

syngo CXR CAD Subscription VA10A

SYNGO

DICOM Conformance Statement

R 1.0

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History

Document History

Version	Date of Issue	Author	Change and Reason of Change / Change Request/CHARM
R 1.0	18-Jan-2010		Released.

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1 Introduction

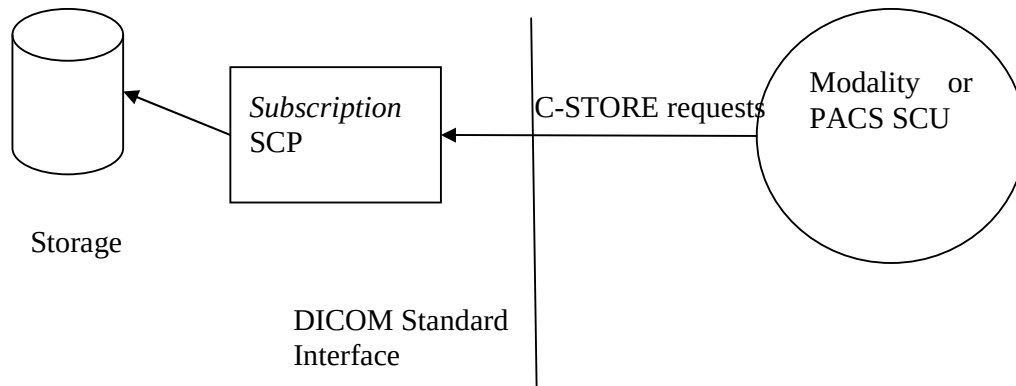
This is a DICOM conformance statement for *syngo* CXR CAD Subscription.

Subscription contains the necessary services to act as a DICOM Service Class Provider (SCP).

Subscription also sends DICOM objects to a DICOM C-STORE SCP. While doing so, *Subscription* acts as a Service Class User (SCU).

Unless otherwise specified, *Subscription* is fully compliant with the 2009 DICOM Standard.

2 Subscription SCP



A modality will use the C-STORE request to store images into *Subscription*.

The *Subscription* SCP only accepts standard storage requests. Storage commitment is not supported.

The Storage SOP Classes have Level 2 (Full) conformance.

The *Subscription* SCP accepts storage requests for a large number SOP Classes. **Note that acceptance of an image does not guarantee that the image will be processed *Subscription*.**

In this version, only the following storage class UIDs are considered for CAD processing

- 1.2.840.10008.5.1.4.1.1.1 Computed Radiography Image Storage SOP Class
- 1.2.840.10008.5.1.4.1.1.1.1 Digital X-Ray Image Storage – For Presentation SOP Class

In order for CAD processing to be done, the image must match one of the above storage class UIDs **and** the image must also satisfy additional constraints. Please see the *Subscription* Operators manual for details. These constraints are checked after the image has been stored.

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Standard Request	Storage	All SOP listed below are accepted.	Explicit VR Little Endian 1.2.840.10008.1.2.1 Explicit VR Big Endian 1.2.840.10008.1.2.2 Implicit VR Little Endian 1.2.840.10008.1.2
SCP Port		Configurable, default is 5108	
SCP AET		Configurable, default is CAD	
Number of simultaneous connections		Configurable, default 5.	This is the number of incoming associations that can be processed simultaneously by the SCP.

The following SOP Class UIDs are accepted for storage:

SOP Class UID	Description
1.2.840.10008.5.1.4.1.1.88.65	Chest Cad Sr
1.2.840.10008.5.1.4.1.1.66.3	Deformable Spatial Registration
1.2.840.10008.5.1.4.1.1.2.1	Enhanced Ct Image
1.2.840.10008.5.1.4.1.1.4.1	Enhanced Mr Image
1.2.840.10008.5.1.4.1.1.12.1.1	Enhanced Xa Image
1.2.840.10008.5.1.4.1.1.12.2.1	Enhanced Xrf Image
1.2.840.10008.5.1.4.1.1.88.59	Key Object Selection Doc
1.2.840.10008.5.1.4.1.1.88.50	Mammography Cad Sr
1.2.840.10008.5.1.4.1.1.4.2	Mr Spectroscopy
1.2.840.10008.5.1.4.1.1.88.40	Procedure Log
1.2.840.10008.5.1.4.1.1.66	Raw Data
1.2.840.10008.5.1.4.1.1.67	Real World Value Mapping
1.2.840.10008.5.1.4.1.1.7.2	Sc Multiframe Grayscale Byte
1.2.840.10008.5.1.4.1.1.7.3	Sc Multiframe Grayscale Word
1.2.840.10008.5.1.4.1.1.7.1	Sc Multiframe Single Bit
1.2.840.10008.5.1.4.1.1.7.4	Sc Multiframe True Color
1.2.840.10008.5.1.4.1.1.66.4	Segmentation
1.2.840.10008.5.1.4.1.1.66.2	Spatial Fiducials
1.2.840.10008.5.1.4.1.1.66.1	Spatial Registration
1.2.840.10008.5.1.4.1.1.88.11	Standard Basic Text Sr
1.2.840.10008.5.1.4.1.1.11.4	Standard Blending Softcopy Ps
1.2.840.10008.5.1.4.1.1.11.2	Standard Color Softcopy Ps
1.2.840.10008.5.1.4.1.1.88.33	Standard Comprehensive Sr
1.2.840.10008.5.1.4.1.1.1	Standard Cr

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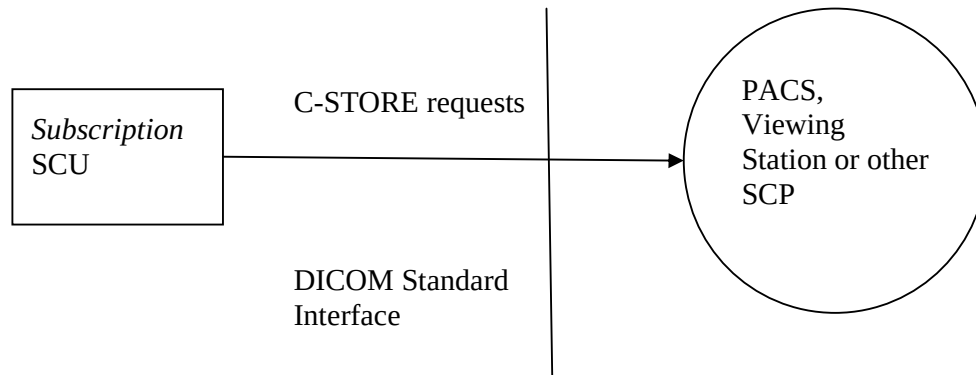
1.2.840.10008.5.1.4.1.1.2	Standard Ct
1.2.840.10008.5.1.4.1.1.9	Standard Curve
1.2.840.10008.5.1.4.1.1.1.1	Standard Dx Present
1.2.840.10008.5.1.4.1.1.1.1.1	Standard Dx Process
1.2.840.10008.5.1.4.1.1.104.1	Standard Encapsulated Pdf
1.2.840.10008.5.1.4.1.1.88.22	Standard Enhanced Sr
1.2.840.10008.5.1.4.1.1.11.1	Standard Grayscale Softcopy Ps
1.2.840.10008.5.1.1.30	Standard Hardcopy Color
1.2.840.10008.5.1.1.29	Standard Hardcopy Grayscale
1.2.840.10008.5.1.4.1.1.1.3	Standard Io Present
1.2.840.10008.5.1.4.1.1.1.3.1	Standard Io Process
1.2.840.10008.5.1.4.1.1.1.2	Standard Mg Present
1.2.840.10008.5.1.4.1.1.1.2.1	Standard Mg Process
1.2.840.10008.5.1.4.1.1.10	Standard Modality Lut
1.2.840.10008.5.1.4.1.1.4	Standard Mr
1.2.840.10008.5.1.4.1.1.20	Standard Nm
1.2.840.10008.5.1.4.1.1.5	Standard Nm Retired
1.2.840.10008.5.1.4.1.1.77.1.5.2	Standard Ophthalmic 16 Bit
1.2.840.10008.5.1.4.1.1.77.1.5.1	Standard Ophthalmic 8 Bit
1.2.840.10008.5.1.4.1.1.8	Standard Overlay
1.2.840.10008.5.1.4.1.1.128	Standard Pet
1.2.840.10008.5.1.4.1.1.129	Standard Pet Curve
1.2.840.10008.5.1.1.27	Standard Print Storage
1.2.840.10008.5.1.4.1.1.11.3	Standard Pseudocolor Softcopy Ps
1.2.840.10008.5.1.4.1.1.481.4	Standard Rt Beams Treat
1.2.840.10008.5.1.4.1.1.481.6	Standard Rt Brachy Treat
1.2.840.10008.5.1.4.1.1.481.2	Standard Rt Dose
1.2.840.10008.5.1.4.1.1.481.1	Standard Rt Image
1.2.840.10008.5.1.4.1.1.481.9	Standard Rt Ion Beams Treat
1.2.840.10008.5.1.4.1.1.481.8	Standard Rt Ion Plan
1.2.840.10008.5.1.4.1.1.481.5	Standard Rt Plan
1.2.840.10008.5.1.4.1.1.481.3	Standard Rt Structure Set
1.2.840.10008.5.1.4.1.1.481.7	Standard Rt Treat Sum
1.2.840.10008.5.1.4.1.1.7	Standard Sec Capture
1.2.840.10008.5.1.4.1.1.6.1	Standard Us
1.2.840.10008.5.1.4.1.1.3.1	Standard Us Mf
1.2.840.10008.5.1.4.1.1.3	Standard Us Mf Retired
1.2.840.10008.5.1.4.1.1.6	Standard Us Retired
1.2.840.10008.5.1.4.1.1.77.1.1.1	Standard Video Endoscopic
1.2.840.10008.5.1.4.1.1.77.1.2.1	Standard Video Microscopic
1.2.840.10008.5.1.4.1.1.77.1.4.1	Standard Video Photographic
1.2.840.10008.5.1.4.1.1.77.1.1	Standard VI Endoscopic
1.2.840.10008.5.1.4.1.1.77.1.2	Standard VI Microscopic

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1.2.840.10008.5.1.4.1.1.77.1.4	Standard VI Photographic
1.2.840.10008.5.1.4.1.1.77.1.3	Standard VI Slide Microscopic
1.2.840.10008.5.1.4.1.1.11	Standard Voi Lut
1.2.840.10008.5.1.4.1.1.9.1.1	Standard Waveform 12 Lead Ecg
1.2.840.10008.5.1.4.1.1.9.1.3	Standard Waveform Ambulatory Ecg
1.2.840.10008.5.1.4.1.1.9.4.1	Standard Waveform Basic Voice Au
1.2.840.10008.5.1.4.1.1.9.3.1	Standard Waveform Cardiac Ep
1.2.840.10008.5.1.4.1.1.9.1.2	Standard Waveform General Ecg
1.2.840.10008.5.1.4.1.1.9.2.1	Standard Waveform Hemodynamic
1.2.840.10008.5.1.4.1.1.12.1	Standard Xray Angio
1.2.840.10008.5.1.4.1.1.12.3	Standard Xray Angio Biplane
1.2.840.10008.5.1.4.1.1.12.2	Standard Xray Rf
1.2.840.10008.5.1.4.1.1.77.1.5.3	Stereometric Relationship
1.2.840.10008.5.1.4.1.1.88.67	Xray Radation Dose Sr

The SCP generates a “Refused: Transient limit exceeded” response if it cannot write the image to disk or if *Subscription* is currently processing more than it configured ‘maximum number of tasks’.

3 Subscription SCU



Subscription sends the results of CAD processing to the configured DICOM C-STORE SCP. When sending, *Subscription* acts as a DICOM C-STORE SCU.

The CAD processing results are represented as a Derived Object. The derived object is formed by:

- “Burning-in” the CAD results into the original pixel data
- Modifying several of the attributes of the original image.

The generated derived object is sent to the configured destination.

Implementation Class UID	1.3.12.2.1107.5.9.6
Implementation Version	SIEMENS_CADS_001 (the version number ‘001’ may be different depending on the software version)
Source Application Entity Title	Configurable: Default is CAD
Supported transfer syntaxes	Explicit VR Little Endian 1.2.840.10008.1.2.1 Explicit VR Big Endian 1.2.840.10008.1.2.2 Implicit VR Little Endian 1.2.840.10008.1.2

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Following is a list of the attributes which are changed/added from the original image. All other tags are unchanged.

Image Type	Value 1: DERIVED Value 2: SECONDARY Value 3: <empty> Value 4: CXRCAD_VB11A_DO (VB11A will change in future releases)
SOP Instance UID	A new SOP Instance is generated
Series Date	The date that CAD processing was done
Series Time	The time that CAD processing was done
Series Description	Configurable. The default is of the form: CAD_Marks_{OriginalSeriesDescription}_yyyyMMdd_HHmmSS Where the suffix is 'year month day _ hours minutes seconds' The original series description is truncated if necessary such that the new description is at most 64 characters in length.
Derivation Description	CXRCAD_VB11A (VB11A will change in future releases)
Source image sequence	Contains a "Referenced SOP Class UID" and "Referenced SOP Instance UID" which refer to the original image.
Series Instance UID	A new series UID is generated.
Series Number	2001

In the event that a storage request fails (*Subscription* is unable to send to the destination node), the storage request is retried several times (based on a built-in retry schedule).

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