Visbion Limited

Image Viewer 4.1
Dicom Conformance Statement
DCS-IV-Iss1

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Commercial in Confidence

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Disclaimer

This document contains examples of data, images and reports used in healthcare environments. To illustrate these as completely as possible, the examples include names of individuals, addresses and other demographic information. All of these names are fictitious and any similarity to the names and addresses of real people is entirely coincidental.

Document Revision History

Date	Document Version	Author	Comments
21 March 2013	Iss1	Thomas Falcon	Initial documentation for Visbion Image Viewer 4.1

Distribution List

Visbion

Document Reviewers

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Stefan Claesen	CEO		
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Contents

1 Foundation Technology

Visbion's solutions provide a fully-integrated patient information environment based upon industry standard web technology. At the heart is a central information system in which all patient records are held. As the majority of today's medical imaging equipment makes use of the Digital Imaging and Communications in Medicine (DICOM) 3.0 standard for information interchange, Visbion's solutions have been developed to connect directly to DICOM 3.0 compliant equipment. This enables a patient's medical images to be incorporated directly within their medical record. The system integrates seamlessly with Health Level Seven (HL7) and DICOM 3.0 conformant systems. Options are also included to enable data to be incorporated into patient records from a wide range of other sources. For example, text-based documents can be incorporated using standard TWAIN-compliant document scanners.

Visbion's solutions have been designed and developed using industry standard technology. Any computer with a frame-capable web browser can be connected to the system. Customers do not require dedicated hardware for each potential system user. Furthermore, despite ease of access to patient records, security of information and patient confidentiality has been a high priority in the development of the suite of products. The systems make use of similar security protocols as those employed by online banks and the military, of which some of these make use of usernames and passwords for access, data encryption and automatic dial-back capabilities.

1.1 Scope

This document states the conformance of Visbion's DICOM technology to the DICOM 3.0 standard. The document has been written for software developers and system integrators who are interested in integrating Visbion's products with existing DICOM 3.0 conformant devices.

It is assumed that those reading this document are familiar with the concepts and terminology used within the DICOM 3.0 standard. Readers who require further information on the DICOM 3.0 standard should note that a complete copy of the standard can be obtained from:

Address: National Electrical Manufacturers Association
NEMA Publications
1300 North 17th Street
Suite 1847
Rosslyn
VA 22209
USA.

Tel: +1 (703) 841 3200

1.2 Definitions

DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element with Composite Information Objects

1.3 Abbreviations

ACR	American College of Radiology
AE	DICOM Application Entity

ASCII	American Standard Code for Information Interchange
CD	Compact Disc
CD-R	A write-once version of a Compact Disc
CD-RW	A rewritable version of a Compact Disc
DNS	Domain Naming Service
DHCP	Dynamic Host Configuration Protocol
FSC	File Set Creator
FSR	File Set Reader
FSU	File Set User
HL7	Health Level Seven
HSS	Healthcare Software Systems
IEEE	Institute of Electrical and Electronics Engineers
IOD	Information Object Definition
IP	Internet Protocol
ISO	International Standard Organisation
IV	Image Viewer
JPEG	Joint Photographic Experts Group
NEMA	National Electrical Manufacturers Association
OSI	Open Systems Interconnection
PACS	Picture Archiving and Communications System
PDU	Protocol Data Unit
SCU	Service Class User (DICOM client)
SCP	Service Class Provider (DICOM server)
SOP	Service-Object Pair

TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identification

1.4 Connectivity and Interoperability

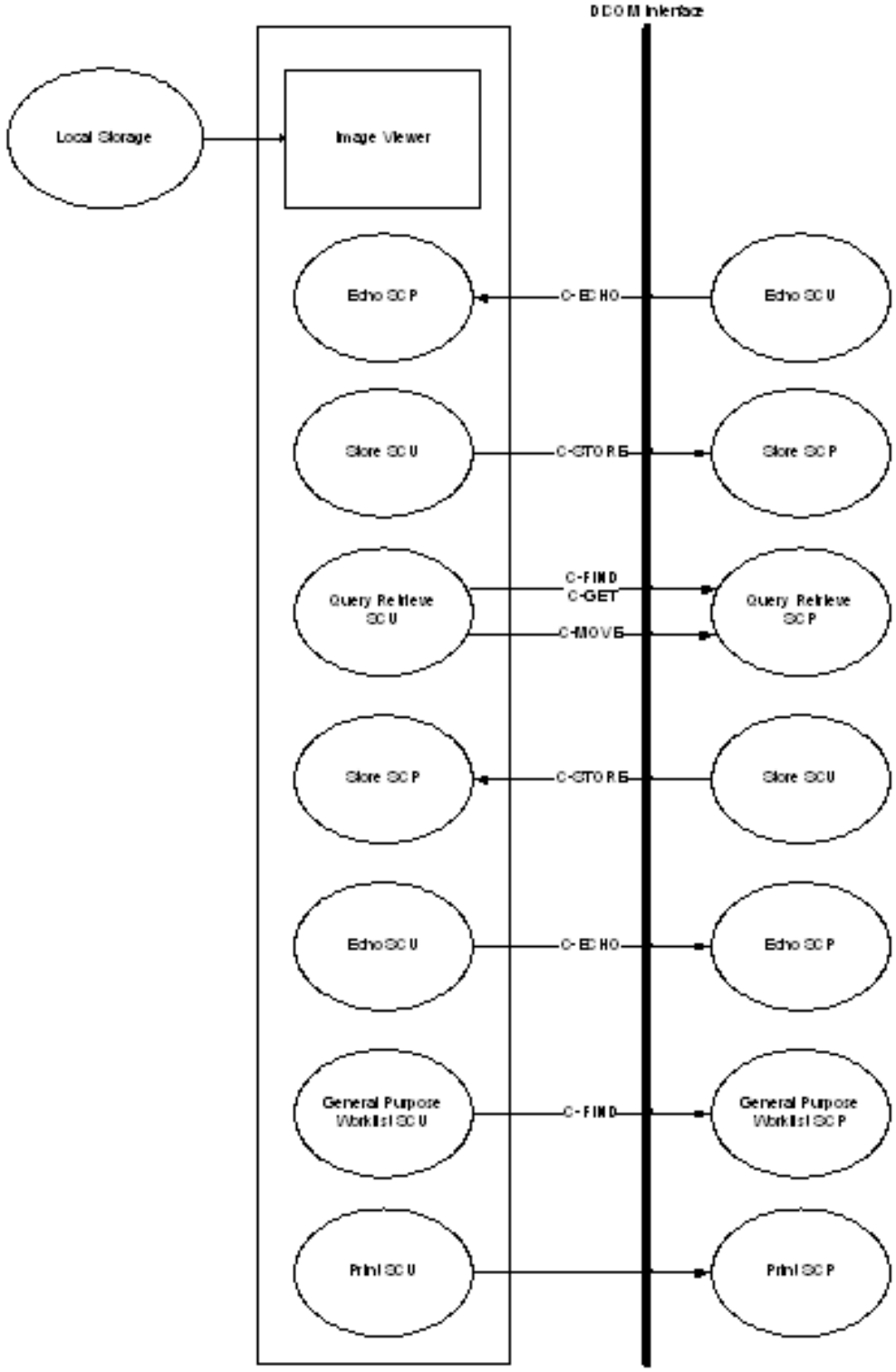
The implementation of Visbion's Image Viewer has been carefully tested to ensure compliance with this Conformance Statement. However, the Conformance Statement and the DICOM standard does not guarantee interoperability of Visbion's products and modalities of other vendors. The user must compare the relevant Conformance Statements and, if a successful association is established, the user is responsible for testing and validating the interoperability that is required.

2 DICOM Conformance Statement – Networking

2.1 Implementation Model

2.1.1 Application Data Flow Diagram

The basic and specific application models for Image Viewer (IV) are shown in the diagram below:



2.1.2 Functional Definition of Application Entities

Image Viewer is the user interface to support the viewing, retrieving and sending of images and data. It supports the following service classes:

Service Class	Role
Verification	SCU + SCP
Storage	SCU + SCP
Query / Retrieve	SCU
General Purpose Worklist Management	SCU
DICOM Print	SCU

2.1.3 Sequencing of Real-World Activities

This is not applicable to the Image Viewer Application Entity (AE).

2.2 Image Viewer AE Specification

Image Viewer provides standard conformance to the following DICOM 3.0 Service-Object Pair (SOP) Classes as a Service Class Provider (SCP):

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Computed Radiography (CR) Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1
Computed Tomography (CT) Image Storage	1.2.840.10008.5.1.4.1.1.2
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3

Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Magnetic Resonance (MR) Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Visual Light (VL) Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Positron Emission Tomography (PET) Image Storage	1.2.840.10008.5.1.4.1.1.128
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
Radiotheraphy (RT) Image Storage	1.2.840.10008.5.1.4.1.1.481.1

Image Viewer provides standard conformance to the following DICOM 3.0 SOP Classes as a Service Class User (SCU):

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
Printer SOP Class	1.2.840.10008.5.1.1.16
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1
Computed Tomography Image Storage	1.2.840.10008.5.1.4.1.1.2
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Magnetic Resonance Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7

Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
Patient Root Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.1.2
Patient Root Query/Retrieve Information Model – C-GET	1.2.840.10008.5.1.4.1.2.1.3
Study Root Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.2.2
Study Root Query/Retrieve Information Model – C-GET	1.2.840.10008.5.1.4.1.2.2.3
Patient/Study Only Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.3.1

Patient/Study Only Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.3.2
Patient/Study Only Query/Retrieve Information Model – C-GET	1.2.840.10008.5.1.4.1.2.3.3
General Purpose Worklist Information Model – C-FIND	1.2.840.10008.5.1.4.32.1

2.2.1 Association Establishment Policies

2.2.1.1 General

Image Viewer's DICOM Application Context Name, which is always proposed, is:

Application Context Name	1.2.840.10008.3.1.1.1

The maximum length of a Protocol Data Unit (PDU) for an association initiated by the IV DICOM Integration Module AE is 32kb.

The maximum length PDU negotiation is included in all association establishment requests.

SOP class Extended Negotiation is not supported.

2.2.1.2 Number of Associations

Image Viewer can accept or initiate a single DICOM association at any point in time.

2.2.1.3 Asynchronous Nature

Asynchronous mode is not supported. All operations will be performed synchronously.

2.2.1.4 Implementation Identifying Policy

The details for this DICOM 3.0 implementation are:

DICOM Integration Module Implementation UID	1.2.826.0.1.3722626.2.1.50205
DICOM Integration Module Implementation Version	SCDCM_50205

2.2.2 Association Initiation by Real-World Activity

Image Viewer attempts to initiate an association due to the user requesting a DICOM send, query/retrieve or a worklist from the Visbion Picture Archiving and Communications System (PACS) Server.

2.2.2.1 Real-World Activity <Send Image(s) to Remote AE>

Associated Real-World Activity

Image Viewer can send images to another DICOM-compatible workstation using C-STORE commands.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 1	Note 1	SCP	None
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 1	Note 1	SCU	None
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 1	Note 1	SCU	None
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2	Note 1	Note 1	SCU	None
Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1	Note 1	Note 1	SCU	None
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3	Note 1	Note 1	SCU	None
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1	Note 1	Note 1	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 1	Note 1	SCU	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Note 1	Note 1	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 1	Note 1	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 1	Note 1	SCU	None
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Note 1	Note 1	SCU	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Note 1	Note 1	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 1	Note 1	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 1	Note 1	SCU	None

Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Note 1	Note 1	SCU	None
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Note 1	Note 1	SCU	None
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 1	Note 1	SCU	None
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 1	Note 1	SCU	None
X-ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Note 1	Note 1	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 1	Note 1	SCU	None
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Note 1	Note 1	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 1	Note 1	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 1	Note 1	SCU	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 1	Note 1	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 1	Note 1	SCU	None
VL Multi-frame Image Store (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Note 1	Note 1	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 1	Note 1	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 1	Note 1	SCU	None
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Note 1	Note 1	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Original/Existing Image	The UID will be one of the original/existing transfer syntaxes from the table below

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The original/existing transfer syntax can be one of the following:

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
Run Length Encoding (RLE) Lossless	1.2.840.10008.1.2.5
JPEG Baseline (Process 1): Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50
JPEG Extended (Process 2 and 4): Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Extended (Process 3 and 5) (Retired)	1.2.840.10008.1.2.4.52
JPEG Spectral Selection, Non-Hierarchical (Process 6 and 8) (Retired)	1.2.840.10008.1.2.4.53
JPEG Spectral Selection, Non-Hierarchical (Process 7 and 9) (Retired)	1.2.840.10008.1.2.4.54
JPEG Full Progression, Non-Hierarchical (Process 10 and 12) (Retired)	1.2.840.10008.1.2.4.55
JPEG Full Progression, Non-Hierarchical (Process 11 and 13) (Retired)	1.2.840.10008.1.2.4.56
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical (Process 15) (Retired)	1.2.840.10008.1.2.4.58
JPEG Extended, Hierarchical (Process 16 and 18) (Retired)	1.2.840.10008.1.2.4.59
JPEG Extended, Hierarchical (Process 17 and 19) (Retired)	1.2.840.10008.1.2.4.60
JPEG Spectral Selection, Hierarchical (Process 20 and 22) (Retired)	1.2.840.10008.1.2.4.61
JPEG Spectral Selection, Hierarchical (Process 21 and 23) (Retired)	1.2.840.10008.1.2.4.62
JPEG Full Progression, Hierarchical (Process 24 and 26) (Retired)	1.2.840.10008.1.2.4.63
JPEG Full Progression, Hierarchical (Process 25 and 27) (Retired)	1.2.840.10008.1.2.4.64

JPEG Lossless, Hierarchical (Process 28) (Retired)	1.2.840.10008.1.2.4.65
JPEG Lossless, Hierarchical (Process 29) (Retired)	1.2.840.10008.1.2.4.66
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
Explicit VR Deflated Little Endian	1.2.840.10008.1.2.4.99
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100

Image Viewer will only send optional and private data elements from stored images that it has previously received as a C-STORE Service Class Provider (SCP). The module will not add any new elements of its own.

2.2.2.2 Real-World Activity <Request Worklist from Visbion PACS>

Associated Real-World Activity

Image Viewer users can request a worklist from the Visbion PACS using the General Purpose Worklist Information Model – C-FIND.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
General Purpose Worklist Information Model – C-FIND	1.2.840.10008.5.1.4.32.1	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The search keys are:

Description	Tag
Study Instance UID	(0020, 000D)
Study ID	(0020, 0010)
Study Date	(0008, 0020)
Study Time	(0008, 0030)
Referring Physician's Name	(0008, 0090)
Study Description	(0008, 1030)
Accession Number	(0008, 0050)
Patient's Name	(0010, 0010)
Patient ID	(0010, 0020)
Other Patient IDs	(0010, 1000)
Patient's Birth Date	(0010, 0030)
Patient's Sex	(0010, 0040)
Modality	(0008, 0060)
Series Instance UID	(0020, 000E)
Series Number	(0020, 0011)
Body Part Examined	(0018, 0015)

2.2.2.3 Real-World Activity <Query for Exam Information>

Associated Real-World Activity

The Image Viewer user can locate an exam and its images that reside on a DICOM-compatible device. Image Viewer will query the archive using one of the DICOM information model query methods.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.1.1	Note 1	Note 1	SCU	None

Study Root Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.2.1	Note 1	Note 1	SCU	None
Patient/Study Only Query/Retrieve Information Model – C-FIND	1.2.840.10008.5.1.4.1.2.3.1	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The search keys are:

Description	Tag
Study Instance UID	(0020, 000D)
Study ID	(0020, 0010)
Study Date	(0008, 0020)
Study Time	(0008, 0030)
Referring Physician's Name	(0008, 0090)
Study Description	(0008, 1030)
Accession Number	(0008, 0050)
Patient's Name	(0010, 0010)
Patient ID	(0010, 0020)
Other Patient IDs	(0010, 1000)
Patient's Birth Date	(0010, 0030)
Patient's Sex	(0010, 0040)
Modality	(0008, 0060)
Series Instance UID	(0020, 000E)
Series Number	(0020, 0011)
Body Part Examined	(0018, 0015)

2.2.2.4 Real-World Activity <Retrieve Exam Information>

Associated Real-World Activity

The Image Viewer user can locate an exam and its images that reside on a DICOM-compatible device. Image Viewer will query the archive using one of the DICOM information model query methods. The Image Viewer user locates an exam to view that in turn will cause a C-MOVE command to be executed to instruct the device to copy the exam's images to the viewer.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.1.2	Note 1	Note 1	SCU	None
Study Root Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.2.2	Note 1	Note 1	SCU	None
Patient/Study Only Query/Retrieve Information Model – C-MOVE	1.2.840.10008.5.1.4.1.2.3.2	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The user can select between Patient Root, Study Root or Patient/Study Only Query/Retrieve Information Models.

2.2.2.5 Real-World Activity <DICOM Print>

Associated Real-World Activity

Image Viewer can send images and formats information to a DICOM Print Management Service Class Provider for printing.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Note 1	Note 1	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Original/Existing Image	The UID will be one of the original/existing transfer syntaxes from the table below
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The original/existing transfer syntax can be one of the following:

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
Run Length Encoding (RLE) Lossless	1.2.840.10008.1.2.5
JPEG Baseline (Process 1): Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50
JPEG Extended (Process 2 and 4): Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Extended (Process 3 and 5) (Retired)	1.2.840.10008.1.2.4.52

JPEG Spectral Selection, Non-Hierarchical (Process 6 and 8) (Retired)	1.2.840.10008.1.2.4.53
JPEG Spectral Selection, Non-Hierarchical (Process 7 and 9) (Retired)	1.2.840.10008.1.2.4.54
JPEG Full Progression, Non-Hierarchical (Process 10 and 12) (Retired)	1.2.840.10008.1.2.4.55
JPEG Full Progression, Non-Hierarchical (Process 11 and 13) (Retired)	1.2.840.10008.1.2.4.56
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical (Process 15) (Retired)	1.2.840.10008.1.2.4.58
JPEG Extended, Hierarchical (Process 16 and 18) (Retired)	1.2.840.10008.1.2.4.59
JPEG Extended, Hierarchical (Process 17 and 19) (Retired)	1.2.840.10008.1.2.4.60
JPEG Spectral Selection, Hierarchical (Process 20 and 22) (Retired)	1.2.840.10008.1.2.4.61
JPEG Spectral Selection, Hierarchical (Process 21 and 23) (Retired)	1.2.840.10008.1.2.4.62
JPEG Full Progression, Hierarchical (Process 24 and 26) (Retired)	1.2.840.10008.1.2.4.63
JPEG Full Progression, Hierarchical (Process 25 and 27) (Retired)	1.2.840.10008.1.2.4.64
JPEG Lossless, Hierarchical (Process 28) (Retired)	1.2.840.10008.1.2.4.65
JPEG Lossless, Hierarchical (Process 29) (Retired)	1.2.840.10008.1.2.4.66
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
Explicit VR Deflated Little Endian	1.2.840.10008.1.2.4.99
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100

2.2.3 Association Acceptance Policies

Image Viewer will only carry out operations following a request from a Remote AE for storage and verification.

2.2.3.1 Real-World Activity <Verification Request from Remote AE>

Image Viewer is permanently listening for associations and no operator action is required to initiate the handling of a verification request.

Associated Real-World Activity

The Real-World Activity associated with this request is for the Image Viewer AE to send a C-ECHO response message with a status of 'success' to the requesting AE.

Proposed Presentation Context Table

Presentation Context Table – Proposed					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Verification	1.2.840.10008.1.1	Note 1	Note 1	SCP	None

Note 1 – The following transfer syntax options will be proposed in the order of preference shown:

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

Image Viewer conforms to the standard for the DICOM Verification Service Class.

2.2.3.2 Real-World Activity <Storage Request from Remote AE>

The Image Viewer AE continually listens for associations and no operator action is required to receive an image.

Associated Real-World Activity

The associated Real-World Activity for this service is to accept an image and display it.

Accepted Presentation Context Table

Presentation Context Table – Accepted					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 1	Note 1	SCP	None
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 1	Note 1	SCU	None
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 1	Note 1	SCU	None
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2	Note 1	Note 1	SCU	None
Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1	Note 1	Note 1	SCU	None
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3	Note 1	Note 1	SCU	None
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1	Note 1	Note 1	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 1	Note 1	SCU	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Note 1	Note 1	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 1	Note 1	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 1	Note 1	SCU	None
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Note 1	Note 1	SCU	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Note 1	Note 1	SCU	None

Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 1	Note 1	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 1	Note 1	SCU	None
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Note 1	Note 1	SCU	None
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Note 1	Note 1	SCU	None
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 1	Note 1	SCU	None
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 1	Note 1	SCU	None
X-ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 1	Note 1	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 1	Note 1	SCU	None
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Note 1	Note 1	SCU	None
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Note 1	Note 1	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 1	Note 1	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 1	Note 1	SCU	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 1	Note 1	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 1	Note 1	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 1	Note 1	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 1	Note 1	SCU	None
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Note 1	Note 1	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Note 1	Note 1	SCU	None

Note 1 – The following transfer syntax options will be accepted.

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
Run Length Encoding (RLE) Lossless	1.2.840.10008.1.2.5
JPEG Baseline (Process 1): Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50
JPEG Extended (Process 2 and 4): Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Extended (Process 3 and 5) (Retired)	1.2.840.10008.1.2.4.52
JPEG Spectral Selection, Non-Hierarchical (Process 6 and 8) (Retired)	1.2.840.10008.1.2.4.53
JPEG Spectral Selection, Non-Hierarchical (Process 7 and 9) (Retired)	1.2.840.10008.1.2.4.54
JPEG Full Progression, Non-Hierarchical (Process 10 and 12) (Retired)	1.2.840.10008.1.2.4.55
JPEG Full Progression, Non-Hierarchical (Process 11 and 13) (Retired)	1.2.840.10008.1.2.4.56
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical (Process 15) (Retired)	1.2.840.10008.1.2.4.58
JPEG Extended, Hierarchical (Process 16 and 18) (Retired)	1.2.840.10008.1.2.4.59
JPEG Extended, Hierarchical (Process 17 and 19) (Retired)	1.2.840.10008.1.2.4.60
JPEG Spectral Selection, Hierarchical (Process 20 and 22) (Retired)	1.2.840.10008.1.2.4.61
JPEG Spectral Selection, Hierarchical (Process 21 and 23) (Retired)	1.2.840.10008.1.2.4.62
JPEG Full Progression, Hierarchical (Process 24 and 26) (Retired)	1.2.840.10008.1.2.4.63
JPEG Full Progression, Hierarchical (Process 25 and 27) (Retired)	1.2.840.10008.1.2.4.64
JPEG Lossless, Hierarchical (Process 28) (Retired)	1.2.840.10008.1.2.4.65
JPEG Lossless, Hierarchical (Process 29) (Retired)	1.2.840.10008.1.2.4.66
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70

JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Explicit VR Deflated Little Endian	1.2.840.10008.1.2.4.99

Presentation Context Acceptance Criterion

The Image Viewer AE will accept any number of presentation contexts listed in the Accepted Presentation Context Table above. The AE will reject any requests received from remote AEs who are not listed in the local database of accepted AEs.

Transfer Syntax Selection Policies

The Image Viewer AE will select the first presented transfer syntax that it supports.

2.3 Communication Profiles

2.3.1 Supported Communication Stacks

2.3.1.1 Open Systems Interconnection (OSI) Stack

The OSI Stack is not supported.

2.3.1.2 Transmission Control Protocol/Internet Protocol (TCP/IP) Stack

The TCP/IP stack is inherited from Microsoft® Windows®.

2.3.1.3 Physical Media Support

Ethernet v2.0, Institute of Electrical and Electronics Engineers (IEEE) 802.3.

2.3.1.4 Point-to-Point Stack

The 50-pin American College of Radiology-National Electrical Manufacturers Association (ACR-NEMA) connection is not supported by this product.

2.4 Extensions/Specialisations/Privatisations

Image Viewer uses privatisations for the following functions:

- ¥ Key image setting
- ¥ Overlays
- ¥ Overlay storage
- ¥ General Purpose Worklists
- ¥ Manual calibration
- ¥ C-FIND query for Study only.

2.5 Configuration

2.5.1 Configurable Parameters

At the operating system level, the Internet Protocol (IP) address, netmask, default gateway and Domain Naming Service (DNS) servers must be configured. The IP address must be static; if preferred the IP address can be dynamically assigned but must be reserved on the Dynamic Host Configuration Protocol (DHCP) Server.

The following settings must be configured in the Image Viewer DICOM Integration Module.

2.5.1.1 Local AE

- ¥ Local Port Number
- ¥ Local AE Title.

2.5.1.2 Remote AE

- ¥ Description
- ¥ Host Name
- ¥ Port Number
- ¥ AE Title
- ¥ Provider.

Visbion engineers can assist in the configuration of the parameters above and will require the port number, IP address, AE title and host name description for each device/modality that Image Viewer has permission to query, retrieve and send images. The text description field is used to enable users to identify the various devices.

2.6 Support of Extended Character Sets

This AE does not support Extended Character Sets.

3 DICOM Conformance Statement – Media Storage

3.1 Implementation Model

Image Viewer can create CD-R/CD-RW media and also export the images onto local storage with various SOP class instances.

3.1.1 Application Data Flow Diagram

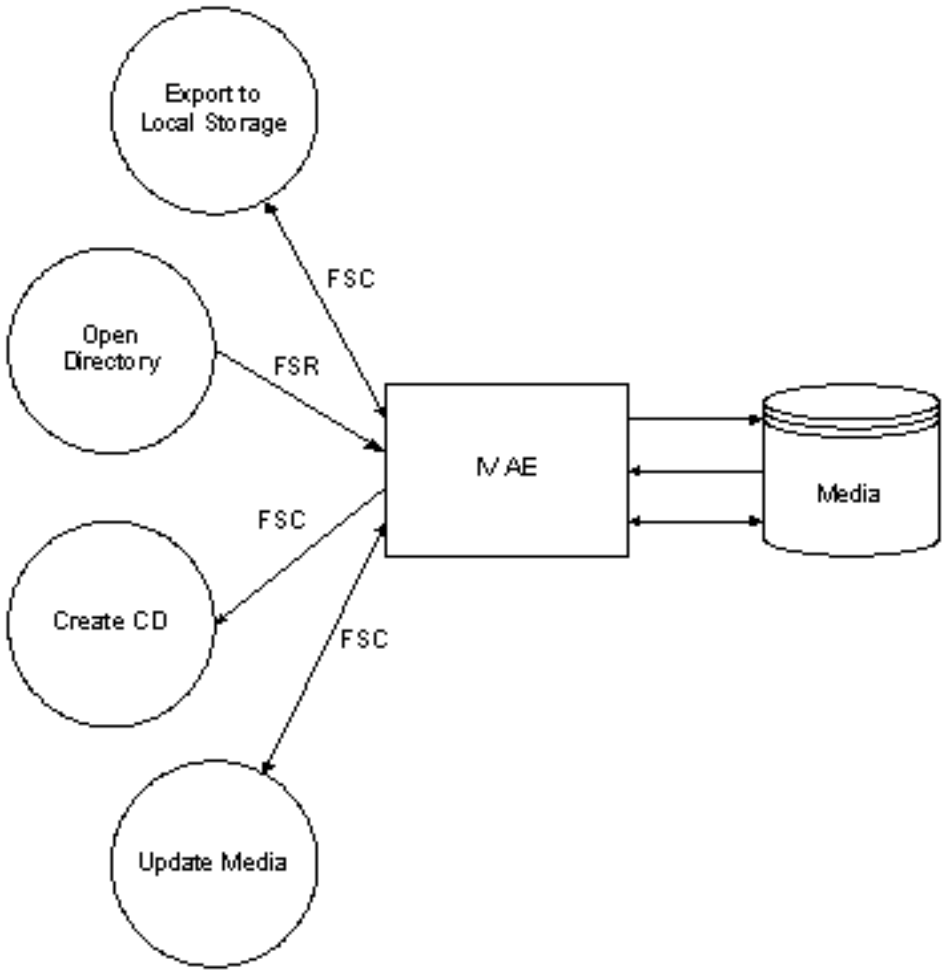


Image Viewer can act as an File Set Creator (FSC) to create a new DICOM file set on local storage (CD or CD-R). It initialises the DICOM file set and writes the specified SOP instances onto the media. Only those SOP instances included in the supported application profiles will be written to the media. The File Set Updater (FSU) will only update SOP instances to media with a DICOM file set conforming to one of the application profiles supported.

3.1.2 Functional Definitions of AEs

This Image Viewer application is capable of:

- ¥ Writing a new DICOM file set onto formatted media
- ¥ Displaying a directory listing of the file set from the media
- ¥ Exporting a copy of the SOP instances onto local storage
- ¥ Updating media by writing new SOP instances onto the media.

3.1.3 Sequencing of Real Word Activities

The updating can only be done on media with a DICOM file set and only on media that has write capability.

3.1.4 File Meta Information

The details for this DICOM 3.0 implementation are:

IV DICOM Integration Module Implementation UID	1.2.826.0.1.3722626.2.1.50205
IV DICOM Integration Module Implementation Version	SCDCM_50205

3.2 AE Specifications

3.2.1 Image Viewer Specification

Image Viewer provides standard conformance to the DICOM Interchange Option of the Media Storage Service Class. The application profiles and roles are listed below:

Application Profiles Supported	Real-Word Activity	Role	SC Option
STD-GEN-CD STD-CTMR-CD	Open Directory	FSR	Interchange
	Update Media	FSC	Interchange
	Create CD	FSC	Interchange
	Copy to Local Storage	FSC	Interchange

3.2.1.1 File Meta Information for the Application Entity

The Source Application Entity Title is set by the user in the DICOM settings.

3.2.1.2 Real-World Activities

Real-World Activity – Open Directory

Image Viewer acts as a File Set Reader (FSR) using the interchange option when requested to open the media directory.

Image Viewer reads the DICOMDIR and allows the user to select either the whole directory or just sections of the directory. Those items selected are then displayed in the viewer.

Media Storage Application Profile

For the list of application profiles that invoke this AE for the Open Directory Real-World Activity, refer to the table above.

Real-World Activity – Create CD

Image Viewer acts as an FSC using the interchange option when creating the root directory, DICOMDIR, subdirectory and the DICOM files.

Image Viewer will not close CD-R media.

Media Storage Application Profile

For the list of application profiles that invoke this AE for the Create CD Real-World Activity, refer to the table above.

Real-World Activity – Copy to Local Storage

Image Viewer acts as an FSC using the interchange option when copying images to a local directory. The same process is followed as to create a CD but the user specifies a local folder to store the root directory, DICOMDIR, subdirectory and the DICOM files.

Media Storage Application Profile

For the list of application profiles that invoke this AE for the Copy to Local Storage Real-World Activity, refer to the table in *3.2.1 Image Viewer Specification.*.

Real-World Activity – Update Media

Image Viewer acts as an FSC using the interchange option when requesting to update the CD-R, as it does not change the existing DICOMDIR on the CD-R. A new DICOMDIR and folder structure is created if the CD-R has not been closed.

Media Storage Application Profile

For the list of application profiles that invoke this AE for the Update Media Real-World Activity, refer to the table in *3.2.1 Image Viewer Specification.*.

3.2.1.3 SOP Classes and Transfer Syntaxes STD-GEN-CD

For media conforming to the STD-GEN-CD profile, the following SOP classes will be supported:

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No

Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No

Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
X-ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No

VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No

Note: Detached Patient Management is not supported.

3.2.1.4 SOP Classes and Transfer Syntaxes STD-CTMR-CD

For media conforming to the STD-CTMR-CD profile, the following SOP classes will be supported:

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	JPEG Lossless Non-Hierarchical, First-Order Prediction (Process 14 [selection value 1]) 1.2.840.10008.1.2.4.70	Yes	Yes	Yes

MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	JPEG Lossless Non-Hierarchical, First-Order Prediction (Process 14 [selection value 1]) 1.2.840.10008.1.2.4.70	Yes	Yes	Yes
Secondary Capture Image Storage (grayscale)	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	Yes
Secondary Capture Image Storage (grayscale)	1.2.840.10008.5.1.4.1.1.7	JPEG Lossless Non-Hierarchical, First-Order Prediction (Process 14 [selection value 1]) 1.2.840.10008.1.2.4.70	Yes	Yes	Yes
Secondary Capture Image Storage (palette color)	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian Uncompressed 1.2.840.10008.1.2.1	Yes	Yes	Yes
Secondary Capture Image Storage (palette color)	1.2.840.10008.5.1.4.1.1.7	JPEG Lossless Non-Hierarchical, First-Order Prediction (Process 14 [selection value 1]) 1.2.840.10008.1.2.4.70	Yes	Yes	Yes

Note: Detached Patient Management is not supported.

3.3 Augmented and Private Application Profiles

3.3.1 Augmented Application Profiles

3.3.1.1 AUG-GEN-CD Application Profile

Image Viewer provides extended conformance to DICOM Interchange Option of the Media Storage Service Class. The application profiles and roles are listed below:

Application Profiles Supported	Real Word Activity	Role	SC Option
AUG-GEN-CD	Open Directory	FSR	Interchange
	Update Media	FSC	Interchange
	Create CD	FSC	Interchange
	Copy to Local Storage	FSC	Interchange

SOP Class Augmentations

IOD	SOP Class UID	Transfer Syntax and UID	FSC	FSR	FSU
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1 (Uncompressed)	Yes	Yes	No
IOD	**SOP Class UID**	**Transfer Syntax and UID**	**FSC**	**FSR**	**FSU**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 1	Yes	Yes	No
Digital X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 1	Yes	Yes	No
Digital X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 1	Yes	Yes	No
Digital Mammography X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.2	Note 1	Yes	Yes	No
Digital Mammography X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.2.1	Note 1	Yes	Yes	No
Digital Intra-oral X-ray Image Storage for presentation	1.2.840.10008.5.1.4.1.1.1.3	Note 1	Yes	Yes	No
Digital Intra-oral X-ray Image Storage for processing	1.2.840.10008.5.1.4.1.1.1.3.1	Note 1	Yes	Yes	No

CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 1	Yes	Yes	No
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Note 1	Yes	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 1	Yes	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 1	Yes	Yes	No
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Note 1	Yes	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Note 1	Yes	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 1	Yes	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 1	Yes	Yes	No
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Note 1	Yes	Yes	No
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Note 1	Yes	Yes	No
X-ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 1	Yes	Yes	No
X-ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 1	Yes	Yes	No
X-ray Angiographic BiPlane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 1	Yes	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 1	Yes	Yes	No
VL Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Note 1	Yes	Yes	No
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Note 1	Yes	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 1	Yes	Yes	No

VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 1	Yes	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 1	Yes	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 1	Yes	Yes	No
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 1	Yes	Yes	No
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 1	Yes	Yes	No
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Note 1	Yes	Yes	No
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Note 1	Yes	Yes	No

Note 1 – Any of the following transfer syntaxes may be used. This will depend on the transfer syntaxes used when receiving the object.

Name	UID
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
Original/Existing Image	The UID will be one of the original/existing transfer syntaxes from the table below
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
Run Length Encoding (RLE) Lossless	1.2.840.10008.1.2.5
JPEG Baseline (Process 1): Lossy JPEG 8-bit Image Compression	1.2.840.10008.1.2.4.50
JPEG Extended (Process 2 and 4): Lossy JPEG 12-bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Extended (Process 3 and 5) (Retired)	1.2.840.10008.1.2.4.52
JPEG Spectral Selection, Non-Hierarchical (Process 6 and 8) (Retired)	1.2.840.10008.1.2.4.53
JPEG Spectral Selection, Non-Hierarchical (Process 7 and 9) (Retired)	1.2.840.10008.1.2.4.54

JPEG Full Progression, Non-Hierarchical (Process 10 and 12) (Retired)	1.2.840.10008.1.2.4.55
JPEG Full Progression, Non-Hierarchical (Process 11 and 13) (Retired)	1.2.840.10008.1.2.4.56
JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Non-Hierarchical (Process 15) (Retired)	1.2.840.10008.1.2.4.58
JPEG Extended, Hierarchical (Process 16 and 18) (Retired)	1.2.840.10008.1.2.4.59
JPEG Extended, Hierarchical (Process 17 and 19) (Retired)	1.2.840.10008.1.2.4.60
JPEG Spectral Selection, Hierarchical (Process 20 and 22) (Retired)	1.2.840.10008.1.2.4.61
JPEG Spectral Selection, Hierarchical (Process 21 and 23) (Retired)	1.2.840.10008.1.2.4.62
JPEG Full Progression, Hierarchical (Process 24 and 26) (Retired)	1.2.840.10008.1.2.4.63
JPEG Full Progression, Hierarchical (Process 25 and 27) (Retired)	1.2.840.10008.1.2.4.64
JPEG Lossless, Hierarchical (Process 28) (Retired)	1.2.840.10008.1.2.4.65
JPEG Lossless, Hierarchical (Process 29) (Retired)	1.2.840.10008.1.2.4.66
JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
Explicit VR Deflated Little Endian	1.2.840.10008.1.2.4.99
MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100

Note: Detached Patient Management is not supported.

Directory Augmentations

None

Other Augmentations

None

3.3.2 Private Application Profiles

None

3.4 Extensions/Specialisations/Privatisations

There are no extensions, specialisations or privatisations in use in this product.

3.5 Support of Extended Character Sets

This Application Entity does not support Extended Character Sets.

3.6 Codes and Controlled Terminology

The SOP Classes supported by this implementation do not support the use of codes and controlled terminology.

3.7 Security Profiles

None

4 Contacting Visbion

4.1 Visbion Solutions

Visbion delivers diagnostic imaging solutions to meet the demanding needs of clinicians. Our emphasis is on providing better patient care by maximising the efficiency and accuracy with which clinicians work. To do this we rely on extensive clinical feedback as we develop and deliver our products to institutions around the world.

Our product suite consists of solutions and applications developed to meet the requirements of individuals and large imaging departments alike. Visbion's manufacturer-independent, standards-based, enterprise-wide solutions, IPACS and VPACS, are delivered and supported by dedicated and comprehensive professional services.

To learn more about the Visbion range of solutions, visit our website at: www.visbion.com

4.2 Technical Support

If you have a technical question that cannot be answered by this guide, the online help or the system administrator, please visit the support area on our website to access customer support:

www.visbion.com/support

4.3 Visbion Headquarters

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