

# EasyViz 2.8 VPS DICOM Conformance Statement

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# 1 Conformance Statement Overview

The EasyViz VPS implements the necessary DICOM services to query, retrieve and store CR, CT, MR, US, SC, XA, RF, DX, and MG images.

The DICOM Networking Services supported by EasyViz VPS are listed in Table 1. The EasyViz VPS does not support any DICOM Media Interchange Services.

Networking SOP Classes	User of Service (SCU)	Provider of Service (SCP)
<i>Transfer</i>		
Computed Radiography Image Storage	No	Yes
CT Image Storage	No	Yes
Digital Mammography X-Ray Image Storage - For Presentation	No	Yes
Digital Mammography X-Ray Image Storage - For Processing	No	Yes
Digital X-Ray Image Storage - For Presentation	No	Yes
Digital X-Ray Image Storage - For Processing	No	Yes
Grayscale Softcopy Presentation State Storage SOP Class	No	Yes
Hardcopy Color Image Storage SOP Class	No	Yes
Hardcopy Grayscale Image Storage SOP Class	No	Yes
Key Object Selection Document	No	Yes
MR Image Storage	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage	No	Yes
Multi-frame True Color Secondary Capture Image Storage	No	Yes
Positron Emission Tomography Image Storage	No	Yes
Secondary Capture Image Storage	No	Yes
Ultrasound Image Storage	No	Yes
Ultrasound Image Storage (Retired)	No	Yes
Ultrasound Multi-frame Image Storage	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	No	Yes
X-Ray Angiographic Image Storage	No	Yes
X-Ray Radiofluoroscopic Image Storage	No	Yes
<i>Query/Retrieve</i>		

<b>Networking SOP Classes</b>	<b>User of Service (SCU)</b>	<b>Provider of Service (SCP)</b>
Study Root Q/R Information Model - FIND	Yes	No
Study Root Q/R Information Model - MOVE	Yes	No
<i>Connectivity Verification</i>		
Verification	No	Yes

Table 1: Network Services supported by EasyViz VPS.

## 2 Introduction

### 2.1 Revision History

Version	Date of Issue	Author	Description
v0.1	December 13, 2004	NHK	Initial draft.
v0.2	January 13, 2005	NHK	Second draft.
v0.3	February 4, 2005	NHK	Third draft.
v0.4	March 2, 2005	NHK	Fourth draft.
v0.5	April 20, 2005	NHK	Fifth draft.
v0.6	September 29, 2006	NHK	Updated list of supported transfer syntaxes.
v0.7	November 14, 2006	NHK	Updated list of supported transfer syntaxes.
v0.8	July 31, 2007	NHK	Updated to new document template.

### 2.2 Audience

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

### 2.3 Remarks

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

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

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

The user should be aware of the following important issues:

- The comparison of different conformance statements is the first step towards assessing interconnectivity between Medical Insight A/S and non-Medical Insight A/S equipment.
- Test procedures should be defined to validate the desired level of connectivity.
- The DICOM Standard will evolve to meet the users' future requirements. Medical Insight A/S is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

## 2.4 Definitions, Terms and Abbreviations

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard. A list of abbreviations and terms can be seen in Table 2.

Abbreviation	Description
AE	DICOM Application Entity.
AET	Application Entity Title.
CD-R	CD Recordable.
CR	Computed Radiography.
CT	Computed Tomography.
DICOM	Digital Imaging and Communications in Medicine.
DX	Digital X-Ray.
FSC	File Set Creator.
FSU	File Set Updater.
FSR	File Set Reader.
GSDf	Grayscale Standard Display Function.
GSPS	Grayscale Presentation State.
MG	Mammography.
MR	Magnetic Resonance.
SC	Secondary Capture.
SCP	DICOM Service Class Provider (DICOM Server).
SCU	DICOM Service Class User (DICOM Client).
SOP	DICOM Service-Object Pair.
US	Ultrasound.
XA	X-Ray Angiographic.
RF	X-Ray Radiofluoroscopic.

Table 2: Abbreviations and Terms.

## 2.5 References

- [DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-3.18, 2004.  
National Electrical Manufacturers Association (NEMA), 1300N 17th Street, Rosslyn, Virginia 22209, USA
- [EVID] EasyViz Image Display DICOM Conformance Statement.  
Medical Insight A/S, Hovedgaden 451, DK-2640 Hedehusene, Denmark.

### 3 Networking

#### 3.1 Implementation Model

The EasyViz VPS DICOM Services are implemented in a single daemon process, which is launched at system startup.

EasyViz VPS is logically divided into two separate Application Entities: Query/Retrieve SCU and Storage SCP.

##### 3.1.1 Application Data Flow

Application data flow diagram for the EasyViz VPS can be seen on Figure 1.

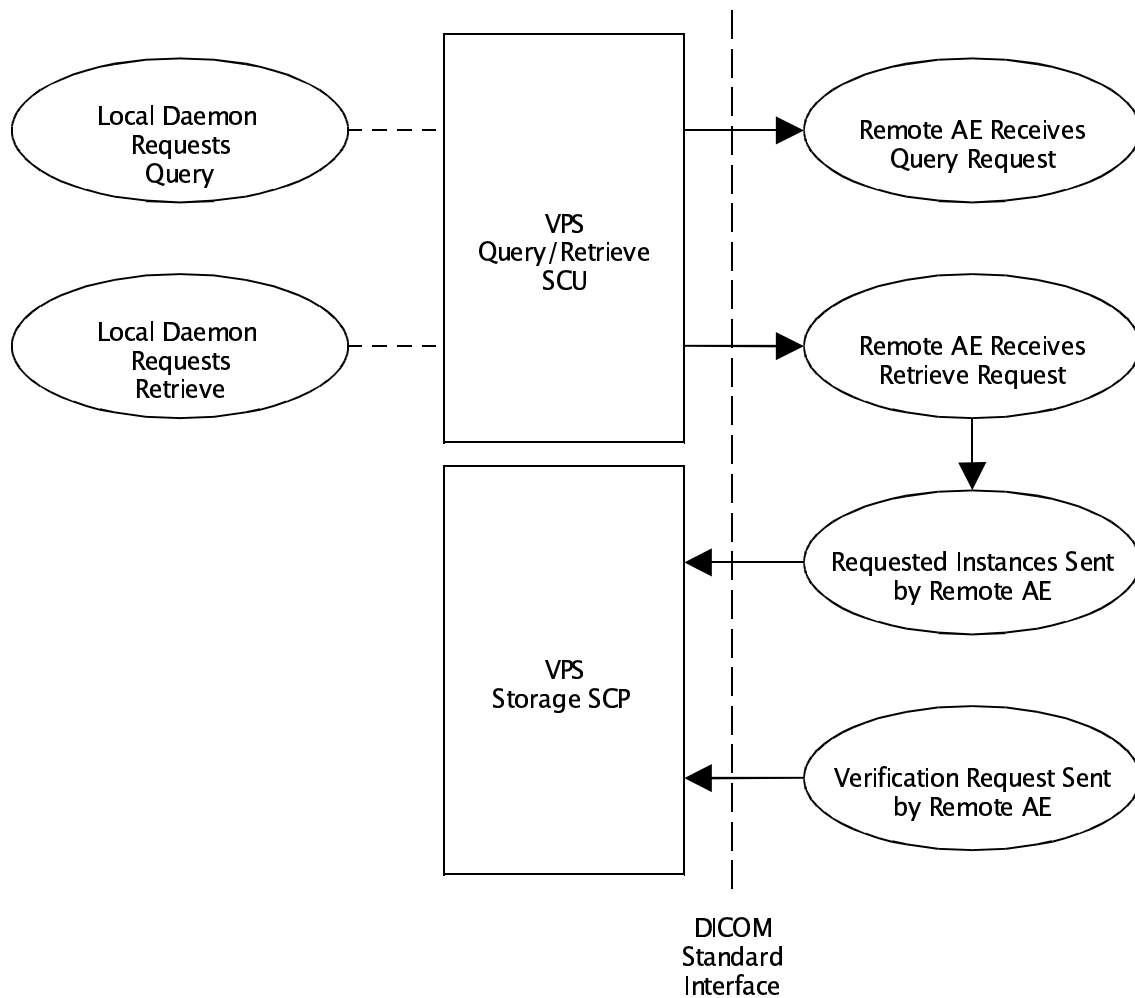


Figure 1: Application Data Flow Diagram.

## 3.1.2 Functional Definitions of AE's

### 3.1.2.1 Functional Definition: Query/Retrieve SCU

The Query/Retrieve SCU Application Entity provides DICOM Services to query and retrieve images and other DICOM objects from remote DICOM Application Entities.

*The Query/Retrieve SCU Provides DICOM Services to:*

- Query and retrieve DICOM Instances from DICOM peer Application Entities using the DICOM Query/Retrieve SOP (Acting as SCU).

### 3.1.2.2 Functional Definition: Storage SCP

The Storage SCP provides DICOM Storage Services to receive images from remote Application Entities. Any DICOM Instance received by the Storage SCP will be added to the internal database.

Moreover, the Storage SCP provides DICOM Verification Services for connectivity verification.

*The Storage SCP Provides DICOM Services to:*

- Receive images from DICOM peer Application Entities using a number of DICOM Storage SOPs (Acting as SCP).
- Verify the connection to DICOM peer Application Entities using the DICOM Verification SOP (Acting as SCP).

## 3.1.3 Sequencing of Real World Activities

The sequencing constraints for EasyViz VPS can be seen on Figure 2. The only constraint is that the Composite SOP Instance must be received before an internal query – i.e. by the EasyViz Image Display, see [EVID] – can be handled successfully.

The VPS Query/Retrieve SCU will not query a remote application entity for information on a Composite SOP Instances until the first instance belonging to the Composite SOP Instance has been received by the VPS Storage SCP.

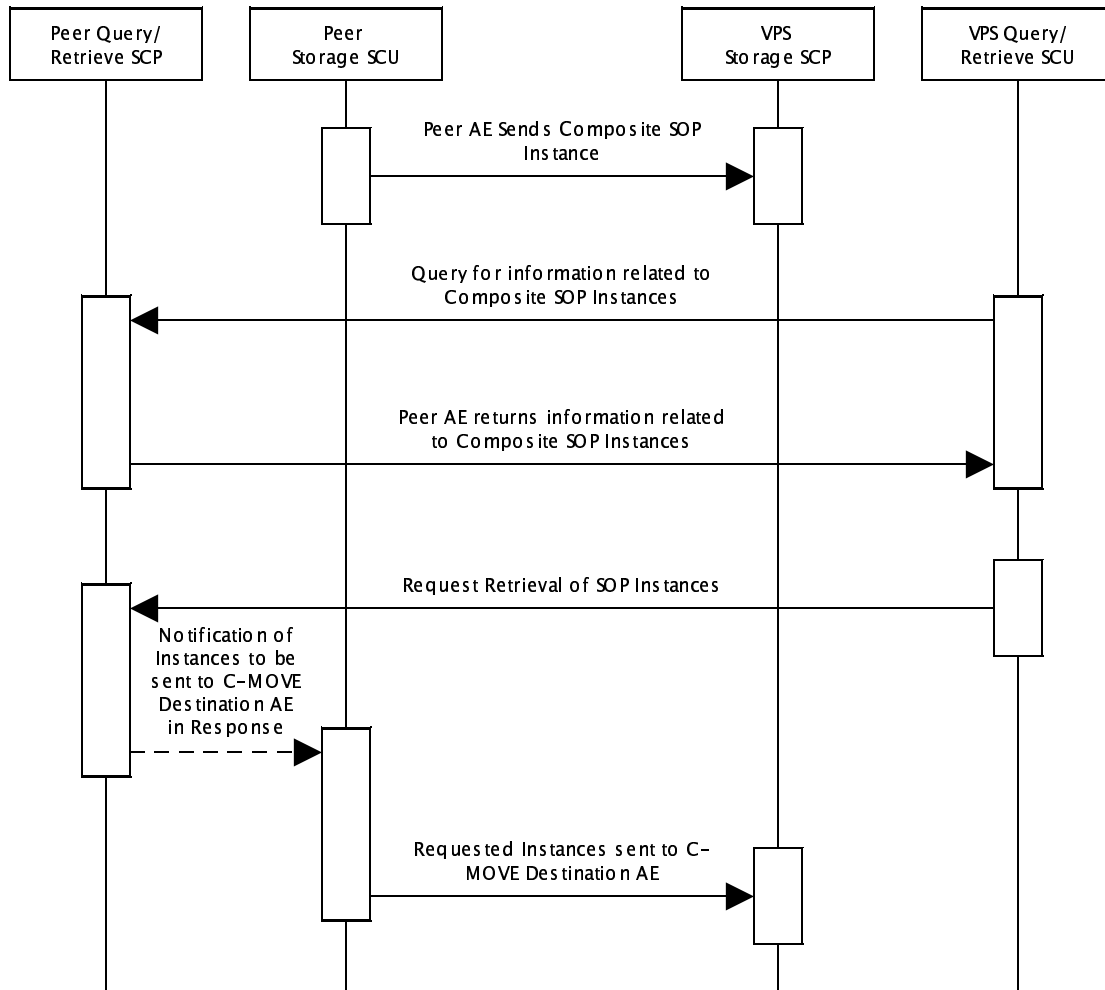


Figure 2: Sequencing Constraints.

## 3.2 AE Specifications

### 3.2.1 AE Specification: Query/Retrieve SCU

#### 3.2.1.1 SOP Classes

The Query/Retrieve SCU provides Standard Conformance to the SOP Classes listed in Table 3.

SOP Class Name	SOP Class UID	SCU	SCP
<i>Query/Retrieve</i>			
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

Table 3: Query/Retrieve SCU: Supported SOP Classes.

#### 3.2.1.2 Association Policies

##### General

The Query/Retrieve SCU will propose Association Requests for DICOM Query/Retrieve Services. The DICOM standard application context name for DICOM 3.0 is always proposed, see Table 4.

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

Table 4: Query/Retrieve SCU: DICOM Application Context.

##### Number of Associations

The Query/Retrieve SCU does not support multiple simultaneous associations, see Table 5.

Maximum number of simultaneous associations	1 - Not configurable.
---	-----------------------

Table 5: Query/Retrieve SCU: Number of simultaneous associations.

##### Asynchronous Nature

The Query/Retrieve SCU does not support asynchronous communication. Multiple outstanding transactions are not supported, see Table 6.

Maximum number of outstanding asynchronous transactions	1 - Not configurable.
---	-----------------------

Table 6: Query/Retrieve SCU: Asynchronous nature.

**Implementation Identifying Information**

The identifying information for the Query/Retrieve SCU can be seen in Table 7.

Implementation Class UID	1.3.6.1.4.1.16978.0
Implementation Version Name	EV_3529

Table 7: Query/Retrieve SCU: DICOM Implementation Class and Version.

**3.2.1.3 Association Initiation Policy**

**Activity: Query Instances**

*Description and Sequencing of Activities*

The Query/Retrieve SCU sends an Association Request to a remote DICOM Application Entity acting as Query/Retrieve SCP for the purpose of querying for available instances. Available DICOM Instances will be placed on the work queue of EasyViz VPS.

*Proposed Presentation Contexts*

The Query/Retrieve SCU will propose the Presentation Contexts listed in Table 8 for the Query Instances activity.

Abstract Syntax		Transfer Syntax		Role	Ext. Neg
Name	UID	Name List	UID List		
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Table 8: Query/Retrieve SCU: Proposed Presentation Contexts for the Query Instances activity.

**Activity: Retrieve Instances**

*Description and Sequencing of Activities*

The Query/Retrieve SCU sends an Association Request to a remote DICOM Application Entity acting as Query/Retrieve SCP for the purpose of retrieving DICOM Instances placed on the work queue of EasyViz VPS. When the DICOM Instance has been retrieved, meta data from the instance is extracted and inserted in the internal database.

*Proposed Presentation Contexts*

The Query/Retrieve SCU will propose the Presentation Contexts listed in Table 9 for the Retrieve Instances activity.

Abstract Syntax		Transfer Syntax		Role	Ext. Neg
Name	UID	Name List	UID List		
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Table 9: Query/Retrieve SCU: Proposed Presentation Contexts for the Retrieve Instances activity.

**3.2.1.4 Association Acceptance Policy**

The Query/Retrieve SCU does not accept associations.

### 3.2.2 AE Specification: Storage SCP

#### 3.2.2.1 SOP Classes

The Storage SCP provides Standard Conformance to the SOP Classes listed in Table 10.

SOP Class Name	SOP Class UID	SCU	SCP
<i>Transfer</i>			
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
Hardcopy Color Image Storage SOP Class	1.2.840.10008.5.1.1.30	No	Yes
Hardcopy Grayscale Image Storage SOP Class	1.2.840.10008.5.1.1.29	No	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
<i>Connectivity Verification</i>			
Verification	1.2.840.10008.1.1	No	Yes

Table 10: Storage SCP: Supported SOP Classes.

### 3.2.2.2 Association Policies

#### General

The Storage SCP will accept Association Requests for DICOM Storage and DICOM Verification Services. The DICOM standard application context name for DICOM 3.0 is always accepted, see Table 11.

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

Table 11: Storage SCP: DICOM Application Context.

#### Number of Associations

The Storage SCP does not support multiple simultaneous associations, see Table 12.

Maximum number of simultaneous associations	1 - Not configurable.
---	-----------------------

Table 12: Storage SCP: Number of simultaneous associations.

#### Asynchronous Nature

The Storage SCP does not support asynchronous communication. Multiple outstanding transactions are not supported, see Table 13.

Maximum number of outstanding asynchronous transactions	1 - Not configurable.
---	-----------------------

Table 13: Storage SCP: Asynchronous nature.

**Implementation Identifying Information**

The identifying information for the Storage SCP can be seen in Table 14.

Implementation Class UID	1.3.6.1.4.1.16978.0
Implementation Version Name	EV_3529

Table 14: EasyViz VPS AE: DICOM Implementation Class and Version.

**3.2.2.3 Association Initiation Policy**

The Storage SCP does not initiate associations.

**3.2.2.4 Association Acceptance Policy**

**Activity: Receive Instances**

***Description and Sequencing of Activities***

A remote DICOM Application Entity acting as a Storage SCU may establish an association with the Storage SCP. The Storage SCP will accept these associations for the purpose of receiving supported SOP Class Instances.

***Accepted Presentation Contexts***

The Storage SCP accepts the Application Presentation Contexts listed in Table 15 for the Receive Instance activity.

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	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Digital Mammography X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Grayscale	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

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	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Softcopy Presentation State Storage SOP Class		Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2.2		
Hardcopy Color Image Storage SOP Class	1.2.840.10008.5.1.1.30	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Hardcopy Grayscale Image Storage SOP Class	1.2.840.10008.5.1.1.29	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

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	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

Table 15: Storage SCP Receive Instance: Accepted Presentation Contexts.

*Activity: Verify Connection*

*Description and Sequencing of Activities*

A remote DICOM Application Entity acting as a Verification SCU may establish an association with the Storage SCP. The Storage SCP will accept these associations for the purpose of verifying the connection.

*Accepted Presentation Contexts*

The Storage SCP accepts the Application Presentation Contexts listed in Table 16 for the Verify Connection activity.

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

Table 16: Storage SCP Verify Connection: Accepted Presentation Contexts.

## **3.3 Network Interfaces**

### **3.3.1 Physical Network Interface**

The EasyViz VPS Application Entities are indifferent to the physical medium over which TCP/IP is executed. This is entirely dependent on the underlying operating system and hardware.

### **3.3.2 Additional Protocols**

When hostnames rather than IP addresses are used to specify presentation addresses for remote Application Entities, the EasyViz VPS Application Entities depends on the name resolution mechanism of the underlying operating system for proper operation.

## 3.4 Configuration

### 3.4.1 AE Title/Presentation Address Mapping

#### 3.4.1.1 Local AE Titles

The default Application Entity title and port number of the EasyViz VPS AEs are listed in Table 17.

Application Entity	Default AE Title	Default Port Number
Query/Retrieve SCU	VPS_QR_SCU	N/A
Storage SCP	VPS_STORE_SCP	30215

Table 17: Local AE Titles.

The default configuration may be overwritten when starting up the VPS daemon. The argument options and their default value are listed in Table 18.

Application Entity	Arg. Option	Default Value
<i>Query/Retrieve SCU Parameters</i>		
AE Title	--vps-qr-scu-aet	VPS_QR_SCU
<i>Storage SCP Parameters</i>		
AE Title	--vps-store-scp-aet	VPS_STORE_SCP
Port Number	--vps-store-scp-port	30215

Table 18: Local Application Entity Configuration.

#### 3.4.1.2 Remote AE Title/Presentation Address Mapping

##### Remote Query/Retrieve SCP

The remote Query/Retrieve SCP configuration is passed to the VPS daemon as argument options at startup. The argument options and their default value are listed in Table 19.

Query/Retrieve SCP Parameter	Arg. Option	Default Value
AE Title	--pacs-aet	QR_SCP
Hostname	--pacs-host	pacs
Port Number	--pacs-port	2350

Table 19: Remote Query/Retrieve SCP Configuration.

### 3.4.2 Parameters

The configurable parameters of EasyViz VPS are listed in Table 20.

Parameter	Configurable	Default Value
<i>General Parameters</i>		
PDU Size	No	32Kb
Time-out waiting for acceptance or rejection Response of an Association Open Request (Application level timeout)	No	None
General DIMSE level time-out values	No	None
Time-out waiting for response to TCP/IP connect request (Low-level timeout)	Yes	180s [OS Specific]
Time-out waiting for acceptance of a TCP/IP message over the network (Low-level timeout)	Yes	180s [OS Specific]
Time-out waiting for data between TCP/IP packets (Low-level timeout)	Yes	Adaptive 0.2-120s [OS Specific]
Any changes to default TCP/IP setting such as configurable stack parameters	No	None
<i>AE Specific Parameters</i>		
Size constraint in maximum object size	No	None
Maximum PDU Size that the AE can receive	No	32Kb
Maximum PDU Size that the AE can send	No	32Kb
AE specific DIMSE level time-out values	No	None
SOP Class Support	No	All supported SOP Classes always proposed and accepted
Transfer Syntax Support	No	All supported Transfer Syntaxes always proposed and accepted

Table 20: Configurable Parameters

## 4 Media Interchange

The EasyViz VPS does support any DICOM Media Interchange Services.

## 5 Support of Character Sets

### 5.1 Overview

EasyViz VPS supports the default character repertoire. Support extends to correctly decoding the correct symbol for all names and strings received over the network or found in the internal database.

No specific support for sorting of strings other than in the default character set is provided by the EasyViz VPS.

### 5.2 Character Sets

EasyViz supports the extended character sets listed in Table 21.

Character Set Description	Defined Term
Latin alphabet No. 1	ISO_IR 100

Table 21: Supported specific character set defined terms.

### 5.3 Character Set Configuration

Whether or not characters are displayed correctly depends on the presence of font support in the underlying operating system.

It may be necessary for the user to add one of the “all Unicode” fonts to their system configuration in order to correctly display characters that would not typically be used in the default locale.

## **6 Security**

### **6.1 Security Profiles**

The EasyViz VPS does not support any DICOM security profiles.

### **6.2 Association Level Security**

The Query/Retrieve SCU does not accept Association Requests.

The Storage SCP accepts all association requests, i.e. it is not possible to restrict associations based on Calling AET. The Storage SCP only verifies that it has been called with the correct AET.

### **6.3 Application Level Security**

Not Applicable.

## 7 Annexes

### 7.1 IOD Contents

#### 7.1.1 Created SOP Instance(s)

EasyViz VPS does not create SOP instances.

#### 7.1.2 Usage of Attributes of Received IOD's

The local database and remote query make use of conventional identification attributes to distinguish patients, studies, series and instances. In particular, if two patients have the same value for Patient ID, they will be treated as the same by the EasyViz VPS.

#### 7.1.3 Attribute Mapping

Not applicable.

#### 7.1.4 Coerced/Modified Fields

##### 7.1.4.1 Patient ID Coercion

The Storage SCP of EasyViz VPS may be configured to perform coercing of Patient IDs.

If the received Patient ID contains exactly 10 digits, a slash will be inserted at between digit 6 and 7. This coercion will, when enabled, transform Patient ID "0123456789" to "012345-6789".

### 7.2 Data Dictionary of Private Attributes

EasyViz VPS does not define any private attributes.

### 7.3 Coded Terminology and Templates

The value for Coded Meaning will be displayed for all coded values. EasyViz VPS does not provide a local lexicon to lookup alternative code meanings.

### 7.4 Grayscale Image Consistency

Not applicable.

### 7.5 Standard Extended/Specialized/Private SOP Classes

EasyViz VPS does not use Standard Extended/Specialized/Private SOP classes.

### 7.6 Private Transfer Syntaxes

EasyViz VPS does not support any private transfer syntaxes.