Release VA51A / 2025-10-03 / Revision 11922

syngo.share core

DICOM Conformance Statement

SIEMENS Healthineers

Unrestricted

Build ID 102ca052442d1c8fb2870d2ee710083f8d6d7da9ff482e6966da340b552d793a

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 necessary and 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 your hospital, processing them into the multimedia electronic patient record.

The *EventServer* is able to generate DICOM IANs (Instance Availability Notifications) based on internal events or incoming DICOM MPPS (Modality Performed Procedure Steps) requests and sends them to one or more AEs (Application Entities).

The component *webdicom* serves as a WADO-RS retrieve instance RESTful interface.

Content and transfer

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

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	Y	N	Y	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	Y
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Y	Y	N	Y	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	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	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	Y
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	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	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	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	Y
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Y	Y	N	Y	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	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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	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	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	Y
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Y	Y	N	Y	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	Y
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Y	Y	N	Y	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	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	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	Y
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Y	Y	N	Y	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	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	Y
Photoacoustic Image Storage	1.2.840.10008.5.1.4.1.1.6.3	Y	Y	N	Y	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	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	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	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	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	Y
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	Y	Y	N	Y	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	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	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	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	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	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	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	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	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	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	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	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	Y

Table 1

Table 1

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	Y	N	Y	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	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	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	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	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	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	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	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	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	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	Y
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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	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	Y
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Y	Y	N	Y	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	Y
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Y	Y	N	Y	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	Y
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Y	Y	N	Y	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	Y
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Y	Y	N	Y	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	Y
Tractography Results Storage	1.2.840.10008.5.1.4.1.1.66.6	Y	Y	N	Y	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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	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	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	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	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	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	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	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	Y
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	Y	Y	N	Y	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	Y
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	Y	Y	N	Y	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	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	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	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	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	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	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	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	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	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	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	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	Y
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	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	Y
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Y	Y	N	Y	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	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	Y
Extensible SR Storage	1.2.840.10008.5.1.4.1.1.88.35	Y	Y	N	Y	N	N	N	N	N	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Y	Y	N	Y	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	Y
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Y	Y	N	Y	N	N	N	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	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	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	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	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	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	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	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	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	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	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	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	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	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	Y
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Y	Y	N	Y	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	Y
Encapsulated STL Storage	1.2.840.10008.5.1.4.1.1.104.3	Y	Y	N	Y	N	N	N	N	N	Y
Encapsulated OBJ Storage	1.2.840.10008.5.1.4.1.1.104.4	Y	Y	N	Y	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	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	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	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	Y
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Y	Y	N	Y	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	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	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	Y
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Y	Y	N	Y	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	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Y	Y	N	Y	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	Y
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Y	Y	N	Y	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	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	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	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	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	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	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	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	Y
Tomotherapeutic Radiation Storage	1.2.840.10008.5.1.4.1.1.481.14	Y	Y	N	Y	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	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	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	Y
Tomotherapeutic Radiation Record Storage	1.2.840.10008.5.1.4.1.1.481.18	Y	Y	N	Y	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	Y

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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	Y
Thermography Image Storage	1.2.840.10008.5.1.4.1.1.601.3	Y	Y	N	Y	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	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	Y
RT Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	Y	Y	N	Y	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	Y

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

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	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	S
Motion Management Protocol Storage	1.2.246.352.70.1.40	Y	Y	N	Y	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	S
RT Plan Varian 1 Storage	1.2.246.352.70.1.70	Y	Y	N	Y	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	S
GE Private 3D Model Storage	1.2.840.113619.4.26	Y	Y	N	Y	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	S
Siemens CSA Non-Image Storage	1.3.12.2.1107.5.9.1	Y	Y	N	Y	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	S
Siemens AX Frame Sets Storage	1.3.12.2.1107.5.99.3.11	Y	Y	N	Y	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	S
Philips Private Perfusion Storage	1.3.46.670589.5.0.13	Y	Y	N	Y	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	S
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1	Y	Y	N	Y	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	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	S

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

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
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

Table 3

Table 3

Transfer Syntax name	Transfer Syntax UID
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

DIMSE services

Verification

Table 4: 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

Workflow management

Table 5: Supported Storage Commitment SOP Classes for *DicomServer* (SCP) and *EventServer* (SCU)

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

Table 5

Table 5

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	Y	Y

Table 6: Supported Modality Performed Procedure Step SOP Classes for *DicomServer*

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	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

Table 7: Supported Instance Availability Notification SOP Classes for *EventServer*

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
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

Query/Retrieve

Table 8: Supported Query/Retrieve SOP Classes for *DicomServer* (SCP), *EventServer* (SCU) and *webdicom* (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

Table 8

Table 8

SOP Class	SOP Class UID	Transfer Syntax	Transfer Syntax UID	SCU	SCP
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	N	Y
		Explicit VR Little Endian	1.2.840.10008.1.2.1	N	Y
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2	N	Y
Patient 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
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

DICOM web services

Studies service

Table 9: Study service

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

Contents

List of figures

List of tables

1 Introduction

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

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

1.1 Remarks

This Conformance Statement is intended to aid in the validation of the integration of the *DicomServer*, the *EventServer* and *webdicom* 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
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

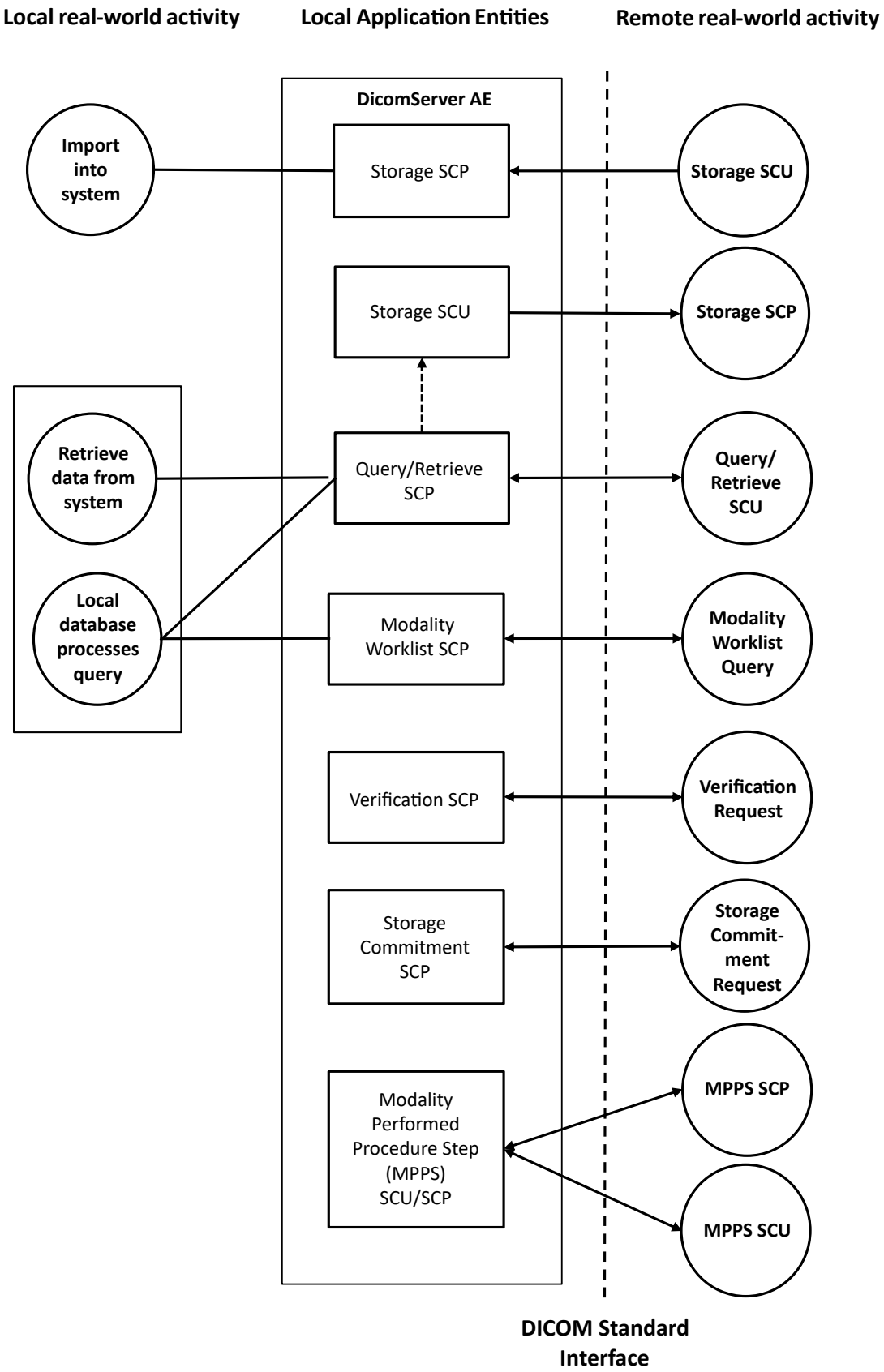
2.1 Application data flow diagram

2.1.1 *DicomServer* 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 *DicomServer* instance.

Figure 1: *DicomServer* data flow diagram

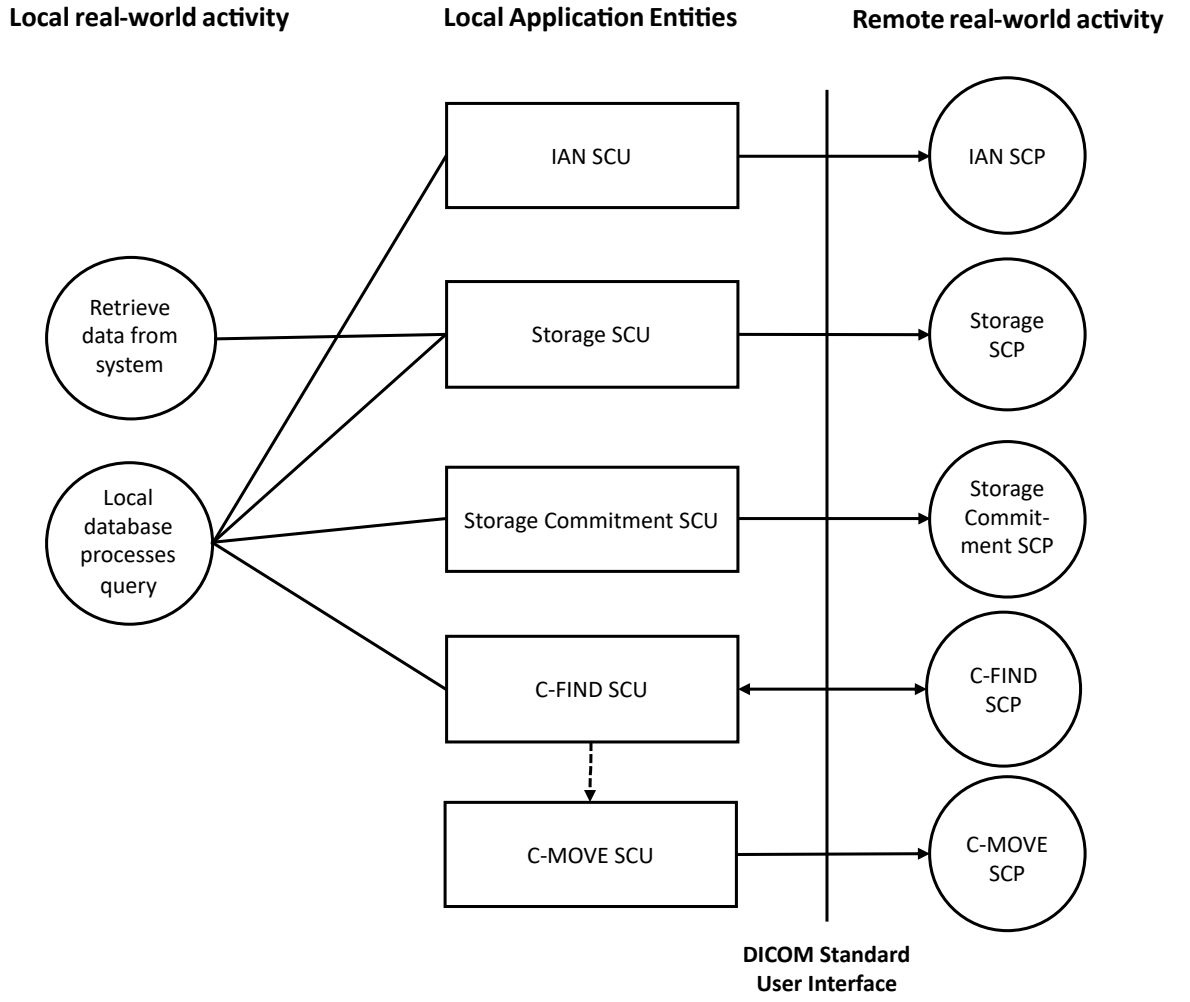


2.1.2 *EventServer* data flow diagram

The *EventServer* is able to generate DICOM IANs based on internal events or incoming DICOM MPPS requests. It is further able to route DICOM images, 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. For third-party VNAs, specific AEs can in turn be configured per service.

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

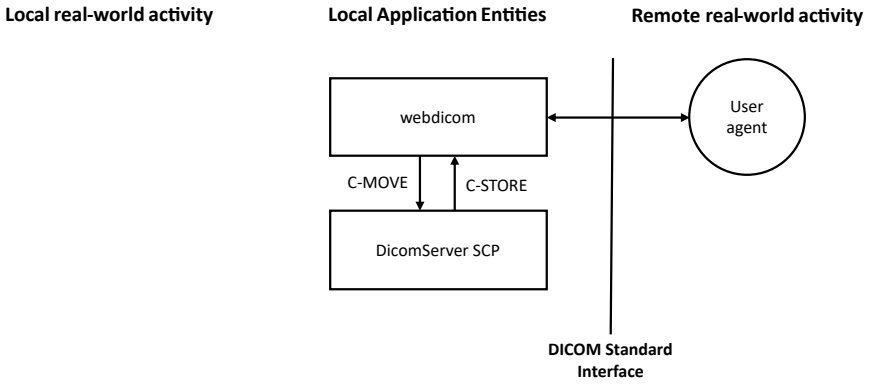
Figure 2: *EventServer* data flow diagram



2.1.3 *webdicom* data flow diagram

The *webdicom* AE acts as Query/Retrieve SCU which sends C-MOVE requests to and accepts C-STORE requests from the *DicomServer* AE.

Figure 3: *webdicom* data flow diagram



2.2 Functional definition of AEs

2.2.1 *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.

2.2.2 *EventServer*

The *EventServer* AE generates DICOM IANs based on internal events or incoming DICOM MPPS requests and sends them to one or more AEs.

2.2.3 *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

The *webdicom* AE acts as Query/Retrieve SCU which sends C-MOVE requests to and accepts C-STORE requests from the *DicomServer* AE.

2.3 Sequencing of real-world activities

- The services of the *DicomServer* AE must be requested according to the Service Class specifications in DICOM PS3.3.
- The services of the *EventServer* AE are triggered automatically.
- The services of the *webdicom* AE are triggered by RESTful interface requests.

3 Application Entity specifications

syngo.share core consists of multiple DICOM Application Entities. The following chapter describes the conformance of those entities to the DICOM Standard.

3.1 *DicomServer*

3.1.1 Supported SOP Classes and Transfer Syntaxes

The *DicomServer* AE provides standard-conformant support for the SOP Classes and Transfer Syntaxes listed in the following tables:

- Storage SOP Classes: Table 1
- Private Storage SOP Classes: Table 2
- Storage Transfer Syntaxes: Table 3
- Verification SOP Classes: Table 4
- Storage Commitment SOP Classes (as SCP): Table 5
- Modality Performed Procedure Step SOP Classes: Table 6
- Query/Retrieve SOP Classes (as SCP): Table 8

3.1.2 Association establishment policies

3.1.2.1 General

The *DicomServer* AE supports plain TCP and TLS-encrypted communication. For each kind of transport, the server provides an arbitrary number of listen ports. All these ports are equivalent and provide the same services. The maximum accepted PDU size is 16384.

3.1.2.2 Number of associations

The *DicomServer* AE starts a thread for each incoming association request. The number of simultaneous associations is thus only limited by the hardware resources. The *DicomServer* AE is configured for 30 simultaneous connections by default. This value can be changed without restarting the process.

3.1.2.3 Asynchronous nature

The *DicomServer* AE only allows a single outstanding operation on an association, meaning that it does not perform asynchronous negotiation.

3.1.2.4 Implementation-identifying information

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

3.1.2.5 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 and C-GET 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.

3.1.3 Association initiation policy by real-world activity

3.1.3.1 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.

3.1.3.2 Real-world activity: C-FIND spanning

Associated real-world activity

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 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. Local results are always returned before any remote results are taken into account.

Proposed Presentation Contexts

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

3.1.3.3 Real-world activity: C-MOVE spanning

Associated real-world activity

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.

Proposed Presentation Contexts

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

3.1.4 Association acceptance policies

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

3.1.4.1 Real-world activity: Storage SCU

Associated real-world activity

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.

Proposed Presentation Contexts

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.

3.1.4.2 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.

3.1.4.3 KOS Rejection Notes

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

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 is 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.

3.1.5 Asynchronous DICOM import

The *syngo*.share core DICOM import is usually performed in synchronous mode, i.e. the actual import is part of a C-STORE request and a response is sent afterwards. In order to increase the import rate observed by the sending modality, *syngo*.share also offers an advanced asynchronous DICOM import mode which consists of two steps. To save time, only a few checks are initially performed on the received data; the images are then temporarily stored (i.e. not yet imported into the archive).

These images are added to an import queue residing in the database. At this point (step 1), the C-STORE request is finished, meaning that a response with success status is sent to inform the modality that *syngo*.share is ready for another request. In a second, independent step (step 2), the import queue is processed and the data is actually imported into the archive, thus completing the asynchronous DICOM import.

The entries in the import queue are processed in the order of their reception. Their processing is no different from synchronous imports. A safeguard is in place to ensure that simultaneous threads do not conflict with one another: Any actively processed SOP Instance UIDs or SOP Instance UIDs referenced by KOS objects are marked as "in process" and therefore reserved. No other import thread within a *DicomServer* may simultaneously process the same SOP Instance UIDs.

The asynchronous DICOM import may help to more efficiently utilize modalities since it may allow subsequent examinations to be started sooner. This is especially useful in times of high load. Because the actual import rate is generally less than the externally observed import rate, this functionality is not meant to be used for importing large volumes of data in bulk, e.g. a data migration. When the intermediate storage runs low on disk space, the C-STORE requests are delayed until there is enough free disk space available or until they have timed out. This gradually happens after images have been archived and removed from the intermediate storage. This intermediate storage requires a dedicated hard disk partition. Only then can the mechanism prevent an exhaustion of the disk space, which would in turn lead to an error when trying to store an image.

When using both synchronous and asynchronous imports within a system, asynchronously imported images are not necessarily processed before a subsequent synchronous import. This is due to the inherent delay of asynchronous imports, described in Step 2.

Other important points to consider when deciding whether to use synchronous or asynchronous imports in a system are:

- **Error notification**
  Unlike synchronous imports, asynchronous imports do not actively notify the user of an error during import, meaning errors cannot be dealt with immediately. This is because potential erroneous images in Step 2 are part of an automated process which does not entail active user notification. Therefore, the erroneous images are added to a DICOM error list which must be manually cleaned by an administrator. This list can be managed via *DicomAdmin*.

  > **i** The error list is not persistent; it is kept in memory per *DicomServer* instance, i.e. a restart of the *DicomServer* clears the error list entries. A new error list is created when the DICOM images are reprocessed. Each *DicomServer* independently manages its own error list.

- **Response behavior**
  During asynchronous import, *syngo*.share answers any DICOM storage commitment requests sent by modalities in the negative if the images have yet to be processed. A positive response is only sent when the queued data has been archived. Some modalities are not able to send further storage commitment requests after a given period and simply resend images.

- **Image availability**
  Any queued images in Step 2 are unavailable to C-FIND and C-MOVE requests because they have not yet been added to the archive.

For these reasons, the synchronous import mode is preferred over asynchronous import mode when importing a large volume of data or when dealing with modalities with limited capabilities.

3.2 *EventServer*

3.2.1 Supported SOP Classes and Transfer Syntaxes

The *EventServer* AE provides standard-conformant support for the SOP Classes and Transfer Syntaxes listed in the following tables:

- Storage SOP Classes: Table 1
- Storage Transfer Syntaxes (as SCU): Table 3
- Storage Commitment SOP Classes (as SCU): Table 5
- Instance Availability Notification SOP Classes: Table 7
- Query/Retrieve SOP Classes (as SCU): Table 8

3.2.2 Association Establishment Policies

3.2.2.1 General

The *EventServer* AE supports TCP/IP. 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.

3.2.2.2 Number of associations

The *EventServer* AE starts a number of threads depending on the type of the operation, configured for the specific use case, and the configuration of the receiving AE (DICOM target). The number of simultaneous associations is thus only limited by the hardware resources.

3.2.2.3 Asynchronous nature

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

3.2.2.4 Implementation identifying information

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

3.2.2.5 Association initiation policy by real-world activity

The *EventServer* AE initiates an association with a remote AE for the following request types:

- N-CREATE requests for sending DICOM IANs
- C-STORE requests for routing DICOM data
- C-FIND and C-MOVE requests for fetching DICOM studies and/or DICOM series
- Storage Commitment N-ACTION requests for verifying the availability of previously sent DICOM data (in the context of a third-party VNA)

See Section 2.1.2 for more information regarding these use cases. 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.

3.3 *webdicom*

3.3.1 Supported SOP Classes and Transfer Syntaxes

The *webdicom* AE provides standard-conformant support for the SOP Classes and Transfer Syntaxes listed in the following tables:

- Storage SOP Classes (as OS): Table 1
- Storage Transfer Syntaxes: Table 3
- Query/Retrieve SOP Classes: Table 8

3.3.2 Association establishment policies

The *webdicom* AE accepts an arbitrary number of HTTPS connections authenticated by a configured authentication server. The client credentials flow is supported.

3.3.3 Association initiation policy by real-world activity

3.3.3.1 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.

4 Communication profiles

4.1 Supported communication stacks

The *DicomServer* and *EventServer* provide plain TCP (see DICOM PS3.8, 9) and TLS-encrypted communication (see DICOM PS3.15, B.1). They use the OFFIS DICOM Tool Kit (DCMTK) for their communication, which itself relies on the operating system it runs on.

5 Security profiles

5.1 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 2021a PS 3.15, 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

5.1.1 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 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.

5.1.2 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.

5.1.3 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, searching 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.

5.1.4 Configuration of auditing

Auditing must be configured in *syngo*.share Configuration. The most important configuration options are AuditSystemActions and AuditUserActions.

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.

For general information about auditing, please consult the *syngo*.share core Online Help.

6 Configuration

The *DicomServer* and *EventServer* are configured according to the standard *syngo*.share core server configuration mechanism. See the Online Help *syngo*.share core for further information.

7 Country-specific requirements

syngo.share core can meet the legal requirements of a given country, and in compliance with the IHE Technical Framework. *syngo*.share core applies country-specific changes to DICOM communication at the tenant level, i.e. according to the country set in the tenant settings. This chapter describes how *syngo*.share core handles specific countries.

7.1 France

French law mandates special requirements for medical communication (see the IHE Technical Framework National Extensions chapter for details). To fulfil these requirements, *syngo*.share core can automatically modify DICOM elements. Care has been taken to ensure that these implicit modifications are applied at the correct point in the chain of events to ensure that forbidden data is never archived or transmitted.

When processing C-STORE requests, the following DICOM Element values are cleared automatically:

- Ethnic Group (0010,2160)
- Patient Religious Preference (0010,21F0)

8 Support of extended character sets

8.1 Supported character sets

Table 10 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 10: 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	-

8.2 Configuration capabilities

The specific character set of a C-STORE request can be corrected with a configuration. Furthermore, the specific character set of the C-FIND request and response can be configured. For example, the specific character set configuration values could be set to 'ISO_IR 192', 'ISO_IR 100', 'ISO 2022 IR 100\ISO 2022 IR 87', etc.

8.3 Query capabilities

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 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 '?'. 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).

A DICOM element list for Query/Retrieve Service Classes

The following table lists the DICOM keys used for matching on the patient, study, series and image level in C-FIND requests. All keys are supported for matching and response. The matching of person name fields is case-insensitive. The attribute Specific Character Set (0008,0005) shall be included if expanded; replacement character sets may be used in any of the attributes in the Request Identifier.

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

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

Keyword	Tag	Remark
PatientID	(0010,0020)	
PatientName	(0010,0010)	
PatientBirthDate	(0010,0030)	Combined Date/Time Matching supported
PatientBirthTime	(0010,0032)	Combined Date/Time Matching supported
PatientSex	(0010,0040)	
PatientBirthName	(0010,1005)	
OtherPatientIDs	(0010,1000)	

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 12: Supported C-FIND elements on the study level

Keyword	Tag	Remark
StudyInstanceUID	(0020,000D)	
AdmissionID	(0038,0010)	
StudyDate	(0008,0020)	Combined Date/Time Matching supported
StudyTime	(0008,0030)	Combined Date/Time Matching supported
StudyDescription	(0008,1030)	
AccessionNumber	(0008,0050)	
StudyID	(0020,0010)	
NumberOfStudyRelatedSeries	(0020,1206)	
NumberOfStudyRelatedInstances	(0020,1208)	
ReferringPhysicianName	(0008,0090)	
ModalitiesInStudy	(0008,0061)	Multiple values are supported and combined using a logical OR.

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

Table 13: Supported C-FIND elements on the series level

Keyword	Tag	Remark
SeriesInstanceUID	(0020,000E)	
Modality	(0008,0060)	
SeriesNumber	(0020,0011)	
SeriesDescription	(0008,103E)	
NumberOfSeriesRelatedInstances	(0020,1209)	
InstitutionName	(0008,0080)	
InstitutionalDepartmentName	(0008,1040)	
StationName	(0008,1010)	
PerformingPhysicianName	(0008,1050)	
Manufacturer	(0008,0070)	
ManufacturerModelName	(0008,1090)	
BodyPartExamined	(0018,0015)	
OperatorsName	(0008,1070)	
Laterality	(0020,0060)	
PerformedProcedureStepStartDate	(0040,0244)	Combined Date/Time Matching supported
PerformedProcedureStepStartTime	(0040,0245)	Combined Date/Time Matching supported
PerformedProcedureStepEndDate	(0040,0250)	Combined Date/Time Matching supported
PerformedProcedureStepEndTime	(0040,0251)	Combined Date/Time Matching supported
SeriesDate	(0008,0021)	Combined Date/Time Matching supported
SeriesTime	(0008,0031)	Combined Date/Time Matching supported
RequestAttributesSequence/ RequestedProcedureID	(0040,0275)/ (0040,1001)	
RequestAttributesSequence/ ScheduledProcedureStepID	(0040,0275)/ (0040,0009)	

A.4 Supported C-FIND element requests on the image level

Table 14: Supported C-FIND elements on the image level

Keyword	Tag	Remark
SOPInstanceUID	(0008,0018)	
InstanceNumber	(0020,0013)	
SOPClassUID	(0008,0016)	
Rows	(0028,0010)	
Columns	(0028,0011)	
BitsAllocated	(0028,0100)	
BitsStored	(0028,0101)	
SamplesPerPixel	(0028,0002)	
NumberOfFrames	(0028,0008)	

Table 14

Table 14

Keyword	Tag	Remark
ContentTemplateSequence/ TemplateIdentifier	(0040,A504)/ (0040,DB00)	Needs SOP Class from Table 15
ContentTemplateSequence/ MappingResource	(0040,A504)/ (0008,0105)	Needs SOP Class from Table 15
ContentDate	(0008,0023)	Needs SOP Class from Table 15
ContentTime	(0008,0033)	Needs SOP Class from Table 15
ObservationDateTime	(0040,A032)	Needs SOP Class from Table 15
ReferencedRequestSequence/ StudyInstanceUID	(0040,A370)/ (0020,000D)	Needs SOP Class from Table 15
ReferencedRequestSequence/ AccessionNumber	(0040,A370)/ (0008,0050)	Needs SOP Class from Table 15
ReferencedRequestSequence/ RequestedProcedureID	(0040,A370)/ (0040,1001)	Needs SOP Class from Table 15
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodeValue	(0040,A370)/ (0032,1064)/ (0008,0100)	Needs SOP Class from Table 15
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodingSchemeDesignator	(0040,A370)/ (0032,1064)/ (0008,0102)	Needs SOP Class from Table 15
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodingSchemeVersion	(0040,A370)/ (0032,1064)/ (0008,0103)	Needs SOP Class from Table 15
ReferencedRequestSequence/ RequestedProcedureCodeSequence/ CodeMeaning	(0040,A370)/ (0032,1064)/ (0008,0104)	Needs SOP Class from Table 15
ConceptNameCodeSequence/ CodeValue	(0040,A043)/ (0008,0100)	Needs SOP Class from Table 15
ConceptNameCodeSequence/ CodingSchemeDesignator	(0040,A043)/ (0008,0102)	Needs SOP Class from Table 15
ConceptNameCodeSequence/ CodingSchemeVersion	(0040,A043)/ (0008,0103)	Needs SOP Class from Table 15
ConceptNameCodeSequence/ CodeMeaning	(0040,A043)/ (0008,0104)	Needs SOP Class from Table 15
CompletionFlag	(0040,A491)	Needs SOP Class from Table 15
VerificationFlag	(0040,A493)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingOrganization	(0040,A073)/ (0040,A027)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerificationDateTime	(0040,A073)/ (0040,A030)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingObserverName	(0040,A073)/ (0040,A075)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodeValue	(0040,A073)/ (0040,A088)/ (0008,0100)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodingSchemeDesignator	(0040,A073)/ (0040,A088)/ (0008,0102)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodingSchemeVersion	(0040,A073)/ (0040,A088)/ (0008,0103)	Needs SOP Class from Table 15
VerifyingObserverSequence/ VerifyingObserverIdentificationCodeSequence/ CodeMeaning	(0040,A073)/ (0040,A088)/ (0008,0104)	Needs SOP Class from Table 15
ContentLabel	(0070,0080)	Needs SOP Class from Table 15
ContentDescription	(0070,0081)	Needs SOP Class from Table 15
PresentationCreationDate	(0070,0082)	Needs SOP Class from Table 15

Table 14

Table 14

Keyword	Tag	Remark
PresentationCreationTime	(0070,0083)	Needs SOP Class from Table 15
ContentCreatorName	(0070,0084)	Needs SOP Class from Table 15
ReferencedSeriesSequence/ SeriesInstanceUID	(0008,1115)/ (0020,000E)	Needs SOP Class from Table 15
ReferencedSeriesSequence/ ReferencedImageSequence/ ReferencedSOPClassUID	(0008,1115)/ (0008,1140)/ (0008,1150)	Needs SOP Class from Table 15
ReferencedSeriesSequence/ ReferencedImageSequence/ ReferencedSOPInstanceUID	(0008,1115)/ (0008,1140)/ (0008,1155)	Needs SOP Class from Table 15

Table 15: SOP Classes that support additional query elements

SOP Class Name	SOP Class UID
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
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

B List of elements for modality worklist C-FIND requests

Modality worklist queries support all C-FIND elements from the patient level. The attribute `Specific Character Set (0008,0005)` will be included if expanded; replacement character sets may be used in any of the attributes in the Request Identifier.

Table 16: Supported C-FIND modality worklist keywords

Key	Tag	Remark
AdmissionID	(0038,0010)	
AdmittingDate	(0038,0020)	Combined Date/Time Matching supported
AdmittingTime	(0038,0021)	Combined Date/Time Matching supported
CurrentPatientLocation	(0038,0300)	
ConfidentialityConstraintOnPatientDataDescription	(0040,3001)	
PregnancyStatus	(0010,21C0)	
ReferringPhysicianName	(0008,0090)	
ScheduledProcedureStepSequence/ ScheduledStationAETitle	(0040,0100)/ (0040,0001)	
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartDate	(0040,0100)/ (0040,0002)	Combined Date/Time Matching supported
ScheduledProcedureStepSequence/ ScheduledProcedureStepStartTime	(0040,0100)/ (0040,0003)	Combined Date/Time Matching supported
ScheduledProcedureStepSequence/ Modality	(0040,0100)/ (0008,0060)	
ScheduledProcedureStepSequence/ ScheduledPerformingPhysicianName	(0040,0100)/ (0040,0006)	
ScheduledProcedureStepSequence/ ScheduledProcedureStepDescription	(0040,0100)/ (0040,0007)	no matching, response only
ScheduledProcedureStepSequence/ ScheduledProcedureStepID	(0040,0100)/ (0040,0009)	
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
ScheduledProcedureStepSequence/ RequestedProcedureCodeSequence/ CodeValue	(0040,0100)/ (0032,1064)/ (0008,0100)	no matching, response only
ScheduledProcedureStepSequence/ RequestedProcedureCodeSequence/ CodingSchemeDesignator	(0040,0100)/ (0032,1064)/ (0008,0102)	no matching, response only
ScheduledProcedureStepSequence/ RequestedProcedureCodeSequence/ CodeMeaning	(0040,0100)/ (0032,1064)/ (0008,0104)	no matching, response only
RequestedProcedureID	(0040,1001)	
RequestedProcedureDescription	(0032,1060)	no matching, response only

Table 16

Table 16

Key	Tag	Remark
StudyInstanceUID	(0020,000D)	
AccessionNumber	(0008,0050)	
RequestingPhysician	(0032,1032)	
OrderCallbackPhoneNumber	(0040,2010)	
PlacerOrderNumberImagingServiceRequest	(0040,2016)	
FillerOrderNumberImagingServiceRequest	(0040,2017)	
OrderEntererLocation	(0040,2009)	
PatientState	(0038,0500)	
PatientSize	(0010,1020)	
PatientWeight	(0010,1030)	
MedicalAlerts	(0010,2000)	

Manufacturer
ITH icoserve technology for healthcare GmbH
Innrain 98
6020 Innsbruck
Austria
Phone: +43 512 89059

Distributed by
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim
Germany

Made in Austria

Release VA51A / 2025-10-03 / Revision 11922

syngo.share webview (diagnostic)

DICOM Conformance Statement

SIEMENS Healthineers

Unrestricted

Build ID 102ca052442d1c8fb2870d2ee710083f8d6d7da9ff482e6966da340b552d793a

Overview

syngo.share webview is a versatile multi-modality display system for DICOM images. It is able to retrieve and display DICOM images from *syngo*.share core or, via Query/Retrieve, from third-party DICOM archives. Additionally, *syngo*.share webview supports the export of DICOM images, series and studies and the creation of DICOMDIR.

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
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Y	Y	N	N	Y	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	Y	N	N
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Y	Y	N	N	Y	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	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	Y	N	N
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	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	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	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	Y	N	N
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Y	Y	N	N	Y	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	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	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	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	Y	N	N
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Y	Y	N	N	Y	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	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	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	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	Y	N	N
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Y	Y	N	N	Y	N	N	Y	N	N

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Y	Y	N	N	Y	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	Y	N	N
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Y	Y	N	N	Y	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	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	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	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	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	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	Y	N	N
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Y	Y	N	N	Y	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	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	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	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	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	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	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	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	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	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	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	Y	N	N
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Y	Y	N	N	Y	N	N	Y	N	N
VL Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Y	Y	N	N	Y	N	N	Y	N	N
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Y	Y	N	N	Y	N	N	Y	N	N
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Y	Y	N	N	Y	N	N	Y	N	N
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Y	Y	N	N	Y	N	N	Y	N	N
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Y	Y	N	N	Y	N	N	Y	N	N
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Y	Y	N	N	Y	N	N	Y	N	N
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Y	Y	N	N	Y	N	N	Y	N	N

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Y	Y	N	N	Y	N	N	Y	N	N
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Y	Y	N	N	Y	N	N	Y	N	N
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Y	Y	N	N	Y	N	N	Y	N	N
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Y	Y	N	N	Y	N	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	Y	N	N	Y	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	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	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	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	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	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	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	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	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	Y	N	N
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Y	Y	N	N	Y	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	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	Y	N	N
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Y	Y	N	N	Y	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	Y	N	N
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Y	Y	N	N	Y	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	Y	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

Table 2

Table 2

Transfer Syntax name	Transfer Syntax UID
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
MPEG2 Main Profile / Main Level	1.2.840.10008.1.2.4.100
MPEG2 Main Profile / High Level	1.2.840.10008.1.2.4.101
MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102
MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 2D Video	1.2.840.10008.1.2.4.104
MPEG-4 AVC/H.264 High Profile / Level 4.2 For 3D Video	1.2.840.10008.1.2.4.105
MPEG-4 AVC/H.264 Stereo High Profile / Level 4.2	1.2.840.10008.1.2.4.106
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
RLE Lossless	1.2.840.10008.1.2.5

DIMSE services

Query/Retrieve

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		
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2		
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		
		Explicit VR Big Endian (Retired)	1.2.840.10008.1.2.2		

Contents

List of figures

List of tables

1 Introduction

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

1.1 Remarks

This Conformance Statement is intended to aid in the validation of the integration of *syngo*.share webview 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

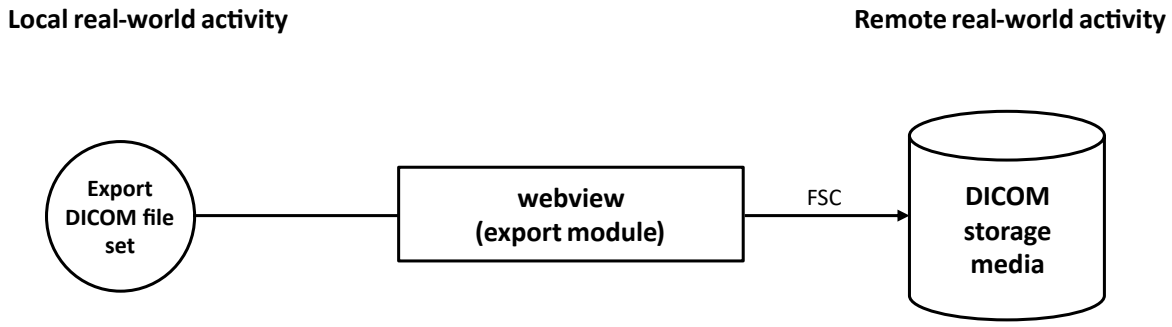
AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File-Set Creator
FSR	File-Set Reader
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
OS	Origin Server
PDU	Protocol Data Unit
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

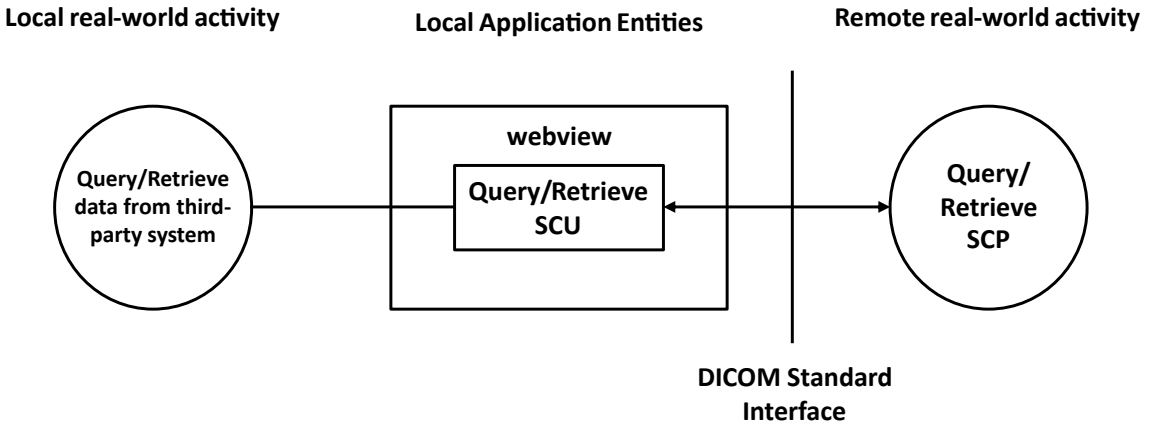
syngo.share webview provides a user interface for exporting DICOM files – the FSC (File Set Creator) – to portable media (such as USB sticks), network directories or the local file system. These functions are integral components of *syngo*.share webview. Within the context of this Conformance Statement, the exporting functionality is referred to as the *syngo*.share webview FSC AE.

Figure 1: *syngo*.share webview FSC data flow diagram



Additionally, *syngo*.share webview provides the ability to query third-party PACS and retrieve data from them. *syngo*.share webview also provides report-reading capabilities for Structured Reports and the possibility to apply Grayscale Softcopy Presentation States (GSPS) as defined in DICOM PS3.3.

Figure 2: *syngo*.share webview AE application data flow diagram



2.2 Functional definition of AEs

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

The *syngo*.share webview AE is able to query third-party PACS using the C-FIND service and retrieve data using the C-MOVE service in accordance with DICOM PS3.7. The third-party PACS can be queried using the Study Root Query/Retrieve Information Model as defined in DICOM PS3.4, C.3.2. Baseline behavior is supported for C-FIND SCU and C-MOVE SCU.

The *syngo*.share webview AE is able to render DICOM instances received via Query/Retrieve. Section 3.1 describes the supported SOP Classes for *syngo*.share webview.

2.3 Sequencing of real-world activities

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

3 Application Entity specifications

The *syngo*.share webview FSC provides functionalities for the sole purpose of handling DICOM media. The DICOM Storage SOP Classes listed in Table 1 are supported for viewing. For SOP Classes not listed in Table 1, accessing the DICOM header is possible within the application.

3.1 Supported SOP Classes and Transfer Syntaxes

The supported DICOM SOP Classes are described in Table 1 and Table 3. Table 2 lists the supported storage Transfer Syntaxes.

Note that SOP Classes for the purpose of image data storage require the DICOM Image Pixel module to exist in order to display image data. Also, a value must be provided in the DICOM element Pixel Data (`7FE0,0010`), and the underlying Transfer Syntax must be supported. For limitations please see Appendix B.

3.2 Association establishment policies

3.2.1 General

The *syngo*.share webview AE supports TCP/IP. When a user requests a C-FIND or C-MOVE operation, it attempts to establish an association with a remote AE. The host, port and remote AE title are defined within the server configuration. The maximum accepted PDU size is 16378.

3.2.2 Number of associations

The *syngo*.share webview AE supports multiple simultaneous associations for C-FIND, C-MOVE and C-STORE operations. The *syngo*.share webview AE is configured for ten simultaneous connections for C-STORE by default. This value can be changed but requires a restart.

3.2.3 Asynchronous nature

The *syngo*.share webview 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**
  1.2.40.0.13.1.3
- **Implementation Version Name**
  dcm4che-5.33.1

3.2.5 Association initiation policy by real-world activity

The *syngo*.share webview AE initiates an association with a remote AE for C-FIND and C-MOVE requests. The proposed Transfer Syntaxes for association establishment for C-FIND and C-MOVE are defined in Table 3.

4 DICOM media AE specification

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

4.1 Implementation model

4.1.1 Application data flow diagram

See Section 2.1 (*syngo*.share webview data flow diagram).

4.1.2 Functional definitions of the AE

The *syngo*.share webview AE implements standard DICOM-conformant service classes for the creation of DICOM file sets (according to DICOM PS3.10).

4.1.3 Sequencing of real-world activities

The DICOM media functionalities of the *syngo*.share webview AE can be used at any time through its user interface.

4.1.4 File meta information

- **Implementation Class UID**
  1.2.40.0.13.1.3
- **Implementation Version Name**
  dcm4che-5.33.1

4.2 Application Entity specification

See Section 3 for supported SOP Classes for the export of media.

Table 4: *syngo*.share webview AE-related application profiles, real-world activity roles, and roles for interchanging

Supported application profiles	Real-world activity	Role	SC option
syngo.share webview FSC	Export DICOM file set	FSC	Interchange

4.2.1 Real-world activities

4.2.1.1 Creating DICOMDIRs

The *syngo*.share webview AE supports the creation of DICOMDIR with all mandatory keys, as defined in DICOM PS3.10.

Exporting media

The *syngo*.share webview AE is able to organize DICOM images, series and studies into a file set which is then saved to the local file system or to DICOM PS3.12-compliant media. The *syngo*.share webview AE, here acting as an FSC, uses the following Transfer Syntaxes:

Table 5: Supported *syngo*.share webview Export Transfer Syntaxes

Transfer Syntax name	Transfer Syntax UID
Explicit VR Little Endian	1.2.840.10008.1.2.1

The *syngo*.share webview AE also supports the usage of the original Transfer Syntax if the DICOM instance cannot be converted to the Explicit VR Little Endian Syntax. In this case, the created DICOMDIR is not compliant with the DICOM Standard. This option can be deactivated in *syngo*.share webview.

4.3 Augmented and private application profiles

Not used.

5 Communication profiles

5.1 Supported communication stacks

syngo.share webview provides plain TCP (see DICOM PS3.8, 9) communication. It uses the dcm4che library and toolkit for its communication.

6 Configuration

syngo.share webview is configured in *syngo*.share Configuration and static configuration files. See the product-specific technical documentation for further information.

7 Support of extended character sets

7.1 Supported character sets

Table 6 contains the character sets which are supported with and without code extension techniques.

Table 6: 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	-

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

syngo.share webview 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 attribute list for Query/Retrieve service classes

The following tables list the DICOM keys used for matching and/or return on the study (Table 7), series (Table 8) and image (Table 9) level in C-FIND requests issued by *syngo*.share webview AE as C-FIND SCU.

The Query Retrieve Level (0008,0052) and Specific Character Set (0008,0005) attributes are set in every C-FIND request and are therefore not mentioned in the tables below. The value of Query Retrieve Level is set to the respective level (study, series, image). The value of Specific Character Set is set to ISO_IR 192. In addition, the Unique Key Attribute for each level above the Query/Retrieve level is sent as well with a single value (baseline behavior).

A.1 Used C-FIND attributes in requests issued by *syngo*.share webview

Table 7: Used C-FIND attributes in requests issued by *syngo*.share webview AE (C-FIND SCU) on the study level

Attribute name	Tag	Usage
StudyDate	(0008,0020)	Matching and Return
StudyTime	(0008,0030)	Matching and Return
AccessionNumber	(0008,0050)	Matching and Return
ModalitiesInStudy	(0008,0061)	Matching and Return
ReferringPhysicianName	(0008,0090)	Matching and Return
StudyDescription	(0008,1030)	Matching and Return
PatientName	(0010,0010)	Matching and Return
PatientID	(0010,0020)	Matching and Return
PatientBirthDate	(0010,0030)	Matching and Return
PatientBirthTime	(0010,0032)	Return
PatientSex	(0010,0040)	Matching and Return
PatientBirthName	(0010,1005)	Matching and Return
PatientMotherBirthName	(0010,1060)	Matching and Return
StudyInstanceUID	(0020,000D)	Matching and Return
StudyID	(0020,0010)	Matching and Return
NumberOfStudyRelatedSeries	(0020,1206)	Return
NumberOfStudyRelatedInstances	(0020,1208)	Return
AdmissionID	(0038,0010)	Return

Table 8: Used C-FIND attributes in requests issued by *syngo*.share webview AE (C-FIND SCU) on the series level

Attribute name	Tag	Usage
SeriesDate	(0008,0021)	Return
SeriesTime	(0008,0031)	Return
Modality	(0008,0060)	Return
Manufacturer	(0008,0070)	Return
InstitutionName	(0008,0080)	Matching and Return

Table 8

Table 8

Attribute name	Tag	Usage
StationName	(0008,1010)	Matching and Return
SeriesDescription	(0008,103E)	Matching and Return
InstitutionalDepartmentName	(0008,1040)	Matching and Return
PerformingPhysicianName	(0008,1050)	Return
OperatorsName	(0008,1070)	Return
ManufacturerModelName	(0008,1090)	Return
BodyPartExamined	(0018,0015)	Matching and Return
SeriesInstanceUID	(0020,000E)	Matching and Return
SeriesNumber	(0020,0011)	Matching and Return
Laterality	(0020,0060)	Matching and Return
NumberOfSeriesRelatedInstances	(0020,1209)	Return
PerformedProcedureStepStartDate	(0040,0244)	Matching and Return
PerformedProcedureStepStartTime	(0040,0245)	Return
RequestAttributesSequence/ ScheduledProcedureStepID	(0040,0275)/(0040,0009)	Matching and Return
RequestAttributesSequence/ RequestedProcedureID	(0040,0275)/(0040,1001)	Matching and Return

Table 9: Used C-FIND attributes in requests issued by *syngo*.share webview AE (C-FIND SCU) on the image level

Attribute name	Tag	Usage
ImageType	(0008,0008)	Return
SOPClassUID	(0008,0016)	Return
SliceThickness	(0018,0050)	Return
AcquisitionNumber	(0020,0012)	Return
InstanceNumber	(0020,0013)	Return
ImagePositionPatient	(0020,0032)	Return
ImageOrientationPatient	(0020,0037)	Return
SliceLocation	(0020,1041)	Return
SamplesPerPixel	(0028,0002)	Return
PhotometricInterpretation	(0028,0004)	Return
NumberOfFrames	(0028,0008)	Return
Rows	(0028,0010)	Return
Columns	(0028,0011)	Return
BitsAllocated	(0028,0100)	Return
BitsStored	(0028,0101)	Return
ConceptNameCodeSequence/ CodeValue	(0040,A043)/(0008,0100)	Matching and Return
ConceptNameCodeSequence/ CodingSchemeDesignator	(0040,A043)/(0008,0102)	Matching and Return
ConceptNameCodeSequence/ CodingSchemeVersion	(0040,A043)/(0008,0103)	Return
ConceptNameCodeSequence/ CodeMeaning	(0040,A043)/(0008,0104)	Return
ReferencedRequestSequence/ AccessionNumber	(0040,A370)/(0008,0050)	Return
ReferencedRequestSequence/ StudyInstanceUID	(0040,A370)/(0020,000D)	Return
ReferencedRequestSequence/ RequestedProcedureID	(0040,A370)/(0040,1001)	Return
ContentLabel	(0070,0080)	Return
ContentDescription	(0070,0081)	Return
PresentationCreationDate	(0070,0082)	Return
PresentationCreationTime	(0070,0083)	Return
ContentCreatorName	(0070,0084)	Return

B Limitations

DICOM instances

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

DICOM images

- 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.
- Multiple window center and width presets are not supported.
- VOI LUTs present in the Functional Group of multiframe 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.
- Length calculations on ultrasound images are not supported.
- 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.

DICOM whole slide microscopy images

- Images are interpreted as common multiframe images if DICOM header- and frame-based access is not available.
- Monochrome images are currently not supported.
- Images for which the Dimension Organization Type (0020,9311) is present with value must either follow TILED_FULL or TILED_SPARSE dimension organization.
- All images with an Image Flavor (third value of Image Type (0008,0008)) of VOLUME must use the same dimension organization.
- Thumbnail and overview layer are not available if the edge length of the topmost image of the image pyramid exceeds 5,000 pixels.
- Overview layer is not available if the edge length of the topmost image of the image pyramid falls below 800 pixels.
- Multiple items in the Dimension Organization Sequence (0020,9221) and Dimension Index Sequence (0020A,9222) are not supported.
- Images with multiple optical paths are not supported.
- Images with Dimension Index Pointer (003A,0210) not targeting the Plane Position Slide Sequence (0048,021A) are not supported.

- All images of the underlying series 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).
- Images with an Image Flavor (third value of Image Type (0008,0008)) of LABEL or OVERVIEW consisting of multiple frames are not supported.
- The number of Z-layers and the spacing between slices must be uniform across all zoom layers.
- Images with a layer width or height exceeding 2^{31} - 1 pixels are not supported.
- Images with a number of Z-layers exceeding 2^{31} - 1 are not supported.
- Images with layers exceeding 2^{31} - 9 tiles (frames) are not supported.
- Images 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

- Only ECG SOP Classes listed in Table 1 are currently 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.
- 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.

DICOM videos

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

DICOM Grayscale Softcopy Presentation States

- GSPS functionality is limited to viewing, as no GSPS are created.
- GSPS are not applied on instances of the SOP Classes listed in Table 10 due to their limited support.
- GSPS module limitations are listed in Table 11.
- Only the Presentation State Storage SOP Classes listed above (see Table 1) are currently supported.

Table 10: 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 11: 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	-
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 `VOLUME` 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 `MATRIX` 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

- 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.
- 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 multiframe images not referencing all frames only consider the first referenced frame.

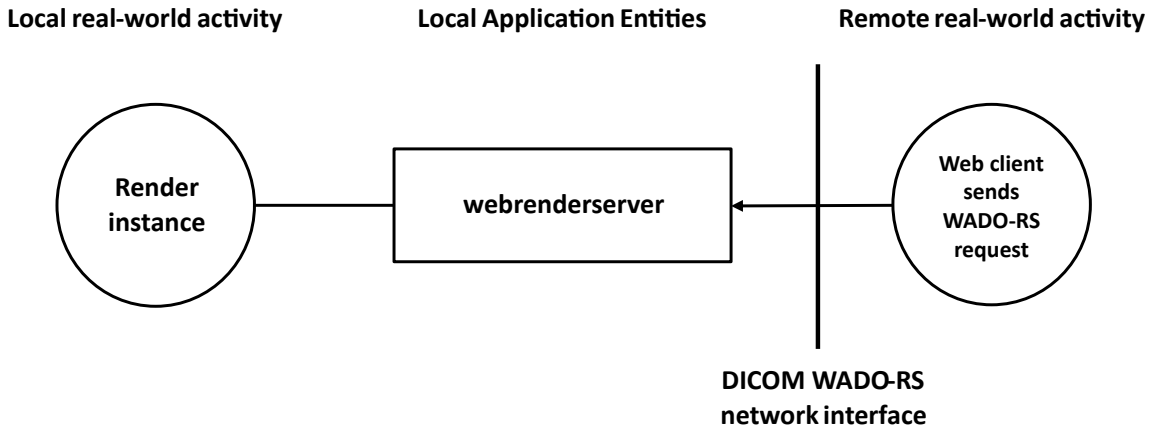
C webrenderserver

C.1 Implementation model

webrenderserver provides a WADO-RS interface for the retrieval of rendered and thumbnail resources. It receives and responds to WADO-RS requests from a remote AE targeting on DICOM images stored in *syngo*.share core.

C.1.1 *webrenderserver* data flow diagram

Figure 3: *webrenderserver* data flow diagram



C.1.2 Functional definition of AEs

The *webrenderserver* AE waits for incoming WADO-RS requests from remote AEs (e.g. from a web browser) for rendered and thumbnail resources according to DICOM PS3.18. A remote AE can request rendered and thumbnail representations of DICOM images stored in *syngo*.share core on study, series, instance, and frame level.

C.1.3 Sequencing of real-world activities

- The user or the application performing the WADO-RS request can also request the services of the *webrenderserver* AE at any time.

C.2 Application Entity specifications

The *webrenderserver* AE provides a WADO-RS interface for the retrieval of rendered and thumbnail resources, as defined in and implemented according to DICOM PS3.18.

C.2.1 WADO-RS general notes

A remote AE can request rendered and thumbnail representations of DICOM images (color and grayscale) stored in *syngo*.share core on study, series, instance, and frame level. WADO-RS requests are syntactically checked and are required to contain valid authorization information by means of URL

signatures (HMAC) before getting processed. DICOM data for the requested resource are queried and are loaded from *syngo*.share core, rendered according to the specified options in the request, and sent to the remote AE as a single- or multipart HTTP response. The HTTP status code of the WADO-RS response informs the remote AE about the outcome of processing the WADO-RS request.

The WADO-RS interface supports the retrieve transaction on rendered resources as well as on thumbnail resources. Further target resources (e.g. DICOM resources) are not supported. Furthermore, the retrieve capabilities transaction is not implemented due to security considerations (WADL disclosure).

C.2.2 WADO-RS rendered resources

The supported rendered resources along with their associated URI templates are listed in Table 12.

Table 12: Rendered resources

Resource	URI template
Rendered Study	/studies/{study}/rendered
Rendered Series	/studies/{study}/series/{series}/rendered
Rendered Instance	/studies/{study}/series/{series}/instances/{instance}/rendered
Rendered Frames	/studies/{study}/series/{series}/instances/{instance}/frames/{frames}/rendered

The options and restrictions valid for all rendered resources are listed in Table 13.

Table 13: Options and restrictions on rendered resources

Options	Restrictions
Accept (Request Header Field)	Restricted to image/jpeg, image/gif, image/png, or wildcard representations covering the three rendered media types.
Accept-Charset (Request Header Field)	Not applied as the response payload consists of bitmap images only.
Accept (Query Parameter)	Restricted to image/jpeg, image/gif, or image/png.
Charset (Query Parameter)	Not applied as the response payload consists of bitmap images only.
Annotation (Query Parameter)	Restricted to patient and/or technique. Other keywords are ignored and listed in a warning header in the response. Localization of the burned-in annotations (e.g. regarding date format) is based on the Accept-Language header field.
Quality (Query Parameter)	Restricted to JPEG quality if image/jpeg is requested.
Viewport (Query Parameter)	Restricted to vw (viewport width) and vh (viewport height). Further parameter values are ignored. If viewport width and height are specified, the rendered images will be of the specified dimensions with black background color if padding is necessary.
Transfer Syntaxes Supported	Only DICOM instances of a supported Transfer Syntax are considered for rendering. For the list of supported Transfer Syntaxes, see Table 16.
SOP Class Restrictions	Only DICOM instances of a supported SOP Class are considered for rendering. Rendering is restricted to SOP Classes for the purpose of image data storage - e.g. the DICOM Image Pixel Module exists along with the DICOM Element PixelData (`7FE0, 0010`).
Image Type Restrictions	Binary images are not supported.
Size Restriction	There are no size limits imposed by the WADO-RS AE. However, depending on system resource and file format restrictions there might be limits to the size of each image.
Multi-Frame Image Handling	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. This is also the case if image/gif is the requested rendered media type.

Table 13

Table 13

Options	Restrictions
Frames	The given frame numbers for rendered frames are expected to be in ascending order. If this is not the case, automatic sorting applies.

C.2.3 WADO-RS thumbnail resources

The supported thumbnail resources along with their associated URI templates are listed in Table 14.

Table 14: Thumbnail resources

Resource	URI template
Study Thumbnail	/studies/{study}/thumbnail
Series Thumbnail	/studies/{study}/series/{series}/thumbnail
Instance Thumbnail	/studies/{study}/series/{series}/instances/{instance}/thumbnail
Frame Thumbnail	/studies/{study}/series/{series}/instances/{instance}/frames/{frames}/thumbnail

The options and restrictions valid for all thumbnail resources are listed in Table 15.

Table 15: Options and restrictions on thumbnail resources

Options	Restrictions
Accept (Request Header Field)	Restricted to image/jpeg, image/gif, image/png, or wildcard representations covering the three rendered media types.
Accept-Charset (Request Header Field)	Not applied as the response payload consists of a bitmap image only.
Accept (Query Parameter)	Restricted to image/jpeg, image/gif, or image/png.
Charset (Query Parameter)	Not applied as the response payload consists of a bitmap image only.
Viewport (Query Parameter)	If viewport width and height are specified, the rendered images will be of the specified dimensions with black background color if padding is necessary. Further parameter values are ignored.
Transfer Syntaxes Supported	The DICOM instance to render as a thumbnail is required to be of a supported Transfer Syntax. For the list of supported Transfer Syntaxes, see Table 16.
SOP Class Restrictions	The DICOM instance to render as a thumbnail needs to be of a supported SOP Class. Rendering is restricted to SOP Classes for the purpose of image data storage - e.g. the DICOM Image Pixel Module exists along with the DICOM Element PixelData (`7FE0,0010`).
Image Type Restrictions	Binary images are not supported.
Size Restriction	There are no size limits imposed by the WADO-RS AE. However, depending on system resource and file format restrictions there might be limits to the size of each image.
Frames	The given frame numbers for rendered frames are expected to be in ascending order. If this is not the case, automatic sorting applies.

The first fame of the first instance of the first series is used to render the thumbnail.

C.2.4 WADO-RS supported Transfer Syntaxes

The supported Transfer Syntaxes for all rendered resources and thumbnail resources are listed in Table 16.

Table 16: WADO-RS supported Transfer Syntaxes

Transfer Syntax Name	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
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
RLE Lossless	1.2.840.10008.1.2.5

C.2.5 WADO-RS connection policies

General

All standard RS connection policies apply. There are no extensions for RS options.

C.2.5.1 WADO-RS endpoint URL

https://{host}/webrenderserver/rs/tenants/{tenant}

Please replace {host} and {tenant} in the URL with the corresponding host and tenant name.

C.2.5.2 Security

To protect the WADO-RS interface from unauthorized access special attention is paid to security aspects. Only requests over HTTPS are accepted by the WADO-RS AE. On top, requests are required to contain valid authorization information by means of URL signatures (HMAC). Please note that the WADO-RS service is not enabled per default in the *webrenderserver*. For general information about configuration and URL signatures, please consult the *syngo*.share Interface and Integration Manual.

C.2.5.3 Number of connections

The WADO-RS AE itself does not limit the number of simultaneous requests. However, in standard deployments the number of simultaneous HTTP connections might be limited by Traefik.

C.2.5.4 Synchronous and asynchronous requests

The WADO-RS AE only supports synchronous requests.

C.2.5.5 Response status

The response message header contains a HTTP status code indicating success or failure, as listed in Table 17.

Table 17: WADO-RS HTTP status codes

Code	Name	Description
200	OK	The requested resource has been fetched successfully and is returned in the message body.
206	Partial Content	Indicates that for the requested resource (rendered resource) one or more DICOM instances are of a not supported SOP Class and are omitted in the response.
400	Bad Request	The request is malformed. Details are returned in the payload of the response.
403	Forbidden	The WADO-RS AE is refusing action as no or (only) an invalid authentication (URL signature) is present.
404	Not Found	The WADO-RS AE could not find the specified resource. This response status is also used to indicate that no applicable DICOM instance for thumbnail generation was found.
405	Method Not Allowed	Indicates a function parameter keyword other than linear is used in the window query parameter.
406	Not Acceptable	The remote AE did not provide any rendered media type in the accept header field and accept query parameter.
500	Internal Server Error	The WADO-RS AE encountered an error while processing the request.

C.2.5.6 Warning header

The response message header contains a HTTP Warning header field with the number of not rendered instances in case the response status is 206 (Partial Content). Furthermore, if unsupported annotation keywords are given in the request, the unsupported keywords are listed in the HTTP Warning header field.

Manufacturer
ITH icoserve technology for healthcare GmbH
Innrain 98
6020 Innsbruck
Austria
Phone: +43 512 89059

Distributed by
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim
Germany

Made in Austria

Release VA51A / 2025-10-03 / Revision 11922

syngo.share import

DICOM Conformance Statement

SIEMENS Healthineers

Unrestricted

Build ID 102ca052442d1c8fb2870d2ee710083f8d6d7da9ff482e6966da340b552d793a

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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
Autorefraction 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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
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
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

Table 1

Table 1

SOP Class	SOP Class UID	DIMSE services		DICOM web services		Media services		Function			
		SCU	SCP	UA	OS	FSC	FSR	Create	Display	Process	Archive
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
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
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
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

Table 2 ▾

Table 2

Transfer Syntax name	Transfer Syntax UID
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

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

List of figures

List of tables

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

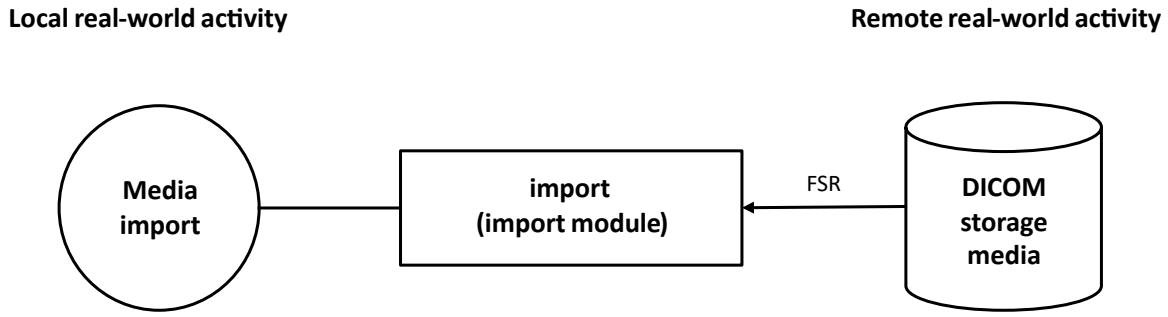
AE	Application Entity
AET	Application Entity Title
CAD	Computer Aided Detection
CDA	Clinical Document Architecture
CID	Context Identifier
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File-Set Creator
FSR	File-Set Reader
IHE	Integrating the Healthcare Enterprise
IOD	Information Object Definition
ISO	International Organization for Standardization
MPPS	Modality Performed Procedure Step
OS	Origin Server
PDU	Protocol Data Unit
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
syngo.share 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
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

Table 12

Table 12

Key	Tag	Used for matching
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

Manufacturer
ITH icoserve technology for healthcare GmbH
Innrain 98
6020 Innsbruck
Austria
Phone: +43 512 89059

Distributed by
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim
Germany

Made in Austria

Release VA51A / 2025-10-03 / Revision 11922

syngo.share print

DICOM Conformance Statement

SIEMENS Healthineers

Unrestricted

Build ID 102ca052442d1c8fb2870d2ee710083f8d6d7da9ff482e6966da340b552d793a

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

List of tables

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
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
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

Table 8

Table 8

Key	Tag	Used for matching
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

Manufacturer
ITH icoserve technology for healthcare GmbH
Innrain 98
6020 Innsbruck
Austria
Phone: +43 512 89059

Distributed by
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim
Germany

Made in Austria