



Technical Publications

DICOM Conformance Statement

Hipax Image Server Version 3

REV 0.1 121197b

September 2003

Steinhart Medizinsysteme GmbH
Medical Imaging, Archiving, and Communication

© 1995-2003 Steinhart Medizinsysteme GmbH, Grubstraße 6-8, D-78279 Vörsstetten



Table of Contents

1. INTRODUCTION	4
2. IMPLEMENTATION MODEL	4
2.1 APPLICATION DATA FLOW DIAGRAM	4
2.2 FUNCTIONAL DEFINITION OF APPLICATION ENTITIES.....	4
2.3 SEQUENCING OF REAL-WORLD ACTIVITIES.....	5
3. AE SPECIFICATIONS.....	5
3.1 AE IMAGE SERVER – SPECIFICATION	6
3.1.1 Association Establishment Policies	8
3.1.1.1 General	8
3.1.1.2 Number of Associations	8
3.1.1.3 Asynchronous Nature.....	8
3.1.1.4 Implementation Identifying Information	8
3.1.2 Association Initiation Policy.....	8
3.1.2.1 Real-World Activity - Move Request from an External Node	8
3.1.2.1.1 Associated Real-World Activity - Move Request from an External Node	8
3.1.2.1.2 Proposed Presentation Contexts	8
3.1.2.2 SOP Specific Conformance Statement.....	9
3.1.3 Association Acceptance Policy	9
3.1.3.1 Real-World Activity – Storage Commitment (from an External Node).....	9
3.1.3.1.1 Associated Real-World Activity – Storage Commitment	10
3.1.3.1.2 Presentation Contexts.....	10
3.1.3.1.2.1 SOP Specific Conformance for the Storage Commitment SOP Class.....	10
3.1.3.1.3 Presentation Context Acceptance Criterion	11
3.1.3.1.4 Transfer Syntax Selection Policies	11
3.1.3.2 Real-World Activity - Storage.....	11
3.1.3.2.1 Associated Real-World Activity	11
3.1.3.2.2 Presentation Context Table	12
3.1.3.2.2.1 SOP Specific Conformance for SOP Class Storage	14
3.1.3.2.3 Presentation Context Acceptance Criterion	14
3.1.3.2.4 Transfer Syntax Selection Policies	14
3.1.3.3 Real World Activity - Query.....	14
3.1.3.3.1 Associated Real World Activity - Query	15
3.1.3.3.2 Presentation Context Table	15
3.1.3.3.2.1 SOP Specific Conformance for SOP Class Query/Retrieve.....	15
3.1.3.3.3 Presentation Context Acceptance Criterion	17
3.1.3.3.4 Transfer Syntax Selection Policies	18
3.1.3.4 Real World Activity – Modality Worklist Information Model.....	18
3.1.3.5 SOP Specific Conformance – Modality Worklist Information Model.....	18
3.1.3.6 Transfer Syntax Selection Policies	20
3.1.3.7 Real World Activity – Modality Performed Procedure Step	20
3.1.3.7.1 Presentation Context Table – Modality Performed Procedure Step.....	20
3.1.3.7.2 SOP Specific Conformance – Modality Performed Procedure Step	21
3.1.3.7.3 Presentation Context Acceptance Criterion	21
3.1.3.8 Real World Activity - Detached Patient Management.....	22
3.1.3.8.1 Associated Real World Activity - Detached Patient Management.....	22
3.1.3.8.2 Presentation Context Table – Detached Patient Management	22
3.1.3.8.3 SOP Specific Conformance - Detached Patient Management.....	22
3.1.3.8.3 SOP Specific Conformance - Detached Patient Management.....	23



3.1.3.9 <i>Real World Activity - Detached Study Management</i>	24
3.1.3.9.1 <i>Associated Real World Activity - Detached Study Management</i>	24
3.1.3.9.2 <i>Presentation Context Table – Detached Study Management</i>	24
3.1.3.9.3 <i>SOP Specific Conformance - Detached Study Management</i>	24
3.1.3.10 <i>Real World Activity - Verification</i>	26
3.1.3.10.1 <i>Associated Real World Activity - Verification</i>	26
3.1.3.10.2 <i>Presentation Context Table</i>	26
3.1.3.10.3 <i>Presentation Context Acceptance Criterion</i>	27
3.1.3.10.4 <i>Transfer Syntax Selection Policies</i>	27
4. COMMUNICATION PROFILES	27
4.1 TCP/IP STACK	27
4.1.1 TCP/IP API	27
4.1.2 Physical Media Support	27
5. EXTENSIONS/SPECIALIZATIONS/PRIVATIZATIONS	27
6. CONFIGURATION	28
6.1 AE TITLE/PRESENTATION ADDRESS MAPPING	28
6.2 SECURITY FEATURES	28
6.3 CONFIGURABLE PARAMETERS	28
6.4 SUPPORT OF EXTENDED CHARACTER SETS	28



1. Introduction

Image server is a general term that could be applied to a number of different applications that can be used to store and retrieve images. This implementation of an image server is designed specifically to be used for demonstration of the DICOM Standard. It provides the following features:

- The application serves as a short term archive for images. It accepts images from external sources and stores them for later retrieval.
- The application has no deletion mechanism. Images/studies are deleted by hand.
- The application uses a control database that allows one instantiation of the program to accept connections but take on the appearance of different image servers. This feature allows the application to segregate images if desired by the user. For example, all of the images transmitted by the Zero Corporation should be stored on the image server ZERO. All images transmitted by the ALPHA Corporation should be stored on the image server ALPHA. For demonstration purposes, we sometimes have the desire to provide different servers for retrieving the images stored by these different corporations.

The image server uses DICOM as the interface to the external world. The server accepts DICOM association requests for the purpose of storing images and for image query and retrieve. The image server will initiate DICOM association requests for the purpose of sending images to an external server or for storage commitment. The image server does not respond to any other type of network communication.

2. Implementation Model

The image server provides for storage and query/retrieval of images. It runs on Unix or Windows systems as a process that accepts association requests from external applications. For each association request, the image server *creates* a new thread that communicates exclusively with the requesting application. The image server will initiate a DICOM association in response to a move request from an external application.

2.1 Application Data Flow Diagram

Figure 1 (see *page 5*) shows the relationship of the image server application to external applications. As noted above, the image server does not initiate any action except in response to requests which are received via DICOM communication.

2.2 Functional Definition of Application Entities

The image server waits for another application to connect at the TCP/IP port number specified when the application is initiated. When another application makes a DICOM association request, the image server uses a control database and logic to verify the request:

1. The image server is using a control table to verify that the Called Application Title used in the association request is defined on the node (Unix host-name), upon which the image server is running.
2. The image server uses a control table to lookup the application defined by the Calling Application Title in the association request. The image server verifies that the node from which the call originated matches the value stored in the control table.



3. The image server verifies that the calling application has access rights for the SOP classes proposed (write access for storage, read access for query retrieve).

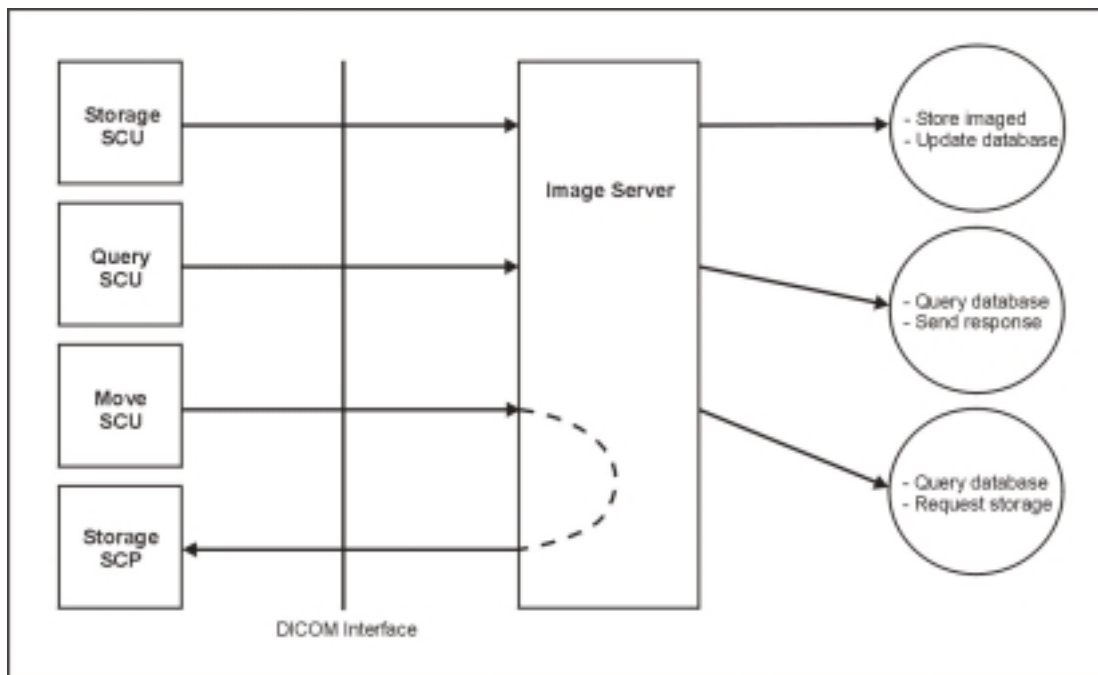


Figure 1. Image server Implementation Model

2.3 Sequencing of Real-World Activities

The image server has no way of knowing when it has a complete study or what constitutes a complete study. If it receives an image query while also receiving storage requests, the query response may not include all of the images that are in the study.

3. AE Specifications

The image server may be invoked multiple times on a single machine and the instances may operate simultaneously. In addition, each time the image server receives an association request, it creates a new thread. Each invocation and each created thread of the image server represent the same Application Entity.



3.1 AE Image Server – Specification

The image server provides Standard Conformance to the following DICOM 3.0 SOP Classes as an SCU:

Table 1. SOP Classes Supported by Image Server as an SCU

SOP Class Name	SOP Class UID
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Ultrasound Multi-Frame Image Storage (RET)	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
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage (RET)	1.2.840.10008.5.1.4.1.1.5
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Ultrasound Image Storage (RET)	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
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 (RET)	1.2.840.10008.5.1.4.1.1.12.3
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7
VL Endoscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.2
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.4
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
12-lead ECG Waveform Storage	1.2.840.10008.5.1.3.1.1.9.1.1

The image server provides Standard Conformance to the following DICOM 3.0 SOP Classes as an SCP:



Table 2. SOP Classes Supported by Image Server as an SCP

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Ultrasound Multi-Frame Image Storage (RET)	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
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage (RET)	1.2.840.10008.5.1.4.1.1.5
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Ultrasound Image Storage (RET)	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
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 (RET)	1.2.840.10008.5.1.4.1.1.12.3
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7
VL Endoscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.2
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.3.1.1.77.1.4
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
12-lead ECG Waveform Storage	1.2.840.10008.5.1.3.1.1.9.1.1
Patient Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Info Model – FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2
Storage Commitment Push	1.2.840.10008.1.20.1
Modality Worklist Find	1.2.840.10008.5.1.4.31
Detached Patient Management	1.2.840.10008.3.1.2.1.1
Detached Study Management	1.2.840.10008.3.1.2.3.1



3.1.1 Association Establishment Policies

3.1.1.1 General

The image server will attempt to initiate associations in response to C-MOVE requests from other Application Entities. The image server will only initiate associations in response to valid C-MOVE requests for images that are known to the server (stored in its database).

The maximum PDU size which can be transmitted by the image server is fixed at 16 KB. The default maximum PDU size which can be received by the image server is configurable with a default value of 16 KB and a maximum value of 32 KB.

3.1.1.2 Number of Associations

The number of simultaneous associations which will be accepted by the image server are limited only by the kernel parameters of the underlying TCP/IP implementation. The image server will spawn a new thread for each association request that it receives. Therefore, the image server can have multiple simultaneous connections, and there is no inherent limitation on the total number of simultaneous associations which the image server can maintain.

The image server does limit each external Application Entity to no more than two simultaneous associations.

3.1.1.3 Asynchronous Nature

The image server does not support asynchronous operations and will not perform asynchronous window negotiation.

3.1.1.4 Implementation Identifying Information

The image server will provide an implementation class UID which is 1.2.840.113654.2.3.1995.2.12.0. The image server will provide an implementation version name of HIPAXDICOM40000.

3.1.2 Association Initiation Policy

The image server attempts to initiate one association in response to each C-MOVE command it receives from an external node. The image server attempts a single type of association request.

3.1.2.1 Real-World Activity - Move Request from an External Node

3.1.2.1.1 Associated Real-World Activity - Move Request from an External Node

The associated Real-World activity is a C-MOVE request from an external application. If an application successfully establishes an association with the image server and makes a valid C-MOVE request that identifies one or more images known by the image server, the image server will initiate an association with the destination specified in the C-MOVE request.

3.1.2.1.2 Proposed Presentation Contexts

In response to a C-MOVE request, the image server builds a complete list of images to be moved. The list includes the SOP class of each image to be moved. The image server extracts the unique SOP classes from the image lists and proposes a set of presentation contexts that includes one presentation context for each unique SOP class identified in the image list. Thus, the association request may have a single presentation context or multiple presentation contexts. Each presentation context contains the abstract syntax that identifies one image class as found in the image list.



Table 3. Proposed Presentation Contexts for Image Server

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
See note	See note	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None

Note: The Abstract Syntax corresponds to the value found in the database maintained by the each server. More than one presentation context can be offered, each with a different abstract syntax.

Note: The image server only supports Implicit VR Little Endian Transfer Syntax. Some images may have been stored by the image server with private elements whose encoding scheme is unknown by the image server. These elements will be transmitted by the image server exactly as they were received (in Implicit VR Little Endian Transfer Syntax), so they should be unaltered upon transmission.

3.1.2.2 SOP Specific Conformance Statement

All C-STORE operations are in the context of a C-MOVE request from an external node.

The image server sends one C-MOVE response message for each attempted C-STORE operation. For each response to a C-STORE request (success, warning, failure), the image server prints that response with an interpretation of the status value. The image server takes no action in response to a failure of warning status.

The image server does not attempt any extended negotiation.

The image server does not delete any elements from the files it transfers. Therefore the set of optional elements depends entirely on the contents of the files which were originally stored on the image server.

In the event that the image server receives an unsuccessful C-STORE response, the image server will continue sending the remaining images in the requested set.

3.1.3 Association Acceptance Policy

The image server accepts associations for the purpose of storing images in its database or for the purpose of performing query/retrieve operations on the images that have been previously stored.

The image server will only accept association requests from applications that are defined during configuration. In addition, the image server will only store images sent by nodes that have been enabled by a configuration step.

3.1.3.1 Real-Word Activity – Storage Commitment (from an External Node)

The image server accepts associations from nodes that wish to be notified (when one or more SOP Instances that have been previously received by the image server have finally been stored on a secure, permanent media) using the N-ACTION command.



3.1.3.1.1 Associated Real-World Activity – Storage Commitment

The associated Real-World activity is a N-ACTION request from an external application. If an application successfully establishes an association with the image server and makes a valid N-ACTION request that contains a list of references to one or more SOP instances known by the image server, the image server sends one N-ACTION response message with a status of success or failure. On success the image server will initiate an association with the destination specified in the N-ACTION request as soon as all listed SOP instances have been stored on a permanent media. An N-EVENT-REPORT message is created and sent to the requesting SCU via the initiated association which contains a list of SOP instances that have been successfully stored on a permanent media or failed to have been stored on that media.

3.1.3.1.2 Presentation Contexts

The presentation contexts that will be accepted the Image Server for Storage Commitment Requests are specified in Table 4.

Table 4. Storage Commitment Presentation Contexts for Image Server

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model	1.2.840.10008.1.20.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None

3.1.3.1.2.1 SOP Specific Conformance for the Storage Commitment SOP Class

Objects sent to the Image Server are considered committed for storage after they are received. The Image Server supports the action information in Table 5 for the Storage Commitment Service Class.

Table 5. Storage Commitment Request – Action Information

Action Type Name	Action Type ID	Attribute Name	Attribute Tag
Request Storage Commitment	1	Transaction UID	(0008,1195)
		Referenced SOP Sequence	(0008,1199)
		> Referenced SOP Class UID	(0008,1150)
		> Referenced SOP Class UID	(0008,1155)
		Referenced Study Component Sequence	(0008,1111)
		> Referenced SOP Class UID	(0008,1150)
		> Referenced SOP Class UID	(0008,1155)



If the Image Server has successfully completed storage commitment it issues an N-EVENT-REPORT to the requesting SCU that it has successfully committed the requested SOP Instances. The N-EVENT-REPORT is sent on a separate association from the N-ACTION. The Image Server supports the event information in Table 6 for the Storage Commitment Service Class as an SCP.

Table 6. Storage Commitment Request – Event Information

Action Type Name	Action Type ID	Attribute Name	Attribute Tag
Storage Commitment Request Successful	1	Transaction UID	(0008,1195)
		Referenced SOP Sequence	(0008,1199)
		> Referenced SOP Class UID	(0008,1150)
		> Referenced SOP Class UID	(0008,1155)
		Referenced Study Component Sequence	(0008,1111)
		> Referenced SOP Class UID	(0008,1150)
		> Referenced SOP Class UID	(0008,1155)

If the Print Server cannot successfully complete storage commitment it issues an N-EVENT-REPORT to the requesting SCU that includes Failed SOP sequence indicating which SOP instances could not be committed. The N-EVENT-REPORT is sent on a separate association from the N-ACTION.

3.1.3.1.3 Presentation Context Acceptance Criterion

Each of the presentation contexts listed in Table 4 will be accepted by the Image Server.

3.1.3.1.4 Transfer Syntax Selection Policies

The image server only supports the Implicit VR Little Endian transfer syntax. Any proposed presentation context which includes the Implicit VR Little Endian transfer syntax will be accepted with the Implicit VR Little Endian transfer syntax. Any proposed presentation context that does not include the Implicit VR Little Endian transfer syntax will be rejected.

3.1.3.2 Real-World Activity - Storage

The image server accepts associations from nodes that wish to store images using the C-STORE command.

3.1.3.2.1 Associated Real-World Activity

The associated Real-World activity associated with the C-STORE operation is the storage of the image on the disk of the system upon which the image server is running. Images are stored by writing the data set of the C-STORE command directly to disk with no further header or interpretation. After the image is stored to disk, the image server updates an image database with patient, study, series and image information; this image database can be used by the image server for query/retrieve operations.

The image server will issue a failure status if it is unable to store the image on disk, if the image does not conform to the IOD of the SOP class under which it was transmitted, or if the image server is not able to successfully update its image database.



3.1.3.2.2 Presentation Context Table

Any of the Presentation Contexts shown in Table 4 are acceptable to the image server for receiving images.

Table 4. Acceptable Presentation Contexts for the Image Server

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Computed Radiography Image	1.2.840.10008.5.1.4.1.1	DICOM Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
CT Image	1.2.840.10008.5.1.4.1.2	"	1.2.840.10008.1.2	SCP	None
Ultrasound Multi-Frame Image Storage (RET)	1.2.840.10008.5.1.4.1.3	"	1.2.840.10008.1.2	SCP	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	"	1.2.840.10008.1.2	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.4	"	1.2.840.10008.1.2	SCP	None
Nuclear Medicine Image Storage (RET)	1.2.840.10008.5.1.4.1.5	"	1.2.840.10008.1.2	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.20	"	1.2.840.10008.1.2	SCP	None
Ultrasound Image (RET)	1.2.840.10008.5.1.4.1.6	"	1.2.840.10008.1.2	SCP	None
Ultrasound Image	1.2.840.10008.5.1.4.1.6.1	"	1.2.840.10008.1.2	SCP	None
Secondary Capture Image	1.2.840.10008.5.1.4.1.7	"	1.2.840.10008.1.2	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.1.1.2.1	"	1.2.840.10008.1.2	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.1.1.2.2	"	1.2.840.10008.1.2	SCP	None
X-Ray Angiographic Bi-plane Image Storage (RET)	1.2.840.10008.5.1.4.1.1.12.3	"	1.2.840.10008.1.2	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	"	1.2.840.10008.1.2	SCP	None



Table 4. Continue Acceptable Presentation Contexts for the Image Server

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
RT Image Storage	1.2.840.10008.5.1.4. 1.1.481.1	"	1.2.840.1000 8.1.2	SCP	None
RT Dose Storage	1.2.840.10008.5.1.4. 1.1.481.2	"	1.2.840.1000 8.1.2	SCP	None
RT Structure Set Storage	1.2.840.10008.5.1.4. 1.1.481.3	"	1.2.840.1000 8.1.2	SCP	None
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4. 1.1.481.4	"	1.2.840.1000 8.1.2	SCP	None
RT Plan Storage	1.2.840.10008.5.1.4. 1.1.481.5	"	1.2.840.1000 8.1.2	SCP	None
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4. 1.1.481.6	"	1.2.840.1000 8.1.2	SCP	None
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4. 1.1.481.7	"	1.2.840.1000 8.1.2	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.3. 1.1.77.1.1	"	1.2.840.1000 8.1.2	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.3. 1.1.77.1.2	"	1.2.840.1000 8.1.2	SCP	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.3.1.1.7 7.1.3	"	1.2.840.1000 8.1.2	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.3. 1.1.77.1.4	"	1.2.840.1000 8.1.2	SCP	None
Basic Text SR	1.2.840.10008.5.1.4. 1.1.88.11	"	1.2.840.1000 8.1.2	SCP	None
Enhanced SR	1.2.840.10008.5.1.4. 1.1.88.22	"	1.2.840.1000 8.1.2	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4. 1.1.88.33	"	1.2.840.1000 8.1.2	SCP	None
12-lead ECG Waveform Storage	1.2.840.10008.5.1.3. 1.1.9.1.1	"	1.2.840.1000 8.1.2	SCP	None



3.1.3.2.2.1 SOP Specific Conformance for SOP Class Storage

The image server implements Level 2 (Full) conformance for the Storage SOP Class.

The following attributes are modified by converting all characters to upper case before data is stored in the image database. The image files themselves are not modified.

1. Patient Name
2. Patient ID
3. Accession Number
4. Study ID

In the event that an image is successfully stored by the image server, it may be accessed by requesting associations with the image server and performing query/retrieve operations. The image server is not designed to allow other access to stored images.

The image server stores images for an indefinite period. The system has no method for deleting images once they are stored.

The image server returns the following status values in response to a C-STORE request:

0000H Image successfully stored
A700H Refused – out of resources (unable to create local file)
A900H Error – data set does not match SOP Class
C000H Error – cannot understand

In the case of an error of an error storing an image, there is no documented method for recovery. Most users send reports of errors to support@hipax.de.

3.1.3.2.3 Presentation Context Acceptance Criterion

The image server will accept any number of storage SOP classes that are listed in Table 4 above, provided that the requesting application is known to the image server and has been enabled to store images on the image server (via a configuration step). The image server defines no limit on the number of presentation contexts accepted. In the event that the image server runs out of resources when trying to accept multiple presentation contexts, the image server will reject the association request.

The image server does not check for duplicate presentation contexts and will accept duplicate presentation contexts.

3.1.3.2.4 Transfer Syntax Selection Policies

The image server only supports the Implicit VR Little Endian transfer syntax. Any proposed presentation context which includes the Implicit VR Little Endian transfer syntax will be accepted with the Implicit VR Little Endian transfer syntax. Any proposed presentation context that does not include the Implicit VR Little Endian transfer syntax will be rejected.

3.1.3.3 Real World Activity - Query

The image server accepts associations from nodes that wish to perform query (find) and retrieve (move) operations on images that have been previously stored by the image server.



3.1.3.3.1 Associated Real World Activity - Query

The real-world activity associated with C-FIND and C-MOVE requests are the query and retrieval operations initiated by another application. An application other than the image server queries the image server for patient/study/series/image information that has been previously stored by the image server and can request that the image server send images to a third application.

3.1.3.3.2 Presentation Context Table

Table 5 shows the presentation contexts that may be accepted by the image server for query operations.

Table 5. Acceptable Presentation Contexts for Query Classes

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5 .1.4.1.2.1.1	DICOM Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5 .1.4.1.2.1.2	"	1.2.840.10008.1.2	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5 .1.4.1.2.2.1	"	1.2.840.10008.1.2	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5 .1.4.1.2.2.2	"	1.2.840.10008.1.2	SCP	None
Patient StudyOnly Query/Retrieve Information Model – FIND	1.2.840.10008.5 .1.4.1.2.3.1	"	1.2.840.10008.1.2	SCP	None
Patient StudyOnly Query/Retrieve Information Model – MOVE	1.2.840.10008.5 .1.4.1.2.3.3	"	1.2.840.10008.1.2	SCP	None

3.1.3.3.2.1 SOP Specific Conformance for SOP Class Query/Retrieve

The image server does not support relational searches. Table 6 below indicates which keys are supported by the image server for the patient root information model. The image server also supports the patient/study only information model. The keys supported for that model are the same keys found in Table 6 with a level of "Patient" or "Study". Table 8 indicates which keys are supported by the image server for the study root information model. These tables include the optional and required keys that are supported. Optional keys are supported like required keys. The image server does not support relational queries.



Table 6. Keys Supported for Patient Root Information Model

Level	Description	Tag	Type
Patient	Patient Name	0010 0010	R
Patient	Patient ID	0010 0020	U
Patient	Patient Birth Date	0010 0030	O
Patient	Patient Birth Time	0010 0032	O
Patient	Patient Sex	0010 0040	O
Study	Study Date	0008 0020	R
Study	Study Time	0008 0030	R
Study	Accession Number	0008 0050	R
Study	Study ID	0020 0010	R
Study	Study Instance UID	0020 000D	U
Study	Referring Physician Name	0008 0090	O
Study	Study Description	0008 1030	O
Study	Patient's Age	0010 1010	O
Study	Patient's Size	0010 1020	O
Study	Patient's Weight	0010 1030	O
Series	Modality	0008 0060	R
Series	Series Number	0020 0011	R
Series	Series Instance UID	0020 000E	U
Series	Body Part Examined	0018 0015	O
Image	Image Number	0020 0013	R
Image	SOP Instance UID	0008 0018	U
Image	SOP Class UID	0008 0016	O
Image	Samples Per Pixel	0028 0002	O
Image	Rows	0028 0010	O
Image	Columns	0028 0011	O
Image	Bits Allocated	0028 0100	O
Image	Bits Stored	0028 0101	O
Image	Pixel Representation	0028 0103	O

The image server supports the three MOVE SOP classes listed in Table 5. In response to a move request, the image server supports the Storage SOP classes listed in Table 1.



Table 7. Keys Supported for Study Root Information Model

Level	Description	Tag	Type
Study	Study Date	0008 0020	R
Study	Study Time	0008 0030	R
Study	Accession Number	0008 0050	R
Study	Patient Name	0010 0010	R
Study	Patient ID	0010 0020	R
Study	Study ID	0020 0010	R
Study	Study Instance UID	0020 000D	U
Study	Referring Physician Name	0008 0090	O
Study	Study Description	0008 1030	O
Study	Patient Birth Date	0010 0030	O
Study	Patient Birth Time	0010 0032	O
Study	Patient Sex	0010 0040	O
Study	Patient's Age	0010 1010	O
Study	Patient's Size	0010 1020	O
Study	Patient's Weight	0010 1030	O
Series	Modality	0008 0060	R
Series	Series Number	0020 0011	R
Series	Series Instance UID	0020 000E	U
Series	Body Part Examined	0018 0015	O
Image	Image Number	0020 0013	R
Image	SOP Instance UID	0008 0018	U
Image	SOP Class UID	0008 0016	O
Image	Samples Per Pixel	0028 0002 O	
Image	Rows	0028 0010	O
Image	Columns	0028 0011	O
Image	Bits Allocated	0028 0100	O
Image	Bits Stored	0028 0101	O
Image	Pixel Representation	0028 0103	O

3.1.3.3.3 Presentation Context Acceptance Criterion

The image server will accept any number of query SOP classes that are listed in Table 5 above, provided that the requesting application is known to the image server and has been enabled to make requests from the image server (via a configuration step). The image server defines no limit on the number of presentation contexts accepted. In the event that the image server runs out of resources when trying to accept multiple presentation contexts, the image server will reject the association request.

The image server does not check for duplicate presentation contexts and will accept duplicate presentation contexts.



3.1.3.3.4 Transfer Syntax Selection Policies

The image server only supports the Implicit VR Little Endian transfer syntax. Any proposed presentation context which includes the Implicit VR Little Endian transfer syntax will be accepted with the Implicit VR Little Endian transfer syntax. Any proposed presentation context that does not include the Implicit VR Little Endian transfer syntax will be rejected.

3.1.3.4 Real World Activity – Modality Worklist Information Model

The image server will accept and respond to SCU Modality Worklist Information Model C-FIND requests:

Table 8. Acceptable Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model	1.2.840.10008.5.1.4.31	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None

3.1.3.5 SOP Specific Conformance – Modality Worklist Information Model

The image server provides standard conformance to the DICOM Modality Worklist Information Model service class. The image server supports the following matching key types:

Table 9. Matching key types supported by the image server

Matching Key Types	
SV	Single Valued Match
WC	Wild Card Match
SQ	Sequence Match
DR	Date Range Match



Table 10. Elements of this SOP Class supported by the image server

Module	Attribute Name	Tag	Match
SOP Common	Specific Character Set	(0008,0005)	
Scheduled Procedure Step	Scheduled Procedure Step Sequence	(0040,0100)	SQ
	> Scheduled Station AE Title	(0040,0001)	SV
	> Scheduled Procedure Step Start Date	(0040,0002)	DR
	> Scheduled Procedure Step Start Time	(0040,0003)	DR
	> Modality	(0008,0060)	SV
	> Scheduled Performing Physician	(0040,0006)	
	> Scheduled Procedure Step Description	(0040,0007)	
	> Scheduled Action Item Code Sequence	(0040,0008)	
	>> Code Value	(0008,0100)	
	>> Coding Scheme Designator	(0008,0102)	
	>> Coding Scheme Version	(0008,0103)	
	>> Code Meaning	(0008,0104)	
	> Scheduled Procedure Step ID	(0008,0009)	
	> Scheduled Station Name	(0040,0010)	SV
	> Scheduled Procedure Step Location	(0040,0011)	
> Scheduled procedure Step Status	(0040,0020)	SV	
Requested Procedure	Requested Procedure Description	(0032,1060)	
	Requested Procedure Code Sequence	(0032,1064)	
	> Code Value	(0008,0100)	
	> Coding Scheme Designator	(0008,0102)	
	> Coding Scheme Version	(0008,0103)	
	> Code Meaning	(0008,0104)	
	Study Instance UID	(0020,000D)	SV
	Referenced Study Sequence	(0008,1110)	
	> Referenced SOP Class UID	(0008,1150)	
	> Referenced SOP Instance UID	(0008,1155)	SV
	Requested Procedure ID	(0040,1001)	
	Requested Procedure Location	(0040,1005)	
Requested Procedure Comments	(0040,1400)		
Imaging Service Request	Accession Number	(0008,0050)	SV
	Requesting Physician	(0032,1032)	
	Requesting Service	(0032,1033)	
	Referring Physician Name	(0008,0090)	
	Study Status ID	(0032,000A)	SV
	Names of Intended Recipients of Results	(0040,1010)	
	Imaging Service Request Comments	(0040,2400)	
Visit Identification	Admission ID	(0038,0010)	



Table 10. Continue Elements of this SOP Class supported by the image server

Module	Attribute Name	Tag	Match
Visit Status	Current Patient Location	(0038,0300)	
Visit Relationship	Referenced Patient Sequence	(0008,1120)	
	> Referenced SOP Class UID	(0008,1150)	
	> Referenced SOP Instance UID	(0008,1120)	
Patient Identification	Patient Name	(0010,0010)	WC
	Patient ID	(0010,0020)	SV
	Other Patient ID	(0010,1000)	
Patient Demographic	Patient Birth Date	(0010,0030)	
	Patient Sex	(0010,0040)	
	Patient Weight	(0010,1030)	
	Confidentiality Constraint on Patient Data	(0040,3001)	
	Ethnic Group	(0010,2160)	
	Additional Patient History	(0010,21B0)	
	Patient Comments	(0010,4000)	
Patient Medical	Patient State	(0038,0500)	
	Pregnancy Status	(0010,21C0)	
	Medical Alerts	(0010,2000)	
	Contrast Allergies	(0010,2110)	
	Special Needs	(0038,0050)	

3.1.3.6 Transfer Syntax Selection Policies

The image server only supports the Implicit VR Little Endian transfer syntax. Any proposed presentation context which includes the Implicit VR Little Endian transfer syntax will be accepted with the Implicit VR Little Endian transfer syntax. Any proposed presentation context that does not include the Implicit VR Little Endian transfer syntax will be rejected.

3.1.3.7 Real World Activity – Modality Performed Procedure Step

The Image Server will accept and respond to SCU Modality Performed Procedure Step N-CREATE and N-SET requests.

3.1.3.7.1 Presentation Context Table – Modality Performed Procedure Step

The Image Server supports the following Presentation Context for Modality Performed Procedure Step requests:



Table 11. Presentation Context for Modality Performed Procedure Step

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None

3.1.3.7.2 SOP Specific Conformance – Modality Performed Procedure Step

The Image Server provides standard conformance to the DICOM Modality Performed Procedure Step service class. The Image Server accepts both N-CREATE and N-SET messages for creating and updating Performed Procedure Step information. The DICOM attributes listed in Table 12. are required by the Image Server for Modality Performed Procedure Step N-CREATE messages:

Table 12. DICOM attributes required by the Image Server for Step N-CREATE messages

Attribute Name	Tag	Type
Scheduled Step Attribute Sequence	(0040,0270)	SQ
> Study Instance UID	(0020,000D)	UI
Performed Procedure Step Start Date	(0040,0244)	DA
Performed Procedure Step Start Time	(0040,0245)	TM
Performed Procedure Step Status	(0040,0252)	CS

Any other DICOM attributes, although not required, will be accepted. The following DICOM attributes are required by the Image Server for Modality Performed Procedure Step N-SET messages:

Table 13. DICOM attributes required by the Image Server for Step N-SET messages

Attribute Name	Tag	Type
Performed Procedure Step Start Date	(0040,0244)	DA
Performed Procedure Step Start Time	(0040,0245)	TM
Performed Procedure Step End Date *	(0040,0250)	DA
Performed Procedure Step End Time *	(0040,0251)	TM
Performed Procedure Step Status	(0040,0252)	CS

* The Performed Procedure Step End Date and Perf. Proc. Step End Time must be present but may be empty.

3.1.3.7.3 Presentation Context Acceptance Criterion

The Image Server will only accept a presentation context for the Modality Performed Procedure Step SOP Class with Implicit VR Little Endian transfer syntax.



3.1.3.8 Real World Activity - Detached Patient Management

3.1.3.8.1 Associated Real World Activity - Detached Patient Management

The image server will send N-EVENT-REPORTs to indicate that a change in the status of patient information has occurred. The following events are supported:

- Patient Created – to signal that a new patient has been added to the Server database
- Patient Deleted – to signal that a patient has been removed from the Server database
- Patient Updated – to signal that the patient information has changed

3.1.3.8.2 Presentation Context Table – Detached Patient Management

The Presentation Context for Detached Patient Management supported by the Image Server are given in Table 14:

Table 14. Presentation Context for Detached Patient Management

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Detached Patient Management	1.2.840.10008.3.1.2.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None

3.1.3.8.3 SOP Specific Conformance - Detached Patient Management

The image server standard conformance to the DICOM Detached Patient Management Service Class. The image server supports the following elements for this SOP class:

Table 14. Presentation Context for Detached Patient Management

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Detached Patient Management	1.2.840.10008.3.1.2.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None



3.1.3.8.3 SOP Specific Conformance - Detached Patient Management

The image server standard conformance to the DICOM Detached Patient Management Service Class. The image server supports the following elements for this SOP class:

Table 15. Elements required for the DICOM Detached Patient Management

Event Type	Attribute Name	Tag
Patient Created	Instance Creation Date	(0008,0012)
	Instance Creation Time	(0008,0013)
	Instance Creator UID	(0008,0014)
Patient Deleted/Updated	Specific Character Set	(0008,0005)
	Patient Name	(0010,0010)
	Patient ID	(0010,0020)
	Issuer of Patient ID	(0010,0021)
	Other Patient Ids	(0010,1000)
	Other Patient Names	(0010,1001)
	Patient Telephone Numbers	(0010,2154)
	Patient Address	(0010,1040)
	Patient Birth Date	(0010,0030)
	Patient Sex	(0010,0040)
	Patient Weight	(0010,1030)
	Ethnic Group	(0010,2160)
	Patient Religious Preference	(0010,21F0)
	Patient Data Confidentiality Constraint Desc.	(0040,3001)
	Patient State	(0038,0500)
	Pregnancy Status	(0010,21C0)
	Medical Alerts	(0010,2000)
	Contrast Allergies	(0010,2110)
	Special Needs	(0038,0050)
	Referenced Study Sequence	(0008,1110)
	>Referenced SOP Class UID	(0008,1150)
	>Referenced SOP Instance UID	(0008,1155)
	Referenced Visit Sequence	(0008,1125)
	>Referenced SOP Class UID	(0008,1150)
	>Referenced SOP Instance UID	(0008,1155)
	Reference Patient Alias Sequence	(0038,0004)
	>Referenced SOP Class UID	(0008,1150)
>Referenced SOP Instance UID	(0008,1155)	



3.1.3.9 Real World Activity - Detached Study Management

3.1.3.9.1 Associated Real World Activity - Detached Study Management

The image server will send N-EVENT-REPORTs to indicate that a change in the status of study information has occurred. The following events are supported:

- Study Created – to signal that a new study has been created
- Study Scheduled – to signal that the study has been scheduled to occur
- Patient Arrived – to signal that the patient has arrived for this study
- Study Started – to signal that the study has begun
- Study Completed – to signal that a study has been completed
- Study Verified – to signal that this study was successful
- Study Read – to signal that this study has been reviewed
- Study Deleted – to signal that this study has been cancelled
- Study Updated – to signal that the study information has changed

3.1.3.9.2 Presentation Context Table – Detached Study Management

The Image Server supports the following Presentation Context for Detached Study Management:

Table 16. Presentation Context for Detached Study Management

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Detached Study Management	1.2.840.10008.3.1 .2.3.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1 .2	SCP	None

3.1.3.9.3 SOP Specific Conformance - Detached Study Management

The image server provides standard conformance to the DICOM Detached Study Management Service Class. The image server the following elements for this SOP class:

Table 17. Elements required for the DICOM Detached Study Management

Event Type	Attribute Name	Tag
Study Created	Instance Creation Date	(0008,0012)
	Instance Creation Time	(0008,0013)
	Instance Creator UID	(0008,0014)



Table 17. Continue Elements required for the DICOM Detached Study Management

Event Type	Attribute Name	Tag
Study Updated / Deleted / Scheduled / Started / Completed / Verified / Read, Patient Arrived	Specific Character Set	(0008,0005)
	Study ID	(0020,0010)
	Study ID Issuer	(0032,0012)
	Accession Number	(0008,0050)
	Study Instance UID	(0020,000D)
	Study Status ID	(0032,000A)
	Study Priority ID	(0032,000C)
	Scheduled Study Start Date	(0032,1000)
	Scheduled Study Start Time	(0032,1001)
	Scheduled Study Stop Date	(0032,1010)
	Scheduled Study Stop Time	(0032,1011)
	Scheduled Study Location	(0032,1020)
	Scheduled Study Location Application Entity Title	(0032,1021)
	Requesting Service	(0032,1033)
	Requesting Physician	(0032,1032)
	Requested Procedure Description	(0032,1060)
	Requested Procedure Code Sequence	(0032,1064)
	>Code Value	(0008,0100)
	>Coding Scheme Designator	(0008,0102)
	>Code Meaning	(0008,0104)
	Study Arrival Date	(0032,1040)
	Study Arrival Time	(0032,1041)
	Study Date	(0008,0020)
	Study Time	(0008,0030)
	Study Completed Date	(0032,1050)
	Study Completed Time	(0032,1051)
	Study Verified Date	(0032,0032)
	Study Verified Time	(0032,0033)
	Study Read Date	(0032,0034)
	Study Read Time	(0032,0035)
	Name of Physician(s) Reading Study	(0008,1060)
	Reason For Study	(0032,1030)
	Referenced Patient Sequence	(0008,1120)
>Referenced SOP Class UID	(0008,1150)	
>Referenced SOP Instance UID	(0008,1155)	



Table 17. Continue Elements required for the DICOM Detached Study Management

Event Type	Attribute Name	Tag
Study Updated / Deleted / Scheduled / Started / Completed / Verified / Read, Patient Arrived (continue)	Referenced Visit Sequence	(0008,1125)
	>Referenced SOP Class UID	(0008,1150)
	>Referenced SOP Instance UID	(0008,1155)
	Referenced Results Sequence	(0008,1100)
	>Referenced SOP Class UID	(0008,1150)
	>Referenced SOP Instance UID	(0008,1155)
	Referenced Study Component Sequence	(0008,1111)
	>Referenced SOP Class UID	(0008,1150)
	>Referenced SOP Instance UID	(0008,1155)

3.1.3.10 Real World Activity - Verification

The image server accepts associations from nodes that wish to perform a verification operation on the image server.

3.1.3.10.1 Associated Real World Activity - Verification

The real-world activity associated with the C-ECHO request is that an external node wishes to verify network or server operation without initiating any actual work.

3.1.3.10.2 Presentation Context Table

Table 18 shows the presentation contexts that may be accepted by the image server for verification operations.

Table 18. Acceptable Presentation Contexts for the Image Server for Verification

Presentation Context Table					
Abstract Syntax Name	UID	Transfer Syntax Name	UID	Role	Extended Negotiation
Verification	1.2.840.10008.1.1	DICOM Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Patient StudyOnly Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.3	"	1.2.840.10008.1.2	SCP	None



3.1.3.10.3 Presentation Context Acceptance Criterion

The image server will accept any number of verification SOP classes that are listed in Table 18 above, provided that the requesting application is known to the image server (via a configuration step). The image server defines no limit on the number of presentation contexts accepted. In the event that the image server runs out of resources when trying to accept multiple presentation contexts, the image server will reject the association request.

The image server does not check for duplicate presentation contexts and will accept duplicate presentation contexts.

3.1.3.10.4 Transfer Syntax Selection Policies

The image server only supports the Implicit VR Little Endian transfer syntax. Any proposed presentation context which includes the Implicit VR Little Endian transfer syntax will be accepted with the Implicit VR Little Endian transfer syntax. Any proposed presentation context that does not include the Implicit VR Little Endian transfer syntax will be rejected.

4. Communication Profiles

4.1 TCP/IP Stack

The image server provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.1.1 TCP/IP API

The image server uses the TCP/IP stack from the Unix system upon which it executes. It uses a subroutine library that is based on a Berkeley socket interface.

4.1.2 Physical Media Support

The image server exists as a software application that can be compiled on various Unix platforms. As such, it places no restrictions on the physical network. The image server has been demonstrated using TCP/IP over Ethernet (Thick Wire, Thin Wire, 10 Base T), FDDI (twisted pair into a concentrator, fibre backbone) and Tin-Can-Telephone-Net.

5. Extensions/Specializations/Privatizations

Not applicable



6. Configuration

The image server obtains configuration information from a "Control" database which is stored in a relational database. In this implementation, the relational database is the commercial product Sybase.

6.1 AE Title/Presentation Address Mapping

The control table "ApplicationEntity" is used to map between AE Titles and Presentation Addresses.

6.2 Security Features

The image server uses three additional control tables to control access. These tables allow the image server to determine which nodes are allowed read and or write access and where images should be stored.

6.3 Configurable Parameters

The following parameters may be configured for the image server:

- Application Entity Title
- Maximum PDU Size
- TCP/IP Port Number
- TCP/IP Buffer Length

6.4 Support of Extended Character Sets

The image server provides no support for extended character sets.

Steinhart Medizinsysteme GmbH

Grubstraße 6-8 – D-79279 Vörstetten

Tel.: +49(0)7666-9007-0 – Fax: +49(0)7666-9007-11 – E-mail: info@hipax.de – Internet: www.hipax.de

© 1995–2003 Steinhart Medizinsysteme GmbH