DICOM Conformance Statement

syngo.via VC10



Jul 2026

SIEMENS Healthineers

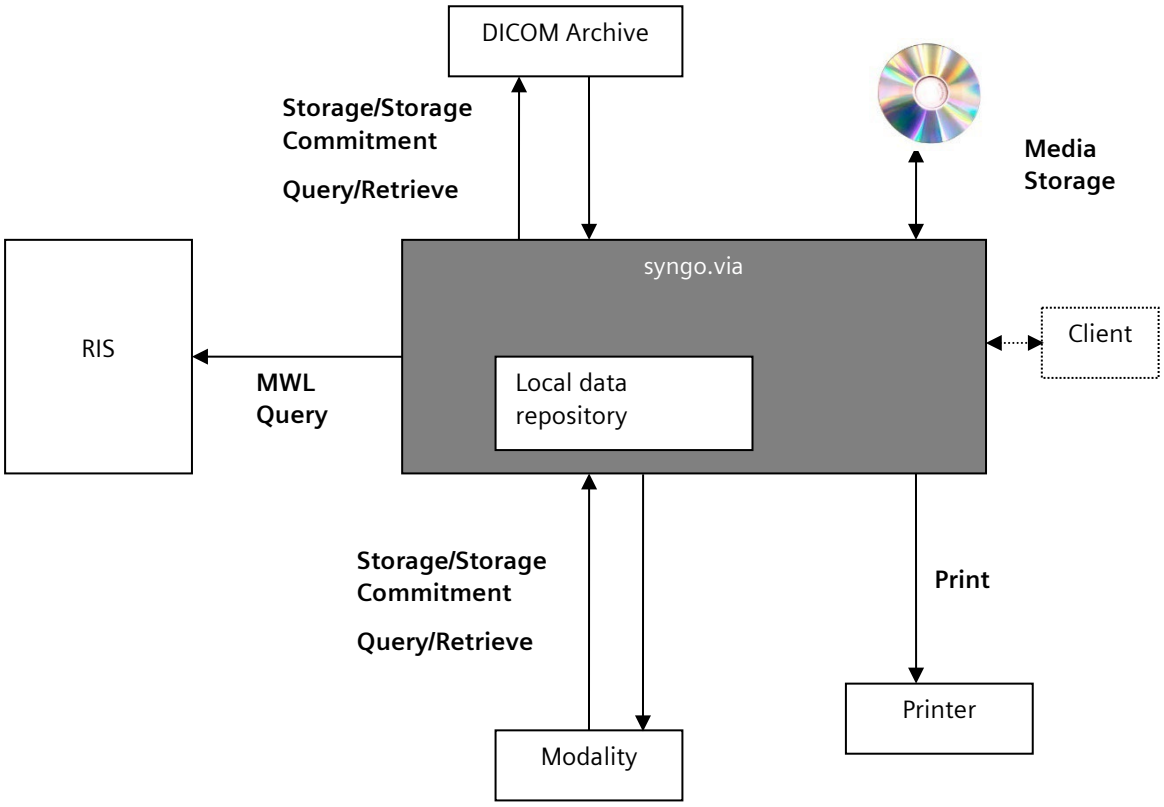
1 DICOM Conformance Statement Overview

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. **syngo.via** supports a single AE (referred in this document as ***syngo*.via** AE) for all DICOM services.
***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

The DCS provides the information on the entire syngo.via system including the supported modality applications. However, the information is structured to provide a clear separation between syngo.via basic system and syngo.via (modality) applications.

Figure 1-1: Overview of Implemented Services



1.1 Content and Transfer

Table 1.1-1 and Table 1.1-2 lists all Storage SOP Classes and the supported transfer mechanisms as well as the usage scenarios for those instances – in syngo.via basic system and syngo.via applications respectively.

The “Transfer Syntax Set” column lists the sets of Transfer Syntaxes defined in Table 1.1-3 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 – syngo.via basic system

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			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			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			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			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			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			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			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			Y	Y	Y	N	Y	N	Y
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	C,U	Y	Y			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
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	C,U	Y	Y			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			Y	Y	Y	N	Y	N	Y
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	C,U	Y	Y			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			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			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			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			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			Y	Y	Y	N	Y	N	Y
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	U	Y	Y			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			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			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			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			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			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			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			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			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			Y	Y	Y	N	Y	N	Y
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	U	Y	Y			Y	Y	Y	N	Y	N	Y
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	U	Y	Y			Y	Y	Y	N	Y	N	Y
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	U	Y	Y			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			Y	Y	Y	N	Y	N	Y
Compositing Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.7	U	Y	Y			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			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			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			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			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			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			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			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			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			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			Y	Y	Y	N	Y	N	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			Y	Y	Y	N	Y	N	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			Y	Y	Y	N	Y	N	Y
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	U	Y	Y			Y	Y	Y	N	N	N	Y
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	U	Y	Y			Y	Y	Y	N	Y	N	Y
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	U	Y	Y			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			Y	Y	Y	N	N	N	Y
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	U	Y	Y			Y	Y	Y	N	Y	N	Y
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	U	Y	Y			Y	Y	Y	N	Y	N	Y
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	U	Y	Y			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
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	U	Y	Y			Y	Y	Y	SE	Y	N	Y
Enhanced SR Storage*	1.2.840.10008.5.1.4.1.1.88.22	U	Y	Y			Y	Y	Y	See Table 1.1-4			
Comprehensive SR Storage*	1.2.840.10008.5.1.4.1.1.88.33	U	Y	Y			Y	Y	Y				
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	U	Y	Y			Y	Y	Y				
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	U	Y	Y			Y	Y	Y				
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	U	Y	Y			Y	Y	Y				
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	U	Y	Y			Y	Y	Y				
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	U	Y	Y			Y	Y	Y	SE	Y	N	Y
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	C,U	Y	Y			Y	Y	Y	N	Y	N	Y
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	U	Y	Y			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			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			Y	Y	Y	N	N	N	Y
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	U	Y	Y			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			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			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			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			Y	Y	Y	N	N	N	Y
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	U	Y	Y			Y	Y	Y	N	N	N	Y
syngo Non-Image Storage	1.3.12.2.1107.5.9.1	U	Y	Y			Y	Y	Y	N	N	N	Y

* Enhanced SR and Comprehensive SR follows the Basic Text SR template.

Table 1.1-2 lists the handling of SOP classes by modality applications that are part of syngo.via, henceforth referred to as syngo.via applications.

Table 1.1-2 Storage SOP Classes – syngo.via Applications

SOP Classes		Transfer Syntax Set	DIMSE Services		DICOM Web Services		Media Services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	C,U	Y	Y			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			Y	Y	Y	SE	Y	Y	Y
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	C,U	Y	Y			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			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			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			Y	Y	Y	SE	Y	Y	Y
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	C,U	Y	Y			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			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			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			Y	Y	Y	SE	Y	Y	Y
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	U	Y	Y			Y	Y	Y	SE	Y	Y	Y
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	U	Y	Y			Y	Y	Y	SE	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
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	U	Y	Y			Y	Y	Y	SE	N	N	Y
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	U	Y	Y			Y	Y	Y	SE	Y	N	Y
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	C,U	Y	Y			Y	Y	Y	SE	Y	Y	Y

Table 1.1-3 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 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	1.2.840.10008.1.2.4.91	
	RLE Lossless	1.2.840.10008.1.2.5	
Uncompressed Transfer Syntax Set (U)	Implicit VR Little Endian	1.2.840.10008.1.2	
	Explicit VR Little Endian	1.2.840.10008.1.2.1	
	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

Table 1.1-4 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 Classes" 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 1.1-4 Supported SR Root Template IDs (TID)

Name	Root TID	Function	SOP Classes		Condition
Basic Diagnostic Imaging Report (TID 2000)	*2000*	*ARCHIVE*	*Enhanced SR Storage*	*1.2.840.10008.5.1.4.1.1.88.22*	
Procedure Log (TID 3001)	*3001*	*ARCHIVE*	*Procedure Log Storage*	*1.2.840.10008.5.1.4.1.1.88.40*	
Mammography CAD SR (TID 4000)	*4000*	*ARCHIVE*	*Mammography CAD SR Storage*	*1.2.840.10008.5.1.4.1.1.88.50*	
CT Radiation Dose (TID 10011)	*10011*	*ARCHIVE*	X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	

Name	Root TID	Function	SOP Classes		Condition
Patient Radiation Dose (TID 10030)	*10030*	*ARCHIVE*	Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	

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
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y

1.2.2 Storage

For details on supported Storage SOP Classes see Section 1.1.

1.2.3 Workflow Management

Table 1.2-2 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	N	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N	Y
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N	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	N	Y

SOP Classes		Transfer Syntax		DIMSE	
				SCU	SCP
Information Model – FIND (Retired)		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N	Y
Patient/Study Only Query/Retrieve Information Model – MOVE (Retired)	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N	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	Y	N
AUG-GEN-CD	Y	Y	N
DVD			
STD-GEN-DVD-RAM	Y	Y	N
STD-GEN-DVD-JPEG	Y	Y	N
STD-GEN-DVD-J2K	Y	Y	N
AUG-GEN-DVD-RAM	Y	Y	N
AUG-GEN-DVD-JPEG	Y	Y	N
AUG-GEN-DVD-J2K	Y	Y	N
Blu-ray			
STD-GEN-BD	Y	Y	N
STD-GEN-BD-JPEG	Y	Y	N
STD-GEN-BD-J2K	Y	Y	N
AUG-GEN-BD	Y	Y	N
AUG-GEN-BD-JPEG	Y	Y	N
AUG-GEN-BD-J2K	Y	Y	N
USB			
STD-GEN-USB	Y	Y	Y
STD-GEN-USB-JPEG	Y	Y	Y
STD-GEN-USB-J2K	Y	Y	Y
AUG-GEN-USB	Y	Y	Y
AUG-GEN-USB-JPEG	Y	Y	Y
AUG-GEN-USB-J2K	Y	Y	Y

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)

Defined Term	Code	Description
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
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.

2 Table of Contents

1	DICOM CONFORMANCE STATEMENT OVERVIEW	2
1.1	Content and Transfer	2
1.2	DIMSE Services	14
1.2.1	Verification	14
1.2.2	Storage	14
1.2.3	Workflow Management	14
1.2.4	Query/Retrieve	15
1.2.5	Printing	16
1.3	DICOM Web Services	16
1.4	Media Services	16
1.5	Real Time Video Service	17
1.6	De-Identification Profiles	17
1.7	Specific Character Sets	17
2	TABLE OF CONTENTS	19
3	INTRODUCTION	25
3.1	Revision History	25
3.2	Audience	25
3.3	Remarks	26
3.4	Terms and Definitions	26
3.5	Abbreviations	28
3.6	References	29
4	IMPLEMENTATION MODEL	30
4.1	Application Entities and Data Flow	30
4.1.1	Functional Definition of syngo.via AE	31
5	SERVICE AND INTEROPERABILITY DESCRIPTION	33

5.1	**Mapping of Services to Application Entities**	**33**
5.2	**Supported DIMSE Services**	**33**
5.2.1	Basic Worklist Management Service	33
5.2.2	Modality Performed Procedure Step Service	38
5.2.3	Unified Procedure Step Service	38
5.2.4	Instance Availability Notification Service	38
5.2.5	Storage Service	39
5.2.6	Storage Commitment Service	60
5.2.7	Query/Retrieve Service	62
5.2.8	Print Management Service	77
5.3	**Supported DICOM Web Services**	**84**
5.4	**Media Service**	**84**
5.4.1	File Set Creator (FSC)	84
5.4.2	File Set Reader (FSR)	88
5.4.3	File Set Updater (FSU)	88
5.5	**Real Time Video Service**	**88**
5.6	**Cross Service Considerations**	**88**
5.6.1	PACS initiated Archiving	88
5.6.2	Archiving with Derived Objects	88
5.6.3	Auto-routing	89
5.6.4	Correction and re-arrangement	89
5.7	**Specific Character Sets**	**89**
6	**CONFIGURATION**	**91**
6.1	**General Configuration Parameters**	**91**
6.2	**Configuration of DIMSE Services**	**92**
6.2.1	Basic Worklist Management Service Configuration	92
6.2.2	Modality Performed Procedure Step Service Configuration	93
6.2.3	Unified Worklist and Procedure Step Service Configuration	93
6.2.4	Instance Availability Notification Service Configuration	93
6.2.5	Storage Service Configuration	94
6.2.6	Storage Commitment Service Configuration	96
6.2.7	Query/Retrieve Service Configuration	97
6.2.8	Print Management Service Configuration	98
6.3	**Configuration of DICOM Web Services**	**100**
6.4	**Configuration of Media Storage Service**	**100**
6.5	**Configuration of Real Time Video Service**	**101**
6.6	**Configuration of Audit Trail - Syslog**	**101**
6.7	**Configuration of Patient Identification**	**101**
7	**NETWORK AND MEDIA COMMUNICATION DETAILS**	**103**

7.1	**General**	**103**
7.1.1	General Association Parameters	104
7.1.2	Common Real-World Activities	105
7.1.3	Common Association Initiation/Acceptance Policies	106
7.2	**Specifications**	**107**
7.2.1	syngo.via Application Entity	107
7.3	**Status Codes**	**124**
7.3.1	General AE Communication and Failure Behavior and Handling	124
7.3.2	DIMSE Services	125
7.3.3	DICOM Web Services	143
8	**SECURITY**	**144**
8.1	**Introduction**	**144**
8.2	**External Network Requirements**	**144**
8.3	**TCP Port Configuration**	**145**
8.4	**DICOM Security Profiles Support**	**145**
8.4.1	Secure Use and User Identity Profiles	145
8.4.2	Secure Transport Connection Profiles	146
8.4.3	Media Storage Security Profiles	146
8.4.4	Attribute Confidentiality Profiles	146
8.4.5	Digital Signature Profiles	146
8.4.6	Additional DICOM Security Profiles	146
8.5	**User Identity Negotiation Support**	**146**
8.6	**Web Services Security Features**	**146**
8.7	**Other Security Features**	**146**
8.8	**Data Minimization**	**147**
ANNEX A	**INFORMATION OBJECT DEFINITIONS (IODS)**	**158**
A.1	**Information shared across multiple IODs**	**159**
A.1.1	Common Modules	159
A.1.2	Common Functional Group Macros	173
A.1.3	Common Private Modules	174
A.1.4	Coded Values	174
A.2	**Basic Directory IOD**	**175**
A.2.1	Basic Directory IOD Specific Modules	188
A.2.2	Basic Directory IOD Functional Group Macros	189
A.2.3	Basic Directory IOD Private Modules	189
A.2.4	Basic Directory IOD Coded Values	189
A.3	**Encapsulated PDF IOD**	**189**
A.3.1	Encapsulated PDF IOD Specific Modules	189
A.3.2	Encapsulated PDF IOD Functional Group Macros	191

A.3.3	Encapsulated PDF IOD Private Modules	191
A.3.4	Encapsulated PDF IOD Coded Values	192
A.4	**Basic Text SR IOD**	**193**
A.4.1	Basic Text SR IOD Specific Modules	193
A.4.2	Basic Text SR IOD Functional Group Macros	194
A.4.3	Basic Text SR IOD Private Modules	194
A.4.4	Basic Text SR IOD Coded Values	194
A.5	**Segmentation Image IOD**	**195**
A.5.1	Segmentation Image IOD Specific Modules	195
A.5.2	Segmentation Image IOD Functional Group Macros	197
A.5.3	Segmentation Image IOD Private Modules	198
A.5.4	Segmentation Image IOD Coded Values	198
A.6	**CT Image IOD**	**199**
A.6.1	CT image IOD Specific Modules	199
A.6.2	CT image IOD Functional Group Macros	201
A.6.3	CT image IOD Private Modules	201
A.6.4	CT image IOD Coded Values	201
A.7	**MR Image IOD**	**202**
A.7.1	MR Image IOD Specific Modules	202
A.7.2	MR Image IOD Functional Group Macros	203
A.7.3	MR Image IOD Private Modules	203
A.7.4	MR Image IOD Coded Values	203
A.8	**Secondary Capture Image IOD**	**204**
A.8.1	Secondary Capture Image IOD Specific Modules	204
A.8.2	Secondary Capture Image IOD Functional Group Macros	206
A.8.3	Secondary Capture Image IOD Private Modules	207
A.8.4	Secondary Capture Image IOD Coded Values	211
A.9	**Positron Emission Tomography Image IOD**	**212**
A.9.1	Positron Emission Tomography Image IOD Specific Modules	212
A.9.2	Positron Emission Tomography Image IOD Functional Group Macros	214
A.9.3	Positron Emission Tomography Image IOD Private Modules	214
A.9.4	Positron Emission Tomography Image IOD Coded Values	214
A.10	**Enhanced CT Image IOD**	**215**
A.10.1	Enhanced CT Image IOD Specific Modules	216
A.10.2	Enhanced CT Image IOD Functional Group Macros	221
A.10.3	Enhanced CT Image IOD Private Modules	221
A.10.4	Enhanced CT Image IOD Coded Values	221
A.11	**Enhanced MR Image IOD**	**222**
A.11.1	Enhanced MR Image IOD Specific Modules	223
A.11.2	Enhanced MR Image IOD Functional Group Macros	227
A.11.3	Enhanced MR Image IOD Private Modules	227
A.11.4	Enhanced MR Image IOD Coded Values	228
A.12	**Nuclear Medicine Image IOD**	**229**
A.12.1	Nuclear Medicine Image IOD Specific Modules	230
A.12.2	Nuclear Medicine Image IOD Functional Group Macros	233
A.12.3	Nuclear Medicine Image IOD Private Modules	233

A.12.4	Nuclear Medicine Image IOD Coded Values	245
A.13	**Surface Segmentation Image IOD**	**246**
A.13.1	Surface Segmentation Image IOD Specific Modules	246
A.13.2	Surface Segmentation Image IOD Functional Group Macros	248
A.13.3	Surface Segmentation Image IOD Private Modules	249
A.13.4	Surface Segmentation Image IOD Coded Values	249
A.14	**Raw Data IOD**	**250**
A.14.1	Raw Data IOD Specific Modules	250
A.14.2	Raw Data IOD Functional Group Macros	251
A.14.3	Raw Data IOD Private Modules	251
A.14.4	Raw Data IOD Coded Values	251
A.15	**Real World Value Mapping IOD**	**252**
A.15.1	Real Value Mapping IOD Specific Modules	252
A.15.2	Real World Value Mapping IOD Functional Group Macros	253
A.15.3	Real World Value Mapping IOD Private Modules	253
A.15.4	Real World Value Mapping IOD Coded Values	253
A.16	**Breast Projection X-Ray Image IOD**	**253**
A.16.1	Breast Projection X-Ray Image IOD Specific Modules	254
A.16.2	Breast Projection X-Ray Image IOD Functional Group Macros	257
A.16.3	Breast Projection X-Ray Image IOD Private Modules	257
A.16.4	Breast Projection X-Ray Image IOD Coded Values	257
A.17	**Enhanced MR Color Image IOD**	**257**
A.17.1	Enhanced MR Image IOD Specific Modules	258
A.17.2	Enhanced MR Color Image IOD Functional Group Macros	260
A.17.3	Enhanced MR Color Image IOD Private Modules	260
A.17.4	Enhanced MR Color Image IOD Coded Values	260
ANNEX B	**STRUCTURED REPORT CONTENT ENCODING**	**261**
ANNEX C	**SECURITY DETAILS**	**262**
C.1	**External Network Requirement Details**	**262**
C.1.1	Basic Time Synchronization	262
C.1.2	Basic Network Address Management	262
C.1.3	Application Configuration Management	262
C.1.4	DNS Service Discovery	262
C.2	**DICOM Security Profile Details**	**263**
C.2.1	Online Electronic Storage Secure Use	263
C.2.2	Audit Trail Messages	263
C.2.3	Audit Trail Message Transmission Profile – SYSLOG – TLS	291
C.2.4	Audit Trail Message Transmission Profile – SYSLOG – UDP	291
C.2.5	Secure Transport Connection Details	291
C.2.6	Attribute Confidentiality Details	291
C.2.7	Digital Signature Details	292
C.2.8	Additional DICOM Security Profile Details	292
ANNEX D	**MAPPING OF ATTRIBUTES**	**293**

D.1 Mapping between Modality Worklist, Instances and MPPS 293

ANNEX E CODE SET USAGE 294

ANNEX F APPLICATION ANNEXES 295

F.1 Mammography Applications 295
F.1.1 Overview 295
F.1.2 Data Specification 295
F.1.3 Configuration 301

F.2 CT Applications 302
F.2.1 Overview 302
F.2.2 Data Specification 302
F.2.3 Configuration 378

F.3 MR Applications 379
F.3.1 Overview 379
F.3.2 Data Specification 379
F.3.3 Configuration 381

F.4 MI Applications 382
F.4.1 Overview 382
F.4.2 Data Specification 382
F.4.3 Configuration 384

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
4.0	2025-09-24	VC10	VC10C Release
4.1	2026-02-11	VC10	Added Contributing Equipment Module details which is used to indicate the results are generated as part of AI Algorithms. Same is referred in few IODs. Added new section “A.17 EU AI Act Art(50)“ Added new IOD for Enhanced MR Color Image for the defect 7102987
4.2	2026-02-19	VC10	Updated Table A.8.1-1: Secondary Capture Image Plane Module for defect 7102779
5.0	2026-03-12	VC10	VC10D Release
5.1	2026-04-01	VC10	Adapt to platform template v13. Update review comments from VC10D. Added table "CT Image IOD Private – SIEMENS CT APPL ALG PARAMS– Spine Fracture" for defect 7155300. Restructured syngo.via applications (modalities) content to Annex F. Removed Contributing Equipment Module details as requested from MR for defect 7102987. Added enumerated values Value 3 ="M" and Value 4 ="RESAMPLED" for MR Image Storage/1.2.840.10008.5.1.4.1.1.4 for defect 7333889
6.0	2026-07-01	VC10	VC10E 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).
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).

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.
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, which 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.
RIS	Radiology Information System
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].

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 “Not for clinical use”.
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.

3.5 Abbreviations

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

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

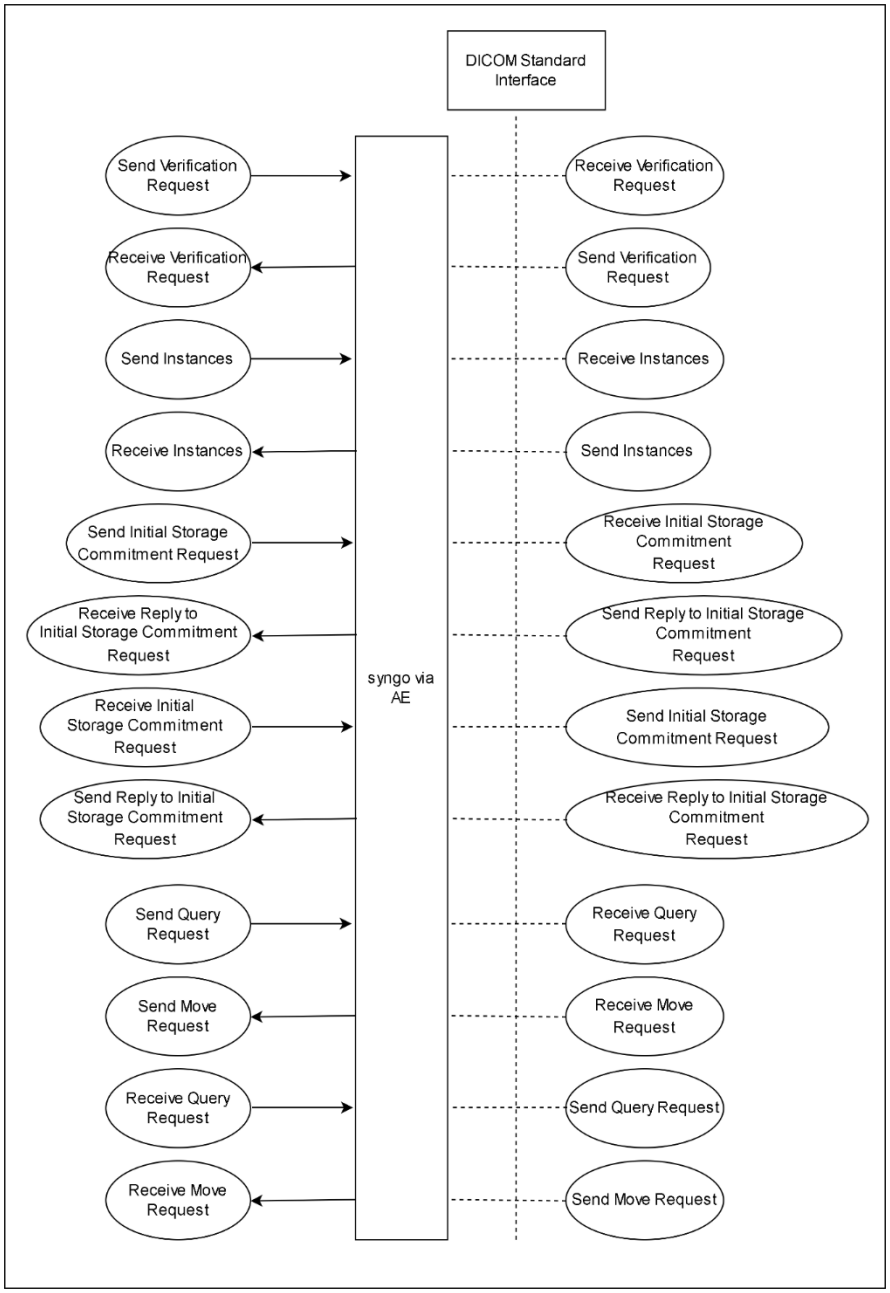
1. NEMA PS3 / ISO 12052, Digital Imaging and Communications in Medicine (DICOM) Standard, National Electrical Manufacturers Association, Rosslyn, VA, USA (available free at http://www.dicomstandard.org/current)
2. IHE Radiology Technical Framework available at https://www.ihe.net/Resources/technical_frameworks/#radiology

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, syngo.via can query remote nodes, retrieve, and store selected instances from that node. Using the Modality Worklist Service, 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 syngo.via is shown in Figure 4.1-1: syngo.via Data Flow Diagram.



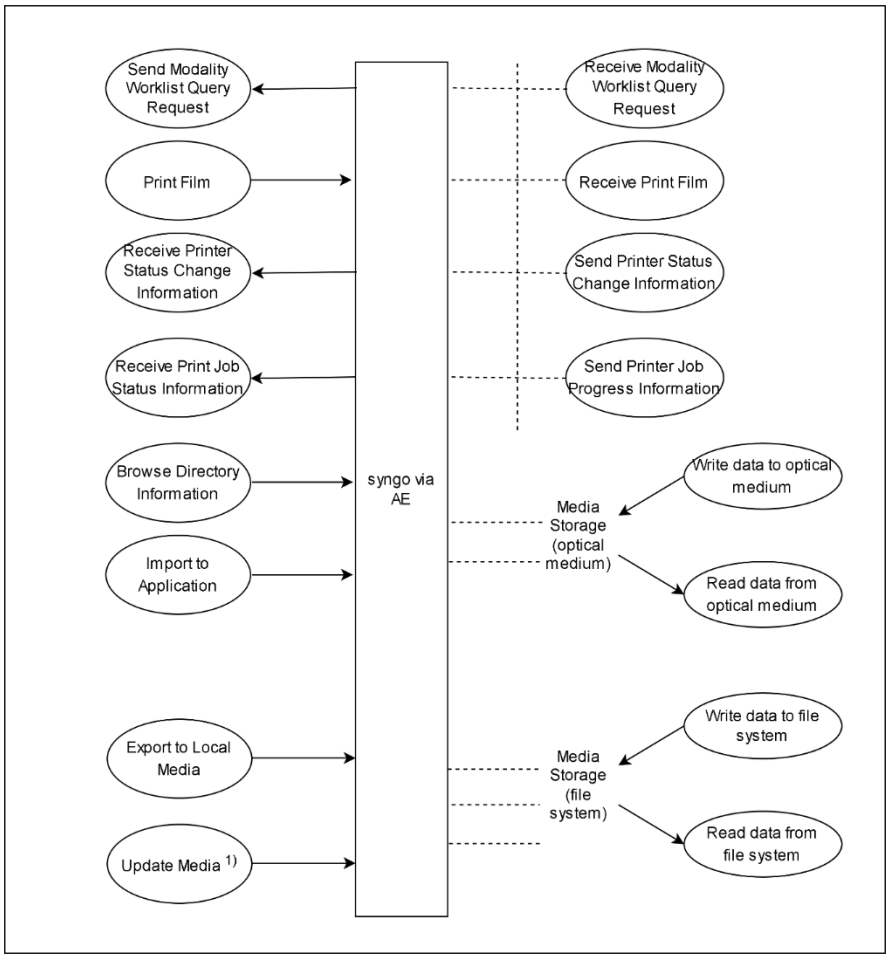


Figure 4.1-1: syngo.via Data Flow Diagram

1) Update Media is not supported for Optical Media.

4.1.1 Functional Definition of syngo.via AE

syngo.via allows flexible configuration of DIMSE services. The configurations can vary at customer sites depending on the local setup. This section lists the default configurations in syngo.via AE.

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 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.

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 to each configured remote AE.

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

The Query and Retrieve DICOM 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 DICOM data is transferred using the C-STORE-RQ. The transfer status is reported to the initiator of the Storage request.

The Retrieve DICOM service of syngo.via starts to receive the Composite Objects and stores 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.

syngo.via AE supports the Storage SOP Classes listed in Table 1.1-1 as an SCU and SCP.

If configured, 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. 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.

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.

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.

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).

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

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, 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.

syngo.via Modality Worklist SCU queries the Modality Worklist SCP using the DICOM C-FIND service (C-FIND-RQ messages) under the Modality Worklist Information Model – FIND. The results in the C-FIND-RSPs are stored in internal database.

The Print Film Service of syngo.via is invoked by the user interface to setup film-sheet layout and whenever an image is ready to be printed on film. 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.

syngo.via Media Service supports Media Storage as an FSC, FSR and FSU. FSU is supported only by non-optical media.

Export (FSC and FSU for non-optical drives) and Import (FSR) are invoked by the user interface, where the User can configure the key parameters of the Export Operation. The user interface is different for Export to File System and for Optical Drive. The Import user interface provides only the possibility to choose the data to import. The Export functionality is typically used to provide the Patient with the results of the scan.

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 Storage	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, 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, EMPTY		N	
>Modality	(0008,0060)	SINGLE_VALUE UNIVERSAL	USER, EMPTY		D	Can be set in the Patient Query
>Scheduled Station AE Title	(0040,0001)	WILDCARD	USER, GENERATED[1]		D	Can be set in the Patient Query
>Scheduled Procedure Step Status	(0040,0020)	SINGLE_VALUE, UNIVERSAL	CONFIGURATION, EMPTY		D	Can be set on the Administration Portal
>Scheduled Procedure Step Location	(0040,0011)	SINGLE_VALUE, UNIVERSAL	CONFIGURATION, EMPTY		D	Can be set on the Administration Portal
>Scheduled Station Name	(0040,0010)	SINGLE_VALUE, UNIVERSAL	CONFIGURATION, EMPTY		D	Can be set on the Administration Portal
>Scheduled Performing Physician’s Name	(0040,0006)	WILDCARD	USER, GENERATED		D	
>Scheduled Procedure Step Start Date	(0040,0002)	RANGE, UNIVERSAL	USER, EMPTY		D	Can be set in the Patient Query
>Scheduled Procedure Step Start Time	(0040,0003)	RANGE, UNIVERSAL	USER, EMPTY		N	
>Scheduled Procedure Step End Date	(0040,0004)	RANGE, UNIVERSAL	USER, EMPTY		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	
>Scheduled Procedure Step ID	(0040,0009)	UNIVERSAL	EMPTY		N	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
>Comments on the Scheduled Procedure Step	(0040,0400)	UNIVERSAL	EMPTY		N	
Requested Procedure						
Requested Procedure Comments	(0040,1400)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Patient Transport Arrangements	(0040,1004)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Requested Procedure Priority	(0040,1003)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Requested Procedure Sequence	(0032,1064)	SEQUENCE	GENERATED		N	
>Code Value	(0008,0100)	SINGLE_VALUE UNIVERSAL	USER, EMPTY		N	
>Coding Scheme Designator	(0008,0102)	SINGLE_VALUE, UNIVERSAL	USER, EMPTY		N	
>Coding Scheme Version	(0008,0103)	SINGLE_VALUE UNIVERSAL	USER, EMPTY		N	
Requested Procedure Description	(0032,1060)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Referring Physician's Name	(0008,0090)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Requesting Physician	(0032,1032)	WILDCARD	CONFIGURATION, GENERATED[1]		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, UNIVERSAL	USER, EMPTY		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	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
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, GENERATED[1]		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	
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						
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						
Current Patient Location	(0038,0300)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal
Patient Identification						

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Patient's Name	(0010,0010)	WILDCARD	USER, EMPTY		D	Can be set in the Patient Query
Patient ID	(0010,0020)	WILDCARD	USER, EMPTY		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	
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	
Patient's Insurance Plan Code Sequence	(0010,0050)	SEQUENCE	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 UNIVERSAL	USER, EMPTY		D	Can be set on the Administration Portal
Medical Alerts	(0010,2000)	WILDCARD	CONFIGURATION, GENERATED[1]		D	Can be set on the Administration Portal

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Allergies	(0010,2110)	WILDCARD	CONFIGUATION, GENERATED[1]		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	

[1] "*" is appended to each search string entered by the user or in the Administrator Portal. If no value is provided, a value "*" will be send as a query value.

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).

When configured for Japanese character set support, Person Name Query Attributes may contain ideographic (kanji) and/or phonetic (hiragana and katakana) and/or Romanized (romaji) representations.

When configured for Chinese character set support, in the Person Name Query Attributes ideographic (Hanzi) and/or phonetic (pinyin) representations are supported. For Patient's Name (0010,0010), the representation which is displayed by default in the worklist is configurable.

When configured for Korean character set support, Person Name Query Attributes may contain ideographic (hanja) and/or phonetic (hangul) and/or Romanized representations.

For further information on the handling of Specific Character Sets Refer to Section 5.7.

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 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, 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.

Storage Requests are initiated by the User or by Automatic Archiving.

The User has the possibility to configure a single Default Archive. If a Default Archive is configured, the User can also set up the daily start time and the end of the scheduling process for an automated archiving functionality. This feature is called Automatic Archiving.

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	SUPPORTED	SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED	NEW_UID	NEW_UID	NEW_UID
Explicit VR Little Endian	SUPPORTED		SUPPORTED	SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED	NEW_UID	NEW_UID	NEW_UID
Explicit VR Big Endian	SUPPORTED	SUPORTED		SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	NEW_UID	NOT_SUPPORTED
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14)	SUPPORTED	SUPPORTED	SUPPORTED		NOT_SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	NEW_UID	NEW_UID

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)	NOT_SUPPORTED	NOT_SUPPORTED	NOT_SUPPORTED	NOT_SUPPORTED		NOT_SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED
JPEG 2000 Image Compression (Lossless Only)	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED		SUPPORTED	NEW_UID	NEW_UID	NEW_UID
RLE Lossless	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	SUPPORTED		NEW_UID	NEW_UID	NEW_UID
JPEG Extended (Process 2 & 4)	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED		NOT_SUPPORTED [1)]	NEW_UID
JPEG Baseline (Process 1)	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	NEW_UID	NEW_UID	NOT_SUPPORTED [1)]		NEW_UID
JPEG 2000 Image Compression	SUPPORTED	SUPPORTED	SUPPORTED	SUPPORTED	NOT_SUPPORTED	SUPPORTED	SUPPORTED	NEW_UID	NEW_UID	

[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.

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, 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 Storage Support	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 in syngo.via, which allows deletion of a configured set of Attributes. If such a Header Correction Ruleset is selected, the Level of Storage Support is 0 (Local).

syngo.via supports Attribute Coercion using pre-defined Header Correction Rulesets, which can be enabled in the Administration Portal. Section 5.2.5.4 lists all supported Header Correction Rulesets and describes the coercion of the Attributes in each specific ruleset.

syngo.via, excluding modality applications has no restrictions on display or post processing.

Table 5.2-4 lists actions performed upon receiving instances from a remote AE and system behavior when certain conditions are encountered.

Table 5.2-4: Behavior when storing Instances

Action upon Receiving	Condition	System behavior
Perform Attribute Validation	Character Set Mismatches	In case the Data received or imported is encoded using another Character Set as the one configured, mismatching characters are replaced with ?.
	Duplicate Instance	Duplicate Instances are ignored. The processing continues with the next Instance.
	Validation error (see Section TBD)	The Association is aborted.
	Success	Instances are stored in internal database.
Study with existing Study Instance UID received	Patient data mismatch [1)]	A new Patient is created.
	Success	Instances are stored in local database.
New Study for existing Patient received	Patient data mismatch [1)]	A new Patient is created.
	Success	Instances are stored in internal database.
Coerce non-Patient-identifying Attributes	Success	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 5.2-5 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 5.2-5: Image Compression by Storage SCP

SOP Class	Behavior	Transfer Syntax		Comments
All Image Storage SOP Classes (SOP classes supporting a Compressed Transfer Syntax Set (C) in Table 1.1-1	CONFIGURATION	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	Any of the listed Transfer Syntaxes can be enabled by Configuration. Specific Transfer Syntaxes can also be enforced for certain SOP Classes. If DICOM Instances are not compatible with enforced compression, the Storage operation will fail.
		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	1.2.840.10008.1.2.4.91	
		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.

For the usage of the Lossy Image Compression (0028,2110) Attribute see Table A.1.1-10: General Image Module.

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 Matching Patients

DICOM data received by syngo.via will be assigned to an existing Patient in the local database. If the values of the configured identifying attributes match. If there is a mismatch a new Patient is created based on the information in the identifying attributes of the DICOM data received.

By default, syngo.via performs Patient Identification based on Patient ID (0010,0020) attribute. However, based on the configuration (see Section 6.7) the following attributes can be used for Patient matching (if available):

- Patient's Name (0010,0010)
- Patient's Date of Birth (0010,0030)
- Issuer of Patient ID (0010,0021)

If there is no Patient ID in the incoming data, a new Patient will be created, and a local Patient ID (0010,0020) will be assigned. The other Patient identifying attributes will be copied (if available) from the incoming data.

If the incoming data matches more than one Patient, the incoming data will link to the first Patient found.

5.2.5.4 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.

syngo.via coerces the Attributes listed in Table 5.2-6, Table 5.2-7, Table 5.2-8, Table 5.2-9, Table 5.2-10 and Table 5.2-11 before sending them to other systems or upon receiving them from other systems.

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.

Besides 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. 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 5.2-6, Table 5.2-7, Table 5.2-8, Table 5.2-9, Table 5.2-10 and Table 5.2-11 describe the standard set of the Header Correction Rulesets provided.

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

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

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

The Service Technician can select one or more Header Correction Rulesets 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 Technician can create and apply additional Header Correction Rulesets. All Header Correction Rulesets described below are delivered with the product.

Table 5.2-6: 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	If the Attribute (0008,0032) Acquisition Time is set to zero, the filter replaces the value with the current system time

Table 5.2-7: 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	Age String (AS) VR compatible value.	ALWAYS	This is configured to replace an incorrectly formatted Age String.

Table 5.2-8: 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 5.2-9: 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 5.2-10: Standard Header Correction Set "Tag Based"

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
Instance Coercion DateTime	(0008,0015)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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
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	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
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	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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
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	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
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	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Patient Identity Removed	(0012,0062)	ALL	MODIFIED	YES	ALWAYS	
De-identification Method	(0012,0063)	ALL	ADDED	Deidentified\Basic Application Confidentiality Profile applied	ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
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

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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
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

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Scheduled Procedure Step Start Time	(0040,0003)	ALL	REMOVED		ALWAYS	
Scheduled Procedure Step End Date	(0040,0004)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Performed Procedure Step End Date	(0040,0250)	ALL	REMOVED		ALWAYS	
Performed Procedure Step End Time	(0040,0251)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Person's Telephone Numbers	(0040,1103)	ALL	REMOVED		ALWAYS	
Requested Procedure Comments	(0040,1400)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Human Performer's Name	(0040,4037)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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
Telephone Number '(Trial)	(0040,A354)	ALL	REMOVED		ALWAYS	This Tag is retired

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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	
Source Serial Number	(3008,0105)	ALL	REMOVED		ALWAYS	

Attribute Name	Tag	SOP Class UID	Type of Change	New Value	Condition	Comments
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
Digital Signatures Sequence	(FFFA,FFFA)	ALL	REMOVED		ALWAYS	

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

Table 5.2-11: 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, 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.”

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

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 5.2-12 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 5.2-12: Failure Behavior for Storage Commitment SCU

Status Code	Description	Behavior
0110	Processing failure: A general failure in processing the operation was encountered.	The following processing is in place: • All the incoming Status Codes are logged. • All the incoming Status Codes can be traced. • The User is notified in the Job View. • The Storage Commitment Status of the respective instances are set (“Archived” or “Archive Failed”). • Instances, which are not achieved or the archiving failed (negative Storage Commitment Response) cannot be deleted automatically. • Non-archived data (no matter if it was not yet archived or one or more archive attempts failed) can only be deleted by a user with administrator privileges.
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.	
0213H	Resource limitation: The SCP does not currently have enough resources to store the requested SOP Instance(s).	

In case syngo.via receives the report of a successful Storage Commitment Operation, the SOP Instances that were sent are marked as archived. For archived SOP Instances an automatic deletion mechanism can be set up.

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 5.2-13 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 5.2-13: Failure Conditions on Storage Commitment SCP

Status Code	Description	Conditions
0110	Processing failure: A general failure in processing the operation was encountered.	In case of any issue, Processing failure (0110) is sent to the SCU.
0112	No such SOP Instance	
0113	No such event type	
0114	No such argument	
0115	Invalid argument Value	
0117	Invalid Object Instance	
0118	No such SOP Class	
0119	Class-instance conflict	
0210	Duplicate invocation	
0211	Unrecognized operation	
0212	Mistyped argument	
0213H	Resource limitation	

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 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 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, syngo.via uses the C-FIND-RQ message and supports the Query Keys listed in Table 5.2-14 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 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 5.2-14: 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, GENERATED [1]		D	
Patient ID	(0010,0020)	WILDCARD	USER, GENERATED [1]		D	
Issuer of Patient ID	(0010,0021)	WILDCARD	USER, GENERATED [1]		D	
Patient's Birth Date	(0010,0030)	SINGLE_VALUE, RANGE, UNIVERSAL	USER, EMPTY		D	The User can enter on the GUI a starting date and an ending date for this value. If only the starting date is available, a SINGLE_VALUE search is executed.
Patient's Birth Time	(0010,0032)	SINGLE_VALUE, RANGE,	USER,		D	The User can enter on the GUI a starting time

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
		UNIVERSAL	EMPTY			and an ending time for this value. If only the starting time is available, a SINGLE_VALUE search is executed. Only used together with the Patient's Birth Date.
Patient's Sex	(0010,0040)	SINGLE_VALUE, UNIVERSAL	USER, EMPTY		D	
Accession Number	(0008,0050)	WILDCARD	USER, GENERATED [1]		D	
Study ID	(0020,0010)	WILDCARD	USER, GENERATED [1]		D	
Study Instance UID	(0020,000D)	UID, UNIVERSAL	USER, EMPTY		D	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE UNIVERSAL	USER, EMPTY		D	The User can enter on the GUI a starting date and an ending date for this value. If only the starting date is available, a SINGLE_VALUE search is executed.
Study Time	(0008,0030)	RANGE, SINGLE_VALUE, UNIVERSAL	USER, EMPTY		D	The User can enter on the GUI a starting time and an ending time for this value. If only the starting time is available, a SINGLE_VALUE search is executed. Only used together with the Study Date.

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Referring Physician' s Name	(0008,0090)	WILDCARD	USER, GENERATED [1]		D	
Study Description	(0008,1030)	WILDCARD	USER, GENERATED [1]		D	
Number of Study related Instances	(0020,1208)	UNIVERSAL	EMPTY		N	
Modalities in Study	(0008,0061)	SINGLE_VALUE UNIVERSAL	USER, EMPTY		D	The User can choose several Modalities from a multiple choice list on the GUI.
Number of Study Related Series	(0020,1206)	UNIVERSAL	EMPTY		N	
Series Level						
Modality	(0008,0060)	SINGLE_VALUE, UNIVERSAL	USER, EMPTY		C	The User can choose several Modalities from a multiple choice list on the GUI.
Series Date	(0008,0021)	RANGE, SINGLE_VALUE UNIVERSAL	USER, EMPTY		C	The User can enter on the GUI a starting date and an ending date for this value. If only the starting date is available, a SINGLE_VALUE search is executed.
Series Time	(0008,0031)	RANGE, SINGLE_VALUE UNIVERSAL	USER, EMPTY		C	The User can enter on the GUI a starting time and an ending time for this value. If only the starting time is available, a SINGLE_VALUE search is executed. Only used together with the Series Date.
Series Number	(0020,0011)	SINGLE_VALUE	USER, EMPTY		C	

Attribute Name	Tag	Matching Type	Query Value Source	Value	Display on UI	Comments
Series Description	(0008,103E)	WILDCARD	USER, GENERATED [1]		C	
Request Attributes Sequence	(0040,0275)	SEQUENCE	USER, EMPTY		N	
>Requested Procedure ID	(0040,1001)	WILDCARD	USER, GENERATED [1]		C	
>Scheduled Procedure Step ID	(0040,0009)	WILDCARD	USER, GENERATED [1]		C	
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE_VALUE, UNIVERSAL	USER, EMPTY		C	The User can enter on the GUI a starting date and an ending date for this value. If only the starting date is available, a SINGLE_VALUE search is executed.
Performed Procedure Step Start Time	(0040,0245)	RANGE, SINGLE_VALUE, UNIVERSAL	USER, EMPTY		C	The User can enter on the GUI a starting time and an ending time for this value. If only the starting time is available, a SINGLE_VALUE search is executed. Only used together with the Performed Procedure Step Date.
Series Instance UID	(0020,000E)	UNIVERSAL	EMPTY		D	

[1] "*" is appended to each search string entered by the user or in the Administrator Portal. If no value is provided, a value "*" will be send as a query value.

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.

A Date Time value without the optional suffix is interpreted to be in the local time zone of the application, unless explicitly specified by the Timezone Offset From UTC (0008,0201).

The C-FIND-RQ issued by the user after completing the search fields and starting the Query/Retrieve procedure is always on STUDY level. The results of this search are listed.

If the user selects a result (which is always a Study), a C-FIND-RQ is issued for the Series of the selected Study (on SERIES level). The result of this search is also displayed.

It is not possible for the user to search on instance level. Any displayed result can be selected, and a Retrieve can be started. The C-MOVE-RQ is always issued on STUDY level.

If a Person Name attribute contains multiple representations, the GUI will display all representations.

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

N/A

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

N/A

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

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 not possible.

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 a 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

N/A

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

N/A

5.2.7.7 SCP of the Study Root Q/R Information Model – FIND SOP Class

The Query/Retrieve Information Model for the FIND SOP Class for SCP usage is configured in installation time. By default, this is Patient Root Query/Retrieve Information model.

As a Service Class Provider of the Study Root Q/R - Information Model - FIND SOP Class, syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-15 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 5.2-15: 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	
Other Patient Names	(0010,1001)	UNIVERSAL	
Other Patient IDs	(0010,1000)	UNIVERLSAL	
Patient's Birth Date	(0010,0030)	SINGLE_VALUE, RANGE	
Patient's Birth Time	(0010,0032)	SINGLE_VALUE, RANGE	
Patient's Sex	(0010,0040)	SINGLE_VALUE	
Patient's Birth Name	(0010,1005)	WILDCARD	
Accession Number	(0008,0050)	WILDCARD	
Study ID	(0020,0010)	WILDCARD	
Study Instance UID	(0020,000D)	SINGLE_VALUE	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE, SINGLE_VALUE	
Study Comments	(0032,4000)	WILDCARD	
Name of Physician (s) Reading Study	(0008,1060)	WILDCARD	
Referring Physician' s Name	(0008,0090)	WILDCARD	
Study Description	(0008,1030)	WILDCARD	
Number of Study Related Instances	(0020,1208)	UNIVERSAL	
Modalities in Study	(0008,0061)	SINGLE_VALUE	
Series Level			
Modality	(0008,0060)	SINGLE_VALUE	
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	
Series Time	(0008,0031)	RANGE, SINGLE_VALUE	
Number of Series Related Instances	(0020,1209)	UNIVERSAL	
Series Number	(0020,0011)	SINGLE_VALUE	
Series Description	(0008,103E)	WILDCARD	
Institutional Department Name	(0008,1040)	UNIVERSAL	
Request Attributes Sequence	(0040,0275)	WILDCARD	
> Requested Procedure ID	(0040,1001)	WILDCARD	
> Scheduled Procedure Step ID	(0040,0009)	WILDCARD	

Attribute Name	Tag	Matching Type	Comments
Performed Procedure Step Start Date	(0040,0244)	RANGE, SINGLE_VALUE	
Performed Procedure Step Start Time	(0040,0245)	RANGE, SINGLE_VALUE	
Series Instance UID	(0020,000E)	SINGLE_VALUE	
Instance Level			
Instance Number	(0020,0013)	WILDCARD	
SOP Instance UID	(0008,0018)	UID	
SOP Class UID	(0008,0016)	UID	
Private Attributes			
Master Patient ID	(0031, SIEMENS SYNGO WORKFLOW, 0010)	SINGLE_VALUE	
Issuer of Master Patient ID	(0031, SIEMENS SYNGO WORKFLOW, 0090)	SINGLE_VALUE	
VIP Indicator	(0031, SIEMENS SYNGO WORKFLOW, 0014)	SINGLE_VALUE	
Emergency Flag	(0031, SIEMENS SYNGO WORKFLOW, 0015)	SINGLE_VALUE	
Teaching File	(0009, SIEMENS SYNGO INDEX SERVICE, 0052)	SINGLE_VALUE	
Header Offset	(0009, SIEMENS SYNGO INDEX SERVICE, 0070)	UNIVERSAL	
Delete Protection	(0009, SIEMENS SYNGO INDEX SERVICE, 0041)	SINGLE_VALUE	
Delete Protection Time	(0009, SIEMENS SYNGO INDEX SERVICE, 004B)	UNIVERSAL	
Delete Protection User	(0009, SIEMENS SYNGO INDEX SERVICE, 004C)	UNIVERSAL	
Study Archived	(0009, SIEMENS SYNGO INDEX SERVICE, 0071)	SINGLE_VALUE	
Study Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0072)	SINGLE_VALUE	
Study Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 0099)	SINGLE_VALUE	
Study Corrected	(0009, SIEMENS SYNGO INDEX SERVICE, 0075)	SINGLE_VALUE	
Study Marked	(0009, SIEMENS SYNGO INDEX SERVICE, 0076)	SINGLE_VALUE	
Study Marked Time	(0009, SIEMENS SYNGO INDEX SERVICE, 004D)	UNIVERSAL	
Study Marked User	(0009, SIEMENS SYNGO INDEX SERVICE, 004E)	UNIVERSAL	
User Specified Worklist Sequence\User Specified Worklist	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009C)	SINGLE_VALUE	

Attribute Name	Tag	Matching Type	Comments
User Specified Worklist Sequence\User Specified Worklist Study Registration Time	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009D)	UNIVERSAL	
User Specified Worklist Sequence\User Specified Worklist Study Registration User	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009E)	UNIVERSAL	
Review	(0009, SIEMENS SYNGO INDEX SERVICE, 0077)	SINGLE_VALUE	
Relevant Body Part Examined	(0009, SIEMENS SYNGO INDEX SERVICE, B0)	UNIVERSAL	
Relevant Protocol Name	(0009, SIEMENS SYNGO INDEX SERVICE, B1)	UNIVERSAL	
Relevant Modality	(0009, SIEMENS SYNGO INDEX SERVICE, B2)	UNIVERSAL	
Study Availability	(0009, SIEMENS SYNGO INDEX SERVICE, A8)	UNIVERSAL	
Study Size	(0009, SIEMENS SYNGO INDEX SERVICE,7F)	UNIVERSAL	
Last Access Time	(0009, SIEMENS SYNGO INDEX SERVICE, 0040)	SINGLE_VALUE	
Insert Time	(0009, SIEMENS SYNGO INDEX SERVICE, 0046)	SINGLE_VALUE	
Series Archived	(0009, SIEMENS SYNGO INDEX SERVICE, 0048)	SINGLE_VALUE	
Series Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0073)	SINGLE_VALUE	
Series Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 009A)	SINGLE_VALUE	
Series Completed	(0009, SIEMENS SYNGO INDEX SERVICE, 004A)	UNIVERSAL	
Level of Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 0078)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence \ Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1074)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence\ Radiopharmaceutical Start Date and Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1078)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1072)	UNIVERSAL	
Series Delete Protected	(0009, SIEMENS SYNGO INDEX SERVICE, 004F)	UNIVERSAL	

Attribute Name	Tag	Matching Type	Comments
Series Size	(0009, SIEMENS SYNGO INDEX SERVICE, 007E)	UNIVERSAL	
Archive ObjectStates Sequence \ Archive Status	(0009, SIEMENS SYNGO INDEX SERVICE, 0030) \ (0009, SIEMENS SYNGO INDEX SERVICE, 0043)	SINGLE_VALUE	
Archive ObjectStates Sequence\ Archive Target	(0009, SIEMENS SYNGO INDEX SERVICE, 0030) \ (0009, SIEMENS SYNGO INDEX SERVICE, 0044)	UNIVERSAL	
Instance Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0074)	SINGLE_VALUE	
Instance Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 009B)	SINGLE_VALUE	
Clinical Result Attribute	(0009, SIEMENS SYNGO INDEX SERVICE, 0062)	SINGLE_VALUE	
Instance Radiopharmaceutical Information Sequence\ Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1074)	UNIVERSAL	
Instance Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Date and Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1078)	UNIVERSAL	
Instance Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1072)	UNIVERSAL	
Instance Creator Entity	(0009, SIEMENS SYNGO INDEX SERVICE, 00A6)	UNIVERSAL	
Hidden Instance	(0009, SIEMENS SYNGO INDEX SERVICE, 0050)	SINGLE_VALUE	
Instance Size	(0009, SIEMENS SYNGO INDEX SERVICE, 007D)	UNIVERSAL	
CorRea Sensitive Object	(0009, SIEMENS SYNGO INDEX SERVICE, 00ED)	UNIVERSAL	

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.

The response is sent using the configured SCS. In case the SCS of the Query request is not supported, no results will be provided.

A Date Time value without the optional suffix is interpreted as being in the local time zone of the application creating the Data Element, unless explicitly specified by the Timezone Offset From UTC (0008,0201).

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

The Query/Retrieve Information Model for the FIND SOP Class for SCP usage is configured in installation time. By default, this is Patient Root Query/Retrieve Information model.

Patient Root Query/Retrieve Information Model - FIND SOP Class is only available, if the Remote Application Entity supports the relational query model.

As a Service Class Provider of the Patient Root Q/R - Information Model - FIND SOP Class, syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-16 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 5.2-16: 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	
Other Patient Names	(0010,1001)	UNIVERSAL	
Other Patient IDs	(0010,1000)	UNIVERLSAL	
Patient's Birth Date	(0010,0030)	SINGLE_VALUE, RANGE	
Patient's Birth Time	(0010,0032)	SINGLE_VALUE, RANGE	
Study Level			
Accession Number	(0008,0050)	WILDCARD	
Study ID	(0020,0010)	WILDCARD	
Study Instance UID	(0020,000D)	SINGLE_VALUE	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE, SINGLE_VALUE	
Referring Physician' s Name	(0008,0090)	WILDCARD	
Study Description	(0008,1030)	WILDCARD	
Modalities in Study	(0008,0061)	SINGLE_VALUE	
Series Level			
Modality	(0008,0060)	SINGLE_VALUE	
Series Date	(0008,0021)	RANGE, SINGLE_VALUE	
Series Time	(0008,0031)	RANGE, SINGLE_VALUE	
Number of Series Related Instances	(0020,1209)	UNIVERSAL	
Series Number	(0020,0011)	SINGLE_VALUE	
Series Description	(0008,103E)	WILDCARD	
Institutional Department Name	(0008,1040)	UNIVERSAL	

Attribute Name	Tag	Matching Type	Comments
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, SINGLE_VALUE	
Series Instance UID	(0020,000E)	SINGLE_VALUE	
Instance Level			
Instance Number	(0020,0013)	WILDCARD	
SOP Instance UID	(0008,0018)	UID	
SOP Class UID	(0008,0016)	UID	
Private Attributes			
Master Patient ID	(0031, SIEMENS SYNGO WORKFLOW, 0010)	SINGLE_VALUE	
Issuer of Master Patient ID	(0031, SIEMENS SYNGO WORKFLOW, 0090)	SINGLE_VALUE	
VIP Indicator	(0031, SIEMENS SYNGO WORKFLOW, 0014)	SINGLE_VALUE	
Emergency Flag	(0031, SIEMENS SYNGO WORKFLOW, 0015)	SINGLE_VALUE	
Teaching File	(0009, SIEMENS SYNGO INDEX SERVICE, 0052)	SINGLE_VALUE	
Header Offset	(0009, SIEMENS SYNGO INDEX SERVICE, 0070)	UNIVERSAL	
Delete Protection	(0009, SIEMENS SYNGO INDEX SERVICE, 0041)	SINGLE_VALUE	
Delete Protection Time	(0009, SIEMENS SYNGO INDEX SERVICE, 004B)	UNIVERSAL	
Delete Protection User	(0009, SIEMENS SYNGO INDEX SERVICE, 004C)	UNIVERSAL	
Study Archived	(0009, SIEMENS SYNGO INDEX SERVICE, 0071)	SINGLE_VALUE	
Study Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0072)	SINGLE_VALUE	
Study Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 0099)	SINGLE_VALUE	
Study Corrected	(0009, SIEMENS SYNGO INDEX SERVICE, 0075)	SINGLE_VALUE	
Study Marked	(0009, SIEMENS SYNGO INDEX SERVICE, 0076)	SINGLE_VALUE	
Study Marked Time	(0009, SIEMENS SYNGO INDEX SERVICE, 004D)	UNIVERSAL	
Study Marked User	(0009, SIEMENS SYNGO INDEX SERVICE, 004E)	UNIVERSAL	

Attribute Name	Tag	Matching Type	Comments
User Specified Worklist Sequence\User Specified Worklist	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009C)	SINGLE_VALUE	
User Specified Worklist Sequence\User Specified Worklist Study Registration Time	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009D)	UNIVERSAL	
User Specified Worklist Sequence\User Specified Worklist Study Registration User	(0009, SIEMENS SYNGO INDEX SERVICE, 009F) \ (0009, SIEMENS SYNGO INDEX SERVICE, 009E)	UNIVERSAL	
Review	(0009, SIEMENS SYNGO INDEX SERVICE, 0077)	SINGLE_VALUE	
Relevant Body Part Examined	(0009, SIEMENS SYNGO INDEX SERVICE, B0)	UNIVERSAL	
Relevant Protocol Name	(0009, SIEMENS SYNGO INDEX SERVICE, B1)	UNIVERSAL	
Relevant Modality	(0009, SIEMENS SYNGO INDEX SERVICE, B2)	UNIVERSAL	
Study Availability	(0009, SIEMENS SYNGO INDEX SERVICE, A8)	UNIVERSAL	
Study Size	(0009, SIEMENS SYNGO INDEX SERVICE,7F)	UNIVERSAL	
Last Access Time	(0009, SIEMENS SYNGO INDEX SERVICE, 0040)	SINGLE_VALUE	
Insert Time	(0009, SIEMENS SYNGO INDEX SERVICE, 0046)	SINGLE_VALUE	
Series Archived	(0009, SIEMENS SYNGO INDEX SERVICE, 0048)	SINGLE_VALUE	
Series Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0073)	SINGLE_VALUE	
Series Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 009A)	SINGLE_VALUE	
Series Completed	(0009, SIEMENS SYNGO INDEX SERVICE, 004A)	UNIVERSAL	
Level of Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 0078)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence \ Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1074)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence\ Radiopharmaceutical Start Date and Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1078)	UNIVERSAL	
Series Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007B) \ (0018,1072)	UNIVERSAL	

Attribute Name	Tag	Matching Type	Comments
Series Delete Protected	(0009, SIEMENS SYNGO INDEX SERVICE, 004F)	UNIVERSAL	
Series Size	(0009, SIEMENS SYNGO INDEX SERVICE, 007E)	UNIVERSAL	
Archive ObjectStates Sequence \ Archive Status	(0009, SIEMENS SYNGO INDEX SERVICE, 0030) \ (0009, SIEMENS SYNGO INDEX SERVICE, 0043)	SINGLE_VALUE	
Archive ObjectStates Sequence\ Archive Target	(0009, SIEMENS SYNGO INDEX SERVICE, 0030) \ (0009, SIEMENS SYNGO INDEX SERVICE, 0044)	UNIVERSAL	
Instance Exported	(0009, SIEMENS SYNGO INDEX SERVICE, 0074)	SINGLE_VALUE	
Instance Printed	(0009, SIEMENS SYNGO INDEX SERVICE, 009B)	SINGLE_VALUE	
Clinical Result Attribute	(0009, SIEMENS SYNGO INDEX SERVICE, 0062)	SINGLE_VALUE	
Instance Radiopharmaceutical Information Sequence\ Radionuclide Total Dose	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1074)	UNIVERSAL	
Instance Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Date and Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1078)	UNIVERSAL	
Instance Radiopharmaceutical Information Sequence \ Radiopharmaceutical Start Time	(0009, SIEMENS SYNGO INDEX SERVICE, 007C) \ (0018,1072)	UNIVERSAL	
Instance Creator Entity	(0009, SIEMENS SYNGO INDEX SERVICE, 00A6)	UNIVERSAL	
Hidden Instance	(0009, SIEMENS SYNGO INDEX SERVICE, 0050)	SINGLE_VALUE	
Instance Size	(0009, SIEMENS SYNGO INDEX SERVICE, 007D)	UNIVERSAL	
CorRea Sensitive Object	(0009, SIEMENS SYNGO INDEX SERVICE, 00ED)	UNIVERSAL	

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, syngo.via uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 5.2-17 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 5.2-17: 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)	SINGLE_VALUE, RANGE	
Patient's Birth Time	(0010,0032)	SINGLE_VALUE, 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)	SINGLE_VALUE	
Study Date	(0008,0020)	RANGE, SINGLE_VALUE	
Study Time	(0008,0030)	RANGE, SINGLE_VALUE	
Study Description	(0008,1030)	WILDCARD	
Modalities in Study	(0008,0061)	SINGLE_VALUE	

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 Cancel). 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, 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.

Move Destination is supported.

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, 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.

Move Destination is supported.

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 Cancel). 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

N/A

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 5.2-18.

Table 5.2-18: 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 5.2-19 lists the supported DIMSE Services for the Basic Film Session SOP Class:

Table 5.2-19: 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 5.2-20 lists the supported N-CREATE Attributes for Basic Film Session:

Table 5.2-20: 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 5.2-21 lists the supported N-DELETE Attributes for Basic Film Session:

Table 5.2-21: Supported N-DELETE Attributes for the Basic Film Session SOP Class - SCU

Attribute Name	Tag	Values	Default
Message ID	(0000,0110)		

Attribute Name	Tag	Values	Default
Requested SOP Class UID	(0000,0003)	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 5.2-22 lists the supported DIMSE Services for the Basic Film Box SOP Class:

Table 5.2-22: 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 5.2-23 lists the supported N-CREATE Attributes for Basic Film Box. The actual values for each attribute depend on DICOM printer configuration within syngo.via DICOM Print Management SCU:

Table 5.2-23: 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	
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	

Attribute Name	Tag	Values	Default
Reflective Ambient Light [1)]	(2010,0160)	0 < value	
Referenced Film Session Sequence	(2010,0500)		
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.1	
>Referenced SOP Instance UID	(0008,1155)		
Referenced Presentation LUT Sequence [1)]	(2050,0500)		
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.1.23	
>Referenced 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, 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 5.2-24 lists the supported N-ACTION Attributes for Basic Film Box SOP Class:

Table 5.2-24: 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, 0003)	1.2.840.10008.5.1.1.2	
Requested SOP Instance UID	(0000,1001)		
Action Type ID	(0000,1008)	1 (Print)	

Table 5.2-25 lists the supported N-DELETE Attributes for Basic Film Box Class:

Table 5.2-25: 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, 0003)	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 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 5.2-26 lists the supported DIMSE Service for the Basic Grayscale Image Box SOP Class:

Table 5.2-26: 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 5.2-27 lists the supported N-SET Attributes for Basic Grayscale Image Box:

Table 5.2-27: 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 5.2-28 lists the supported DIMSE Services for the Printer SOP Class:

Table 5.2-28: Services for the Printer SOP Class

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report on 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 5.2-29 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5.2-29: Printer SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	The User gets confirmation about the successful Print Job in the JobViewer.
Warning	2	The warning is displayed in the JobViewer, so the User can act, if required. A warning does not cancel the Print job
Failure	3	The error message is displayed in the JobViewer, and the Print Job will be cancelled.

Table 5.2-30: Supported N-GET Attributes for the Printer SOP Class - SCU lists the supported N-GET Attributes for Printer SOP Class:

Table 5.2-30: 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 5.2-31:

Table 5.2-31: 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 5.2-32 lists the supported DIMSE Service for the Basic Color Image Box SOP Class:

Table 5.2-32: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 5.2-33 lists the supported N-SET Attributes for Basic Color Image Box:

Table 5.2-33: 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)	3	
>Photometric Interpretation	(0028,0004)	RGB	
>Planar Configuration	(0028,0006)	0	
>Rows	(0028,0010)		
>Columns	(0028,0011)		
>Pixel Aspect Ratio	(0028,0034)		
>Bits Allocated	(0028,0100)	8	
>Bits Stored	(0028,0101)	8	
>High Bit	(0028,0102)	7	
>Pixel Representation	(0028,0103)	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 5.2-34 lists the supported DIMSE Services for the Print Job SOP Class:

Table 5.2-34: Services for the Print Job SOP Class - SCU

DIMSE Service Element	Purpose
N-EVENT-REPORT	Report on 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. After the Association is closed, a Reverse Role Negotiation takes place if N-EVENT-REPORT is sent.

Table 5.2-35 summarizes the behavior of the SCU when receiving Event Types within the N-EVENT-REPORT.

Table 5.2-35: 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

Event Type Name	Event Type ID	Behavior
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 5.2-36 lists the supported DIMSE Services for the Presentation LUT SOP Class:

Table 5.2-36 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 5.2-37 lists the supported N-CREATE Attributes for Presentation LUT:

Table 5.2-37 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).

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.

On the GUI of syngo.via any kind of process, which writes Data to a data storage other than its internal database, is called Export.

Data can be exported to:

- Optical Disc
- File System

syngo.via uses custom defined profiles for burning Optical Disks. On the GUI the user can only select those Profiles, which were previously defined and configured.

Each Media Burning Profile can be configured whether to:

- use compression.
- include a Viewer on the Disc.
- use Image Conversion (only applies for MR images).
- use Data Minimization. If Data Minimization is used the level of Data Minimization must be configured in the Media Burning Profile (High Privacy, Medium Privacy or Low Privacy). Furthermore, the string that is used as a substitution for sensitive data must be configured (see Sub-Section 8.8 for further details).

syngo.via does not make any distinction between the type of the Optical Disc used. As a result, CDs, DVDs and Blu-ray disks are handled alike. 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).

The settings of the selected Media Burning Profile are applied by the Export operation to an Optical Disc.

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

In case of an Export to File System, the user can directly configure whether to:

- use compression.
- include a Viewer on the File System.
- use Image Conversion (only applies for MR images).
- use Data Minimization. If Data Minimization is used the level of Data Minimization must be configured in the Media Burning Profile (High Privacy, Medium Privacy or Low Privacy). Furthermore, the string that is used as a substitution for sensitive data must be configured (see Sub-Section 8.8 for further details).

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

5.4.1.1 Relationship between Media Storage Application Profiles and configuration

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 that 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.

Table 5.4-1 lists all supported Media Storage Application Profiles and the relationship between the configuration settings and the list of supported Media Application Profiles from Table 1.4-1.

Table 5.4-1 Supported Media Storage Application Profiles

Media Storage Application Profile	FSC	FSR	FSU
Compact Disk – Recordable			
STD-GEN-CD	**Y**	**Y**	**N**
Medium: 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format			
Required settings: • Compressed: NO • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
AUG-GEN-CD	**Y**	**Y**	**N**
Medium: 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format			
Required settings: • Compressed: NO • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
DVD			
STD-GEN-DVD-RAM	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-DVD-JPEG	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if a JPEG Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-DVD-J2K	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if a JPEG 2000 Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
AUG-GEN-DVD-RAM	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			

AUG-GEN-DVD-JPEG	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if a JPEG Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
Data Minimization: NO or YES, Low or Medium Privacy			
AUG-GEN-DVD-J2K	**Y**	**Y**	**N**
Medium: 120 mm DVD-RAM medium with UDF or ISO 9660 file system			
Required settings: • Compressed: NO or YES, but only if a JPEG 2000 Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
Blu-ray			
STD-GEN-BD	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-BD-JPEG	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if a JPEG Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-BD-J2K	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if a JPEG 2000 Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
AUG-GEN-BD	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
AUG-GEN-BD-JPEG	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if a JPEG Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			

AUG-GEN-BD-J2K	**Y**	**Y**	**N**
Medium: 120 mm BD media			
Required settings: • Compressed: NO or YES, but only if a JPEG 2000 Compression (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
USB			
STD-GEN-USB	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-USB-JPEG	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if a JPEG Compressions (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
STD-GEN-USB-J2K	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if a JPEG 2000 Compressions (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: YES, High Privacy			
AUG-GEN-USB	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if RLE Lossless is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
AUG-GEN-USB-JPEG	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if a JPEG Compressions (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			
AUG-GEN-USB-J2K	**Y**	**Y**	**Y**
Medium: USB Connected Removable Device, with FAT16 or FAT32 file system.			
Required Settings: • Compressed: NO or YES, but only if a JPEG 2000 Compressions (lossy or lossless) is used • Create DICOM File System: YES • Data Minimization: NO or YES, Low or Medium Privacy			

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)

File-set Updater is only supported for File Systems, but not for Optical Drives.

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 system cannot 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 cannot receive a PDF Document containing the findings, this object will be encapsulated as binary data in an Encapsulated PDF IOD.

If a destination system cannot 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 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 list of the Specific Character Set (0008,0005).

syngo.via can receive data encoded in the Specific Character Sets listed in Section 1.7. To handle such data correctly by syngo.via, syngo.via must be configured to work with the respective Specific Character Set. Since the underlying Operating System is delivered with syngo.via, the user can be sure, that it also does support the selected Specific Character Set.

When creating new Instances, the system will use the configured 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 the Data 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: default, ISO 2022 IR 6, ISO_IR 100, etc. → encoded as specified 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 character set listed in Section 1.7 as primary character set.
- An attribute value is encoded in GB18030 ←→ (0008,0005) contains character set listed in Section 1.7 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.

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

It is recommended that the Operating System is set to the language that uses the Specific Character Set configured. This makes sure that the values of all the affected Attributes can be shown on the Display in the corresponding fields.

Regarding input methods and representation of non-standard Characters or Ideograms, syngo.via relies on the Operating System.

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 requested, 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			
Transfer Format Optimization	SERVICE	Uncompressed Format (low CPI load)	The Service User can choose to prefer to use uncompressed or compressed format during data transfer. The option for the preference of the compressed format is: Compressed Format (low network load). Only one of them can be selected.
Timeout waiting for acceptance or rejection Response to an Association Open Request. (Association Negotiation Timeout, Application-Level)	SERVICE	30 seconds	Value range: 1 – 120 seconds
Timeout waiting for a response to an Association release request (Transfer Inactivity Timeout, Application-Level)	SERVICE	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	SERVICE	30 Seconds	Value range 1 – 300 seconds
TCP/IP Settings			
TCP/IP Socket Timeout	SERVICE	5 seconds	Value range: 1 – 60 Seconds.
Maximum PDU size	SERVICE	32 KB	Value range: 16 – 512 KB
DICOM Services Parameters			
Preferred AETs	SERVICE	Accept Only Known AE Titles	Two options are possible: 1. Accept Only Known AE Titles 2. Accept All AE Titles In the first case, the Remote Application Entity must be

Parameter	Configurable	Default Value	Comments
			configured to accept an Association Request from it. In the second case Association Requests are accepted from any Remote Application Entity.
Default Specific Character Set	SERVICE	ISO_IR 100	The value of this Setting is applied if no other information is available. This setting also affects which characters are accepted in Text Fields.

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.

Please note, that the text "(not set)" in the Default Value column means, that the respective Parameter does not have a default value. The text "not set" appears, if the Parameter is a logical one. In this case "not set" means FALSE or NO and "set" means TRUE or YES.

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	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Hostname	FIXED		Machine name.
IP Address	FIXED		Machine IP Address.
Worklist provider (DIS)	SERVICE	None	A Remote Application Entity can be selected from the list of Remote Application Entities, 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 DIS	SERVICE	180 Minutes	Integer value between 0 and 99999

Time window for scheduled procedure step start date	SERVICE	1 day into the past 1 day into the future	Integer value between 0 and 99999
Worklist Query Attributes and their values	SERVICE		The Service User/technician can select the Return Key Attributes for Worklist Queries.
Matching criteria to use for Worklist Query	SERVICE		The Service User/technician can add matching criteria for Modality (0008.0060), Application Entity Title (0040,0001) and Performing Physician (0040,0006). The user can select two additional Attribute from a list and provide some matching criteria for them.
Remote Configuration Parameters – Worklist			
Parameter	**Configurable**	**Default Value**	**Comments**
Called AE Title (SCP)	SERVICE		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Port	SERVICE	5104	Integer value between 0 and 65535. Can be set for each AE.
TLS Port	SERVICE	2762	Integer value between 0 and 65535. Can be set for each AE.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Hostname	SERVICE		Machine hostname. It can contain only RFC 1035 characters, not local machine name. Maximum of 253 characters
IP Address	SERVICE		Machine IP address. Should Contain a valid IP address according to IPV4 or IPV6 standard
Use encrypted communication for outgoing connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.

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 (SCP)	SERVICE	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Called AE Title (SCU)	SERVICE	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Port	SERVICE	104	Integer value between 0 and 65535
TLS-Secured Port	SERVICE	2762	Integer value between 0 and 65535
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Only allow encrypted communication for incoming connections	SERVICE	false	If set, the Local Application Entity will only accept encrypted communication (TLS handshake).
Hostname	FIXED		Machine name
IP Address	FIXED		Machine IP Address
Transfer Format Optimization	SERVICE	Uncompressed Format (low CPU load)	The user can select, if syngo.via should favor compressed or uncompressed syntax.
Transfer Syntaxes to be Excluded	SERVICE		Transfer Syntaxes can be excluded for all SOP Classes or for specific SOP Classes. If excluded, these Transfer Syntaxes will not be included in any Presentation Context proposed during Association Negotiation.
Header Correction Ruleset	SERVICE		The selected Header Correction Ruleset will be applied for Data to be sent. Beside a default list of Header Correction Ruleset, the User can define own Header Correction Rulesets.
Storage Commitment	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	SERVICE	ENABLED (Basic Text Structured Report Format)	If the User enables this option, non-supported objects will be added as Private Tags in either the Basic Text

			SR IOD or the Secondary Capture Image IOD
Remote Configuration Parameters – Storage			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Called AE Title (SCP)	SERVICE		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Port	SERVICE	5104	Integer value between 0 and 65535. Can be set for each AE.
TLS Port	SERVICE	2762	Integer value between 0 and 65535. Can be set for each AE.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Only allow encrypted communication for outgoing connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.
Hostname	SERVICE		Machine hostname. It can contain only RFC 1035 characters, not local machine name. Maximum of 253 characters
IP Address	SERVICE		Machine IP address. Should Contain a valid IP address according to IPV4 or IPV6 standard
Transfer Syntaxes to be Excluded	SERVICE		Transfer Syntaxes, that could be used during Association Negotiation can be found in Table 1.1-3. Note: Presentation Contexts containing only excluded Transfer Syntaxes in incoming Association Requests will be rejected.
Header Correction Ruleset	SERVICE		The selected Header Correction Ruleset will be applied for Data received. Beside a default list of Header Correction Ruleset, the User can define own Header Correction Rulesets.
Series Complete Delay	SERVICE	0	Delay between a Receive Job is finished, and the received series are considered as complete, in seconds.

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	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Called AE Title (SCP)	SERVICE	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Port	SERVICE	5104	Integer value between 0 and 65535
TLS Port	SERVICE	2762	Integer value between 0 and 65535
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Use encrypted communication for incoming connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.
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		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Called AE Title (SCP)	SERVICE		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Port	SERVICE	5104	Integer value between 0 and 65535. Can be set for each AE.
TLS Port	SERVICE	2762	Integer value between 0 and 65535. Can be set for each AE.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Only allow encrypted communication for outgoing connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.

Hostname	SERVICE		Machine hostname. It can contain only RFC 1035 characters, not local machine name. Maximum of 253 characters
IP Address	SERVICE		Machine IP address. Should Contain a valid IP address according to IPV4 or IPV6 standard
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
Sending N-Action - Bundled Call	SERVICE	ENABLED	This setting determines whether the system will send an N-Action for each object separately or bundled per transfer job.

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	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Called AE Title (SCP)	SERVICE	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Port	SERVICE	104	Integer value between 0 and 65535
TLS Port	SERVICE	2762	Integer value between 0 and 65535
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Use encrypted communication for incoming connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.
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		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain

			the backslash (\) character. Can be set for each AE.
Called AE Title (SCP)	SERVICE		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Port	SERVICE	5104	Integer value between 0 and 65535. Can be set for each AE.
TLS Port	SERVICE	2762	Integer value between 0 and 65535. Can be set for each AE.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Only allow encrypted communication for outgoing connections	SERVICE	(not set)	If set, the local DICOM node will use the secure TLS port for all outgoing connections.
Hostname	SERVICE		Machine hostname. It can contain only RFC 1035 characters, not local machine name. Maximum of 253 characters
IP Address	SERVICE		Machine IP address. Should Contain a valid IP address according to IPV4 or IPV6 standard

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 Management			
Parameter	**Configurable**	**Default Value**	**Comments**
Calling AE Title (SCU)	SERVICE	The machine name	Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character.
Logical Name	SERVICE		Can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long. If this is set, the user will see the Logical Name in the list of the Remote Application Entities (otherwise the Host Name).
Location	SERVICE		No defined range or value
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		Can only contain ISO 2022 IR 6 characters, can be maximum 16 characters long and must not contain the backslash (\) character. Can be set for each AE.
Port	SERVICE	5104	Integer value between 0 and 65535. Can be set for each AE.
TLS Port	SERVICE	2762	Integer value between 0 and 65535. Can be set for each AE.
Logical Name	SERVICE		It can only contain ISO 2022 IR 6 letters and numbers and can be maximum 64 characters long.
Location	SERVICE		No defined range or value
Only allow encrypted communication for outgoing connections	SERVICE	(not set)	If set, the Local Application Entity will only accept encrypted communication (TLS handshake).
Hostname	SERVICE		Machine hostname. It can contain only RFC 1035 characters, not local machine name. Maximum of 253 characters
IP Address	SERVICE		Machine IP address. Should Contain a valid IP address according to IPV4 or IPV6 standard
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 Media	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. For the options see the compressed Transfer Syntaxes in Table 1.1-3. All three values must be different or not set.
DICOM Export Path	SERVICE	(not set)	The user can either enter the target path or select one from a list of pre-defined DICOM Export Path values.
Compressed	SERVICE	not set	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	SERVICE	set	If set a DICOM compliant file system will be created, i.e. a DICOMDIR will be included during export.
Include Image Viewer on Disc	SERVICE	not set	If set, a viewer will be placed on the target medium.
Image Conversion	SERVICE	Enhanced	This configuration setting applies to the Export of Enhanced Multiframe MR Image SOP Instances: If Enhanced is selected, the export of SOP Instances of the Enhanced MR Image Storage SOP Class is supported. If Interoperability is selected, the Enhanced MR Image SOP Instances will be split into single frame SOP Instances and will be exported using the MR Image Storage SOP Class.

Data Minimization	SERVICE	not set	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 Data Minimization to be applied. High Privacy, Medium Privacy and Low Privacy.
Pseudonym	SERVICE	(not set)	Specifies the Pseudonym that is used in the Data Minimization process.
Media Burning Profiles	SERVICE	Patient Medium	It is an extendable list of profiles, which contains a set of following settings: Compressed, Include Image Viewer on Disc, Image Conversion, Data Minimization, Profile and Pseudonym. Note: Those Profiles are only used when burning data on optical drives. For every other medium, the user can set each option individually as described above. No profiles are used in those cases.

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	Integer value between 0 and 65535
Protocol	SERIVCE	TCP	The possible values are: Secure TCP, TCP and UDP
Certificate Thumbprint	SERVICE		The thumbprint of the certificate used for the encryption, as string.

6.7 Configuration of Patient Identification

The Attributes used for Patient Identifications are configurable. The list of the Attributes that can be used for such purpose is fixed. The configuration consists of selecting which Attributes should be used.

Table 6.7-1 lists configuration parameters for Patient Identification.

Table 6.7-1 Patient Identification Parameters

Originator Audit Trail Message Transmission - SYSLOG Parameters			
Parameter	**Configurable**	**Default Value**	**Comments**
(0010,0020) Patient ID	FIXED	(selected)	Primary, check box
(0010,0010) Patient's Name	SERVICE	(selected)	Primary, check box
(0010,0030) Patient's Birth Date	SERVICE	(selected)	Primary, check box
(0010,0021) Issuer of Patient ID	SERVICE	(not selected)	Check box
If issuer of Patient ID is missing or empty always assign data set to a separate patient.	SERVICE	(not selected)	Can only be selected, if the Parameter (0010,0021) is selected. Radio button.
If issuer of Patient ID is missing or empty use the following attributes for Patient Identification:	SERVICE	(not selected)	Can only be selected, if the Parameter (0010,0021) is selected. Radio button.
(0010,0020) Patient ID	FIXED	(not selected)	Secondary, check box.
(0010,0010) Patient's Name	SERVICE	(not selected)	Secondary, check box which can only be selected, if • *If issuer of Patient ID is missing or empty use the following attributes for Patient Identification* is selected. • The primary *(0010,0010) Patient's Name* is not selected
(0010,0030) Patient's Birth Date	SERVICE	(not selected)	Secondary, check box which can only be selected, if • *If issuer of Patient ID is missing or empty use the following attributes for Patient Identification* is selected. • The primary *(0010,0030) Patient's Birth Date* is not selected

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.

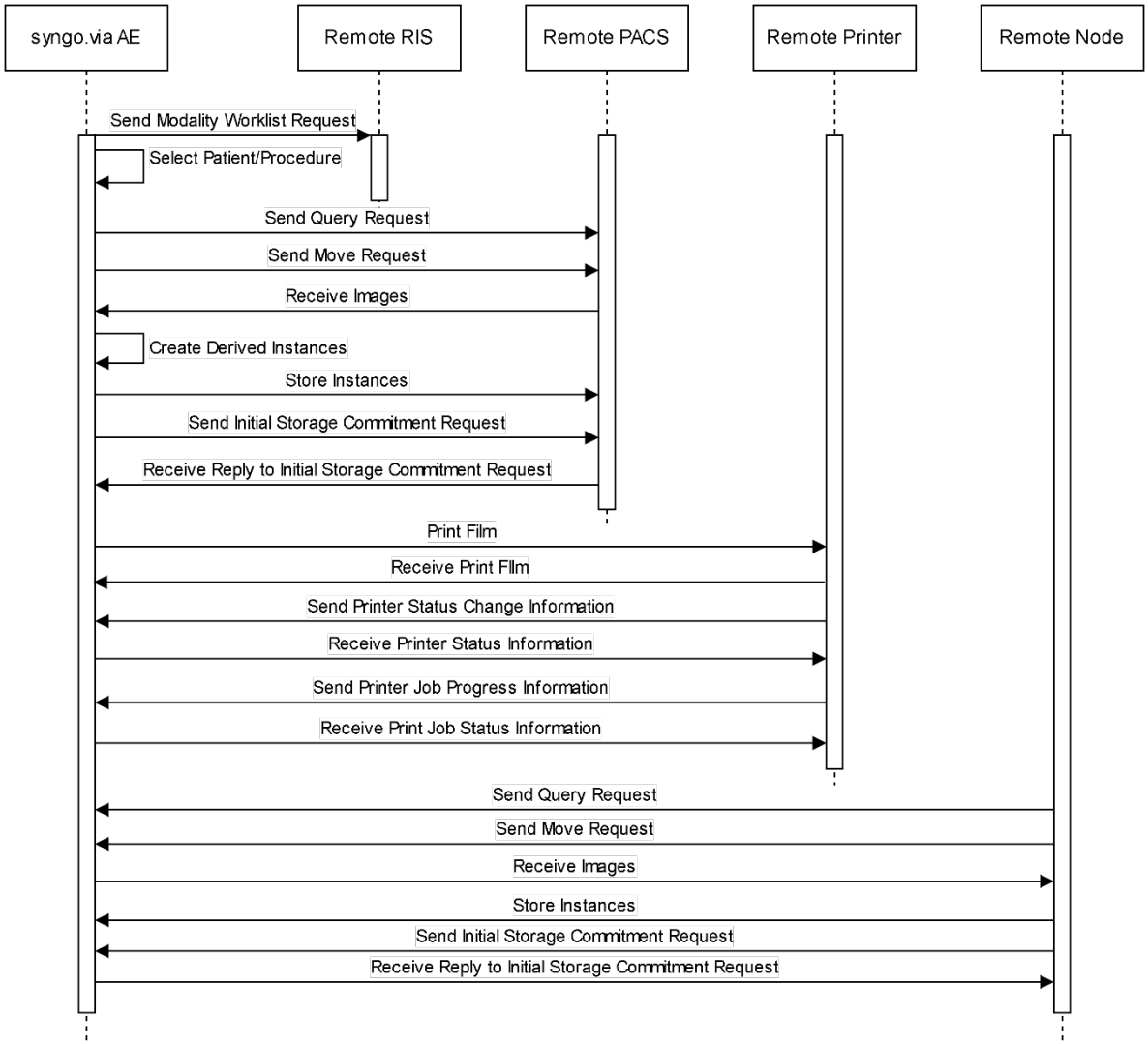


Figure 7.1-1: ***Real-World Activity and Cross AE interaction***

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<*.x.y.z*> <*siemens root + ICC suffix*> (*e.g.*, 1.3.12.2.1107.5.99.3.20080101)
	Implementation Version Name	SIEMENS<*xyz*> *[add syngo.via specific version]*
	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<*.x.y.z*> <*siemens root + ICC suffix*> (e.g., 1.3.12.2.1107.5.99.3.20080101)
	Implementation Version Name	SIEMENS<*xyz*> *[add syngo.via specific version]*

[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)] On the SCP side the maximum number of outstanding asynchronous Transactions are only limited by availability of the system resources.

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

7.1.2 Common Real-World Activities

The following subsection describes Real-World Activities that are common to all services defined in Section 7.2.

7.1.2.1 Real-World Activities for Verification

7.1.2.1.1 Sequencing Real-World Activities for Verification

Figure 7.1- shows the Sequencing of the Real-World Activities for Verification:

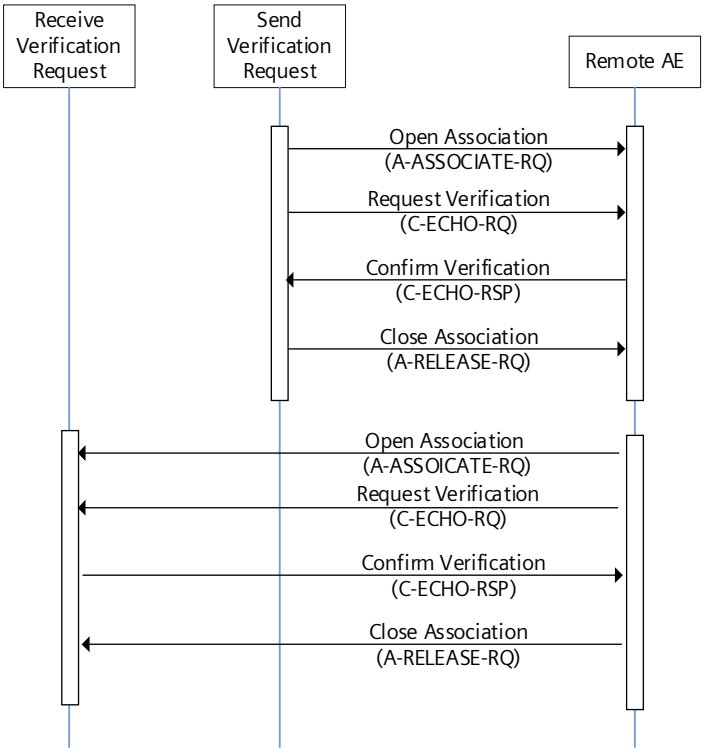


Figure 7.1-2 Common *Real-World Activities*

7.1.2.1.2 Real-World Activity "Send Verification Request"

syngo.via serves as an SCU of the Verification SOP 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. Everything except a C-ECHO-RSP

from the remote Application indicating a status of Success (e.g. no answer is received) will lead to a failed Verification.

7.1.2.1.3 Real-World Activity "Receive Verification Request"

syngo.via serves as an SCP of the Verification Service Class.

Depending on the "Called AE Title" Configuration parameter (see Table 6.1-1 and Section 7.1.3.2), the SCP will

- either accept the Association and indicate a successful operation in the C-ECHO-RSP,

or reject the Association if the Called AE Title does not match any pre-configured AE Title.

7.1.3 Common Association Initiation/Acceptance Policies

The association initiation and acceptance policies described in this section applies to all SCU/SCP services of syngo.via AE described in section 7.2.1.

7.1.3.1 Association Initiation

Based on the security settings for the Local Application Entity and the configured Remote Application Entity, a secure or an unsecure communication channel will be initialized. The Association Request will be sent using this channel.

Presentation Context Proposal

The SCU components of all AEs propose one Presentation Context for each Abstract Syntax and Transfer Syntax described in Table 7.1-2 for SOP Classes only supporting uncompressed Transfer Syntaxes. If the remote AE accepts multiple of the proposed Presentation Contexts, the SCU will choose the one used during the Association based on the Preference Order defined in Table 7.1-2.

Table 7.1-2 Transfer Syntax Policies for all AEs supporting just uncompressed Transfer Syntaxes

Preference Order	Transfer Syntax	UID	Comments
1	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	
2	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	This Transfer Syntax is always proposed.
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

7.1.3.2 Association Acceptance

Transfer Syntax Selection Policies

Table 7.1-3 shows the preference order of Transfer Syntaxes for Association Acceptance for all AEs only supporting uncompressed Transfer Syntaxes.

Table 7.1-3 Transfer Syntax Preference Order for all AEs supporting uncompressed Transfer Syntaxes

Preference Order	Transfer Syntax	UID	Comments
1	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	
2	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	
3	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

7.1.3.2.1 Association Acceptance based on the calling AE Title

The user can configure if syngo.via can accept Association Requests from any calling AE Title or only from those belonging to configured Remote Application Entities. This configuration parameter is called “Preferred AETs” (see Table 6.1-1).

If this parameter is set to “Accept only known AETs”, only Association Requests from remote Application entities are accepted, for which a Calling AE Title is configured in the Remote Configuration Parameters Section of the respective service (see service related subsections of Section 6.2). Association Requests from unknown Application Entities will be rejected in this case with (A-ASSOCIATE-RJ, Result: permanent, Source: 1, Reason/Diag.: 3 - calling-AE-title-not-recognized).

Otherwise. if this configuration parameter is set to “Accept all AETs”, Association Requests from all calling AE Titles will be accepted (A-ASSOCIATE-AC), even if they are not configured in the Remote Parameters Section of the respective service (see service related subsections of Section 6.2).

7.1.3.2.2 Association Acceptance based on the security settings for the Local and Remote Application Entities

Secure and Encrypted Communication can be enabled for the communication with each remote Application Entity by setting the “TLS-Secured Port” and “Only allow encrypted communication for outgoing connections” Parameters in the Remote Configuration Parameters Section of the respective service (see service related subsections of Section 6.2).

If the Remote Application Entity tries to open an unsecure and unencrypted network connection, the connection will be rejected (A-ASSOCIATE-RJ, Result: permanent, Source: 1, Reason/Diag.: 3 - calling-AE-title-not-recognized). In this case no Messages are going to be exchanged.

The user can also impose via configuration that syngo.via only accepts secure connections. In this case every unsecure and unencrypted connection attempt, will be rejected, before any Message can be sent.

In this case the setting of accepting all calling AE Titles is irrelevant. Only Association Requests from known calling AE Titles will be accepted.

7.2 Specifications

7.2.1 syngo.via Application Entity

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

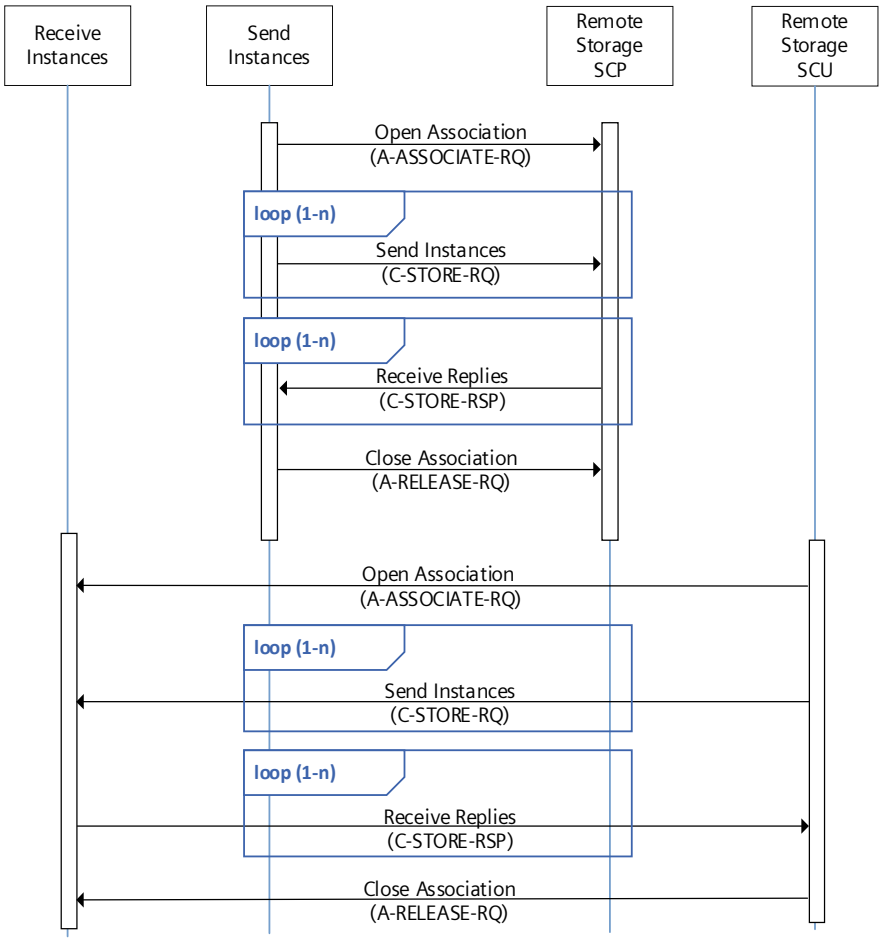


Figure 7.2-1 Sequencing of Real-World Activities for syngo.via AE (Storage Activity)

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.

7.2.1.2 Association Parameters of Storage Activity

Association parameters are common to all activities and documented in Table 7.1-1.

7.2.1.3 Association Initiation

This Section details the Association policies of the Storage Activity when it is initiating an Association. For Details regarding general Association Initiation policies refer to Section 7.1.3.1.

7.2.1.3.1 Real-World Activity "Send Verification Request"

The Storage Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.2.

7.2.1.3.2 Real-World Activity "Send Instances"

syngo.via serves as an SCU of the Storage Service Class. The SCU of the syngo.via AE is either invoked directly by the user, by an auto-archive trigger or internally by the Query/Retrieve Application Entity that is responsible for processing retrieve requests. The Presentation Context Proposal Behavior is independent of the trigger mechanism of the storage request.

Presentation Context Proposal

The SCU of the syngo.via AE proposes one Presentation Context for each Abstract Syntax and Transfer Syntax combination. This behavior is highly configurable (see Table 6.2-2) and depends on the configuration parameters "Transfer Syntaxes to be excluded" and "Transfer Format Optimization".

The "Transfer Syntaxes to be excluded" configuration parameter is used to select transfer syntaxes that cannot be proposed in any Presentation Context during Association Negotiation. It is possible to exclude transfer syntaxes generally or for specific SOP Classes.

The "Transfer Format optimization" configuration parameter provides two options: One with a preference for "Uncompressed Formats" and one with preference for "Compressed Formats".

If "Uncompressed Format (low CPU load)" is selected, the SCU of the Storage Activity selects the Prestation Context with the Transfer Syntax with the highest Preference Order in Table 7.2-1.

Table 7.2-1 Transfer Syntax proposal order for Send Instances Association Initiation – UNCOMPRESSED Setting

Preference Order	Transfer Syntax	UID	Comments
1	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	
2	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	
3	Explicit Value Representation Big Endian	1.2.840.10008.1.2.2	
4	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	
5	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
6	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
7	RLE Lossless	1.2.840.10008.1.2.5	
8	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)	1.2.840.10008.1.2.4.51	
9	JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	
10	JPEG 2000 Image Compression (Lossy)	1.2.840.10008.1.2.4.91	

If "Compressed Format (low network load)" is selected, the SCU of the Storage Activity selects the Prestation Context with the Transfer Syntax with the highest Preference Order in Table 7.2-2.

Table 7.2-2 Transfer Syntax proposal order for Send Instances Association Initiation COMPRESSED Setting

Preference Order	Transfer Syntax	UID	Comments
1	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	

2	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
3	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
4	RLE Lossless	1.2.840.10008.1.2.5	
5	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)	1.2.840.10008.1.2.4.51	
6	JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	
7	JPEG 2000 Image Compression (Lossy)	1.2.840.10008.1.2.4.91	
8	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	
9	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	
10	Explicit Value Representation Big Endian	1.2.840.10008.1.2.2	

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

If transfer fails for some SOP Instances for any reason, the User will be notified that the transfer was not complete (e.g. x of y objects could not be transferred) and the Transfer Job is marked as failed.

SCP/SCU Role Selection Negotiation

N/A

7.2.1.4 Association Acceptance

This Section details the Association policies of the Application Entity when it is Acceptor for an Association.

For general information regarding the Association acceptance policies please see Section 7.1.3.2 .

7.2.1.4.1 Real-World Activity “Receive Verification Request”

The Storage Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.3.

7.2.1.4.2 Real-World Activity “Receive Instances”

syngo.via serves as an SCP of the Storage Service Class.

Upon receiving an Instance, syngo.via returns the status “SUCCESS” after a minimal header validation. The following Attributes must be filled and not be empty, if supported by the IOD:

- 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).

The Instances received are stored in a database and can be accessed using the Patient Browser. The database is considered a Short Time Storage.

Transfer Syntax Selection Policies

The Association Acceptance SCP of the Storage Activity is highly configurable (see Table 6.2-2) and depends on the configuration parameters “Transfer Syntaxes to be excluded” and “Transfer Format Optimization”.

The “Transfer Syntaxes to be excluded” configuration parameter is used to select transfer syntaxes that cannot be accepted in any Presentation Context during Association Negotiation. It is possible to exclude transfer syntaxes generally or for specific SOP Classes.

The “Transfer Format optimization” configuration parameter provides two options: One with a preference for “Uncompressed Formats” and one with preference for “Compressed Formats”.

If “Uncompressed Format (low CPU load)” is selected, the SCU of the Storage Activity accepts the Transfer Syntax with the highest Precedence order (see in Table 7.2-3) for each Abstract Syntax in each Prestation Context.

Table 7.2-3 Transfer Syntax acceptance order for Receive Instances – UNCOMPRESSED Setting

Preference Order	Transfer Syntax	UID	Comments
1	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	
2	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	
3	Explicit Value Representation Big Endian	1.2.840.10008.1.2.2	
4	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	
5	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
6	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
7	RLE Lossless	1.2.840.10008.1.2.5	
8	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)	1.2.840.10008.1.2.4.51	
9	JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	
10	JPEG 2000 Image Compression (Lossy)	1.2.840.10008.1.2.4.91	

If “Compressed Format” is selected, the SCU of the Storage Activity accepts the Transfer Syntax with the highest Precedence order (see in Table 7.2-4) for each Abstract Syntax in each Prestation Context.

Table 7.2-4 Transfer Syntax acceptance order for Receive Instances – COMPRESSED Setting

Preference Order	Transfer Syntax	UID	Comments
1	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	
2	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
3	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
4	RLE Lossless	1.2.840.10008.1.2.5	
5	JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)	1.2.840.10008.1.2.4.51	
6	JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	
7	JPEG 2000 Image Compression (Lossy)	1.2.840.10008.1.2.4.91	
8	Explicit Value Representation Little Endian	1.2.840.10008.1.2.1	

9	Implicit Value Representation Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	
10	Explicit Value Representation Big Endian	1.2.840.10008.1.2.2	

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 7.2-5.

Table 7.2-5 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	2 [1)]
	Level of Digital Signature Support	Y	0
	Element Coercion	Y	0

[1)] Level in default configuration

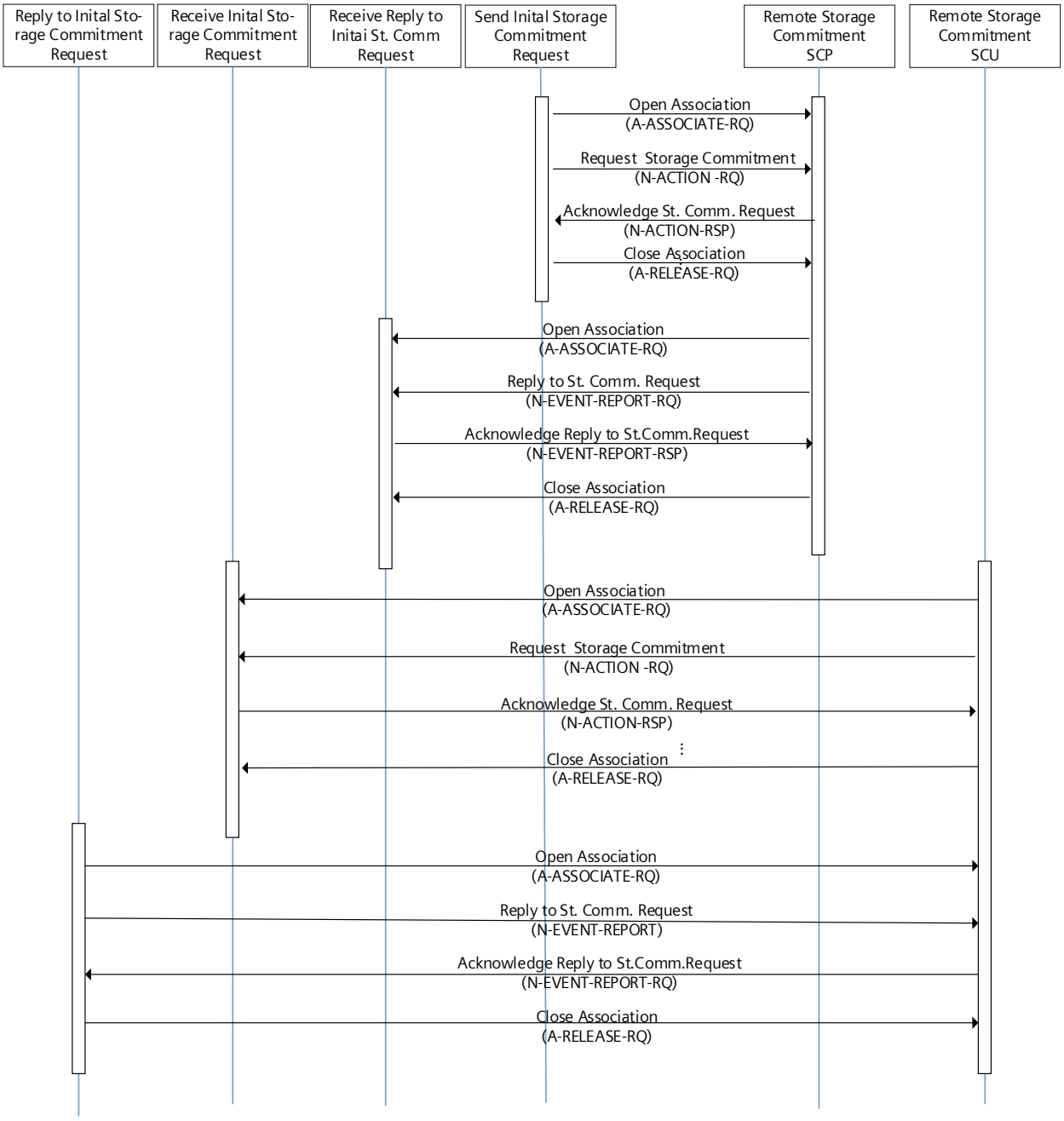


Figure 7.2-2 Sequencing of Real-World Activities for AE (**Storage Commitment** Activity)

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.

In addition to the Real-World Activities described in this Section, Storage Commitment Activity also supports all Real-World Activities listed in Section 7.1.2.

7.2.1.5 Association Parameters of Storage Commitment Activity

Association parameters are common to all Activities and documented in Table 7.1-1.

7.2.1.6 Association Initiation

This Section details the Association policies of the Storage Commitment Activity when it is initiating an Association. For Details regarding general Association Initiation policies refer to Section 7.1.3.1.

7.2.1.6.1 Real-World Activity "Send Verification Request"

The Storage Commitment Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.2.

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

syngo.via serves as an SCU of the Storage Commitment Service Class. After successful transfer of Instances to a configured archive Application Entity, syngo.via initiates a Storage Commitment request (N-ACTION-RQ) to the configured remote AE.

Storage Commitment is supported for all Storage SOP Classes listed in Table 1.1-1.

The Initial Storage Commitment Request is sent 10 seconds after the SOP Instances to be committed have been successfully received by the Remote AE. This delay is hard coded.

Presentation Context Proposal

For general information regarding Transfer Selection policies, refer to Section 7.1.3.1.

As soon as the N-ACTION-RSP arrives and no N-EVENT-REPORT-RQ arrives in a configured amount of time, the Association is closed.

Extended Negotiation

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

SCP/SCU Role Selection Negotiation

The SCU of the Storage Commitment Activity 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.

7.2.1.6.3 Real-World Activity "Reply to Initial Storage Commitment Request"

After successfully receiving an N-ACTION-RQ syngo.via communicates the status of the Storage Commitment Request using the N-EVENT-REPORT-RQ primitive.

If the sending of the N-EVENT-REPORT-RQ fails, syngo.via will proceed to the general and configurable (Administration Portal) retry mechanism. A retry only takes place if the network issue detected is a temporary one. In case the network issue detected is classified as a permanent one, the job fails.

Presentation Context Proposal

For general information regarding Transfer Selection policies, refer to Section 7.1.3.1.

Extended Negotiation

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

SCP/SCU Role Selection Negotiation

After successfully receiving an N-ACTION-RQ syngo.via communicates the status of the Storage Commitment Request using the N-EVENT-REPORT-RQ primitive using reverse SCP/SCU Role Selection Negotiations.

7.2.1.7 Association Acceptance

This Section details the Association policies of the Application Entity when it is accepted for an Association.

For general information regarding the Association acceptance policies please see Sub-Section 7.1.3.2.

7.2.1.7.1 Real-World Activity “Receive Verification Request”

The Storage Commitment Activity supports the Verification SOP Class. For further details please see Section 7.1.2.

7.2.1.7.2 Real-World Activity “Receive Initial Storage Commitment Request”

syngo.via serves as an SCP of the Storage Commitment Service Class. When receiving an initial Storage Commitment request (N-ACTION-RQ) the SCP of the Storage Commitment Activity of syngo.via will accept it with an N-ACTION-RSP. Furthermore it checks whether the SOP Instances listed in the N-ACTION-RQ are present in the local database.

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.

Transfer Syntax Acceptance Policy

For general information regarding Transfer Selection policies, refer to Section 7.1.3.2.

Extended Negotiation

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

7.2.1.7.3 Real-World Activity “Receive Reply to Initial Storage Commitment Request”

The SCU of the Storage Commitment Activity can either receive the N-EVENT-REPORT-RQ on the same association as the initial N-ACTION-RQ or it can also initiate the N-EVENT-REPORT- RQ by sending an Association Request to the remote AE.

syngo.via has a configurable expiration timeout for the Transaction UID. By default, the Transaction UID expires 60 minutes. If an N-EVENT-REPORT-RQ is not received within that time frame, Storage Commitment will be marked as failed.

Transfer Syntax Acceptance Policy

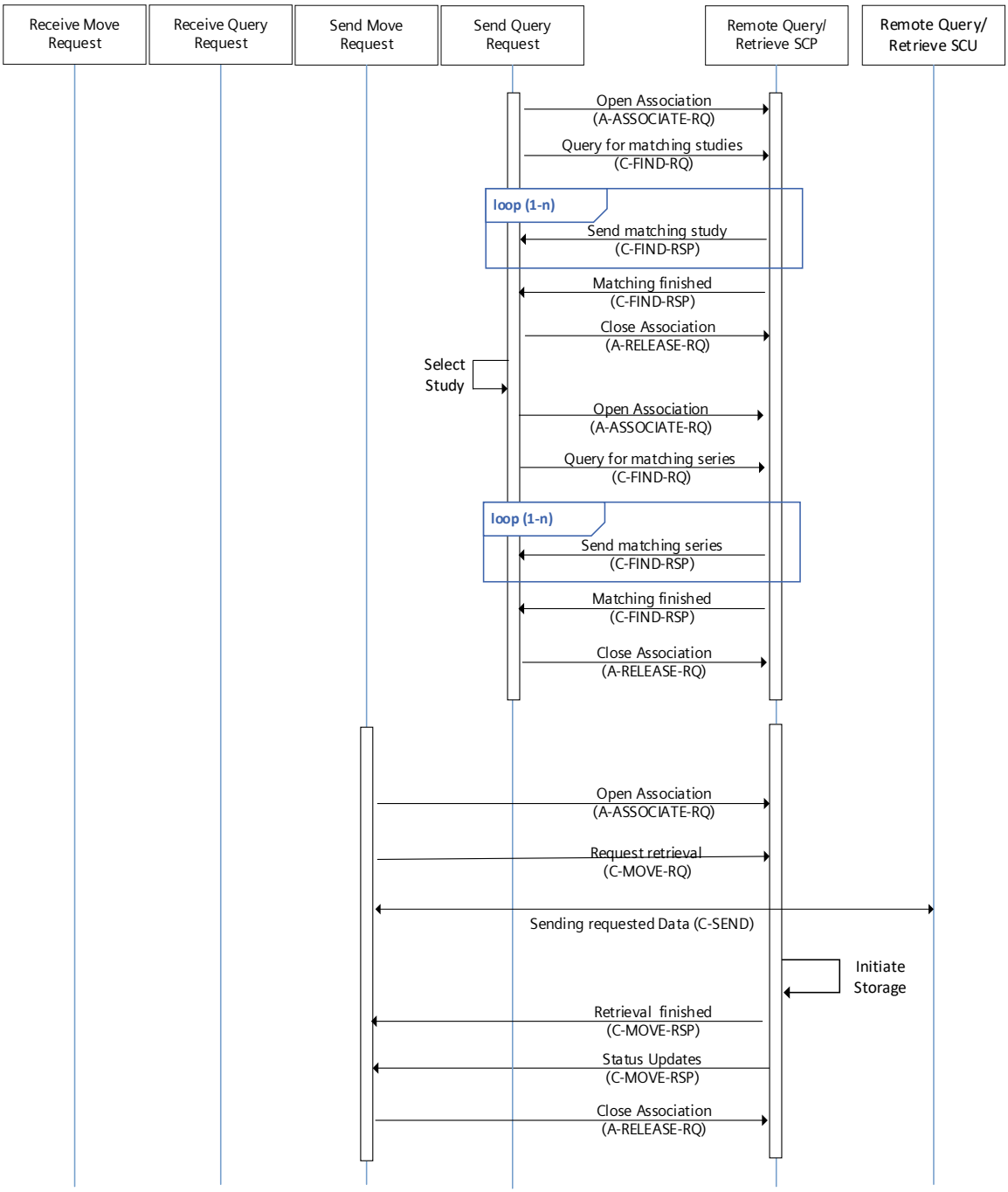
For general information regarding Transfer Selection policies, refer to Section 7.1.3.2.

Extended Negotiation

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

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 at the same Association as the N-ACTION-RQ.


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)
loop (1-n)
Send matching study (C-FIND-RSP)
Matching finished (C-FIND-RSP)
Close Association (A-RELEASE-RQ)
Select Study
Open Association (A-ASSOCIATE-RQ)
Query for matching series (C-FIND-RQ)
loop (1-n)
Send matching series (C-FIND-RSP)
Matching finished (C-FIND-RSP)
Close Association (A-RELEASE-RQ)
Open Association (A-ASSOCIATE-RQ)
Request retrieval (C-MOVE-RQ)
Sending requested Data (C-SEND)
Initiate Storage
Retrieval finished (C-MOVE-RSP)
Status Updates (C-MOVE-RSP)
Close Association (A-RELEASE-RQ)

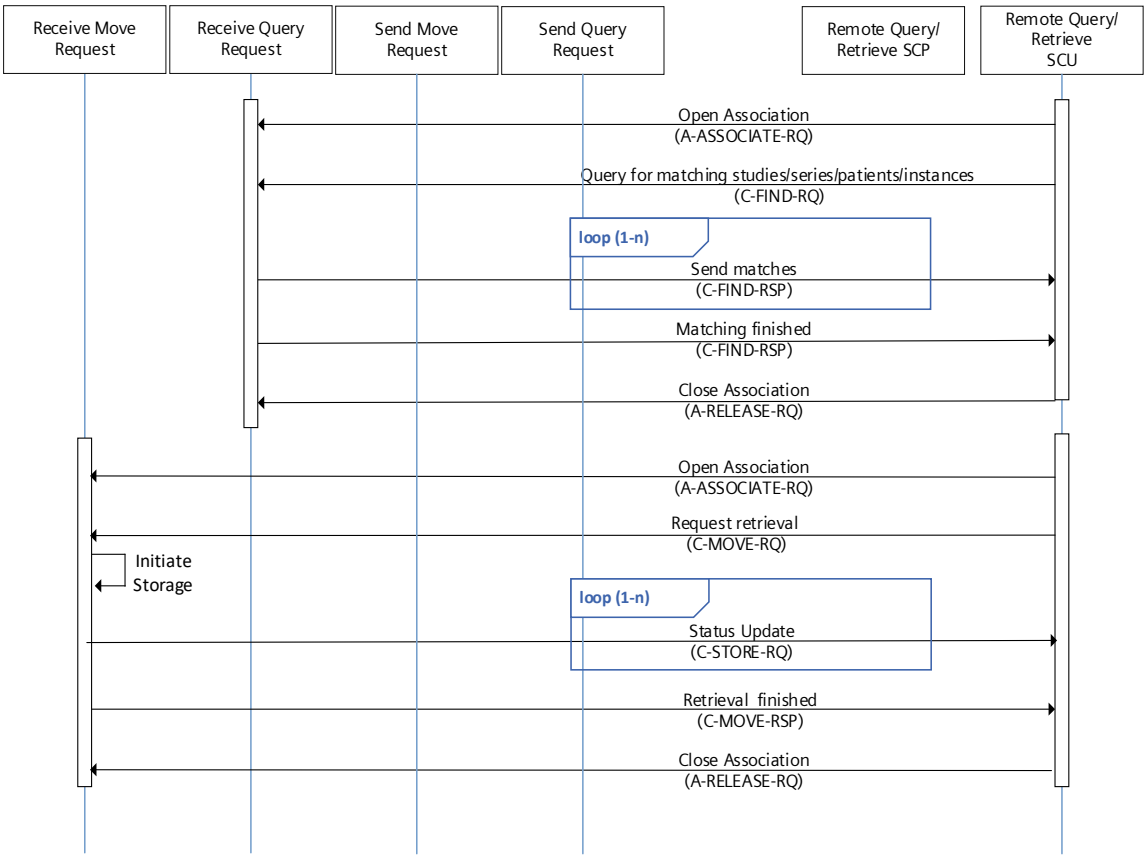


Figure 7.2-3 Sequencing of Real-World Activities for syngo.via AE (Query/Retrieve Activity)

syngo.via provides a standard GUI for Query/Retrieve. In the first step the Remote Application Entity must be selected. The Studies found based on the search criteria entered by the user will be listed. If the user chooses a study, each one of its series will be also listed. The user can select a study or a series to retrieve.

As an SCU of the Query Retrieve Activity, syngo.via opens the Association using the negotiated Study Root Query/Retrieve Information Model - FIND SOP Class. Afterwards it sends a C-FIND-RQ including query Key Attributes on the study level as provided by the user and waits for the matches in the C-FIND-RSP messages. In subsequent Associations the system will issue C-FIND-RQ to retrieve the Series of the selected study.

All responses of the remote SCP will be shown to the User, even if remote SCP does not support all Attributes in the Request Identifier. No local filtering is applied.

After the system finalized all queries and closed the Association for querying, the user can make his selection for retrieval. The SCU of the Query/Retrieve AE of syngo.via opens an Association and issues a C-MOVE-RQ. After receiving a final status code, the Association is closed.

In the C-MOVE-RQ Messages sent, the Move Destination (0000,0600) field always points either to the AE of a Remote Storage or to the Local Storage. If the Move Destination is set to the local Storage, the SCP of the Storage Activity will begin receiving the Instances via C-STORE-RQ messages (see Section 7.2.1.4 and Figure 7.2-1).

Returned duplicates are not processed. The Job View will indicate a warning to the user containing the number of duplicates found.

As an SCP, syngo.via accepts Association requests for Study Root, Patient Root and Patient/Study Only Query/Retrieve Information Models. Upon receiving a C-FIND-RQ it returns matches for the provided Key Attributes using the C-FIND-RSP messages. Queries on all Levels (Patient, Study, Series and Instance) are processed and answered. After all matches have been communicated a C-FIND-RSP with the corresponding status (as described in Section 7.3.2.7.3) is sent.

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

In addition to the Real-World Activities described in this Section, Query/Retrieve Activity also supports all Real-World Activities listed in Section 7.1.2.

7.2.1.8 Association Parameters of Query/Retrieve Activity

Association parameters are common to all Activities and documented in Table 7.1-1.

7.2.1.9 Association Initiation

This Section details the Association policies of the Query/Retrieve Activity when it is initiating an Association. For Details regarding general Association Initiation policies refer to Section 7.1.3.1.

For general information regarding the Association initiation policies please see Section .

7.2.1.9.1 Real-World Activity "Send Verification Request"

The Query/Retrieve Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.2.

7.2.1.9.2 Real-World Activity "Send Query Request"

syngo.via serves as an SCU of the Study Root Query/Retrieve Information Model – FIND SOP Class. Using the attributes specified by the user as Key Attributes (in accordance with the query model) the SCU of the Query/Retrieve Activity initiates a C-FIND-RQ and displays the responses to the user. The user can select a response item to refine the query, e.g. to send another C-FIND-RQ using the next Query Level or it can select items for retrieval as described in Section 7.2.1.9.3.

Presentation Context Proposal

For general information regarding Transfer Selection policies, refer to Section 7.1.3.1.

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 7.2-6.

Table 7.2-6 Extended Negotiation for Send Query Request of Query/Retrieve Activity – Association Initiation

SOP Class	Extended Negotiation	Support	Requested Value
Query			
Applicable to all Query Retrieve – FIND SOP Classes supported by syngo.via: • Study Root Query/Retrieve Information Model – FIND SOP Class	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

7.2.1.9.3 Real-World Activity "Send Move Request"

syngo.via serves as an SCU for the Study Root Query/Retrieve Information Model – MOVE SOP Class to retrieve imaging objects. After matching has completed the user can select SOP Instances to retrieve resulting in a C-MOVE-RQ.

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

7.2.1.10 Association Acceptance

For general information regarding the Association acceptance policies please see Sub-Section 7.1.3.2.

7.2.1.10.1 Real-World Activity "Receive Verification Request"

The Query/Retrieve Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.3.

7.2.1.10.2 Real-World Activity "Receive Query Request"

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

Using the attributes specified by the user as Query Key Attributes (in accordance with the query model) the SCP of the Query/Retrieve AE accepts a C-FIND-RQ and provides the responses for the requesting Application Entity.

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 7.2-7.

Table 7.2-7 Extended Negotiation for Receive Query Request of Query/Retrieve Activity - Association Acceptance

SOP Class	Extended Negotiation	Support	Requested Value
Query			
Applicable to all Query Retrieve – FIND SOP Classes supported by syngo.via: • Study Root Query/Retrieve Information Model – FIND SOP Class • Patient Root Query/Retrieve Information Model – FIND SOP Class • Patient/Study Only Query/Retrieve Information Model - FIND SOP Class	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

For general information regarding Transfer Selection policies, refer to Section 7.1.3.2.

SCP/SCU Role Selection Negotiation

N/A

7.2.1.10.3 Real-World Activity "Receive Move Request"

syngo.via serves as an SCP for Study Root Query/Retrieve Information Model – MOVE SOP Class.

The C-MOVE-RQ is used to retrieve the selected imaging objects. The Query/Retrieve Activity supports the query model Study Root only.

Extended Negotiation

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

Transfer Syntax Selection Policies

For general information regarding Transfer Selection policies, refer to Section 7.1.3.2.

SCP/SCU Role Selection Negotiation

N/A

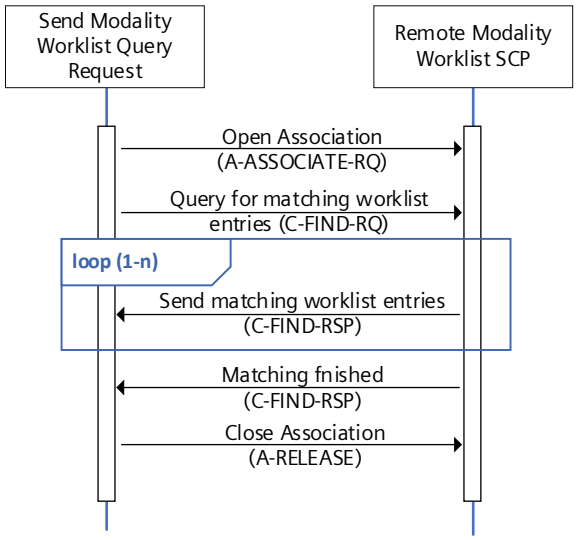


Figure 7.2-4 Sequencing of Real-World Activities for syngo.via AE (Modality Worklist Activity)

As a SCU, 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.

All responses of the remote SCP will be shown to the User, even if remote SCP does not support all Attributes in the Request Identifier. No local filtering is applied.

Returned duplicates are not processed. The User will get feedback in the Job View in the form of a Warning stating the number of duplicates found.

7.2.1.11 Association Parameters of Modality Worklist Activity

Association parameters are common to all Activities and documented in Table 7.1-1.

7.2.1.12 Association Initiation

This Section details the Association policies of the Modality Worklist Activity when it is initiating an Association. For Details regarding general Association Initiation policies refer to Section 7.1.3.1.

Using the attributes specified by the user as Key Attributes (in accordance with the query model) the Modality Worklist Activity 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 data received is made.

7.2.1.12.1 Real-World Activity "Send Verification Request"

The Modality Worklist Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.2.

7.2.1.12.2 Real-World Activity "Send Modality Worklist Request"

syngo.via serves as an SCU of the Basic Worklist Management Service Class. The SCU of the Modality Worklist Activity 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 7.2-8.

Table 7.2-8 Extended Negotiation for Send Modality Worklist Request of the Modality Worklist Activity - 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	

Presentation Context Proposal

For general information regarding Transfer Selection policies, refer to Section 7.1.3.1.

SCP/SCU Role Selection Negotiation

N/A

7.2.1.13 Association Acceptance

N/A

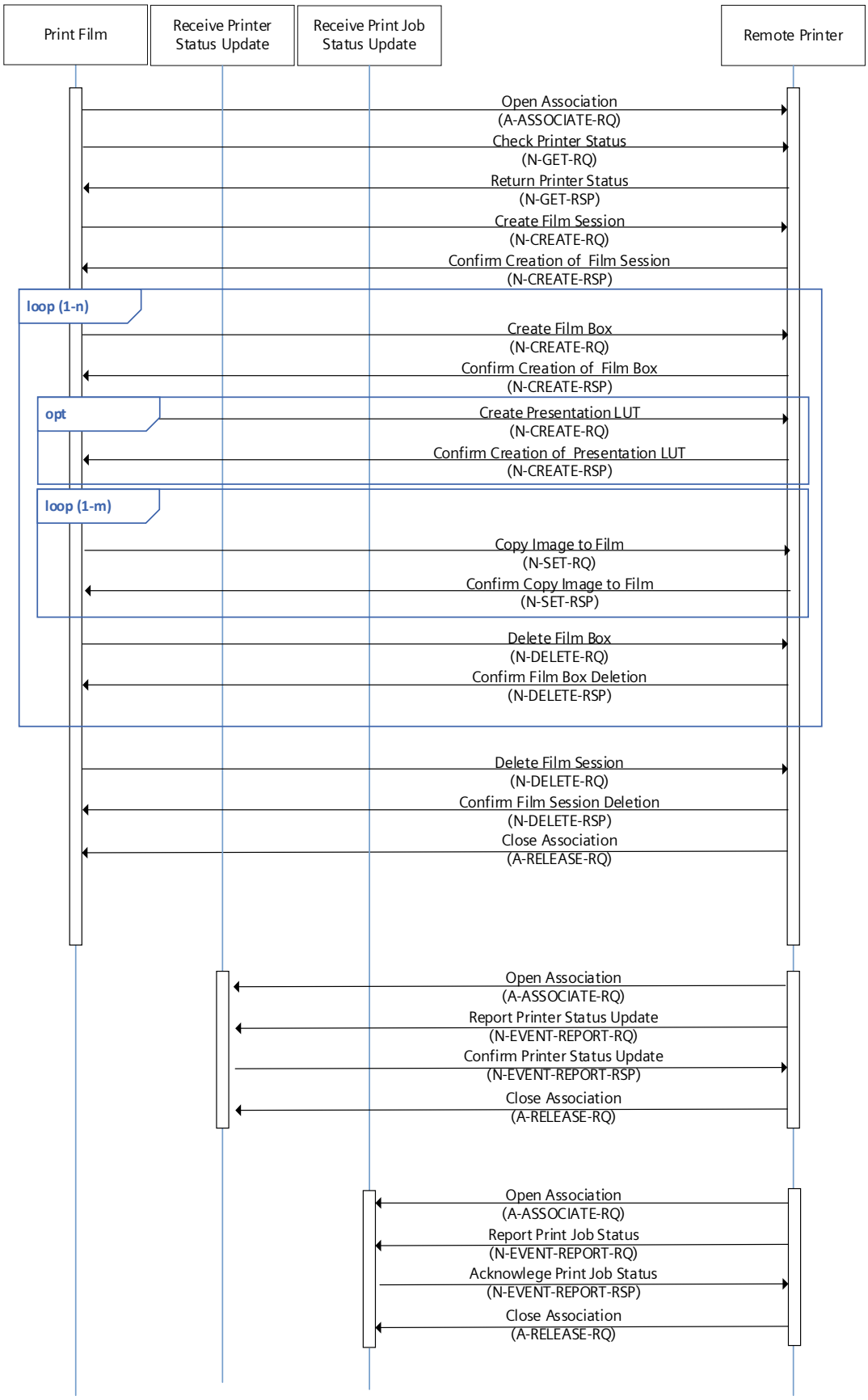


Figure 7.2-5 Sequencing of Real-World Activities for syngo.via AE (Print Activity)

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. Printout will start with the N-ACTION-RQ message sent to the printer. 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.

7.2.1.14 Association Parameters of Print Activity

Association parameters are common to all Activities and documented in Table 7.1-1.

7.2.1.15 Association Initiation

This Section details the Association policies of the Print Activity when it is initiating an Association. For Details regarding general Association Initiation policies refer to Section 7.1.3.1.

7.2.1.15.1 Real-World Activity “Send Verification Request”

Print Activity supports the Verification SOP Class. For further details please see Section 7.1.2.1.2.

7.2.1.15.2 Real-World Activity “Print Film”

syngo.via serves as an SCU of the Print Management Service Class.

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 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

Presentation Context Proposal

For general information regarding Transfer Selection policies, refer to Section 7.1.3.1.

SCP/SCU Role Selection Negotiation

N/A

7.2.1.15.3 Real-World Activity “Receive Printer Status Update”

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

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

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

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

Extended Negotiation

N/A

7.2.1.16 Association Acceptance

The only case the Printer SCU performs as Association Acceptor is to receive the N-EVENT-REPORT-RQ coming from the Printer.

The Printer reports the Status of the Print Jobs using Event Type ID in N-EVENT-REPORT-RQ in an asynchronous way:

Table 7.2-9 DICOM Communication Failure Behavior as Association Initiator

Event Type name	Event Type ID	Behavior
Normal	1	The Message is acknowledged [1)].
Warning	2	The Message is acknowledged [1)].
Failure	3	The Message is acknowledged [1)], the error is logged and reported to the User in the JobViewer.

[1)] An N-EVENT-REPORT-RSP will be sent to the Printer.

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.

Every Communication initiated or accepted by any Application Entity is called a Job (Send Job, Export Job, Print Job and so on). All the Jobs are handled and presented alike in the Job View. The user can follow the execution of the Job, cancel or repeat it. Every Message (be it a progress message, a warning, a failure or the successful termination) is reported to the user in the Job View.

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 Occurs, if communication with the Remote Application Entity is timed out during the connection request or sending or receiving messages (the Remote AE does not respond).	The request is marked as failed. The reason is logged and reported to the user. An A-ABORT is sent in this case.
Association aborted Occurs if the Remote Application Entity explicitly aborts the Association (A-ABORT).	The request is marked as failed. The reason is logged and reported to the user.
Network Disconnect Occurs if the network connection to the Remote Application Entity becomes unavailable.	The request 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 an Association request	ABORT message is sent out and the connection is closed.
Unrecognized Called AE	AE responds with Association-RJ.
Unrecognized Calling AE	AE responds with Association-RJ. syngo.via can be configured to accept all calling AEs (see Table 6.1-1 and Section 7.1.3.2.1).
Exceed limit for number of connections supported	AE responds with Association-RJ.

7.3.2 DIMSE Services

7.3.2.1 Basic Worklist Management Service

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

Table 7.3-3 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	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. As the data arrives, they are displayed to the user.
Pending	Matches are continuing - Warning that one or more Optional Key Attributes were not supported for existence for this Identifier (no Optional Key Attribute 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

7.3.2.3 Unified Worklist und Procedure Step Service

N/A

7.3.2.4 Instance Availability Notification Service

N/A

7.3.2.5 Storage Service

7.3.2.5.1 SCU of the Storage SOP Classes - C-STORE

Table 7.3-4 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	Success is reported in the JobView.
Warning	Coercion of Data Elements	B000	The issue is logged, and the user gets notified about the Status in the JobView.
	Data Set does not match SOP Class	B007	
	Elements Discarded	B006	
Failure	Refused: SOP Class not supported	0112	
	Invalid SOP 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	
Any other status code, not mentioned above.			

7.3.2.5.2 SCP of the Storage SOP Classes - C-STORE

Table 7.3-5 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		Success is reported if all Instances sent could be stored in the Short-Term Storage.
Error	Invalid SOP Instance	0117		This Status Code is sent for any error when 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 7.3-6 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	Success is reported in the JobView.
Failure	Processing failure	0110	If any error code is received, failure is reported in the JobView. The status of SOP Instances for which the error was reported will not be set to Archived, will not be deleted by automated cleanup processes and can only be manually deleted after confirmation.
	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

If the N-EVENT-REPORT-RQ is sent on a separate Association, the SCU will act as an Association Acceptor for the N-EVENT-REPORT-RQ message after the N-ACTION-RQ message is sent to the PACS Application Entity due to Reverse Role Negotiation.

Table 7.3-7 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	Success is reported in the JobView.
Failure	Processing failure	0110	

Status Class	Further Meaning	Status Code	Behavior
	No such SOP Instance	0112	If any error code is received, processing failure is logged and displayed in the Job View. The SOP Instances will not be considered as completely achieved by the initiator of the Storage Commitment.
	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	
Any other status code, not mentioned above.			

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

Table 7.3-8 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 7.3-9 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	

Status Class	Further Meaning	Status Code	Condition
	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	

7.3.2.7 Query/Retrieve Service

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

Table 7.3-10 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 association is closed. The error code is logged and reported to the user.
	Error: Identifier does not match SOP Class	A900	
	Error: Unable to process	C000-CFFF	
	Refused: SOP Class Not Supported	0122	
Cancel	Matching terminated due to cancel	FE00	The Association is closed. All matches received prior to cancellation are displayed.
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The association is closed. All matches received are displayed to the User. Pending status is not indicated.
	Matches are continuing - Warning that one or more Optional Key Attributes were not supported for existence for this Identifier	FF01	
Any other status code not mentioned above			The association is closed. The error code is logged and reported to the user.

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

Table 7.3-11 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)	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.
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 7.3-12 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	If the search is completed and no errors are detected.
Failure	Refused: Out of Resources	A700	A failure code is sent if any of the failures listed in this table occur and
	Error: Identifier does not match SOP Class	A900	

Status Class	Further Meaning	Status Code	Condition
	Error: Unable to process	C000	no results can be provided. The association is closed.
	SOP Class Not Supported	0122	
Cancel	Matching terminated due to cancel	FE00	The matching is terminated if cancel request is received. Results will be provided if found. 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	This is sent to notify the Remote Application Entity that the matching is ongoing and Optional Key Attributes are supported. Results are being provided.
	Matches are continuing - Warning that one or more Optional Key Attributes were not supported for existence for this Identifier	FF01	This is sent to notify the Remote Application Entity that the matching is ongoing and one or more Optional Key Attributes are not supported. Results are being provided.

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 7.3-13 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 (and Comments on Related Fields)	Action on the Store due the condition.
Success	Sub-operations Completed - No Failures	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	No issue occurred.	C-STORE is sent for the selection at the request of the Remote Application Entity.
Failed	Out of Resources - Unable to calculate number of matches	A701	(0000,0902)	The chunking of the data to be send failed.	No C-STORE is sent.
	Out of Resources - Unable to perform sub-operations	A702	(0000,1021) (0000,1022) (0000,1023)	The C-STORE operation failed.	
	Move Destination unknown	A801	(0000,0902)	The initialization of the C-STORE operation failed, because the Move Destination AE is not configured as a Remote AE or it is not possible to reach the Move Destination AE due to network issues or incorrect	

Status Class	Further Meaning	Status Codes	Related Fields sent in the response	Condition (and Comments on Related Fields)	Action on the Store due the condition.
				configuration (for example Host Name or IP Address).	
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)	The data could not be accessed in the Data Set (for example if an unsuitable encoding was used).	No C-STORE is sent.
	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.	No C-STORE is sent.
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)		C-STORE is sent for the selection at the request of the Remote Application Entity.

7.3.2.8 Print Management Service

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

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

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

7.3.2.8.1 SCU of the Basic Film Session SOP Class

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

Table 7.3-14 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 job is added to the Print Queue.
Warning	Attribute List Error	0107	The warnings received in the N-CREATE RSP are forwarded to the user and shown in the Job View.
	Attribute Value Out of Range	0116	
	Memory allocation not supported	B600	
Failure	No Such Attribute	0105	In case of any failure occurring, the user is going to be notified in the Job View.
	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 7.3-15 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	Success is logged and displayed in the JobView.
Warning	Attribute List Error	0107	Warnings received are logged and displayed in the JobView. 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 user is informed in the JobView and the issue is logged. The association is closed.
	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	

Status Class	Further Meaning	Status Code	Behavior
	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-DELETE

Table 7.3-16 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	Success is logged and displayed in the JobView.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The user is informed in the JobView and the issue is logged. The association is closed.
	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 7.3-17 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	Success is logged and displayed in the JobView.
Warning	Film session printing (collation) is not supported	B601	Warnings received are logged and displayed in the JobView. Warnings do not lead to Job Cancellations.
	Film Session SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B602	

Status Class	Further Meaning	Status Code	Behavior
	Image size is larger than image box size, the image has been demagnified.	B604	
	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 user is informed in the JobView 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 7.3-18 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	Success is logged and displayed in the JobView.
Warning	Attribute List Error	0107	
	Attribute Value Out of Range	0116	

Status Class	Further Meaning	Status Code	Behavior
	Requested Min Density or Max Density outside of printer's operating range	B605	Warnings received are logged and displayed in the JobView. Warnings do not lead to Job Cancellations.
Failure	No Such Attribute	0105	If a Failure code is received, the Job is aborted. The user is informed in the JobView 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 7.3-19 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	Success is logged and displayed in the JobView.
Warning	Attribute List Error	0107	Warnings received are logged and displayed in the JobView. 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 user is informed in the JobView 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	

Status Class	Further Meaning	Status Code	Behavior
	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-DELETE

Table 7.3-20 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	Success is logged and displayed in the JobView.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The user is informed in the JobView 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 7.3-21 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	Success is logged and displayed in the JobView.

Status Class	Further Meaning	Status Code	Behavior
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603	Warnings received are logged and displayed in the JobView. Warnings do not lead to Job Cancellations.
	Image size is larger than Image Box size. The image has been demagnified.	B604	
	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 user is informed in the JobView 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 7.3-22 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	Success is logged and displayed in the JobView.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604	Warnings received are logged and displayed in the JobView. Warnings do not lead to Job Cancellations.

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

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 user is informed in the JobView 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	Success is logged and displayed in the JobView.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The user is informed in the JobView and the issue is logged.
	No Such SOP Instance	0112	
	No Such Event Type	0113	

Status Class	Further Meaning	Status Code	Behavior
	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	
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	Success is logged and displayed in the JobView.
Warning	Attribute List Error	0107	Warnings received are logged and displayed in the JobView. Warnings do not lead to Job Cancellations.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The user is informed in the JobView 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 Presentation LUT SOP Class

SCU of the Presentation LUT SOP Class - N-CREATE

Table 7.3-26 lists the Status Codes that the SCU of the Presentation LUT SOP Class supports from the N-CREATE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-26 Status Codes N-CREATE of the Presentation LUT SOP Class - SCU

Status Class	Further Meaning	Status Code	Behavior
Success	Success	0000	Success is logged and displayed in the JobView.

Status Class	Further Meaning	Status Code	Behavior
Warning	Attribute List Error	0107	Warnings received are logged and displayed in the JobView. 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 user is informed in the JobView 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 Presentation LUT SOP Class - N-DELETE

Table 7.3-27 lists the Status Codes that the SCU of the Presentation LUT SOP Class supports from the N-DELETE message and defines the application behavior when encountering the listed Status Codes.

Table 7.3-27 Status Codes for N-DELETE of the Presentation LUT SOP Class - SCU

Status class	Further Meaning	Status Code	Behavior
Success	Success	0000	Success is logged and displayed in the JobView.
Failure	Processing Failure	0110	If a Failure code is received, the Job is aborted. The user is informed in the JobView 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			

7.3.2.8.7 SCP of the Basic Film Session SOP Class

N/A

7.3.2.8.8 SCP of the Basic Film Box SOP Class

N/A

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

N/A

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

N/A

7.3.2.8.11 SCP of the Printer SOP Class

N/A

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

N/A

7.3.2.8.13 SCP of the Print Job SOP Class

N/A

7.3.2.8.14 SCP of the Presentation LUT SOP Class

N/A

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

N/A

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.

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
Basic Time Synchronization	NTP Server	Maintain Time	NTP	RFC5905	N	C.1.1
		Find NTP Servers	NTP	RFC5905	N	C.1.1
	NTP Client	Maintain Time	NTP	RFC5905	N	C.1.1
		Find NTP Servers	NTP	RFC5905	N	C.1.1
	SNTP Client	Maintain Time	SNTP	RFC2030	N	C.1.1
	DHCP Server	Find NTP Servers	DHCP	RFC2131; RFC2132; RFC2563	N	C.1.1
	DHCP Client	Find NTP Servers	DHCP	RFC2131; RFC2132; RFC2563	Y	C.1.1
Basic Network Address Management	DHCP Server	Configure DHCP Server	-	-	N	C.1.2
		Find and Use DHCP Server	DHCP	RFC2131; RFC2132; RFC2563	N	C.1.2
		Maintain Lease	DCP	RFC2131; RFC2132	N	C.1.2
		Resolve Hostname	DNS	RFC1035; RFC2181	N	C.1.2
		DDNS Coordination	DNS	RFC2136	N	C.1.2
	DHCP Client	Find and Use DHCP Server	DHCP	RFC2131; RFC2132; RFC2563	Y	C.1.2
		Maintain Lease	DHCP	RFC2131; RFC2132	Y	C.1.2

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
	DNS Server	DNS Coordination	DNS	RFC2136	N	C.1.2
		Resolve Hostname	DNS	RFC1035; RFC2181;	N	C.1.2
	DNS Client	Resolve Hostname	DNS	RFC1035; RFC2181	Y	C.1.2
Application Configuration Management	LDAP Server	Query LDAP Server	LDAP	RFC2251	N	C.1.3
		Update LDAP Server	LDAP	RFC2251	N	C.1.3
		Maintain LDAP Server	LDAP	RFC2849	N	C.1.3
	LDAP Client	Find LDAP Server	LDAP	RFC2181; RFC2219; RFC2782	Y	C.1.3
		Query LDAP Server	LDAP	RFC2251	Y	C.1.3
		Update LDAP Server	LDAP	RFC2251	Y	C.1.3
	DNS Server	Find LDAP Server	LDAP	RFC2181; RFC2219; RFC2782	N	C.1.3
DNS Service Discovery	DNS Server	Find DICOM Service	DNS	RFC2136; RFC2181; RFC2219; RFC2782; RFC6762; RFC6763; RFC8553;	N	0

Please 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 of the Operating System, 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
BCP 195 RFC 8996, 9325 TLS Secure Transport Connection Profile	ALL *	Y	Y	C.2.5

* The secured communication is configurable for the Local Application Entity and every Remote Application Entity separately.

Please note that if a secure connection is established, the selection of the cipher suite depends on the settings of the Operating System. Since syngo.via is always provided together with the Operating System Microsoft Windows, the selection of the cipher suite happens automatically, based on the TLS Version used (versions 1.2 and 1.3 are supported)

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, 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, Medium Privacy and Low Privacy and apply only to exported data.

Attributes that are not mentioned in the configuration for the Data Minimization profiles (explicitly or using a wild card-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

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
- Medium 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 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. Attributes 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.
- Medium Privacy: private attributes are not included except for the Attributes excluded from the Data Minimization (see Table 8.8-2). Attributes 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).

In the following table for attributes marked with:
'Y' - affected by Data Minimization.
'N' - not affected by Data Minimization.

Table 8.8-1: Data Minimization Profiles

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0000,1000)	Affected SOP Instance UID	Y	Y	Y
(0002,0003)	Media Storage SOP Instance UID	Y	Y	Y
(0004,1511)	Referenced SOP Instance UID in File	Y	Y	Y
(0008,0014)	Instance Creator UID	Y	Y	Y
(0008,0015)	Instance Coercion DateTime	Y	Y	N
(0008,0018)	SOP Instance UID	Y	Y	Y
(0008,0020)	Study Date	Y	Y	Y
(0008,0021)	Series Date	Y	Y	Y
(0008,0022)	Acquisition Date	Y	Y	Y
(0008,0023)	Content Date	Y	Y	Y
(0008,0024)	Overlay Date	Y	Y	N
(0008,0025)	Curve Date	Y	Y	N
(0008,002A)	Acquisition DateTime	Y	Y	N
(0008,0030)	Study Time	Y	Y	N
(0008,0031)	Series Time	Y	Y	N
(0008,0032)	Acquisition Time	Y	Y	N
(0008,0033)	Content Time	Y	Y	N

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0008,0034)	Overlay Time	Y	Y	N
(0008,0035)	Curve Time	Y	Y	N
(0008,0050)	Accession Number	Y	Y	N
(0008,0058)	Failed SOP Instance UID List	Y	Y	Y
(0008,0080)	Institution Name	Y	Y	N
(0008,0081)	Institution Address	Y	Y	Y
(0008,0082)	Institution Code Sequence	Y	Y	Y
(0008,0090)	Referring Physician's Name	Y	Y	Y
(0008,0092)	Referring Physician's Address	Y	Y	Y
(0008,0094)	Referring Physician's Telephone Numbers	Y	Y	Y
(0008,0096)	Referring Physician Identification Sequence	Y	Y	N
(0008,010D)	Context Group Extension Creator UID	Y	Y	Y
(0008,0201)	Timezone Offset From UTC	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 Physician Identification Sequence	Y	Y	N
(0008,1060)	Name of Physician(s) Reading Study	Y	Y	Y
(0008,1062)	Physician(s) 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	Y	N
(0008,1111)	Referenced Performed Procedure Step Sequence	Y	Y	N
(0008,1120)	Referenced Patient Sequence	Y	Y	N
(0008,1140)	Referenced Image Sequence	Y	Y	N
(0008,1155)	Referenced SOP Instance UID	Y	Y	Y
(0008,1195)	Transaction UID	Y	Y	Y
(0008,2111)	Derivation Description	Y	Y	N
(0008,2112)	Source Image Sequence	Y	Y	N
(0008,3010)	Irradiation Event UID	Y	Y	Y
(0008,4000)	Identifying Comments	Y	Y	N
(0008,9123)	Creator Version UID	Y	Y	Y
(0010,0010)	Patient's Name	Y	Y	Y
(0010,0020)	Patient ID	Y	Y	Y

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(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	Y	Y
(0010,0050)	Patient's Insurance Plan Code Sequence	Y	Y	Y
(0010,0101)	Patient's Primary Language Code Sequence	Y	Y	Y
(0010,0102)	Patient's Primary Language Modifier Code Sequence	Y	Y	Y
(0010,1000)	Other Patient IDs	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	Y	N
(0010,1020)	Patient's Size	Y	Y	N
(0010,1030)	Patient's Weight	Y	Y	N
(0010,1040)	Patient's Address	Y	Y	Y
(0010,1050)	Insurance Plan Identification	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	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 Numbers	Y	Y	Y
(0010,2160)	Ethnic Group	Y	Y	N
(0010,2180)	Occupation	Y	Y	N
(0010,21A0)	Smoking Status	Y	Y	N
(0010,21B0)	Additional Patient's History	Y	Y	Y
(0010,21C0)	Pregnancy Status	Y	Y	N
(0010,21D0)	Last Menstrual Date	Y	Y	N
(0010,21F0)	Patient's Religious Preference	Y	Y	N
(0010,2203)	Patient Sex Neutered	Y	Y	N
(0010,2297)	Responsible Person	Y	Y	N
(0010,2299)	Responsible Organization	Y	Y	N
(0010,4000)	Patient Comments	Y	Y	Y
(0012,0064)	De-identification Method Code Sequence	N	N	Y
(0018,0010)	Contrast Bolus Agent	Y	Y	N
(0018,1000)	Device Serial Number	Y	Y	N

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0018,1002)	Device UID	Y	Y	Y
(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	Y
(0018,4000)	Acquisition Comments	Y	Y	N
(0018,700A)	Detector ID	Y	Y	N
(0018,9424)	Acquisition Protocol Description	Y	Y	N
(0018,9516)	Start Acquisition DateTime	Y	Y	N
(0018,9517)	End Acquisition DateTime	Y	Y	N
(0018,A003)	Contribution Description	Y	Y	Y
(0020,000D)	Study Instance UID	Y	Y	Y
(0020,000E)	Series Instance UID	Y	Y	Y
(0020,0010)	Study ID	Y	Y	N
(0020,0052)	Frame of Reference UID	Y	Y	Y
(0020,0200)	Synchronization Frame of Reference UID	Y	Y	Y
(0020,3401)	Modifying Device ID	Y	Y	N
(0020,3404)	Modifying Device Manufacturer	Y	Y	N
(0020,3406)	Modified Image Description	Y	Y	N
(0020,4000)	Image Comments	Y	Y	N
(0020,9158)	Frame Comments	Y	Y	N
(0020,9161)	Concatenation UID	Y	Y	Y
(0020,9164)	Dimension Organization UID	Y	Y	Y
(0028,1199)	Palette Color Lookup Table UID	Y	Y	Y
(0028,1214)	Large Palette Color Lookup Table UID	Y	Y	Y
(0028,4000)	Image Presentation Comments	Y	Y	N
(0032,0012)	Study ID Issuer	Y	Y	N
(0032,1020)	Scheduled Study Location	Y	Y	N
(0032,1021)	Scheduled Study Location AE Title	Y	Y	N
(0032,1030)	Reason for Study	Y	Y	N
(0032,1032)	Requesting Physician	Y	Y	N
(0032,1033)	Requesting Service	Y	Y	N
(0032,1060)	Requested Procedure Description	Y	Y	N
(0032,1070)	Requested Contrast Agent	Y	Y	N
(0032,4000)	Study Comments	Y	Y	N
(0038,0004)	Referenced Patient Alias Sequence	Y	Y	N
(0038,0010)	Admission ID	Y	Y	N

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0038,0011)	Issuer of Admission ID	Y	Y	N
(0038,001E)	Scheduled Patient Institution Residence	Y	Y	N
(0038,0020)	Admitting Date	Y	Y	N
(0038,0021)	Admitting Time	Y	Y	N
(0038,0040)	Discharge Diagnosis Description	Y	Y	N
(0038,0050)	Special Needs	Y	Y	N
(0038,0060)	Service Episode ID	Y	Y	N
(0038,0061)	Issuer of Service Episode ID	Y	Y	N
(0038,0062)	Service Episode Description	Y	Y	N
(0038,0300)	Current Patient Location	Y	Y	N
(0038,0400)	Patient's Institution Residence	Y	Y	N
(0038,0500)	Patient State	Y	Y	N
(0038,4000)	Visit Comments	Y	Y	N
(0040,0001)	Scheduled Station AE Title	Y	Y	N
(0040,0002)	Scheduled Procedure Step Start Date	Y	Y	N
(0040,0003)	Scheduled Procedure Step Start Time	Y	Y	N
(0040,0004)	Scheduled Procedure Step End Date	Y	Y	N
(0040,0005)	Scheduled Procedure Step End Time	Y	Y	N
(0040,0006)	Scheduled Performing Physician Name	Y	Y	N
(0040,0007)	Scheduled Procedure Step Description	Y	Y	N
(0040,000B)	Scheduled Performing Physician Identification Sequence	Y	Y	N
(0040,0010)	Scheduled Station Name	Y	Y	N
(0040,0011)	Scheduled Procedure Step Location	Y	Y	N
(0040,0012)	Pre-Medication	Y	Y	N
(0040,0241)	Performed Station AE Title	Y	Y	N
(0040,0242)	Performed Station Name	Y	Y	N
(0040,0243)	Performed Location	Y	Y	N
(0040,0244)	Performed Procedure Step Start Date	Y	Y	N
(0040,0245)	Performed Procedure Step Start Time	Y	Y	N
(0040,0250)	Performed Procedure Step End Date	Y	Y	N
(0040,0251)	Performed Procedure Step End Time	Y	Y	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 the Performed Procedure Step	Y	Y	N
(0040,0555)	Acquisition Context Sequence	Y	Y	N
(0040,1001)	Requested Procedure ID	Y	Y	N
(0040,1004)	Patient Transport Arrangements	Y	Y	N
(0040,1005)	Requested Procedure Location	Y	Y	N
(0040,1010)	Names of Intended Recipient of Results	Y	Y	N

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0040,1011)	Intended Recipients of Results Identification Sequence	Y	Y	N
(0040,1101)	Person Identification Code Sequence	Y	Y	N
(0040,1102)	Person Address	Y	Y	N
(0040,1103)	Person's Telephone Numbers	Y	Y	N
(0040,1400)	Requested Procedure Comments	Y	Y	N
(0040,2001)	Reason for the Imaging Service Request	Y	Y	N
(0040,2008)	Order Entered By	Y	Y	N
(0040,2009)	Order Enterer Location	Y	Y	N
(0040,2010)	Order Callback Phone Number	Y	Y	N
(0040,2016)	Placer Order Number / Imaging Service Request	Y	Y	N
(0040,2017)	Filler Order Number / Imaging Service Request	Y	Y	N
(0040,2400)	Imaging Service Request Comments	Y	Y	N
(0040,3001)	Confidentiality Constraint on Patient Data Description	Y	Y	N
(0040,4005)	Scheduled Procedure Step Start DateTime	Y	Y	N
(0040,4010)	Scheduled Procedure Step Modification DateTime	Y	Y	N
(0040,4011)	Expected Completion DateTime	Y	Y	N
(0040,4023)	Referenced General Purpose Scheduled Procedure Step Transaction UID	Y	Y	Y
(0040,4025)	Scheduled Station Name Code Sequence	Y	Y	N
(0040,4027)	Scheduled Station Geographic Location Code Sequence	Y	Y	N
(0040,4028)	Performed Station Name Code Sequence	Y	Y	N
(0040,4030)	Performed Station Geographic Location Code Sequence	Y	Y	N
(0040,4034)	Scheduled Human Performers Sequence	Y	Y	N
(0040,4035)	Actual Human Performers Sequence	Y	Y	N
(0040,4036)	Human Performers Organization	Y	Y	N
(0040,4037)	Human Performers Name	Y	Y	N
(0040,4050)	Performed Procedure Step Start DateTime	Y	Y	N
(0040,4051)	Performed Procedure Step End DateTime	Y	Y	N
(0040,4052)	Procedure Step Cancellation DateTime	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	Y
(0040,A171)	Observation UID	Y	Y	Y
(0040,A172)	Referenced Observation UID (Trial)	Y	Y	Y

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0040,A192)	Observation Date (Trial)	Y	Y	N
(0040,A193)	Observation Time (Trial)	Y	Y	N
(0040,A307)	Current Observer (Trial)	Y	Y	N
(0040,A352)	Verbal Source (Trial)	Y	Y	N
(0040,A353)	Address (Trial)	Y	Y	N
(0040,A354)	Telephone Number (Trial)	Y	Y	Y
(0040,A358)	Verbal Source Identifier Code Sequence (Trial)	Y	Y	N
(0040,A402)	Observation Subject UID (Trial)	Y	Y	Y
(0040,A730)	Content Sequence	Y	Y	N
(0040,DB0C)	Template Extension Organization UID	Y	Y	Y
(0040,DB0D)	Template Extension Creator UID	Y	Y	Y
(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	Y
(0088,0140)	Storage Media File-set UID	Y	Y	Y
(0088,0200)	Icon Image Sequence	Y	Y	N
(0088,0904)	Topic Title	Y	Y	N
(0088,0906)	Topic Subject	Y	Y	N
(0088,0910)	Topic Author	Y	Y	N
(0088,0912)	Topic Keywords	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
(0400,0550)	Modified Attributes Sequence	Y	Y	N
(0400,0561)	Original Attributes Sequence	Y	Y	Y
(2030,0020)	Text String	Y	Y	N
(3006,0024)	Referenced Frame of Reference UID	Y	Y	Y
(3006,00C2)	Related Frame of Reference UID	Y	Y	Y
(3008,0105)	Source Serial Number	Y	Y	N
(300A,0013)	Dose Reference UID	Y	Y	Y
(300E,0008)	Reviewer Name	Y	Y	N
(4000,0010)	Arbitrary	Y	Y	N
(4000,4000)	Text Comments	Y	Y	N
(4008,0042)	Results ID Issuer	Y	Y	N
(4008,0102)	Interpretation Recorder	Y	Y	N
(4008,010A)	Interpretation Transcriber	Y	Y	N
(4008,010B)	Interpretation Text	Y	Y	N
(4008,010C)	Interpretation Author	Y	Y	N

Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(4008,0111)	Interpretation Approver Sequence	Y	Y	N
(4008,0114)	Physician Approving Interpretation	Y	Y	N
(4008,0115)	Interpretation Diagnosis Description	Y	Y	N
(4008,0118)	Results Distribution List Sequence	Y	Y	N
(4008,0119)	Distribution Name	Y	Y	N
(4008,011A)	Distribution Address	Y	Y	N
(4008,0202)	Interpretation ID Issuer	Y	Y	N
(4008,0300)	Impressions	Y	Y	N
(4008,4000)	Results Comments	Y	Y	N
(50**,****)	Curve Data	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.

Y stands for YES, meaning that the respective Attribute is affected by the Data Minimization of the given level. N stands for NO, meaning that the respective Attribute is not affected by the Data Minimization of the given level.

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

DICOM Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0019,0005)	Multiphase UID	Y	Y	Y
(0019, SIEMENS CT VA0 COAD, 90)	Osteo offset	Y	N	N
(0019, SIEMENS CT VA0 COAD, 92)	Osteo Regression Line Slope	Y	N	N
(0019, SIEMENS CT VA0 COAD, 93)	Osteo Regression Line Intercept	Y	N	N
(0019, SIEMENS CT VA0 COAD, 96)	Osteo Phantom Number	Y	N	N
(0019, SIEMENS MED NM, 93)	Phase start time	Y	N	N
(0019, SIEMENS MED NM, A1)	Number of Phases	Y	N	N
(0019, SIEMENS MED NM, A5)	Number of repeats / phases	Y	N	N
(0019, SIEMENS MED NM, A6)	Cycles Per Repeat	Y	N	N
(0019, SIEMENS MED NM, A7)	Repeat Start time	Y	N	N
(0019, SIEMENS MED NM, A8)	Repeat Stop time	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0019, SIEMENS MED NM, A9)	Effective Repeat Time	Y	N	N
(0019, SIEMENS MED NM, AA)	Acquired Cycles Per Repeat	Y	N	N
(0033, SIEMENS MED NM, 29)	Crystal Thickness	Y	N	N
(0033, SIEMENS MED NM, 30)	Preset Name Used for Acquisition	Y	N	N
(0033, SIEMENS MED NM, 38)	Pixel Scale factor	Y	N	N
(0035, SIEMENS MED NM, 00)	Specialized TOMO Type	Y	N	N
(0035, SIEMENS MED NM, 04)	Repeat ID	Y	N	N
(0035, SIEMENS MED NM, 05)	Phase ID	Y	N	N
(0041, SIEMENS MED NM, 01)	WholeBody Tomo Position Index	Y	N	N
(0041, SIEMENS MED NM, 02)	WholeBody Tomo Number of Positions	Y	N	N
(0041, SIEMENS MED NM, 10)	Effective Emission Energy	Y	N	N
(0057, SIEMENS MED NM, 03)	NM Pixel Units	Y	N	N
(0061, SIEMENS MED NM, 62)	Recon Output Type	Y	N	N
(0061, SIEMENS MED NM, 70)	NM Reconstruction Algorithm	Y	N	N
(0061, SIEMENS MED NM, 8D)	QSPECT Flag	Y	N	N
(0065, SIEMENS MED NM, 01)	Original Detector Index	Y	N	N
(0065, SIEMENS MED NM, 02)	Siemens Planar Data Organization	Y	N	N
(7FE3, SIEMENS MED NM, 14)	Minimum pixel value in frame	Y	N	N
(7FE3, SIEMENS MED NM, 15)	Maximum pixel value in frame	Y	N	N
(7FE3, SIEMENS MED NM, 29)	Number of Rwaves in a frame	Y	N	N
(0021, SIEMENS MR SDS 01, 19)	MR Phoenix Protocol	Y	N	N
(0029, SIEMENS CT EXAM IMAGE,49)	Metal Artifact Reduction Type	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0029, SIEMENS CSA ENVELOPE, 10)	Syngo Report Data	Y	N	N
(0029, SIEMENS CSA ENVELOPE, 11)	Syngo Report Presentation	Y	N	N
(0029, SIEMENS CSA HEADER, 08)	Modality Image Header Type	Y	N	N
(0029, SIEMENS CSA HEADER, 09)	Modality Image Header Version	Y	N	N
(0029, SIEMENS CSA HEADER, 10)	Modality Image Header Info	Y	N	N
(0029, SIEMENS CSA HEADER, 18)	Modality Series Header Type	Y	N	N
(0029, SIEMENS CSA HEADER, 19)	Modality Series Header Version	Y	N	N
(0029, SIEMENS CSA HEADER, 20)	Modality Series Header Info	Y	N	N
(0029, SIEMENS MEDCOM HEADER, 40)	Application Header Sequence	Y	N	N
(0029, SIEMENS MEDCOM HEADER, 41)	Application Header Type	Y	N	N
(0029, SIEMENS MEDCOM HEADER, 42)	Application Header ID	Y	N	N
(0029, SIEMENS MEDCOM HEADER, 43)	Application Header Version	Y	N	N
(0029, SIEMENS MEDCOM HEADER, 44)	Application Header Info	Y	N	N
(0029, SIEMENS CT APPL DATASET, 00)	Dual Energy Algorithm Parameters	Y	N	N
(0029, SIEMENS CT APPL ALG PARAMS, 20)	Perfusion Result Set Id	Y	N	N
(0029, SIEMENS CSA REPORT, 08)	syngo Report Type	Y	N	N
(0029, SIEMENS CSA REPORT, 09)	syngo Report Version	Y	N	N
(0029, SIEMENS CSA REPORT, 15)	SR Variant	Y	N	N
(0029, SIEMENS CSA REPORT, 17)	SC SOP Instance UID	Y	N	N
(0043, GEMS_PARM_01, 1E)	GE Delta Start Time	Y	N	N
(0049, SIEMENS CT SPP HEADER, 10)	Raw Data Container	Y	N	N
(0067, SIEMENS MED MI, 02)	Scanner Console Generation	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Medium Privacy	Low Privacy
(0067, SIEMENS MED MI, 03)	Recon Parameters	Y	N	N
(0067, SIEMENS MED MI, 05)	Device IVK	Y	N	N
(0067, SIEMENS MED MI, 14)	Raw Data Description	Y	N	N
(0067, SIEMENS MED MI, 16)	Raw Data Series Instance UIDs	Y	N	N
(0067, SIEMENS MED MI, 17)	Raw Data Referenced Series Instance UIDs	Y	N	N
(0067, SIEMENS MED MI, 18)	Raw Data Blob Sequence	Y	N	N
(0071, SIEMENS MED PT, 22)	Decay Correction DateTime	Y	N	N
(0071, SIEMENS MED PT, 23)	Registration Matrix	Y	N	N
(0071, SIEMENS MED PT, 24)	Table Motion	Y	N	N
(0071, SIEMENS MED PT, 25)	Lumped Constant	Y	N	N
(0071, SIEMENS MED PT, 26)	Histogramming Method	Y	N	N
(0071, SIEMENS MED PT MU MAP, 01)	SOP Class of Source	Y	N	N
(0071, SIEMENS MED PT MU MAP, 02)	Related Mu Map Series	Y	N	N

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 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.1.1-38 or a subset of them, as defined in the IOD specific subsections below.

Table A.1.1-1 Patient 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			
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			
Referenced Study Sequence	(0008,1110)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Procedure Code Sequence	(0008,1032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
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			
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			
Laterality	(0020,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

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			
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			
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			
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			
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)	GENERATED	ALWAYS	ALWAYS			
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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			
Planar Configuration	(0028,0006)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			
Pixel Aspect Ratio	(0028,0034)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS			
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS			
High Bit	(0028,0102)	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: 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.1.1-14: 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.1.1-15: 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		
Include Content Identification Macro Attributes (see Table A.1.1-24)							

Table A.1.1-16: 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.1.1-17: 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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>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.1.1-18: 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.1.1-19: Multi-frame Functional Groups Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shard Functional Group Sequence	(5200,9229)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
>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).							
Per-Frame Functional Group Sequence	(5200,9230)	GENERATED	ALWAYS	ALWAYS			
>Include one or more Functional Group Macros.							
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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Concatenation Frame Offset Number	(0020,9228)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Concatenation UID	(0020,9161)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
SOP Instance UID of Concatenation Source	(0020,0242)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
In-concatenation Number	(0020,9162)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-20: 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.1.1-21: 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		
Verification Flag	(0040,A493)	GENERATED	ALWAYS	ALWAYS	UNVERIFIED		
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-22: 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.1.1-23: SOP Instance Reference Macro Attributes

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

Table A.1.1-24: 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)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.1.1-25: 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			
Coding Scheme Version	(0008,0103)	GENERATED	ALWAYS	ALWAYS			
Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			

Note: Enhanced Encoding Mode is not supported.

Table A.1.1-26: 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.1.1-23)							

Table A.1.1-27: 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)	GENERATED	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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.1.1-25)					No Baseline CID is defined.		

Table A.1.1-28: 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	ALWAYS	ALWAYS			
Referenced Segment Number	(0062,000B)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-29: 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			
>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.1.1-25)							
Numeric Value Qualifier Code Sequence	(0040,A301)	GENERATED	ALWAYS	ALWAYS			
>Include Code Sequence Macro Attributes (see Table A.1.1-25)							

Table A.1.1-30: 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.1.1-25)							

Table A.1.1-31: 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.1.1-23)							

Table A.1.1-32: 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.1.1-25)							
>Referenced Frame Number	(0008,1160)	GENERATED	ALWAYS	ALWAYS			
>Referenced Segment Number	(0062,000B)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-33: 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.1.1-34: 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.1.1-35: 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)	GENERATED	ALWAYS	ALWAYS			
Referenced Time Offset	(0040,A138)	GENERATED	ALWAYS	ALWAYS			
Referenced DateTime	(0040,A13A)	GENERATED	ALWAYS	ALWAYS			

Table A.1.1-36: 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.1.1-37: 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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>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.1.1-38: 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			
>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

syngo.via supports following Directory Record Types:

- PATIENT
- STUDY
- SERIES
- IMAGE
- RT DOSE
- RT STRUCTURE SET
- RT PLAN
- RT TREAT RECORD
- PRESENTATION
- WAVEFORM
- SR DOCUMENT
- KEY OBJECT DOC
- SPECTROSCOPY
- RAW DATA
- REGISTRATION
- ENCAP DOC
- VALUE MAP
- FIDUCIAL
- STEREOMETRIC

Table A.2-1: Basic Directory IOD

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
File-Set Identification Module							
File-set ID	(0004, 1130)	GENERATED	ALWAYS	ALWAYS	yymmddHHMM		It is composed of the actual date and time, each component represented with two digits: year (e.g. 25 for 2025), month, day, hour (24-hour format) and minutes.
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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
File-set Consistency Flag	(0004, 1212)	GENERATED	ALWAYS	ALWAYS	0000H		
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	FFFFH		
>Offset of Referenced Lower-Level Directory Entity	(0004, 1420)	GENERATED	ALWAYS	ALWAYS			
>Directory Record Type	(0004, 1430)	GENERATED	ALWAYS	ALWAYS	Any of the supported value enumerated above		
>Private Record UID	(0004, 1432)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the Directory Record Type (0004,1430) is of Value PRIVATE	
>Referenced File ID	(0004, 1500)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the Directory Record does reference a SOP Instance	
>Referenced SOP Class UID in File	(0004, 1510)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the Directory Record references a SOP Instance	
>Referenced SOP Instance UID in File	(0004, 1511)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the Directory Record references a SOP Instance	
>Referenced Transfer Syntax UID in File	(0004, 1512)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						Directory Record references a SOP Instance	
>Referenced Related General SOP Class UID in File	(0004, 151A)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if the Directory Record references a SOP Instance that encodes the Related General SOP Class UID (0008,001A)	
Patient Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Patient's Name	(0010, 0010)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Patient's ID	(0010, 0020)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Patient's Birth Date	(0010, 0030)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Patient's Sex	(0010, 0040)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Study Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						character set is used in one of the Keys	
>Study Date	(0008, 0020)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Study Time	(0008, 0030)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Study Description	(0008, 1030)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Study Instance UID	(0008, 000D)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Study ID	(0020, 0010)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Accession Number	(0008, 0050)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Modality	(0008, 0060)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Institution Name	(0008, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Series Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Modality	(0008, 0060)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Series Date	(0008, 0021)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Series Time	(0008, 0031)	SRC_INSTANCE	ALWAYS	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Series Instance UID	(0020, 000E)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Series Number	(0020, 0011)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Institution Name	(0008, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Series Description	(0008, 103E)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Image Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Image Type	(0008, 0008)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>SOP Class UID	(0008, 0016)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>SOP Instance UID	(0008, 0018)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Image Position (Patient)	(0020, 0032)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Image Orientation (Patient)	(0020, 0037)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Frame Reference UID	(0020, 0052)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Rows	(0028, 0010)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Columns	(0028, 0011)	SRC_INSTANCE	ALWAYS	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Pixel Spacing	(0028, 0103)	SRC_INSTANCE	ALWAYS	SRC_COPY			
RT Dose Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Dose Summation Type	(3004, 000A)	SRC_INSTANCE	ALWAYS	ALWAYS			
RT Plan Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>RT Plan Label	(300A, 0002)	SRC_INSTANCE	ALWAYS	ALWAYS			
>RT Plan Date	(300A, 0006)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>RT Plan Time	(300A, 0007)	SRC_INSTANCE	ALWAYS	SRC_COPY			
RT Structure Set Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacem	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						ent character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Structure Set Label	(3006, 0002)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Structure Set Date	(3006, 0006)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Structure Set Time	(3006, 0007)	SRC_INSTANCE	ALWAYS	SRC_COPY			
RT Treatment Record Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Treatment Date	(3008, 0250)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Treatment Time	(3008, 0251)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Encapsulated Document Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Content Date	(0008, 0023)	SRC_INSTANCE	CONDITIONAL	SRC_COPY			
>Content Time	(0008, 0033)	SRC_INSTANCE	CONDITIONAL	SRC_COPY			
>Instance Number	(0020, 0013)	SRC_INSTANCE	CONDITIONAL	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Document Title	(0042, 0010)	SRC_INSTANCE	CONDITIONAL	SRC_COPY			
>MIME Type of Encapsulated Document	(0042, 0012)	SRC_INSTANCE	CONDITIONAL	ALWAYS			
Key Object Document Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Concept Name Code Sequence	(0040, A043)	GENERATED	ALWAYS	ALWAYS			
>>Code Value	(0008, 0100)	GENERATED	ALWAYS	ALWAYS	113000, 113001, 113002, 113003, 113004, 113005, 113006, 113007, 113008, 113009, 113010, 113013,		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
					113018, 113020		
>>Coding Scheme Designator	(0008, 0102)	GENERATED	ALWAYS	ALWAYS	DCM		CID 7010
>>Code Meaning	(0008, 0104)	GENERATED	ALWAYS	ALWAYS	Of Interest, Rejected for Quality Reasons, For Referring Provider, For Surgery, For Teaching, For Conference, For Therapy, For Patient, For Peer Review, For Research, Quality Issue, Best In Set, For Printing, For Report Attachment		Corresponding to the Code Value
Presentation Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Presentation Creation Date	(0070, 0082)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Presentation Creation Time	(0070, 0083)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Label	(0070, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Description	(0070, 0081)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Referenced Series Sequence	(0008, 1115)	SRC_INSTANCE	CONDITIONAL	SRC_COPY		Present if the IOD of the Presentation State SOP Instance referenced by this Directory Record includes the Presentation State Relationship Module	
>>Series Instance UID	(0020, 000E)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>>Referenced Image Sequence	(0008, 1140)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>>>Referenced SOP Class UID	(0008, 1150)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>>>Referenced SOP Instance UID	(0008, 1155)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Blending Sequence	(0070, 0402)	SRC_INSTANCE	ALWAYS	SRC_COPY		Present if the SOP Instance referenced by this Directory Record includes Blending Sequenc	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						e (0070,0402)	
>>Study Instance UID	(0008,000D)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>>Content Creator's Name	(0070,0084)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Waveform Keys							
>Specific Character Set	(0005,0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020,0013)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Date	(0008,0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008,0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
SR Document Keys							
>Specific Character Set	(0005,0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020,0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Completion Flag	(0040,A491)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Verification Flag	(0040,A493)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Date	(0008,0023)	SRC_INSTANCE	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Verification DateTime	(0040, A030)	SRC_INSTANCE	CONDITIONAL	SRC_COPY		Present if Verification Flag (0040,A493) is VERIFIED	
>Concept Name Code Sequence	(0040, A043)	SRC_INSTANCE	ALWAYS	ALWAYS			
>>Code Value	(0008, 0100)	GENERATED	ALWAYS	ALWAYS			
>>Coding Scheme Designator	(0008, 0102)	GENERATED	ALWAYS	ALWAYS			
>>Code Meaning	(0008, 0104)	GENERATED	ALWAYS	ALWAYS			
Spectroscopy Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Image Type	(0008, 0008)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	ALWAYS			This attribute is generated by syngo.via if not present in the source images.
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Frame of Reference UID	(0020, 0052)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Number of Frames	(0028, 0008)	SRC_INSTACE	ALWAYS	ALWAYS			
>Rows	(0028, 0011)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Columns	(0028, 0011)	SRC_INSTANCE	ALWAYS	ALWAYS			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Data Point Rows	(0028, 9001)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Data Point Columns	(0028, 9002)	SRC_INSTANCE	ALWAYS	ALWAYS			
Raw Data Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
Registration Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Label	(0070, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Real World Value Mapping Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
						character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Label	(0070, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Fiducial Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	
>Instance Number	(0020, 0013)	SRC_INSTANCE	ALWAYS	SRC_COPY			
>Content Date	(0008, 0023)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Time	(0008, 0033)	SRC_INSTANCE	ALWAYS	ALWAYS			
>Content Label	(0070, 0080)	SRC_INSTANCE	ALWAYS	SRC_COPY			
Stereometric Relationship Keys							
>Specific Character Set	(0005, 0005)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL		Present if an extended or replacement character set is used in one of the Keys	

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: Encapsulated PDF IOD

IE	Module Name	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	SRC_INSTANCE		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.1.1-13

*-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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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 A.3.1-3: 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: Basic Text SR IOD

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
	Basic SR Patient Module*	ALWAYS		Table A.4.1-2
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	SR Document Series Module	ALWAYS		Table A.1.1-20
	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.1.1-21
	SR Document Content Module	ALWAYS		Table A.1.1-22
	SOP Common Module	ALWAYS		Table A.1.1-13
	Basic SR General Image Module*	ALWAYS		Table A.4.1-3

*-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 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.4.1-3: Basic SR General Image Module

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

A.4.2 Basic Text SR IOD Functional Group Macros

N/A

A.4.3 Basic Text SR IOD Private Modules

N/A

A.4.4 Basic Text SR IOD Coded Values

N/A

A.5 Segmentation Image IOD

Table A.5-1: Segmentation Image IOD

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	SRC_INSTANCE		Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	Segmentation Series Module	ALWAYS		Table A.5.1-3
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.1.1-18
Image	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.1.1-19
	Multi-frame Dimension Module	ALWAYS		Table A.1.1-19
	SOP Common Module	ALWAYS		Table A.1.1-13

A.5.1 Segmentation Image 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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>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)							
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	1	BINARY	
					8	FRACTIONAL	
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	1	BINARY	
					8	FRACTIONAL	
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	Bits Stored - 1		
Lossy Image Compression	(0028,2110)	GENERATED	ALWAYS	ALWAYS	00	Image has not been subjected to lossy compression	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
					01	Image has been subjected to lossy compression	
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 Image 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 Image 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 Image IOD Private Modules

N/A

A.5.4 Segmentation Image IOD Coded Values

N/A

A.6 CT Image 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: CT Image IOD

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	SRC_INSTANCE		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 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
	CT Image Module	ALWAYS		Table A.6.1-1
	Contrast/Bolus Module	CONDITIONAL	If contrast media was used in this image.	Table A.6.1-2
	SOP Common Module	ALWAYS		Table A.1.1-13

A.6.1 CT image IOD Specific Modules

Table A.6.1-1: CT Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
KVP	(0018,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	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			
Rescale Intercept	(0028,1052)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rescale Slope	(0028,1053)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rescale Type	(0028,1054)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.6.1-2: 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			

A.6.2 CT image IOD Functional Group Macros

N/A

A.6.3 CT image IOD Private Modules

N/A

A.6.4 CT image IOD Coded Values

N/A

A.7 MR Image IOD

Table A.7-1: MR Image IOD

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	SRC_INSTANCE		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.1.1-13
	MR Image Module	ALWAYS		Table A.7.1-1

A.7.1 MR Image IOD Specific Modules

Table A.7.1-1: MR Image – MR Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scanning Sequence	(0018,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Sequence Variant	(0018,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scan Options	(0018,0022)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
MR Acquisition Type	(0018,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Repetition Time	(0018,0080)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Time	(0018,0081)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Inversion Time	(0018,0082)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Echo Train Length	(0018,0091)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Trigger Time	(0018,1060)	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			

A.7.2 MR Image IOD Functional Group Macros

N/A

A.7.3 MR Image IOD Private Modules

N/A

A.7.4 MR Image IOD Coded Values

N/A

A.8 Secondary Capture Image IOD

The following Tables present the Modules used by the Secondary Capture Image IOD

Table A.8-1: Secondary Capture Image IOD

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	SRC_INSTANCE		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.8.1-3
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
Image	General Image Module	ALWAYS		Table A.1.1-10
	General Image Module – OrthoMatic Spine*	CONDITIONAL	If the application is OrthoMatic Spine	Table A.8.1-4
	General Reference Module	ALWAYS		Table A.1.1-5
	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.8.1-2
	SOP Common Module	ALWAYS		Table A.1.1-13
	Private – SIEMENS XP XRMSK_ALGO	CONDITIONAL	If the application is OrthoMatic Spine	Table A.8.3-2

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

A.8.1 Secondary Capture Image 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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast / Bolus Agent	(0018, 0010)	GENERATED	ALWAYS	ALWAYS			
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS			
Patient Orientation	(0020,0020)	GENERATED	ALWAYS	ALWAYS	A	Anatomical Orientation Type (0010,2210) is absent or has a Value of BIPED	
					P		
					R		
					L		
					H		
					F		
					LE	Anatomical Orientation Type (0010,2210) has a Value of QUADRUPED	
					RT		
					D		
					V		
					CR		
					CD		
					R		
					M		
					L		
					PR		
					DI		
					PA		
					PL		

Table A.8.1-2: SC Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Date of Secondary Capture	(0018,1012)	GENERATED	ALWAYS	ALWAYS			
Time of Secondary Capture	(0018,1014)	GENERATED	ALWAYS	ALWAYS			
Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS			
Pixel Spacing Calibration Description	(0028,0A04)	GENERATED	ALWAYS	ALWAYS			

Table A.8.1-3: 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.8.1-4: 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 IOD Functional Group Macros

N/A

A.8.3 Secondary Capture Image 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 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 IOD Coded Values

N/A

A.9 Positron Emission Tomography Image IOD

Table A.9-1: Positron Emission Tomography Image IOD

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	SRC_INSTANCE		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.9.1-4
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 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.1.1-13
	PET Image Module	ALWAYS		Table A.9.1-1

A.9.1 Positron Emission Tomography Image 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)	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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rescale Slope	(0028,1053)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Frame Reference Time	(0054,1300)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Image Index	(0054,1330)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

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)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Series Time	(0008,0031)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of Slices	(0054,0081)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Series Type	(0054,1000)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Units	(0054,1001)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Counts Source	(0054,1002)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Decay Correction	(0054,1102)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

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 IOD Functional Group Macros

N/A

A.9.3 Positron Emission Tomography Image IOD Private Modules

N/A

A.9.4 Positron Emission Tomography Image IOD Coded Values

N/A

A.10 Enhanced CT Image IOD

The following Tables present the Modules used by the Enhanced CT Image IOD

Table A.10-1 : Enhanced CT Image IOD

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	SRC_INSTANCE		Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	CT Series Module	ALWAYS		Table A.10.1-6
Frame Of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
	Synchronization Module	CONDITIONAL	If time synchronization was applied	Table A.10.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.10.1-1
Image	Enhanced CT Image Module	ALWAYS		Table A.10.1-3
	Enhanced Contrast/Bolus Module	CONDITIONAL	Required if contrast media was applied	Table A.10.1-8
	Cardiac Synchronization Module	CONDITIONAL	Required if cardiac synchronization was applied	Table A.10.1-9
	Respiratory Synchronization Module	CONDITIONAL	Required if respiratory synchronization was applied	Table A.10.1-10
	Supplemental Palette Color Lookup Table Module	CONDITIONAL	Required if Pixel Presentation (0008,9205) in the Enhanced CT Image Module equals COLOR or MIXED	Table A.10.1-11
	Enhanced Multi-energy CT Acquisition Module	CONDITIONAL	Required if Multi-energy CT Acquisition (0018,9361) is YES	Table A.10.1-12
	Acquisition Context Module	ALWAYS		Table A.10.1-2

IE	Module Name	Presence (Module)	Condition	Reference
	Multi-frame Dimension Module	ALWAYS		Table A.10.1-4
	Multi-frame Functional Groups Module	ALWAYS		Table A.10.1-5
	Image Pixel 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.1.1-13

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

A.10.1 Enhanced CT Image IOD Specific Modules

Table A.10.1-1: 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.10.1-2: 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			
>>Coding Scheme Designator	(0008,1002)	GENERATED	ALWAYS	ALWAYS			
>>Coding Scheme Version	(0008,1003)	GENERATED	ALWAYS	ALWAYS			

Table A.10.1-3: 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 F.2.2-		
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.10.1-4: 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.10.1-5: Enhanced CT Image - Multi-frame Functional Groups Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Refer Table A.1.1-19 for Multi-frame functional Groups Module							
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 F.2.2-		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Real World Value Mapping Sequence	(0040,9096)	GENERATED	ALWAYS	ALWAYS			
>>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-		
>>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 F.2.2- (Refer the Rescale Intercept (0028,1052)		
>>Real World Value Slope	(0040,9225)	GENERATED	ALWAYS	ALWAYS	Table F.2.2- (Refer the Rescale Slope (0028,1053)		
>Pixel Value Transformation Sequence	(0028,9145)	GENERATED	ALWAYS	ALWAYS			
>>Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-		
>>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-		
>>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-		

Table A.10.1-6: 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		

Table A.10.1-7: Enhanced CT Image – Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Trigger	(0018,106A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Channel	(0018,106C)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Time Synchronized	(0018,1800)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Synchronization Frame of Reference UID	(0020,0200)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.10.1-8: Enhanced CT Image – Enhanced Contrast/Bolus Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent Sequence	(0018,0012)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.10.1-9: Enhanced CT Image – Cardiac Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Framing Type	(0018,1064)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Low R-R Value	(0018,1081)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
High R-R Value	(0018,1082)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Intervals Acquired	(0018,1083)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Intervals Rejected	(0018,1084)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Synchronization Technique	(0018,9037)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac R-R Interval Specified	(0018,9070)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Signal Source	(0018,9085)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Beat Rejection Technique	(0018,9169)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.10.1-10: Enhanced CT Image – Respiratory Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Signal Source	(0018,9171)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Trigger Type	(0020,9250)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Trigger Delay Threshold	(0020,9256)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.10.1-11: Enhanced CT Image – Supplemental Palette Color Lookup Table Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Red Palette Color Lookup Table Descriptor	(0028,1101)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Green Palette Color Lookup Table Descriptor	(0028,1102)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Blue Palette Color Lookup Table Descriptor	(0028,1103)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Red Palette Color Lookup Table Data	(0028,1201)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Green Palette Color Lookup Table Data	(0028,1202)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Blue Palette Color Lookup Table Data	(0028,1203)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.10.1-12: Enhanced CT Image – Enhanced Multi-energy CT Acquisition Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Multi-energy CT X-Ray Source Sequence	(0018,9365)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Multi-energy CT X-Ray Detector Sequence	(0018,936F)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Multi-energy CT Path Sequence	(0018,9379)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.10.2 Enhanced CT Image IOD Functional Group Macros

N/A

A.10.3 Enhanced CT Image IOD Private Modules

N/A

A.10.4 Enhanced CT Image IOD Coded Values

N/A

A.11 Enhanced MR Image 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 : Enhanced MR Image IOD

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	SRC_INSTANCE		Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	MR Series Module	ALWAYS		Table A.11.1-1
Frame Of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
	Synchronization Module	CONDITIONAL	Required if time synchronization was applied	Table A.11.1-4
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.1.1-18
Image	General Image Module	ALWAYS		Table A.1.1-10
	Enhanced Contrast/Bolus Module	CONDITIONAL	Required if contrast media were applied	Table A.11.1-5
	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.1.1-13
	Acquisition Context Module	ALWAYS		Table A.10.1-2
	Multi-frame Dimension Module	ALWAYS		Table A.11.1-2
	Enhanced MR Image Module	ALWAYS		Table A.11.1-3
	Cardiac Synchronization Module	CONDITIONAL	Required if cardiac synchronization was applied	Table A.11.1-6
	Respiratory Synchronization Module	CONDITIONAL	Required if respiratory synchronization was applied	Table A.11.1-7
	Supplemental Palette Color Lookup Table Module	CONDITIONAL	Required if Pixel Presentation (0008,9205) in the Enhanced MR Image Module equals COLOR or MIXED	Table A.11.1-9

IE	Module Name	Presence (Module)	Condition	Reference
	MR Pulse Sequence Module	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED. May be present otherwise	Table A.11.1-10
	Bulk Motion Synchronization Module	CONDITIONAL	Required if bulk motion synchronization was applied	Table A.11.1-8
	Frame Extraction Module	CONDITIONAL	Required if the SOP Instance was created in response to a Frame-Level retrieve request	Table A.11.1-11

A.11.1 Enhanced MR Image 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			
>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			

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.11.1-4: Enhanced MR Image – Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Trigger	(0018,106A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Synchronization Channel	(0018,106C)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Time Synchronized	(0018,1800)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Synchronization Frame of Reference UID	(0020,0200)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-5: Enhanced MR Image – Enhanced Contrast/Bolus Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent Sequence	(0018,0012)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-6: Enhanced MR Image – Cardiac Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Framing Type	(0018,1064)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Low R-R Value	(0018,1081)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
High R-R Value	(0018,1082)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Intervals Acquired	(0018,1083)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Intervals Rejected	(0018,1084)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Synchronization Technique	(0018,9037)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac R-R Interval Specified	(0018,9070)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Signal Source	(0018,9085)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Cardiac Beat Rejection Technique	(0018,9169)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-7: Enhanced MR Image – Respiratory Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Signal Source	(0018,9171)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Trigger Type	(0020,9250)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Respiratory Trigger Delay Threshold	(0020,9256)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-8: Enhanced MR Image – Bulk Motion Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Bulk Motion Compensation Technique	(0018,9172)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Bulk Motion Signal Source	(0018,9173)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-9: Enhanced MR Image – Supplemental Palette Color Lookup Table Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Red Palette Color Lookup Table Descriptor	(0028,1101)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Green Palette Color Lookup Table Descriptor	(0028,1102)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Blue Palette Color Lookup Table Descriptor	(0028,1103)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Red Palette Color Lookup Table Data	(0028,1201)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Green Palette Color Lookup Table Data	(0028,1202)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Blue Palette Color Lookup Table Data	(0028,1203)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-10: Enhanced MR Image – MR Pulse Sequence Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Acquisition Type	(0018,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pulse Sequence Name	(0018,9005)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Pulse Sequence	(0018,9008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Multiple Spin Echo	(0018,9011)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Multi-planar Excitation	(0018,9012)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Phase Contrast	(0018,9014)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Time of Flight Contrast	(0018,9015)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Steady State Pulse Sequence	(0018,9017)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Echo Planar Pulse Sequence	(0018,9018)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Saturation Recovery	(0018,9024)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Spectrally Selected Suppression	(0018,9025)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Oversampling Phase	(0018,9029)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Geometry of k-Space Traversal	(0018,9032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Segmented k-Space Traversal	(0018,9033)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rectilinear Phase Encode Reordering	(0018,9034)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Velocity Encoding Acquisition Sequence	(0018,9092)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of k-Space Trajectories	(0018,9093)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Coverage of k-Space	(0018,9094)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Arterial Spin Labeling Contrast	(0018,9250)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.11.1-11: Enhanced MR Image – Frame Extraction Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Extraction Sequence	(0008,1164)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.11.2 Enhanced MR Image IOD Functional Group Macros

N/A

A.11.3 Enhanced MR Image IOD Private Modules

N/A

A.11.4 Enhanced MR Image IOD Coded Values

N/A

A.12 Nuclear Medicine Image IOD

Table A.12-1 : Nuclear Medicine Image IOD

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.1.1-4
	NM/PET Patient Orientation Module	ALWAYS		Table A.12.1-1
Frame of Reference	Synchronization	CONDITIONAL	Required if time synchronization was applied	Table A.12.1-12
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.1.1-13
	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
	Frame Extraction	CONDITIONAL	Required if the SOP Instance was created in response to a Frame-Level retrieve request	Table A.12.1-13
	NM Reconstruction	CONDITIONAL	Required if Image Type (0008,0008) Value 3 is RECON TOMO or RECON GATED TOMO	Table A.12.1-11
	NM Phase	CONDITIONAL	Required if Image Type (0008,0008) Value 3 is DYNAMIC	Table A.12.1-10
	NM Multi-gated Acquisition	CONDITIONAL	Required if Image Type (0008,0008) Value 3 is GATED, GATED TOMO, or RECON GATED TOMO	Table A.12.1-9

IE	Module Name	Presence (Module)	Condition	Reference
	NM Tomo Acquisition	CONDITIONAL	Required if Image Type (0008,0008) Value 3 is TOMO, GATED TOMO, RECON TOMO or RECON GATED TOMO	Table A.12.1-8
	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 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			

Table A.12.1-8: Nuclear Medicine Image – NM Tomo Acquisition Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rotation Information Sequence	(0054,0052)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-9: Nuclear Medicine Image – NM Multi-Gated Acquisition Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Gated Information Sequence	(0054,0062)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-10: Nuclear Medicine Image – NM Phase Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Phase Information Sequence	(0054,0032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-11: Nuclear Medicine Image – NM Reconstruction Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Slice Thickness	(0018,0050)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Spacing Between Slices	(0018,0088)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-12: Nuclear Medicine Image – Synchronization Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Trigger	(0018,106A)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Synchronization Channel	(0018,106C)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Time Synchronized	(0018,1800)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Synchronization Frame of Reference UID	(0020,0200)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.12.1-13: Nuclear Medicine Image – Frame Extraction Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Extraction Sequence	(0008,1164)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.12.2 Nuclear Medicine Image IOD Functional Group Macros

N/A

A.12.3 Nuclear Medicine Image IOD Private Modules

The Table A.12.3-1 contains 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 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	
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 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	SIEMENSMEDNM		
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			
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	SIEMENSMED 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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator	(0023,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
DICOM Reader Flag	(0023,xx01)	US	1	SAFE	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Private Creator	(0033,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
Private Creator	(0035,00xx)	LO	1	SAFE	FIXED	ALWAYS	ALWAYS	SIEMENSMEDNM		
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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	SIEMENSMEDNM		
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	SIEMENSMEDNM		
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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	SIEMENSMEDNM		
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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	SIEMENS MED NM		
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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	SIEMENSMEDMI		
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			
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 IOD Coded Values

N/A

A.13 Surface Segmentation Image IOD

Table A.13-1: Surface Segmentation Image IOD

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.1.1-4
	Segmentation Series Module	ALWAYS		Table A.13.1-3
Frame of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	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
	SOP Common Module	ALWAYS		Table A.1.1-13
	Private SIEMENS SYNGO ADVANCED PRESENTATION	ALWAYS		Table A.13.3-1
	Private – SIEMENS SYNGO SEGMENTATION	ALWAYS		Table A.13.3-2

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

A.13.1 Surface Segmentation Image IOD Specific Modules

Table A.13.1-1: Surface Segmentation Image 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			
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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>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 Image 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 Image 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 Image 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			
>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			

A.13.2 Surface Segmentation Image 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 – 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.13.3-2: 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		

A.13.4 Surface Segmentation Image IOD Coded Values

N/A

A.14 Raw Data IOD

Table A.14-1: Raw Data IOD

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	SRC_INSTANCE		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
	RAW Data Common Instance Reference Module*	ALWAYS		Table A.14.1-3
Raw Data	Acquisition Context Module	ALWAYS		Table A.14.1-2
	Raw Data Module	ALWAYS		Table A.14.1-3
	SOP Common Module	ALWAYS		Table A.1.1-13

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

A.14.1 Raw Data 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)	CONFIGURATION	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		

A.14.2 Raw Data IOD Functional Group Macros

N/A

A.14.3 Raw Data IOD Private Modules

N/A

A.14.4 Raw Data IOD Coded Values

N/A

A.15 Real World Value Mapping IOD

The following Tables present the Modules used by the Real Value Mapping IOD.

Table A.15-1: Real World Value Mapping IOD

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.1.1-4
	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.1.1-13
	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 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)	FIXED	ALWAYS	ALWAYS	RVW		

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 IOD Functional Group Macros

N/A

A.15.3 Real World Value Mapping IOD Private Modules

N/A

A.15.4 Real World Value Mapping IOD Coded Values

N/A

A.16 Breast Projection X-Ray Image IOD

The following tables present the Modules used by the Breast Project X-Ray Image IOD for Presentation (1.2.840.10008.5.1.4.1.1.13.1.4) and Processing (1.2.840.10008.5.1.4.1.1.13.1.5) SOP classes.

Table A.16-1: Breast Projection X-Ray Image IOD

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.1.1-4
	DX Series Module	ALWAYS		Table A.16.1-1
	Enhanced Mammography Series Module	ALWAYS		Table A.16.1-2
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.16.1-3
Image	Image Pixel Module	ALWAYS		Table A.1.1-11
	SOP Common Module	ALWAYS		Table A.1.1-13
	Enhanced Mammography Image Module	ALWAYS		Table A.16.1-4
	Breast View Module	ALWAYS		Table A.16.1-5
	Acquisition Context Module	ALWAYS		Table A.16.1-6
	Multi-frame Functional Groups Module	ALWAYS		Table A.16.1-7
	Patient Orientation Module	ALWAYS		Table A.16.1-8

A.16.1 Breast Projection X-Ray Image 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	
					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			
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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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 IOD Functional Group Macros

N/A

A.16.3 Breast Projection X-Ray Image IOD Private Modules

N/A

A.16.4 Breast Projection X-Ray Image IOD Coded Values

N/A

A.17 Enhanced MR Color Image IOD

The Enhanced MR Color Image IOD supports the same DICOM attributes as the Enhanced MR Image IOD, except for the Photometric Interpretation, which is RGB. Also, the Supplemental Palette Color Lookup Table module, Pixel Value Transformation Macro, Frame VOI LUT Macro, and Real World Value Mapping Macro are not part of this IOD.

Table A.17-1: Enhanced MR Color Image IOD

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	SRC_INSTANCE		Table A.1.1-3
Series	General Series Module	ALWAYS		Table A.1.1-4
	MR Series Module	ALWAYS		Table A.11.1-1

IE	Module Name	Presence (Module)	Condition	Reference
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.1.1-18
Image	General Image Module	ALWAYS		Table A.1.1-10
	Image Pixel Module	ALWAYS		Table A.1.1-11
	Enhanced MR Image			Table A.11.1-3
	Multi-frame Functional Groups Module	ALWAYS		Table A.17.1-1
	ICC Profile Module	ALWAYS		Table A.17.1-2
	MR Pulse Sequence Module			Table A.17.1-3
	Multi-frame Dimension Module	ALWAYS		Table A.11.1-2
	Acquisition Context Module	ALWAYS		Table A.10.1-2
	SOP Common Module	ALWAYS		Table A.1.1-13

A.17.1 Enhanced MR Image IOD Specific Modules

Table A.17.1-1: Enhanced MR 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)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Shared Functional Groups Sequence	(5200,9229)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table A.17.1-2: Enhanced MR Color Image – ICC Profile Module Attributes

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
ICC Profile	(0028,2000)	AUTO	ALWAYS	ALWAYS	sRGB v4 ICC preference profile Refer : https://www.color.org/srgbprofiles.xalter		

Table A.17.1-3: Enhanced MR Color Image – MR Pulse Sequence Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Qualification	(0018,9004)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Pulse Sequence Name	(0018,9005)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Pulse Sequence	(0018,9008)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Multi-planar Excitation	(0018,9012)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Phase Contrast	(0018,9014)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Time of Flight Contrast	(0018,9015)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Steady State Pulse Sequence	(0018,9017)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Planar Pulse Sequence	(0018,9018)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Saturation Recovery	(0018,9024)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Spectral Selected Suppression	(0018,9025)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Oversampling Phase	(0018,9029)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Geometry of k-Space Traversal	(0018,9032)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segmented k-Space Traversal	(0018,9033)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rectilinear Phase Encode Reordering	(0018,9034)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
k-Space Filtering	(0018,9064)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Number of k-Space Trajectories	(0018,9093)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Coverage of k-Space	(0018,9094)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Applicable Safety Standard Agency	(0018,9174)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

A.17.2 Enhanced MR Color Image IOD Functional Group Macros

N/A

A.17.3 Enhanced MR Color Image IOD Private Modules

N/A

A.17.4 Enhanced MR Color Image IOD Coded Values

N/A

Annex B Structured Report Content Encoding

N/A

Annex C Security Details

C.1 External Network Requirement Details

C.1.1 Basic Time Synchronization

Time Synchronization is done using the features of the Operating System.

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	
LDAP Client	TLS	Y	
	TLS-Manual	N	
	Basic	Y	
	Basic-Manual	N	
	Anonymous	N	
	Anonymous-Manual	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 – Data Export

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	R – Read

Real-World Entities	Field Name	Supported	Value Constraints
	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 Message			
Participating Object (n) (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	Y	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDescription	N	
	SOP Class UID	Y	The SOP Class UID
	Accession	Y	"Value not set"
	NumberOfInstances	Y	The number of Instances exported
	Instances	N	
	Encrypted	N	
	Anonymized	Y	False
Participating Object (n) (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 message			
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	EventActionCode	Y	C – Create
	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
	NetworkAccessPointID	Y	The Machine Name
Active Participant (Source Media)	UserID	Y	The Source Folder
	AlternativeUserID	N	

Real-World Entities	Field Name	Supported	Value Constraints
	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 Operating System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	Y	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Message			
Participating Object (n) (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	Y	“Value not set”
	NumberOfInstances	Y	The Number of Instances imported
	Instances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (n) (Patients)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	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	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 Message			
Participating Objects (1) (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	Y	“Value not set”
	NumberOfInstances	N	

Real-World Entities	Field Name	Supported	Value Constraints
	Encrypted	N	
	Anonymized	N	
Participating Object (1) (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	
	Type	Y	UserDefinedText
	Value	Y	The encoded description of what happened
Other Message			
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	EventActionCode	Y	E – Execute
	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
	RoleIDCode	N	EV (110153, DCM, "Source Role ID")
	NetworkAccessPointTypeCode	N	2
	NetworkAccessPointID	N	The IP Address of the Source Machine
	UserID	Y	The Destination Machine Name

Real-World Entities	Field Name	Supported	Value Constraints
Active Participant (Process receiving the data)	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 Operating System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Message			
Participating Objects (n) (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	Y	“Value not set”
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Participating Object (n) (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-6: Audit Message Details –DICOM Instances Transferred

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	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
Active Participant (Other participants that are known, especially third parties that are the requestor)	UserID	Y	The ID of the receiving process
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	

Real-World Entities	Field Name	Supported	Value Constraints
Audit Log 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	Y	"Value not set"
	NumberOfInstances	Y	The number of Instances transferred
	Encrypted	N	
	Anonymized	N	
Participating Object (n) (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	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 User Name
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Message			
Participating Objects (n) (Studies being deleted)	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 (n) (Patient)	ParticipantObjectTypeCode	Y	1
	ParticipantObjectTypeCodeRole	Y	1
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	2
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	The Patient ID
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDetail	N	
	ParticipantObjectDescription	N	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	SyngoDataManagement

Table C.2.2-8: Audit Message Details – Patient Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	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 Operating System
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	False
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Message			
Participating Object (1) (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	
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	The Module, which performed the action audited

Table C.2.2-9: Audit Message Details – Query

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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, that sends the Query
Active Participant (The process that will respond to the query)	UserID	Y	The 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 Application Entity, that sends the Query
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	
Participating Objects (SOP Queried and the Query)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	3
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	EV (110181, DCM, "SOP Class UID")
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	Y	
	ParticipantObjectDetail	Y	
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	<platform_id>, <product_serial_number>

Table C.2.2-10: Audit Message Details – Security Alert (Remote DICOM Node configuration changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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", if the User used a Service Key to log in (typically a Service User).
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	True
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log 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 Application Entity

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the Remote Application Entity 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.2.2-11: Audit Message Details – Security Alert (Remote DICOM Node encryption setting changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	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", if the User used a Service Key to log in (typically a Service User).
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	True
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log 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 Application Entity

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Remote Application Entity
	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 (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")
Active Participant (Reporting Person and/or Process)	UserID	Y	The User logged in on the Administration Portal or "Servicekey_login", if the User used a Service Key to log in (typically a Service User).
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log 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 Local Application Entity
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encryption setting of the Local Application Entity
	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 Local Application Entity
	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 (Remote DICOM Node encapsulation setting changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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", if the User used a Service Key to log in (typically a Service User).
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	N	True
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log 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 Application Entity
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Application Entity
	ParticipantObjectDescription	N	
	SOP Class UID	N	
	Accession Number	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name

Real-World Entities	Field Name	Supported	Value Constraints
	AuditSourceID	Y	“ServiceSoftware”

Table C.2.2-14: 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”)
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 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 Application Entity

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The base64 encoded description of the current Status of the encapsulation setting of the Local Application Entity
	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.2.2-15: Audit Message Details – Security Alert (Passphrase for auto connect secure communication set)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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 Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	

Real-World Entities	Field Name	Supported	Value Constraints
	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	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	"Service Software"

Table C.2.2-16: Audit Message Details – Security Alert (Auto connect secure communication service state changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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 Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12

Real-World Entities	Field Name	Supported	Value Constraints
	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	
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 connection option changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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 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	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	"Service Software"

Table C.2.2-18: 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	EventActionCode	Y	E – Execute
	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 Message			
Participating Objects (Alert Subject)	ParticipantObjectTypeCode	Y	2
	ParticipantObjectTypeCodeRole	Y	13

Real-World Entities	Field Name	Supported	Value Constraints
	ParticipantObjectDataLifeCycle	N	
	ParticipantObjectIDTypeCode	Y	12
	ParticipantObjectSensitivity	N	
	ParticipantObjectID	Y	"Archiving and Deletion Configuration"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The current status of the Storage Commitment Service for the Remote Application Entity, 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 (Certificate was unpinned from a Remote Node)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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 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	"Archiving and Deletion Configuration"
	ParticipantObjectName	N	
	ParticipantObjectQuery	N	
	ParticipantObjectDetail	Y	The user has decided to delete the existing pinning for the Remote Application Entity Name: <remote_application_entity_name>, IP Address: <remote_application_entity_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.2.2-20: Audit Message Details – Security Alert (Certificate was pinned to a Remote Node)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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 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 Application Entity Name: <remote_application_entity_name>, IP Address: <remote_application_entity_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	
	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 (Archive marking of a Remote Node has changed)

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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"

Real-World Entities	Field Name	Supported	Value Constraints
			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 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 Application Entity modified
	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.2.2-22: Audit Message Details – User Authentication

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	E – Execute
	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	

Real-World Entities	Field Name	Supported	Value Constraints
	UserName	N	
	UserIsRequestor	Y	true
	RoleIDCode	N	
	NetworkAccessPointTypeCode	Y	1
	NetworkAccessPointID	Y	
Other Messages			
AuditSourceIdentification	AuditEnterpriseSiteID	Y	Machine Name
	AuditSourceID	Y	"Service Software"

Table C.2.2-23: Audit Message Details – Patient Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	C – create R – read U – update D – delete
	EventDateTime	Y	Current date and time
	EventOutcomeIndicator	N	
	EventTypeCode	N	
User	UserID	Y	
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	True
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log 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			

Real-World Entities	Field Name	Supported	Value Constraints
Audit Source Identification	AuditEnterpriseSiteID	Y	The Machine Name
	AuditSourceID	Y	"Workflow"

Table C.2.2-24: Audit Message Details – Procedure Record

Real-World Entities	Field Name	Supported	Value Constraints
Application Activity Message			
Event	EventActionCode	Y	C – create R – read U – update D – delete
	EventDateTime	Y	Current date and time
	EventOutcomeIndicator	Y	0
	EventTypeCode	Y	
User	UserID	Y	The ID of the User
	AlternativeUserID	N	
	UserName	N	
	UserIsRequestor	Y	True
	RoleIDCode	N	
	NetworkAccessPointTypeCode	N	
	NetworkAccessPointID	N	
Audit Log Message			
Study	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	Y	
	SOP Class UID	N	
	Accession	N	
	NumberOfInstances	N	
	Encrypted	N	
	Anonymized	N	
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	"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.2.5-25 lists the secure transport connection profiles and cipher suites supported:

Table C.2.5-25: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 (Refer section 8.8) 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

N/A

Annex F Application Annexes

syngo.via hosts a variety of applications, which make use of its networking capabilities. These applications

- access DICOM data available on syngo.via to either process or display them
- create post processing results and provide those result SOP Instances back to the syngo via as a hosting system for further management

For some of these applications DICOM related information is documented in a separate DICOM Conformance Statement – Application Annex documents, which can be accessed at

https://www.siemens-healthineers.com/services/it-standards/dicom-conformance-statements-digital-and-automation/syngo-via

For some of the applications DICOM related information is documented in the subsections below

F.1 Mammography Applications

F.1.1 Overview

F.1.2 Data Specification

F.1.2.1 Input Data Specification

Table F.1.2-1 lists the supported Transfer Syntaxes.

Table F.1.2-1 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 Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	
	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	
	RLE Lossless	1.2.840.10008.1.2.5	
Uncompressed Transfer Syntax Set (U)	Implicit VR Little Endian	1.2.840.10008.1.2	
	Explicit VR Little Endian	1.2.840.10008.1.2.1	
	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

Table F.1.2-2 lists any limitations on displaying or processing instances, e.g., display or processing of the respective SOP Instances is prevented by an unsupported Value for an Attribute or the absence of that Attribute.

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

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

Table F.1.2-2: 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 like Grayscale Softcopy Presentation States:					
Graphic Type	(0070,0023)	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 limitation applies, 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.					
Patient Orientation	(0020,0020)	ABSENT or INVALID		NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
DX Image Module					
Image Type	(0008,0008)	Value 3	Other than “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application, if the Image is Low Energy images
			Other than “RECOMBINED”	LP	For MAMMOVISTA B.smart application, if the Image is Subtraction images
		Value 4	Other than “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application, if the Image is Low Energy images
			Other than “LOW_E_PRE_CON”, “LOW_E_POST_CON”	LP	For MAMMOVISTA B.smart application, if the Image is Low Energy images AND Manufacturer (0008, 0070) is “Hologic, Inc.”
			Other than “SUBTRACTION”, “CONTRAST_IMAGE”	LP	For MAMMOVISTA B.smart application, if the Image is Subtraction images AND Manufacturer (0008, 0070) is “Hologic, Inc.”
		Value 5	Other than “LOW_ENERGY”	LP	For MAMMOVISTA B.smart application, if the Image is Low Energy images
Bits Stored	(0028,0101)	Other than 8, 10, 12, 14, 15,16		NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
DX Detector Module					
Imager Pixel Spacing	(0018,1164)	Non-squared values		NP	For MAMMOVISTA B.smart application
Pixel Spacing	(0028,0030)	ABSENT OR non-squared values		NP	For MAMMOVISTA B.smart application, if image has been calibrated.
		Non-squared values		NP	For MAMMOVISTA B.smart application, if attribute is present
Breast Tomosynthesis Images encoded as CT Image: 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 limitation applies, 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**		
Modality	(0008,0060)	Other than “CT”	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Manufacturer	(0008,0070)	Other than “SIEMENS”, “Hologic, Inc.”	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Image Type	(0008,0008)	Other than “Tomo”	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if manufacturer “Hologic, Inc.”
Manufacturer’s model name	(0008,1090)	Other than “MAMMOMAT Inspiration”, “MAMMOMAT Revelation”	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if manufacturer “SIEMENS”
		Other than “Selenia Dimensions”	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if manufacturer “Hologic, Inc.”
Series Instance UID	(0020,000E)	multiple volumes in one series.	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application. Must unambiguously identify one volume.
Pixel Spacing	(0028,0030)	Non-squared values	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Software Version(s)	(0018,1020)	value < “VB41A”	OT	For MAMMOVISTA B.smart application, if manufacturer “SIEMENS” and Manufacturer’s model name “MAMMOMAT Inspiration” and if value < VB41A, then position related tools are disabled.
Pixel representation	(0028,0103)	Other than 0	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Bits allocated	(0028,0100)	Other than 8, 16	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Bits stored	(0028,0101)	Other than 8, 10, 12, 14, 15, 16	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Samples per pixel	(0028,0002)	Other than 1	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Photometric interpretation	(0028,0004)	Other than “MONOCHROME1”, “MONOCHROME2”	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Breast Tomosynthesis Image Storage – 1.2.840.10008.5.1.4.1.1.13.1.3 For volumes, all frames contained must build exactly one volume, i.e., multiple volumes in one instance are not supported.				
Pixel Representation	(0028,0103)	Other than 0	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Bits Stored	(0028,0101)	Other than 8, 10, 12, 14, 15, 16	NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Multi-frame Functional Groups				

Limitation Case				Effect	Comments
Attribute Name	**Tag**	**Value**			
Pixel Spacing	Pixel Measures Macro, (0028,0030)	Non-squared values		NP	For MAMMOVISTA B.smart application, if attribute is present
Frame Laterality	Frame Anatomy Macro, (0020,9072)	Present in Per-frame Functional Groups Sequence		NP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Additionally, the following constraints must be met to recognize images as GENERATED_2D mammography: Only image data meeting all requirements is displayed correctly. If any limitation applies, 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 3	Other than "TOMOSYNTHESIS"	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application and for GENERATED_2D Mammography
		Value 4	Other than "GENERATED_2D"		
Number of frames	(0028,0008)	Other than 1		LP	
Manufacturer	(0008,0070)	Other than "HOLOGIC, Inc."		LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application and for GENERATED_2D Mammography and if Manufacturer "HOLOGIC, Inc.".
Manufacturer's model name	(0008,1090)	Other than "Selenia Dimensions"		LP	
Series Description	(0008,103E)	Does not contain "C-View"		LP	
Series Number	(0020,0011)	Other than "73300000"		LP	
MR Image – 1.2.840.10008.5.1.4.1.1.4 **Enhanced MR Image – 1.2.840.10008.5.1.4.1.1.4.1**					
Pixel Spacing	(0028,0030)	Non-squared values		NP	For MAMMOVISTA B.smart application
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.					
Manufacturer	(0008,0070)	Other than "SIEMENS", "iCAD, Inc.", "VuCOMP", "R2 Technology, Inc.", "ScreenPoint Medical"		LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application
Software Versions	(0018,1020)	Other than "syngo MammoCAD"		LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if Manufacturer "SIEMENS"
		Other than "7.2-H+", "Premier-D"		LP	For *syngo*.Breast Care application, if Manufacturer "iCAD, Inc."
		Other than "7.2-H+", "Premier-D", "3.0.*", "3.1.*"		LP	For MAMMOVISTA B.smart application, if Manufacturer "iCAD, Inc."
		Other than "CAD 2.0.0.0", "CAD 2.1.0.0"		LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if Manufacturer "VuCOMP"

Limitation Case			Effect	Comments
Attribute Name	**Tag**	**Value**		
		Other than “1.5.1.5”, “1.2.0.27”, “1.5.0.43”, “2.1.0.30”	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if Manufacturer “R2 Technology, Inc.”
		Other than “1.2.1”, “Transpara 1.4.0”, “Transpara 1.6.0” or higher compatible versions	LP	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if “ScreenPoint Medical”, applicable for MAMMOVISTA B.smart and *syngo*.Breast Care
“Calcification Cluster”	TID 4006 Item 1, “Single Image Finding”	Other CODE than “F-01775, SRT”, “F-01775, SRT 1.1”	ND	For *syngo*.Breast Care application
		Other CODE than “F-01775, SRT”, “129793001, SCT”		For MAMMOVISTA B.smart application
“Mammography breast density ”		Other CODE than “F-01796, SRT”, “F-01796, SRT 1.1”		For *syngo*.Breast Care application
		Other CODE than “129793001, SCT”, “F-01796, SRT 1.1”		For MAMMOVISTA B.smart application
“Individual Calcification”		Other CODE than “F-01776, SRT”, “F-01776, SRT 1.1”		For *syngo*.Breast Care application, if not part of a “Calcification Cluster”
		Other CODE than “F-01776, SRT”, “129770007, SCT”		For MAMMOVISTA B.smart application, if not part of “Calcification Cluster”:
“Breast Composition”		Other CODE than “F-01710, SRT”		For *syngo*.Breast Care application and regardless of “Rendering Intent”
		Other CODE than “F-01710, SRT”, “129715009, SCT”		For MAMMOVISTA B.smart application and regardless of “Rendering Intent”
“Decision Support Finding”		Other CODE than “DS-1, 99-SCREENPOINTMED”, “DS-1, 99-SPMED”		For *syngo*.Breast Care and MAMMOVISTA B.smart application
“Decision Support Alias Finding”		Other CODE than “DS-2, 99-SCREENPOINTMED”, “DS-2, 99-SPMED”		
“Outline”	TID 4021 Item 3	ABSENT OR EMPTY	ND	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if other single image finding than “Breast Composition” or “Calcification cluster”
“Rendering Intent”	TID 4006 Item 2	Other than <111150, DCM, "Presentation Required: Rendering device is expected to present">	ND	For *syngo*.Breast Care and MAMMOVISTA B.smart application, if single image finding is “Breast Composition”, “Decision Support Finding” or “Decision Alias Finding”
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**				
Manufacturer	(0008,0070)	ABSENT OR INVALID	LP	For MAMMOVISTA B.smart application
Manufacturer’s model name	(0008,1090)	Invenia	NP	For MAMMOVISTA B.smart application, if Manufacturer “GE Healthcare”
		Somo-V		

F.1.2.2 Output Data Specification

F.1.2.2.1 Basic Text SR IOD (Mammography)

Table F.1.2-3: Basic Text SR IOD – Mammography Attributes

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1
	Basic SR Patient Module*	ALWAYS		Table A.4.1-2
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	SR Document Series Module	ALWAYS		Table A.1.1-20
	SR Document Series Module – MAMMOVISTA B.smart*	ALWAYS	For MAMMOVISTA B.smart Application	Table F.1.2-4
	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.1.1-21
	SR Document Content Module	ALWAYS		Table A.1.1-22
	SOP Common Module	ALWAYS		Table A.1.1-13
	Basic SR General Image Module*	ALWAYS		Table A.4.1-3

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

F.1.2.2.1.1 Basic Text SR IOD (Mammography) Specific Modules

Table F.1.2-4: 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		

F.1.2.2.1.2 Basic Text SR IOD (Mammography) Functional Group Macros

N/A

F.1.2.2.1.3 Basic Text SR IOD (Mammography) Private Modules

N/A

F.1.2.2.1.4 Basic Text SR IOD (Mammography) Coded Values

N/A

F.1.3 Configuration

N/A

F.2 CT Applications

F.2.1 Overview

F.2.2 Data Specification

F.2.2.1 Input Data Specification

N/A

F.2.2.2 Output Data Specification

F.2.2.2.1 CT Image IOD

Table F.2.2-1: CT Image IOD

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	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 F.2.2-3
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 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.6.1-2
	SOP Common Module	ALWAYS		Table A.1.1-13
	CT Image Module	ALWAYS		Table F.2.2-2
	CT Image Lung CAD Module*	CONDITIONAL	If the workflow is related to LUNG CAD procedure.	Table F.2.2-4

IE	Module Name	Presence (Module)	Condition	Reference
	CT Image GrayScale CT Perfusion Module*	CONDITIONAL	If the workflow is related to CT perfusion Task	Table F.2.2-5
	CT Image Range Image Result Module*	CONDITIONAL	If the workflow is related to CT Range Image Result	Table F.2.2-6
	CT Image Snapshot Image Result Module*	CONDITIONAL	If the workflow is related to CT Range Image Result	Table F.2.2-7
	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 F.2.2-8
	CT Image Results Module – Dual Energy workflow*	CONDITIONAL	If the workflow is related to Dual Energy workflow	Table F.2.2-10
	CT Image Results Module – SPP Workflow*	CONDITIONAL	If the workflow is related to SPP workflow	Table F.2.2-11
	CT Image Result Module – CT ASPECTS Plugin*	CONDITIONAL	If the workflow is related to CT ASPECTS Plugin	Table F.2.2-12
	XA Positioner Module*	ALWAYS		Table F.2.2-13
	Graphic Layer Module*	ALWAYS		Table F.2.2-14
	Overlay Activation Module*	ALWAYS		Table F.2.2-15
	CT Image Results – Vascular Analysis Ranges*	CONDITIONAL	If the workflow is Vascular Analysis Ranges	Table F.2.2-16
	Private – SIEMENS ADVANCED PRESENTATION – Value Exceeded	CONDITIONAL	Based on the CT Post Processing Applications	Table F.2.2-17
	Private – SIEMENS ADVANCED PRESENTATION – Additional Characters	CONDITIONAL	Based on the CT Post Processing Applications	Table F.2.2-18

IE	Module Name	Presence (Module)	Condition	Reference
	Private – SIEMENS ADVANCED PRESENTATION – MACRO NOT FULLY IMPLEMENTED	CONDITIONAL	Based on the CT Post Processing Applications	Table F.**2.2-19**
	Private – SIEMENS ADVANCED PRESENTATION – VALUES NOT STORED AS PER VR TYPE	CONDITIONAL	Based on the CT Post Processing Applications	Table F.2.2-20
	Private – SIEMENS ADVANCED PRESENTATION – DIFFERENT VR	CONDITIONAL	Based on the CT Post Processing Applications	Table F.2.2-21
	Private – SIEMENS SYNGO VOLUME – CT View and Go	CONDITIONAL	CT View and Go application is used	Table F.2.2-22
	Private – SIEMENS CT EXAM APP SHARED – CTAU_CoronaryAnalysis	CONDITIONAL	CT AU Coronary Application used	Table F.2.2-23
	Private – SIEMENS CT APPL DATASET – SPP1.0	CONDITIONAL	CT Classic format results via SPP1.0	Table F.2.2-24
	Private – SIEMENS CT APPL DATASET – DualEnergy TwinSpiral_AID_17449000	CONDITIONAL	DualEnergy TwinSpiral	Table F.2.2-25
	Private – SIEMENS CT APPL DATASET – DualEnergy TwinBeam_AID_3133000	CONDITIONAL	DualEnergy TwinBeam	Table F.2.2-25
	Private – SIEMENS CT APPL DATASET – SPP AID_263000	CONDITIONAL	SPP	Table F.2.2-25
	Private – SIEMENS CT EXAM IMAGE – DualEnergy TwinSpiral_AID_17449000	CONDITIONAL	DualEnergy TwinSpiral	Table F.2.2-26
	Private – SIEMENS CT EXAM APP SHARED – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table F.2.2-27
	Private – SIEMENS CT EXAM APP SHARED – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table F.2.2-32
	Private – SIEMENS CT EXAM EQUIPMENT – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table F.2.2-28

IE	Module Name	Presence (Module)	Condition	Reference
	Private – SIEMENS CT EXAM EQUIPMENT – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table F.2.2-28
	Private – SIEMENS CT EXAM IMAGE – SPP1.0 SOMX_i1 (Conventional CT)	CONDITIONAL	SPP1.0 SOMX_i1 (Conventional CT)	Table F.2.2-29
	Private – SIEMENS CT EXAM IMAGE – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table F.2.2-29
	Private – SIEMENS CT EXAM IMAGE – SPP1.0 SOMX_i1(Monoenergetic Plus)	CONDITIONAL	SPP1.0 SOMX_i1(Monoenergetic Plus)	Table F.2.2-30
	Private – SIEMENS CT EXAM IMAGE SPP2.0 SOMX_i2(Monoenergetic Plus)	CONDITIONAL	SPP2.0 SOMX_i1(Monoenergetic Plus)	Table F.2.2-30
	Private – SIEMENS CT EXAM IMAGE SPP2.0 SOMX_i2(MonoVCR SPP)	CONDITIONAL	SPP2.0 SOMX_i1(MonoVCR SPP)	Table F.2.2-30
	Private – SIEMENS CT APPL ALG PARAMS – Brain Hemorrhage	CONDITIONAL	CT Brain Hemorrhage	Table F.2.2-31
	Private – SIEMENS SYNGO ADVANCED PRESENTATION – Brain Hemorrhage	CONDITIONAL	CT Post Processing	Table F.2.2-32
	Private – SIEMENS CT EXAM APP SHARED – CT Post Processing	CONDITIONAL	CT Post Processing	Table F.2.2-33
	Private – SIEMENS CT APPL ALG PARAMS– CT Post Processing	CONDITIONAL	CT Post Processing	Table F.2.2-34
	Private – SIEMENS CT APPL ALG PARAMS– Spine Fracture	CONDITIONAL	CT Post Processing	Table F.2.2-35

F.2.2.2.1.1 CT Image IOD Specific Modules

Table F.2.2-2: CT Image Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			
KVP	(0018,0060)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Acquisition Number	(0020,0012)	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		
Rescale Intercept	(0028,1052)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Slope	(0028,1053)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Rescale Type	(0028,1054)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table F.2.2-3: 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[1]		CT images derived for Lung CAD

[1]-UID generated by syngo.via.

Table F.2.2-4: 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 F.2.2-5: CT Image GrayScale CT Perfusion Module

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	CONDITIONAL	Table F.2.2-37	Based on Task / Body Region along with Calculation Mod	

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	CONDITIONAL	Table F.2.2-37	Based on Task / Body Region along with Calculation Mod	
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	CONDITIONAL	Table F.2.2-37	Based on Task / Body Region along with Calculation Mod	
Rescale Type	(0028,1054)	GENERATED	ALWAYS	CONDITIONAL	Table F.2.2-37	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 F.2.2-6: 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 F.2.2-38		
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-38		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-38		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-38		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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 F.2.2-7: 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 F.2.2-39		
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-39		
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-39		
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	Table F.2.2-39		
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 F.2.2-8: 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		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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 F.2.2-9: 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 F.2.2-10: 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 F.2.2-40	Based 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 F.2.2-11: 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 F.2.2-41	Based 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 F.2.2-12: 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 F.2.2-42		

Table F.2.2-13: 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 F.2.2-14: 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			
>Graphic Layer Description	(0070,0068)	GENERATED	ALWAYS	ALWAYS			

Table F.2.2-15: 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 F.2.2-16: 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 F.2.2-43		

F.2.2.2.1.2 CT Image IOD Functional Group Macros

N/A

F.2.2.2.1.3 CT Image IOD Private Modules

Table F.2.2-17: CT Image 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 F.2.2-18: CT Image 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 F.2.2-19: CT Image 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 F.2.2-20: CT Image 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			
>>>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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>>>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 F.2.2-21: CT Image 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			
> Advanced Display Representation Sequence	(0029,00EE)	DS	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)	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 F.2.2-22: CT Image 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			
>Volume Level	(0029,1318)	IS	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
>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 F.2.2-23: CT Image 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 F.2.2-24: CT Image 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 F.2.2-25: CT Image IOD Private – SIEMENS CT APPL DATASET – DualEnergy TwinSpiral_AID_17449000

Attribute Name	Tag	VR	VM	Identifiable Information	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 F.2.2-26: CT Image 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 F.2.2-27: CT Image 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 F.2.2-28: CT Image 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 F.2.2-29: CT Image 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)									
>Reconstruction 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 F.2.2-30: CT Image 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 F.2.2-31: CT Image 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							
> 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 F.2.2-32: CT Image 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 F.2.2-33: CT Image 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							

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
> 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 F.2.2-34: CT Image 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			

Table F.2.2-35: CT Image IOD Private – SIEMENS CT APPL ALG PARAMS– Spine Fracture

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							
> Detection State	(0029 ,1040)	SL	2	SAFE	SRC_I NSTAN CE	SRC_CO PY	SRC_CO PY			

F.2.2.2.1.4 CT Image IOD Coded Values

Table F.2.2-36: Values and Code Sets for *CT Image 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 F.2.2-37: Values and Code Sets for Image result for *CT Image 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 + CT Myocardial Perfusion Calculation Model Standard	AVG – Temporal Average
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		
Rescale Type	(0028,1054)	HU		
Image Comment	(0020,4000)	HU		
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	TTSM – Time to Start
Rescale Intercept	(0028,1052)	-102.4		

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Slope	(0028,1053)	0.1	CT Neuro Perfusion + CT Body Perfusion Calculation Model Standard	
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 + CT Body Perfusion Calculation Model Deconvolution	TMAXD – TMax
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)	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	CBFM – Cerebral Blood Flow
Rescale Intercept	(0028,1052)	-1024		
Rescale Slope	(0028,1053)	1		

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Type	(0028,1054)	US	Max Slope	
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 CT Body Perfusion Calculation Model Max. Enhancement	BVM –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)	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	BVP –Blood Volume
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Type	(0028,1054)	US	Patlak	
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 CT Body perfusion Calculation Model Liver Model	HPI – Hepatic Perfusion Index
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)	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	MBV – Myocardial
Rescale Intercept	(0028,1052)	-102.4		
Rescale Slope	(0028,1053)	0.1		

Attribute Name	Tag	Value/Code	Condition	Comments
Rescale Type	(0028,1054)	US	Calculation Model Max Enhancement	
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 CT Myocardial perfusion Calculation Model Myocardial Deconvolution	TTS – Time to Start
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)	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 F.2.2-38: 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 F.2.2-39: 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		
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 F.2.2-40: 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)		Image Type Description – Liver VNC / IMD
		CT_SOM8 DELI (Value 5)		
		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)		

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	MAT_FRACTIONAL (Value 4) CT_SOM8 DELI (Value 5) FAT (Value 6)		Image Type Description – Liver VNC / Fat Map
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) CT_SOM8 DELI (Value 5) CON (Value 6)		Image Type Description – Liver VNC / CON
Image Type	(0008,0008)	MAT_FRACTIONAL (Value 4) CT_SOM8 DELI (Value 5) ECV (Value 6)		Image Type Description – Liver VNC / ECV
Image Type	(0008,0008)	MAT_MODIFIED (Value 4) CT_SOM8 DEBH (Value 5) BR_W_PLQ (Value 6)		Image Type Description – Bone Removal Head with PLQ
Image Type	(0008,0008)	MAT_MODIFIED (Value 4) CT_SOM8 DEBH (Value 5) BR_WO_PLQ (Value 6)		Image Type Description – Bone Removal Head without PLQ
Image Type	(0008,0008)	MAT_MODIFIED (Value 4) CT_SOM8 DELI (Value 5) BR_W_PLQ (Value 6)		Image Type Description – Bone Removal Body with PLQ
Image Type	(0008,0008)	MAT_MODIFIED (Value 4) CT_SOM8 DELI (Value 5) BR_WO_PLQ (Value 6)		Image Type Description – Bone Removal Body without PLQ
Image Type	(0008,0008)	MAT_SPECIFIC (Value 4) 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

Attribute Name	Tag	Value/Code	Condition	Comments
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) 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

Attribute Name	Tag	Value/Code	Condition	Comments
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) CT_SOM8 DEGO (Value 5) CLA (Value 6)		Image Type Description – Gout
Image Type	(0008,0008)	VMI (Value 4) CT_SOM8 DEMEP (Value 5) ME<energy>KEV (Value 6)		Image Type Description – Monoenergetic Plus

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	MAT_REMOVED (Value 4) CT_SOM8 DEBM (Value 5) VNCA (Value 6)		Image Type Description – Bone Marrow
Image Type	(0008,0008)	EFF_ATOMIC_NUM (Value 4) CT_SOM8 DERHOZ (Value 5) Z (Value 6)		Image Type Description – RhoZ / Z
Image Type	(0008,0008)	ELECTRON_DENSITY (Value 4) CT_SOM8 DERHOZ (Value 5) RHO (Value 6)		Image Type Description – RhoZ / Rho
Image Type	(0008,0008)	MAT_VALUE_BASED (Value 4) CT_SOM8 DEPL (Value 5) CLA (Value 6)		Image Type Description – Hard Plaques
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4) L (Value 5)		Image Type Description – Extracted low (without Registration)
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4) H (Value 5)		Image Type Description – Extracted high (without Registration)
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4) L_MC (Value 5)		Image Type Description – Extracted low (with Registration)
Image Type	(0008,0008)	CT_SOM8 DEEX (Value 4) H_MC (Value 5)		Image Type Description – Extracted high (with Registration)

Table F.2.2-41: 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)		

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4) CT_SOM8 DEMIX (Value 5) MIX (Value 6)		Image type Description – Axial + SPP / Dual Spiral
Image Type	(0008,0008)	ENERGY_PROP_WT (Value 4) CT_SOM8 DEMIX (Value 5) MIX (Value 6)		Image type Description – Axial + SPP / Twin Beam
Image Type	(0008,0008)	VMI (Value 4) CT_SOM8 DEMEP (Value 5) ME<energy>KEV (Value 6)		Image Type Description – Monoenergetic + SPP / Dual Spiral
Image Type	(0008,0008)	VMI (Value 4) CT_SOM8 DEMEP (Value 5) ME<energy>KEV (Value 6)		Image Type Description – Monoenergetic + SPP / TwinBeam

Table F.2.2-42: 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 F.2.2-43: 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)		

F.2.2.2.2 Basic Text SR IOD (CT)

Table F.2.2-44: Basic Text SR – CT Attributes

IE	Module Name	Presence (Module)	Condition	Reference
Patient	Patient Module	ALWAYS		Table A.1.1-1

IE	Module Name	Presence (Module)	Condition	Reference
	Basic SR Patient Module*	ALWAYS		Table A.4.1-2
Study	General Study Module	ALWAYS		Table A.1.1-2
Series	SR Document Series Module	ALWAYS		Table A.1.1-20
	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.1.1-21
	SR Document Content Module	ALWAYS		Table A.1.1-22
	SOP Common Module	ALWAYS		Table A.1.1-13
	Private – SIEMENS SYNGO ADVANCED PRESENTATION (002B Group)– Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-45
	Private – SIEMENS SYNGO MODULES – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-50
	Private – SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-47
	Private – SIEMENS SYNGO OBJECT GRAPHICS – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-48
	Private – SIEMENS SYNGO EVIDENCE DOCUMENT DATA – Coronary Cockpit	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-49

F.2.2.2.2.1 Basic Text SR (CT) Specific Modules

N/A

F.2.2.2.2.2 Basic Text SR (CT) Functional Group Macros

N/A

F.2.2.2.2.3 Basic Text SR (CT) Private Modules

Table F.2.2-45: 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							

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
> 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			

Table F.2.2-46: 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 F.2.2-47: 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 F.2.2-48: 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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>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 F.2.2-49: 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			

F.2.2.2.2.4 Basic Text SR (CT) Coded Values

N/A

F.2.2.2.3 Segmentation Image IOD (CT)

Table F.2.2-50: Segmentation Image IOD – CT Attributes

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	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.5.1-3
	Segmentation Series Module – Body perfusion*	CONDTIONAL	For Body Perfusion workflow	Table F.2.2-52

IE	Module Name	Presence (Module)	Condition	Reference
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 F.2.2-53
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.1.1-18
Image	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.1.1-19
	Multi-frame Dimension Module	ALWAYS		Table A.1.1-38
	SOP Common Module	ALWAYS		Table A.1.1-13
	CT Pneumonia Plugin SOP Common Module*	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table F.2.2-51
	Private – SIEMENS SY NGO ADVANCED PRESENTATION – Coronary Cockpit	ALWAYS		Table F.2.2-54
	Private – SIEMENS SYNGO SEGMENTATION – Coronary Cockpit	ALWAYS		Table F.2.2-55

F.2.2.2.3.1 Segmentation Image IOD (CT) Specific Modules

Table F.2.2-51: Segmentation Image 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			

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			
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 F.2.2-52: 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			

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Segment Property Type Code SQ	(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 F.2.2-53: Segmentation Image 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

F.2.2.2.3.2 Segmentation Image IOD (CT) Functional Group Macros

N/A

F.2.2.2.3.3 Segmentation Image IOD (CT) Private Modules

Table F.2.2-54:Segmentation Image 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 F.2.2-55:Segmentation Image 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		

F.2.2.2.3.4 Segmentation Image IOD (CT) Coded Values

N/A

F.2.2.2.4 Secondary Capture Image IOD (CT)

Table F.2.2-56: Secondary Capture Image IOD

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	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
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 F.2.2-58
Image	General Image Module	ALWAYS		Table A.1.1-10
	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 F.2.2-57

IE	Module Name	Presence (Module)	Condition	Reference
	CT Pulmonary Density Plugin General Reference Module*	CONDITIONAL	If the application is based on CT Pulmonary Density Plugin	Table F.2.2-60
	CT Calcium Scoring Post Processing General Reference Module*	CONDITIONAL	If the application is based on CT Calcium Scoring Post Processing	Table F.2.2-61
	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.8.1-2
	CT Pneumonia Plugin SOP Common Module*	CONDITIONAL	If the application is based on CT Pneumonia Plugin	Table F.2.2-59
	CT ASPECTS Plugin VOI LUT Module*	CONDITIONAL	if the application is CT ASPECTS Plugin	Table F.2.2-62
	SOP Common Module	ALWAYS		Table A.1.1-13
	Private – SIEMENS CT APPL ALG PARAMS – Brain Hemorrhage	CONDITIONAL	Brain Hemorrhage workflow	Table F.2.2-63

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

F.2.2.2.4.1 Secondary Capture Image IOD (CT) Specific Modules

Table F.2.2-57: 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 F.2.2-58: 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 F.2.2-59: 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 F.2.2-60: 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 F.2.2-61: 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 F.2.2-62: 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			

F.2.2.2.4.2 Secondary Capture Image IOD (CT) Functional Group Macros

N/A

F.2.2.2.4.3 Secondary Capture Image IOD (CT) Private Modules

Table F.2.2-63: 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			

F.2.2.2.4.4 Secondary Capture Image IOD (CT) Coded Values

N/A

F.2.2.2.5 Enhanced CT Image IOD

Table F.2.2-64 : Enhanced CT Image IOD

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.1.1-4
	CT Series Module	ALWAYS		Table A.10.1-6
Frame Of Reference	Frame of Reference Module	ALWAYS		Table A.1.1-7
	Synchronization Module	CONDITIONAL	If time synchronization was applied	Table A.10.1-7
Equipment	General Equipment Module	ALWAYS		Table A.1.1-8
	Enhanced General Equipment Module	ALWAYS		Table A.10.1-1
Image	Enhanced CT Image Module	ALWAYS		Table A.10.1-3
	Enhanced Contrast/Bolus Module	CONDITIONAL	Required if contrast media was applied	Table A.10.1-8

IE	Module Name	Presence (Module)	Condition	Reference
	Cardiac Synchronization Module	CONDITIONAL	Required if cardiac synchronization was applied	Table A.10.1-9
	Respiratory Synchronization Module	CONDITIONAL	Required if respiratory synchronization was applied	Table A.10.1-10
	Supplemental Palette Color Lookup Table Module	CONDITIONAL	Required if Pixel Presentation (0008,9205) in the Enhanced CT Image Module equals COLOR or MIXED	Table A.10.1-11
	Enhanced Multi-energy CT Acquisition Module	CONDITIONAL	Required if Multi-energy CT Acquisition (0018,9361) is YES	Table A.10.1-12
	Enhanced CT image result of CT Perfusion Task Module*	CONDITIONAL	If the workflow is related to Enhanced CT Image Result	Table F.2.2-65
	Acquisition Context Module	ALWAYS		Table A.10.1-2
	Multi-frame Dimension Module	ALWAYS		Table A.10.1-4
	Multi-frame Functional Groups Module	ALWAYS		Table A.10.1-5
	Image Pixel 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.1.1-13
	Private – SIEMENS CT EXAM ALG PARAMS – MyocardialPerfusion_AID	CONDITIONAL	MyocardialPerfusion_AID	Table F.2.2-66

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

F.2.2.2.5.1 Enhanced CT Image IOD Specific Modules

Table F.2.2-65: 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 F.2.2-	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		

F.2.2.2.5.2 Enhanced CT Image IOD Functional Group Macros

N/A

F.2.2.2.5.3 Enhanced CT Image IOD Private Modules

Table F.2.2-66: Enhanced CT Image 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			
Rescale Slope	(0028,1053)	0.1								
Rescale Type	(0028,1054)	US								

F.2.2.2.5.4 Enhanced CT Image IOD Coded Values

Table F.2.2-67: Values and Code Sets for Enhanced CT Image 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
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

Attribute Name	Tag	Value/Code	Condition	Comments
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
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

Attribute Name	Tag	Value/Code	Condition	Comments
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
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

Attribute Name	Tag	Value/Code	Condition	Comments
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
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

Attribute Name	Tag	Value/Code	Condition	Comments
Image Type	(0008,0008)	TTT (Value 4)	Task/Body Region CT Myocardial Perfusion Calculation Model Myocardial Deconvolution	TTT – Tissue Transit Time

Table F.2.2-68: 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 CT Neuro Perfusion + CT Body Perfusion + CT Myocardial Perfusion Calculation Model Standard Image Type BASE (Value 4)	
Rescale Slope	(0028,1053)	1		
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	
Rescale Slope	(0028,1053)	0.1		

Rescale Type	(0028,1054)	US	Calculation Model Deconvolution Image Type TTSD (Value 4)	
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 + CT Body Perfusion Calculation Model Deconvolution Image Type TMAXD (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 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	
Rescale Slope	(0028,1053)	1		

Rescale Type	(0028,1054)	US	Image Type CBFM (Value 4)	
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 Image Type BFD (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 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	

Rescale Slope	(0028,1053)	0.1	CT Body Perfusion Calculation Model Deconvolution Image Type BVD (Value 4)	
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 CT Body Perfusion Calculation Model Liver Model Image Type PVP (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 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	
Rescale Slope	(0028,1053)	1		

Rescale Type	(0028,1054)	US	Max. Slope Image Type MBF_H (Value 4)	
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	
Rescale Slope	(0028,1053)	0.1		

Rescale Type	(0028,1054)	US	Myocardial Deconvolution Image Type TTP_H (Value 4)	
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)	

F.2.2.2.6 Surface Segmentation Image IOD (CT)

Table F.2.2-69: Surface Segmentation Image IOD

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.1.1-4
	Segmentation Series Module	ALWAYS		Table A.13.1-3
	General Series Module – myAblation Guide*	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-71
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 F.2.2-73
	Surface Mesh Module – myAblation Guide*	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-74
	SOP Common Module	ALWAYS		Table A.1.1-13
	SOP Common Module – myAblation Guide*	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-70

IE	Module Name	Presence (Module)	Condition	Reference
	Private – AX SSO SURFACE SEGMENTATION – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-75
	Private SIEMENS SYNGO ADVANCED PRESENTATION	ALWAYS		Table A.13.3-1
	Private – SIEMENS SYNGO SEGMENTATION	ALWAYS		Table A.13.3-2
	Private – SIEMENS SMS - AX Surface Segmentation Extensions	CONDITIONAL	During Coronary Cockpit Task Flow	Table F.2.2-76

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

F.2.2.2.6.1 Surface Segmentation Image IOD (CT) Specific Modules

Table F.2.2-70: Surface Segmentation Image 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 F.2.2-71: Surface Segmentation Image 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 F.2.2-72: Surface Segmentation Image 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		
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 F.2.2-73: Surface Segmentation Image 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.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Surface Count	(0066,002A)	GENERATED	ALWAYS	ALWAYS			The number of surfaces that comprise this segment. Shall be greater than zero
>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

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>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
>>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 F.2.2-74: Surface Segmentation Image 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

F.2.2.2.6.2 Surface Segmentation Image IOD (CT) Functional Group Macros

N/A

F.2.2.2.6.3 Surface Segmentation Image IOD (CT) Private Modules

Table F.2.2-75: 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 F.2.2-76: 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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>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			
>>>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			

F.2.2.2.6.4 Surface Segmentation Image IOD (CT) Coded Values

N/A

F.2.2.2.7 Raw Data IOD (CT)

Table F.2.2-77: Raw Data IOD (CT)

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	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 F.2.2-78
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 F.2.2-80
	RAW Data Common Instance Reference Module*	ALWAYS		Table A.14.1-3
Raw Data	Acquisition Context Module	ALWAYS		Table A.14.1-2
	Raw Data Module	ALWAYS		Table A.14.1-3
	RAW Data Module – myAbalation Guide*	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-81
	SOP Common Module	ALWAYS		Table A.1.1-13
	SOP Common Module – myAblation Guide*	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-79
	PRIVATE – SIEMENS SMS-CTH – myAblation Guide	CONDITIONAL	If the workflow is myAblation Guide	Table F.2.2-82

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

F.2.2.2.7.1 Raw Data IOD (CT) Specific Modules

Table F.2.2-78: 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		

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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 F.2.2-79: 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
SOP Class UID	(0008,0016)	SRC_INSTANCE	SRC_COPY	SRC_COPY			

Table F.2.2-80: 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 F.2.2-81: 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

F.2.2.2.7.2 Raw Data IOD (CT) Functional Group Macros

N/A

F.2.2.2.7.3 Raw Data IOD (CT) Private Modules

Table F.2.2-82: 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			
CTH NEEDLE DATA	(0067,0052)	OB	1	SAFE	GENERATED	ALWAYS	ALWAYS			Holds needle data like needle geometry, needle path, color, name information

F.2.2.2.7.4 Raw Data IOD (CT) Coded Values

N/A

F.2.3 Configuration

N/A

F.3 MR Applications

F.3.1 Overview

F.3.2 Data Specification

F.3.2.1 Input Data Specification

N/A

F.3.2.2 Output Data Specification

F.3.2.2.1 MR Image IOD

Table F.3.2-1: MR Image IOD

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	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.1.1-13
	XA Positioner Module*	ALWAYS		Table F.3.2-3
	MR Image Module	ALWAYS		Table F.3.2-2

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

F.3.2.2.1.1 MR Image IOD Specific Modules

Table F.3.2-2: 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	Value 3 = ”M” Value 4 = "RESAMPLED"		
Scanning Sequence	(0018,0020)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Sequence Variant	(0018,0021)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Scan Options	(0018,0022)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
MR Acquisition Type	(0018,0023)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Repetition Time	(0018,0080)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Time	(0018,0081)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Inversion Time	(0018,0082)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Echo Train Length	(0018,0091)	SRC_INSTANCE	SRC_COPY	SRC_COPY			
Trigger Time	(0018,1060)	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		

Table F.3.2-3: 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			

F.3.2.2.1.2 MR Image IOD Functional Group Macros

N/A

F.3.2.2.1.3 MR Image IOD Private Modules

N/A

F.3.2.2.1.4 MR Image IOD Coded Values

N/A

F.3.3 Configuration

N/A

F.4 MI Applications

F.4.1 Overview

F.4.2 Data Specification

F.4.2.1 Input Data Specification

N/A

F.4.2.2 Output Data Specification

F.4.2.2.1 Positron Emisssion Tomography Image IOD

Table F.4.2-1: Positron Emission Tomography Image IOD

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	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.9.1-4
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 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.1.1-13
	PET Image Module	ALWAYS		Table A.9.1-1
	Private – GEMS_PETD_01	CONDITIONAL	GEMS_PETD_01	Table F.4.2-2

F.4.2.2.1.1 Positron Emission Tomography Image IOD Specific Modules

N/A

F.4.2.2.1.2 Positron Emission Tomograpgy Image IOD Functional Group Macros

N/A

F.4.2.2.1.3 Positron Emission Tomograpgy Image IOD Private Modules

Table F.4.2-2: Positron Emission Tomography Image 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	SIEMENS MED 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			
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 PETDERIVED		
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			

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
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			

F.4.2.2.1.4 Positron Emission Tomograpgy Image IOD Coded Values

N/A

F.4.3 Configuration

Because of certain regional limitations of sales rights and service availability, we cannot guarantee that all products included in this brochure are available through the Siemens sales organization worldwide. Availability and packaging may vary by country and are subject to change without prior notice.

Some / All the features and products described herein may not be available in the United States or other countries.

The information in this document contains general technical descriptions of specifications and options as well as standard and optional features that do not always have to be present in individual cases.

Siemens reserves the right to modify the design, packaging, specifications, and options described herein without prior notice. Please contact your local Siemens sales representative for the most current information.

In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources and waste conservation), we recycle certain components. Using the same extensive quality assurance measures as for factory- new components, we guarantee the quality of these recycled components.

Siemens Healthineers Headquarters
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim
Germany
Phone: + 49 9191 18-0
siemens-healthineers.com

Manufacturer (for D&A, CT, MR and XP Medical Devices)
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany

Manufacturer (for MI Medical Devices)
Siemens Medical Solutions USA, Inc. Molecular Imaging
2501 N Barrington Road
Hoffman Estates, IL
60192, USA

Published by Siemens Healthineers AG · Copyright © Siemens Healthineers AG, 2026