eUnity 7.6

Enterprise Viewing, Integration, and Collaboration Platform

DICOM Conformance Statement

Revision number: 2.7

Revision date: February 5, 2025

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1.0 Introduction

1.1 Revision History

Revision Number	Version Number	Date	Reason for Change
1.0	1.0	January 19, 2011	Initial DICOM Conformance Statement
1.1	2.1	April 17, 2012	Minor updates for JPEG 2000 Support
1.2	2.2	November 22, 2012	Address change
1.3	2.3	June 06, 2014	Added Basic Text SR and Encapsulated PDF Display
1.4	5.1	April 17, 2016	Added 12-lead ECG Waveform Storage and General ECG Waveform Storage Display Support

Revision Number	Version Number	Date	Reason for Change
1.5	5.4	August 31, 2016	Layout / Style / Color changes.
1.6	5.6	December 13, 2016	Added Key Object Selection Display Support
1.7	6.0	March 30, 2017	Added BreastTomosynthesis SCU, SCP and Display Support.
1.8	6.2	September 1, 2017	Added Ophthalmic Tomography Image Storage SCU, SCP Support. Added JPEG LS Lossless, JPEG LS Lossy to Accepted Transfer Syntaxes.
1.9	6.8	January 7, 2020	Updated version number.
1.10	6.9	February 6, 2020	Updated version number.
1.11	6.10	July 7, 2020	Added support for Video Endoscopic Image Storage, Video Microscopic Image

Revision Number	Version Number	Date	Reason for Change
			Storage, Video Photographic Image Storage.
1.12	6.10.1	October 5, 2020	Reorganized and updated styles.
2.0	7.0	February 16, 2021	Updated version number.
2.1	7.1	August 11, 2021	Updated version number.
2.2	7.2	April 26, 2022	Updated version number.
2.3	7.2.1	August 24, 2022	Added display support for Enhanced CT and Enhanced MR.
2.4	7.3	March 17, 2023	Updated version number.
2.5	7.4	October 3, 2023	• Added IOD modules and private attributes for multi-frame true color secondary capture and secondary

Revision Number	Version Number	Date	Reason for Change
			capture. • Added IOD modules for Key object selection document. • Updated the CLO graphics annotations module (private) table and the Data dictionary of private attributes table to reflect the changes to spine labeling.
2.6	7.5	June 17, 2024	Updated for 7.5
2.7	7.6	November 7, 2024	Updated for 7.6 • Added HTJ2K transfer syntaxes.

1.2 Audience

This document is written for individuals that need to understand how eUnity will integrate into their healthcare facility. This includes both those responsible for overall imaging network policy and architecture, as well as integrators who need to have a detailed understanding of the DICOM features of this product. This document contains some basic DICOM definitions so that any reader may understand how this product implements DICOM features. However, integrators are expected to fully understand all the DICOM terminology, how the tables in this document relate to the product's functionality, and how that functionality integrates with other devices that support compatible DICOM features.

1.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between eUnity and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability. The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

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

- The comparison of different Conformance Statements is just the first step towards assessing interconnectivity and interoperability between the product and other DICOM conformant equipment.

- Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.

1.4 Abbreviations

The following abbreviations are used within this DICOM Conformance Statement.

AE Application Entity

AET Application Entity Title

CAD Computer Aided Detection

CR Computed Radiography

CT Computed Tomography

DICOM Digital Imaging and Communications in Medicine

DX Digital X-ray

GSPS Grayscale Softcopy Presentation State

HIS Hospital Information System

MG Mammography (X-ray)

MR Magnetic Resonance Imaging

NM Nuclear Medicine

OP Ophthalmic Photography

PACS Picture Archiving and Communication System

PET Positron Emission Tomography

RF Radiofluoroscopy

RIS Radiology Information System.

RT Radiotherapy

HL7 Health Level 7 Standard

IHE Integrating the Healthcare Enterprise

IOD Information Object Definition

ISO International Organization for Standards

IO Intra-oral X-ray

JPEG Joint Photographic Experts Group

LUT Look-up Table

MPEG Moving Picture Experts Group

SC Secondary Capture

SCP Service Class Provider

SCU Service Class User

SOP Service-Object Pair

SR Structured Reporting

TCP/IP Transmission Control Protocol/Internet Protocol

US Ultrasound

VL Visible Light

VR Value Representation

XA X-ray Angiography

1.5 References

NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard (http://medical.nema.org/)

2.0 Conformance statement overview

The eUnity enterprise system is comprised of a storage device and a diagnostic quality, zero install, web-based image viewer. The eUnity enterprise system is a single PACS application entity (AE).

The eUnity system will:

- store DICOM objects sent to it by service class users;
- request and retrieve images – as needed – from service class providers;
- and display images to a user.

eUnity conforms to the DICOM 3.0 2009 standard and provides Standard Conformance for the SOP classes listed in Network Services Supported.

Table 1: Network Services Supported

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Verification			
Verification	Yes	Yes	N/A

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Transfer			
Computed Radiography Image Storage	Yes	Yes	Yes
Digital X-Ray Image Storage – For Presentation	Yes	Yes	Yes
Digital X-Ray Image Storage – For Processing	Yes	Yes	No
Digital Mammography X-Ray Image Storage – For Presentation	Yes	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	Yes	Yes	No
Digital Intra-oral X-Ray Image Storage – For Presentation	Yes	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	Yes	Yes	No
CT Image Storage	Yes	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Enhanced CT Image Storage	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	Yes	Yes	Yes
MR Image Storage	Yes	Yes	Yes
Enhanced MR Image Storage	Yes	Yes	Yes
MR Spectroscopy Storage	Yes	Yes	No
Enhanced MR Color Image Storage SOP Class	No	No	No
Ultrasound Image Storage	Yes	Yes	Yes
Ultrasound Image Storage (Retired)	Yes	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Enhanced US Volume Storage	No	No	No
Secondary Capture Image Storage	Yes	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	Yes	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	Yes	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	Yes	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	Yes	Yes	Yes
12-lead ECG Waveform Storage	Yes	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
General ECG Waveform Storage	Yes	Yes	Yes [1]
Ambulatory ECG Waveform Storage	Yes	Yes	No
Hemodynamic Waveform Storage	Yes	Yes	No
Cardiac Electrophysiology Waveform Storage	Yes	Yes	No
Basic Voice Audio Waveform Storage	Yes	Yes	No
General Audio Waveform Storage	No	No	No
Arterial Pulse Waveform Storage	No	No	No

[1] eUnity will display 12-lead ECG traces.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Respiratory Waveform Storage	No	No	No
Grayscale Softcopy Presentation State Storage SOP Class	Yes	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	Yes	Yes	Yes[1]
Pseudo-Color Softcopy Presentation State Storage SOP Class	Yes	Yes	No
Blending Softcopy Presentation State Storage SOP Class	Yes	Yes	No
XA/XRF Grayscale Softcopy Presentation State Storage	No	No	No
X-Ray Angiographic Image Storage	Yes	Yes	Yes

[1] eUnity does not support display of ICC Profiles within DICOM CSPS objects.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Enhanced XA Image Storage	Yes	Yes	No
X-Ray Radiofluoroscopic Image Storage	Yes	Yes	Yes
X-Ray Angiographic Bi-plane Image Storage (Retired)	Yes	Yes	Yes
Enhanced XRF Image Storage	Yes	Yes	Yes
X-Ray 3D Angiographic Image Storage	No	No	No
X-Ray 3D Craniofacial Image Storage	No	No	No
Breast Tomosynthesis Image Storage	Yes	Yes	Yes
Nuclear Medicine Image Storage (Retired)	Yes	Yes	Yes
Nuclear Medicine Image Storage	Yes	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Raw Data Storage	Yes	Yes	No
Spatial Registration Storage	Yes	Yes	No
Spatial Fiducials Storage	Yes	Yes	No
Deformable Spatial Registration SOP Class	Yes	Yes	No
Segmentation SOP Class	Yes	Yes	No
Surface Segmentation Storage	No	No	No
Real World Value Mapping Storage	Yes	Yes	No
VL Endoscopic Image Storage	Yes	Yes	Yes
VL Image Storage (Retired)	Yes	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
VL Multiframe Image Storage (Retired)	Yes	Yes	Yes
Video Endoscopic Image Storage	Yes	Yes	Yes[1]
VL Microscopic Image Storage	Yes	Yes	Yes
Video Microscopic Image Storage	Yes	Yes	Yes[2]
VL Slide-Coordinates Microscopic Image Storage	Yes	Yes	No
VL Photographic Image Storage	Yes	Yes	Yes
Video Photographic Image Storage	Yes	Yes	Yes[3]

[1]Videos are displayed only in MPEG-4 transfer syntax.

[2]Videos are displayed only in MPEG-4 transfer syntax.

[3]Videos are displayed only in MPEG-4 transfer syntax.

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Ophthalmic Photography 8 Bit Image Storage	Yes	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	Yes	Yes	Yes
Stereometric Relationship Storage	Yes	Yes	No
Ophthalmic Tomography Image Storage	Yes	Yes	No
Lensometry Measurements Storage	No	No	No
Autorefraction Measurements Storage	No	No	No
Keratometry Measurements Storage	No	No	No
Subjective Refraction Measurements Storage	No	No	No
Visual Acuity Measurements Storage	No	No	No

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Spectacle Prescription Report Storage	No	No	No
Macular Grid Thickness and Volume Report Storage SOP Class	No	No	No
Basic Text SR	Yes	Yes	Yes
Enhanced SR	Yes	Yes	No
Comprehensive SR	Yes	Yes	No
Procedure Log Storage	Yes	Yes	No
Mammography CAD SR	Yes	Yes	Yes
Key Object Selection Document	Yes	Yes	Yes
Chest CAD SR	Yes	Yes	No

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
X-Ray Radiation Dose SR	Yes	Yes	No
Colon CAD SR	No	No	No
Encapsulated PDF Storage SOP Class	Yes	Yes	Yes
Encapsulated CDA Storage SOP Class	Yes	Yes	No
Positron Emission Tomography Image Storage	Yes	Yes	Yes
Enhanced PET Image Storage	No	No	No
Basic Structured Display Storage	No	No	No
RT Image Storage	Yes	Yes	No
RT Dose Storage	Yes	Yes	No

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
RT Structure Set Storage	Yes	Yes	No
RT Beams Treatment Record Storage	Yes	Yes	No
RT Plan Storage	Yes	Yes	No
RT Brachy Treatment Record Storage	Yes	Yes	No
RT Treatment Summary Record Storage	Yes	Yes	No
Hanging Protocol Storage	No	No	No
Color Palette Storage	No	No	No
Standalone Curve Storage (Retired)	Yes	Yes	No
Standalone Modality LUT Storage (Retired)	Yes	Yes	No

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Standalone Overlay Storage (Retired)	Yes	Yes	No
Standalone PET Curve Storage (Retired)	Yes	Yes	No
Standalone VOI LUT Storage	Yes	Yes	No
Hardcopy Color Image Storage (Retired)	Yes	Yes	No
Hardcopy Greyscale Image Storage (Retired)	Yes	Yes	No
Query / Retrieve			
Patient Root Query/Retrieve Information Model FIND	Yes	No	N/A
Patient Root Query/Retrieve Information Model – MOVE	Yes	No	N/A
Study Root Query/Retrieve Information Model – FIND	Yes	No	N/A

SOP Classes	User of Service (SCU)	Provider of Service (SCP)	Display
Study Root Query/Retrieve Information Model – MOVE	Yes	No	N/A
Patient-Study Root Query/Retrieve Information Model – FIND	Yes	No	N/A
Patient-Study Root Query/Retrieve Information Model – MOVE	Yes	No	N/A

3.0 Networking

3.1 Implementation model

3.1.1 Application data flow

The Application Data flow diagram depicts associations and real world activities performed by the eUnity Application Entity.

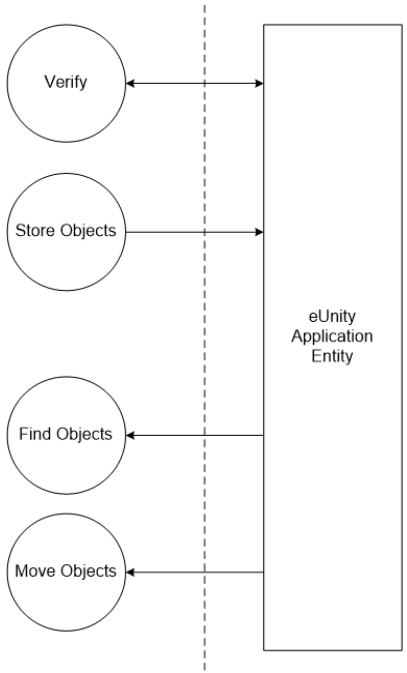

Figure 1: Functional overview - application data flow

- Verify activity will initiate and respond to associations that request verification of communications.
- Store Objects activity will accept associations from a remote AE to store DICOM objects.
- Find Objects activity will initiate an association to query a remote AE.
- Move Objects activity will initiate an association to retrieval DICOM objects from a remote AE.

3.1.2 Functional definition of Application Entities

This section provides functional definitions for all local Application Entity in the eUnity system.

3.1.2.1 Verify

eUnity will respond to a DICOM C-ECHO requests from a remote AE. eUnity can also make outbound C-ECHO requests to a remote AE.

3.1.2.2 Store objects

eUnity will respond to DICOM C-STORE requests from a remote AE. DICOM objects sent from a remote AE will be stored on the file system; some additional DICOM attributes will be stored in the database.

3.2 AE specifications

This section outlines the specifications for the Application Entities in the eUnity system.

3.2.1 SOP classes

This Application Entity provides standard conformance to the following SOP Classes:

Table 2: SOP classes for eUnity AE

SOP Classes	SOP Class UID	SCU	SCP	Display
Verification				
Verification	1.2.840.10008.1.1	Yes	Yes	N/A
Transfer				
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes
Fuji Private Computed Radiography Image Storage	1.2.392.200036.9125.1.1.2	Yes	Yes	Yes
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	No
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes	No
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes	Yes[1]
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	Yes	No
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	Yes	No
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	Yes	No

[1] eUnity will display 12-lead ECG traces.

SOP Classes	SOP Class UID	SCU	SCP	Display
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes	Yes[1]
Pseudo-Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes	No
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes	No

[1] eUnity does not support display of ICC Profiles within DICOM CSPS objects.

SOP Classes	SOP Class UID	SCU	SCP	Display
SOP Class				
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	Yes	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes	No
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	Yes	No
Deformable Spatial Registration SOP Class	1.2.840.10008.5.1.4.1.1.66.3	Yes	Yes	No
Segmentation SOP Class	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes	No
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Yes	Yes	Yes
VL Multiframe Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Yes	Yes	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	Yes	Yes[1]
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	Yes	Yes[2]
VL Slide-Coordinates	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes	No

[1]Videos are displayed only in MPEG-4 transfer syntax.

[2]Videos are displayed only in MPEG-4 transfer syntax.

SOP Classes	SOP Class UID	SCU	SCP	Display
Microscopic Image Storage				
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes	Yes[1]
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	Yes	Yes
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Yes	Yes	No

[1]Videos are displayed only in MPEG-4 transfer syntax.

SOP Classes	SOP Class UID	SCU	SCP	Display
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes	No
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes	No
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Yes	Yes	No
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes	No
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes	No
Encapsulated PDF Storage SOP Class	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes	Yes

SOP Classes	SOP Class UID	SCU	SCP	Display
Encapsulated CDA Storage SOP Class	1.2.840.10008.5.1.4.1.1.104.2	Yes	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes	No
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes	No
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes	No
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	Yes	No
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes	No
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	Yes	No

SOP Classes	SOP Class UID	SCU	SCP	Display
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	Yes	No
Standalone Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	Yes	No
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	Yes	No
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	Yes	No
Standalone PET Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	Yes	No
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Yes	Yes	No
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Yes	Yes	No

SOP Classes	SOP Class UID	SCU	SCP	Display
Hardcopy Greyscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Yes	Yes	No
Query / Retrieve				
Patient Root Query/Retrieve Information Model FIND	1.2.840.10008.5.1.4.1.2.1.1	Yes	Yes	N/A
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Yes	Yes	N/A
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes	N/A
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes	N/A
Patient-Study Root Query/Retrieve Information	1.2.840.10008.5.1.4.1.2.3.1	No	Yes	N/A

SOP Classes	SOP Class UID	SCU	SCP	Display
Model – FIND				
Patient-Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	Yes	N/A

3.2.2 Association policies

3.2.2.1 General

The eUnity AE will accept requests for verification and for storage. The following application context name will be proposed and accepted by the eUnity AE.

Table 3: DICOM application context

Application Context Name	1.2.840.10008.3.1.1.1

3.2.2.2 Number of associations

The eUnity AE can support multiple simultaneous associations requested by peer AEs. Default is 10. This value can be configured through the attribute "MaxPoolSize" in the application server configuration file (i.e. jboss-service.xml for JBoss application server).

Table 4: Max. number of simultaneous associations

Maximum number of simultaneous associations	10 (Configurable)

3.2.2.3 Asynchronous nature

The eUnity AE does not support asynchronous communication. Multiple outstanding transactions are not supported. It allows up to one invoked and one performed operation on an association (it is synchronous).

Table 5: Max. Number of Asynchronous Transactions

Maximum number of outstanding asynchronous transactions	1 (Not Configurable)

3.2.2.4 Implementation Identifying Information

The implementation information identifying this Application Entity is:

Table 6: DICOM Implementation Class and Version for eUn AE

Implementation Class UID	1.2.40.2.13.1.1
Implementation Version Name	dcm4che-1.4.28

3.2.3 Association initiation policy

The eUnity AE initiates associations for the following real-world activities:

- Verify Communication
- Find Objects
- Move Objects

3.2.3.1 Real world activity – Verify communication (SCU)

3.2.3.1.1 Description and sequencing of activities

Send a request to a remote AE to verify the configuration of the DICOM connection.

3.2.3.1.2 Proposed Presentation Contexts

For Verification the eUnity AE proposes the following Presentation Contexts:

Table 7: Presentation Contexts Proposed by eUnity AE for Verification

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.2.3.1.3 SOP-specific conformance for verification

The eUnity AE provides standard conformance to the DICOM Verification Service Class as an SCU.

3.2.3.2 Real world activity – Find object (SCU)

3.2.3.2.1 Description and sequencing of activities

The eUnity AE will initiate a query to a remote AE to retrieve DICOM information about a single study or a group of studies. This information usually comes before a request to retrieve the DICOM objects for display (see Real World Activity – Move objects (SCU)).

3.2.3.2.2 Proposed Presentation Contexts

The eUnityPACS will query with the following Presentation Contexts:

Table 8: Presentation Contexts Proposed by eUnity AE for Find

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Relational-queries
Study Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Relational-queries
Patient/Study Only Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Relational-queries

3.2.3.2.3 SOP-specific conformance for find

The eUnity PACS AE conforms to the DICOM Query / Retrieve service class as an SCU.

The eUnity PACS AE supports relational-queries extended SCU behaviour for the Patient Root Query, Study Root Query and the Patient/Study Only Query/Retrieve.

3.2.3.3 Real World Activity – Move objects (SCU)

3.2.3.3.1 Description and sequencing of activities

The eUnity AE will initiate a retrieve operation to a remote AE to retrieve DICOM information in order to display a study. These requests usually follow after a query request for study metadata. (see Real world activity – Find object (SCU)).

3.2.3.3.2 Proposed Presentation Contexts

The eUnity PACS will move with the following Presentation Contexts:

Table 9: Presentation Contexts proposed by eUnity AE for move

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query / Retrieve IM Move	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little	1.2.840.10008.1.2	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
		Endian			
Study Root Query / Retrieve IM Move	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Patient / Study Only Query / Retrieve IM Move	1.2.840.10008.5.1.4.1.2.3.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.2.3.3.3 SOP-specific conformance for move

The eUnity PACS AE conforms to the DICOM query / retrieve service class as an SCU.

3.2.4 Association acceptance policy

The eUnity PACS AE initiates associations for the following real-world activities:

- Verify Communication
- Store Objects

3.2.4.1 Real world activity – Verify communication (SCP)

3.2.4.1.1 Description and sequencing of activities

The eUnity AE will respond to Verification requests to provide an SCU with the ability to determine if the eUnity is receiving DICOM requests.

3.2.4.1.2 Accepted Presentation Contexts

The following Presentation Contexts are accepted for verification:

Table 10: Presentation Contexts accepted by eUnity AE for verification

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

3.2.4.1.3 SOP-specific conformance for SOP class

The status code for C-ECHO are described in the following table:

Table 11: Verification response status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The C-Echo request is accepted.

3.2.4.2 Real world activity – Store objects communication (SCP)

3.2.4.2.1 Description and sequencing of activities

The eUnity AE will store image that are sent to it from a remote AE. Images are stored in a local cache file system and are not guaranteed to be stored for any amount of time. Cached images are cleaned up when space is required to store new images.

3.2.4.2.2 Accepted Presentation Contexts

The following Presentation Contexts are accepted for storage:

Table 12: Presentation Contexts Accepted by eUnity AE for storage

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Transfer syntaxes for Image Storage.		SCP	None
Fuji Private Computed Radiography Image Storage	1.2.392.200036.9125.1.1.2	Transfer syntaxes for Image Storage.		SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Transfer syntaxes for Image Storage.		SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Transfer syntaxes for Image Storage.		SCP	None
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Transfer syntaxes for Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Transfer syntaxes for Image Storage.		SCP	None
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Transfer syntaxes for Image Storage.		SCP	None
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Transfer syntaxes for Image Storage.		SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Transfer syntaxes for Image Storage.		SCP	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Transfer syntaxes for Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Transfer syntaxes for Image Storage.		SCP	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Transfer syntaxes for Image Storage.		SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Transfer syntaxes for Image Storage.		SCP	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Transfer syntaxes for Image Storage.		SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Transfer syntaxes for Image Storage.		SCP	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Transfer syntaxes for Image Storage.		SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Transfer syntaxes for Image Storage.		SCP	None
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Transfer syntaxes for Image Storage.		SCP	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Transfer syntaxes for Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Transfer syntaxes for Image Storage.		SCP	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Transfer syntaxes for Image Storage.		SCP	None
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Transfer syntaxes for Non-Image Storage.		SCP	None
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Transfer syntaxes for Non-Image Storage.		SCP	None
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Pseudo-Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.3	Transfer syntaxes for Non-Image Storage.		SCP	None
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Transfer syntaxes for Non-Image Storage.		SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Transfer syntaxes for Image Storage.		SCP	None
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Transfer syntaxes for Image Storage.		SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Transfer syntaxes for Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
X-Ray Angiographic Bi-plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Transfer syntaxes for Image Storage.		SCP	None
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Transfer syntaxes for Image Storage.		SCP	None
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Transfer syntaxes for Image Storage.		SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Transfer syntaxes for Image Storage.		SCP	None
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Transfer syntaxes for Non-Image Storage.		SCP	None
Deformable Spatial Registration SOP Class	1.2.840.10008.5.1.4.1.1.66.3	Transfer syntaxes for Non-Image Storage.		SCP	None
Segmentation SOP Class	1.2.840.10008.5.1.4.1.1.66.4	Transfer syntaxes for Non-Image Storage.		SCP	None
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Transfer syntaxes for Image Storage.		SCP	None
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Transfer syntaxes for Image Storage.		SCP	None
VL Multiframe Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Transfer syntaxes for Image Storage.		SCP	None
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Transfer syntaxes for Non-Image Storage.		SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Transfer syntaxes for Non-Image Storage.		SCP	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Transfer syntaxes for Image Storage.		SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Transfer syntaxes for Image Storage.		SCP	None
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Transfer syntaxes for Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Transfer syntaxes for Image Storage.		SCP	None
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Transfer syntaxes for Non-Image Storage.		SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Transfer syntaxes for Non-Image Storage.		SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Transfer syntaxes for Non-Image Storage.		SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Transfer syntaxes for Non-Image Storage.		SCP	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Transfer syntaxes for Non-Image Storage.		SCP	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Transfer syntaxes for Non-Image Storage.		SCP	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Transfer syntaxes for Non-Image Storage.		SCP	None
X-Ray Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.67	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Encapsulated PDF Storage SOP Class	1.2.840.10008.5.1.4.1.1.104.1	Transfer syntaxes for Non-Image Storage.		SCP	None
Encapsulated CDA Storage SOP Class	1.2.840.10008.5.1.4.1.1.104.2	Transfer syntaxes for Non-Image Storage.		SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Transfer syntaxes for Image Storage.		SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Transfer syntaxes for Image Storage.		SCP	None
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Transfer syntaxes for Non-Image Storage.		SCP	None
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Transfer syntaxes for Non-Image Storage.		SCP	None
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Transfer syntaxes for Non-Image Storage.		SCP	None
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Transfer syntaxes for Non-Image Storage.		SCP	None
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Standalone Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.9	Transfer syntaxes for Non-Image Storage.		SCP	None
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Transfer syntaxes for Non-Image Storage.		SCP	None
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	Transfer syntaxes for Non-Image Storage.		SCP	None
Standalone PET Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.129	Transfer syntaxes for Non-Image Storage.		SCP	None
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Transfer syntaxes for Non-Image Storage.		SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Transfer syntaxes for Image Storage.		SCP	None
Hardcopy Greyscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	Transfer syntaxes for Image Storage.		SCP	None

Table 13: Accepted transfer syntaxes for image storage

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

Name	UID
JPEG Baseline	1.2.840.10008.1.2.4.50
JPEG Extended	1.2.840.10008.1.2.4.51
JPEG Lossless, Non-Hierarchical	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical, First-Order Prediction	1.2.840.10008.1.2.4.70
RLE Lossless	1.2.840.10008.1.2.5
JPEG 2000 (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000	1.2.840.10008.1.2.4.91
JPEG LS Lossless	1.2.840.10008.1.2.4.80
JPEG LS Lossy	1.2.840.10008.1.2.4.81

Name	UID
High-Throughput JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.201
High-Throughput JPEG 2000 with RPCL Options Image Compression (Lossless Only)	1.2.840.10008.1.2.4.202
High-Throughput JPEG 2000 Image Compression	1.2.840.10008.1.2.4.203

Table 14: Accepted transfer syntaxes for non-image storage

Name	UID	Display
Implicit VR Little Endian	1.2.840.10008.1.2	No
Explicit VR Little Endian	1.2.840.10008.1.2.1	No
MPEG2 Main Profile Main Level	1.2.840.10008.1.2.4.100	No
MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	Yes
MPEG-4 AVC/H.264 BD-compatible High Profile /	1.2.840.10008.1.2.4.103	Yes

Name	UID	Display
Level 4.1		

3.2.4.2.3 SOP-specific conformance for SOP class

The associated activity with the storage service is the storage of medical DICOM data received over the network on a designated storage repository. The eUnity AE will return a failure status if it is unable to store the received instance(s).

The eUnity AE does not have any dependencies on the number of associations used to send images to it. Images belonging to more than one study or series can be sent over a single or multiple associations. Images belonging to a single study or series can also be sent over different associations. There is no limit on either the number of SOP instances or the maximum amount of total SOP instance data that can be transferred over a single association.

The eUnity AE is configured to retain the original DICOM data in DICOM Part 10 compliant file format. The eUnity AE is level 2 (Full) conformant as a storage SCP. In addition, all private and SOP class extended elements are maintained in the DICOM format files. In addition to saving all elements in files, a subset of the elements are stored in the eUnity database to support query and retrieval requests and also allow updating of patient, study, and series information by user input, or demographic and study-related messages.

If the received instance is a duplicate of a previously received instance, the old file and database information will not be overwritten with the new one.

Table 15: Storage response status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The composite SOP Instance was successfully received, verified, and stored in the system repository.
Error	Processing Failure	0110	This status is returned due to internal errors such as a processing failure response from the internal database or a file system operation. The appropriate status will be sent in the C-STORE Response. Error indication message is output to the service log.
Warning	Coercion of Data Elements	B000	This status is returned if one or more attribute values were coerced / modified on reception. Image transmission is considered successful. The appropriate SUCCESS Status will be sent in the C-STORE Response. Warning indication message is output

Service Status	Further Meaning	Error Code	Reason
			to the Service Log.
Warning	Data Set does not match SOP class	B007	This status is returned if the C-STORE request specifies Attributes that are not specific as part of the storage SOP class. Image transmission is considered successful. The appropriate SUCCESS status will be sent in the C-STORE response. Warning indication message is output to the service log.

3.3 Network interfaces

eUnity provides DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3.8 of the DICOM Standard. The eUnity system inherits its TCP/IP stack from the computer system upon which it executes.

3.3.1 Physical network interface

eUnity is indifferent to the physical medium over which TCP / IP executes; it inherits this from the Java Runtime Environment.

3.4 Configuration

3.4.1 AE Title / presentation address mapping

3.4.1.1 Local AE Titles

The local AE title mapping and network ports are configured through administration web interface. By default the AE activities are configured as follows:

Table 16: Default AE Service Configuration

Application Entity	Default AE Title	Default TCP / IP Port
Verification	EUNITY	11112
Store	EUNITY	11112

3.4.1.2 Remote AE Title / presentation address mapping

Configuration of remote host names and port numbers can be done through the administration web interface.

In the default configuration, Association Requests with any Calling AET will be accepted.

Find and move requests will only be made to known and properly configured AE systems.

3.4.2 Parameters

The following table shows the eUnity configuration parameters relevant to DICOM communication.

Table 17: Configuration parameters

Parameter	Configurable (Yes / No)	Default Value
General Parameters		
Listening Port	Yes	11112
Maximum number of simultaneous Associations	Yes	10
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	Yes	5 seconds
General DIMSE level time-out values	Yes	60 seconds

Parameter	Configurable (Yes / No)	Default Value
Maximum PDU size the AE can receive	Yes	16532
Maximum PDU size the AE can send	Yes	65535
Pack Command and Data PDV's in one PDU	Yes	false
Storage AE		
Accepted Called AETs	Yes	EUNITY
Accepted Calling AETs	Yes	any
List of DICOM AETs that identify the location from which composite object instance(s) received by this Storage Server may be retrieved on the network.	Yes	NONE
Accept Missing Patient ID	Yes	False
Accept Missing Patient Name	Yes	False

4.0 Media interchange

eUnity does not support media storage.

5.0 Support of character sets

eUnity supports ISO_IR 100 (ISO 8859-1 Latin 1) as an extended character set.

Parsing of all other valid DICOM extended character sets is supported, but not all features may work correctly with them.

6.0 Security

6.1 Security profiles

eUnity does not implement any DICOM security profiles from PS 3.15.

6.2 Association-level security

eUnity can be configured to accept association requests from a limited list of calling AE Titles. In the default configuration, association requests with any calling AET and any called AET will be accepted. However, if the called AET is not correspondent to any of the actual storage server AETs, only acceptance of the Presentation Context for verification SOP class will be returned in the association acceptance response (A-ASSOCIATE AC).

6.3 Application-level security

The eUnity system requires user authentication in order for a user to access the administration console and viewing functionality.

7.0 Annexes

7.1 IOD Contents

7.1.1 Created SOP instance(s)

eUnity creates Presentation State SOP Instances (grayscale or color) when the user saves markup changes. These will get propagated to the VNA or PACS, according to the provider configuration.

7.1.1.1 Grayscale Softcopy Presentation State IOD

Table 18: IOD of Created Grayscale Softcopy Presentation State SOP instances

IE	Module	Usage	Reference
Patient	Patient	Always	Patient Module of Created SOP Instances
Study	General Study	Always	General study module of created SOP instances

IE	Module	Usage	Reference
	Patient Study	N/A	Annexes
Series	General Series	Always	General series module of created SOP instances
Equipment	General Equipment	Always	General equipment module of created SOP instances
Presentation State	Presentation State Identification	Always	Presentation State identification module of created SOP instances
	Presentation State Relationship	Always	Presentation State relationship module of created SOP instances
	Presentation State Shutter	Sometimes	Presentation State shutter module of created SOP instances
	Presentation State Mask	Sometimes	Presentation State mask (and mask) modules of created grayscale softcopy

IE	Module	Usage	Reference
			SOP instances

IE	Module	Usage	Reference
	Mask	Sometimes	Presentation State mask (and mask) modules of created grayscale softcopy SOP instances
	Display Shutter	Always	Display shutter module of created SOP instances
	Bitmap Display Shutter	Never	Bitmap display shutter module of created SOP instances
	Overlay Plane	Sometimes	Overlay plane module of created SOP instances
	Overlay Activation	Sometimes	Overlay activation module of created SOP instances
	Displayed Area	Always	Displayed area module of created SOP instances

IE	Module	Usage	Reference
	Graphic Annotation	Sometimes	Graphic annotation module of created SOP instances
	Spatial Transformation	Always	Spatial transformation module of created SOP instances
	Graphic Layer	Sometimes (Yes if overlays or graphic annotations exist)	Graphic layer module of created SOP instances
	Graphic Group	Sometimes (Yes if eUnity markups exist)	Graphic group module of created SOP instances
	CLO Graphic Annotations Module (Private)	Sometimes (Yes if eUnity markups exist)	CLO graphic annotations module (private)
	Modality LUT	Sometimes (Yes for new image references)	Modality LUT module of created grayscale softcopy SOP instances
	Softcopy VOI LUT	Sometimes (Yes for new image	Softcopy VOI LUT module of created

IE	Module	Usage	Reference
		references)	grayscale softcopy SOP instances
	Softcopy Presentation LUT	Always	Softcopy presentation LUT module of created grayscale softcopy SOP instances
	SOP Common	Always	SOP common module of created grayscale softcopy SOP instances

7.1.1.2 Color Softcopy Presentation State IOD

Table 19: IOD of Created Color Softcopy Presentation State SOP Instances

IE	Module	Usage	Reference
Patient	Patient	Always	Patient Module of Created SOP Instances

IE	Module	Usage	Reference
Study	General Study	Always	General study module of created SOP instances
	Patient Study	N/A	Annexes
Series	General Series	Always	General series module of created SOP instances
Equipment	General Equipment	Always	General equipment module of created SOP instances
Presentation State	Presentation State Identification	Always	Presentation State identification module of created SOP instances
	Presentation State Relationship	Always	Presentation State relationship module of created SOP instances
	Presentation State Shutter	Sometimes	Presentation State shutter module of created SOP instances
	Display Shutter	Always	Display shutter module of created SOP instances

IE	Module	Usage	Reference
	Bitmap Display Shutter	Never	Bitmap display shutter module of created SOP instances

IE	Module	Usage	Reference
	Overlay Plane	Sometimes	Overlay plane module of created SOP instances

IE	Module	Usage	Reference
	Overlay Activation	Sometimes	Overlay activation module of created SOP instances

IE	Module	Usage	Reference
	Displayed Area	Always	Displayed area module of created SOP instances
	Graphic Annotation	Sometimes	Graphic annotation module of created SOP instances
	Spatial Transformation	Always	Spatial transformation module of created SOP instances
	Graphic Layer	Sometimes (Yes if overlays or graphic annotations exist)	Graphic layer module of created SOP instances
	Graphic Group	Sometimes (Yes if eUnity markups exist)	Graphic group module of created SOP instances
	CLO Graphic Annotations Module (Private)	Sometimes (Yes if eUnity markups exist)	CLO graphic annotations module (private)
	ICC Profile	Always	ICC profile module of created color softcopy SOP instances
	SOP Common	Always	SOP common module of created color softcopy SOP instances

7.1.1.3 Multi-frame True Color Secondary Capture Image IOD

Table 20: Multi-frame True Color Secondary Capture Image IOD Modules

IE	Module	Usage	Reference
Patient	Patient	Always	Patient Module of Created Multi-frame True Color Images
	Clinical Trial Subject	N/A	N/A
Study	General Study	Always	General Study Module of Created Multi-frame True Color Images
	Patient Study	N/A	N/A
	Clinical Trial Study	N/A	N/A
Series	General Series	Always	General Series Module of Created Multi-frame True Color Images
	Clinical Trial Series	N/A	N/A

IE	Module	Usage	Reference
Frame of Reference	Frame of Reference	Always	Frame of Reference Module of Created Multi-frame True Color Images
	Synchronization	N/A	N/A
Equipment	General Equipment	Always	General Equipment Module of Created Multi-frame True Color Images
	SC Equipment	Always	SC Equipment Module of Created Multi-frame True Color Images
Acquisition	General Acquisition	N/A (Mandatory Module has all optional fields)	N/A
Image	General Image	Always	General Image Module of Created Multi-frame True Color Images

IE	Module	Usage	Reference
	General Reference	Always	General Reference Module of Created Multi-frame True Color Images
	Image Pixel	Always	Image Pixel Module of Created Multi-frame True Color Images
	Cine	N/A	N/A
	Multi-frame	Always	Multi-frame Module of Created Multi-frame True Color Images
	Frame Pointers	N/A	N/A
	Device	N/A	N/A
	Multi-frame Functional Groups	Always	Multi-frame Functional Groups Module of Created Multi-frame True Color Images

IE	Module	Usage	Reference
	Multi-frame Dimension	N/A	N/A

IE	Module	Usage	Reference
	Specimen	N/A	N/A

IE	Module	Usage	Reference
	SC Image	N/A	N/A
	SC Multi-frame Image	Always	SC Multi-frame Image Module of Created Multi-frame True Color Images
	SC Multi-frame Vector	N/A	N/A
	ICC Profile	N/A	N/A
	SOP Common	Always	SOP Common Module of Created Multi-frame True Color Images
	Common Instance Reference	Always	Common Instance Reference Module of Created Multi-frame True Color Images
	Frame Extraction	N/A	N/A

7.1.1.4 Secondary Capture Image IOD Modules

Table 21: Secondary Capture Image IOD Modules

IE	Module	Usage	Reference
Patient	Patient	Always	Patient Module of Created Secondary Capture Images
	Clinical Trial Subject	N/A	N/A
Study	General Study	Always	General Study Module of Created Secondary Capture Images
	Patient Study	N/A	N/A
	Clinical Trial Study	N/A	N/A
Series	General Series	Always	General Series Module of Created Secondary Capture Images
	Clinical Trial Series	N/A	N/A

IE	Module	Usage	Reference
Frame of Reference	Frame of Reference	Always (customization change to this IOD)	Frame of Reference Module of Created Secondary Capture Images
Equipment	General Equipment	Always	General Equipment Module of Created Secondary Capture Images
	SC Equipment	Always	SC Equipment Module of Created Secondary Capture Images
Image	General Image	Always	General Image Module of Created Secondary Capture Images
	General Reference	Always	General Reference Module of Created Secondary Capture Images
	Image Pixel	Always	Image Pixel Module of Created Secondary Capture Images
	Device	N/A	N/A

IE	Module	Usage	Reference
	Specimen	N/A	N/A
	SC Image	Always (customized)	SC Image Module of Created Secondary Capture Images
	Overlay Plane	N/A	N/A
	Modality LUT	N/A	N/A
	VOI LUT	N/A	N/A
	ICC Profile	N/A	N/A
	SOP Common	Always	SOP Common Module of Created Secondary Capture Images
	Common Instance Reference	Always	Common Instance Reference Module of Created Secondary Capture Images

7.1.1.5 Key Object Selection Document IOD

Table 22: Key object selection document IOD modules

IE	Module	Usage	Reference
Patient	Patient	Always	Patient Module of Created Key Object Selection Document
	Clinical Trial Subject	N / A	N / A
Study	General Study	Always	General Study Module of Created Key Object Selection Document
	Patient Study	N / A	N / A
	Clinical Trial Study	N /A	N / A
Series	Key Object Document Series	Always	Key Object Document Series Module of Created Key Object Selection Document
	Clinical Trial Series	N / A	N / A
Equipment	General Equipment	Always	General Equipment Module of Created Key Object Selection Document

IE	Module	Usage	Reference
Document	Key Object Document	Always	Key Object Document Module of Created Key Object Selection Document
	SR Document Content	Always	SR Document Content Module of Created Key Object Selection Document
	SOP Common	Always	SOP Common Module of Created Key Object Selection Document

7.1.1.6 Common modules

eUnity creates CSPS objects.

Table 23: Patient Module of Created SOP Instances

Attribute Name	Tag	VR	Value	Existence
Patient Name	(0010,0010)	PN	(From Referenced Image(s) or Presentation State)	
Patient ID	(0010,0020)	LO	(From Referenced Image(s) or Presentation State)	

Attribute Name	Tag	VR	Value	Existence
Issuer of Patient ID	(0010,0021)	LO	(From Referenced Image(s) or Presentation State)	
Patient Birth Date	(0010,0030)	DA	(From Referenced Image(s) or Presentation State)	
Patient Sex	(0010,0040)	CS	(From Referenced Image(s) or Presentation State)	
Other Patient IDs Sequence	(0010,1002)	SQ	(From Referenced Image(s) or Presentation State)	
> Patient ID	(0010,0020)	LO	(From Referenced Image(s) or Presentation State)	
> Issuer of Patient ID	(0010,0021)	LO	(From Referenced Image(s) or Presentation State)	
> Type of Patient ID	(0010,0022)	CS	(From Referenced Image(s) or	

Attribute Name	Tag	VR	Value	Existence
			Presentation State)	

Table 24: General study module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Study Date	(0008,0020)	DA	(From Referenced Image(s) or Presentation State)	
Study Time	(0008,0030)	TM	(From Referenced Image(s) or Presentation State)	
Accession Number	(0008,0050)	SH	(From Referenced Image(s) or Presentation State)	
Study Description	(0008,1030)	LO	(From Referenced Image(s) or Presentation State)	
Study Instance UID	(0020,000D)	UI	(From Referenced Image(s) or	

Attribute Name	Tag	VR	Value	Existence
			Presentation State)	
Study ID	(0020,0010)	SH	(From Referenced Image(s) or Presentation State)	
Study ID Issuer	(0032,0012)	LO	(From Referenced Image(s) or Presentation State)	

Table 25: Patient study module of created SOP instances

Attribute Name	Tag	VR	Value	Existence

Table 26: General series module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Modality	(0008,0060)	CS	PR	
Series Instance UID	(0020,000E)	UI	(Automatically Generated)	
Series Number	(0020,0011)	IS	1	
Series Date	(0008,0021)	DA	(Automatically Generated)	
Series Time	(0008,0031)	TM	(Automatically Generated)	
Series Description	(0008,103E)	LO	eUnity Presentation	

Table 27: General equipment module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Manufacturer	(0008,0070)	LO	Mach7 Technologies Canada	

Attribute Name	Tag	VR	Value	Existence
			Inc.	

Table 28: Presentation State identification module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Instance Number	(0020,0013)	IS	(Generated Ordered Integer)	
Presentation Creation Date	(0070,0082)	DA	(Automatically Generated. Is the same for each object in the series)	
Presentation Creation Time	(0070,0083)	TM	(Automatically Generated. Is the same for each object in the series)	
Content Label	(0070,0080)	CS	EUNITY__XXXXXXXX (where	

Attribute Name	Tag	VR	Value	Existence
			X's are the same random alpha-numeric for each object in series)	
Content Description	(0070,0081)	LO	(Empty)	
Content Creator's Name			eUnity Presentation 1.0	

Presentation State relationship module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Referenced Series Sequence	(0008,1115)	SQ	(One or more items identifying the referenced images)	

> Include 'Image SOP Instance Reference Macro'

Table 29: Presentation State shutter module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Shutter Presentation Value	(0018,1622)	US	See 'Display Shutter Module' or Bitmap Display Shutter Module' table in the DICOM standard.	
Shutter Presentation Color CIELab Value	(0018,1624)	US	See 'Display Shutter Module' or Bitmap Display Shutter Module' table in the DICOM standard.	

Table 30: Display shutter module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Shutter Shape	(0018,1600)	CS	(One or more of RECTANGULAR, CIRCULAR, or POLYGONAL)	

Attribute Name	Tag	VR	Value	Existence
Shutter Left Vertical Edge	(0018,1602)	IS	(From Referenced Image(s) or Presentation State)	
Shutter Right Vertical Edge	(0018,1604)	IS	(From Referenced Image(s) or Presentation State)	
Shutter Upper Horizontal Edge	(0018,1606)	IS	(From Referenced Image(s) or Presentation State)	
Shutter Lower Horizontal Edge	(0018,1608)	IS	(From Referenced Image(s) or Presentation State)	
Center of Circular Shutter	(0018,1610)	IS	(From Referenced Image(s) or Presentation State)	
Radius of Circular Shutter	(0018,1612)	IS	(From Referenced Image(s) or Presentation State)	

Attribute Name	Tag	VR	Value	Existence
Vertices of the Polygonal Shutter	(0018,1620)	IS	(From Referenced Image(s) or Presentation State)	
Shutter Presentation Value	(0018,1622)	US	(From Referenced Image(s) or Presentation State)	
Shutter Presentation Color CIELab Value	(0018,1624)	US	(From Referenced Image(s) or Presentation State)	

Table 31: Bitmap display shutter module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
The Bitmap Display Shutter Module is not supported for generation, though it is supported for read.				

Table 32: Overlay plane module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Overlay Rows	(60xx,0010)	US	(From Presentation State)	
Overlay Columns	(60xx,0011)	US	(From Presentation State)	
Overlay Type	(60xx,0040)	US	(From Presentation State)	
Overlay Origin	(60xx,0050)	SS	(From Presentation State)	
Overlay Bits Allocated	(60xx,0100)	US	(From Presentation State)	
Overlay Bit Position	(60xx,0102)	US	(From Presentation State)	
Overlay Data	(60xx,3000)	OB	(From Presentation State)	
Overlay Description	(60xx,0022)	LO	(From Presentation State)	
Overlay Subtype	(60xx,0045)	LO	(From Presentation State)	

Attribute Name	Tag	VR	Value	Existence
Overlay Label	(60xx,1500)	LO	(From Presentation State)	
ROI Area	(60xx,1301)	IS	(From Presentation State)	
ROI Mean	(60xx,1302)	DS	(From Presentation State)	
ROI Standard Deviation	(60xx,1303)	DS	(From Presentation State)	

Table 33: Overlay activation module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Overlay Activation Layer	(60xx,1001)	CS	(From Presentation State or Inferred from Referenced Image)	

Table 34: Displayed area module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Displayed Area Selection Sequence	(0070,005A)	SQ	(Sequence containing one item for each image frame)	YES
> Referenced Image Sequence	(0008,1140)	SQ	(References one image frame)	YES
>> Include 'Image SOP Instance Reference Macro'				
> Displayed Area Top Left Hand Corner	(0070,0052)	SL	(From Presentation State or Created New)	YES
> Displayed Area Bottom Right Hand Corner	(0070,0053)	SL	(From Presentation State or created new)	YES
> Presentation Size Mode	(0070,0100)	CS	SCALE TO FIT, TRUE SIZE or MAGNIFY	YES

Attribute Name	Tag	VR	Value	Existence
> Presentation Pixel Spacing	(0070,0101)	DS	(From Presentation State, or created from image header if header's Pixel Spacing or Imager Pixel Spacing is present)	
> Presentation Pixel Aspect Ratio	(0070,0102)	IS	(From Presentation State, or created from image header if Presentation Pixel Spacing is not present in this PS)	
>Presentation Pixel Magnification Ratio	(0070,0103)	FL	(From Presentation State if Presentation Size Mode is 'MAGNIFY')	

Table 35: Graphic annotation module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Displayed Area Selection Sequence	(0070,005A)	SQ	(Sequence containing one item for each image frame)	YES
> Referenced Image Sequence	(0008,1140)	SQ	(References one image frame)	YES
>> Include 'Image SOP Instance Reference Macro'				
> Graphic Layer	(0070,0002)	CS	(From Presentation State or created new)	
> Text Object Sequence	(0070,0008)	SQ	(One or more items if present)	
>> Bounding Box Annotation Units	(0070,0003)	CS	PIXEL (or value from previous Presentation State)	
>> Anchor Point Annotation Units	(0070,0004)	CS	PIXEL (included if Anchor is part of graphic, or if a value	

Attribute Name	Tag	VR	Value	Existence
			exists from previous Presentation State)	
>> Unformatted Text Value	(0070,0006)	ST	(From Presentation State or created new)	
>>Include “Text Style Sequence Macro Attributes”				
>> Bounding Box Top Left Hand Corner	(0070,0010)	FL	(From Presentation State or created new)	
>> Bounding Box Bottom Right Hand Corner	(0070,0011)	FL	(From Presentation State or created new)	
>> Bounding Box Text	(0070,0012)	CS	CENTER (or value from previous Presentation State)	

Attribute Name	Tag	VR	Value	Existence
Horizontal Justification				
>> Anchor Point	(0070,0014)	FL	(included if Anchor is part of graphic, or if a value exists from previous Presentation State)	
>> Anchor Point Visibility	(0070,0015)	CS	N (if Anchor Point is present, or may have the value from a previous Presentation State)	
>>Compound Graphic Instance ID	(0070,0226)	UL	(From Presentation State)	
>>Graphic Group ID	(0070,0295)	UL	(Points to a separate group for each eUnity markup, else may be from a previous Presentation State)	

Attribute Name	Tag	VR	Value	Existence
>Graphic Object Sequence	(0070,0009)	SQ	(One or more items if present)	
>>Graphic Annotation Units	(0070,0005)	CS	PIXEL (or value from previous Presentation State)	
>> Graphic Dimensions	(0070,0020)	US	2	
>>Number of Graphic Points	(0070,0021)	US	(From Presentation State or created new)	
>> Graphic Data	(0070,0022)	FL	(From Presentation State or created new)	
>> Graphic Type	(0070,0023)	CS	POINT, POLYLINE, INTERPOLATED, CIRCLE or ELLIPSE	

Attribute Name	Tag	VR	Value	Existence
>>Include “Line Style Sequence Macro Attributes”				
>>Graphic Filled	(0070,0024)	CS	Y or N	
>>Include “Fill Style Sequence Macro Attributes”				
>>Compound Graphic Instance ID	(0070,0226)	UL	(From Presentation State)	
>>Graphic Group ID	(0070,0295)	UL	(Points to a separate group for each eUnity markup, else may be from a previous Presentation State)	
>Compound Graphic Sequence	(0070,0209)	SQ	(From Presentation State)	

>> Include compound graphic items as they existed in previous Presentation State.

Table 36: Spatial transformation module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Image Rotation	(0070,0042)	US	0, 90, 180 or 270	
Image Horizontal Flip	(0070,0041)	CS	Y or N	

Table 37: Graphic layer module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Graphic Layer Sequence	(0070,0060)	SQ	(One or more items)	
>Graphic Layer	(0070,0002)	CS	(Identifies the layer. eUnity adds the layers CLO_ EXISTING and EUNITY_ MARKUP)	

Attribute Name	Tag	VR	Value	Existence
> Graphic Layer Order	(0070,0062)	IS	(EUNITY_MARKUP will have the highest layer number, with CLO_EXISTING just below)	
> Graphic Layer Recommended Display Grayscale Value	(0070,0066)	US	0xAAAA (or value from existing Presentation State)	
> Graphic Layer Recommended Display CIELab Value	(0070,0401)	US	(values from existing Presentation State, or White for CLO_EXISTING, or Orange-Gold for EUNITY_MARKUP)	
> Graphic Layer Description	(0070,0068)	LO	(values from existing Presentation State, or "Original Image Overlays", or "Eunity Markup")	

Table 38: Graphic group module of created SOP instances

Attribute Name	Tag	VR	Value	Existence
Graphic Group Sequence	(0070,0234)	SQ	(One or more items)	
>Graphic Group ID	(0070,0295)	UL	(Identifies the group. Each eUnity markup will have its own Graphic Group ID)	
>Graphic Group Label	(0070,0207)	LO	(For eUnity markup, this will be a unique String identifying the markup, else from existing Presentation State)	
>Graphic Group Description	(0070,0208)	ST	(exists only if copied from an existing Presentation State)	

Table 39: CLO graphic annotations module (private)

Attribute Name	Tag	VR	Value	Existence
Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0	
CLO Graphic Annotations Sequence	(0053,xx17)	SQ	(One item for each referenced image frame)	
> Referenced Image Sequence	(0008,1140)	SQ	(References one image frame)	YES
>> Include 'Image SOP Instance Reference Macro'				
> Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0	
> CLO Graphic Annotation Items Sequence	(0053,xx18)	SQ	(One item for each eUnity markup for the referenced image frame)	If eUnity markups were saved.
>> Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_	

Attribute Name	Tag	VR	Value	Existence
			ATTRIBUTES_1.0	
>> CLO Graphic Annotation Data (DEPRECATED)	(0053,0019)	UT	XML text of the eUnity markup item. Retired. Was used as a bare tag, without a private creator code.	In eUnity 7.2 and earlier.
>> CLO Graphic Annotation Data Bytes	(0053,xx25)	UT	Binary form of an XML document of the eUnity markup item.	In eUnity 7.0 and later.
CLO Custom SUV Parameters Sequence	(0053,xx21)	SQ	Sequence of CLO Custom SUV Context	If Region Of Interest eUnity markups were created on PET images.
> Series Instance UID	(0020,000E)	UI	The series that the SUV contexts correspond to.	
> Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_	

Attribute Name	Tag	VR	Value	Existence
			ATTRIBUTES_1.0	
> CLO Custom SUV Context	(0053,xx23)	UT	XML Document of SUV context data	
CLO Spine Label Groups Sequence	(0053,xx29)	SQ	(One item for each Frame Of Reference that has saved spine labels)	If spine labels were saved
> Referenced Image Sequence	(0008,1140)	SQ	(References one image frame)	YES
>> Include 'Image SOP Instance Reference Macro'			Only one image and frame is referenced in this sequence, even though the Spine Label Group is for the entire Frame Of Reference associated with this image.	

Attribute Name	Tag	VR	Value	Existence
> Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0	
> CLO Spine Label Groups Items Sequence	(0053,xx2A)	SQ	(has one item)	
>> Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0	
>> CLO Spine Label Group Data Bytes	(0053,xx31)	OB	Binary form of an XML document describing all the Spine Labels for Series in a Frame Of Reference	
>> Graphic Group Label	(0070,0207)	LO	The spineId inside the (0053,xx31) document. This has the form SPINE_XXXXX.	

7.1.1.7 Grayscale Softcopy Presentation State modules

Table 40: Presentation State mask (and mask) modules of created grayscale softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
Mask Subtraction Sequence	(0028,6100)	SQ	(Present only if copied from an existing Presentation State. One item if present)	

Any appropriate Presentation State Mask or Mask Module fields may be copied from a Presentation State

Table 41: Modality LUT module of created grayscale softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
Modality LUT Sequence	(0028,3000)	SQ	(Present only if copied from an existing Presentation State, or the referenced image header. One item if present)	
> LUT Descriptor	(0028,3002)	US	(From Referenced Image(s) or	YES

Attribute Name	Tag	VR	Value	Existence
			Presentation State)	
> LUT Explanation	(0028,3003)	LO	(From Referenced Image(s) or Presentation State)	
> Modality LUT Type	(0028,3004)	CS	(From Referenced Image(s) or Presentation State)	
> LUT Data	(0028,3006)	US		
Rescale Intercept	(0028,1052)	DS	(Present if there is no Modality LUT Sequence)	
Rescale Slope	(0028,1053)	DS	(Present if there is no Modality LUT Sequence)	
Rescale Type	(0028,1054)	CS	(From Referenced Image(s) or Presentation State)	

Table 42: Softcopy VOI LUT module of created grayscale softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
Softcopy VOI LUT Sequence	(0028,3110)	SQ	(Sequence containing one item for each image frame)	YES
> Referenced Image Sequence	(0008,1140)	SQ	(References one image frame)	YES
> VOI LUT Sequence	(0028,3010)	SQ	(Included if Window Width and Window Center are not present)	
>> LUT Descriptor	(0028,3002)	US		YES
>> LUT Explanation	(0028,3003)	LO	(From Presentation State)	
>> LUT Data	(0028,3006)	US		
> Window Center	(0028,1050)	DS	(Included if VOI LUT Sequence is not present)	

Attribute Name	Tag	VR	Value	Existence
> Window Width	(0028,1055)	DS	(Included if VOI LUT Sequence is not present)	
> Window Center & Width Explanation	(0028,1055)	LO	(From Presentation State or referenced image header)	
> VOI LUT Function	(0028,1056)	CS	(From Presentation State or referenced image header)	

Table 43: Softcopy presentation LUT module of created grayscale softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
Presentation LUT Sequence	(2050,0010)	SQ	(Present only if copied from an existing Presentation State. One item if present)	YES

Attribute Name	Tag	VR	Value	Existence
> LUT Descriptor	(0028,3002)	US		YES
> LUT Explanation	(0028,3003)	LO	(From Presentation State)	
> LUT Data	(0028,3006)	US		
Presentation LUT Shape	(2050,0020)	CS	IDENTITY or INVERSE (Included if VOI LUT Sequence is not present)	

Table 44: SOP common module of created grayscale softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.11.1 (Grayscale Softcopy	YES

Attribute Name	Tag	VR	Value	Existence
			Presentation State Storage)	
SOP Instance UID	(0008,0018)	UI	(Automatically Generated)	YES
Specific Character Set	(0008,0005)	CS	ISO_IR 192 (mutibyte UTF-8 character set)	YES

7.1.1.8 Color softcopy Presentation State modules

Table 45: ICC profile module of created color softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
ICC Profile	(0028,2000)	OB	(From Presentation State, or created for new referenced images as an sRGB profile. This may not be consistent with the way the image is	YES

Attribute Name	Tag	VR	Value	Existence
			currently being displayed)	

Table 46: SOP common module of created color softcopy SOP instances

Attribute Name	Tag	VR	Value	Existence
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.11.2 (Color Softcopy Presentation State Storage)	YES
SOP Instance UID	(0008,0018)	UI	(Automatically Generated)	YES
Specific Character Set	(0008,0005)	CS	ISO_IR 192 (mutibyte UTF-8 character set)	YES

7.1.1.9 Multi-frame True Color Secondary Capture modules

Table 47: Patient Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Patient's Name	(0010,0010)	PN	(From original Study)	1
Patient ID	(0010,0020)	LO	(From original Study)	1
Issuer Of Patient ID	(0010,0021)	LO	(From original Study)	3
Patient's Birth Date	(0010,0030)	DA	(From original Study)	2
Patient's Sex	(0010,0040)	CS	(From original Study)	2

Table 48: General Study Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Study Date	(0010,0020)	DA	(From original Study)	2
Study Time	(0008,0030)	TM	(From original Study)	2
Accession Number	(0008,0050)	SH	(From original Study)	2

Attribute Name	Tag	VR	Value	Existence
Referring Physician's Name	(0008,0090)	PN	(From original Study)	2
Study Description	(0008,1030)	LO	(From original Study)	3
Study Instance UID	(0020,000D)	UI	(From original Study)	1

Table 49: General Series Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Series Date	(0008,0021)	DA	(From original Study)	3
Series Time	(0008,0031)	TM	(From original Study)	3
Modality	(0008,0060)	CS	OT	1
Series Description	(0008,103E)	LO	@ViewportCapture@ Viewport Capture Series	3

Attribute Name	Tag	VR	Value	Existence
Series Instance UID	(0020,000E)	UI	(Generated, or from existing capture series)	1
Series Number	(0020,0011)	IS	1100	2 (always)

Table 50: Frame of Reference Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Frame of Reference UID	(0020,0052)	UI	(From Series being reconstructed)	1

Table 51: General Equipment Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Manufacturer	(0008,0070)	LO	Mach7 Technologies Canada Inc.	2 (always)

Attribute Name	Tag	VR	Value	Existence
Institution Name	(0008,0080)	LO	(From Series being reconstructed)	3
Institution Address	(0008,0081)	ST	(From Series being reconstructed)	3
Institutional Department Name	(0008,1040)	LO	(From Series being reconstructed)	3

Table 52: SC Equipment Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Modality	(0008,0060)	CS	(From original Study)	1
Conversion Type	(0008,0064)	CS	SYN	1

Table 53: General Image Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Image Type	(0008,0008)	CS	DERIVED\SECONDARY	3 (always)
Content Date	(0008,0023)	DA	(Date of this capture save)	2 (always)
Content Time	(0008,0033)	TM	(Time of this capture save)	2 (always)
Instance Number	(0020,0013)	IS	(empty)	2
Burned In Annotation	(0028,0301)	CS	(YES or NO)	3 (always)
Lossy Image Compression	(0028,2110)	CS	01	3 (always)
Lossy Image Compression Ratio	(0028,2112)	DS	(compression ratio of the reconstructed JPEG from 3D Server)	3
Lossy Image Compression Method	(0028,2114)	CS	ISO_10918_1	3

Table 54: General Reference Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Derivation Description	(0008,2111)	ST		3
Source Image Sequence	(0008,2112)	SQ		3 (always)
> Referenced SOP Class UID	(0008,1150)	UI		1
> Referenced SOP Instance UID	(0008,1155)	UI		1
>Referenced Frame Number	(0008,1160)	IS		1C (always)

Table 55: Image Pixel Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Samples per Pixel	(0028,0002)	US	3	1
Photometric Interpretation	(0028,0004)	CS	RGB	1

Attribute Name	Tag	VR	Value	Existence
Planar Configuration	(0028,0006)	US	0	1
Rows	(0028,0010)	US	(Image rows)	1
Columns	(0028,0011)	US	(Image columns)	1
Pixel Aspect Ratio	(0028,0034)	IS	1\1 (usually present, even if Pixel Spacing is available)	1C
Bits Allocated	(0028,0100)	US	8	1
Bits Stored	(0028,0101)	US	8	1
High Bit	(0028,0102)	US	7	1
Pixel Representation	(0028,0103)	US	0	1
Pixel Data	(7FE0,0010)	OB		1

Table 56: Multi-frame Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Number of Frames	(0028,0008)	IS	1	1
Frame Increment Pointer	(0028,0009)	AT	52009230	1

Table 57: Multi-frame Functional Groups Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Instance Number	(0020,0013)	IS	(empty)	1
Content Date	(0008,0023)	DA		1
Content Time	(0008,0033)	TM		1
Number of Frames	(0028,0008)	IS	1	1
Per-frame Functional Groups Sequence	(5200,9230)	SQ		1C

Attribute Name	Tag	VR	Value	Existence
> Plane Position Sequence	(0020,9113)	SQ	(exists if Image Position (Patient) exists)	1C
>> Image Position (Patient)	(0020,0032)	DS	(may not exist on 3D reconstructions)	1C
> Plane Orientation Sequence	(0020,9116)	SQ	(exists if Image Orientation (Patient) exists)	1C
>> Image Orientation (Patient)	(0020,0037)	DS	(may not exist on 3D reconstructions)	1C
> Pixel Measures Sequence	(0028,9110)	SQ	(exists if Pixel Spacing exists)	1C
>> Pixel Spacing	(0028,0030)	DS	(may not exist on 3D reconstructions)	1C

Table 58: SC Multi-frame Image Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Burned In Annotation	(0028,0301)	CS	(either YES or NO)	1

Table 59: SOP Common Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Specific Character Set	(0008,0005)	CS	ISO_IR 192	1C (always)
SOP Class UID	(0008,0016)	UI		1
SOP Instance UID	(0008,0018)	UI		1
Instance Number	(0020,0013)	IS	(empty)	

Table 60: Common Instance Reference Module of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value	Existence
Referenced Series Sequence	(0008,1115)	SQ		1C (always)

Attribute Name	Tag	VR	Value	Existence
> Referenced Instance Sequence	(0008,114A)	SQ		1
>> Referenced SOP Class UID	(0008,1150)	UI		1
>> Referenced SOP Instance UID	(0008,1155)	UI		1

7.1.1.10 Created Secondary Capture Image Modules

Table 61: Patient Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Patient's Name	(0010,0010)	PN	(From original study)	1
Patient ID	(0010,0020)	LO	(From original study)	1
Issuer Of Patient ID	(0010,0021)	LO	(From original study)	3

Attribute Name	Tag	VR	Value	Existence
Patient's Birth Date	(0010,0030)	DA	(From original study)	2
Patient's Sex	(0010,0040)	CS	(From original study)	2

Table 62: General Study Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Study Date	(0010,0020)	DA	(From original study)	2
Study Time	(0008,0030)	TM	(From original study)	2
Accession Number	(0008,0050)	SH	(From original study)	2
Referring Physician's Name	(0008,0090)	PN	(From original study)	2
Study Description	(0008,1030)	LO	(From original study)	3
Study Instance UID	(0020,000D)	UI	(From original study)	1

Table 63: General Series Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Series Date	(0008,0021)	DA	(From original study)	3
Series Time	(0008,0031)	TM	(From original study)	3
Modality	(0008,0060)	CS	OT	1
Series Description	(0008,103E)	LO	@ViewportCapture@ Viewport Capture Series	3
Series Instance UID	(0020,000E)	UI	(Generated, or from existing capture series)	1
Series Number	(0020,0011)	IS	1100	2 (always)

Table 64: Frame of Reference Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Frame of Reference UID	(0020,0052)	UI	(From series being reconstructed)	1

Table 65: General Equipment Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Manufacturer	(0008,0070)	LO	Mach7 Technologies Canada Inc.	2 (always)
Institution Name	(0008,0080)	LO	(From series being reconstructed)	3
Institution Address	(0008,0081)	ST	(From series being reconstructed)	3
Institutional Department Name	(0008,1040)	LO	(From series being reconstructed)	3

Table 66: SC Equipment Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Modality	(0008,0060)	CS	(From original study)	1
Conversion Type	(0008,0064)	CS	SYN	1

Table 67: General Image Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Image Type	(0008,0008)	CS	DERIVED\SECONDARY	3 (always)
Content Date	(0008,0023)	DA	(Date of this capture save)	2 (always)
Content Time	(0008,0033)	TM	(Time of this capture save)	2 (always)
Instance Number	(0020,0013)	IS	(empty)	2
Burned In Annotation	(0028,0301)	CS	(YES or NO)	3 (always)
Lossy Image Compression	(0028,2110)	CS	01	3 (always)

Attribute Name	Tag	VR	Value	Existence
Lossy Image Compression Ratio	(0028,2112)	DS	(compression ratio of the reconstructed JPEG from 3D Server)	3
Lossy Image Compression Method	(0028,2114)	CS	ISO_10918_1	3

Table 68: General Reference Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Derivation Description	(0008,2111)	ST		3
Source Image Sequence	(0008,2112)	SQ		3 (always)
> Referenced SOP Class UID	(0008,1150)	UI		1
> Referenced SOP Instance UID	(0008,1155)	UI		1

Attribute Name	Tag	VR	Value	Existence
>Referenced Frame Number	(0008,1160)	IS		1C (always)

Table 69: Image Pixel Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Samples per Pixel	(0028,0002)	US	3	1
Photometric Interpretation	(0028,0004)	CS	RGB	1
Planar Configuration	(0028,0006)	US	0	1
Rows	(0028,0010)	US	(Image rows)	1
Columns	(0028,0011)	US	(Image columns)	1
Pixel Aspect Ratio	(0028,0034)	IS	1\1 (usually present, even if pixel spacing is available)	1C

Attribute Name	Tag	VR	Value	Existence
Bits Allocated	(0028,0100)	US	8	1
Bits Stored	(0028,0101)	US	8	1
High Bit	(0028,0102)	US	7	1
Pixel Representation	(0028,0103)	US	0	1
Pixel Data	(7FE0,0010)	OB		1

Table 70: SC Image Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Image Position (Patient)	(0020,0032)	DS	(may not exist on 3D reconstructions) (customization change to this module)	3

Attribute Name	Tag	VR	Value	Existence
Image Orientation (Patient)	(0020,0037)	DS	(may not exist on 3D reconstructions) (customization change to this module)	3
Pixel Spacing	(0028,0030)	DS	(may not exist on 3D reconstructions)	1C

Table 71: SOP Common Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Specific Character Set	(0008,0005)	CS	ISO_IR 192	1C (always)
SOP Class UID	(0008,0016)	UI		1
SOP Instance UID	(0008,0018)	UI		1
Instance Number	(0020,0013)	IS	(empty)	2

Table 72: Common Instance Reference Module of Created Secondary Capture Images

Attribute Name	Tag	VR	Value	Existence
Referenced Series Sequence	(0008,1115)	SQ		1C (always)
> Referenced Instance Sequence	(0008,114A)	SQ		1
>> Referenced SOP Class UID	(0008,1150)	UI		1
>> Referenced SOP Instance UID	(0008,1155)	UI		1

7.1.1.11 Key Object Selection Document Modules

Table 73: Patient Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Patient's Name	(0010,0010)	PN	(From original study)	1

Attribute Name	Tag	VR	Value	Existence
Patient ID	(0010,0020)	LO	(From original study)	1
Issuer Of Patient ID	(0010,0021)	LO	(From original study)	3
Patient's Birth Date	(0010,0030)	DA	(From original study)	2
Patient's Sex	(0010,0040)	CS	(From original study)	2

Table 74: General Study Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Study Date	(0010,0020)	DA	(From original study)	2
Study Time	(0008,0030)	TM	(From original study)	2
Accession Number	(0008,0050)	SH	(From original study)	2
Referring Physician's Name	(0008,0090)	PN	(From original study)	2

Attribute Name	Tag	VR	Value	Existence
Study Description	(0008,1030)	LO	(From original study)	3
Study Instance UID	(0020,000D)	UI	(From original study)	1
Study ID	(0020,0010)	SH	(From original study)	2
Study ID Issuer	(0032,0012)	LO	(From original study. Retired tag)	3

Table 75: Key Object Document Series Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Series Date	(0008,0021)	DA	(From original study)	3
Series Time	(0008,0031)	TM	(From original study)	3
Modality	(0008,0060)	CS	KO	1

Attribute Name	Tag	VR	Value	Existence
Series Description	(0008,103E)	LO	@KeyImage@ Key Object Series	3
Series Instance UID	(0020,000E)	UI	(Generated, or from existing KO series)	1
Series Number	(0020,0011)	IS	1	2 (always)

Table 76: General Equipment Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Manufacturer	(0008,0070)	LO	Mach7 Technologies Canada Inc.	2 (always)
Institution Name	(0008,0080)	LO	(From series being referenced)	3
Institution Address	(0008,0081)	ST	(From series being referenced)	3

Attribute Name	Tag	VR	Value	Existence
Institutional Department Name	(0008,1040)	LO	(From series being referenced)	3

Table 77: Key Object Document Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Content Date	(0008,0023)	DA	(Date of this KO save)	2 (always)
Content Time	(0008,0033)	TM	(Time of this KO save)	2 (always)
Instance Number	(0020,0013)	IS	(empty)	1
Current Requested Procedure Evidence Sequence	(0040,A375)	SQ		1
>Include “Hierarchical SOP Instance Reference Macro Attributes”				

Table 78: SR Document Content Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Observation DateTime	(0040,A032)	DT		1C
Value Type	(0040,A040)	CS	CONTAINER	1
Concept Name Code Sequence	(0040,A043)	SQ	(has one item)	
> Code Value	(0008,0100)	SH	113000	1C (always)
> Coding Scheme Designator	(0008,0102)	SH	DCM	1C (always)
> Code Meaning	(0008,0104)	LO	Of Interest	1
Continuity Of Content	(0040,A050)	CS	SEPARATE	
Content Template Sequence	(0040,A504)	SQ	(has one item)	
> Mapping Resource	(0008,0105)	CS	DCMR	1

Attribute Name	Tag	VR	Value	Existence
> Template Identifier	(0040,DB00)	CS	2010	1
Content Sequence	(0040,A730)	SQ		1C
Image Item				
> Relationship Type	(0040,A010)	CS	CONTAINS	1
> Observation DateTime	(0040,A032)	DT		1C
> Value Type	(0040,A040)	CS	IMAGE	1
> Referenced SOP Sequence	(0008,1199)	SQ		
>> Referenced SOP Class UID	(0008,1150)	UI	(The referenced image)	1
>> Referenced SOP Instance UID	(0008,1155)	UI	(The referenced image)	1

Attribute Name	Tag	VR	Value	Existence
>> Referenced Frame Number	(0008,1160)	IS	(The referenced image frame (s))	1C
>> Referenced SOP Sequence	(0008,1199)	SQ		
>>> Referenced SOP Class UID	(0008,1150)	UI	(The referenced presentation state)	1
>>> Referenced SOP Instance UID	(0008,1155)	UI	(The referenced presentation state)	1
Text Item (may or may not be present)				
> Relationship Type	(0040,A010)	CS	CONTAINS	1
> Observation DateTime	(0040,A032)	DT		1C
> Value Type	(0040,A040)	CS	TEXT	1

Attribute Name	Tag	VR	Value	Existence
> Text Value	(0040,A160)	UT	(a key image note)	1

Table 79: SOP Common Module of Created Key Object Selection Document

Attribute Name	Tag	VR	Value	Existence
Specific Character Set	(0008,0005)	CS	ISO_IR 192	1C (always)
SOP Class UID	(0008,0016)	UI		1
SOP Instance UID	(0008,0018)	UI		1
Instance Number	(0020,0013)	IS	1	

7.1.2 Usage of attributes from received IODs

eUnity does not require an DICOM attributes other than those specified as mandatory by the DICOM standard.

7.2 Data dictionary of private attributes

Table 80: Private Attributes of Created Presentation State Objects

Attribute Name	Tag	VR	VM	Description
Private Creator Code	(0053,00xx)	LO	1	Value: EUNITY_ PRESENTATION_ ATTRIBUTES_1.0
CLO Graphic Annotations Sequence	(0053,xx17)	SQ	1	Sequence of eUnity Annotation Items Sequences
CLO Graphic Annotation Items Sequence	(0053,xx18)	SQ	1	Sequence of CLO Graphic Annotation Data Bytes
CLO Graphic Annotation Data (Deprecated)	(0053,0019)	UT	1	XML document of an eUnity Markup. Retired in eUnity 7.3 in favor of (0053,xx25). Was used as

Attribute Name	Tag	VR	VM	Description
				a bare tag, without a private creator code.
CLO Custom SUV Parameters Sequence	(0053,xx21)	SQ	1	Sequence of CLO Custom SUV Context
CLO Custom SUV Context	(0053,xx23)	UT	1	XML Document of SUV context data
CLO Graphic Annotation Data Bytes	(0053,xx25)	OB	1	Binary form of an XML document of eUnity Markup. As of eUnity 7.0
CLO Spine Label Groups Sequence	(0053,xx29)	SQ	1	Top level sequence. Each item will include a Referenced Image Sequence and a CLO Spine Label Groups Items Sequence

Attribute Name	Tag	VR	VM	Description
CLO Spine Label Groups Items Sequence	(0053,xx2A)	SQ	1	Only exists within a CLO Spine Label Groups Sequence item. Has one item.
CLO Spine Label Group Data Bytes	(0053,xx31)	OB	1	Binary form of an XML document describing all the spine labels for series in a Frame Of Reference.

Table 81: Private Attributes of Created Multi-frame True Color Images

Attribute Name	Tag	VR	Value
Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0
CLO Viewport Capture Context	(0053,xx27)	UT	(some capture options)

Table 82: Private Attributes of Created Secondary Capture Images

Attribute Name	Tag	VR	Value
Private Creator Code	(0053,00xx)	LO	EUNITY_PRESENTATION_ ATTRIBUTES_1.0
CLO Viewport Capture Context	(0053,xx27)	UT	(some capture options)