

Release VA60A / 2026-07 / Revision 13427

syngo.share core

DICOM Conformance Statement

1 Overview

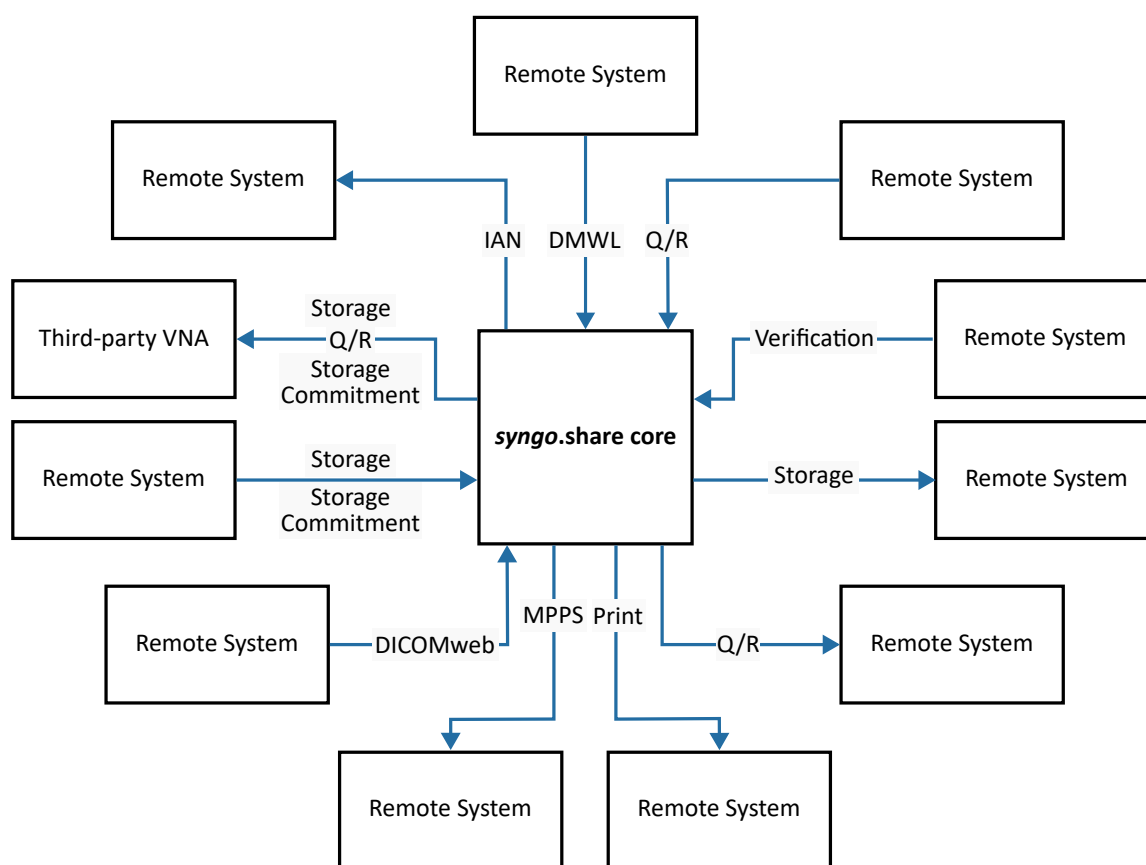
syngo.share core is an open image and data management system with long-term archiving capabilities for the transfer, storage, access, and management of clinical data. Its components *DicomServer*, *EventServer* and *webdicom* provide *syngo.share* core with the standard-conformant DICOM functionalities:

The *DicomServer* is the central module for medical data processing in *syngo.share* core. As a hospital-wide solution for PACS, image and document management, *syngo.share* core collects all image data and documents within a hospital, processing them into the multimedia electronic patient record. In the context of DICOM data retrieval, the *DicomServer* provides query spanning to an arbitrary number of remote archives. Furthermore, it can act as DICOM Modality Worklist provider as of IHE SWF.b.

The *EventServer* is responsible for all outbound activities of *syngo.share* core. It provides, among other services, DICOM routing, prefetching of DICOM studies, and synchronization with third-party DICOM LTAs including full support for IHE Imaging Object Change Management (IOCM). The *EventServer* is furthermore able to generate DICOM IANs (Instance Availability Notifications) based on internal events or incoming DICOM MPPS (Modality Performed Procedure Steps) requests. Moreover, it is an important enabler for cross-enterprise document sharing via IHE XDS-I.b connectivity.

The component *webdicom* offers a WADO-RS retrieve instances RESTful interface (Instance Resources, Rendered Resources) and a QIDO-RS search transaction RESTful interface (Resource All Studies).

Figure 1: Overview of Implemented Services



1.1 Content and Transfer

Table 1 lists all Storage SOP Classes and the usage scenarios for those instances. 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.

Please see the [note on supported Storage Transfer Syntaxes](#) regarding the Transfer Syntax Set column.

Table 1: Supported Storage SOP Classes for *DicomServer* (SCU and SCP), *EventServer* (SCU) and *webdicom* (OS)

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Stored Print Storage (Retired)	1.2.840.10008.5.1.1.27	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y

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			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Digital Intra-Oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Legacy Converted Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Legacy Converted Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Photoacoustic Image Storage	1.2.840.10008.5.1.4.1.1.6.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y

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SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Standalone Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.9	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Waveform Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.9.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
General 32-bit ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multi-channel Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Routine Scalp Electroencephalogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Electromyogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Electrooculogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Sleep Electroencephalogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Body Position Waveform Storage	1.2.840.10008.5.1.4.1.1.9.8.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Waveform Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Waveform Acquisition Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Standalone VOI LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.11	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y

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Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
XA/XRF Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Grayscale Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Compositing Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Advanced Blending Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.9	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Segmented Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.10	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Multiple Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.11	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Variable Modality LUT Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.12	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray 3D Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Breast Projection X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Breast Projection X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.13.1.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Intravascular Optical Coherence Tomography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.14.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Intravascular Optical Coherence Tomography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.14.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Parametric Map Storage	1.2.840.10008.5.1.4.1.1.30	*	Y	Y	N	Y	N	N	N	N	N	N	Y

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Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Tractography Results Storage	1.2.840.10008.5.1.4.1.1.66.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Label Map Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Height Map Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Surface Scan Mesh Storage	1.2.840.10008.5.1.4.1.1.68.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Surface Scan Point Cloud Storage	1.2.840.10008.5.1.4.1.1.68.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Wide Field Ophthalmic Photography Stereographic Projection Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y

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Wide Field Ophthalmic Photography 3D Coordinates Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Optical Coherence Tomography En Face Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Optical Coherence Tomography B-scan Volume Analysis Storage	1.2.840.10008.5.1.4.1.1.77.1.5.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Dermoscopic Photography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Confocal Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Confocal Microscopy Tiled Pyramidal Image Storage	1.2.840.10008.5.1.4.1.1.77.1.9	*	Y	Y	N	Y	N	N	N	N	N	N	Y
VL Multi-frame Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Autorefraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Macular Grid Thickness and Volume Report Storage	1.2.840.10008.5.1.4.1.1.79.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ophthalmic Thickness Map Storage	1.2.840.10008.5.1.4.1.1.81.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Corneal Topography Map Storage	1.2.840.10008.5.1.4.1.1.82.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Text SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Audio SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y

▲ Table 1: Supported Storage SOP Classes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (OS) ▼

▲ Table 1: Supported Storage SOP Classes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (OS) ▼

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Comprehensive SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Comprehensive 3D SR Storage	1.2.840.10008.5.1.4.1.1.88.34	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Extensible SR Storage	1.2.840.10008.5.1.4.1.1.88.35	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	*	Y	Y	N	Y	N	N	N	S	N	N	Y
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	*	Y	Y	N	Y	N	N	N	N	N	N	Y
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Colon CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.69	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Implantation Plan SR Storage	1.2.840.10008.5.1.4.1.1.88.70	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Acquisition Context SR Storage	1.2.840.10008.5.1.4.1.1.88.71	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Simplified Adult Echo SR Storage	1.2.840.10008.5.1.4.1.1.88.72	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Patient Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.73	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Planned Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.74	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Performed Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.75	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.76	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Waveform Annotation SR Storage	1.2.840.10008.5.1.4.1.1.88.77	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Content Assessment Results Storage	1.2.840.10008.5.1.4.1.1.90.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Microscopy Bulk Simple Annotations Storage	1.2.840.10008.5.1.4.1.1.91.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Encapsulated STL Storage	1.2.840.10008.5.1.4.1.1.104.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y

▲ Table 1: Supported Storage SOP Classes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (OS) ▼

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SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Encapsulated OBJ Storage	1.2.840.10008.5.1.4.1.1.104.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Encapsulated MTL Storage	1.2.840.10008.5.1.4.1.1.104.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Legacy Converted Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.128.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Standalone PET Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.129	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Basic Structured Display Storage	1.2.840.10008.5.1.4.1.1.131	*	Y	Y	N	Y	N	N	N	N	N	N	Y
CT Performed Procedure Protocol Storage	1.2.840.10008.5.1.4.1.1.200.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
XA Performed Procedure Protocol Storage	1.2.840.10008.5.1.4.1.1.200.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Physician Intent Storage	1.2.840.10008.5.1.4.1.1.481.10	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Segment Annotation Storage	1.2.840.10008.5.1.4.1.1.481.11	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Radiation Set Storage	1.2.840.10008.5.1.4.1.1.481.12	*	Y	Y	N	Y	N	N	N	N	N	N	Y
C-Arm Photon-Electron Radiation Storage	1.2.840.10008.5.1.4.1.1.481.13	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Tomotherapeutic Radiation Storage	1.2.840.10008.5.1.4.1.1.481.14	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Robotic-Arm Radiation Storage	1.2.840.10008.5.1.4.1.1.481.15	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Radiation Record Set Storage	1.2.840.10008.5.1.4.1.1.481.16	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Radiation Salvage Record Storage	1.2.840.10008.5.1.4.1.1.481.17	*	Y	Y	N	Y	N	N	N	N	N	N	Y

▲ Table 1: Supported Storage SOP Classes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (OS) ▼

▲ Table 1: Supported Storage SOP Classes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (OS)

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Tomotherapeutic Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.18	*	Y	Y	N	Y	N	N	N	N	N	N	Y
C-Arm Photon-Electron Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.19	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Robotic Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.20	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Radiation Set Delivery Instruction Storage	1.2.840.10008.5.1.4.1.1.481.21	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Treatment Preparation Storage	1.2.840.10008.5.1.4.1.1.481.22	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced RT Image Storage	1.2.840.10008.5.1.4.1.1.481.23	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Enhanced Continuous RT Image Storage	1.2.840.10008.5.1.4.1.1.481.24	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Patient Position Acquisition Instruction Storage	1.2.840.10008.5.1.4.1.1.481.25	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS CT Image Storage	1.2.840.10008.5.1.4.1.1.501.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.501.2.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.501.2.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS Threat Detection Report Storage	1.2.840.10008.5.1.4.1.1.501.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS 2D AIT Storage	1.2.840.10008.5.1.4.1.1.501.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS 3D AIT Storage	1.2.840.10008.5.1.4.1.1.501.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
DICOS Quadrupole Resonance (QR) Storage	1.2.840.10008.5.1.4.1.1.501.6	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Eddy Current Image Storage	1.2.840.10008.5.1.4.1.1.601.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Eddy Current Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.601.2	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Thermography Image Storage	1.2.840.10008.5.1.4.1.1.601.3	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Thermography Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.601.4	*	Y	Y	N	Y	N	N	N	N	N	N	Y
Ultrasound Waveform Storage	1.2.840.10008.5.1.4.1.1.601.5	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Beams Delivery Instruction Storage - Trial (Retired)	1.2.840.10008.5.1.4.34.1	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	*	Y	Y	N	Y	N	N	N	N	N	N	Y
RT Brachy Application Setup Delivery Instruction Storage	1.2.840.10008.5.1.4.34.10	*	Y	Y	N	Y	N	N	N	N	N	N	Y

* As an image archive, syngo.share core does not validate any received data in terms of Transfer Syntaxes used and accepts all properly sent DICOM requests.

Table 2: Supported Private Storage SOP Classes for *DicomServer*

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Agfa Basic Attribute Presentation State Storage	1.2.124.113532.3500.7	*	Y	Y	N	Y	N	N	N	N	N	N	S
Motion Management Protocol Storage	1.2.246.352.70.1.40	*	Y	Y	N	Y	N	N	N	N	N	N	S
Motion Management Waveform Storage	1.2.246.352.70.1.41	*	Y	Y	N	Y	N	N	N	N	N	N	S
RT Plan Varian 1 Storage	1.2.246.352.70.1.70	*	Y	Y	N	Y	N	N	N	N	N	N	S
RT Treatment Record Varian 1 Storage	1.2.246.352.70.1.71	*	Y	Y	N	Y	N	N	N	N	N	N	S
GE Private 3D Model Storage	1.2.840.113619.4.26	*	Y	Y	N	Y	N	N	N	N	N	N	S
GE Private PET Raw Data Storage	1.2.840.113619.4.30	*	Y	Y	N	Y	N	N	N	N	N	N	S
Siemens CSA Non-Image Storage	1.3.12.2.1107.5.9.1	*	Y	Y	N	Y	N	N	N	N	N	N	S
Siemens CT MR Volume Storage	1.3.12.2.1107.5.99.3.10	*	Y	Y	N	Y	N	N	N	N	N	N	S
Siemens AX Frame Sets Storage	1.3.12.2.1107.5.99.3.11	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private 3D Presentation State Storage	1.3.46.670589.2.5.1.1	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private Perfusion Storage	1.3.46.670589.5.0.13	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private Perfusion Analysis Storage	1.3.46.670589.5.0.14	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2	*	Y	Y	N	Y	N	N	N	N	N	N	S
Philips Private MR Examcard Data Storage	1.3.46.670589.11.0.0.12.4	*	Y	Y	N	Y	N	N	N	N	N	N	S

* As an image archive, syngo.share core does not validate any received data in terms of Transfer Syntaxes used and accepts all properly sent DICOM requests.

Note on supported Storage Transfer Syntaxes (Table 3):

As an image archive, *syngo.share* core does not validate any received data in terms of Transfer Syntaxes used. Declaring Transfer Syntaxes that are applicable to specific SOP Classes would contradict this premise, and Transfer Syntaxes applied to SOP Classes of incoming requests would neither be validated nor enforced. *syngo.share* core accepts all properly sent DICOM requests, under the assumption that the SCU applies a reasonable encoding for the transferred object.

Table 3: Supported Storage Transfer Syntaxes for *DicomServer* (SCU and SCP), *EventServer* (SCU) and *webdicom* (SCU and SCP)

Transfer Syntax name	Transfer Syntax UID	DICOM Web Service Bulk Data Media Type
Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	N/A
Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A
Encapsulated Uncompressed Explicit VR Little Endian	1.2.840.10008.1.2.1.98	N/A
Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99	N/A
Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N/A
JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	N/A
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	N/A
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	N/A
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	N/A
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	N/A
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81	N/A
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	N/A
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	N/A
JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)	1.2.840.10008.1.2.4.92	N/A
JPEG 2000 Part 2 Multi-component Image Compression	1.2.840.10008.1.2.4.93	N/A
MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100	N/A
Fragmentable MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100.1	N/A
MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101	N/A
Fragmentable MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101.1	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	N/A
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102.1	N/A
MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103	N/A
Fragmentable MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103.1	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104	N/A
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104.1	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105	N/A
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105.1	N/A
MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106	N/A
Fragmentable MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106.1	N/A
HEVC/H.265 Main Profile / Level 5.1	1.2.840.10008.1.2.4.107	N/A
HEVC/H.265 Main 10 Profile / Level 5.1	1.2.840.10008.1.2.4.108	N/A

Table 3: Supported Storage Transfer Syntaxes for *DicomServer* (SCU and SCP), *EventServer* (SCU) and *webdicom* (SCU and SCP) ▼

▲ Table 3: Supported Storage Transfer Syntaxes for DicomServer (SCU and SCP), EventServer (SCU) and webdicom (SCU and SCP)

Transfer Syntax name	Transfer Syntax UID	DICOM Web Service Bulk Data Media Type
JPEG XL Lossless	1.2.840.10008.1.2.4.110	N/A
JPEG XL JPEG Recompression	1.2.840.10008.1.2.4.111	N/A
JPEG XL	1.2.840.10008.1.2.4.112	N/A
High-Throughput JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.201	N/A
High-Throughput JPEG 2000 with RPCL Options Image Compression (Lossless Only)	1.2.840.10008.1.2.4.202	N/A
High-Throughput JPEG 2000 Image Compression	1.2.840.10008.1.2.4.203	N/A
RLE Lossless	1.2.840.10008.1.2.5	N/A
Deflated Image Frame Compression	1.2.840.10008.1.2.8.1	N/A

1.1.1 Structured Reporting Root Template IDs

Table 4 lists all Template IDs (TID) of Root Templates that are supported by the system. Other SOP Classes are accepted and stored without interpretation or template-specific processing.

The “Function” column indicates how the system uses the content of the DICOM SR:

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

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

Table 4: Supported Root SR Template IDs (TIDs)

Name	Root TID	Function	SOP Class	Condition
Key Object Selection	2010	CREATE; EXTRACT_DATA; ARCHIVE	Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59

1.2 DIMSE Services

1.2.1 Verification

Table 5 lists support for the Verification SOP Class.

Table 5: Supported Verification SOP Classes for *DicomServer*

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Verification	1.2.840.10008.1.1	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

1.2.2 Storage

For details on supported Storage SOP Classes see Section 1.1.

1.2.3 Workflow Management

Table 6 lists all supported Workflow Management SOP Classes.

Table 6: Workflow Management SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Storage Commitment Push Model*	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y
Modality Performed Procedure Step†	1.2.840.10008.3.1.2.3.3	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
Modality Worklist Information Model – FIND‡	1.2.840.10008.5.1.4.31	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
Instance Availability Notification‡	1.2.840.10008.5.1.4.33	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

* Supported for *DicomServer* (SCP) and *EventServer* (SCU)

† Supported for *DicomServer*

‡ Supported for *EventServer*

1.2.4 Query/Retrieve

Table 7 lists all supported Query/Retrieve SOP Classes.

Table 7: Supported Query/Retrieve SOP Classes for *DicomServer* (SCP) and *EventServer* (SCU)

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		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

Table 7: Supported Query/Retrieve SOP Classes for *DicomServer* (SCP) and *EventServer* (SCU) ▼

▲ Table 7: Supported Query/Retrieve SOP Classes for DicomServer (SCP) and EventServer (SCU)

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.1.3	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
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
Study Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.2.3	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 8 lists all supported Printing SOP Classes.

Table 8: Printing SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Basic Film Session	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Basic Film Box	1.2.840.10008.5.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Printer	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	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
Basic Color Image Box	1.2.840.10008.5.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N
Presentation LUT	1.2.840.10008.5.1.1.23	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

Table 8: Printing SOP Classes ▼

▲ Table 8: Printing SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Printer Configuration Retrieval	1.2.840.10008.5.1.1.16.376	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

1.3 DICOM Web Services

1.3.1 URI Service (WADO-URI) – N/A

This section does not apply to *syngo.share* core.

1.3.2 Studies Service

Table 9 lists details on the support of the Studies Service.

Table 9: Studies Service

Service	Transaction	Resource	User Agent	Origin Server
Studies Web Service	Retrieve (WADO-RS)	Study	N	Y
		Rendered Study	N	Y
		Series	N	Y
		Rendered Series	N	Y
		Instance	N	Y
		Rendered Instance	N	Y
		Rendered Frames	N	Y
	Search (QIDO-RS)	All Studies	N	Y

1.3.3 Worklist Service – N/A

This section does not apply to *syngo.share* core.

1.3.4 Non-Patient Instance Service – N/A

This section does not apply to *syngo.share* core.

1.3.5 Storage Commitment Service – N/A

This section does not apply to *syngo.share* core.

1.3.6 Modality Scheduled Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

1.3.7 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

1.4 Media Services – N/A

This section does not apply to *syngo.share* core.

1.5 Real-Time Video Service – N/A

This section does not apply to *syngo.share* core.

1.6 De-identification Profiles

The system *syngo.share* core does not provide any standard defined de-identification profiles. However, filters can be configured for inbound and outbound DICOM communication to add or modify DICOM elements.

Each filter consists of conditions and actions. In regard to de-identification the following actions are of interest:

- CreateRandomValueFilter
- DicomRegExReplaceFilter
- DicomTagDeleterFilter
- DicomTagMappingFilter
- DicomValueMappingFilter

1.7 Specific Character Sets

Table 10: Supported Single-Byte Character Sets without Code Extensions

Defined Term	IANA	Description
none	US-ASCII	ASCII (7-bit)
ISO_IR 100	ISO-8859-1	Latin alphabet No. 1
ISO_IR 101	ISO-8859-2	Latin alphabet No. 2
ISO_IR 109	ISO-8859-3	Latin alphabet No. 3
ISO_IR 110	ISO-8859-4	Latin alphabet No. 4
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	Latin alphabet No. 5
ISO_IR 13	JIS_X0201	Japanese (Katakana)
ISO_IR 166	TIS-620	Thai

Table 11: Supported Single-Byte Character Sets with Code Extensions

Defined Term	IANA	Description
ISO 2022 IR 6	US-ASCII	ASCII
ISO 2022 IR 100	ISO-8859-1	Latin alphabet No. 1
ISO 2022 IR 101	ISO-8859-2	Latin alphabet No. 2
ISO 2022 IR 109	ISO-8859-3	Latin alphabet No. 3
ISO 2022 IR 110	ISO-8859-4	Latin alphabet No. 4
ISO 2022 IR 144	ISO-8859-5	Cyrillic
ISO 2022 IR 127	ISO-8859-6	Arabic
ISO 2022 IR 126	ISO-8859-7	Greek
ISO 2022 IR 138	ISO-8859-8	Hebrew
ISO 2022 IR 148	ISO-8859-9	Latin alphabet No. 5
ISO 2022 IR 13	JIS_X0201	Japanese (Katakana)
ISO 2022 IR 166	TIS-620	Thai

Table 12: Supported Multi-Byte Character Sets without Code Extensions

Defined Term	IANA	Description
ISO_IR 192	UTF-8	Unicode (UTF-8)
GB18030	GB18030	Chinese (GB18030)
GBK	GBK	Chinese (GBK)

Table 13: Supported Multi-Byte Character Sets with Code Extensions

Defined Term	IANA	Description
ISO 2022 IR 87	JIS_X0208-1990	Japanese (Kanji)
ISO 2022 IR 159	JIS_X0212-1990	Japanese (Supplementary Kanji)
ISO 2022 IR 149	KS_X_1001-1997	Korean (Hangul and Hanja)
ISO 2022 IR 58	GB2312	Simplified Chinese

2 Table of Contents

1 Overview	2
1.1 Content and Transfer	3
1.1.1 Structured Reporting Root Template IDs	14
1.2 DIMSE Services	14
1.2.1 Verification	14
1.2.2 Storage	15
1.2.3 Workflow Management	15
1.2.4 Query/Retrieve	15
1.2.5 Printing	16
1.3 DICOM Web Services	17
1.3.1 URI Service (WADO-URI) – N/A	17
1.3.2 Studies Service	17
1.3.3 Worklist Service – N/A	17
1.3.4 Non-Patient Instance Service – N/A	17
1.3.5 Storage Commitment Service – N/A	17
1.3.6 Modality Scheduled Procedure Step Service – N/A	17
1.3.7 Modality Performed Procedure Step Service – N/A	17
1.4 Media Services – N/A	18
1.5 Real-Time Video Service – N/A	18
1.6 De-identification Profiles	18
1.7 Specific Character Sets	18
2 Table of Contents	20
3 Introduction	27
3.1 Revision History	27
3.2 Audience	27
3.3 Remarks	27
3.4 Terms and Definitions	28
3.5 Abbreviations	30
3.6 References	32
4 Implementation Model	33
4.1 Application Entities and Data Flow	33
4.1.1 Functional Definition of <i>DicomServer</i>	36
4.1.2 Functional Definition of <i>EventServer</i>	36
4.1.3 Functional Definition of <i>webdicom</i>	37
5 Service and Interoperability Description	38
5.1 Mapping of Services to Application Entities	38
5.2 DIMSE Services	38
5.2.1 Basic Worklist Management Service	38
5.2.1.1 SCU of the Modality Worklist Information Model - FIND SOP Class – N/A	38
5.2.1.2 SCP of the Modality Worklist Information Model - FIND SOP Class	38
5.2.2 Modality Performed Procedure Step Service	40
5.2.2.1 SCU of the Modality Performed Procedure Step SOP Class	40
5.2.2.2 SCP of the Modality Performed Procedure Step SOP Class	40
5.2.3 Unified Worklist and Procedure Step Service – N/A	40
5.2.4 Instance Availability Notification Service	40

5.2.4.1	SCU of the Instance Availability Notification SOP Class	40
5.2.4.2	SCP of the Instance Availability Notification SOP Class – N/A	40
5.2.5	Storage Service	40
5.2.5.1	SCU of the Storage SOP Classes	41
5.2.5.1.1	Transcoding of Transfer Syntaxes	41
5.2.5.2	SCP of the Storage SOP Classes	41
5.2.5.2.1	Behavior when storing Instances	42
5.2.5.2.2	Image Compression by Storage SCP	42
5.2.5.2.3	KOS Rejection Notes	43
5.2.6	Storage Commitment Service	43
5.2.6.1	SCU of the Storage Commitment SOP Class	43
5.2.6.2	SCP of the Storage Commitment SOP Class	43
5.2.7	Query/Retrieve Service Class	44
5.2.7.1	SCU of the Study Root Q/R Information Model - FIND SOP Class	44
5.2.7.2	SCU of the Patient Root Q/R Information Model - FIND SOP Class – N/A	44
5.2.7.3	SCU of the Study Root Q/R Information Model - MOVE SOP Class	44
5.2.7.4	SCU of the Patient Root Q/R Information Model - MOVE SOP Class – N/A	44
5.2.7.5	SCP of the Study Root Q/R Information Model - FIND SOP Class	44
5.2.7.6	SCP of the Patient Root Q/R Information Model - FIND SOP Class	49
5.2.7.7	SCP of the Study Root Q/R Information Model - MOVE SOP Class	49
5.2.7.8	SCP of the Patient Root Q/R - Information Model - MOVE SOP Class	50
5.2.8	Print Management Service	50
5.2.8.1	SCU of the Basic Grayscale Print Management Meta SOP Class	50
5.2.8.1.1	Basic Film Session SOP Class	50
5.2.8.1.2	Basic Film Box SOP Class	50
5.2.8.1.3	Basic Grayscale Image Box SOP Class	50
5.2.8.1.4	Printer SOP Class	50
5.2.8.2	SCU of the Basic Color Print Management Meta SOP Class	50
5.2.8.2.1	Basic Film Session SOP Class	50
5.2.8.2.2	Basic Film Box SOP Class	50
5.2.8.2.3	Basic Color Image Box SOP Class	50
5.2.8.2.4	Printer SOP Class	51
5.2.8.3	SCU of the Basic Annotation Box SOP Class – N/A	51
5.2.8.4	SCU of the Print Job SOP Class – N/A	51
5.2.8.5	SCU of the Presentation LUT SOP Class	51
5.2.8.6	SCU of the Printer Configuration Retrieval SOP Class	51
5.2.8.7	SCP of the Basic Grayscale Print Management Meta SOP Class – N/A	51
5.2.8.8	SCP of the Basic Color Print Management Meta SOP Class – N/A	51
5.2.8.9	SCP of the Basic Annotation Box SOP Class – N/A	51
5.3	DICOM Web Services	51
5.3.1	URI Web Service (WADO URI) – N/A	51
5.3.2	Studies Web Service	51
5.3.2.1	Supported Web Media Types	51
5.3.2.1.1	DICOM Media Types	51
5.3.2.1.2	DICOM Bulk Data Media Type – N/A	51
5.3.2.1.3	Supported Rendered Media Types	52
5.3.2.2	Retrieve Supported Transaction (WADO-RS)	52
5.3.2.2.1	User Agent – N/A	52
5.3.2.2.2	Origin Server	52
5.3.2.3	Store Transaction (STOW-RS) – N/A	53
5.3.2.4	Search Transaction (QIDO-RS)	53
5.3.2.4.1	User Agent – N/A	53

5.3.2.4.2	Origin Server	54
5.3.3	Worklist Web Service – N/A	56
5.3.4	Non-Patient Instance Web Service – N/A	56
5.3.5	Notification Web Service – N/A	56
5.3.6	Storage Commitment Web Service – N/A	56
5.3.7	Modality Scheduled Procedure Step Web Service – N/A	56
5.3.8	Modality Performed Procedure Step Web Service – N/A	56
5.4	Media Services – N/A	56
5.5	Real-Time Video Services – N/A	56
5.6	Cross Service Considerations – N/A	56
5.7	Specific Character Sets	57
6	Configuration	58
6.1	General Configuration Parameters – N/A	58
6.2	Configuration of DIMSE Services	58
6.2.1	Basic Worklist Management Service Configuration	58
6.2.2	Modality Performed Procedure Step Service Configuration	58
6.2.3	Unified Worklist and Procedure Step Service Configuration – N/A	58
6.2.4	Instance Availability Notification Service Configuration	58
6.2.5	Storage Service Configuration	58
6.2.6	Storage Commitment Service Configuration	59
6.2.7	Query/Retrieve Service Configuration	59
6.2.8	Print Management Service Configuration	59
6.3	Configuration of DICOM Web Services	59
6.3.1	URI Web Service Configuration – N/A	60
6.3.2	Studies Web Service Configuration	60
6.3.2.1	Retrieve Transaction (WADO-RS) Configuration	60
6.3.2.2	Store Transaction (STOW-RS) Configuration – N/A	60
6.3.2.3	Search Transaction (QIDO-RS) Configuration	60
6.3.3	Worklist Web Service Configuration – N/A	60
6.3.4	Non-Patient Instances (NPI) Web Service Configuration – N/A	60
6.3.5	Storage Commitment Service Configuration – N/A	60
6.3.6	Modality Scheduled Procedure Step Service – N/A	61
6.3.7	Modality Performed Procedure Step Service – N/A	61
6.4	Configuration of Media Storage Service – N/A	61
6.5	Configuration of Real-Time Video Service – N/A	61
6.6	Configuration of Audit Trail - Syslog	61
7	Network and Media Communication Details	62
7.1	General	62
7.1.1	General Association Parameters	62
7.2	Specifications	62
7.2.1	<i>DicomServer</i> Application Entity	62
7.2.1.1	Sequencing of Real-World Activities for <i>DicomServer</i>	62
7.2.1.2	Association Parameters of <i>DicomServer</i> AE	62
7.2.1.3	Association Initiation	63
7.2.1.3.1	Real-World Activity: C-FIND spanning	63
7.2.1.3.2	Real-World Activity: C-MOVE spanning	63
7.2.1.3.3	Real-World Activity: C-MOVE request	63
7.2.1.3.4	Real-World Activity: MPPS	63
7.2.1.3.5	Real-World Activity: Print	64
7.2.1.4	Association Acceptance	64

7.2.1.4.1	Real-World Activity: Storage (C-STORE)	64
7.2.1.4.2	Real-World Activity: Query/Retrieve (C-FIND/C-MOVE)	66
7.2.1.4.3	Real-World Activity: MPPS	66
7.2.1.4.4	Real-World Activity: DICOM Modality Worklist (C-FIND)	66
7.2.1.4.5	Real-World Activity: Storage Commitment	66
7.2.1.4.6	Real-World Activity: Verification	67
7.2.2	<i>EventServer</i> Application Entity	67
7.2.2.1	Sequencing of Real-World Activities for <i>EventServer</i>	67
7.2.2.2	Association Parameters of <i>EventServer</i> AE	67
7.2.2.3	Association Initiation	67
7.2.2.3.1	Real-World Activity: N-CREATE request	68
7.2.2.3.2	Real-World Activity: C-STORE request	68
7.2.2.3.3	Real-World Activity: C-FIND and C-MOVE requests	68
7.2.2.3.4	Real-World Activity: Storage Commitment N-ACTION request	68
7.2.2.4	Association Acceptance – N/A	68
7.2.3	<i>webdicom</i> Application Entity	68
7.2.3.1	Sequencing of Real-World Activities for <i>webdicom</i>	68
7.2.3.2	Association Parameters of <i>webdicom</i> AE	68
7.2.3.3	Association Initiation – N/A	68
7.2.3.4	Association Acceptance	68
7.2.3.4.1	Real-world activity: HTTPS WADO-RS Retrieve Instance Transaction request	68
7.2.3.4.2	Real-World Activity: HTTPS QIDO-RS Search All Studies request	69
7.3	Status Codes	69
7.3.1	General AE Communication and Failure Behavior and Handling	69
7.3.1.1	Communication Failure Behavior as Association Initiator	69
7.3.1.2	Communication Failure Handling as Association Acceptor	69
7.3.2	DIMSE Services	70
7.3.2.1	Basic Worklist Management Service – N/A	70
7.3.2.2	Modality Performed Procedure Step Service – N/A	70
7.3.2.3	Unified Worklist and Procedure Step Service – N/A	70
7.3.2.4	Instance Availability Notification Service – N/A	70
7.3.2.5	Storage Service – N/A	70
7.3.2.6	Storage Commitment Service – N/A	71
7.3.2.7	Query/Retrieve Service –N/A	71
7.3.3	DICOM Web Services	71
7.3.3.1	General Status Codes	71
7.3.3.1.1	Common Transaction as Origin Server	71
7.3.3.1.2	Common Transaction as User Agent – N/A	71
7.3.3.2	URI Web Service – N/A	71
7.3.3.3	Studies Web Service	72
7.3.3.3.1	Retrieve Transaction as Origin Server	72
7.3.3.3.2	Retrieve Transaction as User Agent – N/A	72
7.3.3.3.3	Store Transaction as Origin Server – N/A	72
7.3.3.3.4	Store Transaction as User Agent – N/A	72
7.3.3.3.5	Search Transaction as Origin Server	72
7.3.3.3.6	Search Transaction as User Agent – N/A	72
7.3.3.4	Worklist Web Service – N/A	72
7.3.3.5	Non-Patient Instance Web Service – N/A	72
7.3.3.6	Storage Commitment Service – N/A	73
7.3.3.7	Modality Scheduled Procedure Step Service – N/A	73
7.3.3.8	Modality Performed Procedure Step Service – N/A	73

8	Security	74
8.1	Introduction	74
8.2	External Network Requirements	74
8.3	TCP Port Configuration	74
8.4	DICOM Security Profiles Support	74
8.4.1	Secure Use and User Identity Profiles – N/A	74
8.4.2	Secure Transport Connection Profiles	74
8.4.3	Media Storage Security Profiles – N/A	74
8.4.4	Attribute Confidentiality Profiles – N/A	74
8.4.5	Digital Signature Profiles – N/A	74
8.4.6	Additional DICOM Security Profiles – N/A	74
8.5	User Identity Negotiation Support – N/A	74
8.6	Web Services Security Features	75
8.7	Other Security Features – N/A	75
A	Information Object Definitions (IODs)	77
A.1	Information Shared Across Multiple IODs – N/A	77
A.2	Key Object Selection Document Storage IODs	77
B	Structured Report Content Encoding – N/A	78
C	Security Details	79
C.1	External Network Requirement Details	79
C.2	DICOM Security Profile Details	79
C.2.1	Online Electronic Storage Secure Use – N/A	79
C.2.2	Audit Trail Messages	79
C.2.2.1	Audit Trail Message Format Profile	79
C.2.2.2	Event IDs	80
C.2.2.3	Detailed information per event ID	84
C.2.2.4	Audit trails	86
C.2.3	Audit Trail Message Transmission Profile - SYSLOG - TLS	87
C.2.4	Audit Trail Message Transmission Profile - SYSLOG - UDP	87
C.2.5	Secure Transport Connection Details	87
C.2.6	Attribute Confidentiality Details – N/A	87
C.2.7	Digital Signature Details – N/A	87
C.2.8	Additional DICOM Security Profile Details – N/A	87
D	Mapping of Attributes – N/A	88
E	Code Set Usage – N/A	89

List of figures

1	Overview of Implemented Services	2
2	<i>DicomServer</i> Application Data Flow Diagram	34
3	<i>EventServer</i> Application Data Flow Diagram	35
4	<i>webdicom</i> Application Data Flow Diagram	36

List of tables

1	Supported Storage SOP Classes for <i>DicomServer</i> (SCU and SCP), <i>EventServer</i> (SCU) and <i>webdicom</i> (OS)	3
2	Supported Private Storage SOP Classes for <i>DicomServer</i>	12
3	Supported Storage Transfer Syntaxes for <i>DicomServer</i> (SCU and SCP), <i>EventServer</i> (SCU) and <i>webdicom</i> (SCU and SCP)	13
4	Supported Root SR Template IDs (TIDs)	14
5	Supported Verification SOP Classes for <i>DicomServer</i>	15
6	Workflow Management SOP Classes	15
7	Supported Query/Retrieve SOP Classes for <i>DicomServer</i> (SCP) and <i>EventServer</i> (SCU)	15
8	Printing SOP Classes	16
9	Studies Service	17
10	Supported Single-Byte Character Sets without Code Extensions	18
11	Supported Single-Byte Character Sets with Code Extensions	19
12	Supported Multi-Byte Character Sets without Code Extensions	19
13	Supported Multi-Byte Character Sets with Code Extensions	19
14	Revision History	27
15	Service to AE Mapping	38
16	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level	39
17	Transcoding of Transfer Syntaxes	41
18	Levels of Conformance	41
19	Attribute Coercion by Storage SCP	42
20	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level	44
21	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Series Level	45
22	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level . . .	46
23	SOP Classes that support additional query elements	48
24	Supported C-FIND Attribute Matching for Patient Root Q/R Model - SCP on Instance Level . .	49
25	Rendered Media Types	52
26	Resources Retrieve Transaction - Origin Server: DICOM Instance Resources*	52
27	Resources Retrieve Transaction - Origin Server: Rendered Resources*	53
28	Query Parameters for Retrieve Transaction - Origin Server	53
29	Query Parameters for Retrieve Transaction - Origin Server: Rendered Resources	53
30	Header Fields for Retrieve Transaction - Origin Server: Instance resource	53
31	Header Fields for Retrieve Transaction - Origin Server: Rendered Resource	53
32	Resources Search Transaction - Origin Server*	54
33	Query Parameters for Search Transaction - Origin Server	54
34	Header Fields for Search Transaction - Origin Server	54
35	Query / Return Key Search Transaction - Origin Server: Study Level*	55
36	Supported QIDO-RS Charsets and Accept-Charsets	55
37	Retrieve Transaction Parameters	60
38	Search Transaction Parameters	60
39	General Association Parameters - Networking Services	62
40	General Association Parameters - Web Services	62
41	Association Parameters for <i>DicomServer</i> AE - Networking Services	62

42	Transfer Syntax Selection Preference Order - Image SOP Classes for <i>DicomServer</i>	64
43	Transfer Syntax Selection Preference Order - Video SOP Classes for <i>DicomServer</i>	65
44	Transfer Syntax Selection Preference Order - Non-Image SOP Classes for <i>DicomServer</i>	65
45	Association Parameters for <i>EventServer</i> AE - Networking Services	67
46	DICOM Communication Failure Behavior as Association Initiator	69
47	DICOM Communication Failure Handling as Association Acceptor	70
48	Status Codes of Origin Server for all Transactions	71
49	Status Codes of Origin Server for Retrieve Transaction	72
50	Status Codes of Origin Server for Search Transactions	72

3 Introduction

3.1 Revision History

Table 14: Revision History

Revision	Date	Product Version	Change
13427	2026-07-03	VA60A	

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.

3.3 Remarks

This document is a DICOM Conformance Statement that describes the DICOM capabilities of the following components of *syngo.share core*:

- *DicomServer*
- *EventServer*
- *webdicom*

The scope of this DICOM Conformance Statement is to facilitate integration between *syngo.share core* 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.

- This Conformance Statement is intended to aid in the validation of the integration of the *DicomServer*, the *EventServer* and *webdicom* within a DICOM environment.
- The Conformance Statement does 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.share* core 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.

ITH icoserve technology for healthcare GmbH has participated in Connectathons by Integrating the Healthcare Enterprise (IHE). The IHE Integration Statement of *syngo.share* core together with the IHE Technical Framework may facilitate the process of validation testing.

3.4 Terms and Definitions

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

Abstract Syntax	The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.
Application 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 Information Object Definition; a Data Element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower-level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).
Data Element	A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly
Information Object Definition (IOD)	The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. Examples: MR Image IOD, CT Image IOD, Print Job IOD. The Attributes within an IOD may be specified as Mandatory (Type 1), Required but possibly unknown

	(Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).
Media Storage 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's Birth Date, and Patient's Sex.
Negotiation	First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.
Origin Server	Refers to the program that can originate authoritative responses to HTTP requests for a given Target Resource. The term "server" refers to any implementation that receives a web service request message from a user agent.
Presentation Context	The set of DICOM Network Services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.
Private SOP Class	A SOP Class that is not defined in the DICOM Standard but is published in an implementation's Conformance Statement.
Protocol Data Unit (PDU)	A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
Security Profile	A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data.
Service Class Provider (SCP)	Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).
Service Class User (SCU)	Role of an Application Entity that uses a DICOM Network Service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU).
Service/Object Pair Class (SOP Class)	The specification of the network or media transfer (service) of a particular type of data (object) ; the fundamental unit of a DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
Service/Object Pair Instance (SOP Instance)	An information object; a specific occurrence of information exchanged in a SOP Class. E.g., a specific X-ray image.
Specialized SOP Class	A SOP Class that is derived from the Standard that is specialized by additional Type 1, 1C, 2, 2C, or 3 Attributes, by enumeration of specific permitted Values for Attributes, or by enumeration of specific permitted Templates. The additional Attributes may either be drawn from the Data Dictionary in PS3.6 or may be Private Attributes.

Standard SOP Class	A SOP Class defined in the Standard, and that is implemented and used without any modifications.
Standard Extended SOP Class	A SOP Class that is defined in the standard, and that is extended by additional Type 3 Attributes. The additional Attributes may either be drawn from the DICOM Data Dictionary in PS3.6 or may be Private Attributes.
Tag	A 32-bit identifier for a Data Element, represented as a pair of four-digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element].
Transfer Syntax	The encoding used for exchange of DICOM information objects and messages. Examples: JPEG compressed (images), Little Endian Explicit Value Representation.
TLS-Secured Port	TCP port on which an implementation accepts TLS connections to exchange DICOM information.
Unique Identifier (UID)	A globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.
User Agent	A client in a network protocol used in communications within a client-server distributed computing system. In particular, the Hypertext Transfer Protocol (HTTP) identifies the client software originating the request, using a user-agent header, even when the client is not operated by a user.
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.

The following list includes product specific definitions used throughout this Conformance Statement:

Organizational unit	Representation of document-producing actors in a healthcare institution (e.g. departments, teams, devices). Organizational units function as archiving destinations for documents. Each document is archived in exactly one organizational unit.
----------------------------	--

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
MPPS	Modality Performed Procedure Step
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
PPS	Performed Procedure Step
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
RTV	Real-Time Video
SCP	Service Class Provider
SCU	Service Class User
SDP	Service Description Protocol
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SR	Structured Reporting
STOW-RS	STore Over the Web by RESTful Services
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
UPS-RS	Unified Procedure Step by RESTful Services
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services
WADO-URI	Web Access to DICOM Objects by URI

3.6 References

- [1] National Electrical Manufacturers Association (NEMA), Rosslyn, VA USA. *PS3 / ISO 12052 Digital Imaging and Communications in Medicine (DICOM) Standard*. <http://www.dicomstandard.org>.
- [2] Integrating the Healthcare Enterprise (IHE). *IHE Radiology Technical Framework*. http://www.ihe.net/Resources/technical_frameworks/#radiology

4 Implementation Model

4.1 Application Entities and Data Flow

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

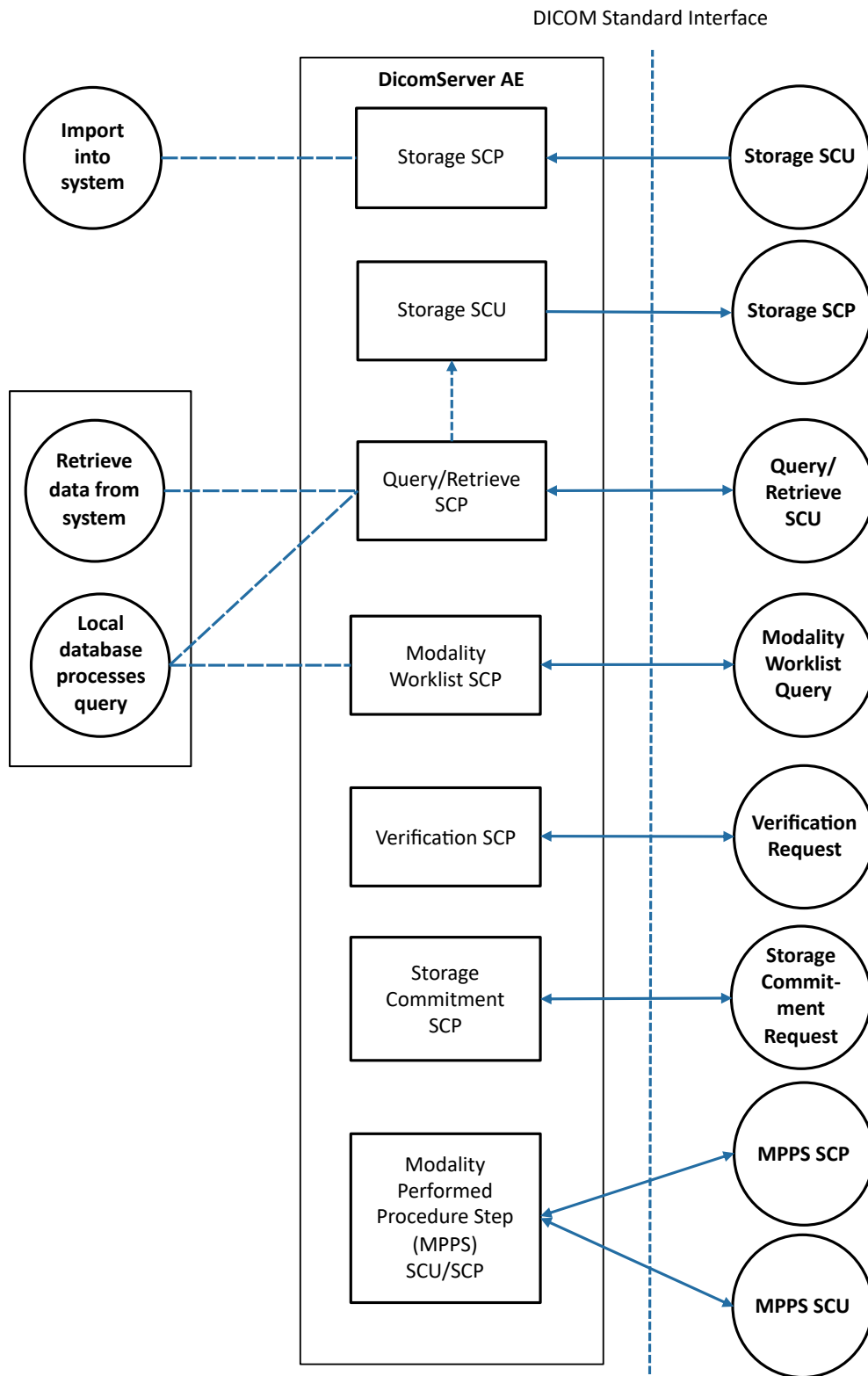
The network and media interchange application model for *syngo.share* core *DicomServer*, *EventServer* and *webdicom* is shown in Figure 2, Figure 3 and Figure 4.

***DicomServer* Application Data Flow Diagram**

The *DicomServer* is implemented as a single AE which provides a set of various services. For each of these services, the *DicomServer* can act in a specific role.

By default, the various services are accessible through one predefined AE title (AET) of an actual *Dicom-Server* instance.

Figure 2: DicomServer Application Data Flow Diagram

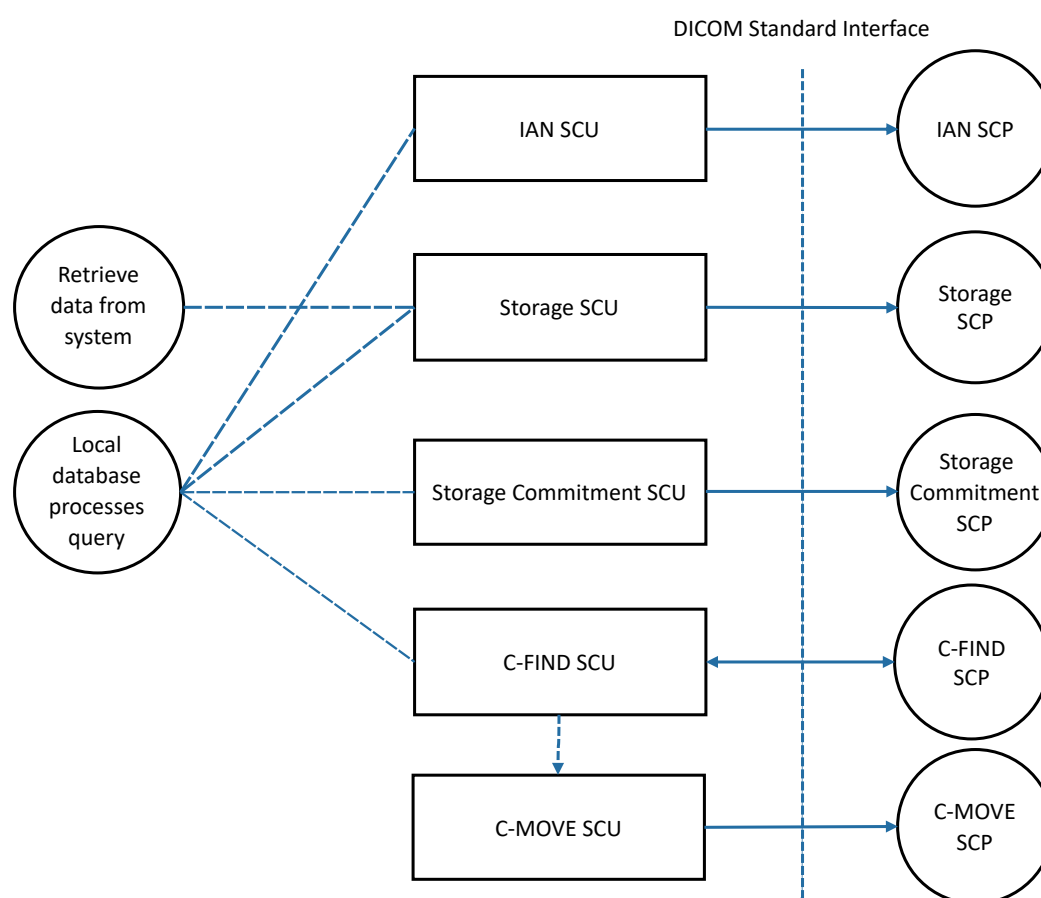


EventServer Application Data Flow Diagram

The *EventServer* is able to generate DICOM IANs based on internal events or incoming DICOM MPPS requests. It is further able to route DICOM instances, i.e. to act as a C-STORE SCU, based on internal events (document- or visit-centric) and during the archiving part of VNA send jobs. During the outbound verification part of VNA send jobs, the *EventServer* is able to send Storage Commitment Requests. Finally, the *EventServer* can also act as a C-FIND SCU and subsequently as a C-MOVE SCU when fetching DICOM studies and/or DICOM series based on internal events. In general, the *EventServer* sends to or communicates with the AE configured per event action or third-party VNA. Specific AEs can in turn be configured per service.

In order to fulfill these tasks, the *EventServer* supports the following services:

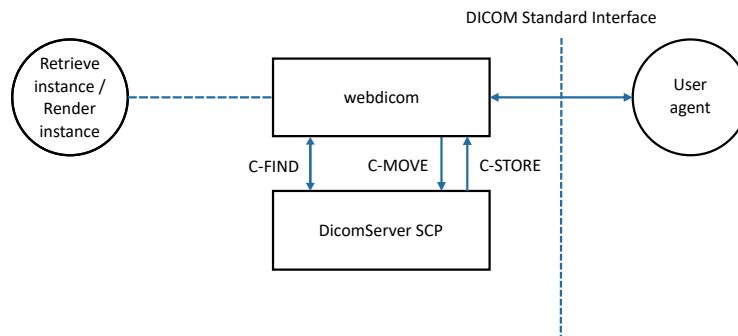
Figure 3: *EventServer* Application Data Flow Diagram



webdicom Application Data Flow Diagram

The *webdicom* AE acts as DICOMweb origin server and accepts QIDO-RS and WADO-RS requests. Based on configuration the *webdicom* AE internally acts as Query/Retrieve SCU which sends C-FIND and C-MOVE requests to and accepts C-STORE requests from the *DicomServer* AE. Alternatively, the native gRPC interface can be used.

Figure 4: *webdicom* Application Data Flow Diagram



4.1.1 Functional Definition of *DicomServer*

The *DicomServer* AE waits for another application to connect and initiate a DICOM association. When another application connects, the *DicomServer* AE expects it to be a DICOM application. The *DicomServer* AE implements several DICOM Service Classes. In total, the following services are provided by this AE:

- The Verification SCP answers communication tests from remote applications (C-ECHO).
- The Storage SCP implements the answer to external C-STORE requests. It is able to receive incoming DICOM image files sent by remote DICOM applications (e.g., modalities or workstations) and add them to the *syngo.share* core database.
- The Query/Retrieve SCP implements the answer to C-FIND, C-MOVE and C-GET requests. Remote applications can request queries on the patient, study, series or image level using the Patient Root or Study Root Query model. The *DicomServer* AE functions as a Storage SCU when responding to a C-MOVE request.
- C-FIND Spanning forwards incoming C-FIND requests unaltered to an arbitrary number of configured Query/Retrieve SCP targets and returns their results.
- C-MOVE Spanning forwards incoming C-MOVE requests to an arbitrary number of Query/Retrieve SCP targets.
- The Modality Worklist SCP allows remote applications (e.g., modalities) to query the *syngo.share* core database for modality worklists.
- The Storage Commitment SCP implements the answer to external N-ACTION requests and sends back the N-EVENT-REPORT response. The response can be sent on either the incoming or on a newly established association.
- The Modality Performed Procedure Step SCU/SCP implements the answer to external N-CREATE/N-SET requests and forwards the received requests to all configured destinations. Forwarding can be disabled.

On association startup, the Calling AET is looked up in the database to find a corresponding configuration. This configuration determines several aspects of the *DicomServer* behavior, including the number of services provided and the data accessible to the requesting AE.

4.1.2 Functional Definition of *EventServer*

The *EventServer* AE reacts to events triggered by other components of *syngo.share*. It provides the following services:

- As a Storage SCU, the *EventServer* AE routes DICOM instances based on internal events (document- or visit-centric) and during the archiving part of DICOM LTA send jobs.
- As Storage Commitment SCU, the *EventServer* AE performs the outbound verification part of DICOM LTA send jobs.
- The *EventServer* AE acts as a C-FIND SCU and subsequently as a C-MOVE SCU when fetching DICOM studies and/or DICOM series based on internal events.
- The *EventServer* AE generates DICOM IANs based on internal events or incoming DICOM MPPS requests and sends them to one or more AEs.

4.1.3 Functional Definition of *webdicom*

The *webdicom* AE provides access to DICOM instances using HTTP RESTful interfaces.

The following RESTful services are provided by the *webdicom* AE:

- Retrieve Study Instances
- Retrieve Series Instances
- Retrieve Instance
- Retrieve Rendered Study
- Retrieve Rendered Series
- Retrieve Rendered Instance
- Retrieve Rendered Frames
- Search All Studies

5 Service and Interoperability Description

5.1 Mapping of Services to Application Entities

Table 15 provides an overview of the Application Entities and the Services supported by each AE.

Table 15: Service to AE Mapping

Application Entity	Supported Services	Role								
		DIMSE services		DICOM web services		DICOM Media			Real-Time Video	
		SCU	SCP	Origin Server	User Agent	FSC	FSU	FSR	SCU	SCP
<i>DicomServer</i>	Storage	Y	Y	N	N	N	N	N	N	N
	Verification	N	Y	N	N	N	N	N	N	N
	Storage Commitment	N	Y	N	N	N	N	N	N	N
	Modality Performed Procedure Step	Y	Y	N	N	N	N	N	N	N
	Query/Retrieve	Y	Y	N	N	N	N	N	N	N
<i>EventServer</i>	Storage	Y	N	N	N	N	N	N	N	N
	Storage Commitment	Y	N	N	N	N	N	N	N	N
	Instance Availability Notification	Y	N	N	N	N	N	N	N	N
	Query/Retrieve	Y	N	N	N	N	N	N	N	N
<i>webdicom</i>	Query/Retrieve	N	N	Y	N	N	N	N	N	N

5.2 DIMSE Services

5.2.1 Basic Worklist Management Service

5.2.1.1 SCU of the Modality Worklist Information Model - FIND SOP Class – N/A

This section does not apply to *syngo.share core*.

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

As a Service Class Provider of the Modality Worklist Information Model - FIND SOP Class, *syngo.share core* uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 16.

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 (i.e., universal matching).

Table 16: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level

Attribute Name	Tag	Matching Type	Comments
AdmissionID	(0038,0010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
AdmittingDate	(0038,0020)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
AdmittingTime	(0038,0021)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
CurrentPatientLocation	(0038,0300)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ConfidentialityConstraintOnPatientDataDescription	(0040,3001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PregnancyStatus	(0010,21C0)	SINGLE_VALUE, UNIVERSAL	
ReferringPhysicianName	(0008,0090)	–	
ScheduledProcedureStepSequence/ ScheduledStationAETitle	(0040,0100)/ (0040,0001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartDate	(0040,0100)/ (0040,0002)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartTime	(0040,0100)/ (0040,0003)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
ScheduledProcedureStepSequence/ Modality	(0040,0100)/ (0008,0060)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ScheduledProcedureStepSequence/ ScheduledPerformingPhysicianName	(0040,0100)/ (0040,0006)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ScheduledProcedureStepSequence/ ScheduledProcedureStepDescription	(0040,0100)/ (0040,0007)	–	no matching, response only
ScheduledProcedureStepSequence/ ScheduledProcedureStepID	(0040,0100)/ (0040,0009)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeValue	(0040,0100)/ (0040,0008)/ (0008,0100)	–	no matching, response only
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodingSchemeDesignator	(0040,0100)/ (0040,0008)/ (0008,0102)	–	no matching, response only
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeMeaning	(0040,0100)/ (0040,0008)/ (0008,0104)	–	no matching, response only
RequestedProcedureCodeSequence/ CodeValue	(0032,1064)/ (0008,0100)	–	no matching, response only
RequestedProcedureCodeSequence/ CodingSchemeDesignator	(0032,1064)/ (0008,0102)	–	no matching, response only
RequestedProcedureCodeSequence/ CodeMeaning	(0032,1064)/ (0008,0104)	–	no matching, response only
RequestedProcedureID	(0040,1001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
RequestedProcedureDescription	(0032,1060)	–	no matching, response only
StudyInstanceUID	(0020,000D)	UID, SINGLE_VALUE, UNIVERSAL	
AccessionNumber	(0008,0050)	SINGLE_VALUE, WILDCARD, UNIVERSAL	

Table 16: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level ▼

▲ Table 16: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level

Attribute Name	Tag	Matching Type	Comments
RequestingPhysician	(0032,1032)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
OrderCallbackPhoneNumber	(0040,2010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PlacerOrderNumberImagingServiceRequest	(0040,2016)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
FillerOrderNumberImagingServiceRequest	(0040,2017)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
OrderEntererLocation	(0040,2009)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientState	(0038,0500)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientSize	(0010,1020)	SINGLE_VALUE, UNIVERSAL	
PatientWeight	(0010,1030)	SINGLE_VALUE, UNIVERSAL	
MedicalAlerts	(0010,2000)	SINGLE_VALUE, WILDCARD, UNIVERSAL	

5.2.2 Modality Performed Procedure Step Service

5.2.2.1 SCU of the Modality Performed Procedure Step SOP Class

The *DicomServer* AE acts as an MPPS SCU to forward incoming MPPS requests (N-CREATE-RQ and N-SET-RQ) to configured AEs.

5.2.2.2 SCP of the Modality Performed Procedure Step SOP Class

The *DicomServer* AE accepts and accordingly processes incoming MPPS requests (N-CREATE-RQ and N-SET-RQ) adhering to the standard.

5.2.3 Unified Worklist and Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

5.2.4 Instance Availability Notification Service

5.2.4.1 SCU of the Instance Availability Notification SOP Class

As a Service Class User of the Instance Availability Notification SOP Class, the *EventServer* AE uses the standard-compliant N-CREATE-RQ message to inform remote SCPs about the availability and status of instances stored.

5.2.4.2 SCP of the Instance Availability Notification SOP Class – N/A

This section does not apply to *syngo.share* core.

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.share* core 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 [Section A](#), which describes the underlying IOD of the supported SOP Classes.

5.2.5.1.1 Transcoding of Transfer Syntaxes

Table 17 describes supported transcodings between the locally stored encoding of SOP Instances and the negotiated Transfer Syntax.

Table 17: Transcoding of Transfer Syntaxes

Native Transfer Syntax	Fallback / Alternative Transfer Syntaxes	Comment
RLE Lossless	Implicit VR Little Endian	Only added if not already in the used presentation contexts.
JPEG Lossless, Non-Hierarchical (Process 14)	All other JPEG Lossless Transfer Syntaxes in this group plus Implicit VR Little Endian	
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])		
JPEG-LS Lossless Image Compression		
JPEG 2000 Image Compression (Lossless Only)		
JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)		
Implicit VR Little Endian	All other uncompressed Transfer Syntaxes in this group except for Deflated Explicit VR Little Endian	Deflated Explicit VR Little Endian is never offered as an alternative, because some DICOM peers accept it but do not properly handle it.
Explicit VR Little Endian		
Explicit VR Big Endian (Retired)		
Deflated Explicit VR Little Endian		
Any other Transfer Syntax	none	

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, *syngo.share* core 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.

Table 18 defines the conformance levels of *syngo.share* core.

Table 18: Levels of Conformance

Levels of Conformance	2
Level of Digital Signature Support	1

syngo.share core coerces the Attributes listed in [Table 19](#) upon receiving them from other systems.

The “SOP Class UID” column indicates whether the coercion is applicable to specific SOP Classes or to “ALL” SOP Classes.

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 received by the system.
- **EXTERNAL:** Data coercion is performed on instances 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 19: Attribute Coercion by Storage SCP

Attribute Name	Tag	SOP Class UID	Type of change	New Value	Condition	Comments
Issuer of Patient ID	(0010,0021)	ALL	REMOVED	–	CONFIGURATION	
Issuer of Patient ID Qualifiers Sequence	(0010,0024)	ALL	REMOVED	–	CONFIGURATION	
Issuer of Admission ID Sequence	(0038,0014)	ALL	REMOVED	–	CONFIGURATION	
Issuer of Accession Number Sequence	(0008,0051)	ALL	REMOVED	–	CONFIGURATION	
Order Placer Identifier Sequence	(0040,0026)	ALL	REMOVED	–	CONFIGURATION	
Order Filler Identifier Sequence	(0040,0027)	ALL	REMOVED	–	CONFIGURATION	
Ethnic Group	(0010,2160)	ALL	REMOVED	–	CONFIGURATION	Cleared automatically for C-STORE requests in France due to legal requirements.
Patient Religious Preference	(0010,21F0)	ALL	REMOVED	–	CONFIGURATION	Cleared automatically for C-STORE requests in France due to legal requirements.

5.2.5.2.1 Behavior when storing Instances

syngo.share core validates DICOM objects on import and sends standardized responses in case of successful import. If validation errors occur, appropriate error responses are provided.

5.2.5.2.2 Image Compression by Storage SCP

syngo.share core supports automatic application of compression mechanisms for specific modalities (read from DICOM tag Modality (0008,0060)). The mapping can be configured in *syngo.share* Configuration. The following Transfer Syntaxes are supported:

- 1.2.840.10008.1.2 (LittleEndianImplicit)
- 1.2.840.10008.1.2.1 (LittleEndianExplicit)

- 1.2.840.10008.1.2.1.99 (DeflatedLittleEndianExplicit)
- 1.2.840.10008.1.2.2 (BigEndianExplicit)
- 1.2.840.10008.1.2.4.57 (JPEGLossless:Non-hierarchical:Process14)
- 1.2.840.10008.1.2.4.70 (JPEGLossless:Non-hierarchical-1stOrderPrediction)
- 1.2.840.10008.1.2.4.80 (JPEGLSLossless)
- 1.2.840.10008.1.2.4.90 (JPEG2000LosslessOnly)
- 1.2.840.10008.1.2.5 (RLELossless)

5.2.5.2.3 KOS Rejection Notes

On DICOM import, KOS Rejection Notes are recognized by *syngo.share* core and cause each SOP Instance referenced by this KOS object to be iteratively soft-deleted.

The tag Concept Name Code Sequence in the KOS Rejection Note must contain exactly following information:

- CodingSchemeDesignator = "DCM"
- CodeValue = 113001, 113037, 113038 or 113039
- CodeMeaning = "Rejected for Quality Reasons", "Rejected for Patient Safety Reasons", "Incorrect Modality Worklist Entry" or "Data Retention Policy Expired"

The Current Requested Procedure Evidence Sequence contained in the KOS object may contain 1 to N studies and refers to all SOP Instances which are to be soft-deleted. It is not possible to delete Study Instance UIDs without having the whole hierarchy down to the Referenced SOP Sequence. The DICOM Standard defines this hierarchy in DICOM PS3.3, C.17.2.1.

The Referenced SOP Class UID has to match the SOP Class UID of the target instance. If referenced objects cannot be found or the SOP Class UIDs do not match, the KOS Rejection Note is imported, a warning is logged and the respective SOP Instances are not soft-deleted.

SOP Instance UIDs which have been deleted for one of the following reasons – "Rejected for Quality Reasons", "Rejected for Patient Safety Reasons" or "Incorrect Modality Worklist Entry" – can be barred from being reimported.

5.2.6 Storage Commitment Service

5.2.6.1 SCU of the Storage Commitment SOP Class

As a Service Class User of the Storage Commitment SOP Class, the *EventServer* AE uses the N-ACTION-RQ message to request storage commitment from a remote SCP. In turn, *DicomServer* AE 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 *EventServer* AE supports committing all Storage SOP Classes listed in Section 1.1 Content and Transfer.

5.2.6.2 SCP of the Storage Commitment SOP Class

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

5.2.7 Query/Retrieve Service Class

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

As a Service Class User of the Study Root Q/R - Information Model - FIND SOP Class, the *DicomServer* AE and the *EventServer* AE use standard-compliant C-FIND-RQ messages for queries on DICOM study and/or DICOM series level. Note that C-CANCEL requests are not issued in this scenario.

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

This section does not apply to *syngo.share* core.

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

As a Service Class User of the Study Root Q/R - Information Model - MOVE SOP Class, the *DicomServer* AE and the *EventServer* AE use standard-compliant C-MOVE-RQ messages to fetch individual DICOM studies and/or DICOM series. Note that C-CANCEL requests are not issued in this scenario.

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

This section does not apply to *syngo.share* core.

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

As a Service Class Provider of the Study Root Q/R - Information Model - FIND SOP Class, the *DicomServer* AE uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 20, Table 21 and Table 22 for hierarchical queries.

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

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

During the processing of the C-FIND query attributes, the specific character set of the request is considered. By default, the response is encoded in ISO_IR 192 (UTF-8).

Table 20: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level

Attribute Name	Tag	Matching Type	Comments
StudyInstanceUID	(0020,000D)	UID, SINGLE_VALUE, UNIVERSAL	
AdmissionID	(0038,0010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
AdmittingDate	(0038,0020)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
AdmittingTime	(0038,0021)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported

Table 20: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level ▾

▲ Table 20: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Study Level

Attribute Name	Tag	Matching Type	Comments
DischargeDate	(0038,0030)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
DischargeTime	(0038,0032)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
StudyDate	(0008,0020)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
StudyTime	(0008,0030)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
StudyDescription	(0008,1030)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
AccessionNumber	(0008,0050)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
StudyID	(0020,0010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
NumberOfStudyRelatedSeries	(0020,1206)	SINGLE_VALUE, UNIVERSAL	
NumberOfStudyRelatedInstances	(0020,1208)	SINGLE_VALUE, UNIVERSAL	
ReferringPhysicianName	(0008,0090)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ModalitiesInStudy	(0008,0061)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Multiple values are supported and combined using a logical OR.

Table 21: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Series Level

Attribute Name	Tag	Matching Type	Comments
SeriesInstanceUID	(0020,000E)	UID, SINGLE_VALUE, UNIVERSAL	
Modality	(0008,0060)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
SeriesNumber	(0020,0011)	SINGLE_VALUE, UNIVERSAL	
SeriesDescription	(0008,103E)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
NumberOfSeriesRelatedInstances	(0020,1209)	SINGLE_VALUE, UNIVERSAL	
InstitutionName	(0008,0080)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
InstitutionalDepartmentName	(0008,1040)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
StationName	(0008,1010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PerformingPhysicianName	(0008,1050)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
Manufacturer	(0008,0070)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ManufacturerModelName	(0008,1090)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
BodyPartExamined	(0018,0015)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
OperatorsName	(0008,1070)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
Laterality	(0020,0060)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PerformedProcedureStepStartDate	(0040,0244)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
PerformedProcedureStepStartTime	(0040,0245)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
PerformedProcedureStepEndDate	(0040,0250)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
PerformedProcedureStepEndTime	(0040,0251)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported

Table 21: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Series Level ▼

▲ Table 21: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Series Level

Attribute Name	Tag	Matching Type	Comments
SeriesDate	(0008,0021)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
SeriesTime	(0008,0031)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
RequestAttributesSequence/ RequestedProcedureID	(0040,0275)/ (0040,1001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
RequestAttributesSequence/ ScheduledProcedureStepID	(0040,0275)/ (0040,0009)	SINGLE_VALUE, WILDCARD, UNIVERSAL	

Table 22: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level

Attribute Name	Tag	Matching Type	Comments
SOPInstanceUID	(0008,0018)	UID, SINGLE_VALUE, UNIVERSAL	
InstanceNumber	(0020,0013)	SINGLE_VALUE, UNIVERSAL	
SOPClassUID	(0008,0016)	UID, SINGLE_VALUE, UNIVERSAL	
Rows	(0028,0010)	SINGLE_VALUE, UNIVERSAL	
Columns	(0028,0011)	SINGLE_VALUE, UNIVERSAL	
BitsAllocated	(0028,0100)	SINGLE_VALUE, UNIVERSAL	
BitsStored	(0028,0101)	SINGLE_VALUE, UNIVERSAL	
SamplesPerPixel	(0028,0002)	SINGLE_VALUE, UNIVERSAL	
NumberOfFrames	(0028,0008)	SINGLE_VALUE, UNIVERSAL	
Transfer Syntax UID	(0002,0010)	UID, SINGLE_VALUE, UNIVERSAL	
ContentTemplateSequence/ TemplateIdentifier	(0040,A504)/ (0040,DB00)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ContentTemplateSequence/ MappingResource	(0040,A504)/ (0008,0105)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ContentDate	(0008,0023)	SINGLE_VALUE, RANGE, UNIVERSAL	Needs SOP Class from Table 23
ContentTime	(0008,0033)	SINGLE_VALUE, RANGE, UNIVERSAL	Needs SOP Class from Table 23
ObservationDateTime	(0040,A032)	SINGLE_VALUE, RANGE, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ StudyInstanceUID	(0040,A370)/ (0020,000D)	UID, SINGLE_VALUE, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ AccessionNumber	(0040,A370)/ (0008,0050)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ RequestedProcedureID	(0040,A370)/ (0040,1001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodeValue	(0040,A370)/ (0032,1064)/ (0008,0100)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodingSchemeDesignator	(0040,A370)/ (0032,1064)/ (0008,0102)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23

Table 22: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level ▼

▲ Table 22: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level ▼

Attribute Name	Tag	Matching Type	Comments
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodingSchemeVersion	(0040,A370)/ (0032,1064)/ (0008,0103)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodeMeaning	(0040,A370)/ (0032,1064)/ (0008,0104)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ConceptNameCodeSequence/ CodeValue	(0040,A043)/ (0008,0100)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ConceptNameCodeSequence/ CodingSchemeDesignator	(0040,A043)/ (0008,0102)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ConceptNameCodeSequence/ CodingSchemeVersion	(0040,A043)/ (0008,0103)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ConceptNameCodeSequence/ CodeMeaning	(0040,A043)/ (0008,0104)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
CompletionFlag	(0040,A491)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerificationFlag	(0040,A493)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingOrganization	(0040,A073)/ (0040,A027)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerificationDateTime	(0040,A073)/ (0040,A030)	SINGLE_VALUE, RANGE, UNI- VERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingObserverName	(0040,A073)/ (0040,A075)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodeValue	(0040,A073)/ (0040,A088)/ (0008,0100)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodingSchemeDesignator	(0040,A073)/ (0040,A088)/ (0008,0102)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodingSchemeVersion	(0040,A073)/ (0040,A088)/ (0008,0103)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodeMeaning	(0040,A073)/ (0040,A088)/ (0008,0104)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ContentLabel	(0070,0080)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ContentDescription	(0070,0081)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
PresentationCreationDate	(0070,0082)	SINGLE_VALUE, RANGE, UNI- VERSAL	Needs SOP Class from Table 23
PresentationCreationTime	(0070,0083)	SINGLE_VALUE, RANGE, UNI- VERSAL	Needs SOP Class from Table 23
ContentCreatorName	(0070,0084)	SINGLE_VALUE, WILDCARD, UNIVERSAL	Needs SOP Class from Table 23
ReferencedSeriesSequence/ SeriesInstanceUID	(0008,1115)/ (0020,000E)	UID, SINGLE_VALUE, UNIVER- SAL	Needs SOP Class from Table 23

▲ Table 22: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level ▼

▲ Table 22: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCP on Instance Level

Attribute Name	Tag	Matching Type	Comments
ReferencedSeriesSequence/ ReferencedImageSequence/ ReferencedSOPClassUID	(0008,1115)/ (0008,1140)/ (0008,1150)	UID, SINGLE_VALUE, UNIVER- SAL	Needs SOP Class from Table 23
ReferencedSeriesSequence/ ReferencedImageSequence/ ReferencedSOPInstanceUID	(0008,1115)/ (0008,1140)/ (0008,1155)	UID, SINGLE_VALUE, UNIVER- SAL	Needs SOP Class from Table 23

Table 23: SOP Classes that support additional query elements

SOP Class Name	SOP Class UID
Waveform Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.1
Waveform Acquisition Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.2
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4
XA/XRF Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5
Grayscale Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.6
Compositing Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.7
Advanced Blending Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.8
Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.9
Segmented Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.10
Multiple Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.11
Variable Modality LUT Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.12
Text SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.1
Audio SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.2
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3
Comprehensive SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.4
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33
Comprehensive 3D SR Storage	1.2.840.10008.5.1.4.1.1.88.34
Extensible SR Storage	1.2.840.10008.5.1.4.1.1.88.35
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68
Colon CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.69
Implantation Plan SR Storage	1.2.840.10008.5.1.4.1.1.88.70
Acquisition Context SR Storage	1.2.840.10008.5.1.4.1.1.88.71
Simplified Adult Echo SR Storage	1.2.840.10008.5.1.4.1.1.88.72
Patient Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.73
Planned Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.74

Table 23: SOP Classes that support additional query elements ▼

▲ Table 23: SOP Classes that support additional query elements

SOP Class Name	SOP Class UID
Performed Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.75
Enhanced X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.76
Waveform Annotation SR Storage	1.2.840.10008.5.1.4.1.1.88.77

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

As a Service Class Provider of the Patient Root Q/R - Information Model - FIND SOP Class, the *Dicom-Server* AE uses the C-FIND-RSP to communicate matches back to the SCU. It supports the Matching Keys listed in Table 24 for hierarchical queries.

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

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

During the processing of the C-FIND query attributes, the specific character set of the request is considered. By default, the response is encoded in ISO_IR 192 (UTF-8). If the query contains the attribute Patient Name, only the alphabetic component group is used for searching. In the response, attributes with the value representation PN contain all component groups (alphabetic, ideographic and phonetic).

Table 24: Supported C-FIND Attribute Matching for Patient Root Q/R Model - SCP on Instance Level

Attribute Name	Tag	Matching Type	Comments
PatientID	(0010,0020)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientName	(0010,0010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientBirthDate	(0010,0030)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
PatientBirthTime	(0010,0032)	SINGLE_VALUE, RANGE, UNIVERSAL	Combined Date/Time matching supported
PatientSex	(0010,0040)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientBirthName	(0010,1005)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
OtherPatientIDs	(0010,1000)	SINGLE_VALUE, WILDCARD, UNIVERSAL	

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

As the SCP of the Study Root Q/R - Information Model - MOVE, the *DicomServer* AE 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.

As the SCP of the Storage Service Class, all Storage SOP Classes listed in Section 1.1 are supported.

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

As the SCP of the Patient Root Q/R - Information Model - MOVE, the *DicomServer* AE 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.

As the SCP of the Storage Service Class, all Storage SOP Classes listed in Section 1.1 are supported.

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 and supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.1.1 Basic Film Session SOP Class

The Basic Film Session SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.1.2 Basic Film Box SOP Class

The Basic Film Box SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.1.3 Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.1.4 Printer SOP Class

The Printer SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

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 and supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.2.1 Basic Film Session SOP Class

The Basic Film Session SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.2.2 Basic Film Box SOP Class

The Basic Film Box SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.2.3 Basic Color Image Box SOP Class

The Basic Color Image Box SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.2.4 Printer SOP Class

The Printer SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

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

This section does not apply to *syngo.share* core.

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

This section does not apply to *syngo.share* core.

5.2.8.5 SCU of the Presentation LUT SOP Class

The Presentation LUT SOP Class supports attributes and actions according to DICOM PS3.4, Annex H.

5.2.8.6 SCU of the Printer Configuration Retrieval SOP Class

The Printer Configuration Retrieval SOP Class supports actions according to DICOM PS3.4, Annex H.

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

This section does not apply to *syngo.share* core.

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

This section does not apply to *syngo.share* core.

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

This section does not apply to *syngo.share* core.

5.3 DICOM Web Services

5.3.1 URI Web Service (WADO URI) – N/A

This section does not apply to *syngo.share* core.

5.3.2 Studies Web Service

This section provides details regarding the Studies Web Service. For an overview of supported Transactions and resources see [Table 9 Study Service](#).

5.3.2.1 Supported Web Media Types

5.3.2.1.1 DICOM Media Types

The supported DICOM Storage SOP Classes / Transfer Syntaxes are listed in [Section 1.1](#) of this document.

5.3.2.1.2 DICOM Bulk Data Media Type – N/A

This section does not apply to *syngo.share* core.

5.3.2.1.3 Supported Rendered Media Types

Table 25 lists the supported Rendered Media types for each Media Type category.

Table 25: Rendered Media Types

Category	Media Type	User Agent	Origin Server	Transformation
Single Frame Image	image/jpeg	N	Y	N/A
Multi-Frame Image	image/jpeg	N	Y	N/A

Notes on Supported Rendered Media Types

- Binary images are not supported.
- Each frame of a multi-frame image is rendered separately. Hence, each frame is returned as a part in case of a multi-part response.
- All responses including more than one rendered image are multi-part responses with a Content-Type given as multipart/related;type="image/jpeg".
- There are no size limits imposed by the *webdicom* AE. However, depending on system resource and file format restrictions there might be limits to the size of each image.

5.3.2.2 Retrieve Supported Transaction (WADO-RS)

The Studies Web Service Retrieve Transaction is also known as WADO-RS.

5.3.2.2.1 User Agent – N/A

This section does not apply to *syngo.share* core.

5.3.2.2.2 Origin Server

The *webdicom* AE acts as Retrieve Transaction origin server and receives GET requests to retrieve specific studies.

The user agent specifies the Target Resource as part of the URI and the acceptable response Content-Type in the HTTP Header (i.e., dicom, dicom+xml, dicom+json, octet-stream, compressed pixel data).

The URI is composed by a Base URI: see Section 6.3.2.1 for the Base URI of the origin server.

The Retrieve Transaction origin server supports resources listed in Table 26 and Table 27.

Table 26: Resources Retrieve Transaction - Origin Server: DICOM Instance Resources*

Resource	Comments
Study Instances	/studies/{study}
Series Instances	/studies/{study}/series/{series}
Individual Instance	/studies/{study}/series/{series}/instances/{instance}

* See Resources path in Table 10.4.1-1 in PS3.18

Table 27: Resources Retrieve Transaction - Origin Server: Rendered Resources*

Resource	Comments
Rendered Study	/studies/{study}/rendered
Rendered Series	/studies/{study}/series/{series}/rendered
Rendered Instance	/studies/{study}/series/{series}/instances/{instance}/rendered
Rendered Frame	/studies/{study}/series/{series}/instances/{instance}/frames/{frames}/rendered

* See Resources path in Table 10.4.1-3 in PS3.18

Table 28 and Table 29 list Query parameters supported for the Retrieve Transaction as an origin server.

Table 28: Query Parameters for Retrieve Transaction - Origin Server

Query Parameter	Supported Values	Comments
Accept	See Table 30 for a description of the Accept Header field	

Table 29: Query Parameters for Retrieve Transaction - Origin Server: Rendered Resources

Query Parameter	Supported Values	Comments
quality	Integer value from 1 (lowest) to 100 (highest)	Restricted to JPEG quality.
viewport	<viewport width>,<viewport height>,<source x>,<source y>,<source width>,<source height>	If viewport width and height are specified, the rendered images will be of the specified dimensions with black background color if padding is necessary.

The Retrieve Transaction origin server supports Header Fields listed in Table 30 and Table 31.

Table 30: Header Fields for Retrieve Transaction - Origin Server: Instance resource

Header Field	Supported Values	Comments
Accept	multipart/related; type="application/dicom"; transfer-syntax=uid	See Table 1 for the supported DICOM SOP Classes / Transfer Syntaxes indicated by a "Y" in the "OS" column.

Table 31: Header Fields for Retrieve Transaction - Origin Server: Rendered Resource

Header Field	Supported Values	Comments
Accept		See details in Section 5.3.2.1.3.

5.3.2.3 Store Transaction (STOW-RS) – N/A

This section does not apply to *syngo.share* core.

5.3.2.4 Search Transaction (QIDO-RS)

5.3.2.4.1 User Agent – N/A

This section does not apply to *syngo.share* core.

5.3.2.4.2 Origin Server

The *webdicom* AE acts as Search Transaction origin server and receives GET requests to search for studies.

The user agent specifies the Target Resource as part of the URI and the acceptable response Content-Type in the HTTP Header (i.e., *dicom+xml* or *dicom+json*).

The URI is composed by a Base URI: see Base URI for the origin server in Section 6.3.2.3.

The Search Transaction origin server supports resources listed in Table 32.

Table 32: Resources Search Transaction - Origin Server*

Transaction	Resource	Comments
Search	All Studies	

* See resource path in Table 10.6.1-1 in PS3.18

The Search Transaction origin server supports query parameters listed in Table 33. If the internal communication is set to gRPC, the query parameter *includefield* is not supported and only the default return keys defined in Table 35 are returned in the response.

Table 33: Query Parameters for Search Transaction - Origin Server

Query Parameter	Supported Values	Comments
match	Attribute Values to address the search (matching key). See the supported DICOM Attributes provided in the response in the Table 35	Corresponds to DIMSE Matching Keys
includefield	Attributes to be included in the response (return key). See the supported DICOM Attributes provided in the response in the Table 35	Corresponds to DIMSE Return Keys
fuzzymatching	«true false»	A 299 Warning Header will be returned if requested
emptyvaluematching		A 299 Warning Header will be returned if requested
multiplevaluematching		A 299 Warning Header will be returned if requested
limit		A 299 Warning Header will be returned if requested
offset	Number of results the server skips before the first returned result	A 299 Warning Header will be returned if requested
charset		see Table 36

The Search Transaction origin server supports Header Fields listed in Table 34.

Table 34: Header Fields for Search Transaction - Origin Server

Header Field	Supported Values	Comments
Accept	Received in the user agent request: <i>application/dicom+json</i> <i>multipart/related; type="application/dicom+xml"</i>	
Content-Type	<i>application/dicom+json</i> (Default) <i>multipart/related; type="application/dicom+xml"</i>	
Content-Length		

Table 35 lists the DICOM query / returned Attributes supported by the Search Transaction origin server.

If internal communication is set to DICOM, the following applies:

- PatientName (0010,0010) will be handled as described in Section 5.2.7.6.

If internal communication is set to gRPC, the following applies:

- Alphabetic, phonetic and ideographic lastName and firstName will be used for searching.
- Searching for prefix, suffix and middleName is not supported.

Table 35: Query / Return Key Search Transaction - Origin Server: Study Level*

Attribute Name	Tag	Matching Key	Return Key	Comments on the Response
SpecificCharacterSet	(0008,0005)	N	Y	see Table 36 for accepted character sets
StudyDate	(0008,0020)	N	Y	
StudyTime	(0008,0030)	N	Y	
AccessionNumber	(0008,0050)	Y	Y	
ModalitiesInStudy	(0008,0061)	N	Y	
ReferringPhysicianName	(0008,0090)	N	Y	
RetrieveURL	(0008,1190)	N	Y	
PatientName	(0010,0010)	Y	Y	
PatientID	(0010,0020)	Y	Y	
IssuerOfPatientID	(0010,0021)	Y	Y	If no information is provided, the default issuer defined for the site is used to return results. If the information is provided but does not match any issuer defined for the site, no results are returned.
PatientBirthDate	(0010,0030)	N	Y	
PatientSex	(0010,0040)	N	Y	
StudyInstanceUID	(0020,000D)	N	Y	
StudyID	(0020,0010)	N	Y	
NumberOfStudyRelatedSeries	(0020,1206)	N	Y	
NumberOfStudyRelatedInstances	(0020,1208)	N	Y	

* May be used for All studies resource query

Table 36: Supported QIDO-RS Charsets and Accept-Charsets

DICOM Specific Character Set	IANA Preferred MIME Name
ISO_IR 6	US-ASCII
ISO_IR 192	UTF-8
ISO_IR 159	ISO-2022-JP-2
ISO_IR 100	ISO-8859-1
ISO_IR 101	ISO-8859-2
ISO_IR 109	ISO-8859-3
ISO_IR 110	ISO-8859-4
ISO_IR 144	ISO-8859-5
ISO_IR 127	ISO-8859-6
ISO_IR 126	ISO-8859-7
ISO_IR 138	ISO-8859-8

Table 36: Supported QIDO-RS Charsets and Accept-Charsets ▼

▲ Table 36: Supported QIDO-RS Charsets and Accept-Charsets

DICOM Specific Character Set	IANA Preferred MIME Name
ISO_IR 148	ISO-8859-9
ISO_IR 166	TIS-620
ISO 2022 IR 13\ISO 2022 IR 87	ISO-2022-JP
ISO 2022 IR 6\ISO 2022 IR 149	ISO-2022-KR
GBK	GBK
GB18030	GB18030

5.3.3 Worklist Web Service – N/A

This section does not apply to *syngo.share* core.

5.3.4 Non-Patient Instance Web Service – N/A

This section does not apply to *syngo.share* core.

5.3.5 Notification Web Service – N/A

This section does not apply to *syngo.share* core.

5.3.6 Storage Commitment Web Service – N/A

This section does not apply to *syngo.share* core.

5.3.7 Modality Scheduled Procedure Step Web Service – N/A

This section does not apply to *syngo.share* core.

5.3.8 Modality Performed Procedure Step Web Service – N/A

This section does not apply to *syngo.share* core.

5.4 Media Services – N/A

This section does not apply to *syngo.share* core.

5.5 Real-Time Video Services – N/A

This section does not apply to *syngo.share* core.

5.6 Cross Service Considerations – N/A

This section does not apply to *syngo.share* core.

5.7 Specific Character Sets

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

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

6 Configuration

syngo.share core is configured in the product configuration in *syngo.share* Configuration and static server configuration files. The following sections provide more information on the configuration of specific services.

6.1 General Configuration Parameters – N/A

This section does not apply to *syngo.share* core.

6.2 Configuration of DIMSE Services

The *DicomServer* and *EventServer* are configured according to the standard *syngo.share* core server configuration mechanism.

6.2.1 Basic Worklist Management Service Configuration

It is possible to configure conditions for the creation of DICOM modality worklists based on incoming HL7 order messages (OMIs/ORMs). Furthermore, mappings for scheduled station AETs and AET groups can be configured.

6.2.2 Modality Performed Procedure Step Service Configuration

It is possible to configure DICOM targets to which data concerning modality-performed procedure steps (MPPS) should be forwarded.

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

This section does not apply to *syngo.share* core.

6.2.4 Instance Availability Notification Service Configuration

It is possible to configure DICOM targets to which DICOM IAN notifications should be sent.

6.2.5 Storage Service Configuration

It is possible to configure conditions for storing DICOM data (C-STORE), including

- **Universal correction**

The universal correction feature tries to correct the import-relevant DICOM tags of nonconforming DICOM documents to meet the requirements of *syngo.share* core and the DICOM Standard. The universal correction feature makes best-effort corrections of a narrow range of DICOM tags. It cannot account for more severe nonconformities.

- **Import filters**

With import filters, DICOM tags can be added or edited during import operations.

- **Asynchronous DICOM import**

The asynchronous import splits the import process into two separate processes: The first process consists of a simplified validity check, stores the image temporarily and queues it for permanent

storage. The second process performs a full DICOM metadata validity check and permanently stores valid images in the archive. Invalid items are sent to the DICOM error list.

- **Header-only import**

The header-only import limits the import to the metadata of DICOM images. No pixel data must be present.

- **Deletion of KOS rejection notes**

KOS Rejection Notes can automatically be deleted after import (see section [KOS Rejection Notes](#) for details).

- **Correction of the specific character set**

An alternate specific character set can be defined and its application can be configured.

6.2.6 Storage Commitment Service Configuration

It is possible to configure conditions for DICOM storage commitment reports, e.g. delays to give the peer time to establish its listen port.

6.2.7 Query/Retrieve Service Configuration

It is possible to configure

- conditions for searching for DICOM data (C-FIND). The specific character set of the C-FIND request and response can be configured. If an alternate specific character set is configured for a C-FIND response, all characters which are not part of the given character set are exchanged with the replacement character '?'.
 - C-FIND spanning to automatically forward C-FIND requests to third-party DICOM archives.
 - conditions for sending data to DICOM targets (C-MOVE).
 - C-MOVE spanning to query multiple remote archives even if the client is not capable of evaluating the DICOM tag RetrieveAETitle (0008,0054). If the remote archive supports Move Originator information (Calling AET, message ID), *syngo.share core* can handle its C-STORE returns directly.
 - filters that add or edit DICOM tags during export operations.

6.2.8 Print Management Service Configuration

There are no DICOM-specific print management configurations options available.

6.3 Configuration of DICOM Web Services

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

Throughout this section, the following Values can be used in the “Configurable” column:

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

6.3.1 URI Web Service Configuration – N/A

This section does not apply to *syngo.share* core.

6.3.2 Studies Web Service Configuration

It can be configured whether the *webdicom* AE shall communicate internally via DICOM or gRPC.

6.3.2.1 Retrieve Transaction (WADO-RS) Configuration

The Retrieve Transaction is also known as WADO-RS. Table 37 lists configuration parameters for the Retrieve Transaction of the Studies Web Service:

Table 37: Retrieve Transaction Parameters

Parameter	Configurable	Default Value	Comments
Secured Local Retrieve Imaging Doc Set URL (Base URI)	FIXED	https://<server>/webdicom/tenants/<tenant>/	
Secured Port	SERVICE	443	

6.3.2.2 Store Transaction (STOW-RS) Configuration – N/A

This section does not apply to *syngo.share* core.

6.3.2.3 Search Transaction (QIDO-RS) Configuration

The Search Transaction service is also known as QIDO-RS. Table 38 lists configuration parameters for the Search Transaction of the Studies Web Service:

Table 38: Search Transaction Parameters

Parameter	Configurable	Default Value	Comments
Secured Local Retrieve Imaging Doc Set URL (Base URI)	FIXED	https://<server>/webdicom/tenants/<tenant>/	
Secured Port	SERVICE	443	

6.3.3 Worklist Web Service Configuration – N/A

This section does not apply to *syngo.share* core.

6.3.4 Non-Patient Instances (NPI) Web Service Configuration – N/A

This section does not apply to *syngo.share* core.

6.3.5 Storage Commitment Service Configuration – N/A

This section does not apply to *syngo.share* core.

6.3.6 Modality Scheduled Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

6.3.7 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

6.4 Configuration of Media Storage Service – N/A

This section does not apply to *syngo.share* core.

6.5 Configuration of Real-Time Video Service – N/A

This section does not apply to *syngo.share* core.

6.6 Configuration of Audit Trail - Syslog

Auditing must be configured in *syngo.share* Configuration. The most important configuration options are `AuditSystemActions` and `AuditUserActions`. There are two aspects to consider:

- **AuditServer endpoints**

Host, Port, TLS and UDP

- **Auditable actions**

`AuditSystemActions` enables the auditing of actions triggered by systems or unknown users. This includes configuration changes made via the commandline tools *EventAdmin*, *HI7Admin*, *MetaAdmin* and *StorageAdmin*, which are actions by unknown users. If auditing of such changes is desired, the configuration key `AuditSystemActions` needs to be enabled. Note that (automatic) events triggered by third-party systems will also be audited in this case. This may result in a large volume of audit messages of minor interest. It is therefore generally recommended to keep `AuditSystemActions` disabled unless specifically needed.

`AuditUserActions` enables the auditing of actions triggered by registered users. Enabling this configuration key is recommended.

7 Network and Media Communication Details

7.1 General

7.1.1 General Association Parameters

Table 39 lists Association parameters applicable to all AEs on the system that support DICOM network associations (DIMSE), i.e. *DicomServer* and *EventServer*.

Table 40 lists Association parameters applicable to all AEs on the system that support DICOM Web Service associations, i.e. *webdicom*.

Table 39: General Association Parameters - Networking Services

Name	Value
Implementation Class UID	1.2.276.0.7230010.3.0.3.6.1
Implementation Version Name	OFFIS_DCMTK_361
Maximum PDU Length	Default: 16384
Maximum number of outstanding asynchronous Transactions	N/A

Table 40: General Association Parameters - Web Services

Name	Value
Maximum number of connections supported as Server	Default: unlimited

7.2 Specifications

7.2.1 *DicomServer* Application Entity

7.2.1.1 Sequencing of Real-World Activities for *DicomServer*

The services of the *DicomServer* AE must be requested according to the Service Class specifications in DICOM PS3.3.

7.2.1.2 Association Parameters of *DicomServer* AE

Table 39 and Table 41 list Association parameters applicable to all activities of *DicomServer* AE.

Table 41: Association Parameters for *DicomServer* AE - Networking Services

Name	Value
Maximum number of simultaneous Associations as Association Acceptor	Default: 30 (maximum number limited only by hardware resources)

7.2.1.3 Association Initiation

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

7.2.1.3.1 Real-World Activity: C-FIND spanning

The *DicomServer* AE initiates associations to an arbitrary number of configured targets and forwards the incoming C-FIND request unaltered to each of them. The presentation context used for the incoming C-FIND request is also used for the outgoing association.

The C-FIND request is also processed locally. Results that share common identifiers (i.e. that share a common 4-tuple consisting of the Patient ID, Study Instance UID, Series Instance UID and SOP Instance UID) are eliminated. Per default, local results are returned before any remote results are taken into account.

Extended negotiation

The *DicomServer* AE supports extended negotiation for C-FIND according to DICOM PS3.4, C.5.1.1 for Patient Root Query/Retrieve and Study Root Query/Retrieve. The flags "Relational-queries" (Byte 1) and "Date-time matching" (Byte 2) are supported. "Fuzzy semantic matching of person names" (Byte 3) and "Timezone Query Adjustment" (Byte 4) are not supported and therefore always turned down by the SCP during association negotiation.

7.2.1.3.2 Real-World Activity: C-MOVE spanning

The *DicomServer* AE receives a C-MOVE request, and the Called AET used in the incoming association matches the name of a configured DICOM target. In this case, the C-MOVE request is forwarded unaltered to the corresponding configured targets.

The presentation context used for the incoming C-MOVE request is also used for the outgoing association.

7.2.1.3.3 Real-World Activity: C-MOVE request

Associated Real-World Activity

The *DicomServer* AE initiates an association when it receives a C-MOVE request.

Proposed Presentation Contexts

The *DicomServer* AE picks all required SOP Classes from Table 1 and Table 2 and combines them with all Transfer Syntaxes from Table 3.

Extended negotiation

The *DicomServer* AE supports extended negotiation for C-MOVE for Patient Root Query/Retrieve and Study Root Query/Retrieve in accordance with DICOM PS3.4, C.5.2.1 and DICOM PS3.4, C.5.3.1. "Relational-retrieval" (Byte 1) is supported.

7.2.1.3.4 Real-World Activity: MPPS

The *DicomServer* AE can initiate an association to forward MPPS messages to configured DICOM targets when it receives an N-CREATE and N-SET MPPS request.

7.2.1.3.5 Real-World Activity: Print

The *DicomServer* AE can initiate an association to request medical images and formatting parameters to be printed by a DICOM Print SCP.

7.2.1.4 Association Acceptance

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

The *DicomServer* AE accepts an association when it receives a valid association request with at least one matching presentation context.

Presentation Context acceptance criteria

The *DicomServer* AE accepts any of the presentation contexts that are constituted by the content of the Table 1, Table 2 and Table 3.

7.2.1.4.1 Real-World Activity: Storage (C-STORE)

The associated real-world activity is a modality, workstation, PACS or other system attempting to store an image to the *DicomServer* AE. This results in the storage of the received images in *syngo.share*.

Table 1, Table 2 and Table 3 list the presentation contexts that the *DicomServer* AE accepts from remote DICOM Storage SCUs during a C-STORE request.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity Storage SCU (C-STORE) of the *DicomServer* AE of the system.

Table 42: Transfer Syntax Selection Preference Order - Image SOP Classes for *DicomServer*

Preference Order	Transfer Syntax	UID	Comments
1	JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)	1.2.840.10008.1.2.4.92	
2	JPEG 2000 Part 2 Multi-component Image Compression	1.2.840.10008.1.2.4.93	
3	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	
4	JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	
5	JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	
6	JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81	
7	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	
8	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	
9	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	
10	JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	
11	RLE Lossless	1.2.840.10008.1.2.5	
12	Explicit VR Little Endian	1.2.840.10008.1.2.1	
13	Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	

Table 42: Transfer Syntax Selection Preference Order - Image SOP Classes for *DicomServer* ▼

▲ Table 42: Transfer Syntax Selection Preference Order - Image SOP Classes for *DicomServer*

Preference Order	Transfer Syntax	UID	Comments
14	Implicit VR Little Endian	1.2.840.10008.1.2	
15	Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99	
16	Encapsulated Uncompressed Explicit VR Little Endian	1.2.840.10008.1.2.1.98	
17	Deflated Image Frame Compression	1.2.840.10008.1.2.8.1	
18	JPEG XL Lossless	1.2.840.10008.1.2.4.110	
19	JPEG XL JPEG Recompression	1.2.840.10008.1.2.4.111	
20	JPEG XL	1.2.840.10008.1.2.4.112	
21	High-Throughput JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.201	
22	High-Throughput JPEG 2000 with RPCL Options Image Compression (Lossless Only)	1.2.840.10008.1.2.4.202	
23	High-Throughput JPEG 2000 Image Compression	1.2.840.10008.1.2.4.203	

Table 43: Transfer Syntax Selection Preference Order - Video SOP Classes for *DicomServer*

Preference Order	Transfer Syntax	UID	Comments
1	HEVC/H.265 Main 10 Profile / Level 5.1	1.2.840.10008.1.2.4.108	
2	HEVC/H.265 Main Profile / Level 5.1	1.2.840.10008.1.2.4.107	
3	Fragmentable MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106.1	
4	MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106	
5	Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105.1	
6	MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105	
7	Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104.1	
8	MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104	
9	Fragmentable MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103.1	
10	MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103	
11	Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102.1	
12	MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	
13	Fragmentable MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101.1	
14	MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101	
15	Fragmentable MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100.1	
16	MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100	

Table 44: Transfer Syntax Selection Preference Order - Non-Image SOP Classes for *DicomServer*

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

7.2.1.4.2 Real-World Activity: Query/Retrieve (C-FIND/C-MOVE)

The *DicomServer* AE accepts an association for Query/Retrieve requests (C-FIND/C-MOVE).

Extended negotiation

The *DicomServer* AE supports extended negotiation for C-FIND according to DICOM PS3.4, C.5.1.1 for Patient Root Query/Retrieve and Study Root Query/Retrieve. The flags "Relational-queries" (Byte 1) and "Date-time matching" (Byte 2) are supported. "Fuzzy semantic matching of person names" (Byte 3) and "Timezone Query Adjustment" (Byte 4) are not supported and therefore always turned down by the SCP during association negotiation.

The *DicomServer* AE supports extended negotiation for C-MOVE for Patient Root Query/Retrieve and Study Root Query/Retrieve in accordance with DICOM PS3.4, C.5.2.1 and DICOM PS3.4, C.5.3.1. "Relational-retrieval" (Byte 1) is supported.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity: Query/Retrieve (C-FIND/C-MOVE) of *DicomServer* of the system.

Table 44 applies for Real-World Activity: Query/Retrieve (C-FIND/C-MOVE) as well.

7.2.1.4.3 Real-World Activity: MPPS

The *DicomServer* AE accepts an association to receive N-CREATE and N-SET MPPS requests.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity: MPPS of *DicomServer* of the system.

Table 44 applies for Real-World Activity: MPPS as well.

7.2.1.4.4 Real-World Activity: DICOM Modality Worklist (C-FIND)

The *DicomServer* AE accepts DICOM Modality Worklist C-FIND requests and provides according DICOM Modality Worklist information in response.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity: DICOM Modality Worklist (C-FIND) of *DicomServer* of the system.

Table 44 applies for Real-World Activity: DICOM Modality Worklist (C-FIND) as well.

7.2.1.4.5 Real-World Activity: Storage Commitment

The *DicomServer* AE accepts Storage Commitment requests and provides N-EVENT-REPORT responses with according storage success or failure information.

Transfer Syntax Selection Policies

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

Table 44 applies for Real-World Activity: Storage Commitment as well.

7.2.1.4.6 Real-World Activity: Verification

The *DicomServer* AE accepts verification requests (C-ECHO). If the provided AE Title is unknown, the association is rejected.

Transfer Syntax Selection Policies

This section provides tables that describe the Transfer Syntax preference for different SOP Classes or SOP Class groups when there are multiple Transfer Syntaxes provided by the Association initiator for Real-World Activity: Verification of *DicomServer* of the system.

Table 44 applies for Real-World Activity: Verification as well.

7.2.2 EventServer Application Entity

7.2.2.1 Sequencing of Real-World Activities for EventServer

The services of the *EventServer* AE are triggered automatically according to configured event actions or - in the context of third-party VNAs - other configurations.

7.2.2.2 Association Parameters of EventServer AE

Table 39 and Table 45 list Association parameters applicable to all activities of *EventServer* AE.

Table 45: Association Parameters for *EventServer* AE - Networking Services

Name	Value
Maximum number of simultaneous Associations as Association Initiator	Default: 1 (maximum number limited only by hardware resources)

7.2.2.3 Association Initiation

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

See *EventServer* Application Data Flow Diagram for more information regarding the use cases listed below. By default, the DICOM Implicit VR Little Endian Transfer Syntax (1.2.840.10008.1.2) is used, as defined in DICOM PS3.5, 10.1.

General

The *EventServer* AE supports TCP and TLS. When a DICOM operation has to be performed, the *EventServer* attempts to establish an association with a remote AE. The host, port and remote AET are defined in the corresponding configuration dialog.

Asynchronous nature

The *EventServer* AE only allows a single outstanding operation on each association. It does not perform asynchronous negotiation.

7.2.2.3.1 Real-World Activity: N-CREATE request

The *EventServer* AE initiates an association with a remote AE when a configured event action requires it to send an N-CREATE request for sending DICOM IANs.

7.2.2.3.2 Real-World Activity: C-STORE request

The *EventServer* AE initiates an association with a remote AE when a configured event action requires it to send a C-STORE request for routing DICOM data.

7.2.2.3.3 Real-World Activity: C-FIND and C-MOVE requests

The *EventServer* AE initiates an association with a remote AE when a configured event action requires it to send C-FIND and C-MOVE requests for fetching DICOM studies and/or DICOM series.

7.2.2.3.4 Real-World Activity: Storage Commitment N-ACTION request

The *EventServer* AE initiates an association with a remote AE when the corresponding configuration requires it to send a Storage Commitment N-ACTION request for verifying the availability of previously sent DICOM data (in the context of a third-party VNA).

7.2.2.4 Association Acceptance – N/A

7.2.3 *webdicom* Application Entity

7.2.3.1 Sequencing of Real-World Activities for *webdicom*

The services of the *webdicom* AE are triggered by RESTful interface requests.

7.2.3.2 Association Parameters of *webdicom* AE

Table 40 lists Association parameters applicable to all activities of *webdicom* AE.

7.2.3.3 Association Initiation – N/A

This section does not apply to *syngo.share* core.

7.2.3.4 Association Acceptance

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

7.2.3.4.1 Real-world activity: HTTPS WADO-RS Retrieve Instance Transaction request

Associated real-world activity

The *webdicom* AE receives a WADO-RS Retrieve Instance Transaction request for a study, series or instances.

Proposed Presentation Contexts

Table 1 and Table 3 list the presentation contexts that the *webdicom* AE accepts from the *DicomServer* AE during a C-STORE request. The transfer-syntax in the HTTP request Accept header is ignored; the boundary is processed.

7.2.3.4.2 Real-World Activity: HTTPS QIDO-RS Search All Studies request

The *webdicom* AE receives a QIDO-RS Search All Studies request for a study.

Supported header fields

Table 34 lists the supported header fields that the *webdicom* AE accepts during a QIDO-RS Search All Studies request.

Supported query parameters

Table 33 and Table 35 list the supported query parameters that the *webdicom* AE accepts during a QIDO-RS Search All Studies request. In the case of configured query spanning, remote servers may not support all matching attributes.

7.3 Status Codes

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

7.3.1 General AE Communication and Failure Behavior and Handling

7.3.1.1 Communication Failure Behavior as Association Initiator

Table 46: DICOM Communication Failure Behavior as Association Initiator

Failure	Failure Behavior
Timeout	The ongoing operation fails and the association is aborted (A-ABORT is sent). The error is logged and propagated.
Network Disconnect	Same behavior as for timeout, however A-ABORT may not be deliverable if the TCP connection is already gone.
Peer requests release	The ongoing operation fails and the association is aborted (A-ABORT is sent instead of A-RELEASE-RP since a DIMSE operation is pending). The event is logged and propagated.
Peer aborts association	The ongoing operation fails and the association can no longer be properly released. The event is logged and propagated.

7.3.1.2 Communication Failure Handling as Association Acceptor

Table 47 describes how the AE responds when it receives an Association request that leads to a failure in communication.

Table 47: DICOM Communication Failure Handling as Association Acceptor

Exception	Failure Response
No Called AE or no Calling AE	The association is aborted (A-ABORT is sent) and the specific error is logged.
Association negotiation fails	The association is aborted (A-ABORT is sent) and the specific error is logged.
Failure during processing of an Association request (includes being shut down)	The association is aborted (A-ABORT is sent) and the specific error is logged.
Unrecognized or insufficiently/wrongly configured Called AE	The association is rejected with the following A-ASSOCIATE-RJ and the specific error is logged: - Result: 1 - Rejected Permanent - Source: 1 - Service User - Reason: 263 - Called AE Title Not Recognized
Unrecognized or insufficiently configured Calling AE	The association is rejected with the following A-ASSOCIATE-RJ and the specific error is logged: - Result: 1 - Rejected Permanent - Source: 1 - Service User - Reason: 259 - Calling AE Title Not Recognized
No incoming connections (TCP and/or TLS) are enabled for Calling AE	The association is rejected with the following A-ASSOCIATE-RJ and the specific error is logged: - Result: 1 - Rejected Permanent - Source: 2 - Service Provider (ACSE Related) - Reason: 513 - No Reason
Incoming connection from host is not allowed to establish an association	The association is rejected with the following A-ASSOCIATE-RJ and the error is logged: - Result: 1 - Rejected Permanent - Source: 1 - Service User - Reason: 257 - No Reason

7.3.2 DIMSE Services

Standard status codes are supported. For all supported DIMSE services, errors will terminate the corresponding operation and a suitable message is logged.

7.3.2.1 Basic Worklist Management Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.2 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.3 Unified Worklist and Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.4 Instance Availability Notification Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.5 Storage Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.6 Storage Commitment Service – N/A

This section does not apply to *syngo.share* core.

7.3.2.7 Query/Retrieve Service –N/A

This section does not apply to *syngo.share* core.

7.3.3 DICOM Web Services

7.3.3.1 General Status Codes

This section describes the common Status Code behavior and handling all the supported Transaction.

7.3.3.1.1 Common Transaction as Origin Server

Table 48 lists the Status Codes that an origin server supports for all Transactions and the conditions in which the listed Status Codes are sent:

Table 48: Status Codes of Origin Server for all Transactions

Status	Code	Condition
Success	200 (Success)	Successful QIDO-RS or WADO-RS
	204 (No Content)	QIDO-RS did not find any matching results.
	206 (Partial Content)	Incomplete receipt due to warnings, failed files and access issues
Redirection	301 (Moved Permanently)	/aets/<aet> is removed from the URL, the Response location header includes the new URL.
Client Error	400 (Bad Request)	The request contains unsupported parameters.
	401 (Unauthorized)	The JSON web token (JWT) is missing.
	403 (Forbidden)	No access to Organizational Unit (only applies if gRPC is activated for the communication instead of DICOM).
	404 (Not Found)	Requested data does not exist or has been removed.
	405 (Method Not Allowed)	Interfaces are deactivated.
	406 (Not Acceptable)	- Charset cannot be applied on the entire result. - Accept header does not have a value. - Frame-based access is not supported for the SOPClassUID. - Cannot be rendered as JPEG. - Only x frames of n can be rendered.
	414 (URI Too Long)	Triggered by Traefik or Quarkus.
Server Error	500 (Internal Server Error)	Standard errors applying to all Server Error codes: - Unforeseen event. - Traefik cannot find the server. - Wrong protocol is used.
	503 (Service Unavailable)	
	505 (HTTP Version Not Supported)	

7.3.3.1.2 Common Transaction as User Agent – N/A

This section does not apply to *syngo.share* core.

7.3.3.2 URI Web Service – N/A

This section does not apply to *syngo.share* core.

7.3.3.3 Studies Web Service

7.3.3.3.1 Retrieve Transaction as Origin Server

Table 49 lists the Status Codes that an origin server supports for the Retrieve Transaction of the Studies Web Service and the conditions in which the listed Status Codes are sent:

Table 49: Status Codes of Origin Server for Retrieve Transaction

Status	Code	Condition
Success	200 (OK)	Successful WADO-RS
	206 (Partial Content)	Incomplete receipt due to warnings, failed files and access issues
Failure	400 (Bad Request)	The request contains defective WADO-RS rendering parameters.
	406 (Not Acceptable)	• Charset cannot be applied on the entire result. • Accept header does not have a value. • Frame-based access is not supported for the SOPClassUID.

7.3.3.3.2 Retrieve Transaction as User Agent – N/A

This section does not apply to *syngo.share* core.

7.3.3.3.3 Store Transaction as Origin Server – N/A

This section does not apply to *syngo.share* core.

7.3.3.3.4 Store Transaction as User Agent – N/A

This section does not apply to *syngo.share* core.

7.3.3.3.5 Search Transaction as Origin Server

Table 50 lists the Status Codes that an origin server supports for the Search Transaction of the Studies Web Service and the conditions in which the listed Status Codes are sent:

Table 50: Status Codes of Origin Server for Search Transactions

Status	Code	Condition
Success	200 (OK)	Successful QIDO-RS
	204 (No Content)	QIDO-RS did not find any matching results.
Failure	400 (Bad Request)	The request contains defective QIDO-RS query parameters.

7.3.3.3.6 Search Transaction as User Agent – N/A

This section does not apply to *syngo.share* core.

7.3.3.4 Worklist Web Service – N/A

This section does not apply to *syngo.share* core.

7.3.3.5 Non-Patient Instance Web Service – N/A

This section does not apply to *syngo.share* core.

7.3.3.6 Storage Commitment Service – N/A

This section does not apply to *syngo.share* core.

7.3.3.7 Modality Scheduled Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

7.3.3.8 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share* core.

8 Security

8.1 Introduction

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

8.2 External Network Requirements

Various non-DICOM network protocols are described in the *syngo.share* Security Whitepaper.

8.3 TCP Port Configuration

See Section 6 Configuration for information on the usage of ports for DICOM and other protocols.

8.4 DICOM Security Profiles Support

8.4.1 Secure Use and User Identity Profiles – N/A

This section does not apply to *syngo.share* core.

8.4.2 Secure Transport Connection Profiles

syngo.share core does not support secure transport connection profiles specified in DICOM PS3.15, 6.2 but supports flexible configuration of OpenSSL cipher suites and certificate revocation files. Accepted cipher suites are listed in Section C.2.5. For more information see the *syngo.share* Security Whitepaper.

8.4.3 Media Storage Security Profiles – N/A

This section does not apply to *syngo.share* core.

8.4.4 Attribute Confidentiality Profiles – N/A

This section does not apply to *syngo.share* core.

8.4.5 Digital Signature Profiles – N/A

This section does not apply to *syngo.share* core.

8.4.6 Additional DICOM Security Profiles – N/A

8.5 User Identity Negotiation Support – N/A

This section does not apply to *syngo.share* core.

8.6 Web Services Security Features

The *webdicom* AE accepts an arbitrary number of HTTPS connections authenticated by a configured OAuth 2.0 server.

The *webdicom* AE is protected by authorization code flow with PKCE and client credentials flow using bearer tokens. The customer must provide a compliant authentication and authorization server compatible with OpenID Connect and OAuth 2.0.

8.7 Other Security Features – N/A

This section does not apply to *syngo.share* core.

Annexes

A Information Object Definitions (IODs)

This section describes all the SOP Instances natively created by *syngo.share core*, (i.e., all SOP Classes that are marked in the “Created” column in Table 1), namely Key Object Selection Document Storage. Details on Attribute coercion are defined in Section 5.2.5.2.

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

This section does not apply to *syngo.share core*.

A.2 Key Object Selection Document Storage IODs

syngo.share core supports Key Object Selection objects according to the IHE profile Imaging Object Change Management (IOCM) [2] for the deletion of DICOM documents from third-party VNAs.

B Structured Report Content Encoding – N/A

This section does not apply to *syngo.share* core.

C Security Details

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

C.1 External Network Requirement Details

Various external network protocols are described in the corresponding product documentation.

C.2 DICOM Security Profile Details

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

This section does not apply to *syngo.share* core.

C.2.2 Audit Trail Messages

C.2.2.1 Audit Trail Message Format Profile

To help ensure healthcare privacy and security in automated systems, usage data needs to be collected. This data is reviewed by administrative staff to verify that healthcare data is being used in accordance with the healthcare provider's data security requirements and to establish accountability for data use. This data collection and review process is called auditing and the data itself comprises the audit trail. Audit trails can be used for surveillance purposes to detect noteworthy events that may warrant further investigation.

Auditing in *syngo.share* is implemented according to the IHE profile Audit Trail and Node Authentication (part Audit Trail), which is based on DICOM PS3.15, A.5. Auditing is restricted to events regarding patients, documents (subsequently also collections, etc.), user authentication, system configurations, and certain security alerts:

- Search for patients or documents
- Creation, modification, or deletion of patients
- Import, modification, deletion, export, or sharing of documents
- Changing states of documents (document workflow state) or parts thereof (DICOM series thin slice state)
- Changing types of document parts (DICOM series: DICOM series type, visibility restriction type; generic file: visibility restriction type)
- Changing of information associated with documents (document logs) or parts thereof (generic file coupling)
- Login or logout of users
- Creation, update, or deletion of system configurations
- Creation, access, update or deletion of collections and collection cases as well as the creation or deletion of collection case items
- Starting or stopping of break-the-glass accesses

Some events can be audited by third-party clients via interface methods provided by the *EventServer*:

- Starting or stopping of applications
- Login or logout of users
- Creation, access, update or deletion of DICOM studies
- Security alerts

The processing of audit messages works asynchronously — events are recorded immediately, but the resulting audit messages are queued and periodically sent to an Audit Record Repository via TCP (the frequency of the intervals is configurable). If required, audit messages can be analyzed with an Audit Record Viewer.

To use audit messages for effective system analyses, each audit message must be uniquely associated with a certain event. To this end, each audit message provides various kinds of information, the most important of which are:

- Event ID
- Date and time of the event
- Status of the event
- User IDs
- Application IDs
- Object IDs
- Audit trail ID (used to aggregate audit messages in order to reconstruct audit trails)
- Audit source ID

See [Section C.2.2](#) for details on event IDs and detailed information per event ID.

C.2.2.2 Event IDs

Within *syngo.share*, the events recorded by audit messages are primarily identified via event IDs. However, since most event IDs represent a group of events rather than a single event, it is often necessary to explore audit messages in detail to identify the reported events. The following list provides the event IDs used by *syngo.share* as well as brief instructions for identifying the associated events:

- **110100 (Application Activity)**
This event ID is used for an Application Entity starting or stopping.
- **110102 (Begin Transferring DICOM Instances)**
This event ID is used to indicate the beginning of an internal or external transfer of DICOM images. To differentiate between the two transfer types, one has to analyze the participating destination application. If the destination application represents a *syngo.share* module, then an internal transfer has been performed. If it specifies a third-party system, an external transfer has been performed.
- **110103 (DICOM Instances Accessed)**
This event ID is used in audit messages which are generated when DICOM images are created, undeleted, accessed, updated or moved. It is also used when parts of a DICOM study are deleted (when a complete DICOM study is deleted, the event ID 110105 (DICOM Study Deleted) is used instead). To differentiate between the operations mentioned, one has to analyze the event action code ID as well as the objects stated in the audit message:
 - C: DICOM images have been created (externally) or undeleted (internally).
 - R: DICOM images have been accessed.

- U: DICOM images have been updated or moved. The life cycle information of the DICOM images indicates which of the two operations has been executed.
- D: DICOM images of a DICOM study have been deleted.
- **110104 (DICOM Instances Transferred)**
This event ID indicates the end of an internal or external transfer of DICOM images. If the source application defines a *syngo.share* module, the end of an internal transfer has been audited. If the source application defines a third-party system, the end of an external transfer has been audited.
- **110105 (DICOM Study Deleted)**
This event ID indicates the deletion of all DICOM images of a DICOM study. The life cycle information of the DICOM study indicates whether the DICOM study has been soft-deleted or hard-deleted.
- **110106 (Export)**
This event ID indicates the export of DICOM images or generic files to a medium. Detailed information about the exported DICOM images or generic files can be obtained by analyzing the listed objects.
- **110107 (Import)**
This event ID indicates the import of DICOM images or generic files from a medium or the copying of DICOM images or generic files. Detailed information about the imported DICOM images or generic files can be obtained by analyzing the listed objects.
- **110110 (Patient Record)**
This event ID indicates the creation, update, merge, deletion, or undeletion of a patient. To distinguish between the different cases, one has to analyze the event action code ID as well as the objects stated in the audit message:
 - C: A patient has been either created or undeleted. The life cycle information of the listed patient indicates which of the two operations has been executed.
 - U: A patient has been updated or merged. The life cycle information of the listed patient indicates which of the two operations has been executed.
 - D: A patient has been deleted.
- **110112 (Query)**
This event ID indicates that either a DICOM C-FIND request or an SQL query has been performed. To differentiate between the two kinds of queries, one has to check if the object representing the query states a DICOM C-FIND request or an SQL query.
- **110113 (Security Alert)**
We have to differentiate between internal and external use cases:
 - **Internal use case 1**
This event ID in combination with the event type code 110131 (Software Configuration) indicates the creation, update, or deletion of a system configuration (e.g. audit configuration, hard-deletion configuration). To determine which operation has been performed, the life cycle information of the system configuration object has to be analyzed. Note that manipulations of the audit configuration are of particular interest because the audit configuration determines which events are audited; in this case one of the event type codes 110133 (Audit Recording Stopped) or 110134 (Audit Recording Started) is specified additionally.
 - **Internal use case 2**
This event ID in combination with the event type code 110127 (Emergency Override Started) or 110138 (Emergency Override Stopped) indicates the starting and stopping of a break-the-glass access, respectively.
 - **Internal use case 3**

This event ID in combination with the event type code 110146 (Session stop) indicates the stopping (termination) of a session.

- **External use case**

This event ID indicates that a security alert was reported. The event type code indicates the underlying event. Currently the following security alert type codes (CID 403) are supported: 110132 (Use of Restricted Function), 110136 (Security Roles Changed), and 110137 (User Security Attributes Changed).

- **110114 (User Authentication)**

This event ID is used to audit a login or logout. To differentiate between the two kinds of authentication, the event type codes have to be evaluated.

- **EI-001 (Begin Transferring Generic Instances)**

This event ID indicates the beginning of an internal or external transfer of generic files. To analyze the transfer type, a similar reasoning as in the case of DICOM images should be applied (see event ID 110102).

- **EI-002 (Generic Instances Transferred)**

This event ID indicates the end of an internal or external transfer of generic files. Similar to event ID 110104, one has to analyze the source application (*syngo.share* module versus third-party system) to obtain the exact kind of transfer.

- **EI-003 (Generic Instances Accessed)**

This event ID is used when generic files are accessed, updated, moved, or undeleted. It is also used when parts of a generic container are deleted (when a complete generic container is deleted, the event ID EI-004 (Generic Container Deleted) is used instead). To determine which operation has been performed, a similar reasoning as in the case of DICOM images should be applied (see event ID 110103).

- **EI-004 (Generic Container Deleted)**

This event ID indicates the deletion of all generic files of a generic container. The life cycle information of the generic container indicates whether the generic container has been soft-deleted or hard-deleted.

- **EI-005 (DICOM Study Share)**

This event ID indicates the creation or deletion of DICOM study shares. To differentiate between the two cases, the event action code ID of the audit message has to be analyzed:

- C: DICOM studies have been shared.
- D: Existing DICOM study shares have been deleted.

- **EI-006 (Generic Container Share)**

This event ID indicates the creation or deletion of generic container shares. To determine which operation has been performed, a similar reasoning as in the case of DICOM study shares should be applied (see event ID EI-005).

- **EI-007 (DICOM Import Queue Entries Deleted)**

This event ID indicates the deletion of entries in the DICOM import queue used for the asynchronous DICOM import.

- **EI-008 (Document: Document Workflow State Changed)**

This event ID is used to audit changes to the document workflow state of a document (i.e. a DICOM study or generic container). The audit message contains information about the user, patient, and the document, including the description of the old and new document workflow state.

- **EI-009 (DICOM Series: Thin Slice State Changed)**

This event ID indicates the change of the thin slice state of a DICOM series. The audit message contains information about the user, patient, and the document, including the old and new thin slice state.

- **EI-010 (Document Logs Deleted)**

This event ID is used to audit the deletion of document logs. The audit message contains information about the user, patient, and the document. The latter includes the number of deleted document logs as well as the deletion type, stating whether individual or all logs were deleted.

- **EI-011 (Generic File Coupling Changed)**

This event ID indicates the change of generic file couplings, whereby one such message is created per file. The audit message contains information about the user, patient, and the document (generic container). The coupling information is included in the message and is comprised of the generic file UID and each old and new coupling. For each coupling, the coupling group, coupling type, and the corresponding identifier are listed.

- **EI-012 (DICOM Series: DICOM Series Type Changed)**

This event ID is used to audit changes to the DICOM series type of a DICOM series. The audit message contains information about the user, patient, and the document (specifying the DICOM series), including the description of the old and new DICOM series type.

- **EI-013 (DICOM Series: Visibility Restriction Type Changed)**

This event ID is used to audit changes to the visibility restriction type of a DICOM series. The audit message contains information about the user, patient, and the document (specifying the DICOM series), including the description of the old and new visibility restriction type.

- **EI-014 (Generic File: Visibility Restriction Type Changed)**

This event ID is used to audit changes to the visibility restriction type of a generic file. The audit message contains information about the user, patient, and the document (specifying the generic file), including the description of the old and new visibility restriction type.

- **EI-015 (Collection)**

This event ID indicates the creation, access, update, or deletion of a collection. To distinguish between the different cases, one has to analyze the event action code ID:

- C: A collection has been created.
- R: One or more collections have been accessed.
- U: A collection has been updated, including the special case of renaming a collection (see next section).
- D: A collection has been deleted.

- **EI-016 (Collection Case)**

This event ID indicates the creation, access, update, or deletion of a collection case. To distinguish between the different cases, one has to analyze the event action code ID:

- C: A collection case has been created.
- R: A collection case has been accessed.
- U: A collection case has been updated, including the special case of moving the collection case to another collection (see next section).
- D: A collection case has been deleted.

- **EI-017 (Collection Case Item)**

This event ID indicates the creation or deletion of a collection case item. To distinguish between the different cases, one has to analyze the event action code ID:

- C: A collection case item has been created.
- D: A collection case item has been deleted.
- **EI-018 (Generic Container: Manual Send with GenericRouter)**
This event ID is used to audit the insertion of the manual trigger event for sending a generic container with a specified GenericRouter action instance. The audit message contains information about the user, applications, patient, and the document (generic container). The GenericRouter action instance is included as the participating destination application.
- **EI-019 (Collection Container)**
This event ID indicates the creation, access, update, or deletion of a collection container. To distinguish between the different cases, one has to analyze the event action code ID:
 - C: A collection container has been created.
 - R: A collection container has been accessed.
 - U: A collection container has been updated, including the special case of renaming a collection container (see next section).
 - D: A collection container has been deleted.
- **EI-020 (Login Notification)**
This event ID is used to audit the display and acceptance of the notification after login.
- **EI-021 (Diagnostic Disclaimer)**
This event ID is used to audit the display of the diagnostic disclaimer.
- **EI-022 (Safety Notice)**
This event ID is used to audit the display of the safety notice.
- **EI-023 (Mammography Warning)**
This event ID is used to audit the display of the mammography warning.
- **EI-024 (Digital Pathology Warning)**
This event ID is used to audit the display of the digital pathology warning.
- **EI-025 (Screen Test Information)**
This event ID is used to audit the display of the screen test information.
- **EI-026 (Screen Test Performed)**
This event ID is used to indicate that the screen test was performed.
- **EI-027 (Disclaimer)**
This event ID is used to audit the display of the disclaimer.
- **EI-028 (Indications and Contraindications)**
This event ID is used to audit the display of the indications and contraindications.

C.2.2.3 Detailed information per event ID

To ensure that the information provided by audit messages can be used to reconstruct and understand audited events, audit messages of various event IDs are equipped with various kinds of detailed information:

- **110102 (Begin Transferring DICOM Instances)**
Audit messages with this event ID are additionally equipped with the Series Instance UIDs (SOP Instance UIDs) of the affected DICOM series (DICOM images). Note that if neither Series Instance UIDs nor SOP Instance UIDs are specified, the whole DICOM study has been involved in the event.
- **110103 (DICOM Instances Accessed)**

Similar to audit messages with event ID 110102, the Series Instance UIDs (SOP Instance UIDs) of the affected DICOM series (DICOM images) are specified. If neither Series Instance UIDs nor SOP Instance UIDs are specified, the whole DICOM study has been affected. In addition, when DICOM images are updated, detailed information about the changed values is provided. In case an empty DICOM series is created (via the corresponding interface method), the initial DICOM series type and visibility restriction type are given.

- **110104 (DICOM Instances Transferred)**

See event ID 110102. In case a DICOM series is created, the initial DICOM series type and visibility restriction type are given.

- **110106 (Export)**

Audit messages with this event ID additionally specify the Series Instance UIDs/SOP Instance UIDs/-generic file UIDs of the affected DICOM series/DICOM images/generic files.

- **110107 (Import)**

See event ID 110106.

- **110110 (Patient Record)**

When a patient has been updated, audit messages with this event ID are equipped with detailed information about the changed values.

- **110112 (Query)**

When an audit message with this event ID records the execution of a C-FIND request, the Transfer Syntax of the C-FIND request is stated.

- **110113 (Security Alert)**

We have to differentiate between internal and external use cases:

- **Internal use case 1**

When a system configuration has been updated, audit messages with this event ID provide detailed information about the changed values. Additionally, the included alert description provides information on whether a system configuration has been created, updated, or deleted.

- **Internal use case 2**

When a break-the-glass access has been started or stopped, audit messages with this event ID provide information about the user whose session was affected and the underlying event in a special Alert Subject object. The latter specifies the user identifier string, the specific alert description, as well as a reason which is provided by the user when starting the break-the-glass access.

- **Internal use case 3**

When a session has been stopped (terminated), audit messages with this event ID provide information about the user whose session was affected and the underlying event in a special Alert Subject object. The latter specifies the user identifier string, an alert description, as well as the session ID.

- **External use case**

Further information about the underlying event is potentially provided by the alert subjects.

- **EI-001 (Begin Transferring Generic Instances)**

An audit message with this event ID additionally states the generic file UIDs of the affected generic files. Note that if no generic file UIDs are listed, the whole generic container has been involved in the event.

- **EI-002 (Generic Instances Transferred)**

See event ID EI-001. In case a generic file is created, the initial visibility restriction type is given.

- **EI-003 (Generic Instances Accessed)**

Similar to audit messages with the event ID EI-001, the generic file UIDs of the affected generic files are specified. If no generic file UIDs are specified, the whole generic container has been affected. In addition, when generic files are updated, detailed information about the changed values is provided.

- **EI-015 (Collection)**

When updating a collection, detailed information about the changed values is provided. For the special case of renaming a collection, the source collection, and per existing collection case the source collection case and the target collection case are stated in the object details of the collection.

- **EI-016 (Collection Case)**

When updating a collection case, detailed information about the changed values is provided. For the special case of moving the collection case to another collection, the source collection case is stated in the object details of the collection case.

- **EI-017 (Collection Case Item)**

As no dedicated object is defined for a collection case item, audit messages with this event ID specify the corresponding collection case and document objects. Regarding details of the latter refer to the event IDs 110103 and EI-003 above.

- **EI-019 (Collection Container)**

When updating a collection container, detailed information about the changed values is provided. For the special case of renaming a collection container, the source collection container is stated in the object details of the collection container.

- **EI-020–EI-028**

Audit messages with these event IDs can provide additional information about the user selections (e.g. which button was clicked or which option was selected) as well as the message which was displayed. If this additional information exists, it is provided in a User Notification object with the object ID type code OITC-008. For audit messages with the event IDs EI-020 and EI-026, an event outcome indicator other than success indicates that the login notification was declined or that the screen test was not completely performed, respectively.

As some objects have no inherent object ID (e.g. unlike the Study Instance UID of a DICOM Study) suitable ones are therefore defined:

- **Collection Container**

<CollectionContainerName>:<CollectionContainerCreationDate>
e.g. collectionContainerName:20210406T075500.123456

- **Collection**

<CollectionName>:<CollectionCreationDate>
e.g. collectionName:20210406T080000.123456

- **Collection Case**

<CollectionName>:<CollectionCreationDate>:<CollectionCaseCreationDate>
e.g. collectionName:20210406T080000.123456:20210406T080100.123456

These object IDs are used in the audit messages to refer to such objects.

C.2.2.4 Audit trails

To simplify the analysis of audit messages generated by *syngo.share*, audit messages are organized in so-called audit trails. An audit trail represents a group of audit messages which have been created during the execution of a certain event (e.g. access of a DICOM study, deletion of DICOM images, transmission of generic files).

Audit trail messages are categorized into main and sub audit messages since an audit event may entail several subevents. For example, the correction of patient data may require, among other things, search-

ing for the patients whose data has to be corrected. In this example, the correction of patient data is the main audit event (thus generating a main audit message), while searching for patients is a subevent (thus generating a sub audit message).

Each audit trail is assigned a unique audit trail ID to distinguish it from others.

C.2.3 Audit Trail Message Transmission Profile - SYSLOG - TLS

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-TLS parameters.

C.2.4 Audit Trail Message Transmission Profile - SYSLOG - UDP

See Section 6.6 Audit Trail Syslog Configuration for information about Syslog-UDP parameters.

C.2.5 Secure Transport Connection Details

The following cipher suites are supported as default:

- DHE-RSA-AES256-GCM-SHA384
- DHE-RSA-AES128-GCM-SHA256
- ECDHE-RSA-AES256-GCM-SHA384
- ECDHE-RSA-AES128-GCM-SHA256

For a list of available cipher strings, see the respective OpenSSL documentation chapter [OpenSSL manual pages](#)  for OpenSSL 3.5.

C.2.6 Attribute Confidentiality Details – N/A

This section does not apply to *syngo.share* core.

C.2.7 Digital Signature Details – N/A

This section does not apply to *syngo.share* core.

C.2.8 Additional DICOM Security Profile Details – N/A

This section does not apply to *syngo.share* core.

D Mapping of Attributes – N/A

This section does not apply to *syngo.share* core.

E Code Set Usage – N/A

This section does not apply to *syngo.share* core.

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Release VA60A / 2026-07 / Revision 13427

syngo.share import

DICOM Conformance Statement

Overview

syngo.share import is able to load DICOM images, series and studies from specified directories or CD media and import them into syngo.share core and third-party archives.

Content and transfer

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Stored Print Storage (Retired)	1.2.840.10008.5.1.1.27	Y	N	N	N	N	Y	N	N	N	N
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Y	N	N	N	N	Y	N	Y	N	N
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Y	N	N	N	N	Y	N	N	N	N
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Y	N	N	N	N	Y	N	Y	N	N
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Y	N	N	N	N	Y	N	Y	N	N
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Y	N	N	N	N	Y	N	Y	N	N
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Y	N	N	N	N	Y	N	Y	N	N
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Y	N	N	N	N	Y	N	Y	N	N
Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Y	N	N	N	N	Y	N	Y	N	N
Digital Intra-Oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Y	N	N	N	N	Y	N	Y	N	N
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Y	N	N	N	N	Y	N	Y	N	N
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Y	N	N	N	N	Y	N	Y	N	N
Legacy Converted Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.2	Y	N	N	N	N	Y	N	Y	N	N
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Y	N	N	N	N	Y	N	Y	N	N
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Y	N	N	N	N	Y	N	Y	N	N
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Y	N	N	N	N	Y	N	Y	N	N
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Y	N	N	N	N	Y	N	Y	N	N

Table 1: Supported Storage SOP Classes ▼

▲ Table 1: Supported Storage SOP Classes ▼

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Y	N	N	N	N	Y	N	N	N	N
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Y	N	N	N	N	Y	N	Y	N	N
Legacy Converted Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.4	Y	N	N	N	N	Y	N	N	N	N
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Y	N	N	N	N	Y	N	N	N	N
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Y	N	N	N	N	Y	N	Y	N	N
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Y	N	N	N	N	Y	N	Y	N	N
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	Y	N	N	N	N	Y	N	Y	N	N
Photoacoustic Image Storage	1.2.840.10008.5.1.4.1.1.6.3	Y	N	N	N	N	Y	N	N	N	N
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Y	N	N	N	N	Y	N	Y	N	N
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Y	N	N	N	N	Y	S	Y	N	N
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Y	N	N	N	N	Y	S	Y	N	N
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Y	N	N	N	N	Y	S	Y	N	N
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Y	N	N	N	N	Y	S	Y	N	N
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	Y	N	N	N	N	Y	N	N	N	N
Standalone Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.9	Y	N	N	N	N	Y	N	N	N	N
Waveform Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.9.1	Y	N	N	N	N	Y	N	N	N	N
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Y	N	N	N	N	Y	N	Y	N	N
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Y	N	N	N	N	Y	N	Y	N	N
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Y	N	N	N	N	Y	N	N	N	N
General 32-bit ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.4	Y	N	N	N	N	Y	N	N	N	N
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Y	N	N	N	N	Y	N	Y	N	N
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Y	N	N	N	N	Y	N	N	N	N
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Y	N	N	N	N	Y	N	N	N	N
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	Y	N	N	N	N	Y	N	N	N	N
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	Y	N	N	N	N	Y	N	N	N	N
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	Y	N	N	N	N	Y	N	N	N	N

▲ Table 1: Supported Storage SOP Classes ▼

▲ Table 1: Supported Storage SOP Classes ▼

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Multi-channel Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.2	Y	N	N	N	N	Y	N	N	N	N
Routine Scalp Electroencephalogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.1	Y	N	N	N	N	Y	N	N	N	N
Electromyogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.2	Y	N	N	N	N	Y	N	N	N	N
Electrooculogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.3	Y	N	N	N	N	Y	N	N	N	N
Sleep Electroencephalogram Waveform Storage	1.2.840.10008.5.1.4.1.1.9.7.4	Y	N	N	N	N	Y	N	N	N	N
Body Position Waveform Storage	1.2.840.10008.5.1.4.1.1.9.8.1	Y	N	N	N	N	Y	N	N	N	N
Waveform Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.1	Y	N	N	N	N	Y	N	N	N	N
Waveform Acquisition Presentation State Storage	1.2.840.10008.5.1.4.1.1.9.100.2	Y	N	N	N	N	Y	N	N	N	N
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Y	N	N	N	N	Y	N	N	N	N
Standalone VOI LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.11	Y	N	N	N	N	Y	N	N	N	N
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Y	N	N	N	N	Y	N	N	N	N
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Y	N	N	N	N	Y	N	N	N	N
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Y	N	N	N	N	Y	N	N	N	N
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Y	N	N	N	N	Y	N	N	N	N
XA/XRF Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	Y	N	N	N	N	Y	N	N	N	N
Grayscale Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.6	Y	N	N	N	N	Y	N	N	N	N
Compositing Planar MPR Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.7	Y	N	N	N	N	Y	N	N	N	N
Advanced Blending Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.8	Y	N	N	N	N	Y	N	N	N	N
Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.9	Y	N	N	N	N	Y	N	N	N	N
Segmented Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.10	Y	N	N	N	N	Y	N	N	N	N
Multiple Volume Rendering Volumetric Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.11	Y	N	N	N	N	Y	N	N	N	N
Variable Modality LUT Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.12	Y	N	N	N	N	Y	N	N	N	N
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Y	N	N	N	N	Y	N	Y	N	N
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Y	N	N	N	N	Y	N	Y	N	N
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Y	N	N	N	N	Y	N	Y	N	N
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Y	N	N	N	N	Y	N	N	N	N

▲ Table 1: Supported Storage SOP Classes ▼

▲ Table 1: Supported Storage SOP Classes ▼

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Y	N	N	N	N	Y	N	N	N	N
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Y	N	N	N	N	Y	N	N	N	N
X-Ray 3D Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	Y	N	N	N	N	Y	N	N	N	N
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Y	N	N	N	N	Y	N	Y	N	N
Breast Projection X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	Y	N	N	N	N	Y	N	N	N	N
Breast Projection X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.13.1.5	Y	N	N	N	N	Y	N	N	N	N
Intravascular Optical Coherence Tomography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.14.1	Y	N	N	N	N	Y	N	N	N	N
Intravascular Optical Coherence Tomography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.14.2	Y	N	N	N	N	Y	N	N	N	N
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Y	N	N	N	N	Y	N	Y	N	N
Parametric Map Storage	1.2.840.10008.5.1.4.1.1.30	Y	N	N	N	N	Y	N	N	N	N
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Y	N	N	N	N	Y	N	N	N	N
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Y	N	N	N	N	Y	N	N	N	N
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Y	N	N	N	N	Y	N	N	N	N
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	Y	N	N	N	N	Y	N	N	N	N
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Y	N	N	N	N	Y	N	Y	N	N
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	Y	N	N	N	N	Y	N	N	N	N
Tractography Results Storage	1.2.840.10008.5.1.4.1.1.66.6	Y	N	N	N	N	Y	N	N	N	N
Label Map Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.7	Y	N	N	N	N	Y	N	N	N	N
Height Map Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.8	Y	N	N	N	N	Y	N	N	N	N
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Y	N	N	N	N	Y	N	N	N	N
Surface Scan Mesh Storage	1.2.840.10008.5.1.4.1.1.68.1	Y	N	N	N	N	Y	N	N	N	N
Surface Scan Point Cloud Storage	1.2.840.10008.5.1.4.1.1.68.2	Y	N	N	N	N	Y	N	N	N	N
VL Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Y	N	N	N	N	Y	N	N	N	N
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Y	N	N	N	N	Y	N	Y	N	N
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Y	N	N	N	N	Y	N	Y	N	N

▲ Table 1: Supported Storage SOP Classes ▼

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SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Y	N	N	N	N	Y	N	Y	N	N
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Y	N	N	N	N	Y	N	Y	N	N
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Y	N	N	N	N	Y	N	N	N	N
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Y	N	N	N	N	Y	N	Y	N	N
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Y	N	N	N	N	Y	N	Y	N	N
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Y	N	N	N	N	Y	N	Y	N	N
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Y	N	N	N	N	Y	N	N	N	N
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Y	N	N	N	N	Y	N	Y	N	N
Wide Field Ophthalmic Photography Stereographic Projection Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.5	Y	N	N	N	N	Y	N	N	N	N
Wide Field Ophthalmic Photography 3D Coordinates Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.6	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Optical Coherence Tomography En Face Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.7	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Optical Coherence Tomography B-scan Volume Analysis Storage	1.2.840.10008.5.1.4.1.1.77.1.5.8	Y	N	N	N	N	Y	N	N	N	N
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	Y	N	N	N	N	Y	N	N	N	N
Dermoscopic Photography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.7	Y	N	N	N	N	Y	N	N	N	N
Confocal Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.8	Y	N	N	N	N	Y	N	N	N	N
Confocal Microscopy Tiled Pyramidal Image Storage	1.2.840.10008.5.1.4.1.1.77.1.9	Y	N	N	N	N	Y	N	N	N	N
VL Multi-frame Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Y	N	N	N	N	Y	N	N	N	N
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	Y	N	N	N	N	Y	N	N	N	N
Autorefracton Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	Y	N	N	N	N	Y	N	N	N	N
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	Y	N	N	N	N	Y	N	N	N	N
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	Y	N	N	N	N	Y	N	N	N	N
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	Y	N	N	N	N	Y	N	N	N	N
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	Y	N	N	N	N	Y	N	N	N	N

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SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	Y	N	N	N	N	Y	N	N	N	N
Macular Grid Thickness and Volume Report Storage	1.2.840.10008.5.1.4.1.1.79.1	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	Y	N	N	N	N	Y	N	N	N	N
Ophthalmic Thickness Map Storage	1.2.840.10008.5.1.4.1.1.81.1	Y	N	N	N	N	Y	N	N	N	N
Corneal Topography Map Storage	1.2.840.10008.5.1.4.1.1.82.1	Y	N	N	N	N	Y	N	N	N	N
Text SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.1	Y	N	N	N	N	Y	N	N	N	N
Audio SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.2	Y	N	N	N	N	Y	N	N	N	N
Detail SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.3	Y	N	N	N	N	Y	N	N	N	N
Comprehensive SR Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.88.4	Y	N	N	N	N	Y	N	N	N	N
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Y	N	N	N	N	Y	N	Y	N	N
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Y	N	N	N	N	Y	N	Y	N	N
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Y	N	N	N	N	Y	N	Y	N	N
Comprehensive 3D SR Storage	1.2.840.10008.5.1.4.1.1.88.34	Y	N	N	N	N	Y	N	N	N	N
Extensible SR Storage	1.2.840.10008.5.1.4.1.1.88.35	Y	N	N	N	N	Y	N	N	N	N
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Y	N	N	N	N	Y	N	N	N	N
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Y	N	N	N	N	Y	N	Y	N	N
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Y	N	N	N	N	Y	N	Y	N	N
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	Y	N	N	N	N	Y	N	N	N	N
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Y	N	N	N	N	Y	N	Y	N	N
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	Y	N	N	N	N	Y	N	N	N	N
Colon CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.69	Y	N	N	N	N	Y	N	N	N	N
Implantation Plan SR Storage	1.2.840.10008.5.1.4.1.1.88.70	Y	N	N	N	N	Y	N	N	N	N
Acquisition Context SR Storage	1.2.840.10008.5.1.4.1.1.88.71	Y	N	N	N	N	Y	N	N	N	N
Simplified Adult Echo SR Storage	1.2.840.10008.5.1.4.1.1.88.72	Y	N	N	N	N	Y	N	N	N	N
Patient Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.73	Y	N	N	N	N	Y	N	N	N	N
Planned Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.74	Y	N	N	N	N	Y	N	N	N	N

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SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Performed Imaging Agent Administration SR Storage	1.2.840.10008.5.1.4.1.1.88.75	Y	N	N	N	N	Y	N	N	N	N
Enhanced X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.76	Y	N	N	N	N	Y	N	N	N	N
Waveform Annotation SR Storage	1.2.840.10008.5.1.4.1.1.88.77	Y	N	N	N	N	Y	N	N	N	N
Content Assessment Results Storage	1.2.840.10008.5.1.4.1.1.90.1	Y	N	N	N	N	Y	N	N	N	N
Microscopy Bulk Simple Annotations Storage	1.2.840.10008.5.1.4.1.1.91.1	Y	N	N	N	N	Y	N	N	N	N
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Y	N	N	N	N	Y	S	Y	N	N
Encapsulated CDA Storage	1.2.840.10008.5.1.4.1.1.104.2	Y	N	N	N	N	Y	N	N	N	N
Encapsulated STL Storage	1.2.840.10008.5.1.4.1.1.104.3	Y	N	N	N	N	Y	N	N	N	N
Encapsulated OBJ Storage	1.2.840.10008.5.1.4.1.1.104.4	Y	N	N	N	N	Y	N	N	N	N
Encapsulated MTL Storage	1.2.840.10008.5.1.4.1.1.104.5	Y	N	N	N	N	Y	N	N	N	N
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Y	N	N	N	N	Y	N	Y	N	N
Legacy Converted Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.128.1	Y	N	N	N	N	Y	N	N	N	N
Standalone PET Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.129	Y	N	N	N	N	Y	N	N	N	N
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Y	N	N	N	N	Y	N	N	N	N
Basic Structured Display Storage	1.2.840.10008.5.1.4.1.1.131	Y	N	N	N	N	Y	N	N	N	N
CT Performed Procedure Protocol Storage	1.2.840.10008.5.1.4.1.1.200.2	Y	N	N	N	N	Y	N	N	N	N
XA Performed Procedure Protocol Storage	1.2.840.10008.5.1.4.1.1.200.8	Y	N	N	N	N	Y	N	N	N	N
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Y	N	N	N	N	Y	N	Y	N	N
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Y	N	N	N	N	Y	N	Y	N	N
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Y	N	N	N	N	Y	N	N	N	N
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Y	N	N	N	N	Y	N	N	N	N
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Y	N	N	N	N	Y	N	N	N	N
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Y	N	N	N	N	Y	N	N	N	N
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Y	N	N	N	N	Y	N	N	N	N
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Y	N	N	N	N	Y	N	N	N	N
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Y	N	N	N	N	Y	N	N	N	N

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SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
RT Physician Intent Storage	1.2.840.10008.5.1.4.1.1.481.10	Y	N	N	N	N	Y	N	N	N	N
RT Segment Annotation Storage	1.2.840.10008.5.1.4.1.1.481.11	Y	N	N	N	N	Y	N	N	N	N
RT Radiation Set Storage	1.2.840.10008.5.1.4.1.1.481.12	Y	N	N	N	N	Y	N	N	N	N
C-Arm Photon-Electron Radiation Storage	1.2.840.10008.5.1.4.1.1.481.13	Y	N	N	N	N	Y	N	N	N	N
Tomotherapeutic Radiation Storage	1.2.840.10008.5.1.4.1.1.481.14	Y	N	N	N	N	Y	N	N	N	N
Robotic-Arm Radiation Storage	1.2.840.10008.5.1.4.1.1.481.15	Y	N	N	N	N	Y	N	N	N	N
RT Radiation Record Set Storage	1.2.840.10008.5.1.4.1.1.481.16	Y	N	N	N	N	Y	N	N	N	N
RT Radiation Salvage Record Storage	1.2.840.10008.5.1.4.1.1.481.17	Y	N	N	N	N	Y	N	N	N	N
Tomotherapeutic Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.18	Y	N	N	N	N	Y	N	N	N	N
C-Arm Photon-Electron Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.19	Y	N	N	N	N	Y	N	N	N	N
Robotic Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.20	Y	N	N	N	N	Y	N	N	N	N
RT Radiation Set Delivery Instruction Storage	1.2.840.10008.5.1.4.1.1.481.21	Y	N	N	N	N	Y	N	N	N	N
RT Treatment Preparation Storage	1.2.840.10008.5.1.4.1.1.481.22	Y	N	N	N	N	Y	N	N	N	N
Enhanced RT Image Storage	1.2.840.10008.5.1.4.1.1.481.23	Y	N	N	N	N	Y	N	N	N	N
Enhanced Continuous RT Image Storage	1.2.840.10008.5.1.4.1.1.481.24	Y	N	N	N	N	Y	N	N	N	N
RT Patient Position Acquisition Instruction Storage	1.2.840.10008.5.1.4.1.1.481.25	Y	N	N	N	N	Y	N	N	N	N
DICOS CT Image Storage	1.2.840.10008.5.1.4.1.1.501.1	Y	N	N	N	N	Y	N	N	N	N
DICOS Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.501.2.1	Y	N	N	N	N	Y	N	Y	N	N
DICOS Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.501.2.2	Y	N	N	N	N	Y	N	N	N	N
DICOS Threat Detection Report Storage	1.2.840.10008.5.1.4.1.1.501.3	Y	N	N	N	N	Y	N	N	N	N
DICOS 2D AIT Storage	1.2.840.10008.5.1.4.1.1.501.4	Y	N	N	N	N	Y	N	N	N	N
DICOS 3D AIT Storage	1.2.840.10008.5.1.4.1.1.501.5	Y	N	N	N	N	Y	N	N	N	N
DICOS Quadrupole Resonance (QR) Storage	1.2.840.10008.5.1.4.1.1.501.6	Y	N	N	N	N	Y	N	N	N	N
Eddy Current Image Storage	1.2.840.10008.5.1.4.1.1.601.1	Y	N	N	N	N	Y	N	N	N	N
Eddy Current Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.601.2	Y	N	N	N	N	Y	N	N	N	N
Thermography Image Storage	1.2.840.10008.5.1.4.1.1.601.3	Y	N	N	N	N	Y	N	N	N	N

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SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Thermography Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.601.4	Y	N	N	N	N	Y	N	N	N	N
Ultrasound Waveform Storage	1.2.840.10008.5.1.4.1.1.601.5	Y	N	N	N	N	Y	N	N	N	N
RT Beams Delivery Instruction Storage - Trial (Retired)	1.2.840.10008.5.1.4.34.1	Y	N	N	N	N	Y	N	N	N	N
RT Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	Y	N	N	N	N	Y	N	N	N	N
RT Brachy Application Setup Delivery Instruction Storage	1.2.840.10008.5.1.4.34.10	Y	N	N	N	N	Y	N	N	N	N

Table 2: Supported Storage Transfer Syntaxes

Transfer Syntax name	Transfer Syntax UID
Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Encapsulated Uncompressed Explicit VR Little Endian	1.2.840.10008.1.2.1.98
Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99
Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2
JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50
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
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]): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81
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
JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)	1.2.840.10008.1.2.4.92
JPEG 2000 Part 2 Multi-component Image Compression	1.2.840.10008.1.2.4.93
MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100

Table 2: Supported Storage Transfer Syntaxes ▼

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Transfer Syntax name	Transfer Syntax UID
Fragmentable MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100.1
MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101
Fragmentable MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101.1
MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102.1
MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103
Fragmentable MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103.1
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104.1
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105
Fragmentable MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105.1
MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106
Fragmentable MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106.1
HEVC/H.265 Main Profile / Level 5.1	1.2.840.10008.1.2.4.107
HEVC/H.265 Main 10 Profile / Level 5.1	1.2.840.10008.1.2.4.108
JPEG XL Lossless	1.2.840.10008.1.2.4.110
JPEG XL JPEG Recompression	1.2.840.10008.1.2.4.111
JPEG XL	1.2.840.10008.1.2.4.112
High-Throughput JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.201
High-Throughput JPEG 2000 with RPCL Options Image Compression (Lossless Only)	1.2.840.10008.1.2.4.202
High-Throughput JPEG 2000 Image Compression	1.2.840.10008.1.2.4.203
RLE Lossless	1.2.840.10008.1.2.5
Deflated Image Frame Compression	1.2.840.10008.1.2.8.1

DIMSE services

Verification

Table 3: Supported Verification SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Workflow management

Table 4: Supported Storage Commitment SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Table 5: Supported Modality Performed Procedure Step SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Query/Retrieve

Table 6: Supported Query/Retrieve SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	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
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	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
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	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
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

Contents

Overview	2
Content and transfer	2
DIMSE services	11
Verification	12
Workflow management	12
Query/Retrieve	13
1 Introduction	16
1.1 Remarks	16
1.2 Abbreviations	16
2 Implementation model	17
2.1 Application data flow diagram	17
2.2 Functional definition of AEs	17
2.3 Sequencing of real-world activities	17
3 Application Entity specifications	18
3.1 Supported SOP Classes and Transfer Syntaxes	18
3.2 Association establishment policies	18
3.2.1 General	18
3.2.2 Number of associations	18
3.2.3 Asynchronous nature	18
3.2.4 Implementation identifying information	18
3.2.5 Association initiation policy by real-world activity	18
4 DICOM media AE specification	19
4.1 Implementation model	19
4.1.1 Application data flow diagram	19
4.1.2 Functional definitions of AEs	19
4.1.3 Sequencing of real-world activities	19
4.1.4 File meta information	19
4.2 Application Entity specification	19
4.2.1 Real-world activities	19
4.3 Augmented and private application profiles	20
5 Configuration	21
6 Support of extended character sets	22
6.1 Supported character sets	22
6.2 Usage of Specific Character Set in C-FIND and C-MOVE requests	22
A DICOM element list for Query/Retrieve Service Classes	23
A.1 Supported C-FIND element requests on the patient level	23
A.2 Supported C-FIND element requests on the study level	23
A.3 Supported C-FIND element requests on the series level	24
B List of elements for modality worklist C-FIND requests	25

List of figures

1	<i>syngo.share</i> import data flow diagram	17
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List of tables

1	Supported Storage SOP Classes	2
2	Supported Storage Transfer Syntaxes	10
3	Supported Verification SOP Classes	12
4	Supported Storage Commitment SOP Classes	12
5	Supported Modality Performed Procedure Step SOP Classes	12
6	Supported Query/Retrieve SOP Classes	13
7	<i>syngo.share</i> import AE-related application profiles, real-world activity roles, and roles for interchanging	19
8	Supported character sets	22
9	Supported C-FIND elements on the patient level	23
10	Supported C-FIND elements on the study level	23
11	Supported C-FIND elements on the series level	24
12	Supported C-FIND modality worklist keywords	25

1 Introduction

This document is a DICOM Conformance Statement that describes the DICOM capabilities of *syngo.share import*.

1.1 Remarks

This Conformance Statement is intended to aid in the validation of the integration of *syngo.share import* within a DICOM environment. This statement is not meant to replace the validation with other DICOM equipment to ensure the intended, proper exchange of information. Thus, it is still important to ensure the proper interoperability of the intended DICOM integration.

The user must be aware of the following issues:

- The comparison of different Conformance Statements should be the first step towards an assessment of the interoperability within a DICOM environment.
- Testing procedures should be defined to validate the desired level of connectivity.

1.2 Abbreviations

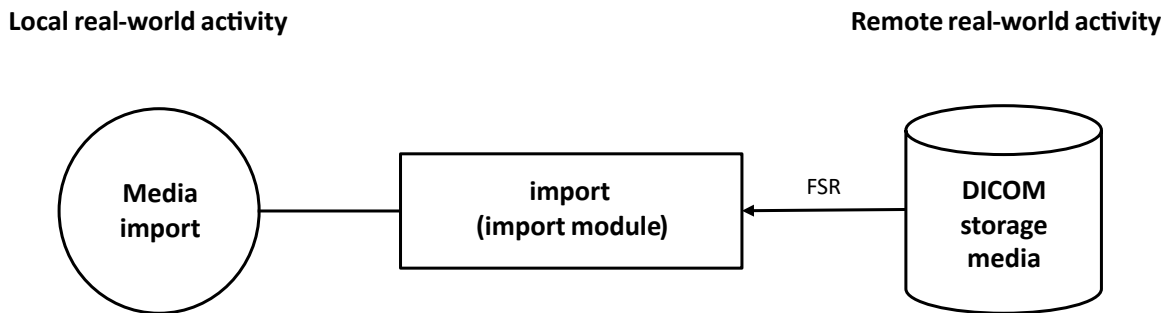
AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File-Set Creator
FSR	File-Set Reader
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
OS	Origin Server
PDU	Protocol Data Unit
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
UA	User Agent
UID	Unique Identifier
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services

2 Implementation model

2.1 Application data flow diagram

syngo.share import (i.e. the FSR) is able to read DICOM files from portable media such as CDs, from network directories or from the local file system. Loaded DICOM file sets can be imported directly into *syngo.share core*. Within the context of this Conformance Statement, the importing functionality of *syngo.share import* is referred to as the *syngo.share import* FSR AE.

Figure 1: *syngo.share import* data flow diagram



2.2 Functional definition of AEs

The *syngo.share import* FSR AE is able to read user-selected DICOM files like DICOMDIRs or image objects which are compliant to DICOM PS3.10. These files can be located either on the local file system or on DICOM PS3.12-compliant media.

2.3 Sequencing of real-world activities

- The user can request the services of the *syngo.share import* AE at any time through the user interface.

3 Application Entity specifications

The *syngo.share* import FSR solely provides functionalities for handling DICOM media. The DICOM Storage SOP Classes listed in Table 1 are supported for storage.

3.1 Supported SOP Classes and Transfer Syntaxes

The supported DICOM SOP Classes are described in Table 1. Table 2 lists the supported C-STORE Transfer Syntaxes.

3.2 Association establishment policies

3.2.1 General

The *syngo.share* import AE supports TCP/IP. When a user requests a C-STORE operation, it attempts to establish an association with a remote AE. The host, port and remote AE title are defined within the client configuration.

3.2.2 Number of associations

The *syngo.share* import AE establishes one associations per storage task.

3.2.3 Asynchronous nature

The *syngo.share* import AE only allows a single outstanding operation on each association, meaning that it does not perform asynchronous negotiation.

3.2.4 Implementation identifying information

- **Implementation Class UID**
1.2.276.0.7230010.3.0.3.6.1
- **Implementation Version Name**
OFFIS_DCMTK_361

3.2.5 Association initiation policy by real-world activity

The *syngo.share* import AE initiates an association with a remote AE for C-STORE requests. The proposed Transfer Syntaxes for association establishment for C-STORE are defined in Table 2.

4 DICOM media AE specification

This chapter describes the DICOM media functionalities of the *syngo.share* import AE.

4.1 Implementation model

4.1.1 Application data flow diagram

See Section 2.1 for the data flow diagram.

4.1.2 Functional definitions of AEs

The *syngo.share* import AE implements standard DICOM-conformant Service Classes for the reading of DICOM file sets (according to DICOM PS3.10). At least, General Purpose CD-R Interchange Profiles are supported.

4.1.3 Sequencing of real-world activities

The DICOM media functionalities of the *syngo.share* import AE can be used at any time through their user interfaces.

4.1.4 File meta information

- **Implementation Class UID**
1.2.276.0.7230010.3.0.3.6.1
- **Implementation Version Name**
OFFIS_DCMTK_361

4.2 Application Entity specification

See Table 1 for supported SOP Classes for the import of media.

Table 7: *syngo.share* import AE-related application profiles, real-world activity roles, and roles for interchanging

Supported application profiles	Real-world activity	Role	SC option
<i>syngo.share</i> import FSR	Read DICOM file set	FSR	Interchange

4.2.1 Real-world activities

4.2.1.1 Import Media

The user can choose whether a complete file set or just parts of it are read for import.

4.2.1.2 Reading DICOMDIR keys

All mandatory DICOMDIR keys are required in order to correctly structure the images within the file sets.

4.3 Augmented and private application profiles

Not used.

5 Configuration

`syngo.share import` provides user interfaces in order to facilitate configuration.

6 Support of extended character sets

6.1 Supported character sets

Table 8 contains the character sets which are supported with and without code extension techniques.

If the given specific character set does not correspond to the characters in an IOD or the specific character set is invalid, the DICOM dataset is not processed. In these cases, a configuration can be used to correct the character set. Due to practical reasons, the specific character set is used instead of the default character repertoire to process tags with VR CS.

Table 8: Supported character sets

MIME name	Without code extensions	With code extensions
US-ASCII		ISO 2022 IR 6
ISO-8859-1	ISO_IR 100	ISO 2022 IR 100
ISO-8859-2	ISO_IR 101	ISO 2022 IR 101
ISO-8859-3	ISO_IR 109	ISO 2022 IR 109
ISO-8859-4	ISO_IR 110	ISO 2022 IR 110
ISO-8859-5	ISO_IR 144	ISO 2022 IR 144
ISO-8859-6	ISO_IR 127	ISO 2022 IR 127
ISO-8859-7	ISO_IR 126	ISO 2022 IR 126
ISO-8859-8	ISO_IR 138	ISO 2022 IR 138
ISO-8859-9	ISO_IR 148	ISO 2022 IR 148
JIS_X0201	ISO_IR 13	ISO 2022 IR 13
TIS-620	ISO_IR 166	ISO 2022 IR 166
JIS_X0208-1990	-	ISO 2022 IR 87
JIS_X0212-1990	-	ISO 2022 IR 159
KS_X_1001-1997	-	ISO 2022 IR 149
GB2312	-	ISO 2022 IR 58
UTF-8	ISO_IR 192	-
GB18030	GB18030	-
GBK	GBK	-

6.2 Usage of Specific Character Set in C-FIND and C-MOVE requests

syngo.share import AE as C-FIND and C-MOVE SCU uses Specific Character Set (0008,0005) with a value of ISO_IR 192 for requests.

A DICOM element list for Query/Retrieve Service Classes

The following table lists the DICOM keys used for matching or query on the according level in C-FIND requests.

A.1 Supported C-FIND element requests on the patient level

Table 9: Supported C-FIND elements on the patient level

Keyword	Tag	Used for matching
PatientName	(0010,0010)	Y
PatientID	(0010,0020)	Y
IssuerOfPatientIDQualifiersSequence	(0010,0024)	Y
PatientBirthDate	(0010,0030)	Y
PatientBirthTime	(0010,0032)	Y
PatientSex	(0010,0040)	Y
OtherPatientIDs	(0010,1000)	Y
PatientBirthName	(0010,1005)	Y

A.2 Supported C-FIND element requests on the study level

In case of a Study Root Query/Retrieve where no patient level exists, all mentioned patient level keys are supported on the study level.

Table 10: Supported C-FIND elements on the study level

Keyword	Tag	Used for matching
StudyDate	(0008,0020)	Y
StudyTime	(0008,0030)	Y
AccessionNumber	(0008,0050)	Y
ModalitiesInStudy	(0008,0061)	Y
StudyDescription	(0008,1030)	Y
StudyInstanceUID	(0020,000D)	Y
NumberOfStudyRelatedSeries	(0020,1206)	N
NumberOfStudyRelatedInstances	(0020,1208)	N

A.3 Supported C-FIND element requests on the series level

Table 11: Supported C-FIND elements on the series level

Keyword	Tag	Used for matching
SeriesDate	(0008,0021)	N
SeriesTime	(0008,0031)	N
Modality	(0008,0060)	N
SeriesDescription	(0008,103E)	N
SeriesInstanceUID	(0020,000E)	Y
NumberOfSeriesRelatedInstances	(0020,1209)	N

B List of elements for modality worklist C-FIND requests

Table 12: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
AccessionNumber	(0008,0050)	N
IssuerOfAccessionNumberSequence/ LocalNameSpaceEntityID	(0008,0051)/ (0040,0031)	N
IssuerOfAccessionNumberSequence/ UniversalEntityID	(0008,0051)/ (0040,0032)	N
IssuerOfAccessionNumberSequence/ UniversalEntityIDType	(0008,0051)/ (0040,0033)	N
ReferringPhysicianName	(0008,0090)	N
ReferencedStudySequence/ ReferencedSOPClassUID	(0008,1110)/ (0008,1150)	N
ReferencedStudySequence/ ReferencedSOPInstanceUID	(0008,1110)/ (0008,1155)	N
PatientName	(0010,0010)	N
PatientID	(0010,0020)	N
IssuerOfPatientID	(0010,0021)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,0024)/ (0040,0032)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,0024)/ (0040,0033)	N
PatientBirthDate	(0010,0030)	N
PatientBirthTime	(0010,0032)	N
PatientSex	(0010,0040)	N
OtherPatientIDSequence/ PatientID	(0010,1002)/ (0010,0020)	N
OtherPatientIDSequence/ IssuerOfPatientID	(0010,1002)/ (0010,0021)	N
OtherPatientIDSequence/ TypeOfPatientID	(0010,1002)/ (0010,0022)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,1002)/ (0010,0024)/ (0040,0032)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,1002)/ (0010,0024)/ (0040,0033)	N
PatientBirthName	(0010,1005)	N
PatientMotherBirthName	(0010,1060)	N

Table 12: Supported C-FIND modality worklist keywords

▲ Table 12: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
StudyInstanceUID	(0020,000D)	N
RequestedProcedureDescription	(0032,1060)	N
AdmissionID	(0038,0010)	N
IssuerOfAdmissionIDSequence/ LocalNameSpaceEntityID	(0038,0014)/ (0040,0031)	N
IssuerOfAdmissionIDSequence/ UniversalEntityID	(0038,0014)/ (0040,0032)	N
IssuerOfAdmissionIDSequence/ UniversalEntityIDType	(0038,0014)/ (0040,0033)	N
ScheduledProcedureStepSequence/ ScheduledStationAETitle	(0040,0100)/ (0040,0001)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartDate	(0040,0100)/ (0040,0002)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartTime	(0040,0100)/ (0040,0003)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepDescription	(0040,0100)/ (0040,0007)	N
ScheduledProcedureStepSequence/ ScheduledProcedureStepID	(0040,0100)/ (0040,0009)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeValue	(0040,0100)/ (0040,0008)/ (0008,0100)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeMeaning	(0040,0100)/ (0040,0008)/ (0008,0104)	N
ScheduledProcedureStepSequence/ Modality	(0040,0100)/ (0008,0060)	N
RequestedProcedureID	(0040,1001)	N

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Release VA60A / 2026-07 / Revision 13427

syngo.share print

DICOM Conformance Statement

Overview

syngo.share print is able to convert digital data into DICOM-encapsulated PDF and archive them to *syngo.share* core or third-party archives.

Content and transfer

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Y	N	N	N	N	N	S	N	N	N

Table 2: Supported Storage Transfer Syntaxes

Transfer Syntax name	Transfer Syntax UID
Implicit VR Little Endian: Default Transfer Syntax for DICOM	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

DIMSE services

Verification

Table 3: Supported Verification SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Workflow management

Table 4: Supported Storage Commitment SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Table 5: Supported Modality Performed Procedure Step SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	Y	N
		Explicit VR Little Endian	1.2.840.10008.1.2.1	Y	N
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	N

Query/Retrieve

Table 6: Supported Query/Retrieve SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	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
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

Contents

Overview	2
Content and transfer	2
DIMSE services	2
Verification	3
Workflow management	3
Query/Retrieve	4
1 Introduction	7
1.1 Remarks	7
1.2 Abbreviations	7
2 Implementation model	8
2.1 Functional definition of AEs	8
2.2 Sequencing of real-world activities	8
3 Application Entity specifications	9
3.1 Supported SOP Classes and Transfer Syntaxes	9
3.2 Association establishment policies	9
3.2.1 General	9
3.2.2 Number of associations	9
3.2.3 Asynchronous nature	9
3.2.4 Implementation identifying information	9
3.2.5 Association initiation policy by real-world activity	9
4 Configuration	10
5 Support of extended character sets	11
5.1 Usage of Specific Character Set in C-FIND and C-STORE requests	11
A DICOM element list for Query/Retrieve Service Classes	12
A.1 Supported C-FIND element requests on the patient level	12
B List of elements for modality worklist C-FIND requests	13

List of tables

1	Supported Storage SOP Classes	2
2	Supported Storage Transfer Syntaxes	2
3	Supported Verification SOP Classes	3
4	Supported Storage Commitment SOP Classes	3
5	Supported Modality Performed Procedure Step SOP Classes	3
6	Supported Query/Retrieve SOP Classes	4
7	Supported C-FIND elements on the patient level	12
8	Supported C-FIND modality worklist keywords	13

1 Introduction

This document is a DICOM Conformance Statement that describes the DICOM capabilities of *syngo.share print*.

1.1 Remarks

This Conformance Statement is intended to aid in the validation of the integration of *syngo.share print* within a DICOM environment. This statement is not meant to replace the validation with other DICOM equipment to ensure the intended, proper exchange of information. Thus, it is still important to ensure the proper interoperability of the intended DICOM integration.

The user must be aware of the following issues:

- The comparison of different Conformance Statements should be the first step towards an assessment of the interoperability within a DICOM environment.
- Testing procedures should be defined to validate the desired level of connectivity.

1.2 Abbreviations

AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File-Set Creator
FSR	File-Set Reader
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
OS	Origin Server
PDU	Protocol Data Unit
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
UA	User Agent
UID	Unique Identifier
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services

2 Implementation model

2.1 Functional definition of AEs

The *syngo.share* print FSR AE is able to convert arbitrary documents retrieved by printing from an external application into DICOM-encapsulated PDF files. These files are subsequently archived into *syngo.share* core and third-party archives.

2.2 Sequencing of real-world activities

- The user can request the services of the *syngo.share* print AE at any time through the print interface of various external applications.

3 Application Entity specifications

The *syngo.share print* FSR solely provides functionalities for handling DICOM media. The DICOM Storage SOP Classes listed in Table 1 are supported for storage.

3.1 Supported SOP Classes and Transfer Syntaxes

The supported DICOM SOP Classes are described in Table 1. Table 2 lists the supported C-STORE Transfer Syntaxes.

3.2 Association establishment policies

3.2.1 General

The *syngo.share print* AE supports TCP/IP. When a user requests a C-STORE operation, it attempts to establish an association with a remote AE. The host, port and remote AE title are defined within the client configuration.

3.2.2 Number of associations

The *syngo.share print* AE establishes one associations per storage task.

3.2.3 Asynchronous nature

The *syngo.share print* AE only allows a single outstanding operation on each association, meaning that it does not perform asynchronous negotiation.

3.2.4 Implementation identifying information

- **Implementation Class UID**
1.2.276.0.7230010.3.0.3.6.1
- **Implementation Version Name**
OFFIS_DCMTK_361

3.2.5 Association initiation policy by real-world activity

The *syngo.share print* AE initiates an association with a remote AE for C-STORE requests. The proposed Transfer Syntaxes for association establishment for C-STORE are defined in Table 2.

4 Configuration

syngo.share print provides user interfaces in order to facilitate configuration.

5 Support of extended character sets

5.1 Usage of Specific Character Set in C-FIND and C-STORE requests

syngo.share print AE as C-FIND and C-STORE SCU uses Specific Character Set (0008,0005) with a value of ISO_IR 192 for requests.

A DICOM element list for Query/Retrieve Service Classes

The following table lists the DICOM keys used for matching or query on the according level in C-FIND requests.

A.1 Supported C-FIND element requests on the patient level

Table 7: Supported C-FIND elements on the patient level

Keyword	Tag	Used for matching
PatientName	(0010,0010)	Y
PatientID	(0010,0020)	Y
IssuerOfPatientIDQualifiersSequence	(0010,0024)	Y
PatientBirthDate	(0010,0030)	Y
PatientBirthTime	(0010,0032)	Y
PatientSex	(0010,0040)	Y
OtherPatientIDs	(0010,1000)	Y
PatientBirthName	(0010,1005)	Y

B List of elements for modality worklist C-FIND requests

Table 8: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
AccessionNumber	(0008,0050)	N
IssuerOfAccessionNumberSequence/ LocalNameSpaceEntityID	(0008,0051)/ (0040,0031)	N
IssuerOfAccessionNumberSequence/ UniversalEntityID	(0008,0051)/ (0040,0032)	N
IssuerOfAccessionNumberSequence/ UniversalEntityIDType	(0008,0051)/ (0040,0033)	N
ReferringPhysicianName	(0008,0090)	N
ReferencedStudySequence/ ReferencedSOPClassUID	(0008,1110)/ (0008,1150)	N
ReferencedStudySequence/ ReferencedSOPInstanceUID	(0008,1110)/ (0008,1155)	N
PatientName	(0010,0010)	N
PatientID	(0010,0020)	N
IssuerOfPatientID	(0010,0021)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,0024)/ (0040,0032)	N
IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,0024)/ (0040,0033)	N
PatientBirthDate	(0010,0030)	N
PatientBirthTime	(0010,0032)	N
PatientSex	(0010,0040)	N
OtherPatientIDSequence/ PatientID	(0010,1002)/ (0010,0020)	N
OtherPatientIDSequence/ IssuerOfPatientID	(0010,1002)/ (0010,0021)	N
OtherPatientIDSequence/ TypeOfPatientID	(0010,1002)/ (0010,0022)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityID	(0010,1002)/ (0010,0024)/ (0040,0032)	N
OtherPatientIDSequence/ IssuerOfPatientIDQualifiersSequence/ UniversalEntityIDType	(0010,1002)/ (0010,0024)/ (0040,0033)	N
PatientBirthName	(0010,1005)	N
PatientMotherBirthName	(0010,1060)	N

Table 8: Supported C-FIND modality worklist keywords

▲ Table 8: Supported C-FIND modality worklist keywords

Key	Tag	Used for matching
StudyInstanceUID	(0020,000D)	N
RequestedProcedureDescription	(0032,1060)	N
AdmissionID	(0038,0010)	N
IssuerOfAdmissionIDSequence/ LocalNameSpaceEntityID	(0038,0014)/ (0040,0031)	N
IssuerOfAdmissionIDSequence/ UniversalEntityID	(0038,0014)/ (0040,0032)	N
IssuerOfAdmissionIDSequence/ UniversalEntityIDType	(0038,0014)/ (0040,0033)	N
ScheduledProcedureStepSequence/ ScheduledStationAETitle	(0040,0100)/ (0040,0001)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartDate	(0040,0100)/ (0040,0002)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartTime	(0040,0100)/ (0040,0003)	Y
ScheduledProcedureStepSequence/ ScheduledProcedureStepDescription	(0040,0100)/ (0040,0007)	N
ScheduledProcedureStepSequence/ ScheduledProcedureStepID	(0040,0100)/ (0040,0009)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeValue	(0040,0100)/ (0040,0008)/ (0008,0100)	N
ScheduledProcedureStepSequence/ ScheduledProtocolCodeSequence/ CodeMeaning	(0040,0100)/ (0040,0008)/ (0008,0104)	N
ScheduledProcedureStepSequence/ Modality	(0040,0100)/ (0008,0060)	N
RequestedProcedureID	(0040,1001)	N

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Release VA60A / 2026-07 / Revision 13427

syngo.share webview (diagnostic)

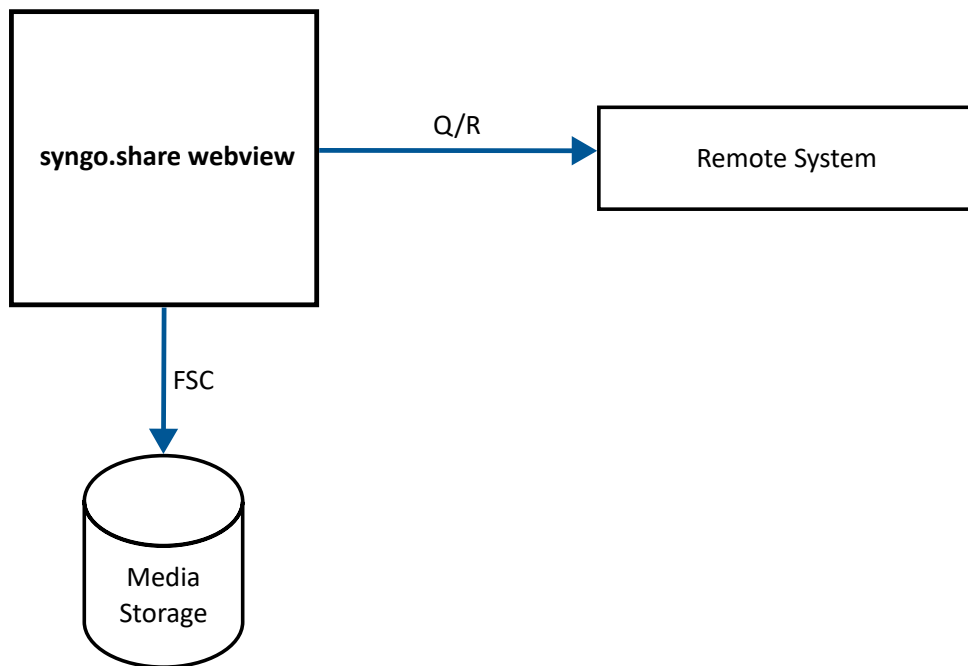
DICOM Conformance Statement

1 Overview

syngo.share webview is a versatile multi-modality viewing system for displaying DICOM instances. It supports access via native interfaces to DICOM instances and non-DICOM files stored in *syngo.share* core. It furthermore provides Query/Retrieve services to query remote systems for studies, series, and instances, enabling retrieval for viewing or export.

Export functionality includes the creation of ZIP archives and DICOM File Sets operating in the File Set Creator (FSC) role. A DICOMDIR file is generated for each File Set. In addition, *syngo.share webview* allows user-created captured images to be encoded as Secondary Capture instances and stored in *syngo.share* core via native interfaces.

Figure 1: Overview of Implemented Services



1.1 Content and Transfer

Table 1 lists all Storage SOP Classes and the usage scenarios for those instances. 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.

Please see the [note on supported Storage Transfer Syntaxes](#) regarding the column Transfer Syntax Set.

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	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	*	N	N	N	N	Y	N	N	S	N	N	N
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N

Table 1: Supported Storage SOP Classes ▼

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Digital Intra-Oral X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	*	Y	Y	N	N	Y	N	N	N	Y	Y	N
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Legacy Converted Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	*	Y	Y	N	N	Y	N	N	N	Y	Y	N
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Legacy Converted Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.4	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	*	Y	Y	N	N	Y	N	N	S	Y	N	N
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	*	Y	Y	N	N	Y	N	N	S	Y	N	N
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	*	Y	Y	N	N	Y	N	N	S	Y	N	N
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N

Table 1: Supported Storage SOP Classes

Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
X-Ray 3D Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Breast Projection X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Breast Projection X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.13.1.5	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Intravascular Optical Coherence Tomography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.14.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Intravascular Optical Coherence Tomography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.14.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.120	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.177.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.1.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.2.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.3	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.4	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.177.1.4.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.177.1.5.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.177.1.5.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.177.1.5.4	*	Y	Y	N	N	Y	N	N	N	Y	N	N

Table 1: Supported Storage SOP Classes

▲ Table 1: Supported Storage SOP Classes

SOP Class	SOP Class UID	Transfer Syntax Set	DIMSE services		DICOM web services		Media services			Function			
			SCU	SCP	UA	OS	FSC	FSU	FSR	Create	Display	Process	Archive
Wide Field Ophthalmic Photography Stereographic Projection Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.5	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Wide Field Ophthalmic Photography 3D Coordinates Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.6	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	*	Y	Y	N	N	Y	N	N	N	Y	N	N
VL Multi-frame Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Ophthalmic Thickness Map Storage	1.2.840.10008.5.1.4.1.1.81.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Corneal Topography Map Storage	1.2.840.10008.5.1.4.1.1.82.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	*	Y	Y	N	N	Y	N	N	N	Y	N	N
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Radiopharmaceutical Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.68	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	*	Y	Y	N	N	Y	N	N	N	Y	Y	N
Legacy Converted Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.128.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	*	Y	Y	N	N	Y	N	N	N	Y	N	N
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	*	Y	Y	N	N	Y	N	N	N	Y	N	N
DICOS CT Image Storage	1.2.840.10008.5.1.4.1.1.501.1	*	Y	Y	N	N	Y	N	N	N	Y	N	N

* syngo.share webview does not validate any received data in terms of Transfer Syntaxes used and accepts properly sent DICOM requests.

Note on supported Storage Transfer Syntaxes (Table 2):

syngo.share webview does not validate any received data in terms of Transfer Syntaxes used. Transfer Syntaxes applied to SOP Classes of incoming requests are neither validated nor enforced. *syngo.share* webview accepts properly sent DICOM requests, under the assumption that the SCU applies a reasonable encoding for the transferred object.

Table 2: Supported Storage Transfer Syntaxes

Transfer Syntax name	Transfer Syntax UID	DICOM Web Service Bulk Data Media Type
Implicit VR Little Endian: Default Transfer Syntax for DICOM	1.2.840.10008.1.2	N/A
Explicit VR Little Endian	1.2.840.10008.1.2.1	N/A
Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99	N/A
Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N/A
JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50	N/A
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	N/A
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	N/A
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70	N/A
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	N/A
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81	N/A
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	N/A
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	N/A
MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100	N/A
MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	N/A
MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104	N/A
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105	N/A
MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106	N/A
HEVC/H.265 Main Profile / Level 5.1	1.2.840.10008.1.2.4.107	N/A
HEVC/H.265 Main 10 Profile / Level 5.1	1.2.840.10008.1.2.4.108	N/A
RLE Lossless	1.2.840.10008.1.2.5	N/A

1.1.1 Structured Reporting Root Template IDs

syngo.share webview supports display of Structured Report Storage SOP Classes as listed in Table 1. The application does not consider specific Root Template IDs and processes SR documents based on the standard DICOM SR content model.

1.2 DIMSE Services

1.2.1 Verification – N/A

This section does not apply to *syngo.share* webview.

1.2.2 Storage

For details on supported Storage SOP Classes see Section 1.1.

1.2.3 Workflow Management – N/A

This section does not apply to *syngo.share* webview.

1.2.4 Query/Retrieve

Table 3 lists all supported Query/Retrieve SOP Classes.

Table 3: Supported Query/Retrieve SOP Classes

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	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	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
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	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

1.2.5 Printing – N/A

This section does not apply to *syngo.share* webview.

1.3 DICOM Web Services – N/A

This section does not apply to *syngo.share* webview.

1.4 Media Services

syngo.share webview provides a File Set Creator (FSC) which is capable of creating a DICOM File Set consisting of a DICOMDIR and DICOM instance files. However, it does not support any specific Media Storage Application Profiles.

1.5 Real-Time Video Service – N/A

This section does not apply to *syngo.share* webview.

1.6 De-identification Profiles

syngo.share webview does not support any de-identification profiles. However, it supports minimization of patient identifying data during export. Minimization applies to all attributes of the Patient Module (Group Number 0010) in the DICOM header. Attributes of the Patient Module in nested structures within DICOM elements other than the Modified Attributes Sequence (0400,0550) of the Original Attributes Sequence (0400,0561) are not altered.

1.7 Specific Character Sets

Table 4: Supported Single-Byte Character Sets without Code Extensions

Defined Term	IANA	Description
none	US-ASCII	ASCII (7-bit)
ISO_IR 100	ISO-8859-1	Latin alphabet No. 1
ISO_IR 101	ISO-8859-2	Latin alphabet No. 2
ISO_IR 109	ISO-8859-3	Latin alphabet No. 3
ISO_IR 110	ISO-8859-4	Latin alphabet No. 4
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	Latin alphabet No. 5
ISO_IR 13	JIS_X0201	Japanese (Katakana)
ISO_IR 166	TIS-620	Thai

Table 5: Supported Single-Byte Character Sets with Code Extensions

Defined Term	IANA	Description
ISO 2022 IR 6	US-ASCII	ASCII
ISO 2022 IR 100	ISO-8859-1	Latin alphabet No. 1
ISO 2022 IR 101	ISO-8859-2	Latin alphabet No. 2
ISO 2022 IR 109	ISO-8859-3	Latin alphabet No. 3
ISO 2022 IR 110	ISO-8859-4	Latin alphabet No. 4
ISO 2022 IR 144	ISO-8859-5	Cyrillic
ISO 2022 IR 127	ISO-8859-6	Arabic
ISO 2022 IR 126	ISO-8859-7	Greek
ISO 2022 IR 138	ISO-8859-8	Hebrew
ISO 2022 IR 148	ISO-8859-9	Latin alphabet No. 5
ISO 2022 IR 13	JIS_X0201	Japanese (Katakana)
ISO 2022 IR 166	TIS-620	Thai

Table 6: Supported Multi-Byte Character Sets without Code Extensions

Defined Term	IANA	Description
ISO_IR 192	UTF-8	Unicode (UTF-8)
GB18030	GB18030	Chinese (GB18030)
GBK	GBK	Chinese (GBK)

Table 7: Supported Multi-Byte Character Sets with Code Extensions

Defined Term	IANA	Description
ISO 2022 IR 87	JIS_X0208-1990	Japanese (Kanji)
ISO 2022 IR 159	JIS_X0212-1990	Japanese (Supplementary Kanji)
ISO 2022 IR 149	KS_X_1001-1997	Korean (Hangul and Hanja)
ISO 2022 IR 58	GB2312	Simplified Chinese

2 Table of Contents

1 Overview	2
1.1 Content and Transfer	3
1.1.1 Structured Reporting Root Template IDs	7
1.2 DIMSE Services	7
1.2.1 Verification – N/A	7
1.2.2 Storage	8
1.2.3 Workflow Management – N/A	8
1.2.4 Query/Retrieve	8
1.2.5 Printing – N/A	8
1.3 DICOM Web Services – N/A	8
1.4 Media Services	8
1.5 Real-Time Video Service – N/A	8
1.6 De-identification Profiles	8
1.7 Specific Character Sets	9
2 Table of Contents	11
3 Introduction	15
3.1 Revision History	15
3.2 Audience	15
3.3 Remarks	15
3.4 Terms and Definitions	16
3.5 Abbreviations	18
3.6 References	20
4 Implementation Model	21
4.1 Application Entities and Data Flow	21
4.1.1 Functional Definition of <i>webview</i> AE	21
4.1.2 Functional Definition of <i>webpatientjacket</i> AE	22
4.1.3 Functional Definition of <i>webrenderserver</i> AE	22
5 Service and Interoperability Description	23
5.1 Mapping of Services to Application Entities	23
5.2 DIMSE Services	23
5.2.1 Basic Worklist Management Service – N/A	23
5.2.2 Modality Performed Procedure Step Service – N/A	23
5.2.3 Unified Worklist and Procedure Step Service – N/A	23
5.2.4 Instance Availability Notification Service – N/A	23
5.2.5 Storage Service	23
5.2.5.1 SCU of the Storage SOP Classes – N/A	23
5.2.5.2 SCP of the Storage SOP Classes	23
5.2.5.2.1 Attribute Coercion by Storage SCP	24
5.2.5.2.2 Display and Processing Limitations for Storage SCP	24
5.2.6 Storage Commitment Service – N/A	27
5.2.7 Query/Retrieve Service Class	27
5.2.7.1 SCU of the Study Root Q/R Information Model - FIND SOP Class	27
5.2.7.2 SCU of the Patient Root Q/R Information Model - FIND SOP Class – N/A	30
5.2.7.3 SCU of the Study Root Q/R Information Model - MOVE SOP Class	30
5.2.7.4 SCU of the Patient Root Q/R Information Model - MOVE SOP Class – N/A	30

5.2.7.5	SCP of the Study Root Q/R Information Model - FIND SOP Class – N/A . . .	30
5.2.7.6	SCP of the Patient Root Q/R Information Model - FIND SOP Class – N/A . . .	31
5.2.7.7	SCP of the Study Root Q/R Information Model - MOVE SOP Class – N/A . . .	31
5.2.7.8	SCP of the Patient Root Q/R - Information Model - MOVE SOP Class – N/A . . .	31
5.2.8	Print Management Service – N/A	31
5.3	DICOM Web Services – N/A	31
5.4	Media Services	31
5.4.1	File Set Creator (FSC)	31
5.4.2	File Set Reader (FSR) – N/A	31
5.4.3	File Set Updater (FSU) – N/A	31
5.5	Real-Time Video Services – N/A	31
5.6	Cross Service Considerations – N/A	32
5.7	Specific Character Sets	32
6	Configuration	33
6.1	General Configuration Parameters	33
6.2	Configuration of DIMSE Services	33
6.2.1	Basic Worklist Management Service Configuration – N/A	34
6.2.2	Modality Performed Procedure Step Service Configuration – N/A	34
6.2.3	Unified Worklist and Procedure Step Service Configuration – N/A	34
6.2.4	Instance Availability Notification Service Configuration – N/A	34
6.2.5	Storage Service Configuration	34
6.2.6	Storage Commitment Service Configuration – N/A	34
6.2.7	Query/Retrieve Service Configuration	34
6.2.8	Print Management Service Configuration – N/A	35
6.3	Configuration of DICOM Web Services – N/A	35
6.4	Configuration of Media Storage Service	35
6.5	Configuration of Real-Time Video Service – N/A	36
6.6	Configuration of Audit Trail - Syslog – N/A	36
7	Network and Media Communication Details	37
7.1	General	37
7.1.1	General Association Parameters	37
7.2	Specifications	37
7.2.1	<i>webview</i> Application Entity	37
7.2.1.1	Sequencing of Real-World Activities for <i>webview</i> AE	37
7.2.1.2	Association Parameters of <i>webview</i> AE	37
7.2.1.3	Association Initiation	37
7.2.1.3.1	Real-World Activity: Search data in remote system (C-FIND) . . .	37
7.2.1.3.2	Real-World Activity: Export DICOM instances/file set from re- mote system (C-MOVE)	38
7.2.1.4	Association Acceptance	38
7.2.1.4.1	Real-World Activity: Export DICOM instances/DICOM File Set from remote system (C-STORE)	38
7.2.2	<i>webpatientjacket</i> Application Entity	38
7.2.2.1	Sequencing of Real-World Activities for <i>webpatientjacket</i>	38
7.2.2.2	Association Parameters of <i>webpatientjacket</i> AE	38
7.2.2.3	Association Initiation	38
7.2.2.3.1	Real-World Activity: Search data in remote system (C-FIND) . . .	38
7.2.2.4	Association Acceptance – N/A	39
7.2.3	<i>webrenderserver</i> Application Entity	39
7.2.3.1	Sequencing of Real-World Activities for <i>webrenderserver</i>	39

7.2.3.2	Association Parameters of <i>webrenderserver</i> AE	39
7.2.3.3	Association Initiation	39
7.2.3.3.1	Real-World Activity: View/render DICOM instances/file set from remote system (C-FIND/C-MOVE)	39
7.2.3.4	Association Acceptance	40
7.2.3.4.1	Real-World Activity: View/render DICOM instances from remote system (C-STORE)	40
7.3	Status Codes	40
7.3.1	General AE Communication and Failure Behavior and Handling	40
7.3.1.1	Communication Failure Behavior as Association Initiator	40
7.3.1.2	Communication Failure Handling as Association Acceptor	40
7.3.2	DIMSE Services	41
7.3.2.1	Basic Worklist Management Service – N/A	41
7.3.2.2	Modality Performed Procedure Step Service – N/A	41
7.3.2.3	Unified Worklist and Procedure Step Service – N/A	41
7.3.2.4	Instance Availability Notification Service – N/A	41
7.3.2.5	Storage Service – N/A	41
7.3.2.6	Storage Commitment Service – N/A	41
7.3.2.7	Query/Retrieve Service –N/A	41
7.3.2.8	Print Management Service – N/A	41
7.3.3	DICOM Web Services – N/A	42
8	Security	43
8.1	Introduction	43
8.2	External Network Requirements	43
8.3	TCP Port Configuration	43
8.4	DICOM Security Profiles Support	43
8.5	User Identity Negotiation Support – N/A	43
8.6	Web Services Security Features – N/A	43
8.7	Other Security Features – N/A	43
A	Information Object Definitions (IODs)	45
A.1	Information Shared Across Multiple IODs – N/A	45
A.2	Secondary Capture IODs	45
A.3	Basic Directory Storage IOD	46
B	Structured Report Content Encoding – N/A	47
C	Security Details	48
C.1	External Network Requirement Details	48
C.2	DICOM Security Profile Details	48
C.2.1	Online Electronic Storage Secure Use – N/A	48
C.2.2	Audit Trail Messages	48
C.2.3	Audit Trail Message Transmission Profile - SYSLOG - TLS – N/A	48
C.2.4	Audit Trail Message Transmission Profile - SYSLOG - UDP – N/A	48
C.2.5	Secure Transport Connection Details – N/A	48
C.2.6	Attribute Confidentiality Details – N/A	48
C.2.7	Digital Signature Details – N/A	49
C.2.8	Additional DICOM Security Profile Details – N/A	49
D	Mapping of Attributes – N/A	50
E	Code Set Usage – N/A	51

List of figures

1	Overview of Implemented Services	2
2	syngo.share webview Application Data Flow Diagram	21

List of tables

1	Supported Storage SOP Classes	3
2	Supported Storage Transfer Syntaxes	7
3	Supported Query/Retrieve SOP Classes	8
4	Supported Single-Byte Character Sets without Code Extensions	9
5	Supported Single-Byte Character Sets with Code Extensions	9
6	Supported Multi-Byte Character Sets without Code Extensions	9
7	Supported Multi-Byte Character Sets with Code Extensions	10
8	Revision History	15
9	Service to AE Mapping	23
10	Levels of Conformance	24
11	SOP Classes and corresponding UIDs for which Grayscale Softcopy Presentation States are not applied	26
12	Grayscale Softcopy Presentation State module coverage and limitations	26
13	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Study Level	28
14	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Series Level	29
15	Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Instance Level	29
16	General Configuration Parameters - General Parameters	33
17	General Configuration Parameters - DICOM Services Parameters	33
18	Storage Service Parameters: Local Configuration Parameters - Storage Service	34
19	Query/Retrieve Service Parameters: Local Configuration Parameters - Query/Retrieve Service	35
20	Query/Retrieve Service Parameters: Remote Configuration Parameters - Query/Retrieve Service	35
21	Media Storage Service Parameters	35
22	General Association Parameters	37
23	DICOM Communication Failure Behavior as Association Initiator	40
24	DICOM Communication Failure Handling as Association Acceptor	41
25	Storage SOP Classes for Secondary Capture IODs	45
26	DICOM Attributes for Secondary Capture instances - Image Pixel Module	45
27	DICOM Attributes for Secondary Capture instances - Multi-frame Module	45
28	DICOM Attributes for Secondary Capture instances - SC Multi-frame Image Module	46
29	DICOM Attributes for Secondary Capture instances - General Image Module	46
30	DICOM Attributes for Secondary Capture instances - General Series Module	46
31	DICOM Attributes for Secondary Capture instances - SC Equipment Module	46
32	DICOM Attributes for Secondary Capture instances - General Equipment Module	46

3 Introduction

3.1 Revision History

Table 8: Revision History

Revision	Date	Product Version	Change
13427	2026-07-03	VA60A	

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.

3.3 Remarks

This document is a DICOM Conformance Statement that describes the DICOM capabilities of *syngo.share webview*.

All information in this DICOM Conformance Statement is equally valid for the product *syngo.share webview diagnostic*. The same applies to AEs: all information provided for the AE *webview* is also valid for the diagnostic version *webviewdiagnostic*. For readability reasons, the diagnostic version is not mentioned explicitly.

The scope of this DICOM Conformance Statement is to facilitate integration between *syngo.share webview* 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.

- This Conformance Statement is intended to aid in the validation of the integration of *syngo.share webview* within a DICOM environment.
- The Conformance Statement does 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.share* webview 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.

ITH icoserve technology for healthcare GmbH has participated in Connectathons by Integrating the Healthcare Enterprise (IHE). The IHE Integration Statement of *syngo.share* webview together with the IHE Technical Framework may facilitate the process of validation testing.

3.4 Terms and Definitions

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

Abstract Syntax	The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.
Application 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 Information Object Definition; a Data Element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower-level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).
Data Element	A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly
Information Object Definition (IOD)	The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. Examples: MR Image IOD, CT Image IOD, Print Job IOD. The Attributes within an IOD may be specified as Mandatory (Type 1), Required but possibly unknown

	(Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).
Media Storage 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's Birth Date, and Patient's Sex.
Negotiation	First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.
Origin Server	Refers to the program that can originate authoritative responses to HTTP requests for a given Target Resource. The term "server" refers to any implementation that receives a web service request message from a user agent.
Presentation Context	The set of DICOM Network Services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.
Private SOP Class	A SOP Class that is not defined in the DICOM Standard but is published in an implementation's Conformance Statement.
Protocol Data Unit (PDU)	A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.
Security Profile	A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data.
Service Class Provider (SCP)	Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).
Service Class User (SCU)	Role of an Application Entity that uses a DICOM Network Service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU).
Service/Object Pair Class (SOP Class)	The specification of the network or media transfer (service) of a particular type of data (object) ; the fundamental unit of a DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.
Service/Object Pair Instance (SOP Instance)	An information object; a specific occurrence of information exchanged in a SOP Class. E.g., a specific X-ray image.
Specialized SOP Class	A SOP Class that is derived from the Standard that is specialized by additional Type 1, 1C, 2, 2C, or 3 Attributes, by enumeration of specific permitted Values for Attributes, or by enumeration of specific permitted Templates. The additional Attributes may either be drawn from the Data Dictionary in PS3.6 or may be Private Attributes.

Standard SOP Class	A SOP Class defined in the Standard, and that is implemented and used without any modifications.
Standard Extended SOP Class	A SOP Class that is defined in the standard, and that is extended by additional Type 3 Attributes. The additional Attributes may either be drawn from the DICOM Data Dictionary in PS3.6 or may be Private Attributes.
Tag	A 32-bit identifier for a Data Element, represented as a pair of four-digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element].
Transfer Syntax	The encoding used for exchange of DICOM information objects and messages. Examples: JPEG compressed (images), Little Endian Explicit Value Representation.
TLS-Secured Port	TCP port on which an implementation accepts TLS connections to exchange DICOM information.
Unique Identifier (UID)	A globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.
User Agent	A client in a network protocol used in communications within a client-server distributed computing system. In particular, the Hypertext Transfer Protocol (HTTP) identifies the client software originating the request, using a user-agent header, even when the client is not operated by a user.
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.

The following list includes product specific definitions used throughout this Conformance Statement:

Organizational unit	Representation of document-producing actors in a healthcare institution (e.g. departments, teams, devices). Organizational units function as archiving destinations for documents. Each document is archived in exactly one organizational unit.
----------------------------	--

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
MPPS	Modality Performed Procedure Step
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
PPS	Performed Procedure Step
QIDO-RS	Query based on ID for DICOM Objects by RESTful Services
RTV	Real-Time Video
SCP	Service Class Provider
SCU	Service Class User
SDP	Service Description Protocol
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
SR	Structured Reporting
STOW-RS	STore Over the Web by RESTful Services
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
UPS-RS	Unified Procedure Step by RESTful Services
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services
WADO-URI	Web Access to DICOM Objects by URI

3.6 References

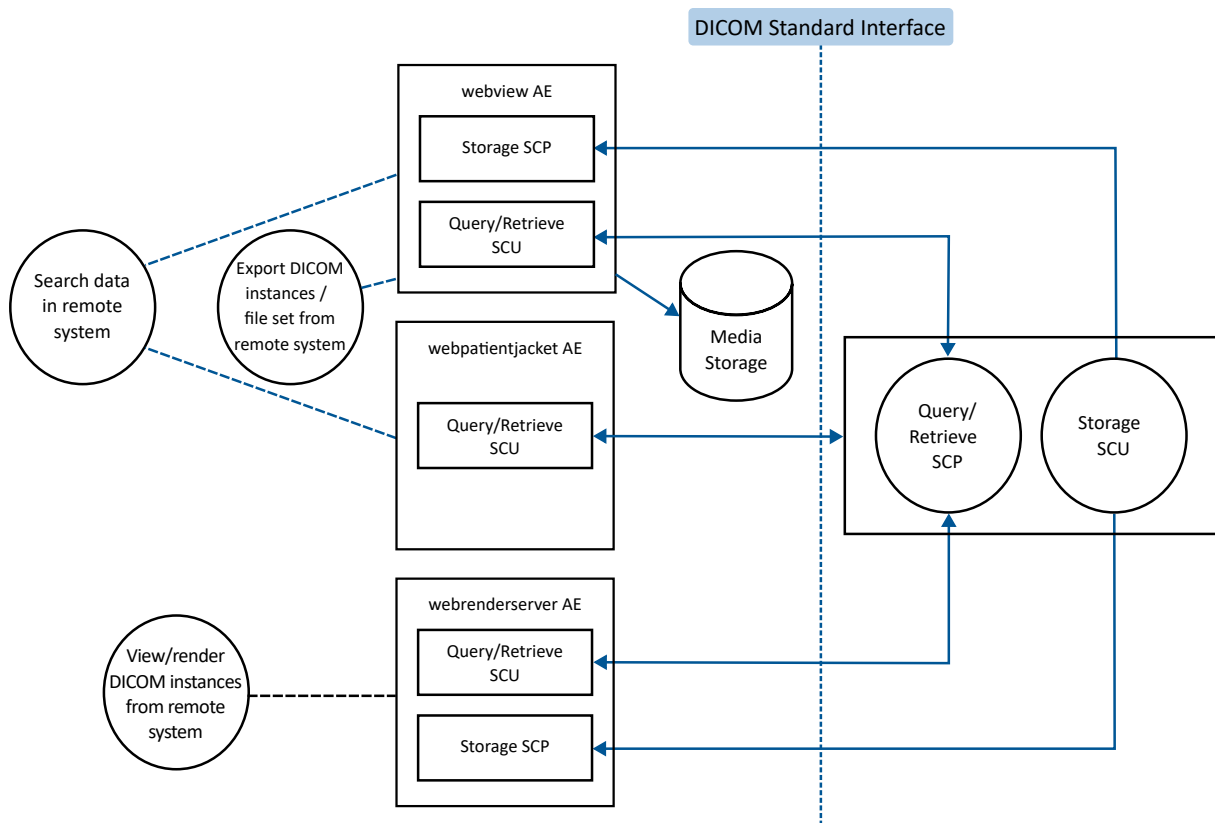
- [1] National Electrical Manufacturers Association (NEMA), Rosslyn, VA USA. *PS3 / ISO 12052 Digital Imaging and Communications in Medicine (DICOM) Standard*. <http://www.dicomstandard.org>.

4 Implementation Model

4.1 Application Entities and Data Flow

The network and media interchange application model for the *syngo.share webview* is shown in Figure 2 *syngo.share webview* Application Data Flow Diagram.

Figure 2: *syngo.share webview* Application Data Flow Diagram



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

4.1.1 Functional Definition of *webview* AE

The *webview* AE provides DICOM Query/Retrieve and Storage functionality to support search and export of DICOM studies from remote systems.

The *webview* AE queries remote systems for studies, series, and instances using the C-FIND service (SCU role). It retrieves DICOM instances from remote systems using the C-MOVE service (SCU role) and, to receive the instances transferred as a result of C-MOVE requests, provides a C-STORE service (SCP role). Retrieved instances can be exported as a ZIP archive or as a DICOM File Set. In the latter case, the *webview* AE acts as a File Set Creator (FSC).

4.1.2 Functional Definition of *webpatientjacket* AE

The *webpatientjacket* AE provides DICOM Query/Retrieve functionality to support patient-centric search of DICOM studies from remote systems.

The *webpatientjacket* AE queries remote systems for studies using the C-FIND service (SCU role), based on patient demographic search criteria.

4.1.3 Functional Definition of *webrenderserver* AE

The *webrenderserver* AE provides DICOM Query/Retrieve and Storage functionality to support retrieval of DICOM instances for rendering purposes.

The *webrenderserver* AE queries remote systems for series and instances of a given study using the C-FIND service (SCU role). It retrieves DICOM instances from remote systems using the C-MOVE service (SCU role) and, to receive the instances transferred as a result of C-MOVE requests, provides a C-STORE service (SCP role).

5 Service and Interoperability Description

5.1 Mapping of Services to Application Entities

Table 9 provides an overview of the Application Entities and the Services supported by each AE.

Table 9: Service to AE Mapping

Application Entity	Supported Services	Role								
		DIMSE services		DICOM web services		DICOM Media			Real-Time Video	
		SCU	SCP	Origin Server	User Agent	FSC	FSU	FSR	SCU	SCP
webview	Storage	N	Y	N	N	Y	N	N	N	N
	Query/Retrieve	Y	N	N	N	N	N	N	N	N
webpatientjacket	Query/Retrieve	Y	N	N	N	N	N	N	N	N
webrenderserver	Storage	N	Y	N	N	N	N	N	N	N
	Query/Retrieve	Y	N	N	N	N	N	N	N	N

5.2 DIMSE Services

5.2.1 Basic Worklist Management Service – N/A

This section does not apply to *syngo.share webview*.

5.2.2 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share webview*.

5.2.3 Unified Worklist and Procedure Step Service – N/A

This section does not apply to *syngo.share webview*.

5.2.4 Instance Availability Notification Service – N/A

This section does not apply to *syngo.share webview*.

5.2.5 Storage Service

5.2.5.1 SCU of the Storage SOP Classes – N/A

This section does not apply to *syngo.share webview*.

5.2.5.2 SCP of the Storage SOP Classes

As a Service Class Provider of the Storage Service Class, *syngo.share webview* receives C-STORE-RQ messages from remote SCUs. However, the Storage SCP is not a general-purpose storage endpoint - it is ex-

clusively used to receive SOP Instances transferred by remote systems as a result of C-MOVE operations initiated by *syngo.share* webview. See Section 1.1 for the list of supported SOP Classes.

Table 10 defines the conformance levels of *syngo.share* webview.

Table 10: Levels of Conformance	
Levels of Conformance	2
Level of Digital Signature Support	1

5.2.5.2.1 Attribute Coercion by Storage SCP

syngo.share webview does not coerce Attribute values of received SOP Instances. The received instances are used as-is for display and rendering purposes and are not persistently stored. Minimization of Patient Module Attributes as described in Section 1.6 applies exclusively to export copies and is not performed upon reception.

5.2.5.2.2 Display and Processing Limitations for Storage SCP

This section describes 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 lists are ordered by “Effect”, which 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 as described

DICOM instances

- LD** • Timezone Offset From UTC (0008,0201) is not applied on DA, TM, and DT attributes.
- ND** • Instances for which the value length of a tag exceeds 2 GiB (2^{31} - 9 bytes) are not supported.

DICOM images

- LD** • Multiple window center and width presets are not supported.
- VOI LUTs present in the Functional Group of multi-frame images are not considered.
 - VOI LUT functions are not supported.
 - Overlays stored in the unused bit planes of Pixel Data (7FE0,0010) are not supported, since this method was retired from the DICOM Standard in 2004.
 - Display Shutter and other graphical modules defined in image IODs are not applied.
 - ECG visualization is available only for color and monochrome images of modality XA. Only the first repeating group (5000 group) of the Curve Module is considered if Type of Data (5000,0020) is ECG. In addition, Curve Dimensions (5000,0005) must be 2, and Curve Data Descriptor (5000,0110) must be present with values 0\1. Value representation is limited to

unsigned short data: Data Value Representation (5000,0103) must be 0 and VR of Curve Data (5000,3000) must be OW.

- For modality US, the Sequence of Ultrasound Regions (0018,6011) can only be evaluated – and therefore annotations can only be calibrated – if there exists exactly one calibration region with Physical Units X Direction (0018,6024) and Physical Units Y Direction (0018,6026) indicating centimeters (3).

- ND**
- Images with 1 bit allocated for each pixel sample (binary images) are not supported.
 - Images with more than 16 bits per sample (Bits Stored (0028,0101)) are not supported.

DICOM whole slide microscopy images

Whole slide microscopy images (WSI images) consist of multiple instances forming an image pyramid. The image pyramid consists furthermore of zoom layers and Z-layers.

- LD**
- Display of whole slide images is not supported for data from remote systems. In this case, instances are interpreted as a common multi-frame image.
 - Thumbnail and overview layer are not available if the edge length of the topmost zoom layer of the image pyramid exceeds 5,000 pixels.
 - Overview layer is not available if the edge length of the topmost zoom layer of the image pyramid falls below 800 pixels.
 - Instances with an Image Flavor (third value of Image Type (0008,0008)) of LABEL or OVERVIEW consisting of multiple frames are not supported.
 - Image pyramids with a layer width or height exceeding $2^{31} - 1$ pixels are not supported.

- ND**
- Whole slide microscopy images consisting of monochrome image data are currently not supported.
 - Instances for which the Dimension Organization Type (0020,9311) is present with value must either follow TILED_FULL or TILED_SPARSE dimension organization.
 - All instances with an Image Flavor (third value of Image Type (0008,0008)) of VOLUME must use the same dimension organization.
 - Instances with multiple optical paths are not supported.
 - All instances must share the same Frame of Reference UID (0020,0052), Container Identifier (0040,0512), Issuer of the Container Identifier Sequence (0040,0513), Specimen UID (0040,0554), and Image Orientation (Slide) (0048,0102).
 - The number of Z-layers and the spacing between slices must be uniform across all zoom layers.
 - Image pyramids with a number of Z-layers exceeding $2^{31} - 1$ are not supported.
 - Image pyramids with layers exceeding $2^{31} - 9$ tiles (frames) are not supported.
 - Instances with Dimension Organization Type (0020,9311) of TILED_FULL and with an Image Flavor (third value of Image Type (0008,0008)) of VOLUME are not supported if they are part of a concatenation or if the number of frames per layer or in total exceeds $2^{31} - 1$.

DICOM ECGs

- LD**
 - Channel layouts are only possible if exactly 12 channels are present in the selected Waveform Multiplex Group.
 - Display properties (e.g. presentation groups, display colors, display scale) of the Waveform Module are not supported.
- ND**
 - ECG SOP Classes not listed in Table 1 are currently not supported.
 - Channel Sensitivity (003A,0210) is required to be present since samples shall represent defined (not arbitrary) units.
 - An ECG is not supported if Channel Time Skew (003A,0214), Channel Sample Skew (003A,0215), or Channel Offset (003A,0218) is present with a non-zero value.

DICOM videos

- ND**
 - Videos with an encapsulated video data stream segmented into more than one fragment are not supported.

DICOM Grayscale Softcopy Presentation States

- LD**
 - GSPS module limitations are listed in Table 12.
- ND**
 - GSPS are not applied on instances of the SOP Classes listed in Table 11 due to their limited support.
 - Presentation State Storage SOP Classes not listed above (see Table 1) are currently not supported.

Table 11: SOP Classes and corresponding UIDs for which Grayscale Softcopy Presentation States are not applied

SOP Class name	SOP Class UID
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6

Table 12: Grayscale Softcopy Presentation State module coverage and limitations

Module	Implemented	Limitations
Presentation State Identification	Partially	No further attributes beside Presentation Creation Date (0070,0082), Presentation Creation Time (0070,0083), and Content Label (0070,0080) with Content Creator's Name (0070,0084) from the Content Identification Macro are processed.
Presentation State Relationship	Partially	The Referenced Segment Number (0062,000B) from the Image SOP Instance Reference Macro is not considered.
Presentation State Shutter	No	-
Presentation State Mask	No	-
Mask	No	-
Display Shutter	No	-
Bitmap Display Shutter	No	-
Overlay Plane	No	-

Table 12: Grayscale Softcopy Presentation State module coverage and limitations ▼

▲ Table 12: Grayscale Softcopy Presentation State module coverage and limitations

Module	Implemented	Limitations
Overlay Activation	No	-
Displayed Area	Partially	The Referenced Segment Number (0062,000B) from the Image SOP Instance Reference Macro is not considered. The enumerated value VO LUME of Pixel Origin Interpretation (0048,0301) is not supported. The enumerated value TRUE SIZE of Presentation Size Mode (0048,0301) is interpreted as a magnification factor of 1: 1, as the client currently does not provide the physical pixel size of the display.
Graphic Annotation	Partially	The Referenced Segment Number (0062,000B) from the Image SOP Instance Reference Macro is not considered. The enumerated value MA TRIX for all annotation units of this module is not supported. The Text Style Sequence Macro, Compound Graphic Instance ID (0070,0226), and Graphic Group ID (0070,0295) from the Text Object Sequence (0070,0008) are not supported. The Line Style Sequence Macro, Fill Style Sequence Macro, Compound Graphic Instance ID (0070,0226), and Graphic Group ID (0070,0295) from the Graphic Object Sequence are not supported. The Compound Graphic Sequence is not considered.
Spatial Transformation	Yes	-
Graphic Layer	Partially	The Graphic Layer Description (0070,0068) is not considered.
Graphic Group	No	-
Modality LUT	No	-
Softcopy VOI LUT	No	-
Softcopy Presentation LUT	No	-
SOP Common	Partially	No further information is read from this module for GSPS instances apart from common information required for every supported DICOM instance (e.g. Specific Character Set (0008,0005)).

DICOM Structured Reports

- LD**
 - Referenced images need to be in the same study in order to be resolved automatically.
 - Referenced images do not consider a referenced Presentation State or Segment Number.
 - Referenced multi-frame images not referencing all frames only consider the first referenced frame.
- ND**
 - Support is currently limited to the rendering of Basic Text Structured Reports, X-Ray Radiation Dose Structured Reports, Radiopharmaceutical Radiation Dose Structured Reports, and Key Object Selection Documents.

5.2.6 Storage Commitment Service – N/A

This section does not apply to *syngo.share* webview.

5.2.7 Query/Retrieve Service Class

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

As a Service Class User of the Study Root Q/R - Information Model - FIND SOP Class, the *syngo.share* webview uses the C-FIND-RQ message and supports the Query Keys listed in Table 13, Table 14 and Table 15 for hierarchical queries.

In the “Matching Type” column the following Values can be used:

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

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

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

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

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

Table 13: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Study Level

Attribute Name	Tag	Matching Type	Comments
StudyDate	(0008,0020)	SINGLE_VALUE, RANGE, UNIVERSAL	
StudyTime	(0008,0030)	RANGE, UNIVERSAL	
AccessionNumber	(0008,0050)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
ModalitiesInStudy	(0008,0061)	SINGLE_VALUE, UNIVERSAL	
ReferringPhysicianName	(0008,0090)	WILDCARD, UNIVERSAL	
StudyDescription	(0008,1030)	WILDCARD, UNIVERSAL	
PatientName	(0010,0010)	WILDCARD, UNIVERSAL	
PatientID	(0010,0020)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
PatientBirthDate	(0010,0030)	SINGLE_VALUE, RANGE, UNIVERSAL	
PatientBirthTime	(0010,0032)	RANGE, UNIVERSAL	
PatientSex	(0010,0040)	SINGLE_VALUE, UNIVERSAL	
PatientBirthName	(0010,1005)	WILDCARD, UNIVERSAL	
PatientMotherBirthName	(0010,1060)	WILDCARD, UNIVERSAL	
StudyInstanceUID	(0020,000D)	UID, UNIVERSAL	
StudyID	(0020,0010)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
NumberOfStudyRelatedSeries	(0020,1206)	UNIVERSAL	
NumberOfStudyRelatedInstances	(0020,1208)	UNIVERSAL	
AdmissionID	(0038,0010)	UNIVERSAL	
AdmittingDate	(0038,0020)	UNIVERSAL	
AdmittingTime	(0038,0021)	UNIVERSAL	

Table 13: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Study Level ▼

▲ Table 13: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Study Level

Attribute Name	Tag	Matching Type	Comments
DischargeDate	(0038,0030)	UNIVERSAL	
DischargeTime	(0038,0032)	UNIVERSAL	

Table 14: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Series Level

Attribute Name	Tag	Matching Type	Comments
SeriesDate	(0008,0021)	UNIVERSAL	
SeriesTime	(0008,0031)	UNIVERSAL	
Modality	(0008,0060)	UNIVERSAL	
Manufacturer	(0008,0070)	UNIVERSAL	
InstitutionName	(0008,0080)	WILDCARD, UNIVERSAL	
StationName	(0008,1010)	WILDCARD, UNIVERSAL	
SeriesDescription	(0008,103E)	WILDCARD, UNIVERSAL	
InstitutionalDepartmentName	(0008,1040)	WILDCARD, UNIVERSAL	
PerformingPhysicianName	(0008,1050)	UNIVERSAL	
OperatorsName	(0008,1070)	UNIVERSAL	
ManufacturerModelName	(0008,1090)	UNIVERSAL	
BodyPartExamined	(0018,0015)	WILDCARD, UNIVERSAL	
SeriesInstanceUID	(0020,000E)	UID, UNIVERSAL	
SeriesNumber	(0020,0011)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
Laterality	(0020,0060)	SINGLE_VALUE, UNIVERSAL	
NumberOfSeriesRelatedInstances	(0020,1209)	UNIVERSAL	
PerformedProcedureStepStartDate	(0040,0244)	RANGE, UNIVERSAL	
PerformedProcedureStepStartTime	(0040,0245)	RANGE, UNIVERSAL	
RequestAttributesSequence	(0040,0275)	SEQUENCE	
- ScheduledProcedureStepID	(0040,0009)	SINGLE_VALUE, WILDCARD, UNIVERSAL	
- RequestedProcedureID	(0040,1001)	SINGLE_VALUE, WILDCARD, UNIVERSAL	

Table 15: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Instance Level

Attribute Name	Tag	Matching Type	Comments
ImageType	(0008,0008)	UNIVERSAL	
SOPClassUID	(0008,0016)	UNIVERSAL	
SliceThickness	(0018,0050)	UNIVERSAL	
AcquisitionNumber	(0020,0012)	UNIVERSAL	
InstanceNumber	(0020,0013)	UNIVERSAL	
ImagePositionPatient	(0020,0032)	UNIVERSAL	
ImageOrientationPatient	(0020,0037)	UNIVERSAL	
SliceLocation	(0020,1041)	UNIVERSAL	
SamplesPerPixel	(0028,0002)	UNIVERSAL	
PhotometricInterpretation	(0028,0004)	UNIVERSAL	
NumberOfFrames	(0028,0008)	UNIVERSAL	

Table 15: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Instance Level ▼

▲ Table 15: Supported C-FIND Attribute Matching for Study Root Q/R Model - SCU on Instance Level

Attribute Name	Tag	Matching Type	Comments
Rows	(0028,0010)	UNIVERSAL	
Columns	(0028,0011)	UNIVERSAL	
BitsAllocated	(0028,0100)	UNIVERSAL	
BitsStored	(0028,0101)	UNIVERSAL	
ConceptNameCodeSequence	(0040,A043)	SEQUENCE	
- CodeValue	(0008,0100)	SINGLE_VALUE, UNIVERSAL	
- CodingSchemeDesignator	(0008,0102)	SINGLE_VALUE, UNIVERSAL	
- CodingSchemeVersion	(0008,0103)	UNIVERSAL	
- CodeMeaning	(0008,0104)	UNIVERSAL	
ReferencedRequestSequence	(0040,A370)	SEQUENCE	
- AccessionNumber	(0008,0050)	UNIVERSAL	
- StudyInstanceUID	(0020,000D)	UNIVERSAL	
- RequestedProcedureID	(0040,1001)	UNIVERSAL	
ContentLabel	(0070,0080)	UNIVERSAL	
ContentDescription	(0070,0081)	UNIVERSAL	
PresentationCreationDate	(0070,0082)	UNIVERSAL	
PresentationCreationTime	(0070,0083)	UNIVERSAL	
ContentCreatorName	(0070,0084)	UNIVERSAL	

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

This section does not apply to *syngo.share* webview.

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

syngo.share webview uses List of UID matching to retrieve multiple entities in a single C-MOVE request. List of UID matching is applied at the Study level (multiple Study Instance UIDs), the Series level (multiple Series Instance UIDs within a single study), and the Image level (multiple SOP Instance UIDs within a single series).

A C-MOVE-CANCEL request may be sent in the following conditions:

- On error: If an error occurs during an ongoing C-MOVE operation (e.g., I/O error), a C-MOVE-CANCEL is sent as part of error recovery.
- When requested data is no longer needed (*webrenderserver* AE only): If a C-MOVE operation is still in progress and instances have not yet been fully received, a C-MOVE-CANCEL is sent to stop the ongoing retrieval.

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

This section does not apply to *syngo.share* webview.

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

This section does not apply to *syngo.share* webview.

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

This section does not apply to *syngo.share* webview.

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

This section does not apply to *syngo.share* webview.

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

This section does not apply to *syngo.share* webview.

5.2.8 Print Management Service – N/A

This section does not apply to *syngo.share* webview.

5.3 DICOM Web Services – N/A

This section does not apply to *syngo.share* webview.

5.4 Media Services

5.4.1 File Set Creator (FSC)

syngo.share webview supports creating the Basic Directory IOD as a File Set Creator (see Section A.3). It is capable of creating a DICOM File Set consisting of a DICOMDIR and DICOM files.

The produced file set has the following characteristics:

- All DICOM files are stored using the Explicit VR Little Endian Transfer Syntax. Instances in compressed Transfer Syntaxes are decompressed prior to writing; instances that cannot be converted to Explicit VR Little Endian Transfer Syntax are either excluded or included in their original form, depending on user configuration.
- The file set is packaged as an ISO 9660 Level 1 image. ISO 9660 Level 3 is used automatically if any individual file exceeds 4 GB in size.
- The DICOMDIR is placed in the root directory of the file set.

5.4.2 File Set Reader (FSR) – N/A

This section does not apply to *syngo.share* webview.

5.4.3 File Set Updater (FSU) – N/A

This section does not apply to *syngo.share* webview.

5.5 Real-Time Video Services – N/A

This section does not apply to *syngo.share* webview.

5.6 Cross Service Considerations – N/A

This section does not apply to *syngo.share* webview.

5.7 Specific Character Sets

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

Generic configuration for Specific Character Sets is covered in Section 6.1.

6 Configuration

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

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

6.1 General Configuration Parameters

Table 16 and Table 17 list general configuration parameters applicable across all supported DICOM Services.

Table 16: General Configuration Parameters - General Parameters

Parameter	Configurable	Default Value	Comments
Timeout for establishing a new connection	FIXED	1 minute	
Timeout for waiting on acceptance of the association (A-ASSOCIATE-AC)	FIXED	1 minute	
Timeout for waiting on a response (e.g. after sending a C-FIND request)	FIXED	1 minute	
Timeout for waiting on a response regarding a retrieval request (e.g. after sending a C-MOVE request)	FIXED	1 minute	
Timeout for waiting on release of the association (A-RELEASE-RP)	FIXED	1 minute	
Timeout for waiting on establishment of a new association (A-ASSOCIATE-RQ)	FIXED	1 minute	
Timeout for idle associations	FIXED	1 minute	
Timeout for association release after issuing a C-CANCEL-RQ	FIXED	1 minute	If, after issuing a C-CANCEL-RQ, the SCP continues to send responses or fails to cease DIMSE activity within the configured timeout period, the association is aborted, as the operation cannot be terminated in an orderly manner.

Table 17: General Configuration Parameters - DICOM Services Parameters

Parameter	Configurable	Default Value	Comments
Specific Character Set	FIXED	ISO_IR 192	Used in all C-FIND and C-MOVE requests.

6.2 Configuration of DIMSE Services

syngo.share webview is configured in the product configuration in syngo.share Configuration and static server configuration files.

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

In order to identify whether *syngo.share* webview is an SCP and/or an SCU, the following applies:

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

6.2.1 Basic Worklist Management Service Configuration – N/A

This section does not apply to *syngo.share* webview.

6.2.2 Modality Performed Procedure Step Service Configuration – N/A

This section does not apply to *syngo.share* webview.

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

This section does not apply to *syngo.share* webview.

6.2.4 Instance Availability Notification Service Configuration – N/A

This section does not apply to *syngo.share* webview.

6.2.5 Storage Service Configuration

webview AE and *webrenderserver* AE provide a Storage SCP as part of their Query/Retrieve functionality. Thus, the Storage SCP only processes data from remote systems as answers to a previously issued C-MOVE request.

Table 18 lists Storage Service configuration parameters:

Table 18: Storage Service Parameters: Local Configuration Parameters - Storage Service

Parameter	Configurable	Default Value	Comments
Called AE Title (SCP)	SERVICE	WEBVIEW (for <i>webview</i> AE) WEBRS (for <i>webrenderserver</i> AE)	AE Title under which the Storage SCP listens for incoming C-STORE associations. To be configured in: server configuration
Port	SERVICE	12300 (for <i>webview</i> AE) 12201 (for <i>webrenderserver</i> AE)	TCP port the Storage SCP listens on. To be configured in: server configuration
Maximum number of simultaneously open associations	SERVICE	10 (for <i>webview</i> AE) 20 (for <i>webrenderserver</i> AE)	The maximum number of simultaneously open associations of the Storage SCP. To be configured in: server configuration
Supported Transfer Syntax as SCP	FIXED		Accepts all Transfer Syntaxes
Supported Storage SOP Classes as SCP	FIXED		Accepts all Storage SOP Classes

6.2.6 Storage Commitment Service Configuration – N/A

This section does not apply to *syngo.share* webview.

6.2.7 Query/Retrieve Service Configuration

webview AE, *webpatientjacket* AE and *webrenderserver* AE provide a Query/Retrieve SCU supporting C-FIND; *webview* AE and *webrenderserver* AE additionally support C-MOVE.

Table 19 and Table 20 list Query/Retrieve Service configuration parameters:

Table 19: Query/Retrieve Service Parameters: Local Configuration Parameters - Query/Retrieve Service

Parameter	Configurable	Default Value	Comments
Called AE Title (SCU)	SERVICE	WEBVIEW (for <i>webview</i> AE) WEBRS (for <i>webrender-server</i> AE)	AE Title used to initiate associations for C-FIND and C-MOVE to remote systems. An alternate calling AET can be configured for each remote system in the product configuration. To be configured in: server configuration (default value) / product configuration (alternate Calling AE Title)
Move Destination AE title	FIXED		Automatically set to the Called AE Title of the Storage Service of the same AE.

Table 20: Query/Retrieve Service Parameters: Remote Configuration Parameters - Query/Retrieve Service

Parameter	Configurable	Default Value	Comments
Called AE Title (SCP)	SERVICE		AE Title of the remote system. To be configured in: product configuration
Port	SERVICE		Port of the remote system. To be configured in: product configuration
Host	SERVICE		Host of the remote system. To be configured in: product configuration

6.2.8 Print Management Service Configuration – N/A

This section does not apply to *syngo.share webview*.

6.3 Configuration of DICOM Web Services – N/A

This section does not apply to *syngo.share webview*.

6.4 Configuration of Media Storage Service

Table 21 lists configuration parameters for the Media Storage service.

Table 21: Media Storage Service Parameters

Parameter	Configurable	Default Value	Comments
Minimize Patient Data	USER	No	Options: Yes; No Option to minimize patient data. For further details please see Section 1.6 .
Add Nonconvertible DICOM Instances	USER	Yes	Options: Yes; No Option to add DICOM instances which cannot be converted to Explicit VR Little Endian.
ISO 9660 Level	USER	Auto	Options: Auto, Level 1 Auto automatically upgrades to Level 3 if any file in the file set is ≥ 4 GB. If Level 1 is selected and a file ≥ 4 GB is present, the export fails with an error.

6.5 Configuration of Real-Time Video Service – N/A

This section does not apply to *syngo.share* webview.

6.6 Configuration of Audit Trail - Syslog – N/A

This section does not apply to *syngo.share* webview.

7 Network and Media Communication Details

7.1 General

7.1.1 General Association Parameters

Table 22 lists Association parameters applicable to all AEs on the system.

Table 22: General Association Parameters

Name	Value
Implementation Class UID	1.2.40.0.13.1.3
Implementation Version Name	dcm4che-5.34.2
Maximum PDU Length	16378

7.2 Specifications

7.2.1 *webview* Application Entity

7.2.1.1 Sequencing of Real-World Activities for *webview* AE

The *webview* AE supports two real-world activities: searching for DICOM data in a remote system (C-FIND) and exporting DICOM instances from a remote system (C-MOVE / C-STORE). The typical sequence is: the user initiates a search (C-FIND) to locate studies, series, or instances. Based on the search results, the user may optionally trigger an export. The export activity involves two DIMSE operations: the *webview* AE issues a C-MOVE request to the remote system, which in turn transfers the requested instances back to the *webview* AE via C-STORE. A C-MOVE operation always follows a preceding C-FIND, while C-FIND may be performed independently.

7.2.1.2 Association Parameters of *webview* AE

Table 22 lists Association parameters applicable to all activities of *webview* AE.

7.2.1.3 Association Initiation

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

7.2.1.3.1 Real-World Activity: Search data in remote system (C-FIND)

webview AE serves as an SCU for all the supported Q/R Information Model - FIND SOP Classes. The *webview* AE initiates a C-FIND request and displays the responses to the user. The proposed Transfer Syntaxes for association establishment for C-FIND are defined in Table 3.

If the C-FIND operation is no longer relevant, the *webview* AE issues a C-CANCEL request to cancel it. This may be triggered by the user or by the system.

The Association is closed when the C-FIND operation is finished or cancelled.

7.2.1.3.2 Real-World Activity: Export DICOM instances/file set from remote system (C-MOVE)

webview AE acts as an SCU for all the supported Q/R Information Model MOVE SOP Classes. It initiates a C-MOVE request to a remote system to retrieve DICOM instances for export. The proposed Transfer Syntaxes for association establishment for C-MOVE are defined in Table 3.

If an error occurs during export, the *webview* AE issues a C-CANCEL request to terminate the C-MOVE operation.

The Association is closed after the SCP sends the final C-MOVE response or after cancellation.

7.2.1.4 Association Acceptance

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

7.2.1.4.1 Real-World Activity: Export DICOM instances/DICOM File Set from remote system (C-STORE)

The *webview* AE serves as an SCP for the C-STORE service. It accepts associations from remote systems that transfer DICOM instances as a result of a previously issued C-MOVE request. The *webview* AE does not act as a general-purpose storage endpoint - it only accepts C-STORE requests in the context of an ongoing C-MOVE operation initiated by itself. The received instances are temporarily buffered to be packaged for export (e.g., as a DICOM File Set with DICOMDIR) and are not permanently stored in the system.

Transfer Syntax Selection Policies

The *webview* AE accepts any Transfer Syntax proposed by the remote SCU. When multiple Transfer Syntaxes are proposed within a Presentation Context, the first proposed Transfer Syntax is accepted.

7.2.2 *webpatientjacket* Application Entity

7.2.2.1 Sequencing of Real-World Activities for *webpatientjacket*

The *webpatientjacket* AE supports one real-world activity: searching for DICOM studies in a remote system based on patient demographic criteria (C-FIND). The activity is initiated by the user through the user interface and is independent of any other activity.

7.2.2.2 Association Parameters of *webpatientjacket* AE

Table 22 lists Association parameters applicable to all activities of *webpatientjacket* AE.

7.2.2.3 Association Initiation

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

7.2.2.3.1 Real-World Activity: Search data in remote system (C-FIND)

webpatientjacket AE serves as an SCU for all the supported Q/R Information Model - FIND SOP Classes. The *webpatientjacket* AE initiates a C-FIND request and displays the responses to the user. The proposed Transfer Syntaxes for association establishment for C-FIND are defined in Table 3.

The Association is closed when the C-FIND operation is finished.

7.2.2.4 Association Acceptance – N/A

This section does not apply to *syngo.share* webview.

7.2.3 *webrenderserver* Application Entity

7.2.3.1 Sequencing of Real-World Activities for *webrenderserver*

The *webrenderserver* AE supports one real-world activity: viewing and rendering DICOM instances from a remote system (C-FIND / C-MOVE / C-STORE). This activity involves three DIMSE operations executed in a fixed sequence:

1. C-FIND is performed to query the structure of the requested study, retrieving metadata about its series and instances.
2. Once the study structure is known, C-MOVE is initiated to request retrieval of the relevant instances from the remote system.
3. C-STORE is the result of the C-MOVE operation: the remote SCP transfers the instances to the *webrenderserver* AE, which acts as Storage SCP to receive them.

C-FIND is always the first step; C-MOVE and C-STORE always follow in sequence and do not occur independently.

7.2.3.2 Association Parameters of *webrenderserver* AE

Table 22 lists Association parameters applicable to all activities of *webrenderserver* AE.

7.2.3.3 Association Initiation

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

7.2.3.3.1 Real-World Activity: View/render DICOM instances/file set from remote system (C-FIND/C-MOVE)

The *webrenderserver* AE serves as an SCU for all supported Q/R Information Model - FIND SOP Classes. It initiates C-FIND requests to query the structure of a requested study, retrieving metadata about its series and instances. The retrieved metadata is used to build the study structure and to identify the instances to be retrieved in the subsequent C-MOVE steps. The proposed Transfer Syntaxes for association establishment are defined in Table 3.

If an error or interruption occurs during the C-FIND operation, the *webrenderserver* AE issues a C-CANCEL request to cancel it.

The Association is closed when the C-FIND operation is finished or cancelled.

The *webrenderserver* AE acts as an SCU for all supported Q/R Information Model - MOVE SOP Classes. Based on the instance metadata retrieved in the preceding C-FIND step, it initiates a C-MOVE request to a remote system to retrieve individual DICOM instances on demand as requested for rendering. The remote SCP will transfer the instances to the *webrenderserver* AE via C-STORE. The proposed Transfer Syntaxes for association establishment are defined in Table 3.

If an error occurs during the C-MOVE operation, or if the requested instances are no longer needed, the *webrenderserver* AE issues a C-CANCEL request to cancel the C-MOVE operation.

The Association is closed after the SCP sends the final C-MOVE response or after cancellation.

7.2.3.4 Association Acceptance

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

7.2.3.4.1 Real-World Activity: View/render DICOM instances from remote system (C-STORE)

The *webrenderserver* AE serves as an SCP for the C-STORE service. It accepts associations from remote systems that transfer DICOM instances as a result of a previously issued C-MOVE request. The *webrenderserver* AE does not act as a general-purpose storage endpoint - it only accepts C-STORE requests in the context of an ongoing C-MOVE operation initiated by itself. The received instances are processed for rendering and are not permanently stored.

Transfer Syntax Selection Policies

The *webrenderserver* AE accepts any Transfer Syntax proposed by the remote SCU. When multiple Transfer Syntaxes are proposed within a Presentation Context, the first proposed Transfer Syntax is accepted.

7.3 Status Codes

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

7.3.1 General AE Communication and Failure Behavior and Handling

7.3.1.1 Communication Failure Behavior as Association Initiator

Table 23 describes behavior of the AE if a communication failure occurs when it initiated an Association.

Table 23: DICOM Communication Failure Behavior as Association Initiator

Failure	Failure Behavior
Timeout	The operation fails. If an association exists, an orderly release (A-RELEASE) is attempted; if release itself fails, the association is aborted (A-ABORT). Error is logged and propagated.
Association aborted	The ongoing operation fails. No release attempted (association already terminated). Error is logged and propagated.
Network Disconnect	Same behavior as association aborted. Additionally, any remaining open socket is forcibly closed.

7.3.1.2 Communication Failure Handling as Association Acceptor

Table 24 describes how the AE responds when it receives an Association request that leads to a failure in communication.

Table 24: DICOM Communication Failure Handling as Association Acceptor

Exception	Failure Response
Failure during processing of an Association request	Presentation Context rejection due to unsupported SOP Class or Transfer Syntax is not applied. In case of a protocol-level failure during association negotiation, the connection is closed by the underlying DICOM stack.
Unrecognized Called AE	The association is rejected with an A-ASSOCIATE-RJ: • Result: 1 - rejected-permanent • Source: 1 - DICOM UL service-user • Reason: 7 - called-AE-title-not-recognized
Exceed limit for number of connections supported	The association is rejected with an A-ASSOCIATE-RJ: • Result: 2 - rejected-transient • Source: 3 - DICOM UL service-provider (Presentation related function) • Reason: 2 - local-limit-exceeded The maximum number of simultaneously open associations is configurable.

7.3.2 DIMSE Services

DICOM Standard status codes are supported. For all supported DIMSE services, errors will terminate the corresponding operation and a suitable message is logged.

7.3.2.1 Basic Worklist Management Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.2 Modality Performed Procedure Step Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.3 Unified Worklist and Procedure Step Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.4 Instance Availability Notification Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.5 Storage Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.6 Storage Commitment Service – N/A

This section does not apply to *syngo.share* webview.

7.3.2.7 Query/Retrieve Service –N/A

This section does not apply to *syngo.share* webview.

7.3.2.8 Print Management Service – N/A

This section does not apply to *syngo.share* webview.

7.3.3 DICOM Web Services – N/A

This section does not apply to *syngo.share* webview.

8 Security

8.1 Introduction

The security section describes security features implemented by this product. It includes information on securing patient data during export and where to find additional details on non-DICOM network protocols as well as on port configuration.

8.2 External Network Requirements

Various non-DICOM network protocols are described in the *syngo.share* Security Whitepaper.

8.3 TCP Port Configuration

See [Section 6 Configuration](#) for information on the usage of ports for DICOM. For more information on default and available ports see the *syngo.share* Security Whitepaper.

8.4 DICOM Security Profiles Support

syngo.share webview does not support any specific DICOM Security Profiles. For information on Audit Trail Messages see [Section C.2.2](#).

During export, *syngo.share* webview supports various options to secure patient data: Retrieved instances can be exported as a password-protected ZIP archive. Furthermore, *syngo.share* webview supports the minimization of patient identifying data during export (see [Section 1.6](#)).

8.5 User Identity Negotiation Support – N/A

This section does not apply to *syngo.share* webview.

8.6 Web Services Security Features – N/A

This section does not apply to *syngo.share* webview.

8.7 Other Security Features – N/A

This section does not apply to *syngo.share* webview.

Annexes

A Information Object Definitions (IODs)

This section describes all the SOP Instances natively created by *syngo.share* webview, namely Secondary Captures (i.e., SOP Classes marked with “S” in the “Create” column in Table 1).

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

This section does not apply to *syngo.share* webview.

A.2 Secondary Capture IODs

syngo.share webview creates Secondary Capture instances when a user uploads a captured image. Depending on the pixel characteristics of the image, one of three Multi-Frame Secondary Capture SOP Classes is selected:

Table 25: Storage SOP Classes for Secondary Capture IODs

SOP Class	SOP Class UID	Samples/ Pixel	Bits Allocated	Bits Stored
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	1	8	8
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	1	16	9-16
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	3	8	8

Table 26, Table 27, Table 28, Table 29, Table 30, Table 31, and Table 32 list the key DICOM attributes set by *syngo.share* webview when creating Secondary Capture instances. Attributes derived from existing patient, study, and visit records (such as Patient ID, Patient Name, Study Instance UID, or Accession Number) are not listed, as they are populated from the source data without modification.

Table 26: DICOM Attributes for Secondary Capture instances - Image Pixel Module

Tag	Attribute	Value
(0028,0002)	Samples per Pixel	1 (monochrome) / 3 (color)
(0028,0004)	Photometric Interpretation	MONOCHROME2 / RGB
(0028,0006)	Planar Configuration	0 (for RGB only)
(0028,0010)	Rows	Derived from image
(0028,0011)	Columns	Derived from image
(0028,0100)	Bits Allocated	Derived from image
(0028,0101)	Bits Stored	Derived from image
(0028,0102)	High Bit	Derived from image
(0028,0103)	Pixel Representation	0 (unsigned)

Table 27: DICOM Attributes for Secondary Capture instances - Multi-frame Module

Tag	Attribute	Value
(0028,0008)	Number of Frames	1

Table 28: DICOM Attributes for Secondary Capture instances - SC Multi-frame Image Module

Tag	Attribute	Value
(0028,1052)	Rescale Intercept	0
(0028,1053)	Rescale Slope	1
(0028,1054)	Rescale Type	US
(2050,0020)	Presentation LUT Shape	IDENTITY

Table 29: DICOM Attributes for Secondary Capture instances - General Image Module

Tag	Attribute	Value
(0020,0013)	Instance Number	0
(0008,0023)	Content Date	Set to instance creation date
(0008,0033)	Content Time	Set to instance creation time

Table 30: DICOM Attributes for Secondary Capture instances - General Series Module

Tag	Attribute	Value
(0020,0011)	Series Number	≥ 200

Table 31: DICOM Attributes for Secondary Capture instances - SC Equipment Module

Tag	Attribute	Value
(0008,0060)	Modality	OT
(0008,0064)	Conversion Type	WSD

Table 32: DICOM Attributes for Secondary Capture instances - General Equipment Module

Tag	Attribute	Value
(0008,0070)	Manufacturer	ITH icoserve technology for healthcare GmbH
(0008,1090)	Manufacturer's Model Name	<i>webview/webview diagnostic</i>
(0018,1020)	Software Versions	x.x.x.x

A.3 Basic Directory Storage IOD

syngo.share webview creates a Media Storage Directory Storage (1.2.840.10008.1.3.10) (DICOMDIR) instance as part of DICOM File Set exports. The File-set ID (0004,1130) is set to SYNGOSHARE. The directory record hierarchy follows the standard PATIENT / STUDY / SERIES / IMAGE structure.

B Structured Report Content Encoding – N/A

This section does not apply to *syngo.share* webview.

C Security Details

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

C.1 External Network Requirement Details

Various external network protocols are described in the *syngo.share* Security Whitepaper.

C.2 DICOM Security Profile Details

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

This section does not apply to *syngo.share* webview.

C.2.2 Audit Trail Messages

syngo.share webview has no own Audit Trail stack but provides auditing in conjunction with *syngo.share* core.

- User login or logout generates a User Authentication audit message with event ID 110114.
- *syngo.share* core audits query for and access to DICOM data whenever data is accessed via DICOM or the native interfaces. When running *syngo.share* webview on top of remote systems, routing DICOM Q/R via *syngo.share* core is the recommended standard (although not required). This ensures auditing of all relevant events.

In the context of DICOM Q/R, *syngo.share* core audits namely the following events:

- Begin Transferring DICOM Instances (ID: 110102)
- DICOM Instances Accessed (ID: 110103)
- DICOM Instances Transferred (ID: 110104)
- Query (ID: 110112)

For details, please refer to the latest DICOM Conformance Statement of *syngo.share* core.

C.2.3 Audit Trail Message Transmission Profile - SYSLOG - TLS – N/A

This section does not apply to *syngo.share* webview.

C.2.4 Audit Trail Message Transmission Profile - SYSLOG - UDP – N/A

This section does not apply to *syngo.share* webview.

C.2.5 Secure Transport Connection Details – N/A

This section does not apply to *syngo.share* webview.

C.2.6 Attribute Confidentiality Details – N/A

This section does not apply to *syngo.share* webview.

C.2.7 Digital Signature Details – N/A

This section does not apply to *syngo.share* webview.

C.2.8 Additional DICOM Security Profile Details – N/A

This section does not apply to *syngo.share* webview.

D Mapping of Attributes – N/A

This section does not apply to *syngo.share* webview.

E Code Set Usage – N/A

This section does not apply to *syngo.share* webview.

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