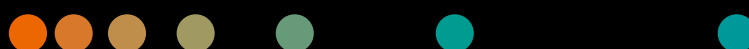


DICOM Conformance Statement

Syngo Carbon Space

VA24A/VA30A



DICOM Conformance Statement Overview

The Syngo Carbon Space conforms to the DICOM Standard and supports the network services as described in Table 1: Network Services and Implementation Identifying Information in Table 2 - Implementation Identifying Information.

Table 1: Network Services

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
SOP Classes supported by Diagnostic workplace					
		Create	Send	Store	Display
Basic Text Structured Report	1.2.840.10008.5.1.4.1.1.88.11	Yes	No	No	No
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	No	No	No	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	No	No	No	Yes
Computed Radiography Object Storage	1.2.840.10008.5.1.4.1.1.1	No	No	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No	No	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	No	No	No	Yes
Digital Intra-oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	No	No	Yes
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	No	No	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	No	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	No	No	Yes
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	No	No	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	No	No	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	No	No	No	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	No	No	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	No	No	Yes
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	No	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	No	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	No	No	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	No	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	No	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	No	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	No	No	Yes
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	No	No	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No	No	No
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	No	No	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	No	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No	No	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	No	No	Yes
Siemens CT MR volume files	1.3.12.2.1107.5.99.3.10	Yes	No	No	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	No	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	No	No	Yes
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	No	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	No	No	Yes
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	No	No	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	No	No	Yes
X-Ray Radio-Fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	No	No	Yes
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	No	No	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	No	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	No	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	No	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	No	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	No	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	No	No	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	No	No	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	No	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	No	No	Yes
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	No	No	No	Yes
Wide Field Ophthalmic Photography Stereographic Projection Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.5	No	No	No	Yes
Wide Field Ophthalmic Photography 3D Coordinates Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.6	No	No	No	Yes
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	No	No	No	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	No	No	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	No	No	Yes
SOP Classes supported by Physician Access					
		Create	Send	Store	Display
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	No	No	No	Yes
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	No	No	No	Yes
Computed Radiography Object Storage	1.2.840.10008.5.1.4.1.1.1	No	No	No	Yes
Digital x-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	No	No	Yes
Digital x-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	No	No	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	No	No	No	Yes
Digital Mammography x-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	No	No	Yes
Digital Mammography x-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	No	No	Yes
Digital Intra-Oral x-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	No	No	Yes
Digital Intra-Oral x-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	No	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	No	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	No	No	Yes
Legacy Converted Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.2	No	No	No	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	No	No	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	No	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	No	No	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	No	No	No	Yes
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	No	No	No	Yes
Legacy Converted Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.4	No	No	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	No	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	No	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	No	No	Yes
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	No	No	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	No	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	No	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	No	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	No	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	No	No	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	No	No	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	No	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	No	No	No	Yes
x-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	No	No	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	No	No	No	Yes
X-Ray Radio fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	No	No	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	No	No	No	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	No	No	Yes
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	No	No	No	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
X-Ray 3D Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	No	No	No	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	No	No	No	Yes
Breast Projection X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	No	No	No	Yes
Breast Projection X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.13.1.5	No	No	No	Yes
Intravascular Optical Coherence Tomography Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.14.1	No	No	No	Yes
Intravascular Optical Coherence Tomography Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.14.2	No	No	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	No	No	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	No	No	No	Yes
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	No	No	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	No	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	No	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	No	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	No	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	No	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	No	No	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	No	No	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	No	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	No	No	Yes
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	No	No	No	Yes
Wide Field Ophthalmic Photography Stereographic Projection Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.5	No	No	No	Yes
Wide Field Ophthalmic Photography 3D Coordinates Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.6	No	No	No	Yes
VL Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	No	No	No	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
VL Multi-frame Image Storage - Trial (Retired)	1.2.840.10008.5.1.4.1.1.77.2	No	No	No	Yes
Ophthalmic Thickness Map Storage	1.2.840.10008.5.1.4.1.1.81.1	No	No	No	Yes
Corneal Topography Map Storage	1.2.840.10008.5.1.4.1.1.82.1	No	No	No	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	No	No	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	No	No	Yes
Legacy Converted Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.128.1	No	No	No	Yes
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	No	No	No	Yes
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	No	No	No	Yes
DICOS CT Image Storage	1.2.840.10008.5.1.4.1.1.501.1	No	No	No	Yes
DICOS Digital x-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.501.2.1	No	No	No	Yes
DICOS Digital x-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.501.2.1	No	No	No	Yes
Eddy Current Image Storage	1.2.840.10008.5.1.4.1.1.601.1	No	No	No	Yes
Eddy Current Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.601.2	No	No	No	Yes
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	No	No	No	Yes

Table 2 : Implementation Identifying Information

Name	Value
Implementation Class UID	1.2.276.0.7230010.3.0.3.6.1
Implementation Version Name	OFFIS_DCMTK_361

Table 3 : Print Management

SOP Classes	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No
Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No

1	INTRODUCTION	10
1.1	Audience	10
1.2	Remarks	10
1.3	Definitions, Terms and Abbreviations	10
1.4	References	11
2	SCOPE OF THE DOCUMENT	11
3	NETWORKING	12
3.1	Implementation Model	12
3.1.1	Application Data Flow	12
3.1.2	Functional Definitions of Application Entities	12
3.2	Application Entity Specification	13
3.2.1	Diagnostic Workspace AE Specification	13
3.2.2	Physician Access AE Specification	13
3.2.3	Print AE Specification	17
3.3	Network Interfaces	24
3.3.1	Physical Network Interface	24
3.3.2	Additional Protocols	24
3.3.3	IPv4 and IPv6 Support	24
3.4	Configuration	25
4	SUPPORT OF EXTENDED CHARACTER SETS	25
5	SECURITY	27
5.1	Security Profiles	27
5.1.1	Time Synchronization Profiles	27
5.1.2	Basic TLS Secure Transport Connection Profile	27
5.2	Association Level Security	27
5.3	Application Level Security	27
6	ANNEXES	27
6.1	IOD Contents	27
6.1.1	Data Dictionary of Private Attributes	27
6.1.2	Usage of Attributes from received IODs	45

Unrestricted

6.1.3	Attribute mapping	45
6.1.4	Coerced / Modified fields	45
6.2	Coded Terminology and Templates	45
6.2.1	Context Groups	45
6.2.2	Template Specifications	45
6.2.3	Private Code definitions	45
6.3	Grayscale Image Consistency	45
6.4	Standard Extended / Specialized / Private SOP Classes	45
6.5	Private Transfer Syntaxes	45
6.6	ANNEX A : Multi-modality Oncology	45
6.6.1	Real World Value Mapping IOD	45
6.7	ANNEX B : CT Post-Processing Applications and Plugin Applications	46
6.7.1	Standard Extensions of Raw Data Storage SOP Class	46
6.7.2	Standard Extensions of Spatial Registration Storage SOP Class	46
6.7.3	Standard Extensions of Secondary Capture Image SOP Class	46
6.7.4	Standard Extensions of Basic Text SR SOP Class	47
6.7.5	Standard Extensions of Segmentation Storage SOP Class	47

1 Introduction

1.1 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

1.2 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between **Syngo Carbon Space** and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [\[1\]](#). DICOM by itself does not guarantee interoperability.

The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

- The comparison of conformance statements is the first step towards assessing interconnectivity and interoperability between **Syngo Carbon Space** and other DICOM conformant equipment.
- Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.

Siemens Healthineers reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens Healthineers representative for the most recent product information.

1.3 Definitions, Terms and Abbreviations

Definitions, terms, and abbreviations used in this document are defined within the different parts of the DICOM standard.

Additional Abbreviations and terms are as follows:

AE	DICOM Application Entity
AET	Application Entity Title
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
HMAC	Hash-based Message Authentication Code
HTTP	Hyper Text Transmission Protocol
IOD	DICOM Information Object Definition
ISO	International Standard Organization
NEMA	National Electrical Manufacturers Association
SCU	DICOM Service Class User (DICOM client)
SCP	DICOM Service Class Provider (DICOM Server)
SOP	DICOM Service-Object Pair
SR	Structured Report
UID	Unique Identifier
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTF-8	Unicode Transformation Format-8
VR	Value Representation
WADO-RS	Web Access to DICOM Objects by RESTful Services

1.4 References

- [1] NEMA PS3 / ISO 12052, Digital Imaging and Communications in Medicine (DICOM) Standard, National Electrical Manufacturers Association, Rosslyn, VA, USA (available free at <http://medical.nema.org/>)
- [2] Integrating the Healthcare Enterprise – IHE Radiology Technical Framework – <http://www.ihe.net>
- [3] (ITH) DICOM Conformance Statement *syngo.share core* VA31B.
- [4] *syngo.share core* Administration Manual VA31B
- [5] *syngo.share core* Administrator Online Help VA31B

2 Scope of the Document

The Syngo Carbon Core Solution is a combinatorial medical device built out of a combination of two devices, *syngo.share core* and Syngo Carbon Space. The scope of this DCS is Syngo Carbon Space, several DICOM services are realized via an integration with *syngo.share core*. This document must be read in conjunction with the [DICOM Conformance Statement *syngo.share core*](#).

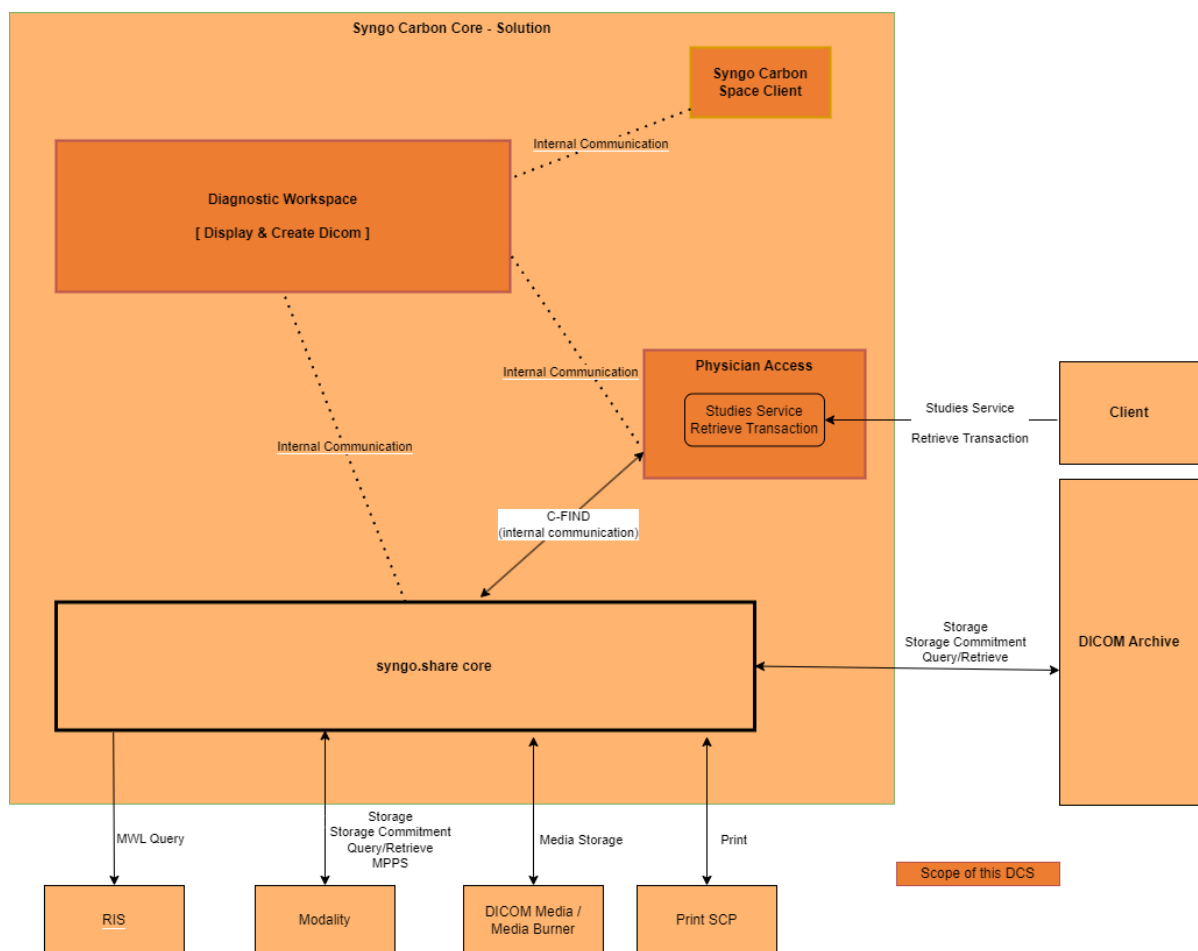


Figure 1: Scope of Syngo Carbon Space DICOM Conformance Statement

3 Networking

3.1 Implementation Model

Syngo Carbon Space has two AEs, Diagnostic Workspace AE and Physician Access AE. Additionally, Syngo Carbon Space supports query remote nodes, retrieve and store selected instances from that node.

3.1.1 Application Data Flow

3.1.2 Functional Definitions of Application Entities

3.1.2.1 Functional Definitions of Diagnostic Workspace AE

Diagnostic Workspace AE will be deployed as an Image Display/Evidence Creator actor (Viewer only) that supports display and management of data which is stored/archived in *syngo.share* core.

The following figure provide a functional overview of the Diagnostic Workspace AE. Relationships are shown between user-invoked activities (in the circles at the left of the AE) and the Diagnostic Workspace AE.

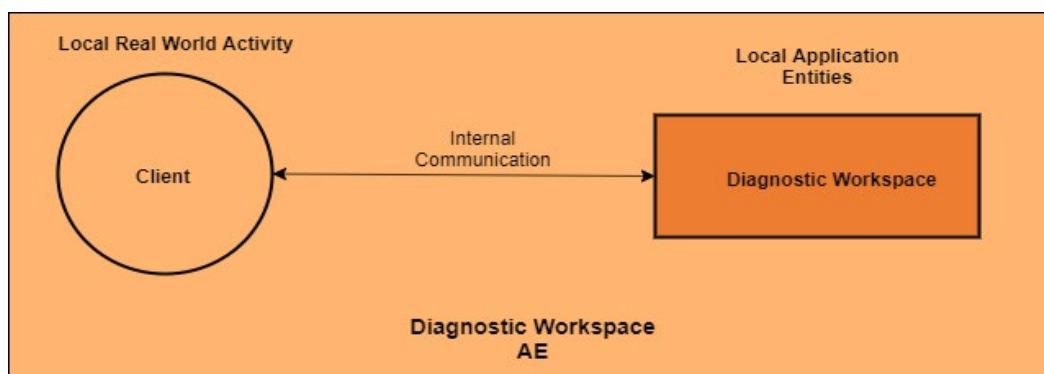


Figure 2: Diagnostic Workspace AE

3.1.2.2 Functional Definitions of Physician Access AE

Physician Access AE provides an enterprise-wide web application for viewing DICOM, non-DICOM, multimedia data and clinical documents to facilitate image and result distribution.

The following figure provide a functional overview of the Physician Access AE. Relationships are shown between user-invoked activities (in the circles at the left of the AE) and the associated real-world activities provided by DICOM service providers (in the circles at the right of the AE)

The Physician Access AE waits for incoming Studies Service Retrieve Transaction (also known as WADO-RS) requests from remote AE (e.g. from a web browser) for rendered and thumbnail resources according to DICOM PS 3.18. A remote AE can request rendered and thumbnail representations of DICOM images stored in *syngo.share* core on study, series, in-instance, and frame level.

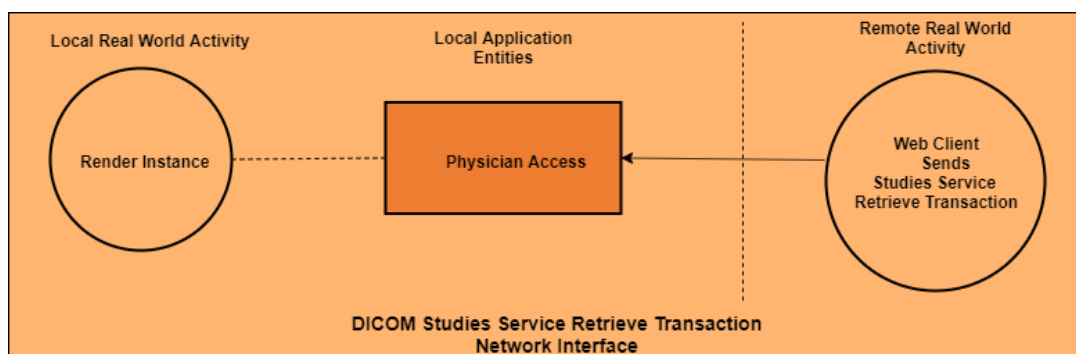


Figure 3: Physician Access AE

3.2 Application Entity Specification

This section outlines the specifications for each of the Application Entities that are part of the Syngo Carbon Space.

3.2.1 Diagnostic Workspace AE Specification

The Diagnostic Workspace AE creates and display DICOM data stored in *syngo.share* core mentioned in [Table 1: Network Services](#)

3.2.2 Physician Access AE Specification

The Physician Access AE provides a Studies Service Retrieve Transaction interface for the retrieval of rendered and thumbnail resources, as defined in and implemented according to DICOM PS 3.18.

3.2.2.1 Physician Access AE 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. Studies Service Retrieve Transaction 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 Studies Service Retrieve Transaction response informs the remote AE about the outcome of processing the Studies Service Retrieve Transaction request.

Note: The Studies Service Retrieve Transaction 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 (Web Application Description Language (WADL) disclosure).

3.2.2.2 Studies Service Retrieve Transaction Rendered Resources

The supported rendered resources along with their associated URI templates are listed in Table 4: Rendered Resources

Table 4: 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 5: Options and Restrictions on Rendered Resources

Table 5: 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.

Unrestricted

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 7- Studies Service Retrieve Transaction Supported Transfer Syntaxes
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 storage - e.g. the DICOM Image Pixel Module exists along with the DICOM Element PixelData (7FE0,0 010).
Size Restriction	There are no size limits imposed by the Physician Access 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.
Frames	The given frame numbers for rendered frames are expected to be in ascending order. If this is not the case, automatic sorting applies.

3.2.2.3 Studies Service Retrieve Transaction Thumbnail Resources

The supported thumbnail resources along with their associated URI templates are listed in Table 6: Thumbnail Resources

Table 6: 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 7: Options and Restrictions on Thumbnail Resources

Table 7: 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 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.
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 7- Studies Service Retrieve Transaction Supported Transfer Syntaxes.

Unrestricted

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 storage - e.g. the DICOM Image Pixel Module exists along with the DICOM Element PixelData (7FE0,0010).
Size Restriction	There are no size limits imposed by the Physician Access 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.

Note: The first frame of the first instance of the first series is used to render the thumbnail.

3.2.2.4 Studies Service Retrieve Transaction Supported Transfer Syntaxes

The supported Transfer Syntaxes for all rendered resources and thumbnail resources are listed in Table 8: Studies Service Retrieve Transaction Supported Transfer Syntaxes.

Table 8: Studies Service Retrieve Transaction 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	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 Baseline (Processes 2 and 4): Default Transfer Syntax for Lossy JPEG 12-bit Image Compression (Process 4 only)	1.2.840.10008.1.2.4.51
JPEG Lossless, Nonhierarchical (Processes 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Nonhierarchical, First-Order Prediction (Processes 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

3.2.2.5 Studies Service Retrieve Transaction Connection Policies

General

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

Studies Service Retrieve Transaction Endpoint URL

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

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

Unrestricted

Security

To protect the Studies Service Retrieve Transaction interface from unauthorized access special attention is paid to security aspects. Only requests over HTTPS are accepted by the Physician Access AE. On top, requests are required to contain valid authorization information by means of URL signatures (HMAC). Please note that the Studies Service Retrieve Transaction service is not enabled per default in the Physician Access AE.

For general information about configuration and URL signatures, please consult the *syngo.share* core Interface and Integration Manual.

Number of Connections

The Physician Access AE itself does not limit the number of simultaneous requests. However, in standard deployments the number of simultaneous HTTP connections might be limited by high availability load balancer and proxy server.

Synchronous and Asynchronous Requests

The Physician Access AE only supports synchronous requests.

Response Status

The response message header contains a HTTP status code indicating success or failure, as listed in Table 9: Studies Service Retrieve Transaction HTTP Status Codes.

Table 9: Studies Service Retrieve Transaction 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 Physician Access AE is refusing action as no or (only) an invalid authentication (URL signature) is present.
404	Not Found	The Physician Access 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 Physician Access AE encountered an error while processing the request.

3.2.3 Print AE Specification

3.2.3.1 SOP Classes

The Print AE provides Standard Conformance to the SOP Classes listed in Table 3: Print Management.

3.2.3.2 Association Initiation Policy

3.2.3.2.1 Activity “Print Film”

3.2.3.2.1.1 Description and Sequencing of Activities

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

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

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

3.2.3.2.1.2 Proposed Presentation Context

The Syngo Carbon Space proposes Presentation Contexts as shown in the following table:

Table 10: Presentation Contexts for the Activity “Print Film”

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Print Job SOP Class	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.2.3.2.1.3 SOP Specific Conformance

The syngo Carbon Space Print SCU conforms to the DICOM Basic Grayscale Print Management Meta SOP Class and the Basic Color Print Management Meta SOP Class.

The application uses a configuration platform to define the properties of the connected DICOM SCP, e.g.:

- supported film sizes of the connected DICOM SCP
- supported film formats of the DICOM SCP

The printing is only suspended in the case of a failure return status of the SCP.

The command communication failure behavior for the following subchapters is identical. Therefore, it has been put as only one table to this position:

Table 11: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

Basic Film Session SOP Class

The Basic Film Session information object definition describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer. The Syngo Carbon Space Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Basic Film Session SOP Class N-CREATE-RQ (SCU) uses the attributes listed in the table below:

Table 12: Attributes for the N-CREATE-RQ of the Basic Film Session

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

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

The Basic Film Session SOP class interprets the status codes (from N-CREATE-RSP messages) listed in the table below:

Table 13: N-CREATE-RSP Status Handling Behavior for the Basic Film Session

Service Status	Further Meaning	Error Codes	Behavior
Warning	Memory Allocation not supported	B600	Print job continues, warning is logged
Success	Film session successfully created	0000	Print job continues

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

Basic Film Box SOP Class

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

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

The Syngo Carbon Space Print Management SCU supports the following DIMSE Service elements for the Basic Film Box SOP Class as SCU:

- N-CREATE
- N-ACTION
- N-DELETE

The Basic Film Box SOP Class N-CREATE-RQ message uses the attributes listed below. The actual values for each attribute depend on DICOM printer configuration within the Syngo Carbon Space DICOM Print Management SCU:

Table 14: Attributes for the N-CREATE-RQ of the Basic Film Session

Attribute Name	Tag	Usage SCU	Supported Values
Image Display Format	(2010,0010)	M	STANDARD\1,1
Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	1.2.840.10008.5.1.1.1
> Referenced SOP Instance UID	(0008,1155)	M	
Film Orientation	(2010,0040)	M	PORTRAIT, LANDSCAPE

Attribute Name	Tag	Usage SCU	Supported Values
Film Size ID	(2010,0050)	M	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN,, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM
Magnification Type	(2010,0060)	M	BILINEAR, CUBIC, NONE, REPLICATE
Border Density	(2010,0100)	U	BLACK, WHITE
Max Density	(2010,0130)	U	0 < Value
Min Density	(2010,0120)	U	0 < Value < 50
Required if Presentation LUT is present			
Reflective Ambient Light	(2010,0160)	U	0 < Value
Illumination	(2010,015E)	U	0 < Value
Referenced Presentation LUT Sequence	(2050,0500)	U	

For Page Mode printing, the Image Display format used is Standard\1,1.

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

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

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

The Basic Film Box SOP class interprets the status codes listed in the tables below:

Table 15: N-CREATE-RSP Status Handling Behavior for Basic Film Box

Service Status	Meaning	Error Codes	Behavior
Failure	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed	C616	Print job is marked as failed and the reason is logged
Warning	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead	B605	Print job continues and warning is logged
Success	Film Box successfully created	0000	Print job continues

Table 16: N-ACTION-RSP Status Handling Behavior for Basic Film Box

Service Status	Meaning	Error Codes	Behavior
Failure	Unable to create print job, print queue is full	C602	Print job is marked as failed and the reason is logged
	Image size is larger than images box size	C603	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged

Service Status	Meaning	Error Codes	Behavior
Warning	Film box does not contain image box (empty page)	B603	Print job continues and warning is logged
	Image size is larger than image box size, the image has been demagnified	B604	Print job continues and warning is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Film accepted for printing	0000	Print job continues

Basic Grayscale Image Box SOP Class

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

The Grayscale Image Box SOP Class uses only the N-SET-RQ with the attributes listed in the table below:

Table 17: Attributes for N-SET-RQ of Basic Grayscale Image Box

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

The Basic Grayscale Image Box SOP class interprets the status codes as listed below:

Table 18: N-SET-RSP Status Handling Behavior for the Basic Grayscale Image Box SOP Class

Service Status	Further Meaning	Error Codes	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size is larger than image box size, the image has been demagnified.	B604	Print job continues and the reason is logged
	Requested MinDensity or MaxDensity outside of Printer's operating range	B605	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Basic Color Image Box SOP Class

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

The Color Image Box SOP Class uses only the N-SET-RQ with the attributes listed below:

Table 19: Attributes for N-SET-RQ of Basic Color Image Box

Attribute Name	Tag	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
BASIC Color Image Sequence	(2020,0111)	M	
> Samples per Pixel	(0028,0002)	M	3
> Photometric Interpretation	(0028,0004)	M	RGB
> Planar Configuration	(0028,0006)	M	0
> Rows	(0028,0010)	M	
> Columns	(0028,0011)	M	
> Pixel Aspect Ratio	(0028,0034)	M	
> Bits Allocated	(0028,0100)	M	8
> Bits Stored	(0028,0101)	M	8
> High Bit	(0028,0102)	M	7
> Pixel Representation	(0028,0103)	M	0
> Pixel Data	(7FE0,0010)	M	

The Color Image Box SOP class interprets the status codes listed below:

Table 20: DICOM Command Response Status Handling Behavior for Basic Color Image Box SOP Class

Service Status	Meaning	Error Codes	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size larger than image box size	B604	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Presentation LUT SOP Class

The objective of the Presentation LUT is to realize image hardcopy printing tailored for specific modalities, applications, and user preferences.

The output of the Presentation LUT is Presentation Values (P-Values). P-Values are approximately related to human perceptual response. They are intended to facilitate common input for hardcopy. P-Values are intended to be independent of the specific class or characteristics of the hardcopy device.

The Syngo Carbon Space Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Presentation LUT SOP Class uses only the N-CREATE-RQ with the attributes listed below:

Table 21: Attributes for N-CREATE-RQ of Presentation LUT SOP Class

Attribute Name	Tag	Usage SCU	Supported Values
Presentation LUT Shape	(2050,0020)	U	IDENTITY

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

The Presentation LUT SOP class interprets the status codes listed below:

Table 22: N-CREATE-RSP Status Handling Behavior for the Presentation LUT SOP Class

Service Status	Further Meaning	Error Codes	Behavior
Warning	Requested MinDensity or MaxDensity outside of HCD's operating range. HCD will use its respective minimum or maximum density value instead.	B605	Print job continues and the reason is logged
Success	Presentation LUT successfully created	0000	Print job continues

Printer SOP Class

The Printer SOP Class provides the possibility to monitor the status of the hardcopy printer in a synchronous and in an asynchronous way.

The SCU uses the mandatory N-EVENT-REPORT DIMSE service to monitor the changes of the printer status in an asynchronous way.

It can directly ask the Printer (SCP) for its status or receive Events from the Printer asynchronously:

- N-GET as SCU
- N-EVENT-REPORT as SCU

In both cases the information listed in the two following tables is supported:

Table 23: Used Printer N-EVENT-REPORT-RQ attributes

Event-type Name	Event	Attributes	Tag	Usage SCU
Normal	1	-	-	-
Warning	2	Printer Status Info	(2110,0020)	U
Failure	3	Printer Status Info	(2110,0020)	U

Table 24: Used Printer N-GET-RSP attributes

Attribute Name	Tag	Usage SCP	Supported Values
Printer Status	(2110,0010)	M	NORMAL, FAILURE, WARNING
Printer Status Info	(2110,0020)	M	See table in chapter 7.6 for possible values.

The command communication failure behavior listed below applies to all SOP classes used for the “Print Film” activity:

Table 25: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

Print Job SOP Class

The Print Job SOP Class is the possibility to monitor the execution of the print process.

The Syngo Carbon Space DICOM Print Management application supports the optional N-EVENT-REPORT DIMSE Service to receive the changes of the Print Job Status in an asynchronous way. It can receive Events from the Print SCP asynchronously.

Note: The Syngo Carbon Space DICOM Print Management application does not support receiving N-EVENT-REPORT requests from the camera during print sessions. Normally this is configurable in the camera. Refer to Table 66 for the N-EVENT-REPORT attributes the Syngo Carbon Space DICOM Print Management application can handle.

Attributes that can be handled by the Print AE of the product are listed in the table below.

Table 26: Used Print Job N-EVENT-REPORT attributes

Event-type Name	Event	Attributes	Tag	Usage SCU
Pending	1	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue

Event-type Name	Event	Attributes	Tag	Usage SCU
				Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Printing	2	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Done	3	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Failure	4	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U

3.3 Network Interfaces

3.3.1 Physical Network Interface

The network communication is independent from the physical medium over which TCP/IP executes; it inherits this from the Windows OS/Linux OS upon which it executes.

All DICOM communication (except Studies Service Retrieve Transaction) through Syngo Carbon Space is handled by by *syngo.share* core. *syngo.share* core supports configuring the DICOM communication to use secure channel (TLS) between *syngo.share* core and configured remote nodes. Detailed instructions how to set up secure DICOM communication are available in the [syngo.share core Administrator Online Help](#).

Physician Access AE uses secure HTTP protocol to communicate between client and server.

3.3.2 Additional Protocols

none

3.3.3 IPv4 and IPv6 Support

Currently only IPv4 networks are supported (no support for IPv6).

Unrestricted

3.4 Configuration

The configuration of internal DICOM AE for Physician Access AE is available in [syngo.share core Administration Manual](#).

4 Support of Extended Character Sets

The Syngo Carbon Space DICOM application supports the following character sets as defined in the four tables below:

Table 27: Single-Byte Character Sets without Code Extension

Character Set Description	Defined Term	ISO registration number	Character Set
Default repertoire	None	ISO_IR 6	ISO 646
Latin alphabet No. 1	ISO_IR 100	ISO_IR 100	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 2	ISO_IR 101	ISO_IR 101	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 3	ISO_IR 109	ISO_IR 109	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 4	ISO_IR 110	ISO_IR 110	Supplementary set
		ISO_IR 6	ISO 646
Cyrillic	ISO_IR 144	ISO_IR 144	Supplementary set
		ISO_IR 6	ISO 646
Arabic	ISO_IR 127	ISO_IR 127	Supplementary set
		ISO_IR 6	ISO 646
Greek	ISO_IR 126	ISO_IR 126	Supplementary set
		ISO_IR 6	ISO 646
Hebrew	ISO_IR 138	ISO_IR 138	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 5	ISO_IR 148	ISO_IR 148	Supplementary set
		ISO_IR 6	ISO 646
Japanese	ISO_IR 13	ISO_IR 13	JIS X 0201: Katakana
		ISO_IR 14	JIS X 0201: Romaji
Thai	ISO_IR166	ISO_IR166	TIS 620-253 (1990)
		ISO_IR 6	ISO 646

Table 28: Single-Byte Characters Sets with Code Extension

Character Set Description	Defined Term	Standard for Code Extension	ESC sequence	ISO registration number	Character Set
Default repertoire	ISO 2022 IR 6	ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.1	ISO 2022 IR 100	ISO 2022	ESC 02/13 04/01	ISO-IR 100	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.2	ISO 2022 IR 101	ISO 2022	ESC 02/13 04/02	ISO-IR 101	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.3	ISO 2022 IR 109	ISO 2022	ESC 02/13 04/03	ISO-IR 109	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.4	ISO 2022 IR 110	ISO 2022	ESC 02/13 04/04	ISO-IR 110	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646

Multi-Byte Character Sets without Code Extension is mentioned in Table 11: Multi-Byte Character Sets without Code Extension

Table 29: Multi-Byte Character Sets without Code Extension

Character Set Description	Defined Term	ISO registration number	Character Set
Unicode	ISO_IR 192	ISO 10646	Unicode in UTF-8
Chinese	GB18030	GB18030	GB 18030-2000 (China Association for Standardization)

Table 30: Multi-Byte Character Sets with Code Extension

Character Set Description	Defined Term	Standard for Code Extension	ESC sequence	ISO registration number	Character Set
Japanese	ISO 2022 IR 159	ISO 2022	ESC 02/04 02/08 04/04	ISO-IR 159 ISO-IR 87	JIS X 0212: Supplementary Kanji set
Korean	ISO 2022 IR 149	ISO 2022	ESC 02/04 02/09 04/03	ISO-IR 149	KS X 1001: Hangul and Hanja

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

5 Security

5.1 Security Profiles

5.1.1 Time Synchronization Profiles

Time Synchronization Profiles: The Syngo Carbon Space acts as an NTP Client in the Maintain Time Transaction.

5.1.2 Basic TLS Secure Transport Connection Profile

Basic Secure Transport Connection Profile supports TLS protocols.

5.2 Association Level Security

It is possible to configure whether the SCP will only answer to known AETs or to any AET. Please refer [syngo.carbon core Dicom Conformance Statement](#) for more details.

5.3 Application Level Security

- User must login with own username and password
- For configuration and Maintenance, Service Technician must login with a service key and separate password.
- To protect the Studies Service Retrieve Transaction interface from unauthorized access special attention is paid to security aspects. Only requests over HTTPS are accepted by the Physician Access AE. On top, requests are required to contain valid authorization information by means of URL signatures (HMAC).

6 Annexes

6.1 IOD Contents

6.1.1 Data Dictionary of Private Attributes

[Table 13: Private Data Element Dictionary](#) lists all private attributes created by Syngo Carbon Space which may be included in the generated instances. These private attributes may be deprecated or replaced with standard attributes in the future.

Table 31: Private Data Element Dictionary

DICOM Tag	Name	VR	VM
(0029,SIEMENS CSA HEADER,08)	Modality Image Header Type	CS	1
(0029,SIEMENS CSA HEADER,09)	Modality Image Header Version	LO	1
(0029,SIEMENS CSA HEADER,10)	Modality Image Header Info	OB	1
(0029,SIEMENS CSA HEADER,18)	Modality Series Header Type	CS	1
(0029,SIEMENS CSA HEADER,19)	Modality Series Header Version	LO	1
(0029,SIEMENS CSA HEADER,20)	Modality Series Header Info	OB	1
(0029,SIEMENS CSA NON-IMAGE,08)	Modality Data Header Type	CS	1
(0029,SIEMENS CSA NON-IMAGE,09)	Modality Data Header Version	LO	1
(0029,SIEMENS CSA NON-IMAGE,10)	Modality Data Header Info	OB	1
(7FE1,SIEMENS CSA NON-IMAGE,10)	Modality Data	OB	1
(0029,SIEMENS MEDCOM HEADER,40)	Application Header Sequence	SQ	1
(0029,SIEMENS MEDCOM HEADER,41)	Application Header Type	CS	1

Unrestricted

DICOM Tag	Name	VR	VM
(0029,SIEMENS MEDCOM HEADER,42)	Application Header ID	LO	1
(0029,SIEMENS MEDCOM HEADER,43)	Application Header Version	LO	1
(0029,SIEMENS MEDCOM HEADER,44)	Application Header Info	OB	1
(0029,SIEMENS MEDCOM HEADER,70)	Siemens Link Sequence	SQ	1-n
(0029,SIEMENS MEDCOM HEADER,71)	Referenced Tag	AT	1
(0029,SIEMENS MEDCOM HEADER,72)	Referenced Tag Type	CS	1
(0029,SIEMENS MEDCOM HEADER,73)	Referenced Value Length	UL	1
(0029,SIEMENS MEDCOM HEADER,74)	Referenced Object Device Type	CS	1
(0029,SIEMENS MEDCOM HEADER,75)	Referenced Object Device Location	OB	1
(0029,SIEMENS MEDCOM HEADER,76)	Referenced Object ID	OB	1
(0029,SIEMENS MEDCOM HEADER,77)	Referenced Object Offset	UL	1
(0029,SIEMENS MEDCOM HEADER,60)	Series Work Flow Status	LO	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,08)	Object Series Instance UID	UI	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,09)	Model Series Instance UID	UI	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,10)	Matrix Referenced Series Instance UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,00)	Presentation Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,01)	Presentation Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,02)	Advanced Presentation Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,03)	Time Point Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,04)	Base Image Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,05)	Overlay Image Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,06)	Registration Instance Sequence	SQ	0-1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,07)	Real World Value Mapping Instance Sequence	SQ	0-1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,08)	Measurement Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,09)	Measurement UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,10)	Segmentation Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,11)	Segmentation UID	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,12)	Navigation Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,13)	Navigation Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,14)	Auto Navigation Direction	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,15)	Auto Navigation Frame Rate	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,16)	Auto Navigation Mode	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,17)	Auto Navigation Realtime Speed	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,18)	Auto Navigation Strategy	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,19)	Auto Navigation Realtime Flag	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,20)	Index Navigation Current Index	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,21)	Index Auto Navigation Skipping Degree	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,22)	Volume Navigation Minimum Pixel Spacing	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,23)	Volume Navigation Scroll Unit	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,24)	Volume Navigation Step Size	DS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,25)	Volume Navigation Jump Size	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,26)	Referenced Registration Number	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,27)	Real World Value Mapping UID	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,28)	Channel Alpha Value	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,30)	Measurement Application Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,31)	Measurement Data Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,32)	Measurement Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,33)	Measurement Frame of Reference UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,34)	Measurement Uid	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,35)	Measurement Application Number	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,36)	Measurement Application Number Prefix Text	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,37)	Measurement Graphic Is Visible Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,38)	Referenced Syngo Uid	UI	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,39)	Clinical Finding Uid	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3A)	Measurement Evaluation String Value	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3B)	Measurement Evaluation Integer Value	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3C)	Measurement Evaluation Decimal Value	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3D)	Measurement Line Show Center Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3E)	Measurement Angle Show ArrowTip Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3F)	Camera Home Settings Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,40)	Camera Zoom	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,41)	Camera Position	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,42)	Camera Orientation	DS	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,43)	Camera Far Clip Plane	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,44)	Camera Near Clip Plane	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,46)	Camera ViewPort Size	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,47)	Camera Aspect Ratio	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,48)	Camera Projection Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,49)	Camera Field of View	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4A)	Camera Image Plane Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4B)	Camera Image Maximum Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4C)	Camera Image Minimum Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4D)	ParallelShift Interval MM	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4E)	Measurement ArrowTip Size	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4F)	Measurement ArrowTip Size ScalingFactor	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,50)	Renderer Vertex Is Characteristic Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,51)	Renderer Thickness Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,52)	Renderer Threshold	DS	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,53)	Renderer Material	DS	4-8
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,54)	Renderer DirectionalLight Color	DS	4

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,55)	Renderer DirectionalLight Direction	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,56)	Renderer DirectionalLight TwoSide Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,57)	Renderer PWL TransferFunction Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,58)	Renderer PWL Vertex Index	IS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,59)	Renderer PWL Vertex Color	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5A)	Renderer Is Camera Required Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5B)	Renderer Do Depth Test Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5C)	Renderer DirectionalLight Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5D)	Renderer Thickness Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5E)	Renderer Slice Spacing Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5F)	Renderer Sampling Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,60)	Renderer Initial Sampling Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,61)	Segmentation Display Data Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,62)	Segmentation Display Data UID	ST	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,63)	Segmentation Display Parameter Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,64)	Segmentation Display Parameter Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,65)	Segmentation Display Visibility	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,66)	Segmentation Display Color	DS	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,67)	Segmentation Display Is Selected Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,68)	Segmentation Additional Information Blob	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,69)	Hash Code Value	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,6A)	Segmentation Version Identifier	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,6B)	Segmentation Lock Mode	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,70)	Segmentation Volume Size	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7A)	Segmentation Volume StorageDataType	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7B)	Segmentation Volume Model Matrix	FL	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7C)	Segmentation Display Is Applied Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7D)	Display Representation Instance Identifier	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,71)	Registration Referenced Frames	UI	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,72)	Registration Referenced Registrations	UI	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,73)	Registration Creation Algorithm Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,74)	ECG Graphic Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,75)	Hidden Pixel Spacing	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,76)	Renderer Edge Enhancement Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,77)	Renderer Gradient Modulated Opacity Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,78)	Renderer Volume Smoothing Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7E)	Fused Presentation LUT Shape	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7F)	Overlay Graphic VisibleFlag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,80)	Camera Rotation Axis	DS	3

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,81)	Overlay Hidden Display Attributes	SL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,82)	Presentation State Group Identifier	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,83)	Temporary Smallest Image Pixel Value	US	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,84)	Camera Rotation Center	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,85)	Camera Rotation Center Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,86)	Camera Parallel Epiped	DS	12
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,87)	Camera Max Zoom In Factor	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,88)	Camera Min Zoom In Factor	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,89)	Temporary Largest Image Pixel Value	US	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8A)	Camera Rotation Axis Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8B)	Measurement Surface Normal	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8C)	Measurement Ellipsoid Model Matrix	FL	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8D)	Measurement Evaluation DataRole ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8E)	Measurement Algorithm Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,91)	Measurement Evaluation DataRole Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,93)	Measurement Evaluation Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,94)	Measurement Evaluation Value	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,95)	Measurement Evaluation ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,96)	Measurement Data Points	FL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,97)	Measurement Data Angles	FL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,98)	Measurement Data Slice	FD	9
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,99)	Measurement Data Slice Thickness	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9A)	Measurement Referenced Frames Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9B)	Measurement Evaluation Longest Distance	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9C)	Measurement Evaluation Centroid	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9D)	Measurement Data Bounding Box	FL	6
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9E)	Measurement Text	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9F)	Measurement Diameter	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A0)	Image Rotation Fractional	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A1)	Preset Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A2)	Fusion LUT Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A3)	Fusion LUT Is Active Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A4)	Scale To Fit Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A5)	Syngo UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A6)	Presentation Version Identifier	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A7)	Presentation Module Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A8)	Presentation Module Type	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A9)	Presentation State Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AA)	LUT Inverted Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AB)	Softcopy Voi Lut Viewing Index	IS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AC)	Displayed Area Bottom Right Hand Corner Fractional	FD	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AD)	Displayed Area Top Left Hand Corner Fractional	FD	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AE)	Measurement Alpha	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AF)	Measurement Bitmap	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B0)	Current Frame Number	US	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B1)	ImageText View Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B2)	ImageText View Content Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B3)	ImageText Line Names	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B4)	ImageText Line Values	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B5)	Measurement Evaluation Text Position Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B6)	Measurement Link Evaluation Text Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B7)	Measurement Evaluation Text Position Vector	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B8)	ImageText Alpha Blending Line Value	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B9)	ImageText Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BA)	ImageText Reduced	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BB)	ImageText Minimal	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BC)	ImageText ViewID	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BD)	Unlinked Image Text View Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C1)	Task Data Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C2)	Task Data Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C3)	Task Data Version	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C4)	Task Data Description	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C5)	Task Data	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C6)	Task Data Size	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C7)	True Size Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C8)	Image Graphics Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C9)	Clip Plane Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CA)	Clip Plane Center	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CB)	Clip Plane Normal	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CC)	Clip Plane Scale	DS	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CD)	Clip Plane Use Thickness Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CE)	Clip Plane Thickness	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CF)	Image Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D0)	Clip Plane Enable Clip	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D1)	Clip Plane Handle Ratio	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D2)	Clip Plane Bounding Points	DS	24
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D3)	Clip Plane Motion Matrix	DS	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D4)	Clip Plane Shift Velocity	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D5)	Clip Plane Enabled Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D6)	Clip Plane Rotate Velocity	DS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D7)	Clip Plane Show Graphics Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E0)	Crop Box Size	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E1)	Crop Box Enabled Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E2)	Crop Box Absolute Origin	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E3)	Crop Box Show Graphics Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E4)	Renderer Filter Settings Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E5)	Renderer Energy Conversion Lut	OF	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E6)	Apply Fusion	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E7)	RepresentationId	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,EE)	Advanced Display Representation Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,EF)	Measurement Visibility In View	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F0)	Measurement Label Text	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F1)	Curved Camera Coordinates	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F2)	Curved Camera Point Of Interest	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F3)	Curved Camera Point Of Interest Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F4)	Curved Camera Thickness	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F5)	Curved Camera Extrusion Length	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F6)	Curved Camera Rotation Axis Mode	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F7)	Curved Camera Roll Rotation Axis	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F8)	Curved Camera View Port Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F9)	Curved Camera Cut Direction	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FA)	Curved Camera Pan Vector	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FB)	Clinical Finding ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FC)	Measurement Is Circle Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FD)	Measurement Application TypeID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FE)	Measurement Default Evaluation Text Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FF)	Measurement Font Height	SL	1
(002B,SIEMENS SYNGO ADVANCED PRESENTATION,00)	Measurement Min Threshold Value	SL	1
(002B,SIEMENS SYNGO ADVANCED PRESENTATION,01)	Measurement Max Threshold Value	SL	1
(0029,SIEMENS SYNGO ALPHA CAD,10)	Automatic Landmarking and Parsing of Human Anatomy Version	CS	1
(0029,SIEMENS SYNGO ALPHA CAD,12)	Automatic Landmarking and Parsing of Human Anatomy Body Regions	SQ	1
(7FDF,SIEMENS SYNGO DATA PADDING,FC)	Pixel Data Leading Padding	OB	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,01)	Business Unit Code	CS	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,02)	Application Type	LO	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,03)	Application Attributes Sequence	SQ	1
(0029,SIEMENS SYNGO FRAME SET,10)	Image Frame Sequence	SQ	1-n
(0029,SIEMENS SYNGO FRAME SET,12)	Type of Progression	CS	1
(0029,SIEMENS SYNGO FRAME SET,14)	Representation Level	IS	1
(0029,SIEMENS SYNGO FRAME SET,16)	Representation Information Sequence	SQ	1-n

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO FRAME SET,18)	Number of Representations	IS	1
(0029,SIEMENS SYNGO FRAME SET,20)	Representation Pixel Offset	IS	1
(0029,SIEMENS SYNGO FUNCTION ASSIGNMENT,01)	Data Reference	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,20)	Object Insertion Date	DA	1
(0009,SIEMENS SYNGO INDEX SERVICE,30)	Instance Object States	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,31)	Series Object States	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,40)	Last Access Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,41)	Delete Protected Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,42)	Received from Archive Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,43)	Archive Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,44)	Location	AE	1
(0009,SIEMENS SYNGO INDEX SERVICE,45)	Logical Deleted Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,46)	Insert Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,47)	Visible Instances on Series Level	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,48)	Series Archived	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,49)	Visible Instances on Study Level	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,4A)	Series Completed	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,4B)	Delete Protection Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,4C)	Delete Protection User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,4D)	Study Marked Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,4E)	Study Marked User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,4F)	Series Delete Protected	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,50)	Hidden Instance	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,51)	Frame Number	UL	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,60)	Data Handling Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,61)	Result Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,62)	Clinical Result Attribute	US	1
(0009,SIEMENS SYNGO INDEX SERVICE,63)	Instance Origin	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,64)	DM file relative location for store	LT	1
(0009,SIEMENS SYNGO INDEX SERVICE,70)	Header Offset	UL	1
(0009,SIEMENS SYNGO INDEX SERVICE,71)	Study Archived	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,72)	Study Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,73)	Series Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,74)	Instance Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,75)	Study Corrected	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,76)	Study Marked	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,77)	Review	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,78)	Isotope Module Level	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,79)	Radionuclide Total Dose on Series level	DS	1
(0009,SIEMENS SYNGO INDEX SERVICE,7A)	Radionuclide Total Dose on Instance level	DS	1

DICOM Tag	Name	VR	VM
(0009,SIEMENS SYNGO INDEX SERVICE,7B)	Series Radiopharmaceutical Information Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,7C)	Instance Radiopharmaceutical Information Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,80)	Workflow Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,81)	Patient's Name Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,82)	Other Patient Names Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,83)	Name of Physician(s) Reading Study Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,84)	Requesting Physician Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,85)	Referring Physician's Name Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,86)	Performing Physician's Name Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,87)	Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,88)	Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,89)	Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8A)	Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8B)	Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8C)	Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8D)	Ideographic Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8E)	Ideographic Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8F)	Ideographic Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,90)	Ideographic Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,91)	Ideographic Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,92)	Ideographic Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,93)	Phonetic Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,94)	Phonetic Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,95)	Phonetic Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,96)	Phonetic Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,97)	Phonetic Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,98)	Phonetic Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,99)	Study Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9A)	Series Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9B)	Instance Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9C)	User Specified Worklist	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,9D)	User Specified Worklist Study Registration Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,9E)	User Specified Worklist Study Registration User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,9F)	User Specified Worklist Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,A0)	Sender System Device Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,A1)	Instance Repetition Time	DS	1
(0009,SIEMENS SYNGO INDEX SERVICE,A2)	Instance Effective Echo Time	FD	1
(0009,SIEMENS SYNGO INDEX SERVICE,A3)	Instance Inversion Times	FD	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,A4)	Instance Nominal Cardiac Trigger Delay Time	FD	1

DICOM Tag	Name	VR	VM
(0009,SIEMENS SYNGO INDEX SERVICE,A5)	Instance Diffusion b-value	FD	1
(0009,SIEMENS SYNGO INDEX SERVICE,A6)	Instance Creator Entity	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,A7)	Data Source	AE	1
(0009,SIEMENS SYNGO INDEX SERVICE,A8)	Study Availability	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,AC)	Detector View Code Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,AD)	Detector Information Code Value	SH	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,AE)	Detector Information Code Meaning	LO	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,AF)	Detector Information Coding Scheme Designator	SH	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,B0)	Relevant Body Part Examined	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,B1)	Relevant Protocol Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,B2)	Relevant Modality	CS	1
(0009,SIEMENS SYNGO INSTANCE MANIFEST,00)	Temporary Original Header Sequence	SQ	1
(0009,SIEMENS SYNGO INSTANCE MANIFEST,10)	syngo Index Source AE Title	AE	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,02)	Hanging Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,06)	Data Sharing Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,08)	Bagging Operations Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,10)	Synchronization Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,12)	Custom Filter Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,14)	Custom Sorter Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,20)	Selector DT Value	DT	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,22)	Selector DA Value	DA	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,24)	Selector TM Value	TM	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,26)	Selector UI Value	UI	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,30)	Custom Property Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,32)	Custom Property Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,34)	Custom Property Name	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,36)	Custom Property Value	LT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,38)	Layout Property Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,40)	Synchronization Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,60)	Viewport Definitions Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,62)	Protocol Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,70)	Display Protocol Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,72)	Display Protocol Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,74)	Display Protocol Level	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,76)	Display Protocol Creator	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,78)	Display Protocol Creation Datetime	DT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7A)	Referenced Data Protocol	UI	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7B)	Original Display Protocol	UI	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7C)	Display Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7E)	Layout Sequence	SQ	1-n

DICOM Tag	Name	VR	VM
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,80)	Layout Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,82)	Layout Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,84)	Segment Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,86)	Segment Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,88)	Segment Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8A)	Segment Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8C)	Tile Horizontal Dimension	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8E)	Tile Vertical Dimension	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,90)	Fill Order	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,92)	Segment Small Scroll Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,94)	Segment Small Scroll Amount	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,96)	Segment Large Scroll Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,98)	Segment Large Scroll Amount	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9A)	Segment Overlap Priority	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9C)	Data Role View Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9E)	Data Role View Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A2)	Referenced Data Role	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A4)	Sharing Enabled	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A8)	Referenced Data Role Views	US	2-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B0)	Data Protocol Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B2)	Data Protocol Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B4)	Data Protocol Level	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B6)	Data Protocol Creator	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B8)	Data Protocol Creation Datetime	DT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BA)	Data Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BC)	Data Protocol Definition Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BE)	Data Role Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C0)	Data Role Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C2)	Data Role Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C4)	IsSystem	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C6)	Selector Operations Sequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C8)	Selector Usage Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CA)	Select by Attribute Presence	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CC)	Select by Category	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CE)	Select by Operator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D0)	Custom Selector Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D2)	Selector Operator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D4)	Reformatting Required	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D6)	Registration Data Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D8)	Reference Data Role Number	US	1

DICOM Tag	Name	VR	VM
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DA)	Model Data Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DC)	Model Data Role Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DE)	Fusion Display Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E0)	Transparency	FD	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E2)	Time Point	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E4)	First Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E6)	Last Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E8)	Intermediate Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EA)	Data Processor Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EC)	Data Processor Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EE)	Template Data Role Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F0)	View Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F4)	View Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F6)	Custom Bagging Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F8)	Referenced Display Segment Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FA)	Data Role Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,46)	Internal Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FC)	Unassigned Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FE)	Initial Display Scroll Position	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,04)	Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,16)	Reference Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,18)	Model Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,28)	Referenced Template Data Role	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,42)	Presentation Creator Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,44)	Cine Navigation Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,48)	Semantic Naming Strategy	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,50)	Parameter String	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,52)	Sorting Order	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,54)	syngo Template Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,56)	Sorter Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,58)	Data Display Protocol Version	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,64)	TemplateSelectorSequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,66)	DefaultTemplate	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,68)	IsPreferred	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,6A)	TimepointInitialValueSequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,6C)	TimepointVariable	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5A)	TimepointValue	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5B)	SharingGroupSequence	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5C)	TemplateSelectorOperator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5D)	SharingType	CS	1

DICOM Tag	Name	VR	VM
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FF)	VRT Preset	LO	1
(0029,SIEMENS SYNGO MODULES,51)	Incomplete Frame	CS	1
(0029,SIEMENS SYNGO MODULES,52)	Presentation UserData	UT	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,00)	syngo Graphic Object Sequence	SQ	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,01)	Fill Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,02)	Fill Background Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,03)	Fill Foreground Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,04)	Siemens Fill Mode	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,05)	Siemens Fill Pattern	OB	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,06)	Line Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,07)	Line Background Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,08)	Line Foreground Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,09)	Line Type	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,10)	Siemens Line Thickness	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,11)	Line Shadow X Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,12)	Line Shadow Y Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,13)	Siemens Shadow Style	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,14)	Shadow Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,15)	Stipple Pattern	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,16)	Line Anti Aliasing	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,17)	Line-Z-Blend Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,18)	Text Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,19)	Text Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1A)	Connection Line Width Selected	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1B)	Connection Line Stipple Pattern	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1C)	Connection Line Width	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,20)	Text Horizontal Align	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,21)	Text Vertical Align	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,22)	Text Shadow X Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,23)	Text Shadow Y Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,24)	Text Shadow Style	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,25)	Text Shadow Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,26)	Text Log Font	CS	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,27)	Text-Z-Blend Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,28)	syngo Graphic Bit Mask	OB	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,29)	Visibility Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,30)	syngo Graphic Sensitivity	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,31)	syngo Graphic Pick Mode Type	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,32)	syngo Graphic Layer	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,33)	syngo Graphic Object Version	SL	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,34)	syngo Graphic Coordinate System	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,35)	syngo Graphic Custom Attributes	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,36)	syngo Graphic Custom Attributes Key	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,37)	syngo Graphic Custom Attributes Value	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,38)	syngo Graphic View Name	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,39)	syngo Graphic Data	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,40)	syngo Graphic Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,41)	Number of syngo Graphic Points	US	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,42)	Axis Main Tick Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,43)	Axis Detail Tick Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,44)	Axis Main Tick Spacing	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,45)	Axis Detail Tick Spacing	DS	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,46)	Axis Main Tick Count	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,47)	Axis Detail Tick Count	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,48)	Axis Tick Behavior	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,49)	Axis Tick Alignment	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,50)	Axis Step	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,51)	Axis Step Index	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,52)	Axis Text Format	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,53)	Axis Show Center Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,54)	Axis Show Tick Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,55)	Bitmap X Orientation	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,56)	Bitmap Y Orientation	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,57)	syngo Graphic Blob	OB	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,58)	syngo Graphic Interpolation	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,59)	syngo Graphic Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,60)	syngo Graphic Size	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,61)	Cut Line Side	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,62)	syngo Graphic Tip Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,63)	Cut Line Arrow Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,64)	Line Gap Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,65)	syngo Graphic Circle Radius	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,66)	Line Distance Move	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,67)	Line Marker Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,68)	syngo Graphic Center	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,69)	Range Center Area Top Left	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,70)	Range Center Area Bottom Right	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,71)	Range Tilt	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,72)	Range Minimum Tilt	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,73)	Range Maximum Tilt	DS	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,74)	syngo Graphic Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,75)	Range Minimum Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,76)	Range Maximum Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,77)	syngo Graphic Height	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,78)	Range Feed	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,79)	Range Direction	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,80)	Range Show Scans	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,81)	Range Minimum Scan Distance	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,82)	Range Orthogonal Height	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,83)	syngo Graphic Position	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,84)	syngo Graphic Closed Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,85)	Range Line Tip Mode	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,86)	syngo Graphic List Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,87)	Axis Flip Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,88)	Curve Diagram Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,89)	syngo Graphic Start Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,90)	syngo Graphic End Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,91)	Live Wire Smoothness	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,92)	Live Wire Spline Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,93)	Ellipse Circle Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,94)	syngo Graphic Square Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,95)	Curve Section Start Index	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,96)	Curve Section End Index	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,97)	Marker Alpha	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,98)	Table Row Count	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,99)	Table Column Count	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9A)	Table Row Height	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9B)	Table Column Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9C)	Rectangle Selection Segment Offset	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9D)	syngo Graphic Text	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A0)	Axis Tick Spacing Coordinate System	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A1)	Axis Diagram Grid Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A2)	Polar Plot Circle Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A3)	Polar Plot Lines-per-Circle	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A4)	Polar Plot Compartment Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A5)	Polar Plot Radius Weight	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A6)	Circle Segment Outer Radius	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A7)	Circle Segment Clockwise Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A8)	Axis Diagram Auto Resize Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A9)	Axis Diagram Step Start	DS	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B0)	Group Root	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B1)	Group Name	ST	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B2)	syngo Graphic Annotation Sequence	SQ	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B3)	Text Minimum Height	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B4)	Text Font Scaling Factor	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B5)	Text Maximum Extensions	SL	2
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B6)	Text Segment Size	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B7)	Graphic Object Reference Label	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,C4)	Show Grid	CS	1
(0029,SIEMENS SYNGO PRINT SERVICE,10)	Sheet Number	IS	1
(0071,SIEMENS SYNGO REGISTRATION,20)	Registered Image Sequence	SQ	1
(0071,SIEMENS SYNGO REGISTRATION,21)	Registration Is Validated Flag	CS	1
(0071,SIEMENS SYNGO REGISTRATION,22)	Deformable Registration Inverse Grid Sequence	SQ	1
(0029,SIEMENS SYNGO RWVM,50)	RWVM Version	LO	1
(0029,SIEMENS SYNGO SEGMENTATION,10)	Segmentation Inverted	CS	1
(0029,SIEMENS SYNGO SEGMENTATION,11)	Segmentation Uneditable by User	CS	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,12)	Surface Mesh Private Data	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,13)	Surface Mesh Private Data Task name	CS	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,14)	Surface Mesh Private Data Version Number	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,15)	Surface Mesh ImagePlane Sequence	SQ	0-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,16)	ImagePlane Sequence Identifier	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,17)	ImagePlane Sequence Identification Code Sequence	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,18)	ImagePlane Sequence Identification Code Value	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,19)	ImagePlane Sequence Identification Coding Scheme Designator	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,20)	ImagePlane Sequence Identification Code Meaning	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,21)	Surface Mesh ImagePlane	SQ	1-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,22)	ImagePlane	FL	9
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,23)	ImagePlane Type	CS	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,24)	ImagePlane Description	LO	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,25)	Surface Mesh Point List Sequence	SQ	0-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,26)	Point List Identifier	LO	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,27)	Point List Identification Code Sequence	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,28)	Point List Identification Code Value	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,29)	Point List Identification Coding Scheme Designator	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,30)	Point List Identification Code Meaning	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,31)	Point List Description	LO	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,32)	Point List	FL	1-N
(0031,SIEMENS SYNGO SOP CLASS PACKING,10)	SOP Class Packing Sequence	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,20)	Packing Version	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,21)	Packing Originator	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,30)	Original SOP Class UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,31)	Original Study Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,32)	Original Series Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,33)	Original SOP Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,34)	Original Transfer Syntax UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,40)	Attributes to Set to zero-length	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,41)	Attributes to Remove	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,50)	Original Rows	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,51)	Original Columns	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,58)	Original Image Type	CS	2-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,60)	Original Modality	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,70)	Sequence of original stream chunks	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,71)	Start tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,72)	End tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,73)	Stream chunk is a PAYLOAD	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,80)	Stream chunk	OB	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,10)	SOP Class Packing Sequence	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,20)	Packing Version	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,21)	Packing Originator	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,30)	Original SOP Class UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,31)	Original Study Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,32)	Original Series Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,33)	Original SOP Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,34)	Original Transfer Syntax UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,40)	Attributes to Set to zero-length	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,41)	Attributes to Remove	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,50)	Original Rows	US	1

DICOM Tag	Name	VR	VM
(0031,SIEMENS SYNGO SOP CLASS PACKING,51)	Original Columns	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,58)	Original Image Type	CS	2-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,60)	Original Modality	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,70)	Sequence of original stream chunks	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,71)	Start tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,72)	End tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,73)	Stream chunk is a PAYLOAD	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,80)	Stream chunk	OB	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,01)	Time Point ID	LO	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,02)	Time Point Information	LO	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,50)	Studies in Time Point Sequence	SQ	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,01)	Padding	OB	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,09)	Version ID	OB	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,10)	Payload	LO	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,11)	After Payload	LO	1
(0029,SIEMENS SYNGO VOLUME,12)	Slices	US	1
(0029,SIEMENS SYNGO VOLUME,18)	Volume Level	IS	1
(0029,SIEMENS SYNGO VOLUME,30)	Voxel Spacing	DS	3
(0029,SIEMENS SYNGO VOLUME,32)	Volume Position (Patient)	DS	3
(0029,SIEMENS SYNGO VOLUME,37)	Volume Orientation (Patient)	DS	9
(0029,SIEMENS SYNGO VOLUME,40)	Resampling Flag	CS	1
(0029,SIEMENS SYNGO VOLUME,42)	Normalization Flag	CS	1
(0029,SIEMENS SYNGO VOLUME,44)	SubVolume Sequence	SQ	1-n
(0029,SIEMENS SYNGO VOLUME,46)	Histogram Number Of Bins UL	UL	1
(0029,SIEMENS SYNGO VOLUME,47)	Volume Histogram Data	OB	1
(0029,SIEMENS SYNGO VOLUME,48)	Volume Histogram BinBase	SL	1
(0029,SIEMENS SYNGO VOLUME,50)	Volume Version	LO	1
(0029,SIEMENS SYNGO VOLUME,60)	Total Frame Count Of Referenced Instance	IS	0-1

Interpretation of the DICOM Tags from the above table:

(gggg, pp,ee) -> (gggg, ppee)

gggg - odd group number

pp - private creator identification code

ee - private element

6.1.2 Usage of Attributes from received IODs

N/A

6.1.3 Attribute mapping

There is currently no mapping from attributes received in DICOM Modality Worklist to other attributes.

6.1.4 Coerced / Modified fields

N/A

6.2 Coded Terminology and Templates

N/A

6.2.1 Context Groups

N/A

6.2.2 Template Specifications

N/A

6.2.3 Private Code definitions

N/A

6.3 Grayscale Image Consistency

N/A

6.4 Standard Extended / Specialized / Private SOP Classes

N/A

6.5 Private Transfer Syntaxes

No private Transfer Syntaxes are defined for or requested by Syngo Carbon Space DICOM application.

6.6 ANNEX A : Multi-modality Oncology

Syngo Carbon Space will create functional images from special applications. Those will be encoded as Standard or Standard Extended SOP Classes. For the Multi-modality Oncology (MM Oncology) application, Standard Extended Real World Value Mapping objects will be created. Please see the following table for an overview of additional Standard Attributes provided with the objects.

6.6.1 Real World Value Mapping IOD

The following table lists extended attributes that may be provided in a Real World Value Mapping object in addition to the standard attributes defined by the DICOM standard.

Unrestricted

Table 32: Extended attributes for Real World Value Mapping

Attribute Name	Tag	Value
Radionuclide Total Dose	(0018,1074)	The radiopharmaceutical dose administered to the patient measured in Becquerel's (Bq) at the Radiopharmaceutical Start Date Time (0018,1078). Provided only when the Real World Value Mapping is for an SUV unit type referring to PET data. The value is copied from the PET images referenced by this RWVM object, or provided by the user
Radionuclide Half Life	(0018,1075)	The radionuclide half-life, in seconds, that was used in the correction of the referenced image. Provided only when the Real World Value Mapping is for an SUV unit type referring to PET data. The value is copied from the PET images referenced by this RWVM object, or provided by the user
Radiopharmaceutical Start DateTime	(0018,1078)	Date and time of start of administration. The actual date and time of radiopharmaceutical administration to the patient for imaging purposes. Provided only when the Real World Value Mapping is for an SUV unit type referring to PET data. The value is copied from the PET images referenced by this RWVM object or provided by the user. Note: even if the original images contained only Radiopharmaceutical Start Time (0018,1072), this value is stored as Radiopharmaceutical Start DateTime (0018,1078).

6.7 ANNEX B : CT Post-Processing Applications and Plugin Applications

6.7.1 Standard Extensions of Raw Data Storage SOP Class

The Raw Data Storage SOP class 1.2.840.10008.5.1.4.1.1.66 is extended by the following attributes.

DICOM Attribute Name	Tag	VR
Series Instance UID	(0020,000E)	UI

6.7.2 Standard Extensions of Spatial Registration Storage SOP Class

The Spatial Registration Storage SOP class 1.2.840.10008.5.1.4.1.1.66.1 is extended by the following attributes.

Table 33: General Equipment Module

DICOM Attribute Name	Tag	VR
Pixel Padding Value	(0028,0120)	US or SS

6.7.3 Standard Extensions of Secondary Capture Image SOP Class

The Secondary Capture Image SOP class 1.2.840.10008.5.1.4.1.1.7 is extended by the following attributes.

Table 34: Image Plane Module

DICOM Attribute Name	Tag	VR
Image Position (Patient)	(0020,0032)	DS
Image Orientation (Patient)	(0020,0037)	DS
Slice Thickness	(0018,0050)	DS

6.7.4 Standard Extensions of Basic Text SR SOP Class

The Basic Text SR SOP class 1.2.840.10008.5.1.4.1.1.88.11 is extended by the following attributes.

Table 35: General Series Module

DICOM Attribute Name	Tag	VR
Body Part Examined	(0018,0015)	CS
Laterality	(0020,0060)	CS
Request Attributes SQ	(0040,0275)	SQ

Table 36: General Image Module

DICOM Attribute Name	Tag	VR
Patient Orientation	(0020,0020)	CS

Table 37: General Equipment Module

DICOM Attribute Name	Tag	VR
Pixel Padding Value	(0028,0120)	US or SS

Table 38: Patient Module

DICOM Attribute Name	Tag	VR
Other Patient IDs	(0010,1000)	LO

6.7.5 Standard Extensions of Segmentation Storage SOP Class

The Segmentation Storage SOP class 1.2.840.10008.5.1.4.1.1.66.4 is extended by the following attributes.

Table 39: Segmentation Image Module

DICOM Attribute Name	Tag	VR
Segment Sequence	(0062,0002)	SQ
>Segmented Property Category Code Sequence	(0062,0003)	SQ
>Segmented Property Type Code SQ	(0062,000F)	SQ
>Segment Algorithm Name	(0062,0009)	LO

Table 40: General Equipment Module

DICOM Attribute Name	Tag	VR
Pixel Padding Value	(0028,0120)	US or SS

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