.via AE are documented in Table 7.1-1

7.2.1.3 Association Initiation

Based on the security settings for the Local DICOM Node and the configured remote DICOM nodes, a secure or an unsecure communication channel will be initialized. The connection request will be sent using this channel.

7.2.1.3.1 Real-World Activity “Send Verification Request”

The syngo.via serves as an SCU of the Verification Service Class. A C-ECHO-RQ is initiated by the Administrator Portal whenever "Verification" is requested. If an association to a remote Application Entity is successfully established, Verification with the configured AET is requested via the open association. The C-ECHO-RSP from the remote Application can only indicate a Success-status, according to the DICOM Standard. Thus, on receiving a C-ECHO-RSP in the limits of the Transfer Inactivity Timeout (see Table 6.1-1) from the configured AET, the Verification is regarded as successful.

7.2.1.3.2 Real-World Activity “Store Instances”

The Storage SCU of syngo.via is triggered by the transfer job queue or by an external retrieve request. An Association request is sent to the Remote Storage SCP. One Presentation Context is proposed for each SOP Class/Transfer Syntax combination. For details on the selection of the actual Transfer Syntax among the ones accepted by the Remote Storage SCP, refer to Transfer Syntax Selection Policies below. Upon successful negotiation of a Presentation Context, the transfer is started. If no suitable Presentation Context is found, the Association will be aborted.

If the limit of 128 (as mentioned in the DICOM Standard) is exceeded, multiple Transfer Syntaxes are offered in one Presentation Context.

Transfer Syntax Selection Policies

The syngo.via offers a basic option for Transfer Syntax selection, for favoring uncompressed formats (for low CPU load) or compressed format (for low network load). A certain selection does not lead in a deterministic manner to the usage of a compressed or uncompressed Transfer Syntax, since before every transfer a Presentation Context Syntax Negotiation takes place.

Beside this option it is possible to exclude Transfer Syntaxes for both SCP and SCU site. The exclusion can be a general one (excluding certain Transfer Syntax or Transfer Syntaxes for all SOP Classes) or a specific one (excluding certain Transfer Syntaxes for specific SOP Classes). This can also be configured on the Administration Portal.

The exclusion of Transfer Syntaxes is deterministic. They will not be offered (SCU side) or accepted (SCP side) during the Presentation Context Negotiation.

All the supported Transfer Syntaxes (see Table 1.1-2) can be excluded both generally and for specific SOP Classes. All non-media related SOP Classes from Table 1.1-1 can be used as in the specific Transfer Syntax exclusion.

Using the Transfer Syntax exclusion, all except the requested compression transfer syntax is excluded, to enforce the transfer syntax in case of compressed pixel data. This is a setting, which can be applied to every Remote Node, both on SCU and SCP side.

Implicit VR little endian transfer syntax will be the default transfer syntax and supported for all image transfer.

An instance will be JPEG lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2, RGB, YBR_FULL
- Bits Allocated (0028,0100) equal to '16 or '8'
- Bits Stored (0028,0101) equal to '12' or '8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) – 1
- Pixel Representation (0028,0103) equal to '0'

An instance will be JPEG lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2 or RGB, YBR_FULL, YBR_FULL_422
- Bits Allocated (0028,0100) equal to '16' or '8'
- Bits Stored (0028,0101) equal to '12' or '8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) – 1
- Pixel Representation (0028,0103) equal to '0'
- Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

An instance will be JPEG 2000 lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2, RGB, YBR_FULL or YBR_FULL_422
- Bits Allocated (0028,0100) equal to '16' or '8'

An instance will be RLE lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is MONOCHROME1, MONOCHROME2, RGB, YBR_FULL or RGB
- Bits Allocated (0028,0100) '8' or '16' for MONOCHROME1 and MONOCHROME2, '24' for other interpretations

An instance will be JPEG 2000 lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is MONOCHROME1, MONOCHROME2, YBR_FULL or RGB
- Bits Stored (0028,0101) equal to '12' or '8'Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

An Instance will be JPEG Baseline (Process 1) compressed only if it fulfills the following criteria:

- Is an image
- (0028,0004) Photometric Interpretation value is MONOCHROME1
- (0028,0100) Bits Allocated value is 8
- (0028,0101) Bits Stored value is 8
- (0028,0102) High Bit value is 8
- Only lossy Transfer Syntaxes are supported (Implicit Little Endian is not supported) at the remote side

An Instance will be JPEG Extended (Process 2 & 4) compressed only if it fulfills the following criteria:

- Is an image
- (0028,0004) Photometric Interpretation value is MONOCHROME1
- (0028,0100) Bits Allocated value is 16
- (0028,0101) Bits Stored value is 12
- (0028,0102) High Bit value is 11
- Only lossy Transfer Syntaxes are supported (Implicit Little Endian is not supported) at the remote side

Proposed Presentation Contexts

syngo.via proposes one Presentation Context for each SOP Class/Transfer Syntax combination in the A-ASSOCIATE-RQ. The number of Presentation Contexts in an A-ASSOCIATE-RQ message is limited to 128. If this limit is exceeded, multiple Transfer Syntaxes are offered in one presentation context.

Extended Negotiation

The Extended Negotiation parameters for all services that are requested by the Application Entity for the Real-World Activity "Receive Instances" are described in Table 7.2.1.3.2-1.

Table 7.2-1 Extended Negotiation for Receive Instances of Storage AE - Association Acceptance

SOP Class	Extended Negotiation	Support	Value
Storage			
Applicable to all storage SOP Classes listed under Section 1.1.	Level of storage support	Y	0
	Level of Digital Signature support	Y	0
	Element Coercion	Y	0

7.2.1.3.3 Real-World Activity "Send Initial Storage Commitment Request"

syngo.via serves as an SCU of the Storage Commitment Service Class. After successful transfer of DICOM Instances to a configured archive node, syngo.via initiates a Permanent storage request (N-ACTION-RQ). Storage Commitment is supported for all Storage SOP Classes listed in Table 1.1-1.

Extended Negotiation

There is no extended negotiation for Storage Commitment Push Model SOP Class.

SCP/SCU Role Selection Negotiation

syngo.via supports reverse SCP/SCU Role Selection Negotiation. It can receive the N-EVENT-REPORT-RQ on a different Association or on the same Association, if received within 3 seconds after the N-ACTION-RQ was finalized.

7.2.1.3.4 Real-World Activity "Receive Reply to Initial Storage Commitment Request"

syngo.via has a configurable expiration timeout for the Transaction UID. By default, the Transaction UID expires 60 minutes.

Extended Negotiation

There is no extended negotiation for Storage Commitment Push Model SOP Class.

Transfer Syntax Selection Policies

This Section describes the Transfer Syntax preference when there are multiple Transfer Syntaxes for a SOP class provided by the Association initiator for Real-World Activity "*Receive Reply to Initial Storage Commitment Request* of Storage Commitment AE of the system.

Table 7.2-2 Transfer Syntax Selection Preference Order for the Storage Commitment AE for Receive Reply to Initial Storage Commitment Request

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

SCP/SCU Role Selection Negotiation

syngo.via supports the reverse SCP/SCU Role Selection Negotiation of the Storage Commitment Service Class as the SCU. It accepts an association request and then the incoming N-EVENT-REPORT-RQ, if they do not arrive on the same Association as the N-ACTION-RQ.

7.2.1.3.5 Real-World Activity "Send Query Request"

syngo.via serves as an SCU for the all the supported Q/R Information Model – FIND SOP Class.

Using the attributes specified by the user as Key Attributes (in accordance with the query model) the syngo.via AE initiates a C-FIND-RQ and displays the responses to the user.

The Association remains open until the pre-configured timeout occurs.

syngo.via provides the possibility to configure how the decision about the completeness of the received data is made.

Extended Negotiation

The Extended Negotiation parameters for all services that are supported by the Application Entity for the Real-World Activity "Send Query Request" are described in Table 7.2.1.3.5-3.

Table 7.2-3 Extended Negotiation for Send Query Request of syngo.via AE Association Initiation

SOP Class	Extended Negotiation	Support	Requested Value
Query			
Applicable to all Query Retrieve – FIND SOP Classes mentioned in Section 5.	Relational-queries	Y	1
	Date-Time Matching	Y	1
	Fuzzy semantic matching of person names	Y	1
	Timezone query adjustment	N	
	Enhanced Multi-Frame Image Conversion	N	
	Empty Value Matching	N	
	Multiple Value Matching	N	

SCP/SCU Role Selection Negotiation

N/A

7.2.1.3.6 Real-World Activity " Send Move Request"

syngo.via serves as an SCU for all supported Q/R Information Model – MOVE SOP Class to retrieve imaging objects.

Extended Negotiation

Extended Negotiation is not supported by the Application Entity for the Real-World Activity "Send Move Request".

SCP/SCU Role Selection Negotiation

N/A

7.2.1.3.7 Real-World Activity "Send Modality Worklist Request"

syngo.via initiates a Modality Worklist query either in regular configurable time intervals or when triggered manually by the user.

Extended Negotiation

The Extended Negotiation parameters for all services that are supported by the Application Entity for the Real-World Activity "Send Modality Worklist Request" are described in Table 7.2.1.3.7-4.

Table 7.2-4 Extended Negotiation for Send Modality Worklist Request of the Modality Worklist AE - Association Initiation

SOP Class	Extended Negotiation	Support	Requested Value
Modality Worklist			
Modality Worklist Information Model – FIND	Relational-queries	Y	1
	Date-Time Matching	Y	1
	Fuzzy semantic matching of person names	Y	1
	Timezone query adjustment	N	
	Enhanced Multi-Frame Image Conversion	N	
	Empty Value Matching	N	
	Multiple Value Matching	N	

SCP/SCU Role Selection Negotiation

N/A

7.2.1.3.8 Real-World Activity "Print Film"

Whenever a film-sheet is prepared by the user, it is forwarded to the Printer Job queue. As soon as the associated Printer device is available the job is activated, and an Association is established.

After the film sheet is internally processed, converted to a STANDARD\1,1 layout and the page image is sent to the printer, the status is controlled by awaiting any N-EVENT-REPORT message throughout the transfer until the last image or film-sheet is sent.

If the response from the remote application contains a status other than Success or Warning the printing is stopped and the job status is set to Aborted.

Extended Negotiation

N/A

SCP/SCU Role Selection Negotiation

N/A

7.2.1.3.9 Real-World Activity "Receive Printer Status Update"

The status information received in this way will be forwarded to the Printing Service implementation. If a Print Job is in progress and the received status indicates an error, the current job will be cancelled.

The status information is set for the printer in use. This is visible for the user on the printing GUI.

7.2.1.3.10 Real-World Activity “Receive Printer Job Status Update”

The status information received in this way will be forwarded to the Printing Service implementation.

The status information is set for the current job. This is visible for the user on the printing GUI.

Extended Negotiation

N/A

7.2.1.4 Associaition Acceptance

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

7.2.1.4.1 Real-World Activity “Receive Verification Request”

syngo.via serves as an SCP of the Verification Service Class. If the SCP accepts an Association, it will respond to C-ECHO-RQ. If the Called AE Title does not match any pre-configured AE Title shared by any SCP, the Association will be rejected.

The C-ECHO-RSP always indicates a successful operation.

7.2.1.4.2 Real-World Activity “Receive Instances”

Upon receiving an Instance, syngo.via returns the status “SUCCESS” after a minimal image header validation has been performed.

Note that depending on the system configuration, a status of SUCCESS does not necessarily guarantee that the Instances and header information are stored in the local database.

Accepted Presentation Contexts

When receiving an Association request from a remote node, syngo.via accepts all Presentation Context containing a Transfer Syntax configured for that node. If multiple Transfer Syntaxes are proposed within one Presentation Context, syngo.via selects it based on the configured preference order configured for that node. The preference order is the order of occurrence of the Transfer Syntaxes in the configuration. For each node it is possible to select Transfer Syntaxes, that can be used, and Transfer Syntaxes, that are excluded. The configuration can even be extended, based on the combination of SOP Classes and supported Transfer Syntaxes.

Table 1.1-1 Storage SOP Classes and Table 1.1-2 Supported Transfer Syntaxes lists all Transfer Syntaxes that are supported for the SOP Instances.

Generally, all Presentation Contexts are accepted if they contain at least one suitable Transfer Syntax. All other Presentation Contexts are rejected.

Extended Negotiation

The Extended Negotiation parameters for all services that are requested by the Application Entity for the Real-World Activity "Receive Instances" are described in Table 7.2.1.4-1 Extended Negotiation for Receive Instances of syngo.via AE - Association Acceptance.

Table 7.2-5 Extended Negotiation for Receive Instances of syngo.via AE - Association Acceptance

SOP Class	Extended Negotiation	Support	Value
Storage			
Applicable to all storage SOP Classes listed under Section 1.1.	Level of storage support	Y	2
	Level of Digital Signature support	Y	0
	Element Coercion	Y	2

7.2.1.4.3 Real-World Activity "Receive Initial Storage Commitment Request "

When receiving an initial Storage Commitment request (N-ACTION-RQ) syngo.via will accept it with an N-ACTION-RSP and trigger a check in the database for the instances to be stored permanently.

Information about success or failure of Storage Commitment will be signaled via the N-EVENT-REPORT primitive on a different Association.

The Remote Storage Commitment SCU is responsible for creating a unique Transaction UID. The AE will not check whether the UID is already in use or not.

Extended Negotiation

There is no extended negotiation for Storage Commitment Push Model SOP Class.

Transfer Syntax Selection Policies

This Section describes the Transfer Syntax preference when there are multiple Transfer Syntaxes for a SOP class provided by the Association initiator for Real-World Activity "Receive Initial Storage Commitment Request" of the Storage Commitment AE of the system.

The order presented in Table 7.2.1.4-2 Transfer Syntax Selection Preference Order for syngo.via AE – Receive Initial Storage Commitment Request is pre-defined.

Table 7.2-6 Transfer Syntax Selection Preference Order for syngo.via AE – Receive Initial Storage Commitment Request

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

7.2.1.4.4 Real-World Activity "Receive Reply to Initial Storage Commitment Request"

syngo.via has a configurable expiration timeout for the Transaction UID. By default, the Transaction UID expires 60 minutes.

Extended Negotiation

There is no extended negotiation for Storage Commitment Push Model SOP Class.

Transfer Syntax Selection Policies

This Section describes the Transfer Syntax preference when there are multiple Transfer Syntaxes for a SOP class provided by the Association initiator for Real-World Activity "*Receive Reply to Initial Storage Commitment Request* of Storage Commitment AE of the system.

Table 7.2-7 Transfer Syntax Selection Preference Order for syngo.via AE - Receive Reply to Initial Storage Commitment Request

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

SCP/SCU Role Selection Negotiation

syngo.via supports the reverse SCP/SCU Role Selection Negotiation of the Storage Commitment Service Class as the SCU. It accepts an association request and then the incoming N-EVENT-REPORT-RQ, if they do not arrive on the same Association as the N-ACTION-RQ.

7.2.1.4.5 Real-World Activity "Receive Query Request"

syngo.via serves as an SCP for the Study Root, Patient Root and Patient Study/Only Q/R Information Model – FIND SOP Classes.

Using the attributes specified by the user as Query Keys (in accordance with the query model) the SCP of the syngo.via AE accepts a C-FIND-RQ and provides the responses for the requesting node.

Extended Negotiation

The Extended Negotiation parameters for all services that are requested by the Application Entity for the Real-World Activity "Receive Query Request" are described in Table 7.2.1.4-4 Extended Negotiation of syngo.via AE - Receive Query Request .

Table 7.2-8 Extended Negotiation of syngo.via AE - Receive Query Request

SOP Class	Extended Negotiation	Support	Requested Value
Query			
Applicable to all Query Retrieve – FIND SOP Classes mentioned in Section 5.	Relational-queries	Y	1
	Date-Time Matching	Y	1
	Fuzzy semantic matching of person names	Y	1
	Timezone query adjustment	N	
	Enhanced Multi-Frame Image Conversion	N	
	Empty Value Matching	N	
	Multiple Value Matching	N	

Transfer Syntax Selection Policies

This Section describes the Transfer Syntax preference when there are multiple Transfer Syntaxes for a SOP class provided by the Association initiator for Real-World Activity "Receive Query Request" of the system.

Table 7.2-9 Transfer Syntax Selection Preference of syngo.via AE - Receive Query Request

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

SCP/SCU Role Selection Negotiation

N/A

7.2.1.4.6 Real-World Activity "Receive Move Request"

syngo.via serves as an SCP for the SOP Class Patient RootA, Study Root and Patient/Study only Q/R Information Model – MOVE SOP Class.

The C-MOVE-RQ is used to retrieve the selected imaging objects. The syngo.via AE supports the query model.s Patient, Study Root and Patient/Study only Q/R Information Model

Extended Negotiation

Extended Negotiation parameters for the Real-World Activity "Receive Move Request" are not supported.

Transfer Syntax Selection Policies

This Section describes the Transfer Syntax preference when there are multiple Transfer Syntaxes for a SOP class provided by the Association initiator for Real-World Activity "Receive Move Request" of the system.

Table 7.2-10 Transfer Syntax Selection Preference Order of syngo.via AE – Non-Image SOP Classes

Preference Order	Transfer Syntax	UID	Comments
1	Explicit VR Little Endian	1.2.840.10008.1.2.1	
2	Implicit VR Little Endian	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

SCP/SCU Role Selection Negotiation

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 respectively 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 7.3-1 describes behavior of the AE when a communication failure occurs when it initiated an Association.

Table 7.3-1:DICOM Communication Failure Behavior as Association Initiator

Failure	Failure Behavior
Timeout	The command is marked as failed. The reason is logged and reported to the user.
Association aborted	The command is marked as failed. The reason is logged and reported to the user.
Network Disconnect	The command is marked as failed. The reason is logged and reported to the user.

7.3.1.2 Communication Failure Handling as Association Acceptor

Table 7.3-2 describes how the AE responds when it receives an Association request that leads to failure in communication.

Table 7.3-2: DICOM Communication Failure Handling as Association Acceptor

Exception	Failure response
Failure during processing of Association request	The command is marked as failed. The reason is logged and reported to the user.
Unrecognized Called AE	AE responds with A-ASSOCIATE reject (Calling AE title is not recognized, Reason Code 03) It is possible to configure the syngo.via in such a way, that all AE Titles are accepted. Is this mode set, the association requests of all AE Titles are accepted.
Exceed limit for number of connections supported	AE responds with A-ASSOCIATE reject (Temporary congestion, Reason Code 01)

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 7.3-3 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 7.3-3: Status Codes for C-FIND of the Modality Worklist Information Model SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Matching is complete - No final identifier is supplied	0000	The success is reported.
Failure	Refused: Out of Resources	A700	The issue is logged, the user is notified, and the association is closed.
	Error: Identifier does not match SOP Class	A900	
	Error: Unable to process	C000-CFFF	
Cancel	Matching terminated due to cancel	FE00	The association is closed.
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The receiver waits for further data.
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier (no optional key support)	FF01	
Any other status code, not mentioned above.			The issue is logged, the user is notified, and the association is closed.

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

N/A

7.3.2.2 Modality Performed Procedure Step Service

N/A[1]

7.3.2.3 Unified Worklist und Procedure Step Service

N/A

7.3.2.4 Instance Availability Notification Service

N/A

1

7.3.2.5 Storage Service

7.3.2.5.1 SCU of the Storage SOP Classes - C-STORE

Table 7.3-7 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 7.3-4: Status Codes C-STORE for the Storage SOP Classes - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The success is reported.
Warning	Coercion of Data Elements	B000	The issue is logged, and the user gets notified about the Status.
	Data Set does not match SOP Class	B007	
	Elements Discarded	B006	
	Attribute list error	107	
	Attribute value out of range	116	
Failure	SOP Class not supported	0112	The issue is logged, and the user gets notified about the Status and association is closed
	Invalid Object Instance	0117	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Not authorized	0214	
	Out of Resources	A700-A7FF	
	Data Set does not match SOP Class	A900-A9FF	
	Cannot Understand	C000-CFFF	
	Processing failure	110	
	Duplicate instance	111	
	Invalid Data Set	122	
Any other status code, not mentioned above.			

7.3.2.5.2 SCP of the Storage SOP Classes - C-STORE

Table 7.3-8 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 7.3-5: Status Codes C-STORE of the Storage SOP Classes - SCP

Status Class	Further Meaning	Status Codes	Related Fields	Condition (and Comments on Related fields)
Success	Success	0000		The success is reported.
Error	Processing failure	0110		This DIMSE CODE is sent for every issue by storing and processing the received data.

7.3.2.6 Storage Commitment Service

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

Table 7.3-9 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 7.3-6: Status Codes for N-ACTION of the Storage Commitment Push Model SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success		0000	The success is reported.
Failure	Processing failure	0110	If any error code is received, Processing failure (0110) is reported. The instance the error was reported for, will not be considered as completely archived.
	No such SOP Instance	0112	
	No such argument	0114	
	Invalid argument Value	0115	
	Invalid Object instance	0117	
	No such SOP Class	0118	
	Class-instance conflict	0119	
	No such action	0123	
	Refused: Not Authorized	0124	
	Duplicate invocation	0210	
	Unrecognized operation	0211	
	Mistyped argument	0212	
	Resource limitation	0213	
Any other status code not mentioned above			

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

A Reverse Role Negotiation takes place here. The SCU initiating the Storage Commitment will function as an SCP for the N-EVENT-REPORT-RQ message after the N-ACTION-RQ message is sent to the PACS node. So, the sender of N-ACTION-RQ acts as an SCP by waiting for the Storage Commitment response in form of an N-EVENT-REPORT-RQ, which will be sent by the PACS in a new association initiated by the PACS.

Table 7.3-10 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 7.3-7: Status Codes for N-EVENT-REPORT for the Storage Commitment Push Model SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success		0000	The success is reported.
Failure	Processing failure	0110	If any error code is received, Processing failure (0110) is reported. The instance the error was reported for, will not be considered as completely archived by the initiator of the Storage Commitment.
	No such SOP Instance	0112	
	No such argument	0114	
	Invalid argument Value	0115	
	Invalid Object instance	0117	
	No such SOP Class	0118	
	Class-instance conflict	0119	
	No such action	0123	

Status Class	Further Meaning	Status Code	Behavior
	Refused: Not Authorized	0124	
	Duplicate invocation	0210	
	Unrecognized operation	0211	
	Mistyped argument	0212	
Any other status code not mentioned above			

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

Table 7.3-11 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 7.3-8: Status Codes for N-ACTION for the Storage Commitment Push Model SOP Class - SCP

Status Class	Further Meaning	Status Code	Condition
Success		0000	In case all the items sent could be processed properly, Success (0000) is sent to the SCU.
Failure	Processing failure	0110	In case of any issue, Processing failure (0110) is sent to the SCU.

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

A Reverse Role Negotiation takes place here. The SCU initiating the Storage Commitment will function as an SCP for the N-EVENT-REPORT-RQ message after the N-ACTION-RQ message is sent to the PACS node. So, the sender of N-ACTION-RQ acts as an SCP by waiting for the Storage Commitment response in form of an N-EVENT-REPORT-RQ, which will be sent by the PACS in a new association initiated by the PACS.

Table 7.3-12 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 7.3-9: Status Codes for N-EVENT-REPORT for the Storage Commitment Push Model SOP Class - SCP

Status Class	Further Meaning	Status Code	Condition
Success		0000	In case all the items sent could be processed properly, Success (0000) is sent to the SCU.
Failure	Processing failure	0110	In case of any issue, Processing failure (0110) is sent to the SCU. The instance the error was reported for, will not be considered as completely archived by the initiator of the Storage Commitment.
	No such SOP Instance	0112	
	No such event type	0113	
	No such argument	0114	
	Invalid argument Value	0115	
	Invalid Object Instance	0117	
	No such SOP Class	0118	
	Class-instance conflict	0119	
	Duplicate invocation	0210	
	Unrecognized operation	0211	
	Mistyped argument	0212	
	Resource limitation	0213	

Status Class	Further Meaning	Status Code	Condition
Any other status code not mentioned above			

7.3.2.7 Query/Retrieve Service

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

Table 7.3-13 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 7.3-10: Status Codes C-FIND for Query/Retrieve FIND SOP Classes - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Matching is complete - No final identifier is supplied	0000	The success is reported, and the association is closed
Failure	Refused: Out of Resources	A700	The error code is logged and reported to the user. The association is closed.
	Error: Identifier does not match SOP Class	A900	
	Error: Unable to process	C000-CFFF	
	SOP Class Not Supported	0122	
Cancel	Matching terminated due to cancel	FE00	The association is closed.
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	These messages are not forwarded to the user.
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier	FF01	
Any other status code not mentioned above			The error code is logged and reported to the user. The association is closed

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

Table 7.3-14 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 7.3-11: Status Codes C-MOVE for Query/Retrieve MOVE SOP Classes – SCU

Status Class	Further Meaning	Status Codes	Related Fields	Behavior
Success	Sub-operations Complete – No Failures	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	The success is reported.
Warning	Sub-operations Complete – One or more Failures	B000	(0000,1020) (0000,1022) (0000,1023)	The issue is reported to the user and logged.

Status Class	Further Meaning	Status Codes	Related Fields	Behavior
Failed	Out of Resources – Unable to calculate number of matches	A701	(0000,0902)	The issue is reported to the user and logged. The association is closed.
	Out of Resources – Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	
	Move Destination unknown	A801	(0000,0902)	
	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	
	Unable to process	C000-CFFF	(0000,0901) (0000,0902)	
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	The association is closed.
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	No error is reported.
Any other status code not mentioned above				The issue is reported to the user and logged. The association is closed.

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

Table 7.3-15 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 7.3-12: Status Codes C-FIND for Query/Retrieve FIND SOP Classes - SCP

Status Class	Further Meaning	Status Code	Condition
Success	Matching is complete - No final identifier is supplied	0000	The success answer is sent, and the association is closed.
Failure	Refused: Out of Resources	A700	The issue is reported to the user and logged. The association is closed.
	Error: Identifier does not match SOP Class	A900	
	Error: Unable to process	C000	
	SOP Class Not Supported	0122	
Cancel	Matching terminated due to cancel	FE00	The association is closed.

Status Class	Further Meaning	Status Code	Condition
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	No error is reported.
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence for this Identifier	FF01	

Any non-success Status Code that appears is reported to the SCU and the association is closed.

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

Table 7.3-16 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 7.3-13: Status Codes C-MOVE for Query/Retrieve MOVE SOP Classes - SCP

Status Class	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	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	No issue occurred.	The Success Code is sent to the calling SCU.
Warning	Sub-operations Complete - One or more Failures	B000	(0000,1020) (0000,1022) (0000,1023)	If no matches were found	The DIMSE code is sent to the calling SCU.
Failed	Out of Resources - Unable to calculate number of matches	A701	(0000,0902)	The C-STORE operation failed.	The issue is reported to the user and logged. The association is closed.
	Out of Resources - Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	The chunking of the data to be send failed.	The issue is reported to the user and logged. The association is closed.
	Move Destination unknown	A801	(0000,0902)	The initialization of the C-STORE operation failed	The issue is reported to the user and logged. The association is closed.
	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	The extraction of the Query information from C-MOVE RQ data set failed.	The issue is reported to the user and logged. The association is closed.

Status Class	Further Meaning	Status Codes	Related Fields sent in the response	Condition	Action on the Store due the condition.
	Unable to process	C000	(0000,0901) (0000,0902)	Merging the data chunk failed. Transfer Syntax resolving failed. Resolving transfer syntaxes from the Presentation Context failed. The conversion of C-MOVE-RQ stream to data set failed. Context folder creation failed. Move Response Sender update failed. Instance check out failed. C-MOVE response sequencing failed. Context folder could not be deleted.	The issue is reported to the user and logged. The association is closed.
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)		The confirmation is sent to the calling SCU with Status Code CMovePendingMoreSubOperations (FF00)

7.3.2.8 Print Management Service

The DIMSE Codes received in the responses for Print Management related N-CREATE, N-SET and N-DELETE are all managed in the same way. They are forwarded to the user if:

- the DIMSE Code points to a failure or
- the DIMSE Code points to a warning.

Every DIMSE Code received in the response to an N-ACTION message is forwarded to the user.

The DICOM Module does not manage any of the DIMSE Codes.

7.3.2.8.1 SCU of the Basic Film Session SOP Class

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

Table 7.3-17 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 7.3-14: Status Codes for N-CREATE of the Basic Film Session SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The success code received in N-CREATE RSP is neither managed, nor forwarded to the user.

Status Class	Further Meaning	Status Code	Behavior
Warning	Attribute List Error	0107	The warnings received in the N-CREATE RSP are neither managed, nor forwarded to the user.
	Attribute Value Out of Range	0116	
	Memory allocation not supported	B600	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Missing Attribute	0120	
	Missing Attribute Value	0121	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Basic Film Session SOP Class - N-SET

Table 7.3-18 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-15: Status Codes for N-SET of the Basic Film Session SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Attribute Value Out of Range	0116	
	Memory allocation not supported	B600	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	No such SOP Instance	0112	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Missing Attribute	0120	
	Missing Attribute Value	0121	

Status Class	Further Meaning	Status Code	Behavior
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Basic Film Session SOP Class - N-DELETE

Table 7.3-19 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-DELETE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-16: Status Codes for N-DELETE of the Basic Film Session SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed The user is informed in the Job Viewer and the issue is logged.
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Basic Film Session SOP Class - N-ACTION

Table 7.3-20 lists the Status Codes that the SCU of the Basic Film Session SOP Class supports for the N-ACTION message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-17: Status Codes for N-Action of the Basic Film Session SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Film belonging to the film session are accepted for printing; if supported, the Print Job SOP Instance is created	0000	The Success is logged and displayed in the Job Viewer.
Warning	Film session printing (collation) is not supported	B601	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Film Session SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B602	
	Image size is larger than image box size, the image has been demagnified.	B604	

Status Class	Further Meaning	Status Code	Behavior
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	
Failure	Processing failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No such SOP Instance	0112	
	No Such Argument	0114	
	Invalid argument Value	0115	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	No Such Action	0123	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	Failed: Film Session SOP Instance hierarchy does not contain Film Box SOP Instances	C600	
	Failed: Unable to create Print Job SOP Instance; print queue is full	C601	
	Failed: Image size is larger than image box size	C603	
	Failed: Combined Print Image size is larger than the Image Box size	C613	
Any other Status Code not mentioned above			

7.3.2.8.2 SCU of the Basic Box Session SOP Class

SCU of the Basic Box Session SOP Class - N-CREATE

Table 7.3-17 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-18: Status Codes for N-CREATE of the Basic Film Box SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Attribute Value Out of Range	0116	
	Requested Min Density or Max Density outside of printer's operating range	B605	

Status Class	Further Meaning	Status Code	Behavior
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Missing Attribute	0120	
	Missing Attribute Value	0121	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed	C616	
Any other Status Code not mentioned above			

SCU of the Basic Box Session SOP Class - N-SET

Table 7.3-22 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-19: Status Codes for N-SET of the Basic Film Box SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Attribute Value Out of Range	0116	
	Requested Min Density or Max Density outside of printer's operating range	B605	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Missing Attribute	0120	
	Missing Attribute Value	0121	

Status Class	Further Meaning	Status Code	Behavior
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed	C616	
Any other Status Code not mentioned above			

SCU of the Basic Box Session SOP Class - N-DELETE

Table 7.3-23 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-DELETE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-20: Status Codes for N-DELETE of the Basic Film Box SOP Class - SCU

Status class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Basic Box Session SOP Class - N-ACTION

Table 7.3-24 lists the Status Codes that the SCU of the Basic Film Box SOP Class supports for the N-ACTION message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-21: Status Codes for N-ACTION of the Basic Film Box SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603	Warnings received is logged and displayed in the Job Viewer.

Status Class	Further Meaning	Status Code	Behavior
	Image size is larger than Image Box size. The image has been demagnified.	B604	Warnings do not lead to Job Cancellations.
	Image size is larger than Image Box size. The image has been cropped to fit.	B609	
	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	
Failure	Processing failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No such SOP Instance	0112	
	No Such Argument	0114	
	Invalid Argument Value	0115	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	No Such Action	0123	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	Unable to create Print Job SOP Instance; print queue is full.	C602	
	Image size is larger than Image Box size.	C603	
	Combined Print Image Size is larger than Image Box size.	C613	
Any other Status Code not mentioned above			

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

Table 7.3-25 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 7.3-22: Status Codes for N-SET of the Grayscale Image Box SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Requested Min Density or Max Density outside of printer's operating range.	B605	

Status Class	Further Meaning	Status Code	Behavior
	Image size is larger than Image Box size. The image has been cropped to fit.	B609	
	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	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Missing Attribute	0120	
	Missing Attribute Value	0121	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	Image size is larger than Image Box size.	C603	
	Insufficient memory in printer to store the image.	C605	
	Combined Print Image Size is larger than Image Box size.	C613	
Any other Status Code not mentioned above			

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

Table 7.3-23 lists the Status Codes that the SCU of the Basic Color Image Box SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-23: Status Codes for N-SET of the Color Image Box SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Image size is larger than Image Box size. The image has been cropped to fit.	B609	

Status Class	Further Meaning	Status Code	Behavior
	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	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Missing Attribute	0120	
	Missing Attribute Value	0121	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
	Image size is larger than Image Box size.	C603	
	Insufficient memory in printer to store the image.	C605	
	Combined Print Image Size is larger than Image Box size.	C613	
Any other Status Code not mentioned above			

7.3.2.8.5 SCU of the Printer SOP Class

SCU of the Printer SOP Class - N-EVENT-REPORT

Table 7.3-24 lists the Status Codes that the SCU of Printer SOP Class supports for the N-EVENT-REPORT message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-24: Status Codes for N-EVENT-REPORT of the Printer SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No Such SOP Instance	0112	
	No Such Event Type	0113	
	No Such Argument	0114	
	Invalid Argument Value	0115	

Status Class	Further Meaning	Status Code	Behavior
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Printer SOP Class - N-GET

Table 7.3-25 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 7.3-25: Status Codes for N-GET of the Printer SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No Such SOP Instance	0112	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

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

Table 7.3-26 lists the Status Codes that the SCU of the Basic Annotation Box SOP Class supports for the N-SET message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-26: Status Codes for N-SET of the Basic Annotation Box SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.

Status Class	Further Meaning	Status Code	Behavior
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No Such SOP Instance	0112	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

7.3.2.8.7 SCU of the Print Job SOP Class

SCU of the Print Job SOP Class - N-EVENT-REPORT

Table 7.3-27 lists the Status Codes that the SCU of the Print Job SOP Class supports for the N-EVENT-REPORT message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-27: Status Codes N-EVENT-REPORT of the Print Job SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No Such SOP Instance	0112	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Print Job SOP Class - N-GET

Table 7.3-28 lists the Status Codes that the SCU of Print Job SOP Class supports for the N-GET message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-28: Status Codes for N-GET of the Print Job SOP Class – SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	No Such SOP Instance	0112	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class-Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

7.3.2.8.8 SCU of the Presentation LUT SOP Class

`Table 7.3-29 lists the Status Codes that the SCU of the Presentation LUT SOP Class supports for the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-29: Status Codes N-CREATE of the Presentation LUTSOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Warning	Attribute List Error	0107	Warnings received is logged and displayed in the Job Viewer. Warnings do not lead to Job Cancellations.
	Attribute Value Out of Range	0116	
	Requested Min Density or Max Density outside of printer's operating range	B605	
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Attribute Value	0106	
	Processing Failure	0110	
	Duplicate SOP Instance	0111	
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Missing Attribute	0120	
	Missing Attribute Value	0121	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	

Status Class	Further Meaning	Status Code	Behavior
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

SCU of the Presentation LUT SOP Class - N-DELETE

Table 7.3-33 lists the Status Codes that the SCU of the Presentation LUT SOP Class supports for the N-DELETE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-30: Status Codes for N-DELETE of the Presentation LUT SOP Class - SCU

Status class	Further Meaning	Status Code	Behavior
Success	Success	0000	The Success is logged and displayed in the Job Viewer.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The association is closed. The user is informed in the Job Viewer and the issue is logged.
	Invalid Object Instance	0117	
	No Such SOP Class	0118	
	Class Instance Conflict	0119	
	Refused: Not Authorized	0124	
	Duplicate Invocation	0210	
	Unrecognized Operation	0211	
	Mistyped Argument	0212	
	Resource Limitation	0213	
Any other Status Code not mentioned above			

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

N/A

7.3.2.8.10 SCP of the Basic Film Session SOP Class

Print SCP is not supported.

7.3.2.8.11 SCP of the Basic Film Box SOP Class

Print SCP is not supported.

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

Print SCP is not supported.

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

Print SCP is not supported.

7.3.2.8.14 SCP of the Printer SOP Class

Print SCP is not supported.

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

Print SCP is not supported.

7.3.2.8.16 SCP of the Print Job SOP Class

Print SCP is not supported.

7.3.2.8.17 SCP of the Presentation LUT SOP Class

Print SCP is not supported.

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

Print SCP is not supported.

7.3.3 DICOM Web Services

N/A

8 Security

8.1 Introduction

The security section describes security features implemented by this product. It includes description of non-DICOM network protocols, information to configure firewalls and application whitelists, list 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 8.2-1 describes additional non-DICOM network protocols that are used by syngo.via.

Table 8.2-1: External Network Requirements

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
Application Configuration Management	LDAP Server	Query LDAP Server	LDAP	RFC2251	N	Table C.1.3-1
		Update LDAP Server	LDAP	RFC2251	N	Table C.1.3-1
		Maintain LDAP Server	LDAP	RFC2849	N	Table C.1.3-1
	LDAP Client	Find LDAP Server	LDAP	RFC2181; RFC2219; RFC2782	Y	Table C.1.3-1
		Query LDAP Server	LDAP	RFC2251	Y	Table C.1.3-1
		Update LDAP Server	LDAP	RFC2251	Y	Table C.1.3-1
DNS Service Discovery	DNS Server	Find DICOM Service	DNS	RFC2136; RFC2181; RFC2219; RFC2782; RFC6762; RFC6763; RFC8553;	N	C.1.4
	DNS Client	Find DICOM Service	DNS	RFC2136; RFC2181; RFC2219; RFC2782; RFC6762; RFC6763; RFC8553;	Y	C.1.4

Please do note, that the supported profiles (DNS and LDAP) are all supported using the APIs of the Operation System.

8.3 TCP Port Configuration

See Section 6 Configuration for information on DICOM and other protocol Port usage. This section contains helpful information for product administrators to configure firewall, application whitelist, etc.

Firewall rules (inbound and outbound) for the standard DICOM ports 104 and 2762 for secure communication are set up automatically on installation. If any other port is used, the rules must be updated accordingly. The port numbers can be changed in the Administration Portal.

8.4 DICOM Security Profiles Support

8.4.1 Secure Use and User Identity Profiles

N/A.

8.4.2 Secure Transport Connection Profiles

Table 8.4-1 describes the Secure Transport Connection Profiles supported by the product. Accepted cipher suites are described in the section listed in the “Reference” column.

Table 8.4-1: Secure Transport Connection Profiles

Profile	Secured AE	Sender	Receiver	Reference
BCP195 TLS Secure Transport Connection	ALL *	Y	Y	C.2.5
Extended BCP195 TLS Secure Transport Connection	NONE	N	N	C.2.5

* The secured communication is configurable for the Local DICOM Remote node and every remote DICOM node separately.

Please do note, that in case a secure connection is established, the Operation System does not provide any technical possibility to actively select or specify in any way a certain Cipher Suite. Since syngo.via is always provided together with the Operation System Microsoft Windows, the selection of the Cipher Suite happens automatically, based on the TLS Version used.

8.4.3 Media Storage Security Profiles

N/A.

8.4.4 Attribute Confidentiality Profiles

De-Identification, as specified in the DICOM Standard, is not supported by syngo.via. As an alternative the syngo.via provides a Data Minimization feature, which can only be used in Media Export operations.

Data Minimization (see Chapter 8.8) has three profiles: High Privacy, Reduced Privacy and Low Privacy.

Tags, that are not mentioned in the configuration for the Data Minimization profiles (explicitly or using a wildcard-type matching) will be ignored.

See section C.2.6 for implementation details.

8.4.5 Digital Signature Profiles

N/A

8.4.6 Additional DICOM Security Profiles

N/A

8.5 User Identity Negotiation Support

N/A

8.6 Web Services Security Features

N/A

8.7 Other Security Features

N/A

8.8 Data Minimization

The syngo.via application can minimize the data exported to Media. Here minimization refers to removal of patient identification data so that the data can be used for external processing. Three different levels of data minimization are supported:

- High Privacy
- Reduced Privacy
- Low Privacy

The user needs to select the appropriate data minimization level during export.

Managing public attributes during data minimization:

- Attributes listed in Table 8.8-1 will be affected by the data minimization as specified for the different levels. Attributes not listed in the table are not PII / PHI relevant and will not be affected by the data minimization. The list of the Tags affected by the above-mentioned Profiles can be modified through a configuration file by the Service User. Tags can be identified explicitly using the full Tag Number or using a wildcard-type pattern.

Managing private attributes during data minimization:

- High Privacy: private attributes are not included.
- Reduced Privacy: private attributes are not included except for the Tags excluded from the Data Minimization (see Table 8.8-2). Tags excluded from the Data Minimization will appear in the resulting Data Set.
- Low Privacy: all private attributes are included except for the Tags, which are meant to be excluded by configuration (see Table 8.8-2).

Table 8.8-1: Data Minimization Profiles

Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0004,1511)	Referenced SOP Instance UID in File	Y	Y	N
(0008,0014)	Instance Creator UID	Y	Y	N
(0008,0015)	Instance Coercion DateTime	Y	N	N
(0008,0018)	SOP Instance UID	Y	Y	N
(0008,0020)	Study Date	Y	N	N
(0008,0021)	Series Date	Y	N	N
(0008,0022)	Acquisition Date	Y	N	N
(0008,0023)	Content Date	Y	N	N
(0008,0024)	Overlay Date (Retired)	Y	N	N
(0008,0025)	Curve Date (Retired)	Y	N	N
(0008,002A)	Acquisition DateTime	Y	N	N

Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0008,0030)	Study Time	Y	N	N
(0008,0031)	Series Time	Y	N	N
(0008,0032)	Acquisition Time	Y	N	N
(0008,0033)	Content Time	Y	N	N
(0008,0034)	Overlay Time (Retired)	Y	N	N
(0008,0035)	Curve Time (Retired)	Y	N	N
(0008,0050)	Accession Number	Y	Y	N
(0008,0054)	Retrieve AE Title	Y	Y	N
(0008,0055)	Station AE Title	Y	Y	N
(0008,0080)	Institution Name	Y	Y	Y
(0008,0081)	Institution Address	Y	Y	Y
(0008,0082)	Institution Code Sequence	Y	Y	N
(0008,0090)	Referring Physician's Name	Y	Y	Y
(0008,0096)	Referring Physician's Identification Sequence	Y	Y	N
(0008,010D)	Context Group Extension Creator UID	Y	Y	N
(0008,0201)	Time zone Offset From UTC	Y	N	N
(0008,1000)	Network ID (Retired)	Y	Y	N
(0008,1010)	Station Name	Y	Y	Y
(0008,1030)	Study Description	Y	Y	N
(0008,103E)	Series Description	Y	Y	N
(0008,1040)	Institutional Department Name	Y	Y	Y
(0008,1048)	Physician(s) of Record	Y	Y	Y
(0008,1049)	Physician(s) of Record Identification Sequence	Y	Y	N
(0008,1050)	Performing Physicians' Name	Y	Y	Y
(0008,1052)	Performing Physicians' Identification Sequence	Y	Y	N
(0008,1060)	Name of Physician(s) Reading Study	Y	Y	Y
(0008,1062)	Physician Reading Study Identification Sequence	Y	Y	N
(0008,1070)	Operators' Name	Y	Y	Y
(0008,1072)	Operators' Identification Sequence	Y	Y	N
(0008,1080)	Admitting Diagnoses Description	Y	Y	N
(0008,1084)	Admitting Diagnoses Code Sequence	Y	Y	N
(0008,1110)	Referenced Study Sequence	Y	N	N
(0008,1111)	Referenced Performed Procedure Step Sequence	Y	N	N
(0008,1120)	Referenced Patient Sequence	Y	Y	N
(0008,1140)	Referenced Image Sequence	Y	N	N
(0008,1155)	Referenced SOP Instance UID	Y	Y	N
(0008,2111)	Derivation Description	Y	N	N
(0008,2112)	Source Image Sequence	Y	N	N
(0008,3010)	Irradiation Event UID	Y	Y	N
(0008,4000)	Identifying Comments (Retired)	Y	Y	N

Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0008,9123)	Creator Version UID	Y	Y	N
(0010,0010)	Patient's Name	Y	Y	Y
(0010,0020)	Patient ID	Y	Y	Y
(0010,0021)	Issuer of Patient ID	Y	Y	N
(0010,0030)	Patient's Birth Date	Y	Y	Y
(0010,0032)	Patient's Birth Time	Y	Y	N
(0010,0040)	Patient's Sex	Y	N	N
(0010,1000)	Other Patient IDs (Retired)	Y	Y	Y
(0010,1001)	Other Patient Names	Y	Y	Y
(0010,1002)	Other Patient IDs Sequence	Y	Y	Y
(0010,1005)	Patient's Birth Name	Y	Y	Y
(0010,1010)	Patient's Age	Y	N	N
(0010,1020)	Patient's Size	Y	N	N
(0010,1030)	Patient's Weight	Y	N	N
(0010,1040)	Patient Address	Y	Y	Y
(0010,1050)	Insurance Plan Identification (Retired)	Y	Y	N
(0010,1060)	Patient's Mother's Birth Name	Y	Y	Y
(0010,1080)	Military Rank	Y	Y	N
(0010,1081)	Branch of Service	Y	Y	N
(0010,1090)	Medical Record Locator (Retired)	Y	Y	N
(0010,1100)	Referenced Patient Photo Sequence	Y	Y	N
(0010,2000)	Medical Alerts	Y	Y	N
(0010,2110)	Allergies	Y	Y	N
(0010,2150)	Country of Residence	Y	Y	N
(0010,2152)	Region of Residence	Y	Y	N
(0010,2154)	Patient's Telephone Number	Y	Y	Y
(0010,2160)	Ethnic Group	Y	N	N
(0010,2180)	Occupation	Y	Y	N
(0010,21A0)	Smoking Status	Y	N	N
(0010,21B0)	Additional Patient's History	Y	Y	Y
(0010,21C0)	Pregnancy Status	Y	N	N
(0010,21D0)	Last Menstrual Date	Y	N	N
(0010,21F0)	Patient's Religious Preference	Y	Y	N
(0010,2203)	Patient's Sex Neutered	Y	N	N
(0010,2297)	Responsible Person	Y	Y	N
(0010,2299)	Responsible Organization	Y	Y	N
(0010,4000)	Patient Comments	Y	Y	Y
(0018,0010)	Contrast Bolus Agent	Y	Y	N
(0018,1000)	Device Serial Number	Y	Y	N
(0018,1002)	Device UID	Y	Y	N

Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0018,1004)	Plate ID	Y	Y	N
(0018,1005)	Generator ID	Y	Y	N
(0018,1007)	Cassette ID	Y	Y	N
(0018,1008)	Gantry ID	Y	Y	N
(0018,1030)	Protocol Name	Y	Y	N
(0018,1400)	Acquisition Device Processing Description	Y	Y	N
(0018,2042)	Target UID	Y	Y	N
(0018,700A)	Detector ID	Y	Y	N
(0018,9424)	Acquisition Protocol Description	Y	Y	N
(0018,9516)	Start Acquisition DateTime	Y	N	N
(0018,9517)	End Acquisition DateTime	Y	N	N
(0018,A003)	Contribution Description	Y	Y	Y
(0020,000D)	Study Instance UID	Y	Y	N
(0020,000E)	Series Instance UID	Y	Y	N
(0020,0010)	Study ID	Y	Y	N
(0020,0052)	Frame of Reference UID	Y	Y	N
(0020,0200)	Synchronization Frame of Reference UID	Y	Y	N
(0020,4000)	Image Comments	Y	Y	N
(0020,9158)	Frame Comments	Y	Y	N
(0020,9161)	Concatenation UID	Y	Y	N
(0020,9164)	Dimension Organization UID	Y	N	N
(0028,1199)	Palette Color Lookup Table UID	Y	Y	N
(0032,1060)	Requested Procedure Description	Y	Y	N
(0038,0004)	Referenced Patient Alias Sequence (Retired)	Y	Y	N
(0038,0010)	Admission ID	Y	Y	N
(0038,0011)	Issuer of Admission ID (Retired)	Y	Y	N
(0038,0060)	Service Episode ID	Y	Y	N
(0038,0061)	Issuer of Service Episode ID (Retired)	Y	Y	N
(0038,0062)	Service Episode Description	Y	Y	N
(0040,0007)	Scheduled Procedure Step Description	Y	Y	N
(0040,0244)	Performed Procedure Step Start Date	Y	N	N
(0040,0245)	Performed Procedure Step Start Time	Y	N	N
(0040,0250)	Performed Procedure Step End Date	Y	N	N
(0040,0251)	Performed Procedure Step End Time	Y	N	N
(0040,0253)	Performed Procedure Step ID	Y	Y	N
(0040,0254)	Performed Procedure Step Description	Y	Y	N
(0040,0275)	Request Attributes Sequence	Y	Y	N
(0040,0280)	Comments on Performed Procedure Step	Y	Y	N
(0040,0555)	Acquisition Context Sequence	Y	Y	N
(0040,1101)	Person Identification Code Sequence	Y	Y	N

Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0040,1102)	Person Address	Y	Y	N
(0040,1103)	Person Telephone Numbers	Y	Y	N
(0040,2016)	Placer Order Number of Imaging Service Request	Y	Y	N
(0040,2017)	Filler Order Number of Imaging Service Request	Y	Y	N
(0040,A027)	Verifying Organization	Y	Y	N
(0040,A073)	Verifying Observer Sequence	Y	Y	N
(0040,A075)	Verifying Observer Name	Y	Y	N
(0040,A078)	Author Observer Sequence	Y	Y	N
(0040,A07A)	Participant Sequence	Y	Y	N
(0040,A07C)	Custodial Organization Sequence	Y	Y	N
(0040,A088)	Verifying Observer Identification Code Sequence	Y	Y	N
(0040,A123)	Person Name	Y	Y	N
(0040,A124)	UID	Y	Y	N
(0040,A171)	Observation UID	Y	Y	N
(0040,A730)	Content Sequence	Y	Y	N
(0070,0001)	Graphic Annotation Sequence	Y	Y	N
(0070,0084)	Content Creator's Name	Y	Y	N
(0070,0086)	Content Creator's Identification Code Sequence	Y	Y	N
(0070,031A)	Fiducial UID	Y	Y	N
(0072,005E)	Selector AE Value	Y	Y	N
(0088,0140)	Storage Media Fileset UID	Y	Y	N
(0088,0200)	Icon Image Sequence	Y	Y	N
(0400,0100)	Digital Signature UID	Y	Y	N
(0400,0402)	Referenced Digital Signature Sequence	Y	Y	N
(0400,0403)	Referenced SOP Instance MAC Sequence	Y	Y	N
(0400,0404)	MAC	Y	Y	N
(0400,0561)	Original Attributes Sequence	Y	Y	Y
(2100,0140)	Destination AE	Y	Y	N
(3006,00C2)	Related Frame of Reference UID	Y	N	N
(3008,0105)	Source Serial Number	Y	N	N
(300A,0013)	Dose Reference UID	Y	N	N
(300E,0008)	Reviewer Name	Y	Y	N
(50**,****)	Curve Data	Y	Y	N
(60**,0100)	Overlay Bits Allocated	Y	Y	N
(60**,0102)	Overlay Bit Position	Y	Y	N
(60**,3000)	Overlay Data	Y	Y	N
(60**,4000)	Overlay Comments	Y	Y	N
(FFFA,FFFA)	Digital Signatures Sequence	Y	Y	Y
(FFFC,FFFC)	Data Set Trailing Padding	Y	Y	Y

The * stands for any digit.

Table 8.8-2: Removal of the Private DICOM Attributes in the Data Minimization Process

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0019,0005)	Multiphase UID	Yes	Yes	Yes
(0019, SIEMENS CT VA0 COAD, 90)	Osteo offset	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 92)	Osteo Regression Line Slope	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 93)	Osteo Regression Line Intercept	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 96)	Osteo Phantom Number	Yes	No	No
(0019, SIEMENS MED NM, 93)	Phase start time	Yes	No	No
(0019, SIEMENS MED NM, A1)	Number of Phases	Yes	No	No
(0019, SIEMENS MED NM, A5)	Number of repeats / phases	Yes	No	No
(0019, SIEMENS MED NM, A6)	Cycles Per Repeat	Yes	No	No
(0019, SIEMENS MED NM, A7)	Repeat Start time	Yes	No	No
(0019, SIEMENS MED NM, A8)	Repeat Stop time	Yes	No	No
(0019, SIEMENS MED NM, A9)	Effective Repeat Time	Yes	No	No
(0019, SIEMENS MED NM, AA)	Acquired Cycles Per Repeat	Yes	No	No
(0033, SIEMENS MED NM, 29)	Crystal Thickness	Yes	No	No
(0033, SIEMENS MED NM, 30)	Preset Name Used for Acquisition	Yes	No	No
(0033, SIEMENS MED NM, 38)	Pixel Scale factor	Yes	No	No
(0035, SIEMENS MED NM, 00)	Specialized TOMO Type	Yes	No	No
(0035, SIEMENS MED NM, 04)	Repeat ID	Yes	No	No
(0035, SIEMENS MED NM, 05)	Phase ID	Yes	No	No
(0041, SIEMENS MED NM, 01)	WholeBody Tomo Position Index	Yes	No	No
(0041, SIEMENS MED NM, 02)	WholeBody Tomo Number of Positions	Yes	No	No
(0041, SIEMENS MED NM, 10)	Effective Emission Energy	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0057, SIEMENS MED NM, 03)	NM Pixel Units	Yes	No	No
(0061, SIEMENS MED NM, 62)	Recon Output Type	Yes	No	No
(0061, SIEMENS MED NM, 70)	NM Reconstruction Algorithm	Yes	No	No
(0061, SIEMENS MED NM, 8D)	QSPECT Flag	Yes	No	No
(0065, SIEMENS MED NM, 01)	Original Detector Index	Yes	No	No
(0065, SIEMENS MED NM, 02)	Siemens Planar Data Organization	Yes	No	No
(7FE3, SIEMENS MED NM, 14)	Minimum pixel value in frame	Yes	No	No
(7FE3, SIEMENS MED NM, 15)	Maximum pixel value in frame	Yes	No	No
(7FE3, SIEMENS MED NM, 29)	Number of Rwaves in a frame	Yes	No	No
(0021, SIEMENS MR SDS 01, 19)	MR Phoenix Protocol	Yes	No	No
(0029, SIEMENS CT EXAM IMAGE,49)	Metal Artifact Reduction Type	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 10)	Syngo Report Data	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 11)	Syngo Report Presentation	Yes	No	No
(0029, SIEMENS CSA HEADER, 08)	Modality Image Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 09)	Modality Image Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 10)	Modality Image Header Info	Yes	No	No
(0029, SIEMENS CSA HEADER, 18)	Modality Series Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 19)	Modality Series Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 20)	Modality Series Header Info	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 40)	Application Header Sequence	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 41)	Application Header Type	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 42)	Application Header ID	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0029, SIEMENS MEDCOM HEADER, 43)	Application Header Version	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 44)	Application Header Info	Yes	No	No
(0029, SIEMENS CT APPL DATASET, 00)	Dual Energy Algorithm Parameters	Yes	No	No
(0029, SIEMENS CT APPL ALG PARAMS, 20)	Perfusion Result Set Id	Yes	No	No
(0029, SIEMENS CSA REPORT, 08)	syngo Report Type	Yes	No	No
(0029, SIEMENS CSA REPORT, 09)	syngo Report Version	Yes	No	No
(0029, SIEMENS CSA REPORT, 15)	SR Variant	Yes	No	No
(0029, SIEMENS CSA REPORT, 17)	SC SOP Instance UID	Yes	No	No
(0043, GEMS_PARM_01, 1E)	GE Delta Start Time	Yes	No	No
(0049, SIEMENS CT SPP HEADER, 10)	Raw Data Container	Yes	No	No
(0067, SIEMENS MED MI, 02)	Scanner Console Generation	Yes	No	No
(0067, SIEMENS MED MI, 03)	Recon Parameters	Yes	No	No
(0067, SIEMENS MED MI, 05)	Device IVK	Yes	No	No
(0067, SIEMENS MED MI, 14)	Raw Data Description	Yes	No	No
(0067, SIEMENS MED MI, 16)	Raw Data Series Instance UIDs	Yes	No	No
(0067, SIEMENS MED MI, 17)	Raw Data Referenced Series Instance UIDs	Yes	No	No
(0067, SIEMENS MED MI, 18)	Raw Data Blob Sequence	Yes	No	No
(0071, SIEMENS MED PT, 22)	Decay Correction DateTime	Yes	No	No
(0071, SIEMENS MED PT, 23)	Registration Matrix	Yes	No	No
(0071, SIEMENS MED PT, 24)	Table Motion	Yes	No	No
(0071, SIEMENS MED PT, 25)	Lumped Constant	Yes	No	No
(0071, SIEMENS MED PT, 26)	Histogramming Method	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0071, SIEMENS MED PT MU MAP, 01)	SOP Class of Source	Yes	No	No
(0071, SIEMENS MED PT MU MAP, 02)	Related Mu Map Series	Yes	No	No

In the following table for attributes marked with:

- 'Y' - affected by data minimization.
- 'N' - not affected by data minimization.

Annexes

Annex A Information Object Definitions (IODs)

This section provides the detailed content for all the SOP Instances natively created by syngo.via, e.g. images created by an acquisition modality or evidence documents created on a review workstation (e.g., all SOP Classes that are marked in the “Created” column in Table 1.1-1). Details on Attribute coercion is defined in Section 5.2.5.2.

Throughout the tables listed in Annex A the following codes are used for the “Source” and “Presence” columns.

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.
- 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 without 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 syngo.via 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).

A.1 Information shared across multiple IODs

A.1.1 Common Modules

All SOP Instances generated by the system use the common modules listed in Table A.1.1-1 to Table A.1.1-5 or a subset of them, as defined in the IOD specific subsections below.

Table A.1.1-1 Patient Identification Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient ID	(0010,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Issuer of Patient ID	(0010,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Birth Date	(0010,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Sex	(0010,0040)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Birth Time	(0010,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced Patient Sequence	(0008,1120)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-24)							
Other Patient IDs	(0010,1000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Other Patient Names	(0010,1001)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-2 General Study Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Instance UID	(0018,000D)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study Date	(0008,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study Time	(0008,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referring Physician's Name	(0008,0090)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study ID	(0020,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Accession Number	(0008,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study Description	(0008,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Study Sequence	(0008,1110)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-24)							
Procedure Code Sequence	(0008,1032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include Code Sequence Macro Attributes (see Table A.1.1-26)							
Requesting Service	(0032,1033)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-3: Patient Study Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Admitting Diagnoses Description	(0008,1080)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Age	(0010,1010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Size	(0010,1020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient's Weight	(0010,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Medical Alerts	(0010,2000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Allergies	(0010,2110)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Smoking Status	(0010,21A0)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Additional Patient History	(0010,21B0)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pregnancy Status	(0010,21C0)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Last Menstrual Date	(0010,21D0)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Occupation	(0010,2180)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Admission ID	(0038,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-4: General Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS			
		FIXED	ALWAYS	ALWAYS	SR	SR Document	
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			
Laterality	(0020,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			
Performing Physician's Name	(0008,1050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Protocol Name	(0018,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS			
Operators' Name	(0008,1070)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced Performed Procedure Step Sequence	(0008,1111)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include Table A.1.1-24							
Body Part Examined	(0018,0015)	FIXED	ALWAYS	ALWAYS			Automatically selected based on the protocol used
Patient Position	(0018,5100)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Request Attributes Sequence	(0040,0275)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include Table A.1.1-28							
Performed Procedure Step ID	(0040,0253)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Performed Procedure Step Start Date	(0040,0244)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Performed Procedure Step Start Time	(0040,0245)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Performed Procedure step Description	(0040,0254)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performed Protocol Code Sequence	(0040,0260)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include Code Sequence Macro Attributes (see Table A.1.1-27)							

Table A.1.1-5: General Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Include Table A.1.1-25: SOP Instance Reference Macro Attributes							
Derivation Description	(0008,2111)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Source Image Sequence	(0008,2112)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Include Table A.1.1-25: SOP Instance Reference Macro Attributes							

Table A.1.1-6: General Acquisition Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Date	(0008,0022)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Time	(0008,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition DateTime	(0008,002A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Irradiation Event UID	(0008,3010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-7: Frame of Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Position Reference Indicator	(0020,1040)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-8: General Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Siemens Healthineers		
Institution Name	(0008,0080)	CONFIGURATION	ALWAYS	ALWAYS			
Institution Address	(0008,0081)	CONFIGURATION	ALWAYS	ALWAYS			
Station Name	(0008,1010)	CONFIGURATION	ALWAYS	ALWAYS			
Institutional Department Name	(0008,1040)	CONFIGURATION	ALWAYS	ALWAYS			
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS			
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS			
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS			
Gantry ID	(0018,1008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Spatial Resolution	(0018,1050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Date of Last Calibration	(0018,1200)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Time of Last Calibration	(0018,1201)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-9: Image Plane Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS			
Image Orientation (Patient)	(0020,0037)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Image Position (Patient)	(0020,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Slice Thickness	(0018,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Slice Location	(0020,1041)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-10: General Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			
Image Comments	(0020,4000)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-11: Image Pixel Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS			
Pixel Data	(7FE0,0010)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-12: VOI LUT Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS			
Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-13: Contrast/Bolus Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast / Bolus Agent	(0018,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast / Bolus Volume	(0018,1041)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast / Bolus Start Time	(0018,1042)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast / Bolus Stop Time	(0018,1043)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast / Bolus Total Dose	(0018,1044)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast Flow Rate	(0018,1046)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast Flow Duration	(0018,1047)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast / Bolus Ingredient	(0018,1048)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Contrast/Bolus Ingredient Concentration	(0018,1049)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-14: SOP Common Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS			
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			
Specific Character Set	(0008,0005)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-15: Presentation Series Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	PR		

Table A.1.1-16: Presentation State Identification Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Presentation Creation Date	(0070,0082)	GENERATED	ALWAYS	ALWAYS	The current date		
Presentation Creation Time	(0070,0083)	GENERATED	ALWAYS	ALWAYS	The current time		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Include Content Identification Macro Attributes (see Table A.1.1-26)							

Table A.1.1-17: Presentation State Relationship Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Series Sequence	(0008,1115)						
>Series Instance UID	(0020,000E)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced Image Sequence	(0008,1140)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Include Image SOP Instance Reference Macro Attributes (Table A.1.1-30)							

Table A.1.1-18: Displayed Area Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Displayed Area Selection Sequence	(0070,005A)						
>Referenced Image Sequence	(0008,1140)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Include Image SOP Instance Reference Macro Attributes (Table A.1.1-30)							
>Displayed Area Top Left Hand Corner	(0070,0052)	GENERATED	ALWAYS	ALWAYS			
>Displayed Area Bottom Right Hand Corner	(0070,0053)	GENERATED	ALWAYS	ALWAYS			
>Presentation Size Mode	(0070,0100)	GENERATED	ALWAYS	ALWAYS	SCALE TO FIT TRUE SIZE MAGNIFY		
>Presentation Pixel Spacing	(0070,0101)	GENERATED	ALWAYS	ALWAYS			
>Presentation Pixel Aspect Ratio	(0070,0102)	GENERATED	ALWAYS	ALWAYS			
>Presentation Pixel Magnification Ratio	(0070,0103)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-19: Enhanced General Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Siemens Healthineers		
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS			
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS			
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS			

Table A.1.1-20: Multi-frame Functional Groups Module Attributes

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 or more Functional Group Macros that are shared by all frames. The selected Functional Group Macros shall not be present in the Per-frame Functional Groups Sequence (5200,9230).							
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-21: SR Document Series Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	SR	SR Document	
Series Instances UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-22: SR Document General Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Completion Flag	(0040,A491)	GENERATED	ALWAYS	ALWAYS	PARTIAL		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Verification Flag	(0040,A493)	GENERATED	ALWAYS	ALWAYS	UNVERIFIED		
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-23: SR Document Content Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Name Code Sequence	(0040,A043)	FIXED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	FIXED	ALWAYS	ALWAYS	126000		
>Coding Schema Designator	(0008,0102)	FIXED	ALWAYS	ALWAYS	DCM		
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

A.1.1.1 Macros

The tables below list the Macros that can either be used as part of the Common Modules and IOD specific modules.

Table A.1.1-24: SOP Instance Reference Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced SOP Class UID	(0008,1150)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced SOP Instance UID	(0008,1155)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-25: Content Identification Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Description	(0070,0081)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-26: Code Sequence Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			
Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Coding Scheme Version	(0008,0103)	GENERATED	ALWAYS	ALWAYS			
Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

Note: Enhanced Encoding Mode is not supported.

Table A.1.1-27: Hierarchical Series Reference Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			
Referenced SOP Sequence	(0008,1199)	GENERATED	ALWAYS	ALWAYS			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-25)							

Table A.1.1-28: Request Attributes Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Accession Number	(0008,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study Instance UID	(0020,000D)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Requested Procedure Description	(0032,1060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Requested Procedure Code Sequence	(0032,1064)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include Code Sequence Macro Attributes (see Table A.1.1-27)					No Baseline CID is defined.		

Table A.1.1-29: Image SOP Instance Reference Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Include SOP Instance Reference Macro Attributes (see Table A.1.1-25)							
Referenced Frame Number	(0008,1160)	GENERATED	CONDTIONAL	CONDTIONAL			
Referenced Segment Number	(0062,000B)	GENERATED	CONDTIONAL	CONDTIONAL			

Table A.1.1-30: Numeric Measurement Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Measured Value Sequence	(0040,A300)	GENERATED	ALWAYS	ALWAYS			
>Numeric Value	(0040,A30A)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Floating Point Value	(0040,A161)	GENERATED	ALWAYS	ALWAYS			
>Rational Numerator Value	(0040,A162)	GENERATED	ALWAYS	ALWAYS			
>Rational Denominator Value	(0040,A163)	GENERATED	ALWAYS	ALWAYS			
>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			
>>Include Code Sequence Macro Attributes (see Table A.1.1-27)							
Numeric Value Qualifier Code Sequence	(0040,A301)	GENERATED	ALWAYS	ALWAYS			
>Include Code Sequence Macro Attributes (see Table A.1.1-27)							

Table A.1.1-31: Code Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Concept Code Sequence	(0040,A168)	GENERATED	ALWAYS	ALWAYS			
>Include Code Sequence Macro Attributes (see Table A.1.1-27)							

Table A.1.1-32: Composite Object Reference Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced SOP Sequence	(0008,1199)	GENERATED	ALWAYS	ALWAYS			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-25)							

Table A.1.1-33: Image Reference Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Include Composite Object Reference Macro Attributes (see Table A.1.1-27)							
>Referenced Frame Number	(0008,1160)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Referenced Segment Number	(0062,000B)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-34: Spatial Coordinates Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Data	(0070,0022)	GENERATED	ALWAYS	ALWAYS			
Graphic Type	(0070,0023)	GENERATED	ALWAYS	ALWAYS			
Pixel Origin Interpretation	(0048,0301)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-35: 3D Spatial Coordinates Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Frame of Reference UID	(3006,0024)	GENERATED	ALWAYS	ALWAYS			
Graphic Data	(0070,0022)	GENERATED	ALWAYS	ALWAYS			
Graphic Type	(0070,0023)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-36: Temporal Coordinates Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Temporal Range Type	(0040,A130)	GENERATED	ALWAYS	ALWAYS			
Referenced Sample Positions	(0040,A132)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced Time Offset	(0040,A138)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Referenced DateTime	(0040,A13A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-37: Container Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Continuity of Content	(0040,A050)	GENERATED	ALWAYS	ALWAYS			
Content Template Sequence	(0040,A504)	GENERATED	ALWAYS	ALWAYS			
>Mapping Resource	(0008,0105)	GENERATED	ALWAYS	ALWAYS			
>Template Identifier	(0040,DB00)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-38: General Annotation Module – Presentation State

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Annotation Sequence	(0070,0001)	GENERATED	ALWAYS	ALWAYS			
>Graphic Layer	(0070,0002)	GENERATED	ALWAYS	ALWAYS			
>Text Object Sequence	(0070,0008)	GENERATED	ALWAYS	ALWAYS			
>>Unformatted Text Value	(0070,0006)	GENERATED	ALWAYS	ALWAYS			
>Graphic Object Sequence	(0070,0009)	GENERATED	ALWAYS	ALWAYS			
>>Graphic Annotation Units	(0070,0005)	GENERATED	ALWAYS	ALWAYS			
>>Graphic Dimensions	(0070,0020)	GENERATED	ALWAYS	ALWAYS			
>>Number of Graphic Points	(0070,0021)	GENERATED	ALWAYS	ALWAYS			
>>Graphic Data	(0070,0022)	GENERATED	ALWAYS	ALWAYS			
>>Graphic Type	(0070,0023)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-39: Multi-frame Functional Groups Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Number of Frames	(0028,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Representative Frame Number	(0028,6010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Shared Functional Groups Sequence	(5200,9229)	GENERATED	ALWAYS	ALWAYS			

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			
>>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS			
>>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS			
>Frame Pixel Data Properties Sequence	(0028,9443)	GENERATED	ALWAYS	ALWAYS			
>>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS			
>>Image Pixel Spacing	(0018,1164)	GENERATED	ALWAYS	ALWAYS			
>>Pixel Data Area Origin Relative To FOV	(0018,7036)	GENERATED	ALWAYS	ALWAYS			
>>Pixel Data Area Rotation Angle Relative To FOV	(0018,7038)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Pixel Intensity Relationship	(0028,1040)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Pixel Intensity Relationship Sign	(0028,1041)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Geometrical Properties	(0028,9444)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Geometric Maximum Distortion	(0028,9445)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Image Processing Applied	(0028,9446)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-40: Multi-frame Dimension Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Dimension Organization UID	(0020,9164)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Dimension Index Sequence	(0020,9222)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Dimension Index Pointer	(0020,9165)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Dimension Index Private Creator	(0020,9213)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Functional Group Pointer	(0020,9167)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Functional Group Private Creator	(0020,9238)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Dimension Organization UID	(0020,9164)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.1.2 Common Functional Group Macros

The tables below list the Common Functional Group Macros that can either be used as part of the Shared Functional Groups Sequence (5200,9229) or as part of the Per-frame Functional Groups Sequence (5200,9230) of enhanced image IODs.

Table A.1.2-1 Pixel Measures Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Measure Sequence	(0028,9110)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Pixel Spacing	(0028,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Slice Thickness	(0018,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Spacing Between Slices	(0018,0088)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.2-2 Frame Content Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Content Sequence	(0020,9111)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.2-3 Plane Position (Patient) Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Position Sequence	(0020,9113)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.2-4 Plane Orientation (Patient) Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Orientation Sequence	(0020,9116)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.2-5 Referenced Image Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0020,9111)	GENERATED	ALWAYS	CONDITIONAL		For derived image like snapshot	

Table A.1.2-6 Frame Anatomy Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Anatomy Sequence	(0020,9071)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.2-7 Irradiation Event Identification Functional Group Macro

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Irradiation Event Identification Sequence	(0018,9477)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.1.3 Common Private Modules

N/A

A.1.4 Coded Values

N/A

A.2 Basic Directory IOD

Table A.2-1: IOD of created Basic Directory SOP Class Instances

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			
Specific Character Set of File-set Descriptor File	(0004,1142)	GENERATED	ALWAYS	ALWAYS			
Directory Information Module							
Offset of the First Directory Record of the Root Directory Entity	(0004,1200)	GENERATED	ALWAYS	ALWAYS			
Offset of the Last Directory Record of the Root Directory Entity	(0004,1202)	GENERATED	ALWAYS	ALWAYS			
File-set Consistency Flag	(0004,1212)	GENERATED	ALWAYS	ALWAYS			
Directory Record Sequence	(0004,1220)	GENERATED	ALWAYS	ALWAYS			
>Offset of the Next Directory Record	(0004,1400)	GENERATED	ALWAYS	ALWAYS			
>Record In-use Flag	(0004,1410)	GENERATED	ALWAYS	ALWAYS			
>Offset of Referenced Lower-Level Directory Entity	(0004,1420)	GENERATED	ALWAYS	ALWAYS			
>Directory Record Type	(0004,1430)	GENERATED	ALWAYS	ALWAYS			
Patient Keys							
>Specific Character Set	(0008,0005)	CONFIGURATION	ALWAYS	ALWAYS			
>Patient's Name	(0010,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Patient ID	(0010,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Patient's Birth Date	(0010,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Patient's Sex	(0010,0040)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Study Keys							

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Study Date	(0008,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study Time	(0008,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study Description	(0008,1030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study Instance UID	(0020,000D)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study ID	(0020,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Accession Number	(0008,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study Date	(0008,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Study Time	(0008,0030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Series Keys							
>Specific Character Set	(0008,0005)	CONFIGURATION	ALWAYS	ALWAYS			
>Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Series Instance UID	(0020,000E)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Series Number	(0020,0011)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Image Keys							
>Specific Character Set	(0008,0005)	CONFIGURATION	ALWAYS	ALWAYS			
>Instance Number	(0020,0013)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Samples per Pixel	(0028,0002)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Photometric Interpretation	(0028,0004)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Rows	(0028,0010)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Columns	(0028,0011)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Bits Allocated	(0028,0100)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Bits Stored	(0028,0101)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>High Bit	(0028,0102)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Pixel Representation	(0028,0103)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
SR Document Keys							
>Specific Character Set	(0008,0005)	CONFIGURATION	ALWAYS	ALWAYS			
>Instance Number	(0020,0013)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Completion Flag	(0040,A491)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Verification Flag	(0040,A493)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Content Date	(0008,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Content Time	(0008,0033)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Verification DateTime	(0040,A030)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Concept Name Code Sequence	(0040,A043)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Code Value	(0008,1000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Coding Scheme Designator	(0008,1002)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Coding Scheme Version	(0008,1003)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Code Meaning	(0008,1004)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.2.1 Basic Directory IOD Specific Modules

N/A

A.2.2 Basic Directory IOD Functional Group Macros

N/A

A.2.3 Basic Directory IOD Private Modules

N/A

A.2.4 Basic Directory IOD Coded Values

N/A

A.3 Encapsulated PDF IOD

Table A.3-1: IOD of created Encapsulated PDF SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
	Encapsulated General Patient Module*	ALWAYS		Table A.3.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL	Table A.1.1-3
Series	Encapsulated Document Series Module	ALWAYS		Table A.3.1-2
	Encapsulated General Series Module*	ALWAYS		Table A.3.1-3
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	SC Equipment Module	ALWAYS		Table A.3.1-5
Encapsulated Document	Encapsulated Document Module	ALWAYS		Table A.3.1-4
	SOP Common Module	ALWAYS		Table A.1.1-14

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.3.1 Encapsulated PDF IOD Specific Modules

Table A.3.1-1: Encapsulated General Patient Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Date	(0008,0022)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Time	(0008,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.3.1-2: Encapsulated Document Series

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	OT		
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			

Table 8.8-3: Encapsulated General Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Body Part Examined	(0018,0015)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Laterality	(0020,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient Orientation	(0020,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Other Patient IDs[1]	(0010,1000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

1 Retried Tag is part of the Encapsulated PDF Image

Table A.3.1-4: Encapsulated Document Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Acquisition DateTime	(0008,002A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Burned In Annotation	(0028,0301)	GENERATED	ALWAYS	ALWAYS	Enumerated Values: YES NO		Identification of patient and date as text in an encapsulated document (e.g., in an XML attribute or element) is equivalent to "burned in annotation". A de-identified document may use the value NO.
Document Title	(0042,0010)	GENERATED	ALWAYS	ALWAYS			In the case of a PDF encapsulated document, this may be the value of the "Title" entry in the "Document Information Directory" as encoded in the PDF data.
MIME Type of Encapsulated Document	(0042,0012)	GENERATED	ALWAYS	ALWAYS			
Encapsulated Document	(0042,0011)	GENERATED	ALWAYS	ALWAYS			

Table A.3.1-5: SC Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Conversion Type	(0008,0064)	FIXED	ALWAYS	ALWAYS	SD		

A.3.2 Encapsulated PDF IOD Functional Group Macros

N/A

A.3.3 Encapsulated PDF IOD Private Modules

N/A

A.3.4 Encapsulated PDF IOD Coded Values

N/A

A.4 Basic Text SR IOD

Table A.4-1: IOD of created Basic Text SR SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
	Basic SR Patient Module*	ALWAYS		Table A.4.1-3
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	SR Document Series Module	ALWAYS		Table A.1.1-21
	SR Document Series Module – MAMMOVISTA B.smart	CONDITIONAL	For MAMMOVISTA B.smart Application	Table A.4.1-4
	Basic SR General Series Module*	ALWAYS		Table A.4.1-1
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
SR Document	SR Document General Module	ALWAYS		Table A.1.1-22
	SR Document Content Module	ALWAYS		Table A.1.1-23
	SOP Common Module	ALWAYS		Table A.1.1-14
	Basic SR General Image Module*	CONDITIONAL	PRESENT ALWAYS except for MAMMOVISTA B.smart this module is not present, and will not be part of MMBR Measurement SRs	Table A.4.1-2
	Private – SIEMENS SYNGO ADVANCED PRESENTATION (0029 Group)– Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-1
	Private – SIEMENS SYNGO MODULES – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-2
	Private – SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-3
	Private – SIEMENS SYNGO OBJECT GRAPHICS – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-4
	Private – SIEMENS SYNGO EVIDENCE DOCUMENT DATA – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-5
	Private – SIEMENS SYNGO ADVANCED PRESENTATION (002B Group) – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.4.3-6

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.4.1 Basic Text SR IOD Specific Modules

Table A.4.1-1: Basic SR General Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Body Part Examined	(0018,0015)	GENERATED	ALWAYS	ALWAYS			
Laterality	(0020,0060)	GENERATED	ALWAYS	ALWAYS			
Request Attribute Sequence	(0040,0275)	GENERATED	ALWAYS	ALWAYS			
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			

Table A.4.1-2: Basic SR General Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Orientation	(0020,0020)	GENERATED	ALWAYS	ALWAYS			

Table A.4.1-3: Basic SR Patient Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Other Patient IDs	(0010,1000)	GENERATED	ALWAYS	ALWAYS			RETIRED, Used in Basic SR IOD

Table A.4.1-4: SR Document Series – MAMMOVISTA B.smart

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Description	(0008,103E)	FIXED	ALWAYS	ALWAYS	MMBR Measurement Reanimation Data		

A.4.2 Basic Text SR IOD Functional Group Macros

N/A

A.4.3 Basic Text SR IOD Private Modules

N/A

Table A.4.3-1:Basic Text SR IOD Private - SIEMENS SYNGO ADVANCED PRESENTATION(0029 Group) – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO ADVANCED PRESENTATION	(0029,0010)	LO	1							
> Presentation Name	(0029,1000)	ST	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Presentation Type	(0029,1001)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Segmentation UID	(0029,1011)	SH	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Navigation Name	(0029,1013)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Auto Navigation Direction	(0029,1014)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Auto Navigation Mode	(0029,1016)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Auto Navigation Strategy	(0029,1018)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Auto Navigation Realtime Flag	(0029,1019)	SH	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>VolumeInterpolationMode	(0029,1045)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY	LINEAR (Default) NEAREST_NEIGHBOR		
> Segmentation Display Data UID	(0029,1062)	ST	0-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Measurement Evaluation ID	(0029,1095)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Presentation Module Type	(0029,10a8)	ST	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> Renderer Edge Enhancement Param	(0029,1076)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Renderer Gradient Modulated Opacity Param	(0029,1077)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Renderer Volume Smoothing Param	(0029,1078)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Segmentation Display Is Applied Flag	(0029,107C)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Display Representation Instance Identifier	(0029,107D)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Fused Presentation Fused LUT Shape	(0029,107E)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Scale To Fit Type	(0029,10A4)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Renderer Filter Settings Sequence	(0029,10E4)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Apply Fusions	(0029,10E6)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>RepresentationId	(0029,10E7)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Advanced Display Representation Sequence	(0029,10EE)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.4.3-2: Basic Text SR IOD Private - SIEMENS SYNGO MODULES – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO MODULES	(0029,0010)	LO	1							
> Presentation User Data	(0029,1152)	UT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.4.3-3: Basic Text SR IOD Private - SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA	(0087,0010)	LO	1							
> Study Model	(0087,1020)	UT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.4.3-4: Basic Text SR IOD Private - SIEMENS SYNGO OBJECT GRAPHICS – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO OBJECT GRAPHICS	(0071,0010)	LO	1							
> Connection Line Width Selected	(0071,101a)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Connection Line Stipple Pattern	(0071,101b)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Connection Line Width	(0071,101c)	FL	4	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.4.3-5: Basic Text SR IOD Private - SIEMENS SYNGO EVIDENCE DOCUMENT DATA – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO DOCUMENT DATA	(0077,0010)	LO	1							
> Visualization Property Objects	(0077,1090)	OB	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Visualization Property Groups	(0077,1091)	OB	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.4.3-6: Basic Text SR IOD Private - SIEMENS SYNGO ADVANCED PRESENTATION (002B Group) – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO ADVANCED PRESENTATION	(002B,1000)	LO	1							
> Volume Representation ID	(002B,1002)	ST	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Representation Name	(002B,1003)	SH	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Measurement Evaluation Text Visibility	(002B,1005)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.4.4 Basic Text SR IOD Coded Values

N/A

A.5 Segmentation Storage IOD

Table A.5-1: IOD of created Segmentation Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	Segmentation Series Module	ALWAYS		Table A.5.1-6
	Segmentation Series Module – Body perfusion*	CONDTIONAL	For Body Perfusion workflow	Table A.5.1-4
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
	Frame of Reference Module – CT Vascular Analysis Ranges - SPP2.0 and LH_AID_17548000*	CONDITIONAL	For CT Vascular Analysis Ranges workflow	Table A.5.1-5
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.1.1-19
Segmentation	General Image Module	ALWAYS		Table A.1.1-10
	Image Pixel Module	ALWAYS		Table A.1.1-11
	Segmentation Image Module	ALWAYS		Table A.5.1-2
	Multi-frame Functional Groups Module	ALWAYS		Table A.1.1-39
	Multi-frame Dimension Module	ALWAYS		Table A.1.1-40
	SOP Common Module	ALWAYS		Table A.1.1-14
	CT Pneumonia Plugin SOP Common Module*	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table A.5.1-3
	Private – SIEMENS SY NGO ADVANCED PRESENTATION – Coronary Cockpit	ALWAYS		Table A.5.3-1
	Private – SIEMENS SYNGO SEGMENTATION – Coronary Cockpit	ALWAYS		Table A.5.3-2

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.5.1 Segmentation Storage IOD Specific Modules

Table A.5.1-1: Segmentation Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	SEG		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			
Referenced Performed Procedure Step Sequence	(0008,1111)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-25)							
Segmentation Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	SRT		
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	T-D0050		
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	Tissue		
Segment Property Type Code SQ	(0062,000F)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS	SRT		
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS	T-D0050		
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS	Tissue		

Table A.5.1-2: Segmentation Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	FIXED	ALWAYS	ALWAYS	DERIVED / PRIMARY		
Include Content Identification Macro Attributes (see Table A.1.1-26)							

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples Per Pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		
Pixel Representation	(0028,0103)	FIXED	ALWAYS	ALWAYS	0		
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	Bits Stored - 1		
Lossy Image Compression	(0028,2110)	GENERATED	ALWAYS	ALWAYS			
Lossy Image Compression Ratio	(0028,2112)	GENERATED	ALWAYS	ALWAYS			
Lossy Image Compression Method	(0028,2114)	GENERATED	ALWAYS	ALWAYS			
Segmentation Type	(0062,0001)	GENERATED	ALWAYS	ALWAYS	BINARY FRACTIONAL		
Segment Sequence	(0062,0002)	GENERATED	ALWAYS	ALWAYS			
>Include Table A.7.1-3: Segment Description Macro Attributes							

Table A.5.1-3: Segmentation IOD CT Pneumonia Plugin SOP Common Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Original Specialized SOP Class UID	(0008,001B)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Segmented Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			
>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segmented Property Type Code Sequence	(0062, 000F)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			
>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

Table A.5.1-4: Segmentation Series Module – Body Perfusion workflow

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	SEG		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			
>Include SOP Instance Reference Macro Attributes (see Table A.1.1-25)							
Segmentation Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008, 0100)	GENERATED	ALWAYS	ALWAYS			
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			
Segment Property Type Code SQ	(0062,000F)	GENERATED	ALWAYS	ALWAYS			
>Code Value	(0008, 0100)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

Table A.5.1-5: Segmentation Storage IOD –Frame of Reference Module CT Vascular Analysis Ranges – SPP2.0 and LH_AID_17548000

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			
Position Reference Indicator[1]	(0020,1040)	GENERATED	ALWAYS	ALWAYS			

1, The attribute (0020,1040) should not be present when Derivation Image Macro Attributes is not there, but it is present when Derivation Image Macro Attributes are present

Table A.5.1-6: Segmentation Storage IOD –Segmentation Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS			
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			

A.5.2 Segmentation Storage IOD Functional Group Macros

Table A.5.2-1: Segment Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segment Identification Sequence	(0062,000A)	GENERATED	ALWAYS	ALWAYS			
>Referenced Segment Number	(0062,000B)	GENERATED	ALWAYS	ALWAYS			

Table A.5.2-2: Segment Description Macro Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segmentation Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			
Segment Label	(0062,0005)	GENERATED	ALWAYS	ALWAYS			
Segment Description	(0062,0006)	GENERATED	ALWAYS	ALWAYS			
Segment Algorithm Type	(0062,0008)	GENERATED	ALWAYS	ALWAYS	AUTOMATIC = calculated segment SEMIAUTOMATIC = calculated segment with user assistance MANUAL = user-entered segment		
Segment Algorithm Name	(0062,0009)	GENERATED	ALWAYS	ALWAYS			
Segment Property Type Code SQ	(0062,000F)	GENERATED	ALWAYS	ALWAYS			

A.5.3 Segmentation Storage IOD Private Modules

Table A.5.3-1:Segmentation Storage IOD Private - SIEMENS SYNGO ADVANCED PRESENTATION – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO ADVANCED PRESENTATION	(0029,0010)	LO	1							
> Segmentation Lock Mode	(0029,106b)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	LOCKED NOT_LOCKED		
> Segmentation Volume Model Matrix Double	(0029,1079)	FD	16	SAFE	GENERATED	ALWAYS	ALWAYS			

Table A.5.3-2:Segmentation Storage IOD Private - SIEMENS SYNGO SEGMENTATION – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO SEGMENTATION	(0029,0011)	LO	1							
> Segmentation Inverted	(0029,1110)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS	YES NO		
> Segmentation Uneditable by User	(0029,1111)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS	YES NO		

A.5.4 Segmentation Storage IOD Coded Values

N/A

A.6 CT Image Storage IOD

In the objects created the tag (0008,0008) Image Type will be of the value "SECONDARY/DERIVED" and may be extended by application specific values.

Table A.6-1: IOD of created CT Image Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	CT Series Lung CAD Module*	CONDITIONAL	If the workflow is related to LUNG CAD procedure	Table A.6.1-1
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
Acquisition	General Acquisition Module	ALWAYS		Table A.1.1-6
Image	General Reference Module	CONDITIONAL	If reference data is available	Table A.1.1-5
	Image Plane Module	ALWAYS		Table A.1.1-9
	General Image Module	ALWAYS		Table A.1.1-10
	Image Pixel Module	ALWAYS		Table A.1.1-11
	VOI LUT Module	ALWAYS		Table A.1.1-12
	Contrast/Bolus Module	CONDITIONAL	If contrast media was used in this image.	Table A.1.1-13
	SOP Common Module	ALWAYS		Table A.1.1-14
	CT Image Lung CAD Module	CONDITIONAL	If the workflow is related to LUNG CAD procedure.	Table A.6.1-2
	CT Image GrayScale CT Perfusion Module	CONDITIONAL	If the workflow is related to CT perfusion Task	Table A.6.1-3
	CT Image Range Image Result Module	CONDITIONAL	If the workflow is related to CT Range Image Result	Table A.6.1-4
	CT Image Snapshot Image Result Module	CONDITIONAL	If the workflow is related to CT Range Image Result	Table A.6.1-5

IE	Module	Presence (Module)	Condition	Reference
	CT Image Color Image Result perfusion Module	CONDITIONAL	If the workflow is related to CT Image Color Image Result - The application extends the CT Image IOD by using the RGB color image description with the unsigned integer, 24-bit color image plane pixel format	Table A.6.1-6
	CT Image Results Module – Dual Energy workflow	CONDITIONAL	If the workflow is related to Dual Energy workflow	Table A.6.1-8
	CT Image Results Module – SPP Workflow	CONDITIONAL	If the workflow is related to SPP workflow	Table A.6.1-9
	CT Image Result Module – CT ASPECTS Plugin	CONDITIONAL	If the workflow is related to CT ASPECTS Plugin	Table A.6.1-10
	XA Positioner Module*	ALWAYS		Table A.6.1-11
	Graphic Layer Module*	ALWAYS		Table A.6.1-12
	Overlay Activation Module*	ALWAYS		Table A.6.1-13
	CT Image Results – Vascular Analysis Ranges	CONDITIONAL	If the workflow is Vascular Analysis Ranges	Table A.6.1-14
	Private – SIEMENS ADVANCED PRESENTATION – Value Exceeded	CONDITIONAL	Based on the CT Post Processing Applications	Table A.6.3-1
	Private – SIEMENS ADVANCED PRESENTATION – Additional Characters	CONDITIONAL	Based on the CT Post Processing Applications	Table A.6.3-2
	Private – SIEMENS ADVANCED PRESENTATION – MACRO NOT FULLY IMPLEMENTED	CONDITIONAL	Based on the CT Post Processing Applications	Table A.6.3-3
	Private – SIEMENS ADVANCED PRESENTATION – VALUES NOT STORED AS PER VR TYPE	CONDITIONAL	Based on the CT Post Processing Applications	Table A.6.3-4
	Private – SIEMENS ADVANCED PRESENTATION – DIFFERENT VR	CONDITIONAL	Based on the CT Post Processing Applications	Table A.6.3-5
	Private – SIEMENS SYNGO VOLUME – CT View and Go	CONDITIONAL	CT View and Go application is used	Table A.6.3-6

IE	Module	Presence (Module)	Condition	Reference
	Private – SIEMENS CT EXAM APP SHARED – CTAU_CoronaryAnalysis	CONDITIONAL	CT AU Coronary Application used	Table A.6.3-7
	Private – SIEMENS CT APPL DATASET – SPP1.0	CONDITIONAL	CT Classic format results via SPP1.0	Table A.6.3-8
	Private – SIEMENS CT APPL DATASET – DualEnergy TwinSpiral_AID_17449000	CONDITIONAL	DualEnergy TwinSpiral	Table A.6.3-9
	Private – SIEMENS CT APPL DATASET – DualEnergy TwinBeam_AID_3133000	CONDITIONAL	DualEnergy TwinBeam	Table A.6.3-9
	Private – SIEMENS CT APPL DATASET – SPP AID_263000	CONDITIONAL	SPP	Table A.6.3-9
	Private – SIEMENS CT EXAM IMAGE – DualEnergy TwinSpiral_AID_17449000	CONDITIONAL	DualEnergy TwinSpiral	Table A.6.3-10
	Private – SIEMENS CT EXAM APP SHARED – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table A.6.3-11
	Private – SIEMENS CT EXAM APP SHARED – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table A.6.3-11
	Private – SIEMENS CT EXAM EQUIPMENT – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table A.6.3-12
	Private – SIEMENS CT EXAM EQUIPMENT – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table A.6.3-12
	Private – SIEMENS CT EXAM IMAGE – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table A.6.3-13
	Private – SIEMENS CT EXAM IMAGE – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table A.6.3-13
	Private – SIEMENS CT EXAM IMAGE – SPP1.0 SOMX_i1(Monoenergetic Plus)	CONDITIONAL	SPP1.0 SOMX_i1(Monoenergetic Plus)	Table A.6.3-14
	Private – SIEMENS CT EXAM IMAGE SPP2.0 SOMX_i2(Monoenergetic Plus)	CONDITIONAL	SPP2.0 SOMX_i1(Monoenergetic Plus)	Table A.6.3-14
	Private – SIEMENS CT EXAM IMAGE SPP2.0 SOMX_i2(MonoVCR SPP)	CONDITIONAL	SPP2.0 SOMX_i1(MonoVCR SPP)	Table A.6.3-14

IE	Module	Presence (Module)	Condition	Reference
	Private – SIEMENS CT APPL ALG PARAMS – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table A.6.3-15
	Private – SIEMENS SYNGO ADVANCED PRESENTATION – Brain Hemorrhage	CONDITIONAL	CT Post Processing	Table A.6.3-16
	Private – SIEMENS CT EXAM APP SHARED – CT Post Processing	CONDITIONAL	CT Post Processing	Table A.6.3-17
	Private – SIEMENS CT APPL ALG PARAMS– CT Post Processing	CONDITIONAL	CT Post Processing	Table A.6.3-18

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.6.1 CT image Storage IOD Specific Modules

Table A.6.1-1: CT Series Lung CAD Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	1.3.12.2.1107.5.8.15. serial number. object_unique_identifier[2]		CT images derived for Lung CAD

Table A.6.1-2: CT Image Lung CAD Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	DERIVED (Value 1)		
					SECONDARY (Value 2)		
					AXIAL (Value 3)		
					AlgorithmName_AlgorithmVersion_DO (Value 4)		

Table A.6.1-3: CT Image GrayScale CT Perfusion Module

[2] UID generated by **syngo.via**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-2	Based on Task / Body Region along with Calculation Mod	
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-2	Based on Task / Body Region along with Calculation Mod	
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-2	Based on Task / Body Region along with Calculation Mod	
Rescale Type	(0028,1054)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-2	Based on Task / Body Region along with Calculation Mod	
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	1		

Table A.6.1-4: CT Image Range Image Result Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-3		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-3		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-3		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-3		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	1		

Table A.6.1-5: CT Image Snapshot Image Result Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-4		
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-4		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-4		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-4		
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS	1		

Table A.6.1-6: CT Image Color Image Result perfusion

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS		RGB		
Bits Stored	(0028,0101)	GENERATED	ALWAYS		8		
Bits Allocated	(0028,0100)	GENERATED	ALWAYS		8		
High Bit	(0028,0102)	GENERATED	ALWAYS		7		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS		0		
Samples per pixel	(0028,0002)	GENERATED	ALWAYS		3		

This format is used for Functional Imaging, that is, images that meaningfully use all common CT Image attributes. However, the pixel values do not represent a scaled Hounsfield value but a different value (depending on the type of image).

Table A.6.1-7: CT Image – CT Dual Energy Post-Processing Application

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
KVP[1]	(0018,0060)	GENERATED	ALWAYS	ALWAYS			

1 Will be there for multi-energy images and represents a single well-defined KVP.

Table A.6.1-8: CT Image Results – Dual Energy workflow

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-5	Base on Image Type application and its description	

Dual Energy application results in CT Image (1.2.840.10008.5.1.4.1.1.2) with the following values when the Image Type (0008, 0008) are from 4 to 6.

Note: The Value 4 may have these set of values only if the result follows DICOM Supplement 188 (Specifies Multi energy CT images). Otherwise values 5 and 6 would shift left as values 4 and 5.

Table A.6.1-9: CT Image Results – SPP workflow

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	CONDITIONAL	Table A.6.4-6	Base on Image Type application and its description	

SPP results in CT Image (1.2.840.10008.5.1.4.1.1.2) with the following values when the Image Type (0008, 0008) are from 4 to 6.

Table A.6.1-10: CT Image Results – CT ASPECTS Plugin

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-7		

Table A.6.1-11: CT Image – XA Positioner Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Positioner Primary Angle	(0018,1150)	GENERATED	ALWAYS	ALWAYS			
Positioner Secondary Angle	(0018,1151)	GENERATED	ALWAYS	ALWAYS			

Table A.6.1-12: CT Image – Graphic Layer Module

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			
>Graphic Layer Order	(0070,0062)	GENERATED	ALWAYS	ALWAYS			
>Graphic Layer Recommended Display Grayscale Value	(0070,0066)	GENERATED	ALWAYS	ALWAYS			
> Graphic Layer Recommended Display CIELab Value	(0070,0401)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Graphic Layer Description	(0070,0068)	GENERATED	ALWAYS	ALWAYS			

Table A.6.1-13: CT Image – Overlay Activation Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Activation Layer	(60xx,1001)	GENERATED	ALWAYS	ALWAYS			

Table A.6.1-14: CT Image Results – Vascular Analysis Ranges Image workflow

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	Table A.6.4-8		

A.6.2 CT image Storage IOD Functional Group Macros

N/A

A.6.3 CT image Storage IOD Private Modules

Table A.6.3-15: CT Image Storage IOD Private - SIEMENS ADVANCED PRESENTATION – Value Exceeded

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Siemens Advanced Presentation	(0029,00xx)	LO	1							
> Camera Near Clip Plane	(0029,0044)	DS	1	SAFE	GENERATED	ALWAYS	ALWAYS			The length can in certain cases exceed the one defined by the standard.
>Camera Parallel Equipped	(0029,0086)	DS	1	SAFE	GENERATED	ALWAYS	ALWAYS			The length can in certain cases exceed the one defined by the standard.
>Measurement Evaluation Value	(0029,0094)	DS	1	SAFE	GENERATED	ALWAYS	ALWAYS			The length can in certain cases exceed the one defined by the standard.

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Measurement Evaluation Centroid	(0029,009C)	DS	0-n	SAFE	GENERATED	ALWAYS	ALWAYS			The length can in certain cases exceed the one defined by the standard.
>Dual Energy Measurement Tag	(002B,0002)	SH	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			The length can in certain cases exceed the one defined by the standard.
>Hidden Pixel Spacing	(0029,0075)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			The length can in certain cases exceed the one defined by the standard.

The following attributes used in private attributes sequence use additional characters in the VR as defined by the standard.

Table A.6.3-16: CT Image Storage IOD Private - SIEMENS ADVANCED PRESENTATION – Additional Characters

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Siemens Advanced Presentation	(0029,0000)	LO	1							
> Advanced Presentation Sequence	(0029,0002)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Advanced Display Representation Sequence	(0029,00EE)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Presentation Module Sequence	(0029,00A7)	SQ	0-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Measurement Data Sequence	(0029,0031)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Referenced Syngo UID	(0029,0038)	UI	4	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

The following private attributes do not fully implement the macro as required by the standard.

Table A.6.3-17: CT Image Storage IOD Private - SIEMENS ADVANCED PRESENTATION – Macro not fully implemented.

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Siemens Advanced Presentation	(0029,00xx)	LO	1							
> Measurement Evaluation Sequence	(0029,0093)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

The following private attributes do not fully implement the macro as required by the standard.

Table A.6.3-18: CT Image Storage IOD Private - SIEMENS ADVANCED PRESENTATION – Values not stored as per the VR Type

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Siemens Advanced Presentation	(0029,00xx)	LO	1							
> Advanced Presentation Sequence	(0029,0002)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>Advanced Display Presentation Sequence	(0029,00EE)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>>Presentation Module Sequence	(0029,00A7)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>>Measurement Data Sequence	(0029,0031)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>>>Measurement Evaluation Text Visibility	(002B,0005)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			The value stored in the private tag of CS (002b, SIEMENS SYNGO ADVANCED PRESENTATION,05) is not as per DICOM Standard recommendation. The value stored in this tag has Lower values

The following private attributes uses the functionality of the tag LineThickness (0070,0253 – VR Type is FL) but uses different VR Type

Table A.6.3-19: CT Image Storage IOD Private - SIEMENS ADVANCED PRESENTATION – Different VR

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Siemens Advanced Presentation	(0029,00xx)	LO	1							
> Advanced Presentation Sequence	(0029,0002)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> Advanced Display Representation Sequence	(0029,00EE)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Presentation Module Sequence	(0029,00A7)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
> Measurement Data Sequence	(0029,0031)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>>>>Measurement Evaluation Text Visibility	(002B,0005)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			The value stored in the private tag of CS (002b, SIEMENS SYNGO ADVANCED PRESENTATION,05) is not as per DICOM Standard recommendation. The value stored in this tag has Lower values

Table A.6.3-20: CT Image Storage IOD Private - SIEMENS SYNGO VOLUME – CT View and Go

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO VOLUME	(0029,xxxx)	LO	1							
>Slices	(0029,1312)	US	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Volume Level	(0029,1318)	IS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Voxel Spacing	(0029,1330)	DS	3	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Voxel Spacing Double	(0029,1331)	FD	3	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Position (Patient)	(0029,1332)	DS	3	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Position (Patient) Double	(0029,1333)	FD	3	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Orientation (Patient)	(0029,1337)	DS	9	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Orientation (Patient) Double	(0029,1338)	FD	9	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Resampling Flag	(0029,1340)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Normalization Flag	(0029.1342)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>SubVolume Sequence	(0029,1344)	SQ	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Histogram Number Of Bins UL	(0029.1346)	UL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Histogram Data	(0029,1347)	OB	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Histogram BinBase	(0029,1348)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Volume Version	(0029,1349)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Total Frame Count Of Referenced Instance	(0029,1350)	IS	0-1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.6.3-21: CT Image Storage IOD Private – SIEMENS CT EXAM APP SHARED – CTAU_CoronaryAnalysis

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS CT EXAM APP SHARED	(0019,xxxx)	LO	1							
>Reference Mas	(0019,xx02)	UL	2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>Physicists Line	(0019,xx03)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>ACA Key Image Parameters	(0019,xx08)	OB	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.6.3-22: CT Image Storage IOD Private – SIEMENS CT APPL DATASET – SPP1.0

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS CT APPL DATASET	(0029,xxxx)	LO	1							
> Dual Energy Algorithm Parameters	(0029,1000)			SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.6.3-23: CT Image Storage IOD Private – SIEMENS CT APPL DATASET – DualEnergy TwinSpiral_AID_17449000

Attribute Name	Tag	VR	VM	Identi-fiable Infor-mation	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS CT APPL DATASET	(0029,10xx)	LO	1							
> RapidResults Technology Result Identification Sequence	(0029,1053)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
> RapidResults Technology Profile UId	(0029,1054)	SH	1	SAFE	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> RapidResults Technology Compressed Source Image SOPUIds	(1029 ,1055)	OB	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

Table A.6.3-24: CT Image Storage IOD Private – SIEMENS CT EXAM IMAGE – DualEnergy TwinSpiral_AID_17449000

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM IMAGE	(0029 ,1011)	LO	1							
> Effective MAs	(0029 ,111d)	UL	1-2	SAFE	GENER ATED	ALWAYS	ALWAYS			
> DualEnergy Application Version	(1029 ,1154)	LO	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

Table A.6.3-25: CT Image Storage IOD Private – SIEMENS CT EXAM APP SHARED – SPP1.0 SOMX_i1(Conventional CT)

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM APP SHARED	(0019 ,10xx)	LO	1							
> Reference Mas	(0019 ,1002)	UL	2	SAFE	GENER ATED	ALWAYS	ALWAYS			
> Physicists Line	(0019 ,1003)	LO	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

Table A.6.3-26: CT Image Storage IOD Private – SIEMENS CT EXAM EQUIPMENT – SPP1.0 SOMX_i1(Conventional CT)

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM EQUIPMENT	(0029 ,xxxx)	LO	1							
> Detector Center	(0029 ,1104)	SL	2	SAFE	GENER ATED	ALWAYS	ALWAYS			
	(0029 ,1204)									
> Detector Spacing	(0029 ,1106)	FD	1	SAFE	GENER ATED	ALWAYS	ALWAYS			
	(0029 ,1206)									
> Model Type	(0029 ,1109)	LT	1	SAFE	GENER ATED	ALWAYS	ALWAYS			
	(0029 ,1209)									

Table A.6.3-27: CT Image Storage IOD Private – SIEMENS CT EXAM IMAGE – SPP1.0 SOMX_i1(Conventional CT)

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM IMAGE	(0029 ,xxxx)	LO	1							
> Detector Center	(0029 ,1006)	SL	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1106)									
> Detector Spacing	(0029 ,1007)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1107)									

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> Model Type	(0029 ,110d) (0029 ,100d)	LT	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Focus Size Type	(0029 ,110e) (0029 ,100e)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Fused Rows	(0029 ,110f) (0029 ,100f)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Iterative Recon Type	(0029 ,1111) (0029 ,1011)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Is Cardio	(0029 ,1113) (0029 ,1013)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Is High Pitch	(0029 ,1114) (0029 ,1014)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Is Intervention	(0029 ,1115) (0029 ,1015)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Is Quick Recon	(0029 ,1116) (0029 ,1016)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> Is Quick Scan	(0029 ,1117) (0029 ,1017)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Is Respiratory	(0029 ,1118) (0029 ,1018)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Blending Factor Of Original Or Corrected Image	(0029 ,1119) (0029 ,1019)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> ITR Mode	(0029 ,111a) (0029 ,101a)	LT	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Number Of RawData Iterations	(0029 ,111b) (0029 ,101b)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Effective MAs	(0029 ,111d) (0029 ,101d)	UL	1-2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Maximal Number Of Collimations	(0029 ,111e) (0029 ,101e)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Number Of Slices Selected For Scan	(0029 ,1122) (0029 ,1022)	SL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> Name Of Organ Characteristi cs	(0029 ,1124) (0029 ,1024)	LT	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Original Field Of View	(0029 ,1126) (0029 ,1026)	FD	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Original Field Of View Height	(0029 ,1127) (0029 ,1027)	FD	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Original Target Center	(0029 ,1128) (0029 ,1028)	FD	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
>Patient Phase of Life	(0029 ,112a) (0029 ,102a)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
>Physical Corrections	(0029 ,112b) (0029 ,102b)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
>Physical Slices	(0029 ,112c) (0029 ,102c)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Quick Scan Artefact Reduction	(0029 ,112e) (0029 ,102e)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
>RAW Data ID	(0029 ,112f)	LT	1	SAFE		SRC_CO PY	SRC_CO PY			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
	(0029 ,102f)				SRC_I NSTAN CE					
>Reconstruct ion Algorithm	(0029 ,1130)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1030)									
>Reconstruct ion Angle	(0029 ,1131)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1031)									
>Rotation Time	(0029 ,1137)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1037)									
>Scan Table Position	(0029 ,1138)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1038)									
>Scatter Corrective Action	(0029 ,1139)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1039)									
>Start Angle	(0029 ,113b)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,103b)									
> Iterative Reconstructi on Strength	(0029 ,1143)	UL	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1043)									

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> Dose Modulation Factor High	(0029 ,1145) (0029 ,1045)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Dose Modulation Factor Low	(0029 ,1146) (0029 ,1046)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Extended Field Of View Algorithm	(0029 ,1148) (0029 ,1048)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Dual Energy Composition	(0029 ,114a) (0029 ,104a)	FD	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Patient Diameter	(0029 ,114c) (0029 ,104c)	FD	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Iso Center	(0029 ,114d) (0029 ,104d)	FD	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Care Dose 4D and CarekV	(0029 ,114e) (0029 ,104e)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> Relevant Contrast	(0029 ,114f) (0029 ,104f)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> IQ mAs	(0029 ,1150)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
	(0029 ,1050)									
> CarekV Min	(0029 ,1151)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1051)									
> CarekV Max	(0029 ,1152)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1052)									
> DualEnergy Application Version	(0029 ,1154)	LO	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
	(0029 ,1054)									

Table A.6.3-28: CT Image Storage IOD Private – SIEMENS CT EXAM IMAGE – SPP1.0 / SPP2.0 SOMX

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM IMAGE	(0029 ,10xx)	LO	1							
>Effective MAs	(0029 ,101d)	UL	1-2	SAFE	GENER ATED	ALWAYS	ALWAYS			
>DualEnergy Application Version	(0029 ,1054)	LO	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

Table A.6.3-29: CT Image Storage IOD Private – SIEMENS CT APPL ALG PARAMS– Brain Hemorrhage

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT APPL ALG PARAMS	(0029 ,10xx)	LO	1							

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
> Detection State	(0029 ,1040)	SL	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			
> MidlineShiftI nMm	(0029 ,xx50)	DS	1	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			

Table A.6.3-30: CT Image Storage IOD Private – SIEMENS SYNGO ADVANCED PRESENTATION– Brain Hemorrhage

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS SYNGO ADVANCED PRESENTATI ON	(0029 ,xxxx)	LO	1							
> Fused Presentation LUT Shape	(0029 ,127E)	CS	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

Table A.6.3-31: CT Image Storage IOD Private – SIEMENS CT EXAM APP SHARED – CT Post Processing

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT EXAM APP SHARED	(0019 ,xxxx)	LO	1							
> CT LVO Detection Information	(0019 ,xx09)	OB	1	SAFE	GENER ATED	ALWAYS	ALWAYS	Serialize d data of the LVO detectio n algorith m results output along with referenc e series Instance UID CTA volume used	Tag will be present when CT LVO defection result	

Table A.6.3-32: CT Image Storage IOD Private – SIEMENS CT APPL ALG PARAMS– CT Post Processing

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
SIEMENS CT APPL ALG PARAMS	(0029 ,xxxx)	LO	1	SAFE						
> MidlineShiftI nMm	(0029 ,xx50)	DS	1	SAFE	GENER ATED	ALWAYS	ALWAYS			

A.6.4 CT image Storage IOD Coded Values

Table A.6.4-1: Values and Code Sets for *CT Image Storage for Lung CAD*

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		CT images derived for Lung CAD
		SECONDARY (Value 2)		CT images derived for Lung CAD
		AXIAL (Value 3)		CT images derived for Lung CAD
		AlgorithmName_AlgorithmVersion_DO (Value 4)		CT images derived for Lung CAD

Table A.6.4-2: Values and Code Sets for Image result for *CT Image Storage for* Grayscale CT Perfusion workflow

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
		CT_SOM8 PERF (Value 4)		
Image Type	(0008,0008)	MIP (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard	MIP – Temporal MIP
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Image Comment	(0020,4000)	HU		
Image Type	(0008,0008)	AVG (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion +	AVG – Temporal Average
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		

Attribute Name	Tag	Value/Code	Condition	Comments
Image Comment	(0020,4000)	HU	CT Myocardial Perfusion Calculation Model Standard	
Image Type	(0008,0008)	BASE (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard	BASE – Baseline
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Image Comment	(0020,4000)	HU		
Image Type	(0008,0008)	TTSM (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard	TTSM – Time to Start
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	TTSD (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution	TTSD – Time to Start
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	TTPM (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard	TTPM – Time to Peak
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	TTDD (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution	TTDD – Time to Drain
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	MTTD (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution	MTTD – Mean Transit Time
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	TMAXD	Task/Body Region CT Neuro Perfusion +	TMAXD – TMax
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Type	(0028,1054)	US	CT Body Perfusion Calculation Model Deconvolution	
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	FED (Value 5)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution	FED – Flow Extraction Product
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	CBFM (Value 5)	Task/Body Region CT Neuro Perfusion Calculation Model Max Slope	CBFM – Cerebral Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	CBFD (Value 5)	Task/Body Region CT Neuro Perfusion Calculation Model Deconvolution	CBFD – Cerebral Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	CBVM (Value 5)	Task/Body Region CT Neuro Perfusion Calculation Model Max. Enhancement	CBVM – Cerebral Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	CBVD (Value 5)	Task/Body Region CT Neuro perfusion Calculation Model Deconvolution	CBVD – Cerebral Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	BFM (Value 5)	Task/Body Region CT Body Perfusion Calculation Model Max Slope	BFM –Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	BFD (Value 5)	Task/Body Region CT Body Perfusion Calculation Model Deconvolution	BFD Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	BVM (Value 5)	Task/Body Region	BVM –Blood Volume

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Intercept	(0028,1052)	-102.4	CT Body Perfusion Calculation Model Max. Enhancement	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	BVD (Value 5)	Task/Body Region CT Body perfusion Calculation Model Deconvolution	BVD –Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	BVP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Patlak	BVP –Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	FEP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Patlak	FEP –Flow Extraction Product
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	RSQP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Patlak	RSQP - RSquare
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	%		
Image Type	(0008,0008)	RSDP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Patlak	RSDP - Residuals
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	ALP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Liver Model	ALP – Arterial Liver Perfusion
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	PVP (Value 5)	Task/Body Region CT Body perfusion Calculation Model Liver Model	PVP – Portal Venous Liver Perfusion
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	HPI (Value 5)	Task/Body Region	

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Intercept	(0028,1052)	-1024	CT Body perfusion Calculation Model Liver Model	HPI – Hepatic Perfusion Index
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	MBF (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Max Slope	MBF – Myocardial Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	MBV (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Max Enhancement	MBV – Myocardial
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	FE (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	FE – Flow Extraction Product
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	PCBV (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	PCBV – Perfused Capillary Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	MBFC (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	MBFC – Myocardial Blood Flow Corrected
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	EEV (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	EEV – Extravascular Extracellular Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL		
Image Type	(0008,0008)	TTP (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	TTP – Time to Peak
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	s		
Image Type	(0008,0008)	TTS (Value 5)	Task/Body Region	TTS – Time to Start

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Intercept	(0028,1052)	-102.4	CT Myocardial perfusion Calculation Model Myocardial Deconvolution	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		
Image Type	(0008,0008)	TTT (Value 5)	Task/Body Region CT Myocardial perfusion Calculation Model Myocardial Deconvolution	TTT – Tissue Transit Time
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Image Comment	(0020,4000)	mL/100mL/min		

Table A.6.4-3: Values and Code Sets for CT Image Range Image Result

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
Image Type	(0008,0008)	MPR / MPR THICK / MIP / MIP THIN (Value 4)		
		PARALLEL / RADIAL / RADIALSLICED (Value 5)		
Rescale Intercept	(0028,1052)	-8192		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Bits Stored	(0028,0101)	16		
Image Type	(0008,0008)	MPR / MPR THICK / MIP / MIP THIN (Value 4)		
		PARALLEL / RADIAL / RADIALSLICED (Value 5)		
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Bits Stored	(0028,0101)	12		

Table A.6.4-4: Values and Code Sets for CT Image Snapshot Image Result

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
Image Type	(0008,0008)	MPR / MPR THICK / MIP / MIP THIN (Value 4)		
Rescale Intercept	(0028,1052)	-8192		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Bits Stored	(0028,0101)	16		

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	MPR / MPR THICK / MIP / MIP THIN	Value for Value 4	
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Bits Stored	(0028,0101)	12		

Table A.6.4-5: Values and Code Sets for CT Image Result in Dual Energy application

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4)		Image type Description – Mixed / MIX
		CT_SOM8 DEMIX (Value 5)		
		MIX (Value 6)		
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4)		Image type Description – Mixed / DIFF
		CT_SOM8 DEMIX (Value 5)		
		DIFF (Value 6)		
Image Type	(0008,0008)	ENERGY_VRPROP_WT (Value 4)		Image Type Description – Optimum Contrast
		CT_SOM8 DEOC (Value 5)		
		OC (Value 6)		
Image Type	(0008,0008)	VMI (Value 4)		Image Type Description – Monoenergetic
		CT_SOM8 DEMEP (Value 5)		
		ME<energy>KEV (Value 6)		
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		Image Type Description – Liver VNC / IOD
		CT_SOM8 DELI (Value 5)		
		IOD (Value 6)		
Image Type	(0008,0008)	MAT_REMOVED (Value 4)		Image Type Description – Liver VNC / VNC
		CT_SOM8 DELI (Value 5)		
		VNC (Value 6)		
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		

Attribute Name	Tag	Value/Code	Condition	Comments
		CT_SOM8 DELI (Value 5)		Image Type Description – Liver VNC / IMD
		IMD (Value 6)		
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		Image Type Description – Liver VNC / IMD
		CT_SOM8 DELI (Value 5)		
		IMD (Value 6)		
Image Type	(0008,0008)	MAT_FRACTIONAL (Value 4)		Image Type Description – Liver VNC / Fat Map
		CT_SOM8 DELI (Value 5)		
		FAT (Value 6)		
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		Image Type Description – Liver VNC / CON
		CT_SOM8 DELI (Value 5)		
		CON (Value 6)		
Image Type	(0008,0008)	MAT_FRACTIONAL (Value 4)		Image Type Description – Liver VNC / ECV
		CT_SOM8 DELI (Value 5)		
		ECV (Value 6)		
Image Type	(0008,0008)	MAT_MODIFIED (Value 4)		Image Type Description – Bone Removal Head with PLQ
		CT_SOM8 DEBH (Value 5)		
		BR_W_PLQ (Value 6)		
Image Type	(0008,0008)	MAT_MODIFIED (Value 4)		Image Type Description – Bone Removal Head without PLQ
		CT_SOM8 DEBH (Value 5)		
		BR_WO_PLQ (Value 6)		
Image Type	(0008,0008)	MAT_MODIFIED (Value 4)		Image Type Description – Bone Removal Body with PLQ
		CT_SOM8 DELI (Value 5)		
		BR_W_PLQ (Value 6)		
Image Type	(0008,0008)	MAT_MODIFIED (Value 4)		Image Type Description – Bone Removal Body without PLQ
		CT_SOM8 DELI (Value 5)		
		BR_WO_PLQ (Value 6)		
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		

Attribute Name	Tag	Value/Code	Condition	Comments
		CT_SOM8 DEHT (Value 5) IOD (Value 6)		Image Type Description – Heart PBV / IOD
Image Type	(0008,0008)	MAT_REMOVED (Value 4) CT_SOM8 DEHT (Value 5) VNC (Value 6)		Image Type Description – Heart PBV / VNC
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEHT (Value 5) IMD (Value 6)		Image Type Description – Heart PBV / IMD
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEHT (Value 5) IOD (Value 6)		Image Type Description – Heart PBV / CON
Image Type	(0008,0008)	MAT_FRACTIONAL (Value 4) CT_SOM8 DEHT (Value 5) ECV (Value 6)		Image Type Description – Heart PBV / ECV
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEBR (Value 5) IOD (Value 6)		Image Type Description – Brain Hemorrhage / IOD
Image Type	(0008,0008)	MAT_REMOVED (Value 4) CT_SOM8 DEBR (Value 5) VNC (Value 6)		Image Type Description – Brain Hemorrhage / VNC
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEBR (Value 5) IMD (Value 6)		Image Type Description – Brain Hemorrhage / IMD
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEBR (Value 5) IOD (Value 6)		Image Type Description – Brain Hemorrhage / CON
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4)		

Attribute Name	Tag	Value/Code	Condition	Comments
		CT_SOM8 DEVNC (Value 5) IOD (Value 6)		Image Type Description – Virtual Enhanced / IOD
Image Type	(0008,0008)	MAT_REMOVED (Value 4) CT_SOM8 DEVNC (Value 5) VNC (Value 6)		Image Type Description – Virtual Enhanced / VNC
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEVNC (Value 5) IMD (Value 6)		Image Type Description – Virtual Enhanced / IMD
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DEVNC (Val (Value 5) IOD (Value 6)		Image Type Description – Virtual Enhanced / CON
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DELU (Value 5) IOD (Value 6)		Image Type Description – Lung PBV / IOD
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DELU (Value 5) IMD (Value 6)		Image Type Description – Lung PBV / IMD
Image Type	(0008,0008)	MAT_MODIFIED (Value 4) CT_SOM8 DELM (Value 5) DIFF (Value 6)		Image Type Description – Lung Mono
Image Type	(0008,0008)	MAT_VALUE_BASED (Value 4) CT_SOM8 DELV (Value 5) CLA (Value 6)		Image Type Description – Lung Vessels
Image Type	(0008,0008)	MAT_VALUE_BASED (Value 4) CT_SOM8 DEKI (Value 5) CLA (Value 6)		Image Type Description – Kidney Stones
Image Type	(0008,0008)	MAT_VALUE_BASED (Value 4)		Image Type Description – Gout

Attribute Name	Tag	Value/Code	Condition	Comments
		CT_SOM8 DEGO (Value 5)		
		CLA (Value 6)		
Image Type	(0008,0008)	VMI (Value 4)		Image Type Description – Monoenergetic Plus
		CT_SOM8 DEMEP (Value 5)		
		ME<energy>KEV (Value 6)		
Image Type	(0008,0008)	MAT_REMOVED (Value 4)		Image Type Description – Bone Marrow
		CT_SOM8 DEBM (Value 5)		
		VNCA (Value 6)		
Image Type	(0008,0008)	EFF_ATOMIC_NUM (Value 4)		Image Type Description – RhoZ / Z
		CT_SOM8 DERHOZ (Value 5)		
		Z (Value 6)		
Image Type	(0008,0008)	ELECTRON_DENSITY (Value 4)		Image Type Description – RhoZ / Rho
		CT_SOM8 DERHOZ (Value 5)		
		RHO (Value 6)		
Image Type	(0008,0008)	MAT_VALUE_BASED (Value 4)		Image Type Description – Hard Plaques
		CT_SOM8 DEPL (Value 5)		
		CLA (Value 6)		
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4)		Image Type Description – Extracted low (without Registration)
		L (Value 5)		
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4)		Image Type Description – Extracted high (without Registration)
		H (Value 5)		
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4)		Image Type Description – Extracted low (with Registration)
		L_MC (Value 5)		
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4)		Image Type Description – Extracted high (with Registration)
		H_MC (Value 5)		

Table A.6.4-6: Values and Code Sets for CT Image Result in SPP workflow application

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4)		Image type Description – Axial + SPP / Dual Spiral
		CT_SOM8 DEMIX (Value 5)		
		MIX (Value 6)		
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4)		Image type Description – Axial + SPP / Twin Beam
		CT_SOM8 DEMIX (Value 5)		
		MIX (Value 6)		
Image Type	(0008,0008)	VMI (Value 4)		Image Type Description – Monoenergetic + SPP / Dual Spiral
		CT_SOM8 DEMEP (Value 5)		
		ME<energy>KEV (Value 6)		
Image Type	(0008,0008)	VMI (Value 4)		Image Type Description – Monoenergetic + SPP / TwinBeam
		CT_SOM8 DEMEP (Value 5)		
		ME<energy>KEV (Value 6)		

Table A.6.4-7: Values and Code Sets for CT Image Result in CT ASPECTS Plugin workflow

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
		ASPECTS (Value 4)		

Table A.6.4-8: Values and Code Sets for CT Image Result in CT Vascular Analysis Ranges

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1)		
		SECONDARY (Value 2)		
		AXIAL (Value 3)		
		LCAD SERIES (Value 4)		

A.7 MR Image Storage IOD

Table A.7-1: IOD of created MR Image Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
Acquisition	General Acquisition Module	ALWAYS		Table A.1.1-6
Image	General Image Module	ALWAYS		Table A.1.1-10
	General Image Plane Module	ALWAYS		Table A.1.1-9
	General Reference Module	CONDITIONAL	if references are available	Table A.1.1-5
	Image Pixel Module	ALWAYS		Table A.1.1-11
	VOI LUT Module	ALWAYS		Table A.1.1-12
	SOP Common Module	ALWAYS		Table A.1.1-14
	XA Positioner Module*	ALWAYS		Table A.7.1-1
	MR Image Module	ALWAYS		Table A.7.1-2

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.7.1 MR Image Storage IOD Specific Modules

Table A.7.1-1: MR Image – XA Positioner Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Positioner Primary Angle	(0008,1510)	GENERATED	ALWAYS	ALWAYS			
Positioner Secondary Angle	(0008,1511)	GENERATED	ALWAYS	ALWAYS			

Table A.7.1-2: MR Image – MR Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			
Scanning Sequence	(0018,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Sequence Variant	(0018,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		

A.7.2 MR Image Storage IOD Functional Group Macros

N/A

A.7.3 MR Image Storage IOD Private Modules

N/A

A.7.4 MR Image Storage IOD Coded Values

N/A

A.8 Secondary Capture Image Storage IOD

The following Tables present the Modules used by the Secondary Capture Image Storage IOD

Table A.8-1: IOD of created Secondary Capture Image Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	General Series Module – OrthoMatic Spine	CONDITIONAL	If the application is OrthoMatic Spine	Table A.8.1-9
Equipment	SC Equipment Module	ALWAYS		Table A.3.1-5
	General Equipment Module	ALWAYS		Table A.1.1-8
Acquisition	General Acquisition Module	ALWAYS		Table A.1.1-6
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
	CT Pneumonia Plugin Frame of Reference Module	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table A.8.1-3
Image	General Image Module	ALWAYS		Table A.1.1-10
	General Image Module – OrthoMatic Spine	CONDITIONAL	If the application is OrthoMatic Spine	Table A.8.1-10Table A.8.3-3
	General Reference Module	ALWAYS		Table A.1.1-5
	CT Pneumonia Plugin General Reference Module	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table A.8.1-2
	CT Pulmonary Density Plugin General Reference Module	CONDITIONAL	If the application is based on CT Pulmonary Density Plugin	Table A.8.1-5
	CT Calcium Scoring Post Processing General Reference Module	CONDITIONAL	If the application is based on CT Calcium Scoring Post Processing	Table A.8.1-6
	Image Pixel Module	ALWAYS		Table A.1.1-11
	VOI LUT Module	ALWAYS		Table A.1.1-12
	Image Plane Module	ALWAYS		Table A.8.1-1
	SC Image Module	ALWAYS		Table A.8.1-8

IE	Module	Presence (Module)	Condition	Reference
	CT Pneumonia Plugin SOP Common Module	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table A.8.1-4
	CT ASPECTS Plugin VOI LUT Module	CONDITIONAL	if the application is CT ASPECTS Plugin	Table A.8.1-7
	SOP Common Module	ALWAYS		Table A.1.1-14
	Private – SIEMENS CT APPL ALG PARAMS – Brain Hemorrhage	CONDITIONAL	Brain Hemorrhage workflow	Table A.8.3-2
	Private – SIEMENS XP XRMSK_ALGO	CONDITIONAL	If the application is OrthoMatic Spine	Table A.8.3-3

A.8.1 Secondary Capture Image Storage IOD Specific Modules

Table A.8.1-1: Secondary Capture Image Plane Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Position (Patient)	(0020,0032)	GENERATED	ALWAYS	ALWAYS			
Image Orientation (Patient)	(0020,0037)	GENERATED	ALWAYS	ALWAYS			
Slice Thickness	(0018,0050)	GENERATED	ALWAYS	ALWAYS			
Slice Location	(0020,1041)	GENERATED	ALWAYS	ALWAYS			
Contrast / Bolus Agent	(0018,0010)	GENERATED	ALWAYS	ALWAYS			
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS			
Patient Orientation	(0020,0020)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-2: Secondary Capture Secondary Capture CT Pneumonia Plugin General Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Frame Number[1]	(0080,1160)	GENERATED	ALWAYS	ALWAYS			

1 Will be used in case of single frame images to enable synched scrolling functionality in secondary capture images

Table A.8.1-3: Secondary Capture Secondary Capture CT Pneumonia Plugin Frame of Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			
Position Reference Indicator[1]	(0020,1040)	GENERATED	ALWAYS	ALWAYS			

1 This attribute is extended in Secondary Capture Image SOP Class for Plaque Analysis

Table A.8.1-4: Secondary Capture Secondary Capture CT Pneumonia Plugin SOP Common Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Original Specialized SOP Class UID	(0080,001B)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-5: Secondary Capture Secondary Capture CT Pneumonia Plugin General Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Source Image Sequence	(0080,2112)	GENERATED	ALWAYS	ALWAYS			
>Reference Frame Number	(0008,1160)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-6: Secondary Capture Secondary Capture CT Calcium Scoring General Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Source Image Sequence	(0080,2112)	GENERATED	ALWAYS	ALWAYS			
>Reference Frame Number1	(0008,1160)	GENERATED	ALWAYS	ALWAYS			

1 Will be used in case of single frame images to enable synched scrolling functionality in secondary capture images.

Table A.8.1-7: CT ASPECTS Plugin VOI LUT Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Windows Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS			
Windows Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-8: SC Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS			
Pixel Spacing Calibration Description	(0028,0A04)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-9: General Series Module – OrthoMatic Spine

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY	DX CR		
Series Description	(0008,103E)	SRC_INSTANCE	SRC_COPY	SRC_COPY	OrthoMatic Spine Results		

Table A.8.1-10: General Image Module – OrthoMatic Spine

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	DERIVED (Value 1) SECONDARY (Value 2)		

A.8.2 Secondary Capture Image Storage IOD Functional Group Macros

N/A

A.8.3 Secondary Capture Image Storage IOD Private Modules

Table A.8.3-1: Siemens Syngo Parked Views Module

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO PARKED VIEWS	(0033,xxxx)	LO	1							
Parked Views Name	(0033, 0000)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			Name of the created parked view
Parked Views Description	(0033, 0001)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			Description of the created parked view
Parked Views State Version	(0033, 0002)	SH	1	SAFE	GENERATED	ALWAYS	ALWAYS			Version of the parked view state format e.g., "1.0"
Parked Views Presentation States DataSets	(0033, 0003)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			Sequence containing presentation state for each presentation
Parked Views Application Name	(0033, 0004)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			Name of the application in which parked view was created
Parked Views Application Version	(0033, 0005)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			Version of the application in which parked view was created
Parked Views Application States	(0033, 0006)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			Sequence containing serialized state of the runtime components
Parked Views Layout State	(0033, 0007)	UT	1	SAFE	GENERATED	ALWAYS	ALWAYS			Serialized state of the layout

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Parked Views Application State Identifier	(0033, 0051)	LO	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0052) is present	Identifier of the application component
Parked Views Application State	(0033, 0052)	OB	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0051) is present	Serialized state of the application component
Parked Views Presentation State Identifier	(0033, 0071)	LO	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0072), (0033, 0073), (0033, 0074), (0033, 0075) are all present	Identifier of the presentation state
Parked Views Presentation State	(0033, 0072)	SQ	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0071), (0033, 0073), (0033, 0074), (0033,0075) are all present	Sequence containing DICOM presentation state object
Parked Views Offset	(0033, 0073)	IS	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0071), (0033, 0072), (0033, 0074), (0033, 0075) are all present	Offset used for the ordering of the presentations within the layout
Parked Views Data	(0033, 0074)	SQ	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0071), (0033, 0072), (0033, 0073), (0033, 0075) are all present	Sequence containing identifiers of the displayed data

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Parked Views Visualization Data	(0033, 0075)	UT	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0071), (0033, 0072), (0033, 0073), (0033, 0074) are all present	Visualization properties not stored in presentation state
Parked Views Overlay Index	(0033, 0090)	IS	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0091) and (0033, 0092) are present	Determines whether data are base or overlay
Parked Views Study Uid	(0033, 0091)	UI	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0090) and (0033, 0092) are present	Study UID of the displayed study
Parked Views Series Uid	(0033, 0092)	UI	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0090) and (0033, 0091) are present	Series UID of the displayed series
Parked Views Instance Uid	(0033, 0093)	UI	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0095) and (0033, 0096) are not present	Instance UID of the displayed instance
Parked Views Frame Number	(0033, 0094)	IS	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0093) is present and (0033, 0095), (0033, 0006) are not present	Frame Number
Parked Views Volume Source Frames Hash Code	(0033, 0095)	LT	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0096) is present and (0033, 0093), (0033, 0094) are not present	Hash Code of the volume

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Parked Views Volume Representation	(0033, 0096)	LT	1	SAFE	GENERATED	CONDITIONAL	CONDITIONAL		(0033, 0095) is present and (0033, 0093), (0033, 0094) are not present	Volume representation

Table A.8.3-2: Secondary capture Image IOD Private - SIEMENS CT APPL ALG PARAMS – Brain Hemorrhage

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS CT APPL ALG PARAMS	(0029,10xx)	LO	1							
> Detection State	(0029,1040)	SL	2	SAFE	GENERATED	ALWAYS	ALWAYS			

Table A.8.3-3: Secondary capture Image IOD Private - SIEMENS XP XRMSK_ALGO – OrthoMatic Spine

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS XP XRMSK_ALGO	(0037,0010)	LO	1							
Algo Results Sequence	(0037,xx11)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
SOP Instance UID	(0008,0018)	UI	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pixel Spacing	(0028,0030)	DS	2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Algorithm Name	(0037,1010)	LO	1	SAFE	CONFIGURATION	ALWAYS	ALWAYS			
Tool Version, Algorithm Version	(0037,1011)	LO	1	SAFE	CONFIGURATION	ALWAYS	ALWAYS			
Saved Results	(0037,1012)	OB	1	SAFE	GENERATED	ALWAYS	ALWAYS			

A.8.4 Secondary Capture Image Storage IOD Coded Values

N/A

A.9 Positron Emission Tomography Image Storage IOD

Table A.9-1: IOD of created Positron Emission Tomography Image Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	PET Series Module	ALWAYS		Table A.9.1-2
	PET Isotope Module	ALWAYS		Table A.9.1-3
	NM/PET Patient Orientation	ALWAYS		Table A.9.1-3
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
Acquisition	General Acquisition Module	ALWAYS		Table A.1.1-6
Image	General Image Module	ALWAYS		Table A.1.1-10
	General Reference Module	CONDITIONAL	If reference data is available.	Table A.1.1-5
	Image Plane Module	ALWAYS		Table A.1.1-9
	Image Pixel Module	ALWAYS		Table A.1.1-11
	VOI LUT Module	ALWAYS		Table A.1.1-12
	SOP Common Module	ALWAYS		Table A.1.1-14
	PET Image Module	ALWAYS		Table A.9.1-1
	Private – GEMS_PETD_01	CONDITIONAL	GEMS_PETD_01	Table A.9.3-1

A.9.1 Positron Emission Tomography Image Storage IOD Specific Modules

Table A.9.1-1 PET Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			
Samples per pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS			
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS			
Frame Reference Time	(0054,1300)	GENERATED	ALWAYS	ALWAYS			
Image Index	(0054,1330)	GENERATED	ALWAYS	ALWAYS			

Table A.9.1-2 PET Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			
Number of Slices	(0054,0081)	GENERATED	ALWAYS	ALWAYS			
Series Type	(0054,1000)	GENERATED	ALWAYS	ALWAYS			
Units	(0054,1001)	GENERATED	ALWAYS	ALWAYS			
Counts Source	(0054,1002)	GENERATED	ALWAYS	ALWAYS			
Decay Correction	(0054,1102)	GENERATED	ALWAYS	ALWAYS			

Table A.9.1-3 PET Isotope Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Intervention Drug Information Sequence	(0018,0026)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Radiopharmaceutical Information Sequence	(0054,0016)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.9.1-4 NM/PET Patient Orientation Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Orientation Code Sequence	(0054,0410)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient Gantry Relationship Code Sequence	(0054,0414)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.9.2 Positron Emission Tomography Image Storage IOD Functional Group Macros

N/A

A.9.3 Positron Emission Tomography Image Storage IOD Private Modules

Table A.9.3-1: Positron Emission Tomography Image Storage IOD Private - *GEMS_PETD_01*

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0009,00xx)	LO	1							
GE Decay Correction DateTime	(0009,xx0D)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private creator	(0071,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMED PT		
Reference To Registration	(0071,xx21)	LO	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Decay Correction DateTime	(0071,xx22)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Registration Matrix	(0071,xx23)	FD	16	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Table Motion	(0071,xx24)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Lumped Constant	(0071,xx25)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Histogramming Method	(0071,xx26)	CS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Prompts Rate	(0071,xx30)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Randoms Rate	(0071,xx31)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Average Detector Singles Rate	(0071,xx32)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private creator	(0075,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS PET DERIVED		
Volume Index	(0075,xx01)	US	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Time Slice Duration	(0075,xx02)	IS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Frame Reference Time Sequence	(0075,xx03)	SQ	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private creator	(0071,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED PTMUMAP		
SOP Class of Source	(0071,xx01)	UI	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Related Mu Map Series	(0071,xx02)	UI	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private creator	(7053,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	Philips PET Private Group		
Philips SUV Factor 1	(7053,xx00)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Philips SUV Factor 2	(7053,xx03)	DS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.9.4 Positron Emission Tomography Image Storage IOD Coded Values

N/A

A.10 Enhanced CT Image Storage IOD

The following Tables present the Modules used by the Enhanced CT Image Storage IOD

Table A.10-1 : IOD of created Enhanced CT Image Storage SOP Class Instances

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	In case of derived objects depending on the availability in the source.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-3
	CT Series Module	ALWAYS		Table A.10.1-7
Frame Of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.10.1-2
Image	Enhanced CT Image Module	ALWAYS		Table A.10.1-4
	Enhanced CT image result of CT Perfusion Task Module	CONDITIONAL	If the workflow is related to Enhanced CT Image Result	Table A.10.1-2
	Acquisition Context Module	ALWAYS		Table A.10.1-3
	Multi-frame Dimension Module	ALWAYS		Table A.10.1-5
	Multi-frame Functional Groups Module	ALWAYS		Table A.10.1-6
	Image Pixell Module	ALWAYS		Table A.1.1-11
	Contrast / Bolus	CONDITIONAL	Required if contrast media was used in this image	Table A.1.1-13
	SOP Common Module	ALWAYS		Table A.1.1-14
	Private – SIEMENS CT EXAM ALG PARAMS – MyocardialPerfusion_AID	CONDITIONAL	MyocardialPerfusion_AID	Table A.10.3-1

A.10.1 Enhanced CT Image Storage IOD Specific Modules

Table A.10.1-1: Enhanced CT Image result of CT Perfusion Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	CONDITIONAL	Table A.10.4-1	Based on Task / Body Region along with Calculation Model	
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		

Table A.10.1-2: Enhanced CT Image – Enhanced General Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Siemens Healthineers		
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS			
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS			
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS			

Table A.10.1-3: Enhanced CT Image – Acquisition Context Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	GENERATED	ALWAYS	ALWAYS			
>Value Type	(0040,A040)	GENERATED	ALWAYS	ALWAYS			
>Concept Name Code Sequence	(0040,A043)	GENERATED	ALWAYS	ALWAYS			
>>Code Value	(0008,1000)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Coding Scheme Designator	(0008,1002)	GENERATED	ALWAYS	ALWAYS			
>>Coding Scheme Version	(0008,1003)	GENERATED	ALWAYS	ALWAYS			

Table A.10.1-4: Enhanced CT Image – Enhanced CT Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-1		
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS	16		
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS	Bits Stored - 1		
Presentation LUT Shape	(2050,0020)	GENERATED	ALWAYS	ALWAYS			

Table A.10.1-5: Enhanced CT Image – Multi-frame Dimension Module

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			

Table A.10.1-6: Enhanced CT Image - Multi-frame Functional Groups Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Refer Table A.1.1-39 for Multi-frame functional Groups Module							

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shared Functional Groups Sequence	(5200,9229)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>CT Image Frame Type Sequence	(0018,9329)	GENERATED	ALWAYS	ALWAYS			
>>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-1		
>Real World Value Mapping Sequence	(0040,9096)	GENERATED	ALWAYS	ALWAYS			
>>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-1		
>>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			
>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			
>>Real World Value Intercept	(0040,9224)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-2 (Refer the Rescale Intercept (0028,1052)		
>>Real World Value Slope	(0040,9225)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-2 (Refer the Rescale Slope (0028,1053)		
>Pixel Value Transformation Sequence	(0028,9145)	GENERATED	ALWAYS	ALWAYS			
>>Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-2		
>>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-2		
>>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table A.10.4-2		

Table A.10.1-7: Enhanced CT Image – CT Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	CT		

A.10.2 Enhanced CT Image Storage IOD Functional Group Macros

N/A

A.10.3 Enhanced CT Image Storage IOD Private Modules

Table A.10.3-1: Enhanced CT Image Storage IOD Private – SIEMENS CT EXAM ALG PARAMS – MyocardialPerfusion_AID

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS CT EXAM ALG PARAMS	(0029,10xx)	LO	1							
> Perfusion Result Set Id	(0029,1020)	FD	1	SAFE	GENERATED	ALWAYS	ALWAYS			

A.10.4 Enhanced CT Image Storage IOD Coded Values

Table A.10.4-1: Values and Code Sets for Enhanced *CT Image Storage for perfusion tasks*

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	DERIVED (Value 1) SECONDARY (Value 2) PERFUSION (Value 3)		
Image Type	(0008,0008)	MIP (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard	MIP – Temporary MIP
Image Type	(0008,0008)	AVG (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard	AVG – Temporary Average
Image Type	(0008,0008)	BASE (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard	BASE – Baseline

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	TTSM (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard	TTSM – Time to Start
Image Type	(0008,0008)	TTSD (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution	TTSD – Time to Start
Image Type	(0008,0008)	TTPM (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard	TTPM – Time to Peak
Image Type	(0008,0008)	TTDD (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution	TTDD – Time to Drain
Image Type	(0008,0008)	MTTD (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution	MTTD – Mean Transit Time
Image Type	(0008,0008)	TMAXD (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution	TMAXD – TMax
Image Type	(0008,0008)	FED (Value 4)	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution	FED – Flow Extraction Product

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	CBFM (Value 4)	Task/Body Region CT Neuro Perfusion Calculation Model Max. Slope	CBFM – Cerebral Blood Flow
Image Type	(0008,0008)	CBFD (Value 4)	Task/Body Region CT Neuro Perfusion Calculation Model Deconvolution	CBFD – Cerebral Blood Flow
Image Type	(0008,0008)	CBVM (Value 4)	Task/Body Region CT Neuro Perfusion Calculation Model Max. Enhancement	CBVM – Cerebral Blood Volume
Image Type	(0008,0008)	CBVD (Value 4)	Task/Body Region CT Neuro Perfusion Calculation Model Deconvolution	CBVD – Cerebral Blood Volume
Image Type	(0008,0008)	BFM (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Max. Slope	BFM –Blood Flow
Image Type	(0008,0008)	BFD (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Deconvolution	BFD – Blood Flow
Image Type	(0008,0008)	BVM (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Max. Enhancement	BVM – Blood Volume
Image Type	(0008,0008)	BVP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Patlak	BVP – Blood Volume
Image Type	(0008,0008)	BVD (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Deconvolution	BVD – Blood Volume
Image Type	(0008,0008)	FEP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Patlak	FEP – Flow Extraction Product
Image Type	(0008,0008)	RSQP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Patlak	RSQP – RSquare

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	RSDP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Patlak	RSDP – Residuals
Image Type	(0008,0008)	ALP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Liver Model	ALP – Arterial Liver Perfusion
Image Type	(0008,0008)	PVP (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Liver Model	PVP – Portal Venous Liver Perfusion
Image Type	(0008,0008)	HPI (Value 4)	Task/Body Region CT Body Perfusion Calculation Model Liver Model	HPI – Hepatic Perfusion Index
Image Type	(0008,0008)	MBF_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Max. Slope	MBF_H – Myocardial Blood Flow
Image Type	(0008,0008)	MBV_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Max. Enhancement	MBV_H – Myocardial Blood Volume
Image Type	(0008,0008)	FE_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	FE_H – Flow Extraction Product
Image Type	(0008,0008)	PCBV_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	PCBV_H – Perfused Capillary Blood Volume
Image Type	(0008,0008)	MBFC_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	MBFC_H – Myocardial Blood Flow Corrected

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	EEV_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	EEV_H – Extravascular Extracellular Volume
Image Type	(0008,0008)	TTP_H (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	TTP_H – Time to Peak
Image Type	(0008,0008)	TTS (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	TTS – Time to Start
Image Type	(0008,0008)	TTT (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	TTT – Tissue Transit Time

Table A.10.4-2: Values and Code Sets for Pixel Value Transformation Sequence(5200,9229) *for perfusion tasks*

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Intercept	(0028,1052)	-1024	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard Image Type MIP (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Rescale Intercept	(0028,1052)	-1024	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard Image Type AVG (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Rescale Intercept	(0028,1052)	-1024	Task/Body Region	

Rescale Slope	(0028,1053)	1	CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard Image Type BASE (Value 4)	
Rescale Type	(0028,1054)	HU		
Rescale Intercept	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard Image Type TTSM (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution Image Type TTSD (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard Image Type TTPM (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion Calculation Model Deconvolution Image Type TTDD (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution Image Type MTTD (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion +	
Rescale Slope	(0028,1053)	0.1		

Rescale Type	(0028,1054)	US	CT Body Perfusion Calculation Model Deconvolution Image Type TMAXD (Value 4)	
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Deconvolution Image Type FED (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Neuro Perfusion Calculation Model Max. Slope Image Type CBFM (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Neuro Perfusion Calculation Model Deconvolution Image Type CBFD (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion Calculation Model Max. Enhancement Image Type CBVM (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Neuro Perfusion Calculation Model Deconvolution Image Type CBVD (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Body Perfusion Calculation Model Max. Slope Image Type BFM (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Body Perfusion Calculation Model Deconvolution	
Rescale Slope	(0028,1053)	1		

Rescale Type	(0028,1054)	US	Image Type BFD (Value 4)	
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Body Perfusion Calculation Model Max. Enhancement Image Type BVM (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Body Perfusion Calculation Model Patlak Image Type BVP (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Body Perfusion Calculation Model Deconvolution Image Type BVD (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Body Perfusion Calculation Model Patlak Image Type FEP (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Body Perfusion Calculation Model Patlak Image Type RSQP (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Body Perfusion Calculation Model Patlak Image Type RSDP (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Body Perfusion Calculation Model Liver Model Image Type ALP (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region	

Rescale Slope	(0028,1053)	1	CT Body Perfusion Calculation Model Liver Model Image Type PVP (Value 4)	
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Body Perfusion Calculation Model Liver Model Image Type HPI (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Myocardial Perfusion Calculation Model Max. Slope Image Type MBF_H (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Max. Enhancement Image Type MBV_H (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type FE_H (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type PCBV_H (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-1024	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type MBFC_H (Value 4)	
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	US		

Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type EEV_H (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type TTP_H (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type TTS (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		
Rescale Intercept`	(0028,1052)	-102.4	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution Image Type TTT (Value 4)	
Rescale Slope	(0028,1053)	0.1		
Rescale Type	(0028,1054)	US		

A.11 Enhanced MR Image Storage IOD

In the objects created the tag (0008,0008) Image Type will be of the value "SECONDARY/DERIVED" and may be extended by application specific values.

Table A.11-1 : IOD of created Enhanced MR Image Storage SOP Class Instances

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	In case of derived objects depending on the availability in the source.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-3
	MR Series Module	ALWAYS		Table A.11.1-1
Frame Of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.10.1-2
Image	General Image Module	ALWAYS		Table A.1.1-10
	Multi-frame Functional Groups Module	ALWAYS		Table A.1.2-1
	Image Pixel Module	ALWAYS		Table A.1.1-11
	SOP Common Module	ALWAYS		Table A.1.1-14
	Acquisition Context Module	ALWAYS		Table A.10.1-3
	Multi-frame Dimension Module	ALWAYS		Table A.11.1-2
	Enhanced MR Image Module	ALWAYS		Table A.11.1-3

A.11.1 Enhanced MR Image Storage IOD Specific Modules

Table A.11.1-1: Enhanced MR Image – MR Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		

Table A.11.1-2: Enhanced MR Image – Multi-frame Dimension

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Dimension Organization UID	(0020,9164)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-3: Enhanced MR Image – Enhanced MR Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			
Pixel Representation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS			

A.11.2 Enhanced MR Image Storage IOD Functional Group Macros

N/A

A.11.3 Enhanced MR Image Storage IOD Private Modules

N/A

A.11.4 Enhanced MR Image Storage IOD Coded Values

N/A

A.12 Nuclear Medicine Image Store IOD

Table A.12-1 : IOD of created Nuclear Medicine Image Storage SOP Class Instances

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	General Series Module	ALWAYS		Table A.1.1-3
	NM/PET Patient Orientation Module	ALWAYS		Table A.12.1-1
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
Acquisition	General Acquisition Module	ALWAYS		Table A.1.1-6
Image	General Image Module	ALWAYS		Table A.1.1-10
	SOP Common Module	ALWAYS		Table A.1.1-14
	Image Pixel Module	ALWAYS		Table A.1.1-11
	NM Image Pixel Module	ALWAYS		Table A.12.1-2
	Multi-frame Module	ALWAYS		Table A.12.1-3
	NM Multi-frame Module	ALWAYS		Table A.12.1-4
	NM Image Module	ALWAYS		Table A.12.1-5
	NM Isotope Module	ALWAYS		Table A.12.1-6
	NM Detector Module	ALWAYS		Table A.12.1-7
	Private - MEDCOM Object Oriented Graphics	CONDITIONAL	whenever object graphics is drawn on the image and need to be stored as graphic object properties.	Table A.12.3-1
	Private – Standard MED NM	ALWAYS		Table A.12.3-2

A.12.1 Nuclear Medicine Image Storage IOD Specific Modules

Table A.12.1-1: Nuclear Medicine Image – NM/PET Patient Orientation Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Orientation Code Sequence	(0054,0410)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Patient Gantry Relationship Code Sequence	(0054,0414)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-2: Nuclear Medicine Image – NM Image Pixel Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	Bits Stored - 1		
Samples per pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS			

Table A.12.1-3: Nuclear Medicine Image – Multi-frame Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS			
Frame Increment Pointer	(0028,0009)	GENERATED	ALWAYS	ALWAYS			

Table A.12.1-4: Nuclear Medicine Image – NM Multi-frame Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Energy Windows	(0054,0011)	GENERATED	ALWAYS	ALWAYS			
Frame Increment Pointer	(0028,0009)	GENERATED	ALWAYS	ALWAYS			
Number of Detectors	(0054,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-5: Nuclear Medicine Image – NM Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			

Table A.12.1-6: Nuclear Medicine Image – NM Isotope Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Intervention Drug Information Sequence	(0018,0026)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Energy Window Information Sequence	(0054,0012)	SRC_INSTANCE	SRC_COPY				
Radiopharmaceutical Information Sequence	(0054,0016)	SRC_INSTANCE	SRC_COPY				

Table A.12.1-7: Nuclear Medicine Image – NM Detector Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Detector Information Sequence	(0054,0022)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.12.2 Nuclear Medicine Image Storage IOD Functional Group Macros

N/A

A.12.3 Nuclear Medicine Image Storage IOD Private Modules

The Table A.17.3-1contains private IOD Attributes that describe MEDCOM Object Oriented Graphics (OOG). This module is used whenever object graphics is drawn on the image and need to be stored as graphic object properties. Given the condition that the module contents were not removed by other modalities, the graphic objects remain animatable if such an image was transferred and is then retrieved back. The graphics objects are also fully drawn in the Image Overlay Plane for compatibility with other products, which do not support the MedCom OOG module. Any system not supporting the MedCom OOG module shall remove the OOG module and its contents when modifying the image overlay plane content.

Table A.12.3-1: Nuclear Medicine Image Storage IOD Private - MEDCOM Object Oriented Graphics (OOG)

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0029,00xx)	LO	1		FIXED	CONDITIONAL	ALWAYS	SIEMENS MEDCOM OOG	When user creates graphics	
MedCom OOG Type	(0029,xx08)	CS	1	SAFE	FIXED	CONDITIONAL	ALWAYS	MEDCOM OOG 1 MEDCOM OOG 2	When user creates graphics	

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MedCom OOG Version	(0029,xx09)	LO	1	SAFE	CONFIGURATION	CONDITIONAL	ALWAYS	Version of MEDCOM OOG Info(0029, xx10) format	When user creates graphics	
MedCom OOG Info	(0029,xx10)	OB	1	SAFE	GENERATED	CONDITIONAL	ALWAYS	MEDCOM Object Oriented Graphics (OOG) data.	When user creates graphics	

Table A.12.3-2: Nuclear Medicine Image Storage IOD Private – Standard NM Med

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0019,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Siemens ICON Data Type	(0019,xx0F)	SL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of repeats per phase	(0019,xxA5)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cycles per repeat	(0019,xxA6)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Repeat start time	(0019,xxA7)	SL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Repeat stop time	(0019,xxA8)	SL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Effective Repeat time	(0019,xxA9)	SL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquired cycles per repeat	(0019,xxAA)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of views	(0019,xx16)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0021,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED ECAT FILE INFO		
ECAT File Menu Header	(0021,xx00)	OB	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
ECAT File Subheader	(0021,xx01)	OB	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0023,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
DICOM Reader Flag	(0023,xx01)	US	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0033,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Flood correction Matrix Det 1 up to SR 2.0	(0033,xx00)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Flood correction Matrix Det 2 up to SR 2.0	(0033,xx01)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
COR Data for Detector 1	(0033,xx10)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
COR Data for Detector 2	(0033,xx11)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
MHR Y - Shift 1	(0033,xx14)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
MHR Y - Shift 2	(0033,xx15)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
NCO Data 1	(0033,xx18)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
NCO Data 2	(0033,xx19)	FL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bed Correction Angle	(0033,xx20)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Gantry Correction Angle	(0033,xx21)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Gantry L / R Correction Data	(0033,xx23)	SS	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Backprojection angle head 1	(0033,xx24)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Backprojection angle head 2	(0033,xx25)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of point sources used for NCO and MHR	(0033,xx28)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Crystal thickness	(0033,xx29)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Preset name used for acquisition	(0033,xx30)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Camera config angle	(0033,xx31)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Crystal type Startburst or not	(0033,xx32)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Gantry step for COIN acquisitions	(0033,xx33)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bed step for whole body or Coin acquisitions	(0033,xx34)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Weight factor table for coincidence acquisitions	(0033,xx35)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Transaxial acceptance width for coincidence	(0033,xx36)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Starburst flags	(0033,xx37)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pixel scale factor	(0033,xx38)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0035,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Specialized tomo type	(0035,xx00)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Energy window type	(0035,xx01)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Start and end row illuminated by wind position	(0035,xx02)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Blank scan image for profile	(0035,xx03)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Repeat number of the original dynamic SPECT	(0035,xx04)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Phase number of the original dynamic SPECT	(0035,xx05)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Siemens Profile 2 Image Sub type	(0035,xx06)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0039,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Toshiba CBF activity results	(0039,xx00)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Related CT Series Instance UID	(0039,xx01)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0041,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Whole Body Tomo Position Index	(0041,xx01)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Whole Body Tomo Number of Positions	(0041,xx02)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Horizontal Table Position of CT scan	(0041,xx03)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Effective Energy for CT Scan	(0041,xx04)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Long Linear Drive Information for Detector 1	(0041,xx05)	FD	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Long Linear Drive Information for Detector 2	(0041,xx06)	FD	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Trunnion Information for Detector 1	(0041,xx07)	FD	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Trunnion Information for Detector 2	(0041,xx08)	FD	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Broad Beam Factor	(0041,xx09)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Original whole body Position	(0041,xx0A)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Whole body Scan Range	(0041,xx0B)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Effective Frame Duration	(0041,xx10)	FL	1-3	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Gated Frame Duration	(0041,xx11)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0043,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED NM		
Detector View Angle	(0043,xx01)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Transformation Matrix	(0043,xx02)	FD	1-16	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
View Dependent Y shift MHR for Detector 1	(0043,xx03)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
View Dependent Y shift MHR for Detector 2	(0043,xx04)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0045,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
Planar Processing String	(0045,xx01)	LO	1-n		SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0055,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
Prompt window width	(0055,xx04)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Random window width	(0055,xx05)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator thickness	(0055,xx7E)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator angular resolution	(0055,xx7F)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Useful Field of View	(0055,xxC0)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0057,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
original PET image type	(0057,xx01)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Dose calibration factor	(0057,xx02)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Units	(0057,xx03)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Decay correction	(0057,xx04)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Radio nuclide half life	(0057,xx05)	SL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rescale intercept	(0057,xx06)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Slope	(0057,xx07)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Frame reference time	(0057,xx08)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of Radiopharmaceutical information sequence	(0057,xx09)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Decay factor	(0057,xx0A)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Counts source	(0057,xx0B)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Radionuclide positron fraction	(0057,xx0C)	SL	n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Trigger Time of CT Slice	(0057,xx0E)	US	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
QSPECT Compliant Flag	(0057,xx0F)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0061,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
X Principal Ray Offset	(0061,xx01)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Principal Ray Offset	(0061,xx05)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Principal Ray Angle	(0061,xx09)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Principal Ray Angle	(0061,xx0A)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Short Focal Length	(0061,xx0B)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Short Focal Length	(0061,xx0C)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Long Focal Length	(0061,xx0D)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Y Long Focal Length	(0061,xx0E)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Focal Scaling	(0061,xx0F)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Focal Scaling	(0061,xx10)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Motion Correction Shift	(0061,xx11)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Motion Correction Shift	(0061,xx15)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
X Heart Centre	(0061,xx19)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Y Heart Centre	(0061,xx1A)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Z Heart Centre	(0061,xx1B)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Image Pixel Content Type	(0061,xx1C)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Auto Save Corrected Series	(0061,xx1D)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Distorted Series Instance UID	(0061,xx1E)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Range	(0061,xx21)	SS	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Orientation	(0061,xx22)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Selected Angular Range	(0061,xx23)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Transverse Angle	(0061,xx24)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Sagittal Angle	(0061,xx25)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon X Mask Size	(0061,xx26)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Y Mask Size	(0061,xx27)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon X Image Centre	(0061,xx28)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Recon Y Image Centre	(0061,xx29)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Z Image Centre	(0061,xx2A)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon X Zoom	(0061,xx2B)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Y Zoom	(0061,xx2C)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Threshold	(0061,xx2D)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Output Pixel Size	(0061,xx2E)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Method	(0061,xx2F)	LO	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Method Mode	(0061,xx30)	LO	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Lower Window Weights	(0061,xx31)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Upper Window Weights	(0061,xx32)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Window Mode	(0061,xx33)	LO	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scatter Estimation Filter	(0061,xx34)	LO	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon RawTomo Input Uid	(0061,xx35)	LO	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon CT Input Uid	(0061,xx36)	LO	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Z Mask Size	(0061,xx37)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon X Mask Centre	(0061,xx38)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Y Mask Centre	(0061,xx39)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Z Mask Centre	(0061,xx3A)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
First Slice Index	(0061,xx3B)	FL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Non Image UID	(0061,xx3C)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Non Image Series UID	(0061,xx3D)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Non Image Associated Parent Series UID	(0061,xx3E)	LT	2	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Original Bin Time	(0061,xx3F)	FL	1-N	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Raw Tomo Series UID	(0061,xx51)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
LowRes CT Series UID	(0061,xx52)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
HighRes CT Series UID	(0061,xx53)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Vector Map Offset	(0061,xx54)	FL	1-4	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Hole Length	(0061,xx55)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Entry Hole Diameter	(0061,xx56)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Exit Hole Diameter	(0061,xx57)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Front Padding Distance	(0061,xx58)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Back Spacing Distance	(0061,xx59)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Mean Hole Area	(0061,xx5A)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Field of View	(0061,xx5B)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Septal Penetration	(0061,xx5C)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Collimator Sensitivity	(0061,xx5D)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Crystal Depth of Interaction	(0061,xx5E)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Crystal Intrinsic Resolution	(0061,xx5F)	FL	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
IQSPECT Heart Offset Detector 1	(0061,xx60)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
IQSPECT Heart Offset Detector 2	(0061,xx61)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Output Type	(0061,xx62)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Attenuation Correction Temporal Relationship	(0061,xx67)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Attenuation Correction Source	(0061,xx68)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Method	(0061,xx6E)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Reconstruction Angle	(0061,xx6F)	FL	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Reconstruction Algorithm	(0061,xx70)	LT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
CT Transformation Matrix	(0061,xx71)	FD	16	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Assay Dose	(0061,xx7A)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Assay Date Time	(0061,xx7B)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Effective Dose	(0061,xx7C)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Residual Dose	(0061,xx7D)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Residual Dose Date Time	(0061,xx7E)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Legacy Corrected Series UID	(0061,xx81)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Legacy Corrected Image UID	(0061,xx82)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Collimator Septal Thickness	(0061,xx83)	FD	1-2	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
View Start Times	(0061,xx85)	DT	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
View Pause Durations	(0061,xx86)	FD	1-n	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Reconstruction Performance Range	(0061,xx87)	SL	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Injection Date Time	(0061,xx88)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Effective Dose Date Time	(0061,xx89)	DT	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Sensitivity Calibration Distance (Detector 1)	(0061,xx8A)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Sensitivity Calibration Distance (Detector 2)	(0061,xx8B)	FD	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
UTC Offset (Time zone offset)	(0061,xx8C)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
PET Data Flag	(0061,xx8D)	SS	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0067,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENS MED MI		
MI Scan ID	(0067,xx01)	LT	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scanner Console Generation	(0067,xx02)	LO	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Recon Parameters	(0067,xx03)	OB	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Group Reconstruction ID	(0067,xx04)	LO	1	UNSAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Device IVK	(0067,xx05)	ST	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(7FE3,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
Minimum pixel in frame	(7FE3,xx14)	OW	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Maximum pixel in frame	(7FE3,xx15)	OW	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of R - Waves in frame	(7FE3,xx29)	OW	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.12.4 Nuclear Medicine Image Storage IOD Coded Values

N/A

A.13 Surface Segmentation Image Storage IOD

Table A.13-1: IOD of created Surface Segmentation Image Storage SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	General Series Module	ALWAYS		Table A.1.1-4
	Segmentation Series Module	ALWAYS		Table A.13.1-3
	General Series Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.13.1-6
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.13.1-2
Surface	Surface Mesh Module	ALWAYS		Table A.13.1-4
	Surface Segmentation Module	ALWAYS		Table A.13.1-1
	Surface Segmentation Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.13.1-8
	Surface Mesh Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.13.1-9
	SOP Common Module	ALWAYS		Table A.1.1-14
	SOP Common Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.13.1-5
	Private – AX SSO SURFACE SEGMENTATION – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.13.3-1
	Private SIEMENS SYNGO ADVANCED PRESENTATION	ALWAYS		Table A.13.3-2
	Private – SIEMENS SYNGO SEGMENTATION	ALWAYS		Table A.13.3-3
	Private – SIEMENS SMS - AX Surface Segmentation Extensions	CONDITIONAL	During Coronary Cockpit Task Flow	Table A.13.3-4

A.13.1 Surface Segmentation Storage IOD Specific Modules

Table A.13.1-1: Surface Segmentation IOD – Surface Segmentation Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Segment Sequence	(0062,0002)	GENERATED	ALWAYS	ALWAYS			
>Segmented Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			
>>Segment Number	(0062,0004)	GENERATED	ALWAYS	ALWAYS			
>>Segment Label	(0062,0005)	GENERATED	ALWAYS	ALWAYS			
>>Segment Algorithm Type	(0062,0008)	GENERATED	ALWAYS	ALWAYS			
>>Segmented Property Type Code Sequence	(0062,000F)	GENERATED	ALWAYS	ALWAYS			
>>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			
>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			
>>Surface Count	(0066,002A)	GENERATED	ALWAYS	ALWAYS			
>>Referenced Surface Number	(0066,002C)	GENERATED	ALWAYS	ALWAYS			
>>Segment Surface Generation Algorithm Identification Sequence	(0066,002D)	GENERATED	ALWAYS	ALWAYS			
>>>Algorithm Family Code Sequence	(0066,002F)	GENERATED	ALWAYS	ALWAYS			
>>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			
>>>Algorithm Version	(0066,0031)	GENERATED	ALWAYS	ALWAYS			
>>>Algorithm Name	(0066,0036)	GENERATED	ALWAYS	ALWAYS			
>>Content Label	(0070,0080)	GENERATED	ALWAYS	ALWAYS			

Table A.13.1-2: Surface Segmentation IOD – Enhanced General Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Siemens Healthineers		
Manufacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS			
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			

Table A.13.1-3: Surface Segmentation IOD – Segmentation Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	CT		
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			

Table A.13.1-4: Surface Segmentation IOD – Surface Mesh Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Surfaces	(0066,0001)	GENERATED	ALWAYS	ALWAYS			
Surface Sequence	(0066,0002)	GENERATED	ALWAYS	ALWAYS			
>Recommended Display Grayscale Value	(0062,000C)	GENERATED	ALWAYS	ALWAYS			
>Recommended Display CIELab Value	(0062,000D)	GENERATED	ALWAYS	ALWAYS			
>Surface Number	(0066,0003)	GENERATED	ALWAYS	ALWAYS			
>Recommended Presentation Opacity	(0066,000C)	GENERATED	ALWAYS	ALWAYS			
>Recommended Presentation Type	(0066,000D)	GENERATED	ALWAYS	ALWAYS			
>Finite Volume	(0066,000E)	GENERATED	ALWAYS	ALWAYS			
>Manifold	(0066,0010)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Surface Points Sequence	(0066,0011)	GENERATED	ALWAYS	ALWAYS			
>>Number of Surface Points	(0066,0015)	GENERATED	ALWAYS	ALWAYS			
>>Point Coordinates Data	(0066,0016)	GENERATED	ALWAYS	ALWAYS			

Table A.13.1-5: Surface Segmentation IOD – SOP Common Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	1.3.12.2.1107.5.99.3. serial number. UID		UID generated by syngo.via

Table A.13.1-6: Surface Segmentation IOD – General Series – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			Creation Date of the SSO in <YYYYMMDD> format
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			Creation Time of the SSO in <HHMMSS> format
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	SEG		
Series Description	(0008,103E)	CONFIGURATION	ALWAYS	ALWAYS			
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	1.3.12.2.1107.5.99.3.99. UID		UID generated by syngo.via

Table A.13.1-7: Surface Segmentation IOD – General Equipment – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	Siemens Healthineers		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer's Model Name	(0008,0090)	CONFIGURATION	ALWAYS	ALWAYS			
Institution Name	(0008,0080)	CONFIGURATION	ALWAYS	ALWAYS			
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS			
Device Serial Number	(0018,1000)	CONFIGURATION	ALWAYS	ALWAYS			

Table A.13.1-8: Surface Segmentation IOD – Surface Segmentation Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			Creation Date of the SSO in <YYYYMMDD> format
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			Creation Time of the SSO in <HHMMSS> format
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			Number that identifies the SSO instance
Segment Sequence	(0062,0002)	GENERATED	ALWAYS	ALWAYS			Describes the segments that are contained within the data.
>Surface Count	(0066,002A)	GENERATED	ALWAYS	ALWAYS			The number of surfaces that comprise this segment. Shall be greater than zero

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Segmented Property Category Code Sequence	(0062,0003)	GENERATED	ALWAYS	ALWAYS			Sequence defining the general category of the property the segment represents
>>Segment Number	(0062,0004)	GENERATED	ALWAYS	ALWAYS			Identification number of the segment
>>Segment Label	(0062,0005)	USER	ALWAYS	ALWAYS			User-defined label identifying this segment
>>Segment Algorithm Type	(0062,0008)	GENERATED	ALWAYS	ALWAYS			Type of algorithm used to generate the segment
>>Segmented Property Type Code Sequence	(0062,000F)	GENERATED	ALWAYS	ALWAYS			Sequence defining the general category of the property the segment represents
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			The identifier of the Coded Entry

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Code Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			The identifier of the coding scheme in which the Coded Entry is defined
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			Text that conveys the meaning of the Coded Entry
>Reference Surface Sequence	(0008,002B)	GENERATED	ALWAYS	ALWAYS			Sequence referencing the surfaces composed to construct this segment
>>Referenced Surface Number	(0066,002C)	GENERATED	ALWAYS	ALWAYS			Identifies the Surface Number (0066,0003) within the Surface Sequence (0066,0002) to which this reference applies
>>Segment Surface Generation Algorithm Identification Sequence	(0066,002D)	GENERATED	ALWAYS	ALWAYS			A description of how this segment surface was derived

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>>Algorithm Family Code Sequence	(0066,002F)	GENERATED	ALWAYS	ALWAYS			The family of algorithm (s) that best describes the software algorithm used
>>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			Text that conveys the meaning of the Coded Entry
>>>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			The identifier of the Coded Entry
>>>>Code Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			The identifier of the coding scheme in which the Coded Entry is defined
>>>Algorithm Version	(0066,0031)	GENERATED	ALWAYS	ALWAYS			The software version identifier assigned by a manufacturer to a specific software algorithm
>>>Algorithm Name	(0066,0036)	GENERATED	ALWAYS	ALWAYS	NeedleGuidance		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Segment Surface Source Instance Sequence	(0066,002E)	GENERATED	ALWAYS	ALWAYS			A Sequence that identifies the set of Instances by their SOP Class/Instance pair that were used to derive this segment surface
>>> Referenced SOP Class UID	(0008,1150)	COPIED	ALWAYS	ALWAYS			From original image's SOP Class UID
>>>Referenced SOP Instance UID							From original image's SOP Instance UID
>Content Label	(0070,0080)	GENERATED	ALWAYS	ALWAYS			A label that is used to identify this SOP Instance.
>Content Description	(0070,0081)	GENERATED	ALWAYS	ALWAYS			A description of the content of the SOP Instance
Content Creator Name	(0070,0084)	GENERATED	ALWAYS	ALWAYS			Name of operator (such as a technologist or physician) creating the content of the SOP Instance.

Table A.13.1-9: Surface Segmentation IOD – Surface Mesh Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Surfaces	(0066,0001)	GENERATED	ALWAYS	ALWAYS			Number of surfaces contained in the Instance
Surface Sequence	(0066,0002)	GENERATED	ALWAYS	ALWAYS			The surfaces that are described within the data
>Recommended Display Grayscale Value	(0062,000C)	GENERATED	ALWAYS	ALWAYS			A default single gray unsigned value in which it is recommended that the maximum pixel value in this surface be rendered on a monochrome display. The units are specified in P-Values from a minimum of 0000H (black) up to a maximum of FFFFH (white)

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Recommended Display CIELab Value	(0062,000D)	GENERATED	ALWAYS	ALWAYS			A default triplet value in which it is recommended that the surface be rendered on a color display.
>Surface Number	(0066,0003)	GENERATED	ALWAYS	ALWAYS			Identification number of the surface
>Surface Comments	(0066,0004)	GENERATED	ALWAYS	ALWAYS	needle geometry		
>Surface Processing	(0066,0009)	GENERATED	ALWAYS	ALWAYS			Specifies whether the surface has been modified after the original generation of the surface
>Recommended Presentation Opacity	(0066,000C)	GENERATED	ALWAYS	ALWAYS	1.0		
>Recommended Presentation Type	(0066,000D)	GENERATED	ALWAYS	ALWAYS	WIREFRAME		
>Finite Volume	(0066,000E)	GENERATED	ALWAYS	ALWAYS	NO		
>Manifold	(0066,0010)	GENERATED	ALWAYS	ALWAYS	NO		
>Surface Points Sequence	(0066,0011)	GENERATED	ALWAYS	ALWAYS			The point positions representing vertices of the surface

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Number of Surface Points	(0066,0015)	GENERATED	ALWAYS	ALWAYS			Specifies the number of points in the point set
>>Point Coordinates Data	(0066,0016)	GENERATED	ALWAYS	ALWAYS			When referencing individual points, the index of the first point shall be 1
>Surface Mesh Primitives Sequence	(0066,0013)	GENERATED	ALWAYS	ALWAYS			
>>Line Sequence	(0066,0028)	GENERATED	ALWAYS	ALWAYS			All Lines in this Surface
>>>Long Primitive Point Index List	(0066,0040)	GENERATED	ALWAYS	ALWAYS			A list of point indices

A.13.2 Surface Segmentation Image Storage IOD Functional Group Macros

N/A

A.13.3 Surface Segmentation Image IOD Private Modules

Table A.13.3-1: Surface Segmentation Image IOD Private – AX SSO SURFACE SEGMENTATION - myAblation Guide

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SMS AX Surface Segmentation Extensions	(0067,0010)	LO	1				ALWAYS			
>AX SSO SURFACE TYPE	(0067,1000)	CS	1	SAFE	FIXED	ALWAYS	ALWAYS	NEEDLE		
>AX SSO Version	(0067,1004)	US	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>AX SSO SURFACE VERSION NUMBER	(0067,1039)	US	1	SAFE	FIXED	ALWAYS	ALWAYS	1		
>AX SSO OWNER	(0067,1040)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	myAblationGuide		
>AX SSO SURFACE GUID	(0067,1042)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	Global unique ID for the Object (=Segment).		
>AX SSO SURF SEGEMENT GROUP GUID	(0067,1043)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	Guid		
>AX SSO SEG GROUP SEQUENCE	(0067,1047)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>AX SSO SURFACE SEGMENTATION SEQUENCE	(0067,1048)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO SEG GROUP NAME	(0067,1049)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	Needle Objects		
>>>AX SSO REFERENCED SEG GROUP GUID	(0067,1051)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	Guid		
>>>AX SSO INTERPRETATIONHINT	(0067,1052)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS			

Table 8.8-2: Surface Segmentation Image IOD Private – SIEMENS SYNGO ADVANCED PRESENTATION

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO ADVANCED PRESENTATION	(0029,0010)	LO	1							
>Segmentation Lock Mode	(0029,106B)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS	LOCKED NOT_LOCKED		

Table A.13.3-3: Surface Segmentation Image IOD Private – SIEMENS SYNGO SEGMENTATION

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SYNGO SEGMENTATION	(0029,0011)	LO	1							
>Segmentation Inverted	(0029,1110)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS	YES NO		
> Segmentation Uneditable by User	(0029,1111)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS	YES NO		

Table A.13.3-4: Surface Segmentation Image IOD Private – SIEMENS SMS – AX Surface Segmentation Extensions – Coronary Cockpit

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SMS – AX Surface Segmentation Extensions	(0067,0010)	LO	1							
>AX SSO SURFACE TYPE	(0067,1000)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO Version	(0067,1004)	US	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO SURFACE VERSION NUMBER	(0067,1039)	US	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO OWNER	(0067,1040)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO SURFACE GUID	(0067,1042)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO SURF SEGEMENT GROUP GUID	(0067,1043)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO GUI	(0067,1044)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>AX SSO SEG GROUP SEQUENCE	(0067,1047)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>AX SSO SURFACE SEGMENTATION SEQUENCE	(0067,1048)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO SEG GROUP NAME	(0067,1049)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO REFERENCED SEG GROUP GUID	(0067,1051)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>>AX SSO INTERPRETATIONHINT	(0067,1052)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>AX SSO SURFACE MESH SEQUENCE	(0067,1053)	SQ	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO SURFACE CENTERLINE ID	(0067,1059)	LT	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO SURFACE TEXT LABEL	(0067,1061)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO REFERENCED OBJECT GUID	(0067,1068)	LO	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO MEASUREMENTS XML	(0067,1071)	UT	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO SURFACE TYPE	(0067,1072)	CS	1	SAFE	GENERATED	ALWAYS	ALWAYS			
>>>AX SSO HU Thresholds	(0067,1077)	LT	1	SAFE	GENERATED	ALWAYS	ALWAYS			

A.13.4 Surface Segmentation Image Storage IOD Coded Values

N/A

A.14 Raw Data Storage IOD

Table A.14-1: IOD of created Raw Data SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
	Patient Study Module	CONDITIONAL	Attributes of this module are not present in case of emergency case, or when not delivered by MWL.	Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	General Series Module – myAbalation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.14.1-5
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	General Equipment Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.14.1-7
	RAW Data Common Instance Reference Module*	ALWAYS		Table A.14.1-4
Raw Data	Acquisition Context Module	ALWAYS		Table A.14.1-3
	Raw Data Module	ALWAYS		Table A.14.1-2
	RAW Data Module – myAbalation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.14.1-8
	SOP Common Module	ALWAYS		Table A.1.1-14
	SOP Common Module – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.14.1-6
	PRIVATE – SIEMENS SMS-CTH – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table A.14.3-1

*-Non Conformance to DICOM standard. However, this is present behavior in syngo.via.

A.14.1 Raw Data Storage IOD Specific Modules

Table A.14.1-1: Raw Data Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Creator-Version UID	(0008,9123)	GENERATED	ALWAYS	ALWAYS			

Table A.14.1-2: Acquisition Context Module

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

Table A.14.1-3: RAW Data Common Instance Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS	Private stored information about used algorithms		

Table A.14.1-4: RAW Data – General Series – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	OT		
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			Creation Date of the Raw Data in <YYYYMMDD> format
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			Creation Time of the Raw Data in <HHMMSS> format
Series Description	(0008,103E)	GENERATED	ALWAYS	ALWAYS			Series description of the Raw Data in <NeedleData_NeedleCount_ "yyyyMMdd_HHmmss > format
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS	1.3.12.2.1107.5.99.3.99. UID		UID generated by syngo.via

Table A.14.1-5: RAW Data – SOP Common Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS	1.3.12.2.1107.5.99.3. serial number. object_unique_identifier		UID generated by syngo.via

Table A.14.1-6: RAW Data – General Equipment Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	Siemens Healthineers		
Institution Name	(0008,0080)	CONFIGURATION	ALWAYS	ALWAYS			As configured by the system
Manfacturer's Model Name	(0008,1090)	CONFIGURATION	ALWAYS	ALWAYS			As configured by the system
Software Versions	(0018,1020)	CONFIGURATION	ALWAYS	ALWAYS			As configured by the system

Table A.14.1-7: Raw Data Module – myAblation Guide

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			Number that identifies the Raw Data instance
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			Creation Date of the Raw Data in <YYYYMMDD> format
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			Creation Time of the Raw Data in <HHMMSS> format
Creator-Version UID	(0008,9123)	GENERATED	ALWAYS	ALWAYS			Unique identification of the equipment and version of the software that has created the Raw Data information

A.14.2 Raw Data Storage IOD Functional Group Macros

N/A

A.14.3 Raw Data Storage IOD Private Modules

Table A.14.3-1: RAW DATA Private - SIEMENS SMS-CTH – myAblation Guide

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SIEMENS SMS-CTH Needle Data	(0067,0010)	LO	1			ALWAYS	ALWAYS			

Attribute Name	Tag	VR	VM	Identi-fiable Infor-matio n	Sourc e	Presenc e of Attribut e	Presenc e of Value	Value	Conditio ns	Comments
CTH NEEDLE DATA	(0067 ,0052)	OB	1	SAFE	GENER ATED	ALWAYS	ALWAYS			Holds needle data like needle geometry, needle path, color , name informatio n

A.14.4 Raw Data Storage IOD Coded Values

N/A

A.15 Real World Value Mapping Storage IOD

The following Tables present the Modules used by the Real Value Mapping Storage IOD.

Table A.15-1: IOD of created Real World Value Mapping Data SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	General Series Module	ALWAYS		Table A.1.1-4
	Real Value Mapping Series Module	ALWAYS		Table A.15.1-1
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
Real World Value Mapping	SOP Common Module	ALWAYS		Table A.1.1-14
	Real Value Mapping Module	ALWAYS		Table A.15.1-2
	Common Instance Reference	ALWAYS		Table A.15.1-3

A.15.1 Real Value Mapping Storage IOD Specific Modules

Table A.15.1-1: Real Value Mapping Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008, 0060)	GENERATED	ALWAYS	ALWAYS			

Table A.15.1-2: Real Value Mapping Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			
Content Label	(0070,0080)	GENERATED	ALWAYS	ALWAYS			
Referenced Image Real World Value Mapping Sequence	(0040,9094)	GENERATED	ALWAYS	ALWAYS			
>Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			
>>Real World Mapping Sequence	(0040,9096)	GENERATED	ALWAYS	ALWAYS			
>>>LUT Explanation	(0028,3003)	GENERATED	ALWAYS	ALWAYS			
>>>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS			
>>>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			
>>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			
>>>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			
>>>>Code Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			
>>>>Code Scheme Version	(0008,0103)	GENERATED	ALWAYS	ALWAYS			

Table A.15.1-3: Common Instance Reference Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			

A.15.2 Real World Value Mapping Storage IOD Functional Group Macros

N/A

A.15.3 Real World Value Mapping Storage IOD Private Modules

N/A

A.15.4 Real World Value Mapping Storage IOD Coded Values

N/A

A.16 Breast Projection X-Ray Image Storage for Presentation/Processing Image Storage IOD

The following Tables present the Modules used by the Breast Project X-Ray Image Storage for Presentation(1.2.840.10008.5.1.4.1.1.13.1.4) and Breast Project X-Ray Image Storage for Processing (1.2.840.10008.5.1.4.1.1.13.1.5) for Image Storage IOD.

Table A.16-1: IOD of created Breast Projection X-Ray Image Storage for Presentation/Processing Image SOP Class Instances

IE	Module	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	General Series Module	ALWAYS		Table A.1.1-4
	DX Series Module	ALWAYS		Table A.17.1-1
	Enhanced Mammography Series Module	ALWAYS		Table A.17.1-2
General Reference	General Reference Module	ALWAYS		Table A.1.1-5
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.17.1-3
Image	Image Pixel Module	ALWAYS		Table A.1.1-11
	SOP Common Module	ALWAYS		Table A.1.1-14
	Enhanced Mammography Image Module	ALWAYS		Table A.17.1-4
	Breast View Module	ALWAYS		Table A.17.1-5
	Acquisition Context Module	ALWAYS		Table A.17.1-6
	Multi-frame Functional Groups Module	ALWAYS		Table A.17.1-7
	Patient Orientation Module	ALWAYS		Table A.17.1-8

A.16.1 Breast Projection X-Ray Image Storage for Presentation/Processing IOD Specific Modules

Table A.16.1-1: DX Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Presentation Intent Type	(0008,0068)	SRC_INSTANCE	SRC_COPY	SRC_COPY	FOR PRESENTATION	For SOP Class UID 1.2.840.10008.5.1.4.1.1.13.1.4	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
					FOR PROCESSING	For SOP Class UID 1.2.840.10008.5.1.4.1.1.13.1.5	

Table A.16.1-2: Enhanced Mammography Series Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.16.1-3: Enhanced General Equipment Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0080,0070)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Manufacturer's Model Name	(0008,1090)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Device Serial Number	(0018,1000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Software Versions	(0018,1020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.16.1-4: Enhanced Mammography Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Positioner Motion	(0080,2112)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Positioner Type	(0018,1508)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Content Qualification	(0018,9004)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition DateTime	(0008,002A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Duration	(0018,9073)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
KVP	(0018,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Focal Spot(s)	(0018,1190)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Anode Target Material	(0018,1191)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Body Part Thickness	(0018,11A0)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Compression Force	(0018,11A2)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Paddle Description	(0018,11A4)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Exposure Control Mode	(0018,7060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Exposure Control Mode Description	(0018,7062)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Samples per Pixel	(0028,0002)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Photometric Interpretation	(0028,0004)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bits Allocated	(0028,0100)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bits Stored	(0028,0101)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
High Bit	(0028,0102)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pixel Representation	(0028,0103)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Burned in Annotation	(0028,0301)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Lossy Image Compression	(0028,2110)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Organ Dose	(0040,0316)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Entrance Dose in mGy	(0040,8302)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Type of Detector Motion	(0054,0202)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Presentation LUT Shape	(2050,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.16.1-5: Breast View Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
View Code Sequence	(0054,0220)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.16.1-6: Acquisition Context Module

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

Table A.16.1-7: Multi-frame Functional Groups Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shared Functional Groups Sequence	(5200,9229)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Instance Number	(0020,0013)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Content Date	(0008,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Content Time	(0008,0033)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of Frames	(0028,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.16.1-8: Patient Orientation Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Orientation Code Sequence	(0054,0410)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.16.2 Breast Projection X-Ray Image Storage IOD for Presentation/Processing Functional Group Macros

N/A

A.16.3 Breast Projection X-Ray Image Storage IOD for Presentation/Processing Private Modules

N/A

A.16.4 Breast Projection X-Ray Image Storage IOD for Presentation/Processing Coded Values

N/A

Annex B Structured Report Content Encoding

This section provides the detailed content encoding for all TIDs supported by syngo.via.

Throughout the tables listed in Annex B the following codes are used for the “Source” and “Presence of Content Item” columns.

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.
- 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 without Value.
- SRC_INSTANCE: The Value is copied from previously created/received SOP Instances.

In the “Presence of Content Item” 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 “Comments” 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).

B.1 Basic Diagnostic Imaging Report (TID 2000)

Table B.1-1:Basic Diagnostic Imaging Report (TID 2000)

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
		CONTAINER	BCID 7000 “Diagnostic Imaging Report Document Titles”	GENERATED	ALWAYS		2000	Refer Table
>	HAS CONCEPT MOD	CODE	EV (121058, DCM, "Procedure reported")	USER	CONDITIONAL		2000	
>	HAS CONCEPT MOD	INCLUDE	DTID 1210 “Equivalent Meaning(s) of Concept Name”	GENERATED	CONDITIONAL		1210	
	HAS CONCEPT MOD	TEXT	EV (121050, DCM, "Equivalent Meaning of Concept Name")	GENERATED	CONDITIONAL		1210	
>		INCLUDE	DTID 1201 “Language of Value”	USER	CONDITIONAL		1201	Refer Table B.1-3: TID 1201 Language of Value
	HAS CONCEPT MOD	CODE	EV (121050, DCM, "Equivalent Meaning of Concept Name")	GENERATED	CONDITIONAL			
>		INCLUDE	DTID 1201 “Language of Value”	USER	CONDITIONAL		1201	Refer Table B.1-3
>	CONTAINS	CONTAINER	BCID 7001 “Diagnostic Imaging Report Headings”	GENERATED	ALWAYS		2000	Refer Table B.1-4

Table B.1-2: CID 7000 Diagnostic Imaging Report Document Title

Coding Scheme Designator	Code Value	Code Meaning
LN	41806-1	CT Abdomen Report
LN	24627-2	CT Chest Report
LN	24725-4	CT Head Report
LN	25045-6	CT Report

Coding Scheme Designator	Code Value	Code Meaning
LN	18748-4	Diagnostic Imaging Report
LN	24590-2	MRI Head Report
LN	25056-3	MRI Report
LN	18756-7	MRI Spine Report
LN	49118-3	Nuclear Medicine Report
LN	30695-1	Nuclear Medicine Thyroid Scan Report
LN	44136-0	PET Scan Report
LN	11528-7	Radiology Report
DCM	111400	Breast Imaging Report
LN	24606-6	Mammography Screening Report
LN	47048-4	Diagnostic Interventional Radiology Report

Table B.1-3: TID 1201 Language of Value

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
	HAS CONCEPT MOD	CODE	EV (121047, DCM, "Language of Value")	GENERATED	ALWAYS		1201	
>	HAS CONCEPT MOD	CODE	EV (121046, DCM, "Country of Language")	USER	CONDITIONAL		1201	

Table B.1-4:TID 1201 Language of Value

Coding Scheme Designator	Code Value	Code Meaning
LN	11329-0	History
LN	55115-0	Request
LN	55111-9	Current Procedure Descriptions
LN	55114-3	Prior Procedure Descriptions
LN	18834-2	Previous Findings
LN	59776-5	Findings
LN	19005-8	Impressions
LN	18783-1	Recommendations
LN	55110-1	Conclusions
LN	55107-7	Addendum
LN	18785-6	Indications for Procedure
LN	55108-5	Patient Presentation
LN	55109-3	Complications
LN	55112-7	Summary
LN	55113-5	Key Images
LN	73569-6	Radiation Exposure and Protection Information

B.2 Measurement Report for Comprehensive DICOM SR (TID 1500)

Table B.2-1: Measurement Report for Comprehensive DICOM SR (TID 1500)

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
		CONTAINER	DCMR 1500 “Imaging Measurement Report”	GENERATED	ALWAYS		1500	
>>>	CONTAINS	CODE	EV ("121071", "DCM", "Finding")	GENERATED	ALWAYS		1501	

Annex C Security Details

C.1 External Network Requirement Details

C.1.1 Basic Time Synchronization

N/A

C.1.2 Basic Network Address Management

The Network API of the Operation System is responsible for the discovery of the DHCP Server. syngo.via is operable in a DHCP environment, but must be equipped with a fixed IP address

C.1.3 Application Configuration Management

Table C.1.3-1 defines the security patterns supported:

Table C.1.3-1: LDAP Security Patterns

Actor	LDAP Security Pattern	Supported	Comments
LDAP Server	TLS	N	syngo.via does not function as LDAP Server
	TLS-Manual	N	
	Basic	N	
	Basic-Manual	N	
	Anonymous	N	
	Anonymous-Manual	N	
	[Additional pattern]	N	
LDAP Client	TLS	Y	
	TLS-Manual	N	
	Basic	Y	
	Basic-Manual	N	
	Anonymous	N	
	Anonymous-Manual	N	
	[Additional pattern]	N	

C.1.4 DNS Service Discovery

The DNS Service is discovered based on the Network API and the Network Settings of the Operation System.

The DNS Service accessed via the Operation System is used for resolving host names to IP Addresses (for example during the configuration of a Remote Node).

C.2 DICOM Security Profile Details

C.2.1 Online Electronic Storage Secure Use

Remote Access is restricted on User Level. This is done on the Operation System level.

C.2.2 Audit Trail Messages

Table C.2.2-1 specifies the DICOM Audit Messages that syngo.via can detect and report. It defines the list of triggers that will cause the Audit Message to be generated 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.2.2-1: DICOM Specific Audit Messages

Audit Message	Used	Supported Triggers	Configurable Triggers	Configurable Message	Comments
Application Activity	Y	Application Start Application Stop	N	N	
Audit Log Used	N		N	N	
Begin Transferring DICOM Instances	Y	Send	N	N	
Data Export	Y	Export	N	N	
Data Import	Y	Import	N	N	
DICOM Instance Accessed	Y	Update Delete	N	N	
DICOM Instance Transferred	Y	Receive	N	N	
DICOM Study Deleted	Y	Deleted	N	N	
Network Entry	N		N	N	
Query	Y	Query	N	N	
Security Alert	Y	Software Configuration Node Authentication Failed	N	N	
User Authentication	Y	Login Login Failed	N	N	
Order Record	N		N	N	
Patient Record	Y	Delete	N	N	
Procedure Record	N		N	N	
[Other Message]	Y	Study updated Study moved Series moved Series merge Series split Series copied	N	N	

Table C.2.2-2 specifies the implementation details of each audit message supported by this product.

Table C.2.2-2: Audit Message Details – Export

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110106, DCM, "Export")

Real-World Entities	Field Name	Supported	Value Constraints
	EventActionCode	Y	R
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Remote Users and Processes)	UserID	Y	Provided by the Operating System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110152, DCM, “Destination Role ID”)
	NetworkAccessPointID	N	
	NetworkAccessPointTypeCode	N	
Active Participant (User or Process Exporting the Data)	UserID	Y	<platform_id>, <product_serial_number>
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	Y	EV (110153, DCM, “Source Role ID”)
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The Machin Name
Active Participant (Media)	UserID	Y	Destination Directory
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110154, DCM, "Destination Media")
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
	MediaIdentifier	N	
	MediaType	N	
Audit Log Used Message			
Participating Object (Studies)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession Number	Y	"Value not set"
	NumberOfInstances	Y	The number of instances exported
	Instances	N	
	Encrypted	N	
	Anonymized	Y	false
Participating Object (Patients)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-3: Audit Message Details – Import

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110107, DCM, "Import")
	EventActionCode	Y	C
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Users or Processes Importing the data)	UserID	Y	<platform_id>, <product_serial_number>
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	Y	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	Y	2

Real-World Entities	Field Name	Supported	Value Constraints
	NetworkAccessPointID	Y	Machine Name
Active Participant (Source Media)	UserID	Y	The Source Folder
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110155, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointTypeID	N	
	MediaIdenfifier	N	
	MediaType	N	
Active Participant (Source)	UserID	Y	The User ID as provided by the Operation System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Object (Studies)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession Number	Y	"Value not set"
	NumberOfInstances	Y	The Number of Instances imported
	Instances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (Patients)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-4: Audit Message Details – DICOM Instance Accessed

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110103, DCM, "DICOM Instances Accessed")
	EventActionCode	Y	C – Create R – Read U – Update D – Delete
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Persons and or Programs manipulating the data)	UserID	Y	User or Process Identification provided by the Operating System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Studies)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession Number	Y	“ “
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Participating Object (User)	ParticipantObjectID	Y	User
	ParticipantObjectIDTypeCode	Y	EV (1, DCM, “”)
	Type	Y	UserDefinedText
	Value	Y	The encoded description of what happened
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-5: Audit Message Details – Begin Transferring DICOM Instances

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110102, DCM, "Begin Transferring DICOM Instances")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Process sending the data)	UserID	Y	The Source Machine name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false

Real-World Entities	Field Name	Supported	Value Constraints
	RoleIDCode	N	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	N	2
	NetworkAccessPointID	N	The IP Address of the Source Machine
Active Participant (Process receiving the data)	UserID	Y	The Destination Machine name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address of the Destination Machine
Active Participant (Other Participants)	UserID	Y	The User ID as provided by the Operation System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Studies being transferred)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession Number	Y	“ ”
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Please note: This is the Audit Log message generated in case of a DICOM Send on the sender side.

Table C.2.2-6: Audit Message Details –DICOM Instances Transferred

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110104, DCM, "DICOM Instances Transferred")
	EventActionCode	Y	C – Create R – Read U – Update
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Process that sent the data)	UserID	Y	The Source Machine name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	Y	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address of the Source Machine
Active Participant (Process that received the data)	UserID	Y	The Destination Machine name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address of the Destination Machine
	UserID	Y	The ID of the receiving process

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant (Other participants that are known, especially third parties that are the requestor)	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Studies being transferred)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession Number	Y	“Value not set”
	NumberOfInstances	Y	The number of Instances transferred
	Encrypted	N	
	Anonymized	N	
Participating Object (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Please note: This is the Audit Log Message for the DICOM Receive. The same message is generated in case of a DICOM Retrieve on the receiving side.

Table C.2.2-7: Audit Message Details –DICOM Study Deleted

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110105, DCM, "DICOM Study Deleted")
	EventActionCode	Y	D – Delete
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant	UserID	Y	The Username
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Studies being transferred)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	Y	“ ”
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	SyngoDataManagement

Table C.2.2-8: Audit Message Details –DICOM Study Deleted

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110105, DCM, "DICOM Study Deleted")
	EventActionCode	Y	D
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (The Person or Process deleting the Study)	UserID	Y	The User ID provided by the Operation System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Studies being transferred)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, “Study Instance UID”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Study Instance UID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	Y	“ ”
	NumberOfInstances	N	

Real-World Entities	Field Name	Supported	Value Constraints
	Encrypted	N	
	Anonymized	N	
Participating Object (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Participating Object (Patient Name)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110187, DCM, “Patient Name”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient Name
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Participating Object (Patient’s Sex)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110188, DCM, “Patient Sex”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient’s Sex
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Participating Object (Patient’s Date of Birth)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110189, DCM, “Patient Date of Birth”)
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient’s Date of Birth
	ParticipantObjectName	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Participating Object (User Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient's Date of Birth
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	UserDefinedText	Y	An encoded Text describing, what happened (e.g., "Study deleted")
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	SyngoDataManagement

Table C.2.2-9: Audit Message Details – Patient Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110110, DCM, "Patient Record")
	EventActionCode	Y	C – Create R – Read U – Update D – Delete
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
User	UserID	Y	The User ID provided by the Operation System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
	ParticipantObjectTypeCode	Y	1

Real-World Entities	Field Name	Supported	Value Constraints
Participating Object (Patient)	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	The Module, which performed the action audited

Table C.2.2-10: Audit Message Details – Query

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110112, DCM, "Query")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 – Success 4 – Minor Failure 8 – Serious Failure 12 – Major Failure
	EventTypeCode	N	
Active Participant (Process Issuing the Query)	UserID	Y	The Name of the machine that sends the query
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	Y	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address of the machine, which sends the Query
Active Participant (The process, which will respond to the query)	UserID	Y	Machine name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	Y	EV (110152, DCM, "Destination Role ID")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address of the Remote Node, which sends the Query

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant Other Participants that are known, especially third parties that requested the query	UserID	Y	The ID of the Process processing the Query
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (SOP Queried and the Query)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	DT (110181, DCM, "SOP Class UID")
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	If the ParticipantObjectIDTypeCode is (110181, DCM, "SOP Class UID"), then this field shall hold the UID of the SOP Class being queried
	ParticipantObjectName	N	
	ParticipantObjectQuery	Y	If the ParticipantObjectIDTypeCode is (110181, DCM, "SOP Class UID"), then this field shall hold the Dataset of the DICOM query, xs:base64Binary encoded. Otherwise, it shall be the query in the format of the protocol used.
	ParticipantObjectDetail	Y	A ParticipantObjectDetail element with the XML attribute "TransferSyntax" shall be present. The value of the Transfer Syntax attribute shall be the UID of the transfer syntax of the query. The element contents shall be xs:base64Binary encoding. The Transfer Syntax shall be a DICOM Transfer Syntax.
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-11: Audit Message Details – Security Alert (Remote DICOM Node configuration changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, “Software Configuration”)
Active Participant (Reporting Person and/or Process)	UserID	Y	The User logged in on the Administration Portal or “Servicekey_login.”
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	N	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Remote Node
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the remote DICOM node Configuration
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	“User”

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the remote DICOM node configuration
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"ServiceSoftware"

Table C.2.2-12: Audit Message Details – Security Alert (Remote DICOM Node encryption setting changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User logged in on the Administration Portal or "Servicekey_login."
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Remote Node
	ParticipantObjectName	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Remote Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	“User”
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Remote Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“ServiceSoftware”

Table C.2.2-13: Audit Message Details – Security Alert (Local DICOM Node encryption setting changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, “Software Configuration”)

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant (Reporting Person and/or Process)	UserID	Y	The User logged in on the Administration Portal or "Servicekey_login."
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Local Node
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"User"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“ServiceSoftware”

Table C.2.2-14: Audit Message Details – Security Alert (Remote DICOM Node encapsulation setting changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, “Software Configuration”)
Active Participant (Reporting Person and/or Process)	UserID	Y	The User logged in on the Administration Portal or “Servicekey_login.”
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	N	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Remote Node
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"User"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"ServiceSoftware"

Table C.2.2-15: Audit Message Details – Security Alert (Remote DICOM Node authentication failed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	4
	EventTypeCode	Y	EV (110126, DCM, "Node Authentication")

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant (Reporting Person and/or Process)	UserID	Y	The IP Address of the initiator if a remote system initiated the communication. The User ID as <login_name>@<domain_name> if the local system initiated the communication
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Active Participant (Performing Person or Process)	UserID	Y	"Remote Peer" if a remote system initiated the communication. The User ID as <login_name>@<domain_name> if the local system initiated the communication
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	false
	RoleIDCode	Y	EV (110150, DCM, "Application")
	NetworkAccessPointTypeCode	Y	2
	NetworkAccessPointID	Y	The IP Address
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Remote Node
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	

Real-World Entities	Field Name	Supported	Value Constraints
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	12
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Node
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"DCM"

Table C.2.2-16: Audit Message Details – Security Alert (Passphrase for auto connect secure communication set)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	

Real-World Entities	Field Name	Supported	Value Constraints
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Transfer Preferences
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	"Passphrase saved for SmartConnect secure communication," base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	"Passphrase saved for SmartConnect secure communication," base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"Service Software"

Table C.2.2-17: Audit Message Details – Security Alert (Auto connect secure communication service state changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Transfer Preferences
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The current state of the auto connect secure communication service, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The current state of the auto connect secure communication service, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"Service Software"

Table C.2.2-18: Audit Message Details – Security Alert (Auto connect secure communication connection option changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The name of the configuration file for the Transfer Preferences
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The current state of the auto connect secure communication connection option, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The current state of the auto connect secure communication connection option, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“Service Software”

Table C.2.2-19: Audit Message Details – Security Alert (Storage Commitment Service is enabled or disabled for a Remote Node)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")

Real-World Entities	Field Name	Supported	Value Constraints
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"Archiving and Deletion Configuration"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The status of the Storage Commitment Service for the Remote Node, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"Service Software"

Table C.2.2-20: Audit Message Details – Security Alert (Certificate was unpinned from a Remote Node)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			

Real-World Entities	Field Name	Supported	Value Constraints
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"Archiving and Deletion Configuration"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The user has decided to delete the existing pinning for the Remote Node Name: <remote_node_name>, IP Address: <remote_node_ip_address>. The following pinned certificate ID has been unpinned: <unpinned_certificate_id>.
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>. <product_serial_number>

Table C.2.2-21: Audit Message Details – Security Alert (Certificate was pinned to a Remote Node)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"Archiving and Deletion Configuration"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The user has decided to trust and pin a certificate for the Remote Node Name: <remote_node_name>, IP Address: <remote_node_ip_address>. Certificate details: Issuer: <certificate_issuer>, Subject: <certificate_subject>, Not Before <certificate_not_before>, Not After: <certificate_not_after>, Thumbprint: <certificate_thumbprint>, Version: <certificate_version>. The following certificate ID has been pinned: <pinned_certificate_id>.
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	

Real-World Entities	Field Name	Supported	Value Constraints
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	<platform_id>. <product_serial_number>

Table C.2.2-22: Audit Message Details – Security Alert (Archive marking of a Remote Node has changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110113, DCM, "Security Alert")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User ID as <login_name>@<domain_name> if the local system initiated the communication or "Servicekey_login" if a Service Key was used by the user authentication.
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The configuration file for the Remote Node modified
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The status of the Archive markings, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	

Real-World Entities	Field Name	Supported	Value Constraints
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Objects (User Defined Text)	ParticipantObjectTypeCode	N	
	ParticipantObjectTypeCodeRole	N	
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	1
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The status of the Archive markings, base64 encoded
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“Service Software”

Table C.2.2-23: Audit Message Details – User Authentication

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110114, DCM, "User Authentication")
	EventActionCode	Y	E
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0 or 4
	EventTypeCode	Y	EV (110122, DCM, “Login”)
Active Participant (Person authenticated or claimed)	UserID	Y	The ID of the User requesting authentication
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	Y	1
	NetworkAccessPointID	Y	“”

Real-World Entities	Field Name	Supported	Value Constraints
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“Service Software”

Table C.2.2-24: Audit Message Details – Patient Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110110, DCM, "Patient Record")
	EventActionCode	Y	C – create R – read U – update D – delete
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	N	
	EventTypeCode	N	
User	UserID	Y	The ID of the User requesting authentication
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Patient	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	N	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
Other messages			
Audit Source Identification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	“Workflow”

Table C.2.2-25: Audit Message Details – Patient Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventID	Y	EV (110111, DCM, " Procedure Record")
	EventActionCode	Y	C – create R – read U – update D – delete
	EventDateTime	Y	Current date and Time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	EV (110131, DCM, "Software Configuration")
User	UserID	Y	The ID of the User
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Used Message			
Study	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110180, DCM, "Study Instance UID")
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The ID of the acting Workflow
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	Y	""
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Patient	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine name
	AuditSourceID	Y	"Workflow"

C.2.3 Audit Trail Message Transmission Profile – SYSLOG – TLS

Currently only RFC 3164 is supported for Audit Trail Message Transmission.

To avoid sniffing attacks and disclosure of audit trail logs, please set the Secure TCP protocol. Encrypted transmission is possible only if the Secure TCP protocol is selected and a certificate is referenced by its thumbprint.

C.2.4 Audit Trail Message Transmission Profile – SYSLOG – UDP

Currently only RFC 3164 is supported for Audit Trail Message Transmission.

To avoid sniffing attacks and disclosure of audit trail logs, please set the Secure TCP protocol. Encrypted transmission is possible only if the Secure TCP protocol is selected and a certificate is referenced by its thumbprint.

C.2.5 Secure Transport Connection Details

syngo.via uses the default Cipher Suite selected automatically by the Operation System, which does not permit to specify a certain Cipher Suite to be used. For further details please see under https://learn.microsoft.com/en-us/windows/win32/secauthn/tls-cipher-suites-in-windows-10-v1903 and under https://learn.microsoft.com/en-us/dotnet/core/extensions/sslstream-best-practices.

Table C.2.5-26 lists the secure transport connection profiles and cipher suites supported:

Table C.2.5-26:Secure Transport Connection Profiles and Cipher Suites

Profile	Cipher Suite	Default Preference Order (from 1=preferred to n=less preferred)
Modified BCP 195 RFC 8996 TLS Secure Transport Connection Profile	TLS_AES_256_GCM_SHA384	
	TLS_CHACHA20_POLY1305_SHA256	
	TLS_AES_128_GCM_SHA256	
	TLS_AES_128_CCM_8_SHA256	

C.2.6 Attribute Confidentiality Details

De-Identification is not supported in syngo.via. As an alternative the Data Minimization Feature is provided.

C.2.7 Digital Signature Details

N/A

C.2.8 Additional DICOM Security Profile Details

N/A

Annex D Mapping of Attributes

D.1 Mapping between Modality Worklist, Instances and MPPS

N/A

Annex E Code Set Usage

E.1 Mammography CAD SR (TID 4000)

Table E.1-1 shows the encoding of content of a DICOM Mammography CAD SR (TID 4000).

Only those single image findings are displayed in MAMMOVISTA B.smart and *syngo*.Breast Care that meet the following constraints.

Table E.1-1: Mammography CAD SR (TID 4000)

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
>	CONTAINS	CODE	EV (111059, DCM, "Single Image Finding")	GENERATED	ALWAYS	EV (F-01775, SRT, "Calcification Cluster")	4000	
						EV (F-01775, SRT 1.1, "Calcification Cluster")		Only for syngo.Breast Care
						EV (129793001, SCT, "Calcification Cluster)		Only for MAMMOVISTA B.smart
						EV (F-01796, SRT, "Mammography breast density ")		
						EV (F-01796, SRT 1.1, "Mammography breast density ")		Only for syngo.Breast Care
						EV (129793001, SCT, "Mammography breast density")		Only for MAMMOVISTA B.smart
						EV (F-01776, SRT, "Individual Calcification") (Only if not part of a calcification cluster)		

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
						EV (F-01776, SRT 1.1, "Individual Calcification") (Only if not part of a calcification cluster)		Only for syngo.Breast Care
						EV (129770007, SCT, "Individual Calcification") (Only if not part of a calcification cluster)		Only for MAMMOVISTA B.smart
						EV (F-01710, SRT, "Breast Composition") (regardless of rendering intent)		
						EV (129715009, SCT, "Breast Composition") (regardless of rendering intent)		Only for MAMMOVISTA B.smart
						EV (DS-1, 99-SCREENPOINTMED, "Decision Support Finding")		
						EV (DS-2, 99-SCREENPOINTMED, "Decision Support Alias Finding")		
The following EV the outline may or may not be present. For other single image findings, the value must be present and contain at least one point.								
>	CONTAINS	CODE	EV (111041, DCM, "Outline")	GENERATED	ALWAYS	EV (F-01710, SRT, "Breast Composition")	4000	

NL	Rel with Parent	VT	Concept Name	Source	Presence of Content Item	Values	TID	Comments
						EV (129715009, SCT, “Breast Composition”),		Only for MAMMOVISTA B.smart
						EV (F-01775, SRT, “Calcification Cluster”)		
						EV (F-01775, SRT 1.1, “Calcification Cluster”)		Only for syngo.Breast Care
						EV (129769006, SCT, “Calcification Cluster")		Only for MAMMOVISTA B.smart
>	CONTAINS	CODE	EV (111056, DCM, “Rendering Intent”)	GENERATED	ALWAYS	EV (111150, DCM, "Presentation Required: Rendering device is expected to present")	4000	if single image finding is not one of below values EV (F-01710, SRT, “Breast Composition”) EV (DS-1, 99-SCREENPOINT MED, “Decision Support Finding”) EV (DS-2, 99-SCREENPOINT MED, “Decision Support Alias Finding”)

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