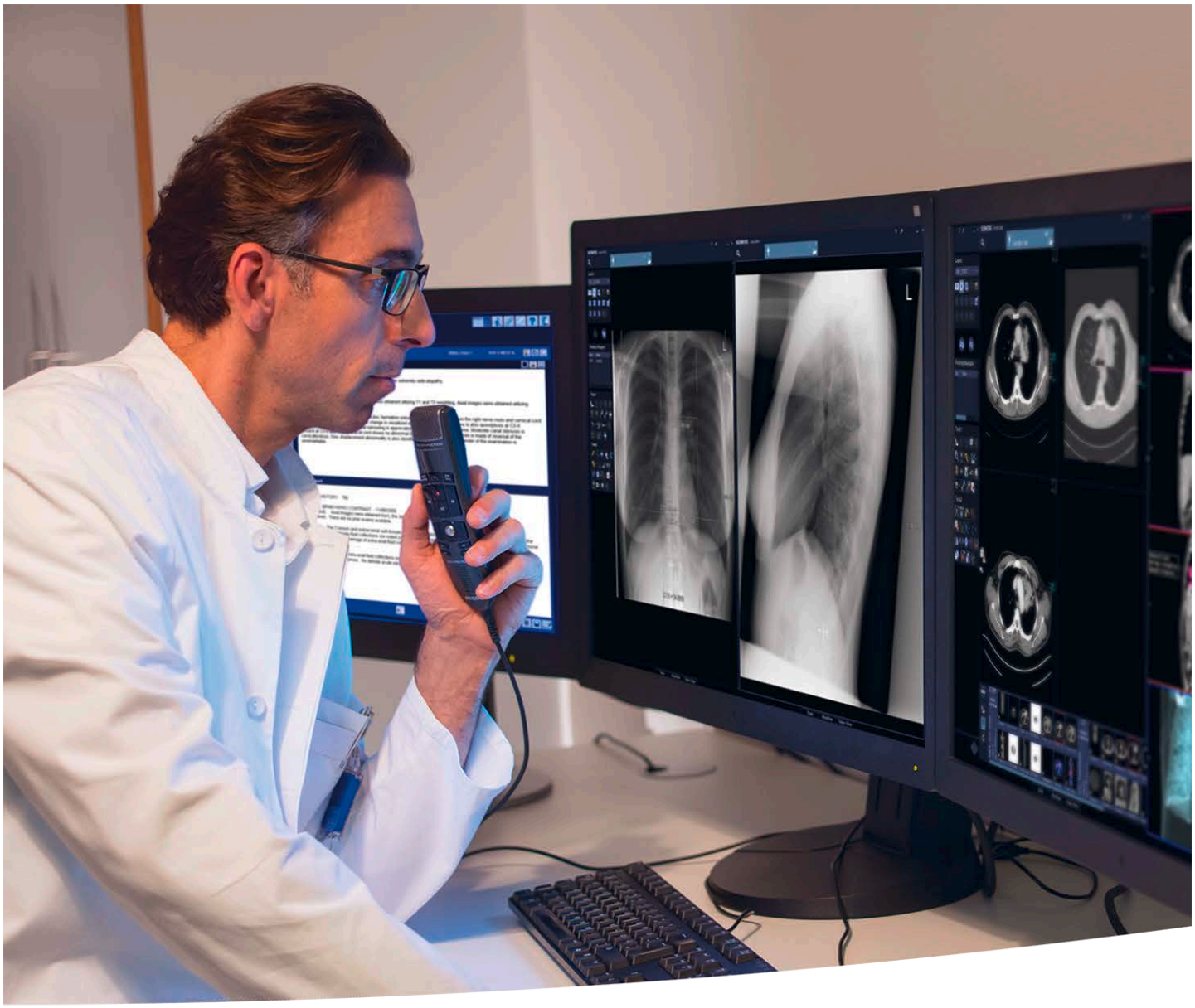

DICOM Conformance Statement

syngo.plaza
VB30A

siemens.com/healthineers

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1 DICOM Conformance Statement Overview

The syngo.plaza conforms to the DICOM Standard and supports the network services as described in Table 1: Network Services and the media services as described in Table 2 - Media Services.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Computed Radiography Object Storage	Yes	Yes
Digital X-ray Image Storage - For Presentation	Yes	Yes
Digital X-ray Image Storage - For Processing	Yes	Yes
Digital Mammography X-ray Image Storage - For Presentation	Yes	Yes
Digital Mammography X-ray Image Storage - For Processing	Yes	Yes
Digital Intra-oral X-ray Image Storage - For Presentation	Yes	Yes
Digital Intra-oral X-ray Image Storage - For Processing	Yes	Yes
CT Image Storage	Yes	Yes
US Multi-frame Image Storage	Yes	Yes
US Multi-frame Image Storage (Retired)	Yes	Yes
MR Image Storage	Yes	Yes
Enhanced MR Image Storage	Yes	Yes
US Image Storage	Yes	Yes
US Image Storage (Retired)	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	Yes	Yes
X-ray Angiographic Image Storage	Yes	Yes
X-ray Radiofluoroscopic Image Storage	Yes	Yes
X-ray 3D Angiographic Image Storage	Yes	Yes
SC Image Storage	Yes	Yes
Nuclear Medicine Image Storage	Yes	Yes
Stored Print Storage	Yes	Yes
Hardcopy Grayscale Image Storage	Yes	Yes
Hardcopy Color Image Storage	Yes	Yes
RT Image Storage	Yes	Yes
VL Endoscopic Image Storage	Yes	Yes
VL Microscopic Image Storage	Yes	Yes
VL Slide-Coordinates Microscopic Image Storage	Yes	Yes
VL Photographic Image Storage	Yes	Yes
Positron Emission Tomography Image Storage	Yes	Yes
MR Spectroscopy Storage	Yes	Yes
Enhanced MR Color Image Storage	Yes	Yes
Enhanced XA Image Storage	Yes	Yes
Enhanced CT Image Storage	Yes	Yes
Ophthalmic Photography 8 Bit Image Storage	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	Yes	Yes
Video Endoscopic Image Storage	Yes	Yes
Video Microscopic Image Storage	Yes	Yes
Video Photographic Image Storage	Yes	Yes
Raw Data Storage	Yes	Yes
Grayscale Softcopy Presentation State Storage	Yes	Yes
Color Softcopy Presentation State Storage	Yes	Yes
Pseudo-Color Softcopy Presentation Stage Storage SOP Class	Yes	Yes
Basic Text SR Storage	Yes	Yes
Enhanced SR Storage	Yes	Yes
Comprehensive SR Storage	Yes	Yes
Mammography CAD SR Storage	Yes	Yes

Key Object Selection Storage	Yes	Yes
Chest CAD SR Storage	Yes	Yes
Encapsulated PDF Storage	Yes	Yes
RT Dose Storage	Yes	Yes
RT Structure Set Storage	Yes	Yes
RT Beams Treatment Record Storage	Yes	Yes
RT Plan Storage	Yes	Yes
RT Brachy Treatment Record Storage	Yes	Yes
RT Treatment Summary Record Storage	Yes	Yes
RT Ion Plan Storage	Yes	Yes
RT Ion Beams Treatment Record Storage	Yes	Yes
12-lead ECG Waveform Storage	Yes	Yes
General ECG Waveform Storage	Yes	Yes
Ambulatory ECG Waveform Storage	Yes	Yes
Hemodynamic Waveform Storage	Yes	Yes
Cardiac Electrophysiology Waveform Storage	Yes	Yes
Basic Voice Audio Waveform Storage	Yes	Yes
Deformable Spatial Registration Storage	Yes	Yes
Procedure Log Storage	Yes	Yes
X-ray Radiation Dose SR Storage	Yes	Yes
Segmentation Storage	Yes	Yes
Real World Value Mapping Storage	Yes	Yes
Spatial Registration Storage	Yes	Yes
Spatial Fiducials Storage	Yes	Yes
Siemens Private CSA Non-Image Storage	Yes	Yes
Philips Private Gyroscan MR Storage	Yes	Yes
Acuson KinetDX SR	Yes	Yes
Query/Retrieve		
Patient Root Query/Retrieve Information Model – FIND	Yes	Yes
Patient Root Query/Retrieve Information Model – MOVE	Yes	Yes
Study Root Query/Retrieve Information Model – FIND	Yes	Yes
Study Root Query/Retrieve Information Model – MOVE	Yes	Yes
Workflow Management		
Storage Commitment Push Model SOP Class	Yes	Yes
Modality Performed Procedure Step SOP Class	Yes	Yes
Modality Worklist Information Model - FIND	Yes	Yes
Print Management		
Basic Grayscale Print Management Meta	Yes	No
Basic Color Print Management Meta	Yes	No
Print Job	Yes	No
Presentation LUT SOP Class	Yes	No

Table 1: Network Services

Media Storage Application Profile	Write Files (FSC or FSU)	Read File (FSR)
Compact Disk – Recordable		
General Purpose CD-R	Yes	Yes
DVD		
General Purpose DVD-RAM	Yes	Yes

Table 2 - Media Services

SIEMENS Healthineers

2 Table of Contents

1 DICOM Conformance Statement Overview 2

2 Table of Contents 4

3 Introduction 6

3.1 Audience 6

3.2 Remarks 6

3.3 Definitions, Terms and Abbreviations 6

3.4 References 7

3.5 Structure 7

3.6 Scope and Field 8

4 Networking 9

4.1 Implementation Model 9

4.1.1 Application Data Flow 9

4.1.2 Functional Definitions of Application Entities 14

4.2 Application Entity Specification 17

4.2.1 Main AE Specification 17

4.2.2 Query Spanning AE 36

4.2.3 Retrieve Spanning AE 38

4.2.4 MPPS Manager AE 41

4.2.5 Modality Worklist Provider AE 43

4.2.6 Temp AE 45

4.2.7 MPPS ImageManager AE 46

4.3 Network Interfaces 49

4.3.1 Physical Network Interface 49

4.4 Configuration 49

4.4.1 AE Title / Presentation Address Mapping 49

4.4.2 Configurable parameters 50

5 Media Interchange 51

5.1 Implementation Models 51

5.1.1 Application Data Flow 51

5.1.2 Functional Definitions of AEs 51

5.1.3 Sequencing of Real-World Activities 51

5.1.4 File Meta Information for Implementation Class and Version 51

5.2 AE Specifications 52

5.2.1 Media Handling AE 52

5.3 Augmented and Private Profiles 53

5.3.1 Augmented Application Profiles 53

5.3.2 Private Application Profiles 53

5.4 Media Configuration 54

6 Support of Character Sets 55

6.1 Character Sets for *syngo.*plaza 55

7 Security 58

7.1 Secure Use Profiles 58

7.2 Secure Transport Connection Profiles 58

7.3 Digital Signature Profile 59

7.4 Media Storage Security Profiles 59

7.5 Network Address Management Profiles 59

7.6 Time Synchronization Profiles 59

7.7 Application Configuration Management Profiles 59

7.8 Audit Trail Profiles 60

Annex A Tables 62

A.1. Supported Storage SOP Classes of Main AE and Media Handling AE 62

A.1. Supported Non-Storage SOP Classes of Main AE 65

A.2. Supported SOP Classes of Query Spanning AE 65

A.3. Supported SOP Classes of Retrieve Spanning AE 65

A.4. Supported SOP Classes of MPPS Manager AE 66

A.5. Supported SOP Classes of Modality Worklist Provider AE 66

A.6. Supported SOP Classes of MPPS Image Manager AE 66

A.7. Supported Query attributes 66

A.8. Supported Presentation Contexts for Storage service and PRI-PLAZA SOP Classes and Transfer Syntaxes 68

A.9. Registry of DICOM Private Data Elements 82

A.10. Requirements for Viewing of DICOM Images 84

A.11. Restrictions for Viewing of DICOM Images 84

A.12. Private MITRA Report Management Query 85

3 Introduction

The Conformance Statement describes the DICOM interface for the Siemens PACS *syngo.*plaza in terms of part 2 of the DICOM Standard [1].

3.1 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.

3.2 Remarks

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality as SCU and SCP, respectively.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication with Siemens and other vendors' medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM 3.0 Standard [1]. However, by itself it is not guaranteed to ensure the desired interoperability and a successful interconnectivity.

The user should be aware of the following important issues:

- The comparison of different conformance statements is the first step towards assessing interconnectivity between Siemens and non-Siemens equipment.
- Test procedures should be defined and tests should be performed by the user to validate the connectivity desired. DICOM itself and the conformance parts do not specify this.
- The standard will evolve to meet the users' future requirements. Siemens is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

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

3.3 Definitions, Terms and Abbreviations

Definitions, terms and abbreviations used in this document are defined within the parts [3] and [4] of the DICOM standard.

Additional Abbreviations and terms are as follows:

ACR	**A**merican **C**ollege of **R**adiology
AE	DICOM **A**pplication **E**ntity
ASCII	**A**merican **S**tandard **C**ode for **I**nformation **I**nterchange
DAP	**D**ICOM **A**rchive **P**rovider
DAU	**D**ICOM **A**rchive **U**ser
DBP	DICOM **B**asic **P**rint
DCS	**D**ICOM **C**onformance **S**tatement
DQRY	**D**ICOM **Q**u**e**r**y**

DQUS	**D**ICOM **Q**uery **Us**er
DSA	**D**igital **S**ubtraction **A**ngiography
FSC	**F**ile **S**et **C**reator
FSR	**F**ile **S**et **R**eader
FSU	**F**ile **S**et **U**pdater
IOD	DICOM **I**nformation **O**bject **D**efinition
ISO	**I**nternational **S**tandard **O**rganization
LTS	**L**ong **T**erm **S**torage
MPPS	**M**odality **P**erformed **P**rocedure **S**tep
MWL	**M**odality **W**ork**l**ist
NEMA	**N**ational **E**lectrical **M**anufacturers **A**ssociation
NI	**N**etwork **I**nterface
O	**O**ptional Key Attribute
PACS	**P**icture **A**rchiving and **C**ommunication **S**ystem
PDU	**P**rotocol **D**ata **U**nit
PDI	**P**ortable **D**ocument **I**maging
PHI	**P**rotected **H**ealth **I**nformation
PPS	**P**erformed **P**rocedure **S**tep
QC	**Q**uality **C**ontrol
R	**R**equired Key Attribute
RIS	**R**adiology **I**nformation **S**ystem
SC	**S**torage **C**ommitment
SCU	DICOM **S**ervice **C**lass **U**ser (DICOM client)
SCP	DICOM **S**ervice **C**lass **P**rovider (DICOM server)
SOP	DICOM **S**ervice **O**bject **P**air
U	**U**nique Key Attribute
UI	**U**ser **I**nterface

3.4 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] IHE Radiology Technical Framework, Vol. I – IV, http://www.ihe.net/Technical_Frameworks/#radiology

[3] DICOM PS3.1 – Introduction and Overview, Chapter 3, Definitions

[4] DICOM PS3.2 – Conformance, Chapter 4, Symbols and Abbreviations

The Conformance Statement is based on a template taken from [1].

All DICOM Conformance Statements for Siemens equipment can be obtained from www.siemens.com/dicom.

3.5 Structure

This Conformance Statement is subdivided into multiple parts, which relate to individual documents needed to declare Conformance according to the requirements of “Part 2 - Conformance” of the DICOM Standard.

Those parts are:

- **“Network Conformance Statement” for network related services:**
    - Storage - user/provider (includes verification - user/provider)
    - Storage Commitment - user/provider
    - Query/Retrieve - user/provider

- Modality Performed Procedure Step – user/provider
- Modality Worklist - user/provider
- Print - user
- *Private MITRA Report Management - user*

- **“Media Interchange Conformance Statement”**
- **A general Appendix.**

3.6 Scope and Field

*syngo***.**plaza offers advanced PACS functionality in a comprehensive package for all imaging needs in radiology and cardiology.

*syngo***.**plaza delivers a wide array of functional benefits that address customer needs and focus on innovation. The solution is suitable for institutions performing a low amount of procedures such as in Diagnostic Imaging Centers (DIC) and is also able to handle high procedure volumes.

4 Networking

4.1 Implementation Model

4.1.1 Application Data Flow

4.1.1.1 Main AE

The Main AE of *syngo.*plaza is started automatically upon startup of the application.

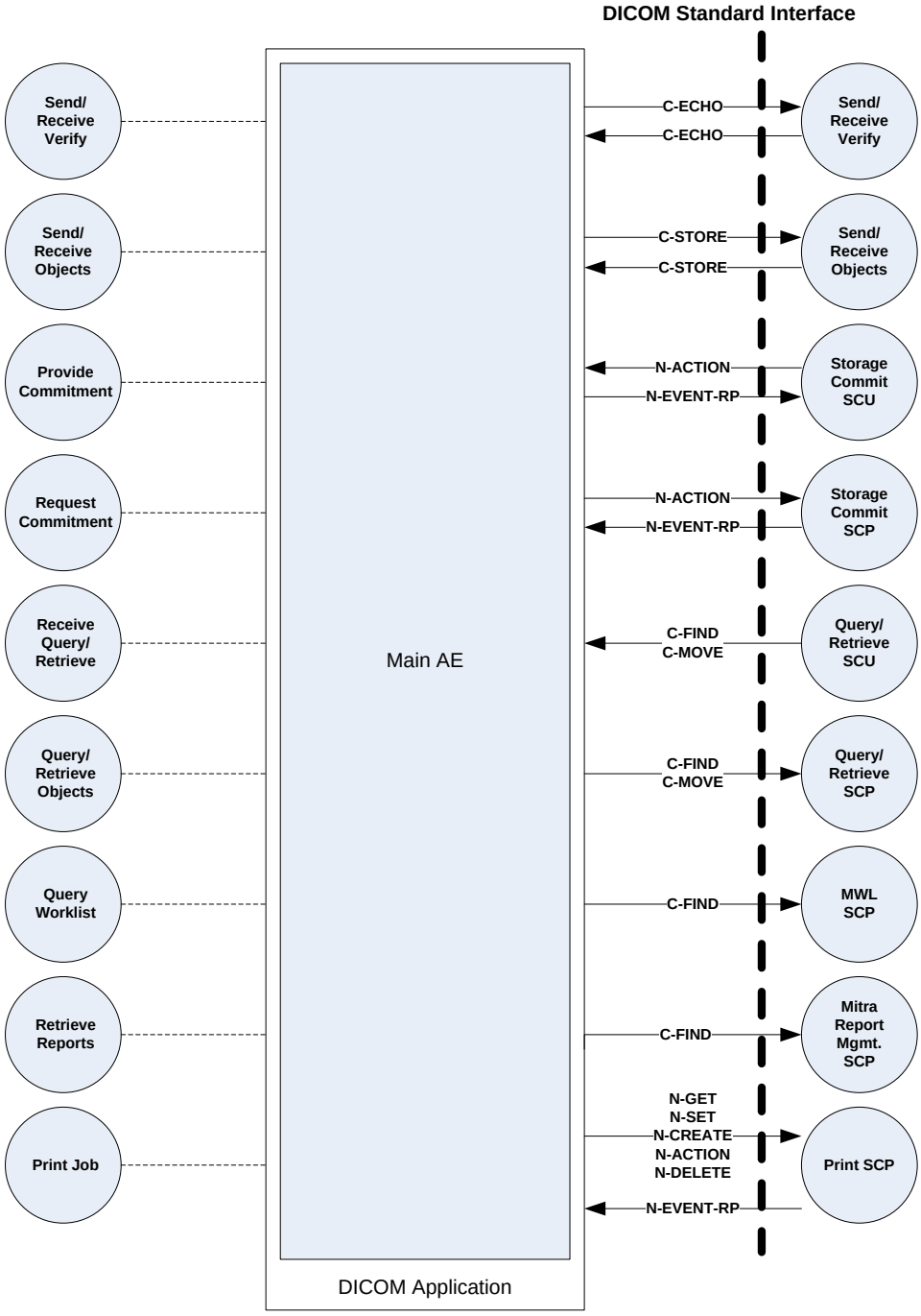

Figure 1: Application Data Flow Diagram – Main AE

The Main AE supports the following real-world activities:

- Send/Receive Verify
  - C-ECHO requests are responded in order to verify DICOM communication
  - With the help of a command line tool *syngo.*plaza can send C-ECHO requests to verify DICOM communication
- Send Objects (Sending of DICOM objects, e.g. Images, Structured Reports, Presentation States)
  - The objects to be transferred are selected within the *syngo.*plaza UI and transfer is manually activated by the user. The referenced objects are then sent to the remote DICOM node (Storage SCP).
  - For archiving purposes to a DICOM Archive the transfer to the DICOM Archive is automatically triggered by internal rules.
  - In case of autoroute (e.g. new images are forwarded after storage, images are sent after a change of the exam status) the relevant series are forwarded to the configured DICOM node.
  - As a response to retrieve event from an external DICOM node.
- Receive Objects (Receiving of DICOM objects (e.g. Images, Structured Reports, Presentation States)
  - Configured DICOM nodes may send at any time supported DICOM objects to the Main AE. After an object is received, the transfer to the *syngo.*plaza Short Term Storage (STS) is initiated.
- Request Commitment
  - After transmitting the images to a remote DICOM node *syngo.*plaza can be configured to request a Storage Commitment.
  - It is also possible to configure *syngo.*plaza to send Storage Commitment requests after user triggered send operation and autoroute.
- Provide Commitment
  - If the sending system (see above) is supporting Storage Commitment, it also may send a Storage Commitment request (N-ACTION Request) for the stored objects. *syngo.*plaza can act as Storage Commitment provider if either archive configuration (NAS or DICOM LTA) is enabled.
- Receive Query/Retrieve (Replying to query and retrieval requests)
  - *syngo.*plaza responds to query requests based on the available DICOM meta data stored in the database. If a remote node sends retrieval requests for one or more available objects, *syngo.*plaza sends the referenced objects to the remote node. The requesting node may also ask to forward the objects to a third node. This is possible as far as the third node is correctly configured within *syngo.*plaza**.**
- Query/Retrieve Objects (Initiating Query / Retrieve)
  - *syngo.*plaza may query a remote node for its internal managed DICOM objects.

- *syngo.*plaza may request a remote node to retrieve a set of referenced DICOM objects. Therefore *syngo.*plaza initiates a move request to the remote node, which in turn stores the requested objects to *syngo.*plaza.

- Query Worklist (querying Modality Worklist Information)

  - *syngo.*plaza supports querying worklist information from a Modality Worklist SCP in order to update patient demographics while importing images, saving copies of existing data or for QC operations.

- Retrieve Reports (Retrieving reports via MITRA service)

  - *syngo.*plaza requests the Report Manager (typically the RIS) using a private SOP class to retrieve the content of a report.

- Print Job (Printing DICOM objects)

  - The user can load relevant images to the "filming" application of *syngo.*plaza**.**

  - The layout print settings may be adapted and the print job is sent to the printer.

4.1.1.2 Query Spanning AE

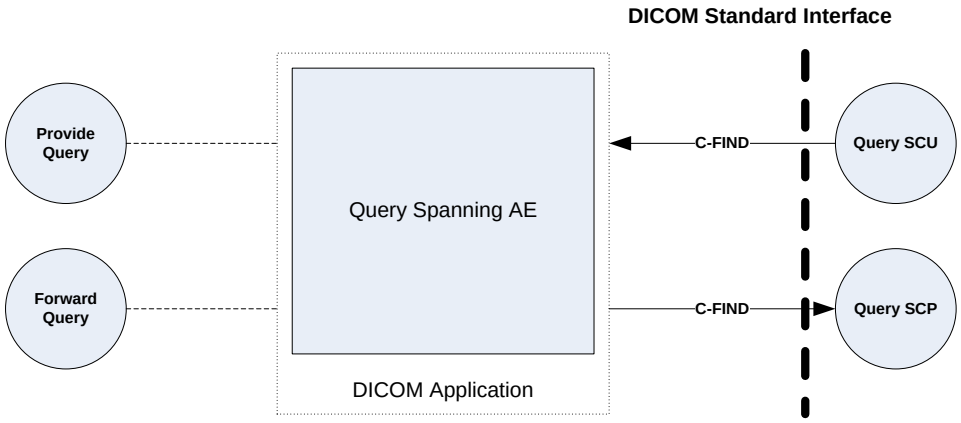

Figure 2: Application Data Flow Diagram – Query Spanning AE

The Query Spanning AE supports the following real-world activities:

- Provide Query (Receiving Query requests: C-FIND)

  - Workstations or other devices may send C-FIND requests to *syngo.*plaza. These messages may be forwarded to a set of configured Query SCP nodes.

- Forward Query (Forwarding Query requests: C-FIND)

  - *syngo.*plaza may be configured to forward C-FIND messages received from any Query SCU to a set of configured nodes (supporting Query SCP). The responses from the different Query SCP nodes are collected together to provide the original Query SCU a consolidated view on the matches of all Query SCPs.

4.1.1.3 Retrieve Spanning AE

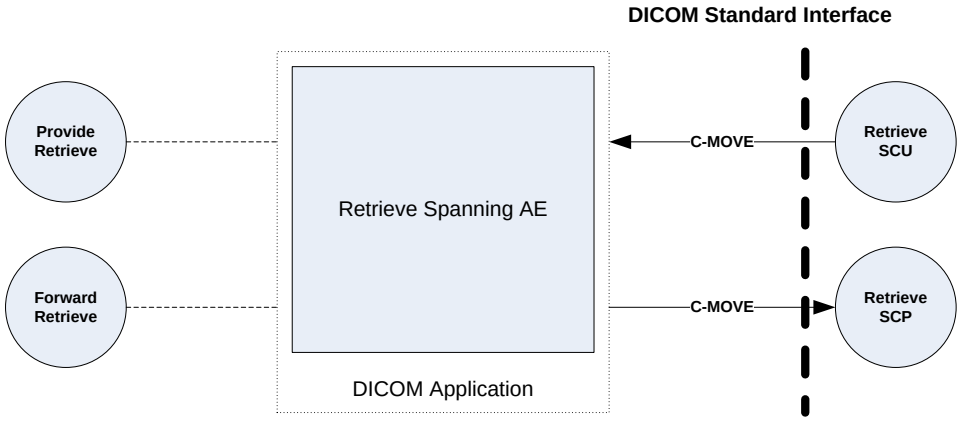

Figure 3: Application Data Flow Diagram – Retrieve Spanning AE

The Retrieve Spanning AE supports the following real-world activities:

- Provide Retrieve (Receiving Retrieve requests: C-MOVE)
  - Workstations or other devices may send C-MOVE requests to *syngo.*plaza. These messages may be forwarded to a set of configured Retrieve SCP nodes.
- Forward Retrieve (Forwarding Retrieve requests: C-MOVE)
  - *syngo.*plaza may be configured to forward C-MOVE messages received from any Retrieve SCU to a set of configured nodes (supporting Retrieve SCP). This provides the original Retrieve SCU a central entry point for all Retrieve SCPs.

4.1.1.4 MPPS Manager AE

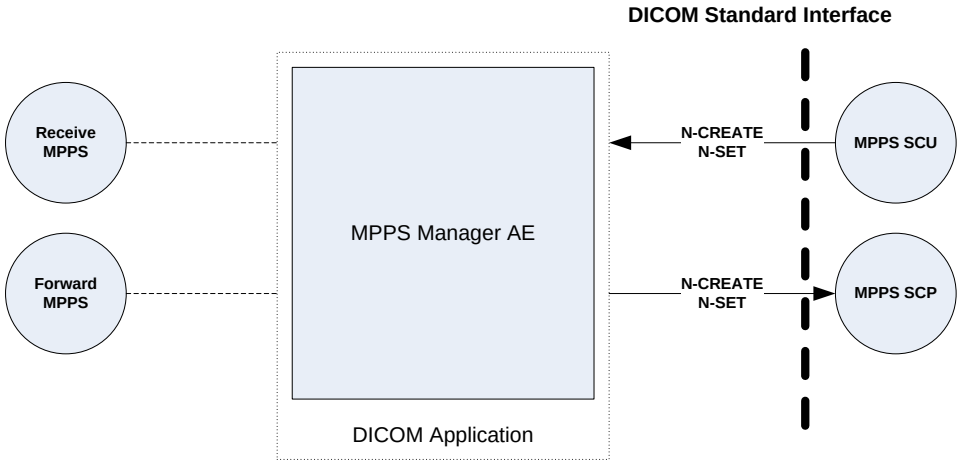

Figure 4: Application Data Flow Diagram – MPPS Manager AE

The MPPS Manager AE supports the following real-world activities:

- Receive Modality Performed Procedure Steps

- Modalities may send MPPS to *syngo.*plaza. This MPPS messages may be forwarded to any configured node.

- Forward Modality Performed Procedure Steps

  - *syngo.*plaza may be configured to forward MPPS messages received from the modality to any configured node (typically the RIS). It is possible to configure multiple destinations.

4.1.1.5 Modality Worklist Provider AE

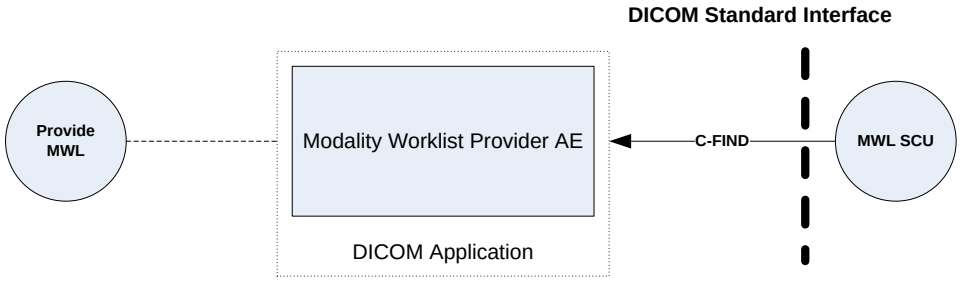

Figure 5: Application Data Flow Diagram – Modality Worklist Provider AE

The Modality Worklist Provider AE supports the following real-world activities:

- Provide Modality Worklist

  - The MWL Scheduler is a web based planning system of *syngo.*plaza that enables you to schedule appointments for examinations. Based on this information *syngo.*plaza provides worklists for modalities.

4.1.1.6 Temp AE

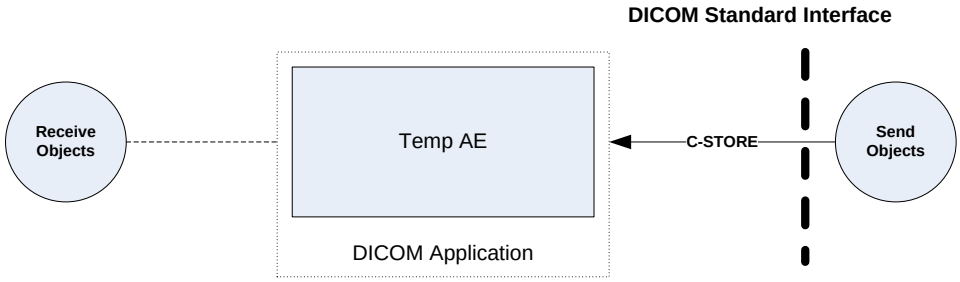

Figure 6: Application Data Flow Diagram – Temp AE

The Temp AE supports the following real-world activities:

- Receive Objects (Receiving of DICOM objects (e.g. Images, Structured Reports, Presentation States)

  - The Temp AE is only used in case *syngo.*plaza acts as a DICOM Archive User (DAU). When images that are archived on a DICOM Archive Provider (DAP) need to be de-archived, *syngo.*plaza will send a C-MOVE request with the TEMP AE as the move destination.

4.1.1.7 MPPS Image Manager AE

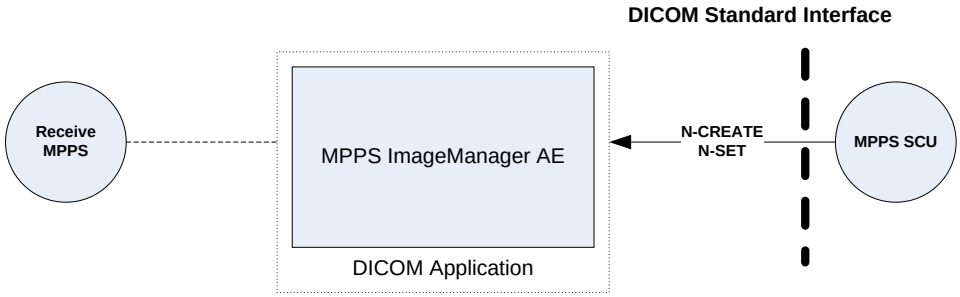

Figure 7: Application Data Flow Diagram – MPPS ImageManager AE

The MPPS ImageManager AE supports the following real-world activities:

- Receive Modality Performed Procedure Steps
    - Modalities may send MPPS to *syngo.*plaza. These MPPS messages are recorded in the internal database and can be displayed for the user.

4.1.2 Functional Definitions of Application Entities

The SCP components of the Application Entities of *syngo.*plaza are operating as background server processes. They exist as soon as the system is powered up and wait for association requests. Upon accepting an association with a negotiated Presentation Context they start to receive and process the request described in the following sections.

4.1.2.1 Functional Definition of Main AE

4.1.2.1.1 Verification

Verification requests will be processed and responded by the Main AE.

4.1.2.1.2 Storage

The **Storage SCU** of the Main AE is invoked in the following cases:

- If it is internally triggered by the Retrieve Application that is responsible for processing retrieve requests.
- By a trigger of the internal communication system in case of autoroute or a change to the examination status.
- In case *syngo.*plaza is configured to archive its images to an external DICOM Archive (*syngo.*plaza is DICOM Archive User), the Storage SCU is invoked if the archiving is triggered by an internal event. If the images could successfully be stored to the DICOM Archive, a subsequent Storage Commitment is necessary to secure the storage of these images at the DICOM Archive.
- In case a user manually selects images from the *syngo.*plaza UI and initiates transfer to a remote node.

The request consists of data describing the composite image objects selected for storage and the destination AET. An association is negotiated with the destination AE and the image data is transferred using the C-STORE DIMSE-Service. The transfer status is reported to the initiator of the Storage request.

Before sending the image to a remote destination node, the **Storage SCU** modifies the header values to reflect the latest (up-to-date) information for these fields from the database. It is possible to configure the tags (incl. private attributes) which will be updated, when transferred to a remote node.

The **Storage SCP** of the Main AE starts to receive the Composite Image Objects and store them into the STS after accepting an association with a negotiated Presentation Context.

Please be aware that in case *syngo.*plaza acts as a DICOM Archive User all Storage SOP Classes that are sent to *syngo.*plaza and that are generated by *syngo.*plaza (e.g. Presentation States) must also be supported by the DICOM Archive Provider. This is important in order to ensure that all DICOM objects sent to *syngo.*plaza can be archived.

Also the AET and port of the DICOM Archive Provider must be the same for Storage and Storage Commitment.

4.1.2.1.3 Storage Commitment

Additional to each successfully completed send job, modalities can trigger a Storage Commitment request for the safekeeping of the images sent to *syngo.*plaza.

*syngo.*plaza only acts as Storage Commitment provider if either archive configuration (NAS or DICOM LTA) is enabled. It will send the commitment response (N-EVENT-RP) on a new association. A successful commitment is only sent back, if the stored objects were successfully archived.

In case images were sent to a remote DICOM Archive node for archiving purpose, *syngo.*plaza as **Storage Commitment SCU** will subsequently send a Storage Commitment request (N-ACTION Request) to the DICOM Archive. After the request has been sent, the association is closed. It is expected that the Storage Commitment Provider sends the commitment (N-EVENT-RP) through a new association to the Main AE.

4.1.2.1.4 Query/Retrieve

The DICOM **Query SCU** of *syngo.*plaza is waiting for requests from the User via the UI of *syngo.*plaza. When a request is started, the Main AE initiates an association with a remote Query SCP.

The DICOM **Retrieve SCU** of *syngo.*plaza initiates a C-MOVE DIMSE request to the remote Retrieve SCP, allowing the remote Retrieve SCP in turn starts C-STORE sub-operations to the *syngo.*plaza Storage SCP.

The DICOM **Query/Retrieve SCP** of *syngo.*plaza responds to C-FIND DIMSE services from a remote SCU. C-MOVE requests involve the *syngo.*plaza DICOM Query/Retrieve SCP application to initiate a C-STORE sub-operation to send image objects to a remote Storage SCP.
Be aware in case of wrong configuration concerning Presentation State support of the destination node (it is enabled although not supported), the C-MOVE job (and also the status in C-MOVE-RSP) will be set to success by *syngo.*plaza Retrieve SCP although the Presentation State series could not be sent to the destination node.
In case of DICOM Archive Provider setup, the **Query/Retrieve SCP** modifies the header values of the image to be stored to reflect the latest (up-to-date) information from the database. It is possible to configure the tags (incl. private attributes) which will be updated, when transferred to the DICOM Archive User.
If a remote node is configured in such a way, that series marked as “Smart Read” are excluded from query / retrieve communication, the **Query/Retrieve SCP** will compute the content of the attribute “Number of Study Related Series” (0020, 1206) in the Study level query response to reflect only those series which will be returned in case of retrieval.

4.1.2.1.5 Print

The *syngo.*plaza DICOM print application supports the print management DIMSE services as SCU.

The *syngo.*plaza **Print SCU** is invoked by the user interface to setup film-sheet layout and whenever an image is ready to be printed on film. Whenever a film-sheet is ready to print the related data is used to supply the Information to the SOP Classes of the Print Management Service Class.

4.1.2.1.6 Query Worklist

In order to assign correct patient demographics while importing images, saving copies of existing data or for QC operations, *syngo.*plaza acts as a **Modality Worklist SCU** to support querying worklist information from a Modality Worklist SCP.

4.1.2.1.7 MITRA Report Management

*syngo.*plaza uses the Report Management service class to fetch reports from the RIS acting as a **Mitra Report Management SCU**.

Usually *syngo.*plaza is actively notified by the RIS about new or updated reports via HL7 messages.
This can be used to fetch reports from RIS via DICOM, if configured. Else, new received examinations or the request of a user to display a report can be used as trigger to fetch reports from RIS via DICOM.

4.1.2.2 Functional Definition of Query Spanning AE

4.1.2.2.1 Query

The Query Spanning AE of *syngo.*plaza receives C-FIND requests from the Query SCU. These are forwarded to a set of other configurable Query SCPs. The C-FIND responses from all Query SCPs are merged together and sent back to the Query SCU.

4.1.2.3 Functional Definition of Retrieve Spanning AE

4.1.2.3.1 Retrieve

The Retrieve Spanning AE of *syngo.*plaza receives C-MOVE requests from the Retrieve SCU. These are forwarded to a set of other configurable Retrieve SCPs.

This is normally used for RIS triggered Prefetch jobs in case the RIS doesn't know about the exact location of the priors.

4.1.2.4 Functional Definition of MPPS Manager AE

4.1.2.4.1 MPPS

The syngo.plaza MPPS SCP stores information from the MPPS SCU. The received MPPS messages can be forwarded to a single target destination.

4.1.2.5 Functional Definition of Modality Worklist Provider AE

4.1.2.5.1 Modality Worklist

The **Modality Worklist Scheduler** is an option in *syngo.*plaza that provides a web-based user interface for the scheduling of resources (e.g. Modality) as well as planning of procedures in these resources. The Modality Worklist Provider AE is part of it and provides Worklist Information for modalities based on the information from the Scheduler.

4.1.2.6 Functional Definition of Temp AE

4.1.2.6.1 Storage

The Storage SCP of the Temp AE is used in case *syngo.*plaza acts as a DIOCM Archive User (DAU). It will receive the Composite Image Objects from the DICOM Archive Provider (DAP) after *syngo.*plaza has submitted a C-MOVE request to the DAP with the Temp AE as the destination. When these objects are received they are stored as temporary objects. They will be deleted at a later point in time without being archived again.

4.1.2.7 Functional Definition of MPPS Image Manager AE

4.1.2.7.1 MPPS

The MPPS ImageManager AE is able to receive MPPS requests from modalities. These messages are recorded in the database for informational purposes and can be reviewed via *syngo.*plaza client applications. However they are not evaluated for changing the status of a procedure in the internal database.

4.2 Application Entity Specification

4.2.1 Main AE Specification

4.2.1.1 SOP Classes

The Main AE provides Standard Conformance to the SOP Classes listed in Table 70 and Table 72.

4.2.1.2 Association Policy

Application Context Name	1.2.840.10008.3.1.1.1	
Max PDU size	64512	
Maximum number of simultaneous associations as an association acceptor	Storage	40
	Query	40
	Retrieve	40
Maximum number of simultaneous associations as an association initiator	Storage	4
	Query	20
	Retrieve	10
	Print[1]	1
	Modality Worklist	1
	Report Management	1
	Storage Commitment	unlimited

Table 3: Association policies for Main AE

This version of *syngo.*plaza supports communication in secure way via TLS with other configured secure remote DICOM node.

[1] Each Print job opens a fresh association and the association is closed after the job is done.

4.2.1.2.1 Asynchronous Nature

This version of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.1.2.2Implementation Identifying Information

The Main AE of *syngo.*plaza provides a single Implementation Class UID and Version Name as listed in Table 4.

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 4: Implementation Identifying Information

4.2.1.3 Association Initiation Policy

The Main AE of *syngo.*plaza initiates associations as shown in Table 5.

Operation or Real-World Activity	Association for
Send Verify	C-ECHO
Send Objects	C-STORE
Provide Commitment	N-EVENT-REPORT
Request Commitment	N-ACTION
Query/Retrieve Objects	C-FIND, C-MOVE
Retrieve Reports	C-FIND (private MITRA SOP class)
Query Worklist	C-FIND
Print Job	N-CREATE, N-GET, N-SET, N-ACTION, N-DELETE

Table 5: Association Initiation Policy – Main AE

4.2.1.3.1Activity “Send Verify”

4.2.1.3.1.1 Description and Sequencing of Activities

The DICOM communication can be verified with a service utility, which is part of the software delivered with *syngo.*plaza. If the process successfully establishes an association to a remote AE, it will send the C-ECHO request via the open association to verify that the remote AE is responding to DICOM messages.

4.2.1.3.1.2 Proposed Presentation Contexts

*syngo.*plaza will propose Presentation Contexts for DICOM SOP classes as shown in Table 6.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 6: Proposed Presentation Contexts – "Send Verify"

4.2.1.3.1.3 SOP specific Conformance

*syngo.*plaza conforms to the definition of a Verification SCU in accordance to the DICOM Standard.

4.2.1.3.2 Activity "Send Objects"

4.2.1.3.2.1 Description and Sequencing of Activities

Storage of DICOM objects is either triggered by a C-MOVE request initiated by an external DICOM AE to *syngo.*plaza, by the user of the Viewing Station or internally (e.g. autoroute, archiving to DAP). If an association to a remote Application Entity could successfully be established, each image will be transferred one after another. The send facility is multi-threaded and it can have parallel associations to the DICOM Store SCP with each association handling images belonging to one DICOM series. If the C-STORE response from the remote Application contains a status other than "Success", the association is aborted. After a configurable time period, the transfer of the images is started again. The send jobs will be marked as failed if it is added manually by a user. Otherwise the jobs will be tried indefinitely.

4.2.1.3.2.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts for DICOM Storage SOP classes as shown in Table 83.

The order of Transfer Syntaxes proposed depends on the Transfer Syntax of the images when they were received, on the configuration and on the licensed modules.

4.2.1.3.2.3 SOP specific Conformance

*syngo.*plaza conforms to the definition of a Storage SCU in accordance to the DICOM Standard.

4.2.1.3.3 Activity "Provide Commitment"

4.2.1.3.3.1 Description and Sequencing of Activities

In case *syngo.*plaza has received a Storage Commitment request from an external node and the external node has closed the association, the Main AE of *syngo.*plaza initiates a new association in order to send the N-EVENT-REPORT Request to the SCU.

Storage Commitment is send only after the images are successfully archived. In case the images were sent to a DAP (*syngo.*plaza acts as a DAU) Storage Commitment is sent after the DAP has sent successful Storage Commitment.

4.2.1.3.3.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 7.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		

Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 7: Proposed Presentation Contexts – "Send Commitment"

4.2.1.3.3.3 SOP specific Conformance

*syngo.*plaza conforms to the definition of a Storage Commitment SCP in accordance to the DICOM Standard.

4.2.1.3.4 Activity "Request Commitment"

4.2.1.3.4.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza acts as a Service Class User for the Storage Commitment Push Model Service Class. It requests commitment for storage of instances previously sent. In this case an association is opened to the Storage Commitment SCP and an N-ACTION Request message is sent. It is expected that the commitment (N-EVENT-REPORT) is sent back through a new association.

The following conditions must be true in order to enable *syngo.*plaza to send Storage Commitment requests:

- configuration setting "Automatic request for Storage Commitment" enabled
- send destination configured as a Storage Commitment SCP

*syngo.*plaza requests for a Storage Commitment only, if the instances to be committed have been successfully sent.

As soon as a commitment is requested for a set of instances, these instances will be marked as "For Commitment" in the local database. When the corresponding notification status (N-EVENT-REPORT) is received, these instances will be marked as "Committed" in case of success and "Commitment Failure" in case of failure.

*syngo.*plaza waits for a configurable time for the commitment notification from the Storage Commitment SCP. If no notification could be received within this duration, the referenced instances are marked as "Not Archived" and the commitment request failed. This timeout is termed as "Event Receipt Timeout" and the default value is 1 day.

4.2.1.3.4.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 8: Proposed Presentation Contexts – "Request Commitment".

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 8: Proposed Presentation Contexts – "Request Commitment"

4.2.1.3.4.3 SOP specific Conformance

*syngo.*plaza conforms to the definition of a Storage Commitment SCU in accordance to the DICOM Standard.

4.2.1.3.5 Activity “Query Objects”

4.2.1.3.5.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza opens an association to a remote node in order to issue C-FIND requests. This is initiated by a user at the Viewing Station.

4.2.1.3.5.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 9.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	Yes

Table 9: Proposed Presentation Contexts – “Query Objects”

The default proposed Transfer Syntax is “Implicit VR Little Endian”. The default SOP Class UID is “Patient Root Query/Retrieve Information Model”.

4.2.1.3.5.3 SOP specific Conformance

The Main AE of *syngo.*plaza proposes Extended Negotiation for all the Query SOP classes. If the Query SCP rejects the Extended Negotiation, *syngo.*plaza provides Standard Conformance to the Query SOP classes and uses hierarchical queries with Query/Retrieve Level “Patient”, “Study”, “Series” or “Image”. If the Query SCP accepts Extended Negotiation, *syngo.*plaza performs relational queries.

*syngo.*plaza only supports a single sub-field for the Service-class-application-information field (relational-query support). No support for combined date and time range matching or fuzzy semantic matching of person names is requested.

The Main AE of *syngo.*plaza checks for the status codes listed in Table 10 that are contained in the response to the C-FIND request.

Service Status	Meaning	Protocol Codes
Success	Matching is complete	0000
Canceled	Sub-operations terminated due to Cancel Indication	FE00
Pending	Matches are continuing	FF00
Pending	Matches are continuing, no optional key support	FF01

Refused	Out of Resources	A700

Table 10: Status codes for Query C-FIND

The Main AE of *syngo.*plaza uses the attributes listed in Table 78, Table 79, Table 80 and Table 81 to issue C-FIND requests.

In order to limit the query time, *syngo.*plaza displays up to 20 C-FIND response entries by default.
A message gives information, if more entries are available. The maximum value for the displayed response entries can be changed by configuration up to 999.

4.2.1.3.6Activity “Retrieve Objects”

4.2.1.3.6.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza opens an association to a remote node in order to issue C-MOVE requests. This is initiated by a user at the Viewing Station. The user selects one entry from a list generated as a result of the previous C-FIND operation. If *syngo.*plaza successfully establishes an association to the remote node, it will trigger the Retrieve SCP via a C-MOVE request to transfer the images to the Main AE in a new association. The transfer of the corresponding images will be done by subsequent C-STORE requests.

4.2.1.3.6.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 11.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 11: Proposed Presentation Contexts – “Retrieve Objects”

The default proposed Transfer Syntax is “Implicit VR Little Endian”.

4.2.1.3.6.3 SOP specific Conformance

The status codes listed in Table 12 are checked in the response to a C-MOVE request.

Service Status	Meaning	Protocol Codes
Success	Matching is complete	0000
Canceled	Sub-operations terminated due to Cancel Indication	FE00
Warning	Sub-operations Complete - One or more failures	B000

Pending	Sub-operations are continuing	FF00

Table 12: Status codes for Retrieve C-MOVE

4.2.1.3.7 Activity "Query Worklist"

4.2.1.3.7.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza opens an association to a remote node in order to issue C-FIND requests. This is initiated by a user at the Viewing Station.

4.2.1.3.7.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 13.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 13: Proposed Presentation Contexts – "Query Worklist"

The default proposed Transfer Syntax is "Implicit VR Little Endian".

4.2.1.3.7.3 SOP specific Conformance

The Main AE of *syngo.*plaza sends and reads the attributes listed in Table 14 to the Modality Worklist SCP.

Attribute Name	Attribute Tag	Query Matching Key	Query Return Key
Specific Character Set	(0008,0005)	Y	Y
Accession Number	(0008,0050)	Y	Y
Study Date	(0008,0020)	N	Y
Study Time	(0008,0030)	N	Y
Referring Physician's Name	(0008,0090)	Y	Y
Study Description	(0008,1030)	N	Y
Patient's Name	(0010,0010)	Y	Y
Patient's Birth Date	(0010,0030)	Y	Y
Patient ID	(0010,0020)	Y	Y
Patient's Sex	(0010,0040)	Y	Y
Study Instance UID	(0020,000D)	N	Y
Study ID	(0020,0010)	N	Y
Requested Procedure Description	(0031,1060)	N	Y
Scheduled Procedure Step Description	(0040,0007)	N	Y
Scheduled Procedure Step Sequence	(0040,0100)	Y	Y
>Scheduled Station AE Title	(0040,0001)	Y	Y
>Scheduled Procedure Step Start Date	(0040,0002)	Y	Y
>Scheduled Procedure Step Start Time	(0040,0003)	N	Y
>Scheduled Performing Physician's Name	(0040,0006)	N	Y
>Scheduled Procedure Step ID	(0040,0009)	N	Y
>Modality	(0008,0060)	Y	Y
Requested Procedure ID	(0040,1001)	N	Y
Requested Procedure Code Sequence	(0032,1064)	N	Y

> CodeValue	(0008,0100)	N	Y
> CodingSchemeDesignator	(0008,0102)	N	Y
> CodingSchemeVersion	(0008,0103)	N	Y
> CodeMeaning	(0008,0104)	N	Y

Table 14: Modality Worklist search and return key attributes used in C-FIND request and response

The Main AE of *syngo.*plaza checks for the status codes listed in Table 15 that are contained in the response to the C-FIND request.

Service Status	Meaning	Protocol Codes
Success	Matching is complete	0000
Canceled	Sub-operations terminated due to Cancel Indication	FE00
Pending	Matches are continuing	FF00
Pending	Matches are continuing, no optional key support	FF01

Table 15: Status codes for Modality Worklist C-FIND

4.2.1.3.8Activity “Retrieve Reports”

4.2.1.3.8.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza can request reports via DICOM C-FIND. The private Service Class “MITRA Report Management” is used for this.

4.2.1.3.8.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 16.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
MITRA Report Management	1.2.840.113532.3500.8	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Table 16: Proposed Presentation Contexts – “Retrieve Reports”

4.2.1.3.8.3 SOP Specific Conformance

The issued C-FIND request only contains values for the attributes and

Matching keys for the issued C-FIND Request can be a combination of "Patient’s Name", "Patient ID", “Study Instance UID”, “Accession Number” and “Requested Procedure ID”. Other attributes are not requested (i.e. no universal matching). However it is expected that all of the attributes listed in Table 86 are returned. This contrasts to the usual behavior of DICOM query handling but conforms to the description of this SOP class.

*syngo.*plaza is able to use the “Requested Procedure ID” as matching key even if the SCP only supports it as return key.

4.2.1.3.9 Activity “Print Job”

4.2.1.3.9.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza acts as a Service Class User for the Print Management Services Class.

If the Main AE of *syngo.*plaza successfully establishes an association to the remote printer, it will send N-GET, N-CREATE, N-SET, N-ACTION and N-DELETE requests. The status of the printer is monitored by sending N-GET requests on the Printer SOP Class. The statuses of the print jobs are monitored by sending N-GET requests on the Print Job SOP Class.

*syngo.*plaza is able to send appropriate data to both grayscale and color printers. To have uniform support for true size printing, irrespective of the printer support for true size printing through the Requested Image Size (2020, 0030) attribute, *syngo.*plaza stores the printer pixel spacing in configuration files specific for each printer model. It then maps the image pixel spacing to that of the printer, scales the image to its true size, clips the image if necessary to fit to the film sheet and sends this data to the printer.

4.2.1.3.9.2 Proposed Presentation Contexts

The Main AE of *syngo.*plaza will propose Presentation Contexts as shown in Table 17.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Table 17: Proposed Presentation Contexts – “Print Job”

The Main AE of *syngo.*plaza supports the mandatory SOP Classes as defined by the Basic Grayscale Print Management Meta SOP Class listed in Table 18. *syngo.*plaza does not support any optional SOP Classes for Basic Grayscale Print Management Meta SOP Class.

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Printer SOP Class	1.2.840.10008.5.1.1.16
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23

Table 18: Basic Grayscale Print Management SOP Classes

The Main AE of *syngo.*plaza supports the mandatory SOP Classes as defined by the Basic Color Print Management Meta SOP Class listed in Table 19. *syngo.*plaza does not support any optional SOP Classes for Basic Color Print Management Meta SOP Class.

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2

Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Printer SOP Class	1.2.840.10008.5.1.1.16

Table 19: Basic Color Print Management SOP Classes

4.2.1.3.9.3 SOP specific Conformance

*syngo.*plaza conforms to the definition of a Print Management SCU in accordance to the DICOM Standard.

Only one association will be processed at a time. In case of a failure return status of the Print SCP, the current job will be suspended and retried as described in Table 20.

Definition	Registry Entry	Default Value
No. of retries on Print Error	PrintRetryNumber	5
Retry starts after a specified time interval in seconds	PrintRetryTimeDelay	180
Timeout on Printing in seconds	PrintReadMessageTimeout	300

Table 20: Default values for timing demands

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 a hardcopy printer.
The Main AE of *syngo.*plaza uses the N-CREATE DIMSE service in order to create a Film Session. The attributes listed in Table 21 are supported. After use the Basic Film Session is closed with N-DELETE.

The “Affected SOP Instance UID” received with N-CREATE-RSP message will be kept internally and used for later requests (e.g. N-DELETE Request) on the Basic Film Session. It will also be used for the Basic Film Box N-CREATE message to refer to the created Film Session (see below).

Attribute Name	Attribute Tag	Usage SCU/SCP	Supported Values
Number of Copies	(2000,0010)	U/M	>0
Print Priority	(2000,0020)	U/M	HIGH MED LOW
Medium Type	(2000,0030)	U/M	CLEAR FILM BLUE FILM PAPER
Film Destination	(2000,0040)	U/M	PROCESSOR
Film Session Label	(2000,0050)	U/M	

Table 21: Attributes used to create a Film Session (N-CREATE)

The status codes listed in Table 22 are evaluated by *syngo*.plaza.

Service Status	Meaning	Protocol Codes
Success	Film Session successfully created	0000
Warning	Memory allocation not supported	B600
Warning	Attribute Value Out of Range	0116
Warning	Film session printing (collation) is not supported	B601

Warning	Film session SOP Instance hierarchy does not contain Image Box SOP Instance (empty page)	B602
Warning	Image size is larger than image box size, the image has been demagnified.	B604
Failure	Missing attribute value	0121
Failure	Unable to create print job, print queue is full (Film Session)	C601
Failure	Image size is larger than image box size	C603
Failure	Insufficient memory in printer to store the image	C605
Failure	More than one VOI LUT Box contained in image	C606
Failure	No such argument	0114
Failure	Processing Failure	0110
Failure	Unrecognized Operation	0211

Table 22: Status codes for Basic Film Session N-CREATE and N-DELETE

Basic Film Box SOP Class

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

The Main AE of *syngo.*plaza uses the N-CREATE DIMSE service in order to create a Film Box. The attributes listed in Table 23 are supported. . The “Affected SOP Instance UID” returned from the creation of the Film Session is used as reference to the Film Session. N-ACTION Request is used to start printing.

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 Request messages.

Attribute Name	Attribute Tag	Usage SCU/SCP	Supported Values
Image Display Format	(2010,0010)	M/M	STANDARD\1,1 STANDARD\2,1 STANDARD\1,2 STANDARD\2,2 STANDARD\2,3 STANDARD\3,3 STANDARD\3,4 STANDARD\4,4 STANDARD\4,5 STANDARD\5,6 ROW\2,3,3,3 ROW\3,4,4,4,4
Referenced Film Session Sequence	(2010,0500)	M/M	
>Referenced SOP Class UID	(0008,1150)	M/M	
>Referenced SOP Instance UID	(0008,1155)	M/M	
Referenced Image Box Sequence	(2010,0510)	-/M	
>Referenced SOP Class UID	(0008,1150)	-/M	
>Referenced SOP Instance UID	(0008,1155)	-/M	
Film Orientation	(2010,0040)	M/M	PORTRAIT,

			LANDSCAPE
Film Size ID	(2010,0050)	M/M	8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM
Magnification Type	(2010,0060)	M/M	REPLICATE BILINEAR CUBIC NONE
Smoothing Type	(2010,0080)	M/M	
Border Density	(2010,0100)	M/M	BLACK WHITE
Empty Image Density	(2010,0110)	M/M	BLACK WHITE
Min Density	(2010,0120)	M/M	>=0
Max Density	(2010,0130)	M/M	>0
Trim	(2010,0140)	M/M	YES NO
Configuration Information	(2010,0150)	M/M	CS000-CS999

Table 23: Attributes used to create a Film Box (N-CREATE)

The status codes listed in Table 24 are evaluated by *syngo*.plaza.

Service Status	Meaning	Protocol Codes
Success	Film Box successfully created	0000
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
Warning	Film box does not contain image box (empty page).	B603
Warning	Image size is larger than image box size, the image has been demagnified.	B604
Failure	Invalid attribute value	0106
Failure	Unable to create print job SOP Instance, print queue is full (Film Box)	C602
Failure	Image size is larger than image box size	C603
Failure	Resource limitation	0213
Failed	Unrecognized Operation	0211

Table 24: Status codes for Basic Film Box N-CREATE and N-ACTION

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 description describes the presentation parameters and image pixel data which apply to a single image of a sheet of film.

The Main AE of *syngo.*plaza uses the N-SET DIMSE service in order to set the attributes of an Image Box that was formerly created (N-CREATE response of a Film Box). The attributes listed in Table 25 are supported.

Attribute Name	Attribute Tag	Usage SCU/SCP	Supported Values
Image Position	(2020,0010)	M/M	Dependent on Display Format
Basic Grayscale Image Sequence	(0020,0110)	M/M	
>Sample Per Pixel	(0028,0002)	M/M	1
>Photometric Interpretation	(0028,0004)	M/M	MONOCHROME2
>Rows	(0028,0010)	M/M	Dependent on Printer and Format
>Columns	(0028,0011)	M/M	Dependent on Printer and Format
>Pixel Aspect Ratio	(0028,0034)	M/M	
>Bits Allocated	(0028,0100)	M/M	8[2]
>Bits Stored	(0028,0101)	M/M	8[2]
>High Bit	(0028,0102)	M/M	7[2]
>Pixel Representation	(0028,0103)	M/M	0
>Pixel Data	(7FE0,0010)	M/M	

Table 25: Attributes used to set a Grayscale Image Box (N-SET)

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 description describes the presentation parameters and image pixel data which apply to a single image of a sheet of film.

The Main AE of *syngo.*plaza uses the N-SET DIMSE service in order to set the attributes of an Image Box that was formerly created (N-CREATE response of a Film Box). The attributes listed in Table 26 are supported.

Attribute Name	Attribute Tag	Usage SCU/SCP	Supported Values
Image Position	(2020,0010)	M/M	Dependent on Display Format
Basic Color Image Sequence	(0020,0111)	M/M	
>Sample Per Pixel	(0028,0002)	M/M	3
>Photometric Interpretation	(0028,0004)	M/M	
>Planar Configuration	(0028,0006)	M/M	
>Rows	(0028,0010)	M/M	Dependent on Printer and Format
>Columns	(0028,0011)	M/M	Dependent on Printer and Format
>Pixel Aspect Ratio	(0028,0034)	M/M	
>Bits Allocated	(0028,0100)	M/M	8
>Bits Stored	(0028,0101)	M/M	8
>High Bit	(0028,0102)	M/M	7
>Pixel Representation	(0028,0103)	M/M	0
>Pixel Data	(7FE0,0010)	M/M	

[2] The images with a higher resolution (e.g. 12/16-bit images) are converted to 8 Bit by default. It is also possible by configuration to send the images “as they are” to the printer,

Table 26: Attributes used to set a Color Image Box (N-SET)

Printer SOP Class

The Printer SOP Class provides the possibility to monitor the status of the hardcopy printer in a synchronous way. The Main AE of *syngo.*plaza uses the N-GET DIMSE service in order to get the printer status. The attributes listed in Table 27 are supported. All warning and failure messages are written into a log file.

Attribute Name	Attribute Tag	Usage SCU/SCP
Printer Status	(2110,0010)	U/M
Printer Status Info	(2110,0020)	U/M

Table 27: Attributes used to get the printer status (N-GET)

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 Main AE of *syngo.*plaza uses the N-CREATE DIMSE service in order to set a Presentation LUT. The attributes listed in Table 28 are supported. It also uses the N-DELETE DIMSE service to delete the Presentation LUT.

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

Table 28: Attributes used to set a Presentation LUT (N-CREATE)

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 Request) and on the Presentation LUT (N-DELETE Request).

4.2.1.4 Association Acceptance Policy

The Main AE of *syngo.*plaza attempts to accept a new association for service operations listed in Table 29.

Operation or Real-World Activity	Association for
Receive Verify	C-ECHO
Receive Objects	C-STORE
Provide Commitment	N-ACTION
Request Commitment	N-EVENT-REPORT
Receive Query/Retrieve	C-FIND, C-MOVE

Table 29: Association Acceptance Policy – Main AE

4.2.1.4.1 Activity “Receive Verify”

4.2.1.4.1.1 Description and Sequencing of Activities

The *syngo.*plaza receiving process will accept an association and respond to C-ECHO request for DICOM communication verification.

4.2.1.4.1.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts as specified in Table 30.

Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name List**	**UID List**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 30: Accepted Presentation Contexts – "Receive Verify"

4.2.1.4.1.3 SOP-specific Conformance

The Main AE of *syngo.*plaza provides standard conformance to the DICOM Verification Service Class as SCP.

4.2.1.4.2 Activity "Receive Objects"

4.2.1.4.2.1 Description and Sequencing of Activities

The *syngo.*plaza receiving process will accept an association, receive any images transmitted on that association and store the images on disk. It will store some header attributes in the database in order to allow clients to query these attributes.

Images are stored into the *syngo.*plaza database as soon as they are received. After an image is stored into the database, *syngo.*plaza sends a successful C-STORE response back to the sender.

This process repeats until

- the association is closed by the sender or
- the storage fails due to some reason (in this case *syngo.*plaza sends a failure response and aborts the association) or
- the association is lost (because of timeouts, network unexpectedly shutdown, ...).

4.2.1.4.2.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts for DICOM Storage SOP classes as shown in Table 83.

4.2.1.4.2.3 SOP-specific Conformance

The Main AE of *syngo.*plaza conforms to the Full Storage Class at Level 2.

4.2.1.4.2.4 Other SOP specific behavior

*syngo.*plaza is incorporating the actor "Image Manager/Archive" within the IHE Profile "Patient Information and Reconciliation" (PIR). Therefore patient and study information might be updated after successful storage based on IHE Use Case scenarios. For further information please refer to IHE [2].

*syngo.*plaza validates incoming DICOM objects and rejects them in the following cases:

- DICOM attribute of type 1 is not present or contains an empty value
- DICOM attribute of type 2 is not present (exception: patient attributes - see below)
- Value Representation of DICOM attributes is not correct.

There are some additional rejection criteria for patient level attributes. The checks vary slightly for different Patient Identifier configurations:

Patient Identifier configurations is "Patient Name + Patient ID"

*syngo.*plaza will not allow the storage of DICOM objects, if

- Patient ID (0010, 0020) is missing or empty
- Patient Name (0010, 0010) is missing or empty
- there is a conflict in the hierarchy (e.g. same SOP Instance UID is sent again as registered before, but contains different information for Patient ID (0010, 0020) or Patient Name (0010, 0010))

Patient Identifier configurations is "Patient ID Only"

*syngo.*plaza will not allow the storage of DICOM objects, if

- Patient ID (0010, 0020) attribute is missing or empty
- there is a conflict in the hierarchy (e.g. same SOP Instance UID is sent again as registered before, but contains different information for Patient ID (0010, 0020))

Note: In case the DICOM attributes for Patient's Birth Date (0010, 0030) and Patient's Sex (0010, 0040) are missing these are created on the fly in the DICOM header. Hence they are not considered for the validation as listed above.

4.2.1.4.3 Activity "Request Commitment"

4.2.1.4.3.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza acts as a Service Class User (SCU) for the Storage Commitment Push Model Service Class (it requests commitment to previously stored instances). It attempts to accept an association for N-EVENT-RP requests.

4.2.1.4.3.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts as shown in Table 31.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commit-ment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 31: Accepted Presentation Contexts – "Request Commitment"

4.2.1.4.3.3 SOP-Specific Conformance

*syngo.*plaza conforms to the definition of a Storage Commitment SCP in accordance to the DICOM Standard.

4.2.1.4.4 Activity "Provide Commitment"

4.2.1.4.4.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza acts as a Service Class Provider (SCP) for the Storage Commitment Push Model Service Class (it gives commitment to previously received and archived instances). It attempts to accept an association for N-ACTION requests.

For further description of the handling please refer to chapter 4.2.1.3.3.

4.2.1.4.4.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts as shown in Table 32.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 32: Accepted Presentation Contexts – "Provide Commitment"

4.2.1.4.4.3 SOP-Specific Conformance

*syngo.*plaza conforms to the definition of a Storage Commitment SCP in accordance to the DICOM Standard.

4.2.1.4.5 Activity "Receive Query"

4.2.1.4.5.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza responds to requests issued by an SCU with the query model Patient Root or Study Root. Hierarchical and relational retrieve operations are both supported. With a C-FIND-CANCEL request the running query can be canceled at any time by the Query SCU. The retired Patient/Study Only model is no longer supported, if the Main AE of *syngo.*plaza receives a request in Patient/Study only model, the model is rejected by *syngo.*plaza during association/negotiation.

An unconstrained query (querying the whole database) is not supported by the Main AE of *syngo.*plaza. If it gets such an unconstrained query request, then it returns a "Failure" Service Status with Status Code " 0xA900".

If the C_FIND_RQ is at Image Level and the Association/negotiation is done for Relational Query, then the syngo.plaza Query SCP expects the higher level attributes in addition to the image level attributes for query filter in the C_FIND_RQ, otherwise the C_FIND_RQ will be rejected with a C_FIND_RSP with service status as Failed(Failed Invalid Parameters) and status code "0xA900".

Storage Media File-set ID (0088,0130) and Storage Media File-set UID (0088,0140) will be ignored for search, even though they are present in the request.

4.2.1.4.5.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts as shown in Table 33.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes

Table 33: Accepted Presentation Contexts – "Receive Query"

4.2.1.4.5.3 SOP Specific Conformance

The query matching is case insensitive.

*syngo.*plaza only supports a single sub-field of the Service-class-application-information field (relational-query support). No support for combined date and time range matching and fuzzy semantic matching of person names is provided. The fraction part(.ffffff) of the seconds in the time "HHMMSS.ffffff - HHMMSS.ffffff " shall be ignored from the C_FIND_RQ while processing the C_FIND_RQ.

4.2.1.4.5.4 Hierarchical and Relational Queries

Relational queries are supported. The fields supported for relational queries are "Study Date" on study level and "Modality", "Body Part Examined", "Series Description", "Exam Status" and "Rebuild Status" on series level.

Patient Root Q/R Information Model

The attributes listed in Table 78 are supported for the Patient Root Q/R Information Model on patient level.

The attributes listed in Table 79 are supported for the Patient Root Q/R Information Model on study level.

The attributes listed in Table 80 are supported for the Patient Root Q/R Information Model on series level.

The attributes listed in Table 81 are supported for the Patient Root Q/R Information Model on image level.

Study Root Q/R Information Model

The attributes listed in Table 78 and Table 79 are supported for the Study Root Q/R Information Model on study level.

The attributes listed in as in listed in Table 80 are supported for the Study Root Q/R Information Model on study level".
The attributes listed in Table 81 are supported for the Study Root Q/R Information Model on study level".

4.2.1.4.5.5 Return Codes

The status codes listed in Table 34 may be returned in C-FIND responses.

Service Status	Meaning	Protocol Codes
Success	Matching is complete - No final Identifier is supplied	0000
Cancel	Matching terminated due to a Cancel request	FE00
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00
Failed	Invalid Parameters	A900

Refused	Out of Resources	A700

Table 34: C-FIND SCP Return Status Codes

4.2.1.4.6 Activity “Receive Retrieve”

4.2.1.4.6.1 Description and Sequencing of Activities

The Main AE of *syngo.*plaza responds to retrieve requests of an SCU. It supports the query models “Patient Root” and “Study Root”. After accepting an association from a remote DICOM AE, the Main AE receives the move request via the open association and queries the database. The requested images are sent to the requested remote node. The retired Patient/Study Only model is no longer supported, if the Main AE of *syngo.*plaza receives a request in Patient/Study only model, the model is rejected by *syngo.*plaza during association/negotiation.

If the series level filter is not present for the Image Level retrieve, the C_MOVE will fail with a C_MOVE_RSP with Service Status "Failure and status code as "0xC001"(“Unable to_Process").

4.2.1.4.6.2 Accepted Presentation Contexts

The Main AE of *syngo.*plaza will accept Presentation Contexts as shown in Table 35.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes

Table 35: Accepted Presentation Contexts – “Receive Retrieve”

4.2.1.4.6.3 SOP Specific Conformance

The Main AE of *syngo.*plaza returns the status codes listed in Table 36.

Service Status	Meaning	Protocol Codes
Success	Sub-operations Complete - No Failures or Warning	0000
Cancel	Sub-operations terminated due to Cancel Indication	FE00
Pending	Sub-operations are continuing	FF00
Refused	Move Destination unknown	A801
Failed	Invalid parameters	A900
Failed	Unable to process	C001

Table 36: C-MOVE Return Status

4.2.2 Query Spanning AE

The Query Spanning AE of *syngo.*plaza will listen for C-FIND requests. Whenever it gets a request, it will send the same C-FIND request to a set of configured Query SCPs in separate associations. Once it gets the results from these SCPs, it forwards them as pending C-FIND response messages to the Query SCU. Each response will also contain the attribute “Retrieve AET” (0008,0054) in the query result, which indicates the AET of the remote query SCP node the result was received from. The results are not merged (e.g. if different SCPs provide the same information or contradictory information this will be forwarded).

Whatever Information Model (Patient Root or Study Root) is used by the Query SCU will also be used for the associations to the Query SCPs. The retired Patient/Study Only Query/Retrieve Information Model is not supported anymore by the Query Spanning AE of *syngo.*plaza. If such a request is received, *syngo.*plaza rejects it during association/negotiation.

If the query to a Query SCP fails, the next node in chain will be queried until all configured Query SCPs were processed. When a query is in progress and the Query SCU sends a C-CANCEL request, then the same request will be sent to all Query SCPs. The query results from different nodes will not be merged. The Query Spanning AE will just get the results from various Query SCPs and forward them to the Query SCU.

The Query Spanning AE role is limited to only querying. Once the Query SCU gets the query results and the user requests for a retrieve, the Retrieve SCU will send a C-MOVE Request directly to the Retrieve SCP (defined by “Retrieve AET”) instead of sending it through the Query Spanning AE.

4.2.2.1 SOP Classes

The Query Spanning AE provides Standard Conformance to the SOP Classes listed in Table 73.

4.2.2.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
Max PDU size	64512
Maximum number of simultaneous associations as an association acceptor	10
Maximum number of simultaneous associations as an association initiator	configurable

Table 37: Association policies for Query Spanning AE

4.2.2.2.1 Asynchronous Nature

The Query Spanning AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.2.2.2 Implementation Identifying Information

The Query Spanning AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 38: Implementation Identifying Information

4.2.2.3 Association Initiation Policy

The Query Spanning AE of *syngo.*plaza initiates associations as shown in Table 39.

Operation or Real-World Activity	Association for
Forward Query	C-FIND

Table 39: Association Initiation Policy – Query Spanning AE

4.2.2.3.1 Activity "Forward Query"

4.2.2.3.1.1 Description and Sequencing of Activities

Please refer to chapter 4.2.2.

4.2.2.3.1.2 Proposed Presentation Contexts

*syngo.*plaza will propose Presentation Contexts for DICOM SOP classes as shown in Table 40.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	Yes

Table 40: Proposed Presentation Contexts – Forward Query

4.2.2.3.1.3 SOP specific Conformance

If the destination node is not reachable or an error is returned, *syngo.*plaza will not try to send the message again.

4.2.2.4 Association Acceptance Policy

The Query Spanning AE[3] of *syngo.*plaza will accept associations as shown in Table 41: Association Acceptance Policy – Query Spanning AE.

Operation or Real-World Activity	Association for
Provide Query	C-FIND

Table 41: Association Acceptance Policy – Query Spanning AE

[3] The Query Spanning AE does not support Retrieve requests (C-MOVE).

4.2.2.4.1 Activity “Provide Query”

4.2.2.4.1.1 Description and Sequencing of Activities

Please refer to chapter 4.2.2.

4.2.2.4.1.2 Accepted Presentation Contexts

The Query Spanning AE of *syngo.*plaza will accept Presentation Contexts for DICOM SOP classes as shown in Table 42.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	Yes

Table 42: Accepted Presentation Contexts – Provide Query

4.2.2.4.1.3 SOP-specific Conformance Statement

The Query Spanning AE of *syngo.*plaza will add the attribute “Retrieve AET” (0008,0054) to each of the C-FIND responses. The “Retrieve AET” indicates the remote node that returned the corresponding C-FIND response.

4.2.3 Retrieve Spanning AE

The Retrieve Spanning AE of *syngo.*plaza will listen for C-MOVE requests. Whenever it gets a request, it will send the same C-MOVE request to a set of configured Retrieve SCPs in separate associations.

Whatever Information Model (Patient Root or Study Root) is used by the Retrieve SCU will also be used for the associations to the Retrieve SCPs. The retired Patient/Study Only Query/Retrieve Information Model is not supported anymore by the Retrieve Spanning AE of *syngo.*plaza. If such a request is received, *syngo.*plaza rejects it during association/negotiation.

If the request to a Retrieve SCP fails, the C-MOVE request will be sent to the next node in chain until all configured Retrieve SCPs were processed. When a retrieve job is in progress and the Retrieve SCU sends a C-CANCEL request, then the same request will be sent to all Retrieve SCPs.

4.2.3.1 SOP Classes

The Retrieve Spanning AE provides Standard Conformance to the SOP Classes listed in Table 74.

4.2.3.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
Max PDU size	64512
Maximum number of simultaneous associations as an association acceptor	20
Maximum number of simultaneous associations as an association initiator	20

Table 43: Association policies for Retrieve Spanning AE

4.2.3.2.1 Asynchronous Nature

The Retrieve Spanning AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.3.2.2 Implementation Identifying Information

The Retrieve Spanning AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 44: Implementation Identifying Information

4.2.3.3 Association Initiation Policy

The Retrieve Spanning AE of *syngo.*plaza initiates associations as shown in Table 45.

Operation or Real-World Activity	Association for
Forward Retrieve	C-MOVE

Table 45: Association Initiation Policy – Retrieve Spanning AE

4.2.3.3.1 Activity “Forward Retrieve”

4.2.3.3.1.1 Description and Sequencing of Activities

Please refer to chapter 4.2.3.

4.2.3.3.1.2 Proposed Presentation Contexts

*syngo.*plaza will propose Presentation Contexts for DICOM SOP classes as shown in Table 46.

Presentation Context Table			
Abstract Syntax	**Transfer Syntax**	**Role**	**Ext. Neg.**

Name	UID	Name List	UID List		
Patient Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4 .1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4 .1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 46: Proposed Presentation Contexts – Forward Retrieve

4.2.3.3.1.3 SOP specific Conformance

If the destination node is not reachable or an error is returned, *syngo.*plaza will not try to send the message again.

4.2.3.4 Association Acceptance Policy

The Retrieve Spanning AE[4] of *syngo.*plaza will accept associations as shown in Table 47.

Operation or Real-World Activity	Association for
Provide Retrieve	C-MOVE

Table 47: Association Acceptance Policy – Retrieve Spanning AE

4.2.3.4.1 Activity "Provide Retrieve"

4.2.3.4.1.1 Description and Sequencing of Activities

Please refer to chapter 4.2.3.

4.2.3.4.1.2 Accepted Presentation Contexts

The Retrieve Spanning AE of *syngo.*plaza will accept Presentation Contexts for DICOM SOP classes as shown in Table 48.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4 .1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

[4] The Retrieve Spanning AE does not support Query requests (C-FIND).

Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 48: Accepted Presentation Contexts – Provide Retrieve

4.2.3.4.1.3 SOP-specific Conformance Statement

N.a.

4.2.4 MPPS Manager AE

4.2.4.1 SOP Classes

The MPPS Manager AE provides Standard Conformance to the SOP Classes listed in Table 75.

4.2.4.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
Max PDU size	64512
Maximum number of simultaneous associations as an association acceptor	No maximum defined
Maximum number of simultaneous associations as an association initiator	No maximum defined

Table 49: Association policies for MPPS Manager AE

4.2.4.2.1 Asynchronous Nature

The MPPS Manager AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.4.2.2 Implementation Identifying Information

The MPPS Manager AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 50: Implementation Identifying Information

4.2.4.3 Association Initiation Policy

The MPPS Manager AE of *syngo.*plaza initiates associations as shown in Table 51.

Operation or Real-World Activity	Association for
Forward MPPS	N-SET, N-CREATE

Table 51: Association Initiation Policy – MPPS Manager AE

4.2.4.3.1 Activity "Forward MPPS"

4.2.4.3.1.1 Description and Sequencing of Activities

*syngo.*plaza is able to receive Modality Performed Procedure Step messages from modalities. These MPPS messages can be forwarded to a further remote node; in this case *syngo.*plaza directly opens an association to the node and transmits the MPPS message unchanged. The forwarding of the MPPS messages is a requirement for the PPS Manager specified by IHE [2].

4.2.4.3.1.2 Proposed Presentation Contexts

The MPPS Manager AE of *syngo.*plaza will propose Presentation Contexts for DICOM SOP classes as shown in Table 52: Proposed Presentation Contexts – Forward MPPS.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

Table 52: Proposed Presentation Contexts – Forward MPPS

4.2.4.3.1.3 SOP specific Conformance

All attributes received by *syngo.*plaza will be sent without any changes, interpretation or validation.

If the destination node is not reachable or an error is returned, *syngo.*plaza will not try to send the message again.

4.2.4.4 Association Acceptance Policy

The MPPS Manager AE of *syngo.*plaza will accept associations as shown in Table 53.

Operation or Real-World Activity	Association for
Receive MPPS	N-CREATE, N-SET

Table 53: Association Acceptance Policy – MPPS Manager AE

4.2.4.4.1 Activity "Receive MPPS"

4.2.4.4.1.1 Description and Sequencing of Activities

The modality can send Modality Performed Procedure Steps to the MPPS Manager AE of *syngo.*plaza. Multiple N-CREATE, N-SET requests over the same association are supported.

4.2.4.4.1.2 Accepted Presentation Contexts

The MPPS Manager AE of *syngo.*plaza will accept Presentation Contexts for DICOM SOP classes as shown in Table 54.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 54: Accepted Presentation Contexts – "Receive MPPS"

4.2.4.4.1.3 SOP-specific Conformance Statement

The MPPS messages are simply forwarded to the destination node. There are no checks on the validity of the attributes on the incoming messages.

4.2.5 Modality Worklist Provider AE

*syngo.*plaza provides a Modality Worklist Scheduler with basic Patient Administration functions as an option. In order to give modalities access to this scheduling information the Modality Worklist Provider AE acts as an SCP for the DICOM Modality Worklist service class.

4.2.5.1 SOP Classes

This Application Entity provides Standard Conformance to the SOP Classes listed in Table 76.

4.2.5.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	64512
Maximum number of simultaneous associations as an association acceptor	20[5]

Table 55: Association policies for Modality Worklist Provider AE

4.2.5.2.1 Asynchronous Nature

The Modality Worklist Provider AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.5.2.2 Implementation Identifying Information

The Modality Worklist Provider AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

[5] default, configurable

Table 56: Implementation Identifying Information

4.2.5.3 Association Initiation Policy

The Modality Worklist Provider AE of *syngo.*plaza does not initiate associations to remote nodes.

4.2.5.4 Association Acceptance Policy

The Modality Worklist Provider AE of *syngo.*plaza will accept new associations for DIMSE C-FIND service operations.

4.2.5.4.1 Activity "Provide Modality Worklist"

4.2.5.4.1.1 Description and Sequencing of Activities

After accepting an association from a remote DICOM node, the Modality Worklist Provider AE of *syngo.*plaza receives the Worklist C-FIND requests via the open association and queries the database. For each match a response is sent to the requesting node.

4.2.5.4.1.2 Accepted Presentation Contexts

The Modality Worklist Provider AE of *syngo.*plaza will accept Presentation Contexts as shown in Table 57.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 57: Accepted Presentation Contexts – "Provide Modality Worklist"

4.2.5.4.1.3 SOP Specific Conformance

The Modality Worklist Provider AE of *syngo.*plaza supports the query matching and return key attributes listed in Table 58.

Attribute Name	Attribute Tag	Query Matching Key	Query Return Key
Scheduled Procedure Step			
Scheduled Procedure Step Sequence	(0040,0100)		
>Scheduled Station AE Title	(0040,0001)	Y	Y
>Scheduled Procedure Step Start Date	(0040,0002)	Y	Y
>Scheduled Procedure Step Start Time	(0040,0003)	N	Y
>Modality	(0008,0060)	Y	Y
>Scheduled Performing Physician's Name	(0040,0006)	Y	Y
>Scheduled Procedure Step ID	(0040,0009)	N	Y
>Scheduled Procedure Step Description	(0040,0007)	N	Y
>Scheduled Station Name	(0040,0010)	N	Y (always blank)
>Scheduled Procedure Step Status	(0040,0020)	N	Y
>Scheduled Procedure Step Location	(0040,0011)	N	Y
Requested Procedure			

Requested Procedure ID	(0040,1001)	Y	Y
Study Instance UID	(0020,000D)	N	Y
Requested Procedure Comments	(0040,1400)	N	Y
Requested Procedure Description	(0032,1060)	N	Y
Names of Intended Recipients of Results	(0040,1010)	N	Y
Imaging Service Request			
Accession Number	(0008,0050)	Y	Y
Referring Physician's Name	(0008,0090)	N	Y
Requesting Physician	(0032,1032)	N	Y
Imaging Service Request Comments	(0040,2400)	N	Y
Visit Identification			
Admission ID	(0038,0100)	N	Y
Visit Status			
Current Patient Location	(0038,0300)	N	Y
Patient Identification			
Patient's Name	(0010,0010)	Y	Y
Patient ID	(0010,0020)	Y	Y
Patient Demographic			
Patient's Birth Date	(0010,0030)	N	Y
Patient's Sex	(0010,0040)	N	Y
Confidentiality Constraint on Patient Data	(0040,3001)	N	Y
Ethnic Group	(0010,2160)	N	Y
Patient Comment	(0010,4000)	N	Y
Patient Medical			
Patient State	(0038,0500)	N	Y
Pregnancy Status	(0010,21C0)	N	Y
Medical Alerts	(0010,2000)	N	Y
Additional Patient History	(0010,21B0)	N	Y
Contrast Allergies	(0010,2110)	N	Y
Patient Weight	(0010,1030)	N	Y
Special Needs	(0038,0050)	N	Y

Table 58: Query matching and return key attributes for Modality Worklist Provider AE

4.2.6 Temp AE

4.2.6.1 SOP Classes

The Temp AE[6] provides Standard Conformance to the SOP Classes listed in Table 70 and Table 72 as SCP.

4.2.6.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
Max PDU size	64512
Maximum number of simultaneous associations as an association acceptor	20[7]

Table 59: Association policies for Temp AE

4.2.6.2.1 Asynchronous Nature

The Temp AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

[6] Used in case *syngo.*plaza acts as a DICOM Archive User.
[7] default, configurable

4.2.6.2.2 Implementation Identifying Information

The Temp AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 60: Implementation Identifying Information

4.2.6.3 Association Initiation Policy

The Temp AE of *syngo.*plaza does not initiate any DICOM associations.

4.2.6.4 Association Acceptance Policy

The Temp AE of *syngo.*plaza will accept associations as shown in Table 61.

Operation or Real-World Activity	Association for
Receive Objects	C-STORE

Table 61: Association Acceptance Policy – Temp AE

4.2.6.4.1 Activity “Receive Objects”

4.2.6.4.1.1 Description and Sequencing of Activities

The Temp AE of *syngo.*plaza is used in case *syngo.*plaza acts as a DIOCM Archive User (DAU). It will receive the Composite Image Objects from the DICOM Archive Provider (DAP) after *syngo.*plaza has submitted a C-MOVE request with the Temp AE as the destination. This is internally done in case *syngo.*plaza needs to de-archive DICOM objects from DAP.

4.2.6.4.1.2 Accepted Presentation Contexts

The Temp AE of *syngo.*plaza will accept Presentation Contexts for DICOM Storage SOP classes as shown in Table 83.

4.2.6.4.1.3 SOP-specific Conformance Statement

The Temp AE of *syngo.*plaza conforms to the Full Storage Class at Level 2.

4.2.7 MPPS ImageManager AE

4.2.7.1 SOP Classes

The MPPS ImageManager AE of *syngo.*plaza provides Standard Conformance to the SOP Classes listed in Table 77.

4.2.7.2 Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
Max PDU size	64512

Maximum number of simultaneous associations as an association acceptor	20[8]

Table 62: Association policies for MPPS ImageManager AE

4.2.7.2.1 Asynchronous Nature

The MPPS ImageManager AE of *syngo.*plaza does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.7.2.2 Implementation Identifying Information

The MPPS ImageManager AE of *syngo.*plaza provides a single Implementation Class UID and Version Name:

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 63: Implementation Identifying Information

4.2.7.3 Association Initiation Policy

The MPPS ImageManager AE of *syngo.*plaza does not initiate any associations to remote nodes.

4.2.7.4 Association Acceptance Policy

The MPPS ImageManager AE of *syngo.*plaza will accept associations as shown in Table 64.

Operation or Real-World Activity	Association for
Receive MPPS	N-CREATE, N-SET

Table 64: Association Acceptance Policy – MPPS ImageManager AE

4.2.7.4.1 Activity "Receive MPPS"

4.2.7.4.1.1 Description and Sequencing of Activities

The modality can send Modality Performed Procedure Steps to the MPPS ImageManager AE of *syngo.*plaza. Multiple N-CREATE, N-SET requests over the same association are supported. The attributes of the MPPS messages listed in Table 66 are displayed to the user for informational purpose.

4.2.7.4.1.2 Accepted Presentation Contexts

The MPPS ImageManager AE of *syngo.*plaza will accept Presentation Contexts for DICOM SOP classes as shown in Table 65.

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		

[8] default, configurable

Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 65: Accepted Presentation Contexts – Receive MPPS

4.2.7.4.1.3 SOP-specific Conformance Statement

Table 66 describes the supported attributes from N-CREATE and N-SET requests, which are stored in a history queue and displayed to the user.

Attribute Name	Attribute Tag	Value N-CREATE	Value N-SET
Performed Procedure Step Relationship			
Scheduled Step Attribute Sequence	(0040,0270)		
>Study Instance UID	(0020,000D)	N	N
>Referenced Study Sequence	(0008,1110)		
>>Referenced SOP Class UID	(0008,1150)	N	N
>>Referenced SOP Instance UID	(0008,1155)	N	N
>Accession Number	(0008,0050)	N	N
>Requested Procedure ID	(0040,1001)	N	N
>Requested Procedure Description	(0032,1060)	N	N
>Scheduled Procedure Step ID	(0040,0009)	N	N
>Scheduled Procedure Step Description	(0040,0007)	N	N
>Scheduled Action Item Sequence	(0040,0008)		
>>Code Value	(0008,0100)	N	N
>>Coding Scheme Designator	(0008,0102)	N	N
>>Coding Scheme Version	(0008,0103)	N	N
>>Code Meaning	(0008,0104)	N	N
Patient's Name	(0010,0010)	Y	Y
Patient ID	(0010,0020)	Y	Y
Patient's Birth Date	(0010,0030)	N	N
Patient's Sex	(0010,0040)	N	N
Performed Procedure Step Information			
Performed Station AE Title	(0040,0241)	N	N
Performed Station Name	(0040,0242)	N	N
Performed Location	(0040,0243)	N	N
Performed Procedure Step Start Date	(0040,0244)	N	N
Performed Procedure Step Start Time	(0040,0245)	N	N
Performed Procedure Step Status	(0040,0252)	Y "IN PROGRESS"	Y "COMPLETED" or "DISCONTINUED"
Performed Procedure Step ID	(0040,0253)	N	
Performed Procedure Step Description	(0040,0254)	Y	Y
Performed Procedure Type Description	(0040,0255)	N	N
Procedure Code Sequence	(0008,1032)		N
>Code Value	(0008,0100)	N	N
>Coding Scheme Designator	(0008,0102)	N	N
>Coding Scheme Version	(0008,0103)	N	N
>Code Meaning	(0008,0104)	N	N
Performed Procedure Step End Date	(0040,0250)	N	N
Performed Procedure Step End Time	(0040,0251)	N	N
Image Acquisition Results			
Modality	(0008,0060)	Y	Y
Study ID	(0020,0010)	N	N
Performed Action Item Code Sequence	(0040,0260)		
>Code Value	(0008,0100)	N	N
>Coding Scheme Designator	(0008,0102)	N	N
>Coding Scheme Version	(0008,0103)	N	N

>Code Meaning	(0008,0104)	N	N
Performed Series Sequence	(0040,0340)		
>Performing Physician's Name	(0008,1050)	N	N
>Operators Name	(0008,1070)	N	N
>Series Instance UID	(0020,000E)	N	N
>Series Description	(0008,103E)	N	N
>Retrieve AE Title	(0008,0054)	N	N
>Referenced Image Sequence	(0008,1140)		
>>Referenced SOP Class UID	(0008,1150)	N	N
>>Referenced SOP Instance UID	(0008,1155)	N	N
>Referenced Standalone SOP Instance Sequence	(0040,0220)	N	N

Table 66: Performed Procedure Step N-CREATE Attributes

The MPPS ImageManager AE expects a complete set of attributes in the N-SET request message. If an attribute is missing or filled with a different value, the old values will be overwritten.

4.2.7.4.1.4 Return Codes

The return codes the MPPS ImageManager AE sends back to the MPPS SCU are listed in Table 67.

Service Status	Status Code	Meaning	Related Fields
Processing failure	0x0110	Application processing failure MPPS already completed	(0000,0902) (0000,0903) = 0xA710
Duplicate SOP instance	0x0111	The optional field contains the SOP Instance UID which was already allocated to another SOP Instance	(0000,1000)
Missing attribute	0x0120		Attribute List
Invalid attribute value	0x0106		Attribute List
Missing attribute value	0x0121		Attribute List
Success	0x0000	Matching is complete - No final Identifier is supplied	None

Table 67: N-CREATE / N-SET return codes for MPPS ImageManager AE

4.3 Network Interfaces

4.3.1 Physical Network Interface

*syngo.*plaza is independent to the physical medium over which TCP/IP executes; it inherits this from the OS system upon which it executes.

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

4.4 Configuration

4.4.1 AE Title / Presentation Address Mapping

*syngo.*plaza maps Application Entity Titles to host name and port number via an internal configuration method. The IP address for the host name is determined using standard system calls.

The AE Titles, hostnames and port numbers can be changed with the configuration.
AE title configuration is case-insensitive in *syngo.*plaza. Therefore *syngo*.plaza does not differentiate between AE titles using lower or upper case.

Associations for unknown/untrusted partners will be rejected for all SCP services.

4.4.2 Configurable parameters

The following parameters for time-outs can be configured in the *syngo.*plaza application.

- time-out for accepting/rejecting an association request: 300 sec
- time-out for responding to an association open/close request: 300 sec
- time-out for accepting a message over the network: 300 sec
- Query timeout : 300 sec
- Retrieve timeout : 300 sec
- Send Retry Interval : 180 sec

Further configuration possibilities:

- Number of max. accepted Query Matches
- automatic request for Storage Commitment

5 Media Interchange

5.1 Implementation Models

5.1.1 Application Data Flow

5.1.1.1 Media Handling AE

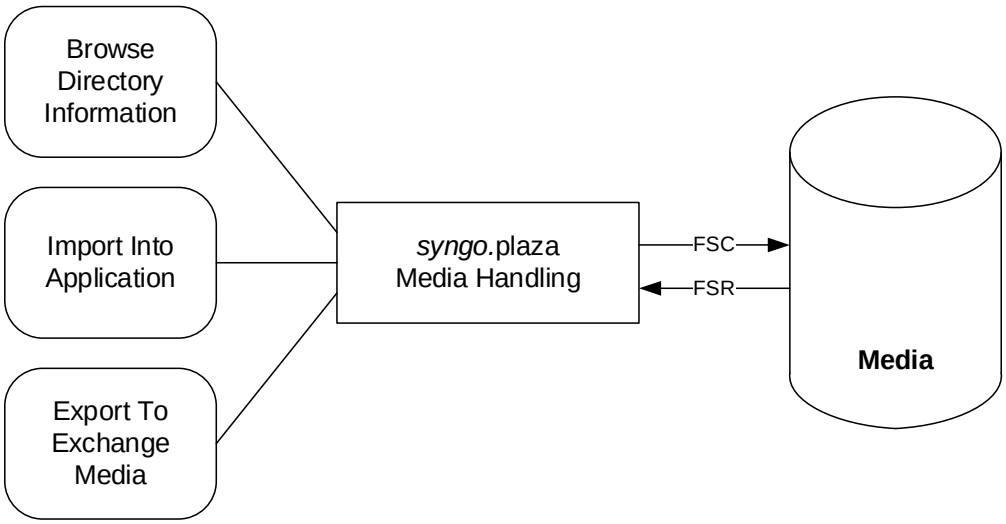

Figure 8: Application Data Flow Diagram – Media Handling AE

The Media Handling AE of *syngo.*plaza will serve as an interface to the CD-R, DVD-R and DVD-RAM medium device (see Table 71: Supported DICOM Media services for Media Handling AE for supported media services). It serves interfaces to include the off-line media directory into the browser and to copy SOP instances to a medium or retrieve SOP Instances from medium into local storage.

5.1.2 Functional Definitions of AEs

5.1.2.1 Media Handling AE

The Media Handling AE of *syngo.*plaza is capable of

- creating a new File-set onto an unwritten medium,
- copying SOP Instances from the medium onto local storage and loading them into viewer and
- reading the File-set's DICOMDIR information temporarily into database and pass it to display applications.

5.1.3 Sequencing of Real-World Activities

The Media Handling AE of *syngo.*plaza will not perform updates before the Directory information of the DICOMDIR is completely read.

5.1.4 File Meta Information for Implementation Class and Version

The Media Handling AE of *syngo.*plaza provides a single Implementation Class UID and Version Name as listed in Table 68.

Implementation Class UID	1.3.12.2.1107.5.8.2
Implementation Version Name	SHC_PLAZA_VB30A

Table 68: Implementation Identifying Information

5.2 AE Specifications

5.2.1 Media Handling AE

The Media Handling AE of *syngo.*plaza provides standard conformance to Media Storage Service Class. Please refer to Table 71: Supported DICOM Media services for Media Handling AE for a listing of the supported DICOM Media services.

5.2.1.1 Real World Activities

5.2.1.1.1 Activity “Browse Directory Information”

The Media Handling AE of *syngo.*plaza acts as an FSR using the interchange option when requested to read the media directory.

The Media Handling AE of *syngo.*plaza will read the DICOMDIR and insert that directory entries, which are supported, into a local database. The database can then be used for browsing media contents.

5.2.1.1.1.1 Media Storage Application Profiles

Please refer to Table 70: Storage SOP Classes supported by Main AE and Media Handling AE and Table 71: Supported DICOM Media services for Media Handling AE for the supported DICOM Media services and SOP classes.

5.2.1.1.2 Activity “Import Into Application”

The Media Handling AE of *syngo.*plaza acts as an FSR using the interchange option when requested to read SOP Instances from the medium into the local storage or the viewer. The SOP Instance selected from the media directory will be copied into the local storage or loaded into the viewer. Only SOP Instances that are supported can be retrieved from media storage.

The Media import works as specified for “Media Importer” actor defined in IHE [2] under the PDI profile.

5.2.1.1.2.1 Media Storage Application Profiles

Please refer to Table 70: Storage SOP Classes supported by Main AE and Media Handling AE and Table 71: Supported DICOM Media services for Media Handling AE for the supported DICOM Media services and SOP classes.

5.2.1.1.3 Activity “Export To Exchange Media”

The Media Handling AE of *syngo.*plaza acts as an FSC for uninitialized media. It is using the interchange option when requested to copy SOP Instances from the local storage to an exchange medium.

The Media Handling AE of *syngo.*plaza will receive a list of SOP Instances to be copied to the exchange medium. According to the state of the medium inserted (new medium, Medium with DICOM file-set) the SOP Instances are either updated or created on the media. Only valid SOP Instances are accepted.

*syngo.*plaza needs an external media burning software to write the exported folder contents to the target media.

5.2.1.1.3.1 Media Storage Application Profiles

Please refer to Table 70: Storage SOP Classes supported by Main AE and Media Handling AE and Table 71: Supported DICOM Media services for Media Handling AE for the supported DICOM Media services and SOP classes. The files are exported in the Transfer Syntax of the STS. In case of IHE PDI [2] compliant media, images are uncompressed before they are exported.

5.3 Augmented and Private Profiles

5.3.1 Augmented Application Profiles

N.a.

5.3.2 Private Application Profiles

5.3.2.1 Class and Profile Identification

This section defines an Application Profile Class for the Media Handling AE of *syngo.*plaza. The identifier for this class shall be PRI-PLAZA. This class is intended to be used for interchange of extended and private Information Objects via CD-R, DVD and DVD-RAM.

The specific application profiles in this class are shown in Table 69.

Application Profile	Identifier	Description
CD-R Interchange of standard & private SOP Classes with Compression	PRI-PLAZA-CD	Handles interchange of Composite SOP Instances and privately defined SOP instances(Siemens CSA non-image IOD)
DVD Interchange of standard & private SOP Classes with Compression	PRI-PLAZA-DVD	Handles interchange of Composite SOP Instances and privately defined SOP instances(Siemens CSA non-image IOD)
DVD-RAM Interchange of standard & private SOP Classes with Compression	PRI-PLAZA-DVD-RAM	Handles interchange of Composite SOP Instances and privately defined SOP instances(Siemens CSA non-image IOD)

Table 69: PRI-PLAZA **Application Profiles**

Equipment claiming conformance for this Application Profile Class shall make a clear statement on handling of the private defined SOP Instances.

5.3.2.2 Clinical Context

This application profile facilitates the interchange of original acquired and derived images and private data related to them. Typical media interchange would be from export of *syngo.*plaza to dedicated systems capable of handling the private data objects.

5.3.2.2.1 Roles and Service Class Options

These Application Profiles use the Media Storage Service Class defined in PS 3.4 of [1] with the Interchange Option. The Application Entity shall support one or more of the roles of File Set Creator (FSC) and File Set Reader (FSR) defined in PS 3.10 of [1].

5.3.2.2.1.1 File Set Creator

The AE acting as a File Set Creator generates a File Set under the PRI-PLAZA Application Profiles. File Set Creators shall be able to generate the Basic Directory SOP Class in the DICOMDIR file with all the subsidiary Directory Records related to the Image SOP Classes and Private SOP Classes stored in the File Set.

The FSC shall offer the ability to either finalize the disc at the completion of the most recent write session (no additional information can be subsequently added to the disc) or to allow multi-session (additional information may be subsequently added to the disc).

5.3.2.2.1.2 File Set Reader

The role of the File Set Reader shall be used by Application Entities which receive the transferred File Set. File Set Readers shall be able to read all the defined SOP Instances files defined for the specific Application Profiles to which a conformance claim is made, using all the defined Transfer Syntaxes.

5.3.2.3 PRI-PLAZA Profile Class

5.3.2.3.1 SOP Classes and Transfer Syntaxes

The allowed SOP Classes and Transfer Syntaxes for the PRI-PLAZA Profile Class are listed in Table 83. Private attributes that are used are listed in Annex A.9.

5.3.2.3.2 Physical Media and Media Formats

The PRI-PLAZA-CD Profile requires the 120mm CD-R physical media with the ISO/IEC 9660 Media Format as defined in PS3.12 of [1].

The PRI-PLAZA-DVD-RAM application profiles require the 120 mm DVD-RAM medium as defined in PS 3.12 of [1].

The PRI-PLAZA-DVD application profile re-quires any of the 120 mm DVD media other than DVD-RAM as defined in PS 3.12 of [1].

5.3.2.3.3 Directory Information in DICOMDIR

Conforming Application Entities shall include in the DICOMDIR File the Basic Directory IOD containing Directory Records at the Patient and subsidiary levels appropriate to the SOP Classes in the File-set. All DICOM files in the File-set incorporating SOP Instances defined for the specific Application profile shall be referenced by Directory Records.

Note: DICOMDIRs with no directory information are not allowed by this Application Profile
Privately defined IODs will be referenced by "PRIVATE" Directory Records.

5.4 Media Configuration

N.a.

6 Support of Character Sets

6.1 Character Sets for *syngo*.plaza

syngo.plaza has been carefully tested with some highly used character sets. Especially cross-interfacing in DICOM communication and HL7 communication has been tested. For more details see syngo.plaza's HL7 conformance statement.

syngo.plaza supports the following character sets:

- **Single-Byte Character sets without Code Extensions**
  (refer to DICOM PS3.3, table C.12-2)

Language Area / Family	DICOM defined term	Norm registration	Description
Default repertoire	(none / resp.) ISO_IR 6	ISO 646 (ANS X3.4:1968)	ASCII Graphic character set
West-European[9]	ISO_IR 100	ISO 8859/1:1986 ECMA-94	Latin Alphabet No. 1 supplementary set
East Europe Slavic[10]	ISO_IR 101	ISO 8859/2:1986 ECMA-94	Latin Alphabet No. 2 supplementary set
South European[11]	ISO_IR 109	ISO 8859/3:1986 ECMA-94	Latin Alphabet No. 3 supplementary set
North European[12]	ISO_IR 110	ISO 8859/4:1986 ECMA-94	Latin Alphabet No. 4 supplementary set
Russian / Slavic / Cyrillic[13]	ISO_IR 144	ISO 8859/5:1986 ECMA-113	Latin/Cyrillic Alphabet
Arabic (High Arabic)	ISO_IR 127	ISO 8859/6:1986 ASMO-708	Latin/Arabic Alphabet
Greek (monotonic)	ISO_IR 126	ISO 8859/7:1986 ECMA-118 ELOT 128	Latin/Greek Alphabet
Hebrew (without vowels)	ISO_IR 138	ISO 8859/8:1986 ECMA-121	Latin/Hebrew Alphabet
Turkish	ISO_IR 148	ISO 8859/9:1986 ECMA-128	Latin/Turkish Alphabet
Thai	ISO_IR 166	ISO 8859/11:1986 TIS 629:2533	Latin/Hebrew Alphabet
Japanese	ISO_IR 13 / ISO_IR 14	JIS X 0201-1969 (C 6220-1969)	G1 invoked in GR: JIS X 0201 "Katakana" G0 invoked in GL: JIS X 0201 "Romanji"

[9] Albanian, Basque, Breton, Catalan, Corsican, Danish, English, German, Icelandic
Irish, Italian, Malay, Norwegian, Portuguese, Spanish, Scottish, Swedish
Outer-European: Afrikaans, Filipino, Indonesian, Malay, Somali, Swahili, Zulu
French without characters "Œ", "œ" and "Ÿ" / Estonian, Finnish without Š, š, Ž, ž

[10] Bosnian (Latin script), Croatian, Czech, Hungarian, Polish, Slovene, Slovak
Romanian (if characters Ș Ț ș ț are replaced by Ş Ţ ş ţ)

[11] Afrikaans, Catalan, Galician, Italian, Maltese, Turkish

[12] Danish, Greenlandic, Estonian, Latvian, Lithuanian, Sami, Norwegian, Swedish

[13] Bulgarian, Belarusian, Macedonian, Montenegrin, Russian, Serbian, Ukrainian (without letters Ґ, ґ)

- **Single Byte Character sets with ISO 2022 Code Extensions**
  (refer to DICOM PS3.3, table C.12-3)

Language Area / Family	DICOM defined term	Norm registration	Description
Default repertoire	(none / resp.) ISO 2022 IR 6	ISO 646 (ANS X3.4:1968)	ASCII Graphic character set
West-European[14]	ISO 2022 IR 100	ISO 8859/1:1986 ECMA-94	Latin Alphabet No. 1 supplementary set
East Europe Slavic[15]	ISO 2022 IR 101	ISO 8859/2:1986 ECMA-94	Latin Alphabet No. 2 supplementary set
South European[16]	ISO 2022 IR 109	ISO 8859/3:1986 ECMA-94	Latin Alphabet No. 3 supplementary set
North European[17]	ISO 2022 IR 110	ISO 8859/4:1986 ECMA-94	Latin Alphabet No. 4 supplementary set
Russian / Slavic / Cyrillic[18]	ISO 2022 IR 144	ISO 8859/5:1986 ECMA-113	Latin/Cyrillic Alphabet
Arabic (High Arabic)	ISO 2022 IR 127	ISO 8859/6:1986 ASMO-708	Latin/Arabic Alphabet
Greek (monotonic)	ISO 2022 IR 126	ISO 8859/7:1986 ECMA-118 ELOT 128	Latin/Greek Alphabet
Hebrew (without vowels)	ISO 2022 IR 138	ISO 8859/8:1986 ECMA-121	Latin/Hebrew Alphabet
Turkish	ISO 2022 IR 148	ISO 8859/9:1986 ECMA-128	Latin/Turkish Alphabet
Thai	ISO 2022 IR 166	ISO 8859/11:1986 TIS 629:2533	Latin/Hebrew Alphabet
Japanese	ISO 2022 IR 13 / ISO 2022 IR 14	JIS X 0201-1969 (C 6220-1969)	G1 invoked in GR: JIS X 0201 “Katakana” G0 invoked in GL: JIS X 0201 “Romanji”

[14] Albanian, Basque, Breton, Catalan, Corsican, Danish, English, German, Icelandic
Irish, Italian, Malay, Norwegian, Portuguese, Spanish, Scottish, Swedish
Outer-European: Afrikaans, Filipino, Indonesian, Malay, Somali, Swahili, Zulu
French without characters “Œ”, “œ” and “Ÿ” / Estonian, Finnish without Š, š, Ž, ž

[15] Bosnian (Latin script), Croatian, Czech, Hungarian, Polish, Slovene, Slovak
Romanian (if characters Ș Ț ș ț are replaced by Ş Ţ ş ţ)

[16] Afrikaans, Catalan, Galician, Italian, Maltese, Turkish

[17] Danish, Greenlandic, Estonian, Latvian, Lithuanian, Sami, Norwegian, Swedish

[18] Bulgarian, Belarusian, Macedonian, Montenegrin, Russian, Serbian, Ukrainian (without letters Ґ, ґ)

- **Multi-Byte Character sets with ISO 2022 Code Extensions**
  (refer to DICOM PS3.3, table C.12-4)

Language Area / Family	DICOM defined term	Norm registration	Description
Japanese (Hiragana, Katakana, Kanji)	ISO 2022 IR 87 ISO 2022 IR 159	ISO 2022 IR 87 JIS X 0208:1983 (JIS C 6226-1983) ISO 2022 IR 159 JIS X 0212:1990	Japanese Standards ISO-2022-JP: JIS X 0208:1983 (formerly JIS C 6226) JIS X 0212:1990
Korean (Hangul/Hanja)	ISO 2022 IR 149	ISO 2022 KR KS X 1001	Korean Norm KS X 1001: Hangul and Hanja

- **Multi-Byte Character sets without Code Extensions**
  (refer to DICOM PS3.3, table C.12-5)

Language Area / Family	DICOM defined term	Norm registration	Description
All known languages	ISO_IR 196	ISO/IEC 10646	UTF-8, Unicode, covering all known languages
Chinese	GB18030	GB18030-2000	P.R. China norm GB18030

7 Security

Plaza supports the use of (Non secure) DICOM and Secure DIOCM based on TLS. When configured as a secure node, plaza enables measures of

a) Access Control and User Authentication

b) Auditing

c) Secure Node Authentication

It is assumed that plaza will be deployed and used in a secured environment. A secured environment includes at a minimum:

a) Firewall and/or router protections to ensure that network communication between plaza and other hosts are restricted to only approved hosts and ports.

b) Active malware monitoring by using of validated antivirus software.

Any communication with external hosts and services outside the locally secured environment should use secure network channels. This can be achieved by:

a) Enabling Secure Transport Connection Profile on the communication channels

b) Using other mechanisms to secure the communication channel, e.g., such as a Virtual Private Network (VPN).

Note:

a) For reporting clients, a secure VPN infrastructure should be used.

b) There may be additional security measures that are achieved due to local security policies; these are beyond the scope of this document.

7.1 Secure Use Profiles

n.a.

7.2 Secure Transport Connection Profiles

The following Secure Transport Connection Profiles are supported:

a) Basic TLS Secure Transport Connection Profile

b) AES TLS Secure Transport Connection Profile

Note:

a) By defult *syngo*.plaza supports TLS_RSA_WITH_AES_128_CBC_SHA, but can be configured to use TLS_RSA_WITH_3DES_EDE_CBC_SHA.

b) The following ciphers are disabled RC4 128/128", "RC4 40/128", "RC4 56/128". *syngo*.plaza does not support SSL 3.0 or less. It only supports TLS 1.0, TLS 1.1 and TLS 1.2.

syngo.plaza supports Bi-directional Node Authentication with encryption in conformance with the connection authentication policy defined in IHE ATNA including auditing via TLS.

The plaza node (server/client) verifies:

a) Client Certificate integrity (Peer Certificate is not tampered).

b) Peer certificate is issued by a trusted CA.

c) Peer certificate is not present in the revocation list.

d) Peer certificate is still within its validity period.

e) And has the correct purpouse (depending on if it is a server or client in the exchange)

Note:

a) `Revocation list is read from Windows certificate store.`

b) It is the responsibility of the hospitals to maintain the certificate stores.

syngo.plaza supports two modes of certificate assignment:

a) Plaza CA

b) Customer CA

If it is plaza CA, the certificates are generated with RSA public key algorithm and key length of 4096. Each server by default has this certificate bound to perform HTTP(s), SYSLOG-TLS and DICOM-TLS communication.

If the chosen method is customer CA, then a separate tool performs this binding and enables the usage of that certificate for the HTTPS, SYSLOG-TLS and DICOM-TLS communication.

syngo.plaza uses windows provided mechanism store, fetch and control access to public and private keys.

syngo.plaza do not support the following types of peer certificate:

a) Self signed certificates.

b) Certificates that come from an untrusted CA.

There is no mechanism in syngo.plaza where by peer certificates are stored locally and trust is established based on the local store.

7.3 Digital Signature Profile

n.a.

7.4 Media Storage Security Profiles

n.a.

7.5 Network Address Management Profiles

syngo.plaza client servers needs to deployed under a DNS server for this profile, and a IP lease expiry will cause failure of any open DICOM associations.

7.6 Time Synchronization Profiles

It is assumed the hospital infrastucture is enabled to support client and Plaza nodes (client/server) needs to be configured as a Time client.

7.7 Application Configuration Management Profiles

n.a.

7.8 Audit Trail Profiles

Whenever PHI is accessed by users or exchanged between systems, an audit record will be created by syngo.plaza system. Every audit record will contain the following details with respect to the event which triggered the audit:

a) Event Identification

b) Active Participant Identification

c) Network Access Point Identification

d) Audit Source Identification

e) Participant Object Identification. The participant object is mandatory only for audit events where PHI is involved.

The audit record schema shall follow the DICOM audit message schema as specified in DICOM PS 3.15. Please refer DICOM PS 3.15 for further details on the mandatory audit attributes.

If ARR is configured, *syngo*.plaza interface with ARR as an Audit Node, using SYSLOG_TLS protocol and SYSLOG-UDP as mentioned in DICOM part 15 A.6 and A.7 sections respectively. If ARR is not configured, audits are stored in a intermediate repository.

For audit trigger events, please see table below:

Trigger Event	Description	DICOM specific audit schema
Actor-start-stop	Start-up and shutdown of any syngo.plaza application / service.	"Application Activity"
Begin-storing- instances	Begin storing SOP Instances for a study. In plaza, this event will be audited when a study is about to be stored from a remote system or is being sent to a remote systems.	"Begin Transferring DICOM Instances"
Instances-Stored	Instances for a particular study have been stored on this system. In plaza, this event will be audited when a study is received from a remote system or is sent out to a remote system.	"DICOM Instances Transferred"
Node- Authentication-failure	A secure node authentication failure has occurred during TLS negotiation, e.g., invalid certificate.	"Security Alert"
Query Information	A query has been received, either as part of an IHE transaction, or as part other products functions. In plaza, when a DICOM query is serviced as a C- FIND SCP, this event is audited.	"Query"
User Authentication	This message describes the event of a user log-on or log-off, whether successful or not.	"User Authentication"
Study-used	SOP Instances from a specific study are created, modified or accessed. In plaza, when a study is viewed by a user, this event is audited. Also when new instances are added to the existing study, this event is audited.	"DICOM Instances Accessed"
Study-deleted	SOP Instances are deleted from a specific study. One event covers all instances deleted for the particular study. When a study is deleted from both syngo.plaza STS and LTS, the event is audited.	"DICOM Study Deleted"

Data Export	Any export of PHI on media, either on a network/local share, printing activity, paper or film. In syngo.plaza, when Viewer paper print is done, the event is audited.	"Export"
Data Import	Any import of PHI on media, either removable physical media such as CD-ROM or from files on a network share. In syngo.plaza, during CDR import or Viewer import, the event is audited.	"Import"
Patient Record update	Patient record modified or deleted. In syngo.plaza, when an A08 or A40 HL7 message is received and Patient information gets updated, merged or deleted as a result, the event is audited as "Patient Record"	"Patient Record"
Security Alert	The following security administrative events will result in a security audit getting created: 1. Node authentication failure 2. Configuration changes 3. Audit enabling and disabling.	"Security Alert"

Annex A Tables

A.1. Supported Storage SOP Classes of Main AE and Media Handling AE

SOP Class Name	SOP Class UID	SCU	SCP	Display[19]	Media
Supported Storage SOP Classes					
Computed Radiography Object Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes	STD-GEN[20]
Digital X-ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes	STD-GEN[20]
Digital X-ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes	No	STD-GEN[20]
Digital Mammography X-ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes	Yes	STD-GEN[20]
Digital Mammography X-ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes	No	STD-GEN[20]
Digital Intra-oral X-ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes	Yes	STD-GEN[20]
Digital Intra-oral X-ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes	Yes	STD-GEN[20]
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes	STD-GEN[20]
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	No	STD-GEN[20]
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	No	STD-GEN[20]
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	Yes	No	STD-GEN[20]
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes	STD-GEN[20]
US Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes	STD-GEN[20]
US Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes	Yes	STD-GEN[20]
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes	STD-GEN[20]
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes	No	STD-GEN[20]
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes	Yes	STD-GEN[20]
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes	Yes	STD-GEN[20]
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes	No	STD-GEN[20]
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes	No	STD-GEN[20]
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes	No	STD-GEN[20]
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes	STD-GEN[20]
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes	STD-GEN[20]
X-ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Yes	Yes	Yes	STD-GEN[20]
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes	Yes	STD-GEN[20]

[19] Please refer to annex A.10 and A.11 for further requirements and restrictions on viewing
[20] STD-GEN-CD and STD-GEN-DVD-RAM as FSR,FSC,FSU

SOP Class Name	SOP Class UID	SCU	SCP	Display[19]	Media
Breast Projection X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.13.1.4	Yes	Yes	No	STD-GEN[20]
Breast Projection X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.13.1.5	Yes	Yes	No	STD-GEN[20]
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes	STD-GEN[20]
Stored Print Storage (Retired)	1.2.840.10008.5.1.1.27	Yes	Yes	No	STD-GEN[20]
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	Yes	Yes	STD-GEN[20]
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	Yes	Yes	STD-GEN[20]
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes	Yes	STD-GEN[20]
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes	Yes	STD-GEN[20]
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes	No	STD-GEN[20]
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes	Yes	STD-GEN[20]
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	Yes	Yes	STD-GEN[20]
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	Yes	Yes	STD-GEN[20]
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes	Yes	STD-GEN[20]
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	Yes	Yes	STD-GEN[20]
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	Yes	Yes	STD-GEN[20]
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes	Yes	STD-GEN[20]
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes	Yes	STD-GEN[20]
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes	No	STD-GEN[20]
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes	No	STD-GEN[20]
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	Yes	No	STD-GEN[20]
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes	No	STD-GEN[20]
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	Yes	No	STD-GEN[20]
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	Yes	No	STD-GEN[20]
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Yes	Yes	No	STD-GEN[20]
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Yes	Yes	No	STD-GEN[20]
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes	No	STD-GEN[20]
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes	No	STD-GEN[20]
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes	No	STD-GEN[20]
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes	Yes	STD-GEN[20]
Key Object Selection Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes	Yes	STD-GEN[20]
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes	No	STD-GEN[20]
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes	No	STD-GEN[20]

SOP Class Name	SOP Class UID	SCU	SCP	Display[19]	Media
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes	Yes	STD-GEN[20]
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes	Yes	STD-GEN[20]
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes	Yes	STD-GEN[20]
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes	Yes	STD-GEN[20]
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	Yes	No	STD-GEN[20]
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes	No	STD-GEN[20]
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	Yes	No	STD-GEN[20]
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	Yes	No	STD-GEN[20]
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	Yes	No	STD-GEN[20]
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	Yes	No	STD-GEN[20]
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	Yes	No	STD-GEN[20]
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	Yes	Yes	No	STD-GEN[20]
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	Yes	No	STD-GEN[20]
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes	No	STD-GEN[20]
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Yes	Yes	No	STD-GEN[20]
X-ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes	No	STD-GEN[20]
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes	No	STD-GEN[20]
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes	No	STD-GEN[20]
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes	No	STD-GEN[20]
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	Yes	No	STD-GEN[20]
Media Storage Directory Storage	1.2.840.10008.1.3.10	No	No	No	STD-GEN[20]
Supported private Storage SOP Classes					
Siemens Private CSA Non-Image Storage	1.3.12.2.1107.5.9.1	Yes	Yes	No	
Philips Private Gyroscan MR Storage	1.3.46.670589.11.0.0.12.2	Yes	Yes	No	

Table 70: Storage SOP Classes supported by Main AE and Media Handling AE

Media Storage Application Profile	Real World Activity	Role
STD-GEN-CD STD-GEN-DVD-RAM PRI-PLAZA-CD PRI-PLAZA-DVD-RAM PRI-PLAZA-DVD	Browse Directory Information	FSR
	Import Into Application	FSR
	Export To Exchange Media	FSC

Table 71: Supported DICOM Media services for Media Handling AE

A.1. Supported Non-Storage SOP Classes of Main AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported Verification SOP Classes			
Verification	1.2.840.10008.1.1	Yes[21]	Yes
Supported Storage Commitment SOP Classes			
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	Yes
Supported Query/Retrieve SOP Classes			
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Yes	Yes
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Yes	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Supported private Report Management SOP Classes			
MITRA Report Management	1.2.840.113532.3500.8	Yes	No
Supported Print Management SOP Classes			
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Yes	No
Print Job	1.2.840.10008.5.1.1.14	Yes	No
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No
Supported Basic Worklist Management SOP Classes			
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Yes	No

Table 72: Non-Storage SOP Classes supported by Main AE

A.2. Supported SOP Classes of Query Spanning AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported Query Spanning SOP Classes			
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Yes	Yes
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes

Table 73: SOP Classes supported by Query Spanning AE

A.3. Supported SOP Classes of Retrieve Spanning AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported Retrieve Spanning SOP Classes			
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes

[21] The SCU for the Verification SOP Class is included in a service utility that is part of the *syngo.*plaza software.

Table 74: SOP Classes supported by Retrieve Spanning AE

A.4. Supported SOP Classes of MPPS Manager AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported MPPS SOP Classes			
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Yes	Yes

Table 75: SOP Classes supported by MPPS Manager AE

A.5. Supported SOP Classes of Modality Worklist Provider AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported Basic Worklist Management SOP Classes			
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	No	Yes

Table 76: SOP Classes supported by Modality Worklist Provider AE

A.6. Supported SOP Classes of MPPS Image Manager AE

SOP Class Name	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Supported MPPS SOP Classes			
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	No	Yes

Table 77: SOP Classes supported by MPPS Image Manager AE

A.7. Supported Query attributes

Attribute Name	Attribute Tag	Query Matching Key (SCP)	Query Matching Key (SCU)	Query Return Key (SCP)	Query Return Key (SCU)
Specific Character Set	(0008,0005)	N	N	Y	Y
Institution Name	(0008,0080)	Y	Y	Y	Y
Patient's Name	(0010,0010)	Y	Y	Y	Y
Patient-ID	(0010,0020)	Y	Y	Y	Y
Patient's Birth Date	(0010,0030)	Y	Y	Y	Y
Patient's Sex	(0010,0040)	Y	N	Y	Y
Current Patient Location	(0038,0300)	Y	Y	Y	Y
Storage Media File Set ID	(0088,0130)	N	N	Y	Y
Storage Media File Set UID	(0088,0140)	N	N	Y	Y

Table 78: Supported Patient Level attributes

Attribute Name	Attribute Tag	Query Matching Key (SCP)	Query Matching Key (SCU)	Query Return Key (SCP)	Query Return Key (SCU)
Specific Character Set	(0008,0005)	N	N	Y	Y
Study Date	(0008,0020)	Y	Y	Y	Y
Study Time	(0008,0030)	Y	Y	Y	Y
Accession Number	(0008,0050)	Y	Y	Y	Y
Modalities In Study	(0008,0061)	Y	Y	Y	Y
Referring Physician's Name	(0008,0090)	Y	Y	Y	Y
Study Description	(0008,1030)	Y	N	Y	N
Name of Physician Reading	(0008,1060)	Y	N	Y	Y

Study					
Study ID	(0020,0010)	Y	Y	Y	Y
Study Instance UID	(0020,000D)	Y	Y	Y	Y
Number of Study related Series	(0020,1206)	N	N	Y	Y
Number of Study related Images	(0020,1208)	N	N	Y	Y
Requesting Physician	(0032,1032)	N	N	Y*	N
Storage Media File Set ID	(0088,0130)	N	N	Y	Y
Storage Media File Set UID	(0088,0140)	N	N	Y	Y

Table 79: Supported Study Level attributes

*The attribute "Requesting Physician" is returned in C-Find response only if requested by C-Find SCU.

Attribute Name	Attribute Tag	Query Matching Key (SCP)	Query Matching Key (SCU)	Query Return Key (SCP)	Query Return Key (SCU)
Series Date	(0008,0021)	Y	Y	Y	Y
Series Time	(0008,0031)	Y	Y	Y	Y
Modality	(0008,0060)	Y	Y	Y	Y
Series Description	(0008,103E)	Y	N	Y	Y
Body Part Examined	(0018,0015)	Y	Y	Y	Y
Series Instance UID	(0020,000E)	Y	Y	Y	Y
Series Number	(0020,0011)	Y	Y	Y	Y
Number of Series Related Images	(0020,1209)	N	N	Y	Y
Request Attribute Sequence	(0040,0275)				
> Requested Procedure ID	(0040,1001)	Y	Y	Y	Y
> Scheduled Procedure Step ID	(0040,0009)	Y	Y	Y	Y
Performed Procedure Start Date	(0040,0244)	Y	Y	Y	Y
Performed Procedure Start Time	(0040,0245)	Y	Y	Y	Y
Exam Status	(0095,"SIENET",0004)	Y	Y	Y	Y
Rebuild Status	(0095,"SIENET",000C)	Y	Y	Y	Y
Storage Media File Set ID	(0088,0130)	N	N	Y	Y
Storage Media File Set UID	(0088,0140)	N	N	Y	Y

Table 80: Supported Series Level attributes

Attribute Name	Attribute Tag	Query Matching Key (SCP)	Query Matching Key (SCU)	Query Return Key (SCP)	Query Return Key (SCU)
SOP Instance UID	(0008,0018)	Y	Y	Y	Y
Instance Number	(0020,0013)	Y	Y	Y	Y
SOP Class UID	(0008,0016)	Y	N	Y	Y
Number of Frames	(0028,0008)	N	N	Y	Y
Rows	(0028,0010)	Y	N	Y	Y
Columns	(0028,0011)	Y	N	Y	Y
Bits Allocated	(0028,0100)	Y	N	Y	Y
Presentation State Specific Attributes					
Presentation Label	(0070,0080)	N	N	Y	Y
Presentation Description	(0070,0081)	N	N	Y	N
Presentation Creation Date	(0070,0082)	N	N	Y	Y
Presentation Creation Time	(0070,0083)	N	N	Y	Y

Presentation Creator's Name	(0070,0084)	N	N	Y	Y
Referenced Series Sequence	(0008,1115)				
>Series Instance UID	(0020,000E)	N	N	Y	N
>Referenced Image Sequence	(0008,1140)				
>>Referenced SOP Class UID	(0008,1150)	N	N	Y	N
>>Referenced SOP Instance UID	(0008,1155)	N	N	Y	N

Table 81: Supported Image Level attributes

Attribute Name	Attribute Tag	Query Matching Key (SCP)	Query Return Key(SCP)	Query Matching Key (SCU)	Query Return Key(SCU)
Content Date	(0008,0023)	N	Y	N	Y
Content Time	(0008,0033)	N	Y	N	Y
ObservationDateTime	(0040,A032)	N	Y	N	Y
Concept Name Code Sequence	(0040,A043)				
>Code Value	(0008,0100)	Y	Y	Y	Y
>Coding Scheme Designator	(0008,0102)	Y	Y	Y	Y
>CodingSchemeVersion	(0008,0103)	N	Y	N	Y
>CodeMeaning	(0008,0104)	N	Y	N	Y
Referenced Request Sequence	(0040,A370)				
> Accession Number	(0008,0050)	N	Y	N	Y
> Requested Procedure ID	(0040,1001)	N	Y	N	Y
> Study Instance UID	(0020,000D)	N	Y	N	Y
> RequestedProcedureCodeSequence	(0032,1064)				
>>CodeValue	(0008,0100)	N	Y	N	Y
>>CodingSchemeDesignator	(0008,0102)	N	Y	N	Y
>>CodingSchemeVersion	(0008,0103)	N	Y	N	Y
>>CodeMeaning	(0008,0104)	N	Y	N	Y

Table 82: Key Object Selection Specific attributes

A.8. Supported Presentation Contexts for Storage service and PRI-PLAZA SOP Classes and Transfer Syntaxes

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Computed Radiography Object Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4)[23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital X-ray Image Storage - For	1.2.840.10008.5.1.4.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		

[22] If Lossy is selected in the Send dialog for 8 Bit images
[23] If Lossy is selected in the Send dialog for 12 Bit images
[24] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Presentation		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital X-ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital Mammography X-ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24][25]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital Mammography X-ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		

[25] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital Intra-oral X-ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Digital Intra-oral X-ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
US Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
US Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Implicit VR Little Endian	1.2.840.10008.1.2			SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	-	-		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	M		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 [26]Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Enhanced MR Image [27]Storage	1.2.840.10008.5.1.4.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		

[26] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog
[27] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	-	-
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	-	-		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	-	-		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	-	-		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	-	-		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	-	-		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	-	-		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	-	-		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000[28]	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
X-ray 3D	1.2.840.10008.5.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/	None

[28] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Angiographic Image Storage	.1.1.13.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-	SCP	
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4 .1.1.13.1.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Secondary Capture Image Storage	1.2.840.10008.5.1.4 .1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4 .1.1.20	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Stored Print	1.2.840.10008.5.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/	None

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Storage	.27	Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-	SCP	
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1 .29	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Hardcopy Color Image Storage	1.2.840.10008.5.1.1 .30	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JP[29]EG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
RT Image Storage	1.2.840.10008.5.1.4 .1.1.481.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		

[29] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Ma[30]in Level	1.2.840.10008.1.2.4.100	O	M		
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		

[30] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Pseudo-Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Key Object Selection Storage	1.2.840.10008.5.1.4.1.1.88.59	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Brachy Treatment Record	1.2.840.10008.5.1.4.1.1.481.6	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Storage		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Impli[31]cit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		

[31] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
X-ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Ophthalmic Photography 16 Bit	1.2.840.10008.5.1.4.1.1.77.1.5.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
Image Storage		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	O	M		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	O	M		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	O	M		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	O	O		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	-	-		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	-	-		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	-	-		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	-	-		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	-	-		
		JPEG 200[32]0	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	-	-		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	-	-		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	-	-		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	-	-		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	-	-		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	-	-		
		JPEG Baseline[22]	1.2.840.10008.1.2.4.50	-	-		
		JPEG Extended (Process 2 & 4) [23]	1.2.840.10008.1.2.4.51	-	-		
		JPEG Lossless[24]	1.2.840.10008.1.2.4.70	-	-		
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	-	-		
		JPEG 2000	1.2.840.10008.1.2.4.91	-	-		

[32] If Lossy is selected in the Send dialog for 8 Bit images
[2] If Lossy is selected in the Send dialog for 12 Bit images
[3] If Lossless is selected in the Send dialog

Abstract Syntax		Transfer Syntax		FSC	FSR	Role	Ext. Neg.
Name	UID	Name List	UID List				
		RLE Lossless	1.2.840.10008.1.2.5	O	M		
		MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	O	M		
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1	M	M	---	---
Supported private Storage SOP Classes							
CSA Non Image	1.3.12.2.1107.5.9.1	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		
Philips Private Gyroscan MR Storage	1.3.46.670589.11.0.0.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	-	-	SCU/ SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	-	-		
		Explicit VR Little Endian	1.2.840.10008.1.2.1	O	M		

Table 83: Supported Presentation Contexts for Storage service

A.9. Registry of DICOM Private Data Elements

Attribute Name	Attribute Tag	VR	VM	Private Creator Code
Private Creator ID	(0029,00xx)	LO	1	Constant value "SHS MagicView 300". Reserve elements in block (0029,xx00-xxFF)
Zoom Factor	(0029,xx01)	FD	1-N	The value present in this field will be applied to image during display.
Pan Factor X	(0029,xx02)	FD	1	The value present in this field will be applied to image during display.
Pan Factor Y	(0029,xx03)	FD	1	The value present in this field will be applied to image during display.
NM Palette	(0029,xx04)	LO	1	The value present in this field will be applied to image during display.
Private Creator ID	(0091,00xx)	LO	1	Constant value "SIENET". Reserve elements in block (0091,xx00-xxFF)
Patient Name	(0091,xx20)	LO	1	Alternate patient name (SIENET legacy data)
Private Creator ID	(0095,0010)	LO	1	Constant value "SIENET". Reserve elements in block (0095,1000-10FF)
Examination Folder ID	(0095,1001)	ST	1	Examination Folder ID (SIENET legacy data)
Report Status	(0095,1004)	IS	1	Patient Viewer, study-level, icons for report status with value: 1 =  Viewed

Attribute Name	Attribute Tag	VR	VM	Private Creator Code
				2 =  Reported 3 = Signed off
Folder Rebuild Status	(0095,xx0C)	UL	1	Patient Viewer, study level, icons for  ild status with values: 1 =  Reported and dictated. 2 = Reported and written.
RIS Organ	(0095,1026)	CS	1	Patient Viewer, series-level, column “RIS Organ”
Patient Class	(0095,10EE)	SH	1	Patient Viewer, icons “inpatient/outpatient”, with values: N = not applicable I = inpatient O = outpatient U = unknown (values according to HL7 user defined table 0004 “PatientClass”)
Sub-Specialty	(0095,10F5)	ST	1	Patient Viewer, study-level, column “Sub-Specialty”
Enterer’s Location	(0095,10F6)	ST	1	Patient Viewer, study-level, column “Location”
Resource / Facility	(0095,10F7)	ST	1	Patient Viewer, study-level, column “Resource”
Department	(0095,10F8)	ST	1	Patient Viewer, study-level, column “Department”
RIS Body Part	(0095,10F9)	ST	1	Patient Viewer, study-level, column “RIS Body Part”
Ordering Physician	(0095,10FA)	PN	1	Patient Viewer, study-level, column “Ordering Physician”
RIS Exam Status	(0095,10FB)	ST	1	Patient Viewer, study-level, column “RIS Exam Status”
RIS Report Status	(0095,10FC)	SH	1	Patient Viewer, study-level, column “RIS Report Status”
LR Indicator	(0095,10FD)	ST	1	Patient Viewer, study-level, column “LR Indicator”
Technician Note	(0095,10FE)	ST	1	Patient Viewer, study-level, column “Tech Note”
Priority	(0095,10FF)	ST	1	Patient Viewer, study-level, column “Priority”
Private Creator ID	(0099,00xx)	LO	1	Constant value “SIENET”. Reserve elements in block (0099,xx00-xxFF)
Key Images	(0099,xx02)	IS	1	Patient Viewer, study-level, icons for key images Mod 1 = 1  Flag Mod 32 = 32 Star
Image Number	(0099,xx05)	ST	1	SIENET legacy data

Table 84: Registry of Private Data Elements

The Private Creator Code "SHS MagicView 300" is used to enable interoperability with old versions of ***syngo*** Imaging XS.

The Private Creator Code "SIENET" is used to enable interoperability with old versions of ***syngo*** Imaging XS and SIENET systems.

A.10. Requirements for Viewing of DICOM Images

This annex of the *syngo.*plaza DICOM Conformance Statement documents the required DICOM Tags for the Viewing application.

Requirements for Display and Evaluation

- Proper values for the following DICOM tags:
  - (0028,1050) – Window Center
  - (0028,1051) – Window Width
  - (0028,1051) – Rescale Intercept
  - (0028,1053) – Rescale Slope
- Maximum Image Size: 10000 Rows and 10000 Columns. Bigger images cannot be loaded to Viewer.
- Maximum number of frames for Multiframe: 10000.

A.11. Restrictions for Viewing of DICOM Images

SOP Classes

Only the images of the SOP Classes marked in Table 70 can be displayed by the Viewer.

Unsupported 32 bit Grayscale Images

32 bit Grayscale Images are not supported for display by the Viewer.

Unsupported Grayscale Presentation State Modules

The following Grayscale Presentation State Modules are not supported for display:

- Mask Subtraction Module
- Displayed Area Module (Zoom, Pan, …) at Frame level

Unsupported Grayscale Presentation State Attributes

The Grayscale Presentation State Attributes listed in Table 85 are not supported for display.

Attribute Name	Attribute Tag	Module Name
Graphic Layer Recommended Display Grayscale Value	(0070,0066)	Graphic Layer Module
Graphic Layer Recommended Display CIELab Value	(0070,0401)	Graphic Layer Module
Compound Graphic Sequence	(0070,0209)	Graphic Annotation Module

Table 85: Grayscale Presentation State Attributes not supported

A distinct warning icon is displayed in Viewer's Image segments if an error occurs while processing the Presentation State objects.

Unsupported Color Presentation State Modules

syngo plaza supports reading and interpreting of all modules of the Color Presentation States that are in common with the Grayscale Presentation States, except the ICC Profile module. *syngo.*plaza ignores this module even if it present in the incoming Color Presentation State. Please be aware, that no warning will be displayed to the user.

Unsupported macros/modules for Enhanced SOP Classes

The following modules/macros are not supported for Enhanced SOP Classes:

- Frame VOI LUT Macro
- Multi-frame Dimension Module

A.12. Private MITRA Report Management Query

Attribute Name	Attribute Tag	Matching Key SCU	Return Key SCU
Patient's Name	(0010,0010)	Yes	Yes
Patient ID	(0010,0020)	Yes	Yes
Patient's Birth Date	(0010,0030)	Yes	Yes
Accession Number	(0008,0050)	Yes	Yes
Requested Procedure ID	(0040,1001)	Yes	Yes
Study Instance UID	(0020,000D)	Yes	Yes
Requested Procedure Description	(0032,1060)	No	Yes
Requested Procedure Code Sequence	(0032,1064)	No	Yes
>Code Value	(0008,0100)	No	Yes
>Coding Scheme Designator	(0008,0102)	No	Yes
>Code Meaning	(0008,0104)	No	Yes
Result ID Issuer	(4008, 0042)	No	Yes
Interpretation Approval Time	(4008,0013)	No	Yes
Physicians Approving Interpretation	(4008,0014)	No	Yes
Interpretation Recorded Date	(4008,0100)	No	Yes
Interpretation Recorded Time	(4008,0101)	No	Yes
Interpretation Recorder	(4008,0102)	No	Yes
Interpretation Transcriber	(4008,010A)	No	Yes
Interpretation Text	(4008, 010B)	No	Yes
Interpretation Author	(4008,010C)	No	Yes
Approver Sequence	(4008,0111)	No	Yes
> Approval Date	(4008,0112)	No	Yes
> Approval Time	(4008,0113)	No	Yes

Attribute Name	Attribute Tag	Matching Key SCU	Return Key SCU
> Physicians Approving Interpretation	(4008,0114)	No	Yes
Interpretation Diagnosis Description	(4008,0115)	No	Yes
Interpretation ID	(4008,0200)	No	Yes
Interpretation Status ID	(4008,0212)	No	Yes

Table 86: Attributes for Report Content Query

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