Philips Medical Systems

DICOM

CONFORMANCE STATEMENT

Document Number ??

12 February 2002

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1. INTRODUCTION

This chapter provides general information about the purpose, scope and contents of this Conformance Statement.

1.1. Scope and Field of Application

The scope of this DICOM Conformance Statement is to facilitate data exchange with equipment of Philips Medical Systems. This document specifies the compliance to the DICOM standard (formally called the NEMA PS 3.X standards). It contains a short description of the applications involved and provides technical information about the data exchange capabilities of the equipment. The main elements describing these capabilities are: the supported DICOM Service Object Pair (SOP) Classes, Roles, Information Object Definitions (IOD) and Transfer Syntaxes.
The field of application is the integration of the Philips Medical Systems equipment into an environment of medical devices. This Conformance Statement should be read in conjunction with the DICOM standard and its addenda [DICOM].

1.2. Intended Audience

This Conformance Statement is intended for:

- (potential) customers
- system integrators of medical equipment
- marketing staff interested in system functionality
- software designers implementing DICOM interfaces

It is assumed that the reader is familiar with the DICOM standard.

1.3. Contents and Structure

The DICOM Conformance Statement is contained in chapter 2 through 7 and follows the contents and structuring requirements of DICOM PS 3.2.

1.4. Used Definitions, Terms and Abbreviations

DICOM definitions, terms and abbreviations are used throughout this Conformance Statement. For a description of these, see NEMA PS 3.3 and PS 3.4.
The word Philips in this document refers to Philips Medical Systems.

1.5. References

[DICOM] The Digital Imaging and Communications in Medicine (DICOM) standard (NEMA PS 3.X):
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1847
Rosslyn, Va. 22209, United States of America

1.6. Important Note to the Reader

This Conformance Statement by itself does not guarantee successful interoperability of Philips equipment with non-Philips equipment. The user (or user's agent) should be aware of the following issues:

- **Interoperability**

Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into a IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment.
It is the user's responsibility to analyze thoroughly the application requirements and to specify a solution that integrates Philips equipment with non-Philips equipment.

- **Validation**

Philips equipment has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.
Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.

- **New versions of the DICOM Standard**

The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery.
The user should ensure that any non-Philips provider linking to Philips equipment, also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

1.7. General Acronyms and Abbreviations.

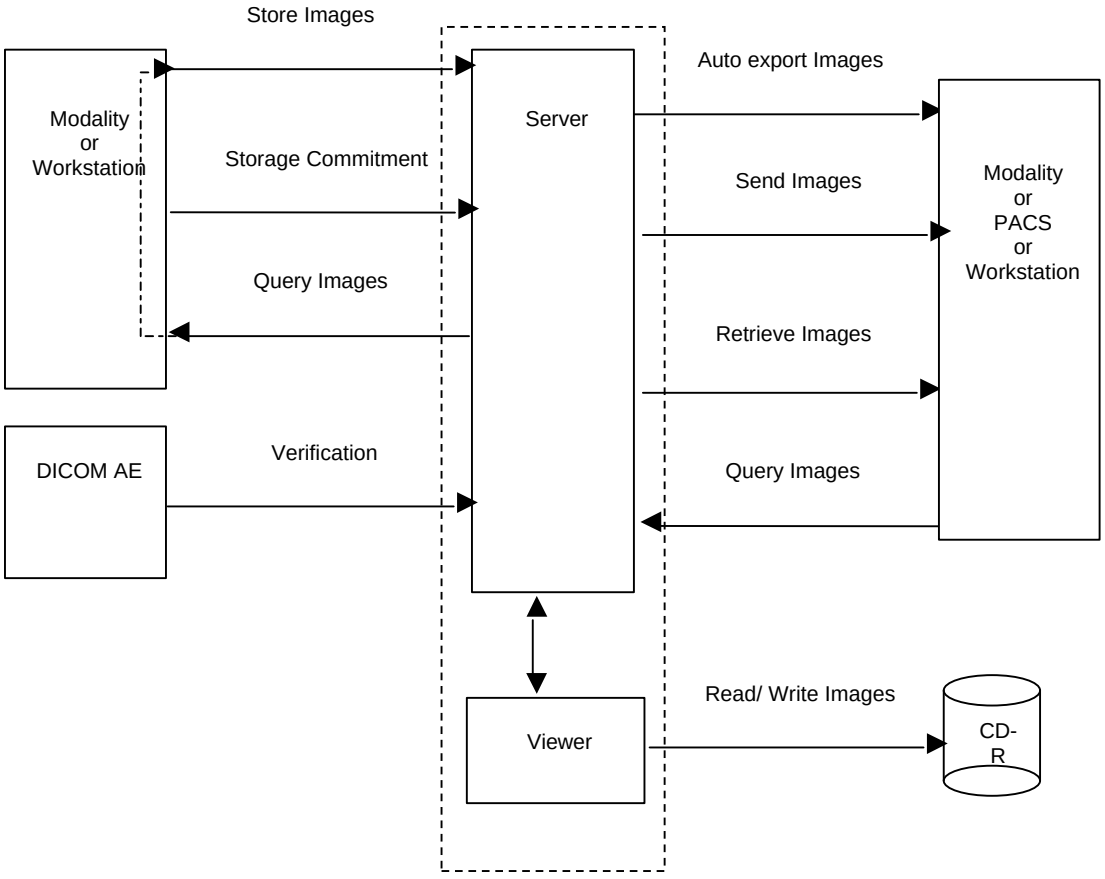
The following acronyms and abbreviations are used in the document.

- ACC American College of Cardiology
- AE Application Entity
- ACR American College of Radiology
- ANSI American National Standard Institute
- DICOM Digital Imaging and Communication in Medicine
- DIMSE DICOM Message Service Element
- ELE Explicit VR Little Endian
- EBE Explicit VR Big Endian
- ILE Implicit VR Little Endian
- IOD Information Object Definition
- NEMA National Electrical Manufacturers Association
- PDU Protocol Data Unit
- RIS Radiology Information System
- RWA Real World Activity
- SCU Service Class User
- SOP Service Object Pair
- TCP/IP Transmission Control Protocol/Internet protocol
- UID Unique Identifier
- Other Abbreviations

2. IMPLEMENTATION MODEL

The *Mx-View* communication is based on the DICOM v3.0 standard. This enables the *Mx-View* to communicate with any DICOM v3.0 compliant products (e.g., scanners, workstations, HIS/RIS Mx-Views, hardcopy units). The *Mx-View* can function both as a server and as a client. Thus it can send and retrieve images from other stations, and other stations can retrieve and send images to and from the *Mx-View*. Images are transferred in the DICOM v3.0 protocol based on TCP/IP as a transport layer.

The *Mx-View* can serve as a gateway between non-DICOM equipment to the DICOM world. One such example is the *Mx-View* being used as a gateway between a DICOM Print Management Service Class user and a non-DICOM hardcopy device such as 3M-952 LMI.



In this figure all the DICOM services implemented in a system are indicated by the arrows. For instance form the system an arrow points to a Modality or Workstation with the description "Query Images", this means that the Inturis Suite can query (as SCU) a modality or an workstation. It can occur that a system consists of different sub systems (see figure). The system in the example is divided into two systems a Server and a Viewer, these systems are connected by a private protocol (with is not described in a Conformance Statement).

2.1. Application Data Flow Diagram

The *Mx-View* implements and provides DICOM services using the following Application Entities:

- Disk-Server/Queue-Manager
- Archive-Manager
- Memory-Manager
- Memory-Server
- Print-Server
- Print-Manager
- DentaCT-Print
- StorageComm-Manager

2.1.1. Disk-Server/Queue-Manager

Disk-Server provides the interface to the data base of the images stored on the local hard disk. The same AE may be used (with a configurable different AE title) to access the local EOD (removable Erasable Optical Disk) or different local hard disk folders. Acting as an SCU Disk-Server sends images to the remote Mx-View. Acting as an SCP it provides DICOM Verification, Storage and Query/Retrieve services for remote Mx-Views.
Queue-Manager is an SCU used to initiate moving of images between databases. To initiate move from a local database it invokes the appropriate Disk-Server. The Queue-Manager is also allows the operator to control transfer requests status.

The following figure provides an illustration of the Disk-Server and Queue-Manager activities:

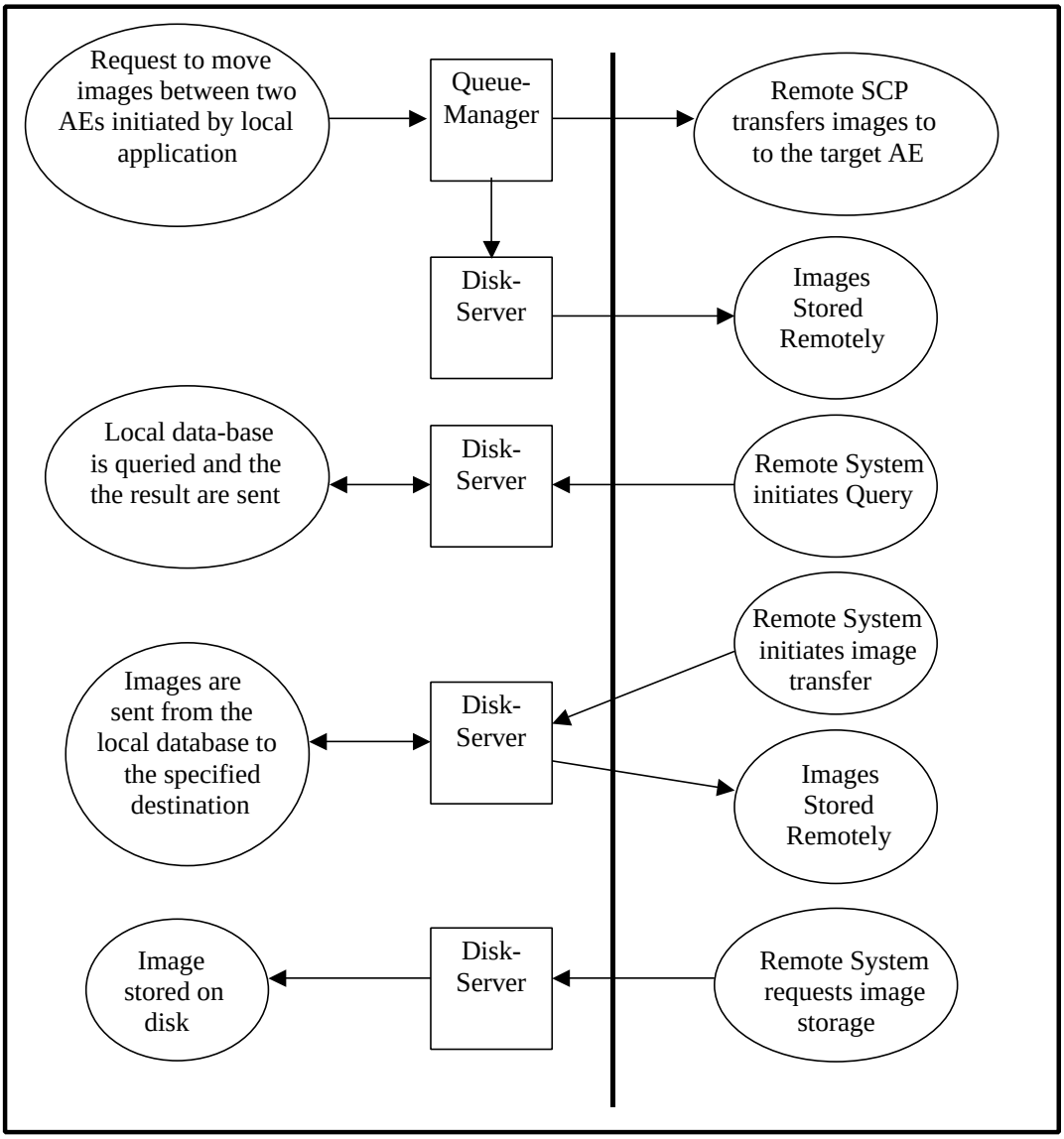


Figure 1: Illustration of Disk-Server Activities.

2.1.2. Archive-Manager

This AE is an SCU used to query the contents of remote databases. The results are presented to the user on the screen. The following figure provides an illustration of Archive-Manager activities:

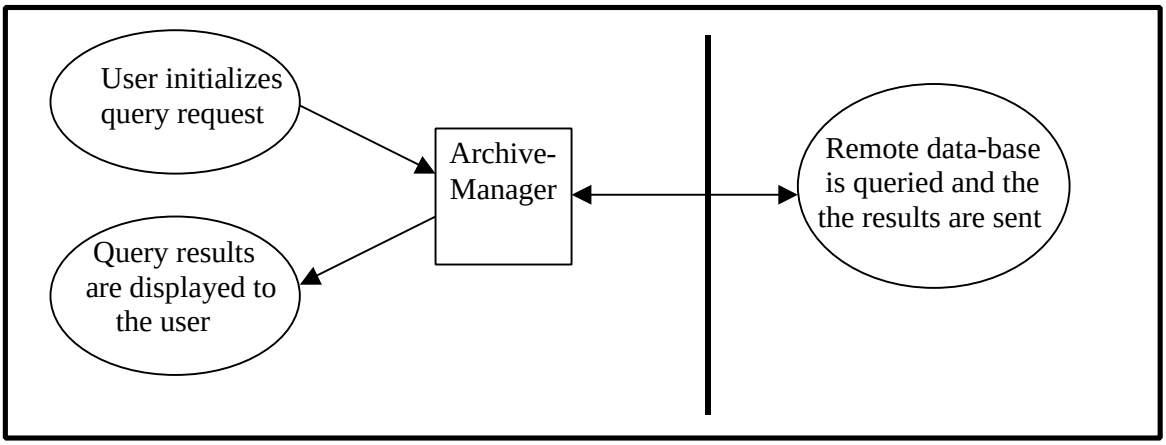


Figure 2: Illustration of Archive-Manager Activities.

2.1.3. Memory-Manager

This AE is an SCU used to request from the remote Mx-View to load images to the local Mx-View memory. The following figure provides an illustration of Memory-Manager activities:

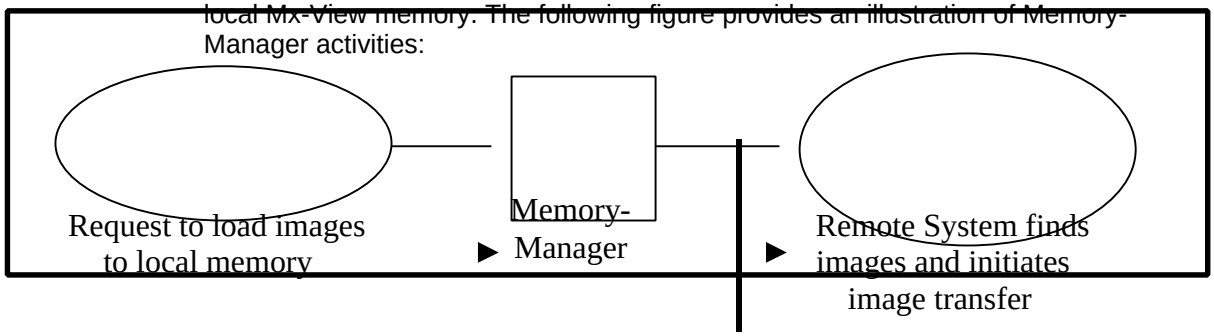


Figure 3: Illustration of Memory-Manager Activities.

2.1.4. Memory-Server

This AE serves as the interface to the *Mx-View's* memory by providing the DICOM Storage service. It is used by the *Mx-View* to load images to its own memory. The *Mx-View* assigns this AE as the target AE of C-MOVE requests it issues when loading images from remote Mx-Views. The following figure provides an illustration of Memory-Server activities:

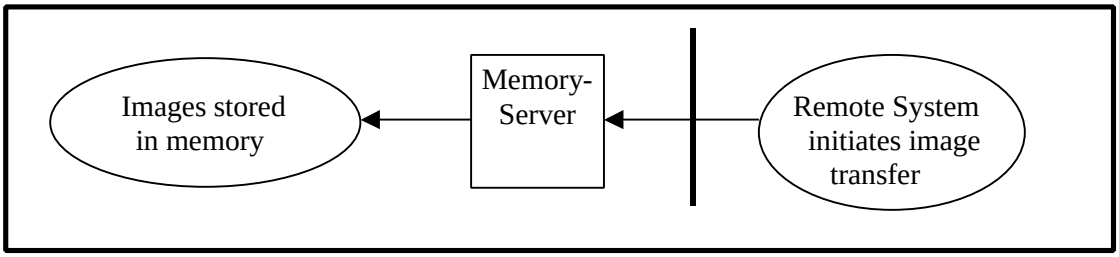


Figure 4: Illustration of Memory-Manager Activities.

2.1.5. Print-Server

This AE enables an SCU to print on a non-DICOM printer by providing it the services of a DICOM Print Management service class. The following figure provides an illustration of Print-Server activities:

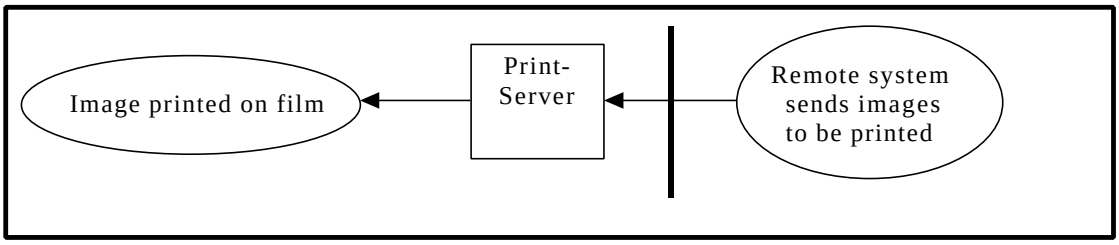


Figure 5: Illustration of Print-Server Activities.

2.1.6. Print-Manager

Print-Manager is an SCU used to film the images (from MasterFilm application). The following figure provides an illustration of Print-Manager activities:

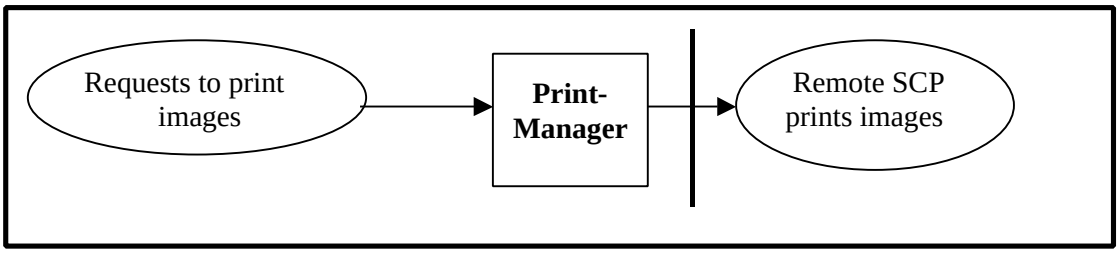


Figure 6: Illustration of Print-Manager Activities.

2.1.7. DentaCT-Print

This AE is an SCU used to print images from the DentaCT application on imagers. The following figure provides an illustration of DentaCT-Print activities:

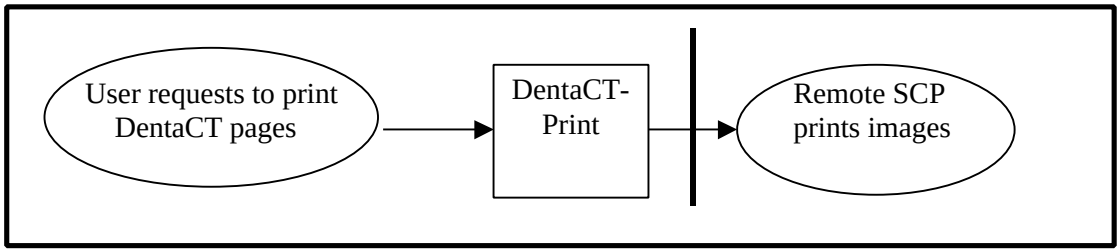


Figure 7: Illustration of DenatCT-Print Activities.

2.1.8. StorageComm-Manager

StorageComm-Manager is used to support Storage Commitment Service Class both as SCU and SCP. The following figure provides an illustration of StorageComm-Manager:

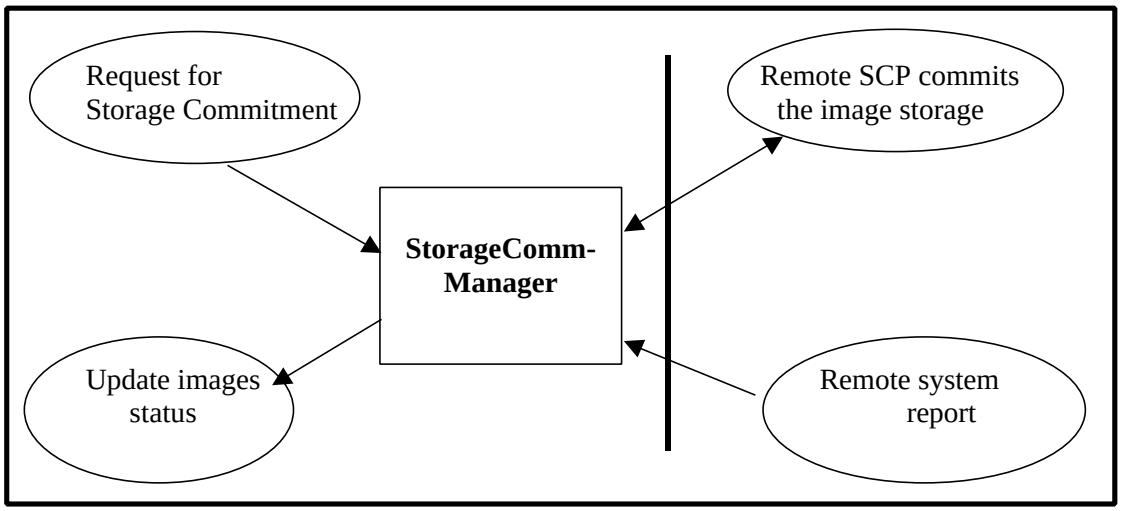


Figure 8: Illustration of StorageComm-Manager Activities

2.2. Functional definition of Application Entities

2.2.1. Disk-Server/Queue-Manager

Disk-Server waits for another application to connect at the presentation address configured for its AE title. **Disk-Server** will accept associations with Presentation Contexts for Service Object Pair (SOP) classes of the Storage, Query-Retrieve (C-MOVE and C-FIND only) and Verification Service Classes.

When performing a Storage Service Class, **Disk-Server** will receive images and store them into the *Mx-View's* local data-base.
When performing Query-Retrieve Service Class (C-FIND), **Disk-Server** will query its local database according to the request's parameters, and will send the results to the issuer.

When performing Query-Retrieve Service Class (C-MOVE), **Disk-Server** will issue a C-STORE (to the target AE) for every image found according to the request.
The **Queue-Manager** is responsible for transferring images between devices in batch mode. The **Queue-Manager** gets transfer requests from the **Memory-Manager** and the **Archive-Manager** (using a proprietary non-DICOM protocol). It performs these requests using the Query-Retrieve Service Class (C-MOVE). The **Queue-Manager** can perform the following activities:

- Establish an association with a remote AE.
- Release an association with a remote AE.
- Issue a C-MOVE request (using the Study Root model) for any desired target AE.

2.2.2. Archive-Manager

The **Archive-Manager i**s a GUI (Graphical User-Interface) based application. It enables the user to perform queries using the DICOM protocol. The **Archive-Manager** lets the user select from a list of devices. It uses a configuration file to associate each device with a DICOM Application Entity. Using the GUI, the user can initiate the following activities:

- Establish an association with a remote AE.
- Release an association with a remote AE.
- Query for studies (using the Study Root model).
- Query for series (using the Study Root model).
- Query for images (using the Study Root model).
- Verify connection to a remote AE

2.2.3. Memory-Manager

The **Memory-Manager** is responsible for loading images into memory. The **Memory-Manager** gets requests from local image processing and display applications to load images to the memory. It performs these requests using the Query-Retrieve Service Class (C-MOVE only). The **Memory-Manager** can perform the following activities:

- Establish an association with a remote AE.
- Release an association with a remote AE.
- Issue a C-MOVE request (using the Study Root model) where the target AE is **Memory-Server.**

2.2.4. Memory-Server

Memory-Server waits for another application to connect at the presentation address configured for its AE title. **Memory-Server** will accept associations with Presentation Contexts for SOP classes of the Storage and Verification Service Classes. It will receive images on these Presentation Contexts and load them into the *Mx-View's* memory.

2.2.5. Print-Server

Print-Server waits for another application to connect at the presentation address configured for its AE title. **Print-Server** will accept associations with Presentation Context for the Print Management and Verification Service Classes. It may receive images from one or more SCUs.

2.2.6. Print-Manager

The **Print-Manager** is a Graphical User Interface (GUI) based application. It enables the user to print predefined images using the DICOM protocol. The user can specify as a printing destination one of several predefined printers. The user can also modify some of the printing parameters such as the film size and format.

2.2.7. DenatCT-Print

The **DentaCT-Print** is a part of the DenatCT application. It enables the user to print the images generated by this application using the DICOM protocol. The user can specify as a printing destination one of several predefined printers. The user can also modify some of the printing parameters such as the film size and format.

2.2.8. StorageComm-Manager

StorageComm Manager is responsible to issue and support the storage commitment service both as SCU and SCP. When some storage device server is configured as supports this service, **StorageComm Manager** establishes association with the specified AE title and sends storage commitment (N-ACTION) request using push model. After that, it may accept storage commitment (N-EVENT-REPORT) request on the same association or by establishing another association.

2.2.9. Media AE

The Media AE is responsible for the reading, updating and recording of DICOM Media. The system Can read, update and record DICOM Media CD-R's.

2.3. Sequencing of Real World Activities

Real world activities of the **Print-Server** and the **Print-Manager** are sequenced as required to meet the definition of the Print-Management Service Class. SCUs can modify and/or delete previously defined film boxes (i.e., not only the currently open one).

3. AE SPECIFICATIONS

3.1. Disk-Server/Queue-Manager Specifications

Disk-Server and **Queue-Manager** work closely together and can be configured to act as a single Application Entity (i.e., having the same AE Title) or as different Application Entities. In order to simplify the description they are described in this document as a single Application Entity. Depending on configuration, multiple copies **of Disk-Server** may be running simultaneously, each representing the same Application Entity.

Disk-Server and **Queue-Manager** provide Standard Conformance to the following DICOM V3.0 SOP Classes as both an SCU and an SCP:

Table 1. SOP classes supported as SCU and SCP

SOP Class Name	SOP Class UID
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.7.12.1
X-Ray Radiofluoroscopy Image Storage	1.2.840.10008.5.1.4.1.1.7.12.2
Study Root Q/R Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2

The following DICOM V3.0 SOP Classes as an SCP only:

Table 2. SOP classes supported as SCP

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Study Root Q/R Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1

Note: XA (X-Ray Angiographic) images are supported for storage only (not for viewing)

3.1.1. Association Establishment Policies

3.1.1.1. General

The maximum Protocol Data Unit (PDU) size that the Disk-Server will use is configurable, with a minimum of 2K bytes.

3.1.1.2. Number of Associations

The number of simultaneous associations that will be accepted by **Disk-Server** is limited only by the kernel parameters of the underlying TCP/IP implementation. **Disk-Server** will spawn a new process for each connection request it receives. Therefore, **Disk-Server** can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations that the Application Entity represented by **Disk-Server** can maintain.
Disk-Server/Queue-Manager can initiate multiple simultaneous connections. The maximal number of simultaneous associations is limited by the configuration of the

Mx-View. **Disk-Server/Queue-Manager** will not initiate more than one association per each remote AE configured as an SCP in *Mx-View.*.

3.1.1.3. Asynchronous Nature

Disk-Server/Queue-Manager will only allow a single outstanding operation on an association. Therefore **Disk-Server/Queue-Manager** will not perform asynchronous operations window negotiation.

3.1.1.4. Implementation Identifying Information

Disk-Server/Queue-Manager provides a single Implementation Class UID which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.1.2. Association Initiation by Real-World Activity

Disk-Server will attempt to initiate a new association when requested to send images to the remote Mx-View, as part of a C-MOVE Command. **Queue-Manager** will attempt to initiate a new association when requested to perform image transfer (Move) from the remote Mx-View.

3.1.2.1. Image Transfer to the Remote Mx-View

3.1.2.1.1. Associated Real-World Activity

The associated Real-World Activity is a request for retrieval of images from the disk and storage of the images to a remote Mx-View using a C-STORE command.

3.1.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.1 are proposed by **Disk-Server** (Explicit VR Transfer Syntaxes for a specific AE target may be restricted using the configuration utility):

Table 3. Proposed Presentation Contexts for Disk-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
CT Image	1.2.840.10008.5.1.4.1.1.2	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
MR Image	1.2.840.10008.5.1.4.1.1.4	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
CR Image	1.2.840.10008.5.1.4.1.1.1	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
NM Image	1.2.840.10008.5.1.4.1.1.20	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
SC Image	1.2.840.10008.5.1.4.1.1.7	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

RF Image	1.2.840.10008.5.1.4.1.1.12.2	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.1.2.1.2.1. SOP Specific Conformance Statement for Storage SOP Class

Disk-Server provides standard conformance to the DICOM V3.0 Storage Service Class as an SCU for the following SOP Classes:

- CT Image Storage, UID = 1.2.840.10008.5.1.4.1.1.2.
- MR Image Storage, UID = 1.2.840.10008.5.1.4.1.1.4.
- CR Image Storage , UID = 1.2.840.10008.5.1.4.1.1.1
- NM Image Storage, UID = 1.2.840.10008.5.1.4.1.1.20
- SC Image Storage, UID = 1.2.840.10008.5.1.4.1.1.7.
- XA Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.1
- RF Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.2

Multiple C-STORE operations can be performed over a single association.
Upon receiving a C-STORE confirmation containing a successful status, this implementation will perform the next C-STORE operation (if this operation is the result of the Series Level Move request). The association will be kept open if possible.

Any unsuccessful status, returned in the C-STORE confirmation, results in termination of the sending further C-Store requests (if any in the queue), reporting of error to the *Mx-View* log file, and returning of a status code of **A702** (“Refused”) in the C-MOVE confirmation.

There are no timeouts implemented in this process.

3.1.2.2. Image Transfer from the Remote Mx-View

3.1.2.2.1. Associated Real World Activity

Queue-Manager initiates an association when some application asks for image transfer from a specified source device to a specified target device. If **Queue-Manager** fails to move all the required images, it waits for some configurable duration and then retries to initiate the association.

3.1.2.2.2. Proposed Presentation Contexts

The following Presentation Contexts are proposed by **Queue-Manager** (Explicit VR Transfer Syntaxes for a specific AE target may be restricted using the configuration utility):

Table 4. Proposed Presentation Contexts for Queue-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Study Root MOVE	1.2.840.10008.5.1.4.1.2.2.2	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.1.2.2.2.1. SOP Specific Conformance Statement for Study Root MOVE

Queue-Manager provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCU for the following SOP Class: Study Root Query/Retrieve Information Model - FIND, UID=1.2.840.10008.5.1.4.1.2.2.2.

3.1.3. Association Acceptance Policy

Disk-Server places no limitations on the number of simultaneous connections it will support. However, it is possible to control who may connect to **Disk-Server** during the *Mx-View* configuration process.

3.1.3.1. Remote Mx-View Requests Verification

A remote Mx-View requests verification from **Disk-Server** using the C-ECHO command.

3.1.3.1.1. Associated Real World Activity

Disk-Server performs the Verification Service Class by responding with C-ECHO-RSP.

3.1.3.1.2. Presentation Context Table

The following Presentation Contexts are acceptable to the **Disk-Server.**

Table 2.3: Acceptable Presentation Contexts for Disk-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	ILE	1.2.840.10008.1.2	SCP	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.1.3.1.2.1. SOP Specific Conformance to Verification SOP Class

Disk-Server provides standard conformance to the DICOM V3.0 Verification Service Class as an SCP for the Verification SOP Class, UID=1.2.840.10008.1.1.

3.1.3.1.3. Presentation Context Acceptance Criterion

Disk-Server will accept any Presentation Context from Table 2.3.

3.1.3.1.4. Transfer Syntax Selection Policies

Disk-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.1.3.2. Remote Mx-View Requests Image Storage

A remote Mx-View requests image storage from **Disk-Server** using the C-STORE command.

3.1.3.2.1. Associated Real World Activity

The Real World activity associated with the C-STORE operation is the storage of the image in the disk. **Disk-Server** will issue a failure status if it is unable to store the image in the disk.

3.1.3.2.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.3 is acceptable to the **Disk-Server**:

3.1.3.2.2.1. SOP Specific Conformance to Storage SOP Class

Disk-Server provides standard conformance to the DICOM V3.0 Storage Service Class as an SCP for the following SOP Classes:

- CT Image Storage, UID=1.2.840.10008.5.1.4.1.1.2.
- MR Image Storage, UID=1.2.840.10008.5.1.4.1.1.4.
- CR Image Storage , UID = 1.2.840.10008.5.1.4.1.1.1
- NM Image Storage, UID = 1.2.840.10008.5.1.4.1.1.20
- SC Image Storage, UID=1.2.840.10008.5.1.4.1.1.7.
- XA Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.1
- RF Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.2

Disk-Server conforms to the SOPs of the Storage Service Class at Level 2 (Full). In case of a successful C-STORE, the stored image may be accessed by the **Disk-Server**.

The user of the *Mx-View*, who can delete any image using the Archive Manager application, determines the duration of the storage. An auto-delete mechanism can be utilized to remove the least recently accessed images in order to make room for new ones. This mechanism is optional and is controlled by user configurable parameters.

Disk-Server will not coerce any attribute except for the following: pixel data (0x7FE0, 0x0010) of type OW is converted to OB when bits allocated (0x0028, 0x0100) equal 8.

If **Disk-Server** returns one of the following status codes, it means that the C-STORE has been unsuccessful:

- **A700** - General refusal status.
- **A701** - Out of disk space.
- **B000** - General warning status.
- **C000** - General failure status.

Recovery from this condition is the responsibility of the **Disk-Server**.

3.1.3.2.3. Presentation Context Acceptance Criterion

Disk-Server will accept any Presentation Context from Table 2.4.

Table 5. Acceptable Presentation Contexts for Disk-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
CT Image	1.2.840.10008.5.1.4.1.1.2	ILE	1.2.840.10008.1.2	SCP	None
CT Image	1.2.840.10008.5.1.4.1.1.2	ELE	1.2.840.10008.1.2.1	SCP	None
CT Image	1.2.840.10008.5.1.4.1.1.2	EBE	1.2.840.10008.1.2.2	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	ILE	1.2.840.10008.1.2	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	ELE	1.2.840.10008.1.2.1	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	EBE	1.2.840.10008.1.2.2	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	ILE	1.2.840.10008.1.2	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	ELE	1.2.840.10008.1.2.1	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	EBE	1.2.840.10008.1.2.2	SCP	None
NM Image	1.2.840.10008.5.1.4.1.1.20	ILE	1.2.840.10008.1.2	SCP	None
NM Image	1.2.840.10008.5.1.4.1.1.20	ELE	1.2.840.10008.1.2.1	SCP	None

NM Image	1.2.840.10008.5.1.4.1.1.20	EBE	1.2.840.10008.1.2.2	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	ILE	1.2.840.10008.1.2	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	ELE	1.2.840.10008.1.2.1	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	EBE	1.2.840.10008.1.2.2	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	ILE	1.2.840.10008.1.2	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	ELE	1.2.840.10008.1.2.1	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	EBE	1.2.840.10008.1.2.2	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	ILE	1.2.840.10008.1.2	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	ELE	1.2.840.10008.1.2.1	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	EBE	1.2.840.10008.1.2.2	SCP	None

3.1.3.2.4. Transfer Syntax Selection Policies

Disk-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.1.3.3. Remote Mx-View Requests Image Transfer

A remote Mx-View requests image transfer from **Disk-Server** using the C-MOVE command.

3.1.3.3.1. Associated Real World Activity

The Real World activity associated with the C-MOVE command is retrieval of images from the disk and storage of the images to a remote Mx-View using a C-STORE command.

Disk-Server will issue a failure status if it is unable to process the transfer request.

3.1.3.3.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.4 is acceptable to the **Disk-Server**:

Table 6. Acceptable Presentation Contexts for Disk-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Study Root MOVE	1.2.840.10008.5.1.4.1.2.2.2	ILE	1.2.840.10008.1.2	SCP	None
Study Root MOVE	1.2.840.10008.5.1.4.1.2.2.2	ELE	1.2.840.10008.1.2.1	SCP	None
Study Root MOVE	1.2.840.10008.5.1.4.1.2.2.2	EBE	1.2.840.10008.1.2.2	SCP	None

3.1.3.3.2.1. SOP Specific Conformance to Study Root MOVE

Disk-Server provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCP for the following SOP Class: Study Root Query/Retrieve Information Model - MOVE, UID=1.2.840.10008.5.1.4.1.2.2.2.
Prioritization of C-MOVE requests is not supported.

Disk-Server does not support relational C-MOVE requests.
All images requested in the C-MOVE will be sent over a single association (the association will not be established and torn down for each image).

If **Disk-Server** returns one of the following status codes, it means that the C-MOVE has been unsuccessful:

- **A702** - Refused. Unable to perform sub operation (due to failure of a C-STORE).
- **A802** - Refused. Move destination unknown.
- **A700** - General refusal status.
- **B000** - General warning status.
- **C000** - General failure status.

3.1.3.3.3. Presentation Context Acceptance Criterion

Disk-Server will accept any Presentation Context from Table 2.4.

3.1.3.3.4. Transfer Syntax Selection Policies

Disk-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.1.3.4. Remote Mx-View Initiates Query Request

A remote Mx-View initiates query request using the C-FIND command.

3.1.3.4.1. Associated Real World Activity

The Real World activity associated with the C-FIND command is an examination of the disk content. **Disk-Server** will issue a failure status if it is unable to process the query request.

3.1.3.4.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.5 is acceptable to the **Disk-Server**:

Table 7. Acceptable Presentation Contexts for Disk-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Study Root FIND	1.2.840.10008.5.1.4.1.2.2.1	ILE	1.2.840.10008.1.2	SCP	None
Study Root FIND	1.2.840.10008.5.1.4.1.2.2.1	ELE	1.2.840.10008.1.2.1	SCP	None
Study Root FIND	1.2.840.10008.5.1.4.1.2.2.1	EBE	1.2.840.10008.1.2.2	SCP	None

3.1.3.4.2.1. SOP Specific Conformance to Study Root FIND

Disk-Server provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCP for the following SOP Class: Study Root Query/Retrieve Information Model - FIND, UID=1.2.840.10008.5.1.4.1.2.2.1.

Disk-Server does not support Relational Search.

All Required (R) and Unique (U) Study, Series and Image level keys for the Study Root Query/Retrieve Information Model are supported. **Disk-Server** supports the following optional keys:

- Image Type (0008,0008)
- Instance Creation Date (0008,0012)
- Instance Creation Time (0008,0013)
- SOP Class UID (0008,0016)
- Series Date (0008,0021)
- Image Date (0008,0023)
- Series Time (0008,0031)
- Image Time (0008,0033)
- Contrast Bolus Agent (0018,0010)
- Scan Options (0018,0022)
- Slice Thickness (0018,0050)
- Gantry/Detector Tilt (0018,1120)
- Acquisition Number (0020,0012)
- Image Position (0020,0032)
- Image Number (0020, 0033)
- Image Orientation (0020,0037)
- Frame Of Reference UID (0020,0052)
- Slice Location (0020,1041)
- Rows (0028,0010)
- Columns (0028,0011)
- Samples Per Pixel (0028, 0002)
- Pixel Spacing (0028,0030)
- Bits Allocated (0028, 0100)

Unsupported fields will not be returned in the C-FIND response.

C-FIND-CANCEL is supported. However, some C-FIND responses may be forwarded before the C-FIND-CANCEL takes effect.
If **Disk-Server** returns one of the following status codes, it means that the C-FIND has been unsuccessful:

- **A700** - General refusal status.

- **B000** - General warning status.
- **C000** - General failure status.

3.1.3.4.3. Presentation Context Acceptance Criterion

Disk-Server will accept any Presentation Context from Table 2.5.

3.1.3.4.4. Transfer Syntax Selection Policies

Disk-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.2. Archive-Manager Specifications

Archive-Manager provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

Table 8. SOP Classes supported as SCU

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Study Root Q/R Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1

3.2.1. Association Establishment Policies

3.2.1.1. General

The maximum PDU size that the **Archive-Manager** will use is configurable, with a minimum of
2K byte.

3.2.1.2. Number of Associations

Archive-Manager can have multiple simultaneous connections. The maximal number of simultaneous associations that will be initiated by **Archive-Manager** is limited by the configuration of the *Mx-View*. **Archive-Manager** will not initiate more than one association per each AE configured as an SCP in the *Mx-View.*

3.2.1.3. Asynchronous Nature

Archive-Manager will only allow a single outstanding operation on an association. Therefore
Archive-Manager will not perform asynchronous operations window negotiation.

3.2.1.4. Implementation Identifying Information

Archive-Manager provides a single Implementation Class UID that is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.2.2. Association Initiation by Real-World Activity

3.2.2.1. User Clicks on a Device Icon

3.2.2.1.1. Associated Real World Activity

Archive-Manager initiates an association when the user clicks on one of the icons in the devices tool-bar.

3.2.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.14 are proposed by **Archive-Manager**:

Table 9. Proposed Presentation Contexts for Archive-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Study Root FIND	1.2.840.10008.5.1.4.1.2.2.1	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.2.2.1.2.1. SOP Specific Conformance Statement for Study Root FIND

Archive-Manager provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCU for the following SOP Class: Study Root Query/Retrieve Information Model - FIND, UID = 1.2.840.10008.5.1.4.1.2.2.1.

Archive-Manager supports the following ***Study Level*** keys:

Table 10. Study Level Keys

Name	Tag	Type
Study Date	(0008, 0020)	R
Study Time	(0008, 0030)	R
Accession Number	(0008, 0050)	R
Patient's Name	(0010, 0010)	R
Patient ID	(0010, 0020)	R
Study ID	(0020, 0010)	R
Study Instance UID	(0020, 000D)	U
Referring Physician’s Name	(0008, 0090)	O
Modalities In Study	(0008, 0061)	O
Patient's Birth Date	(0010, 0030)	O
Patient's Sex	(0010, 0040)	O
Number Of Study Related Series	(0020, 1206)	O
Number Of Study Related Images	(0020, 1208)	O

Archive-Manager supports the following ***Series Level*** keys:

Table 11. Series level Keys

Name	Tag	Type
Modality	(0008, 0060)	R
Series Number	(0020, 0011)	R
Series Instance UID	(0020, 000E)	U
Number Of Series Related Instances	(0020, 1209)	U
Series Description	(0020, 103E)	O
Series Date	(0008, 0021)	O
Series Time	(0008, 0031)	O
Protocol Name	(0018, 1030)	O
Body Part Examined	(0018, 0015)	O
Performed Proc Step Start Date	(0040, 0244)	O
Performed Proc Step Start Time	(0040, 0245)	O

Archive-Manager supports the following ***Image Level*** keys:

Table 12. Image Level Keys

Name	Tag	Type
Image Number	(0020, 0013)	R
SOP Instance UID	(0008, 0018)	U
SOP Class UID	(0008, 0016)	O
Image Date	(0008, 0023)	O
Image Time	(0008, 0033)	O
Image Type	(0008, 0008)	O
Slice Location	(0020, 1041)	O
Rows	(0028, 0010)	O
Columns	(0028, 0011)	O
Contrast Bolus Agent	(0018, 0010)	O
Instance Creation Date	(0008, 0012)	O
Instance Creation Time	(0008, 0013)	O
Gantry/Detector Tilt	(0018, 1120)	O
Sequence Name	(0018, 0024)	O
Echo Number	(0018, 0086)	O
Trigger Time	(0018, 1060)	O

3.2.2.2. Verify Connection

3.2.2.2.1. Associated Real World Activity

Archive-Manager initiates an association when the user points to one of the icons in the devices tool-bar, clicks the right mouse button and selects “Verify Connection” operation.

3.2.2.2.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.15 are proposed by **Archive-Manager**:

Table 13. Proposed Presentation Contexts for Archive-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.2.2.2.2.1. SOP Specific Conformance Statement for Verification

Archive-Manager provides standard conformance to the DICOM V3.0 Verification Service Class as an SCU for the Verification SOP Class, UID=1.2.840.10008.1.1.

3.2.3. Association Acceptance Policy

Archive-Manager never accepts an association.

3.3. Memory-Manager Specifications

Memory-Manager provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

Table 14. SOP Classes supported as SCU

SOP Class Name	SOP Class UID
Study Root Q/R Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2

3.3.1. Association Establishment Policies

3.3.1.1. General

The maximum PDU size which the **Memory-Manager** will use is configurable, with a minimum of 2KBytes.

3.3.1.2. Number of Associations

Memory-Manager can have multiple simultaneous connections. The maximal number of simultaneous associations that will be initiated by **Memory-Manager** is limited by the configuration of the *Mx-View*. **Memory-Manager** will not initiate more than one association per each AE configured as an SCP in the *Mx-View.*

3.3.1.3. Asynchronous Nature

Memory-Manager will only allow a single outstanding operation on an association. Therefore
Memory-Manager will not perform asynchronous operations window negotiation.

3.3.1.4. Implementation Identifying Information

Memory-Manager provides a single Implementation Class UID which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.3.2. Association Initiation by Real-World Activity

3.3.2.1. Application Asks for Image Loading

3.3.2.1.1. Associated Real World Activity

Memory-Manager initiates an association when an image processing application asks for image loading from a specified source device using a proprietary IPC protocol.

3.3.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.15 are proposed by **Memory-Manager**:

Table 15. Proposed Presentation Contexts for Archive-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Study Root MOVE	1.2.840.10008.5.1.4.1.2.2.1	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.3.2.1.2.1. SOP Specific Conformance Statement for Study Root MOVE

Memory-Manager provides standard conformance to the DICOM V3.0 Query/Retrieve Service Class as an SCU for the following SOP Class: Study Root Query/Retrieve Information Model - FIND, UID=1.2.840.10008.5.1.4.1.2.2.2.

3.3.3. Association Acceptance Policy

Memory-Manager never accepts an association.

3.4. Memory-Server Specifications

Memory-Server provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCP:

Table 16. Supported SOP Classes as SCP

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.7.12.1
X-Ray Radiofluoroscopy Image Storage	1.2.840.10008.5.1.4.1.1.7.12.2

Note: XA (X-Ray Angiographic) images are supported for storage only (not for viewing)

3.4.1. Association Establishment Policies

3.4.1.1. General

The maximum PDU size that the **Memory-Server** will use is configurable, with a minimum of 2K byte.

3.4.1.2. Number of Associations

The number of simultaneous associations that will be accepted by **Memory-Server** is limited only by the kernel parameters of the underlying TCP/IP implementation. **Memory-Server** will spawn a new process for each connection request it receives. Therefore, **Memory-Server** can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations that the Application Entity represented by **Memory-Server** can maintain.

3.4.1.3. Asynchronous Nature

Memory-Server will only allow a single outstanding operation on an association. Therefore **Memory-Server** will not perform asynchronous operations window negotiation.

3.4.1.4. Implementation Identifying Information

Memory-Server provides a single Implementation Class UID that is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.4.2. Association Initiation by Real-World Activity

Memory-Server never initiates an association.

3.4.3. Association Acceptance Policy

Memory-Server places no limitations on the number of simultaneous connections it will support. However, it is possible to control who may connect to **Memory-Server** during the *Mx-View's* configuration process.

3.4.3.1. Remote Mx-View Requests Verification

A remote Mx-View requests verification from **Memory-Server** using the C-ECHO command.

3.4.3.1.1. Associated Real World Activity

Memory-Server performs the Verification Service Class by responding with C-ECHO-RSP.

3.4.3.1.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.10 is acceptable to **Memory-Server:**

Table 17. Acceptable Presentation Contexts for Memory-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	ILE	1.2.840.10008.1.2	SCP	None
Verification	1.2.840.10008.1.1	ELE	1.2.840.10008.1.2.1	SCP	None
Verification	1.2.840.10008.1.1	EBE	1.2.840.10008.1.2.2	SCP	None

3.4.3.1.2.1. SOP Specific Conformance to Verification SOP Class

Memory-Server provides standard conformance to the DICOM V3.0 Verification Service Class as an SCP for the Verification SOP Class, UID=1.2.840.10008.1.1.

3.4.3.1.3. Presentation Context Acceptance Criterion

Memory-Server will accept any Presentation Context from Table 2.10.

3.4.3.1.4. Transfer Syntax Selection Policies

Memory-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.4.3.2. Remote Mx-View Requests Image Transfer

A remote Mx-View requests image transfer from **Memory-Server,** as a result of a C-MOVE command issued by the **Memory-Manager**.

3.4.3.2.1. Associated Real World Activity

The Real World activity associated with the C-STORE operation is the storage of the image in the memory of the *Mx-View* upon which **Memory-Server** is running. **Memory-Server** will issue a failure status if it is unable to store the image in the memory.

3.4.3.2.2. Presentation Context Table

Any of the Presentation Contexts shown in table 2.11 is acceptable to the **Memory-Server:**

3.4.3.2.2.1. SOP Specific Conformance to Verification SOP Class

Memory-Server provides standard conformance to the DICOM V3.0 Storage Service Class as an SCP for the following SOP Classes:

- CT Image Storage, UID=1.2.840.10008.5.1.4.1.1.2.
- MR Image Storage, UID=1.2.840.10008.5.1.4.1.1.4.
- CR Image Storage , UID = 1.2.840.10008.5.1.4.1.1.1
- NM Image Storage, UID = 1.2.840.10008.5.1.4.1.1.20
- SC Image Storage, UID=1.2.840.10008.5.1.4.1.1.7.
- XA Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.1
- RF Image Storage, UID = 1.2.840.10008.5.1.4.1.1.12.2

Memory-Server conforms to the SOPs of the Storage Service Class at Level 2 (Full). In case of a successful C-STORE, the stored image may be accessed by the **Memory-Manager.**

The user determines the duration of the storage.
Recovery from this condition is the responsibility of the Memory-Manager.
If Memory-Server returns one of the following status codes, it means that the C-STORE has been unsuccessful:

- **A700** -General refusal status.
- **B000** - General warning status.
- **C000** - General failure status.

3.4.3.2.3. Presentation Context Acceptance Criterion

Memory-Server will accept any Presentation Context from Table 2.11.

Table 18. Acceptable Presentation Contexts for Memory-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
CT Image	1.2.840.10008.5.1.4.1.1.2	ILE	1.2.840.10008.1.2	SCP	None
CT Image	1.2.840.10008.5.1.4.1.1.2	ELE	1.2.840.10008.1.2.1	SCP	None
CT Image	1.2.840.10008.5.1.4.1.1.2	EBE	1.2.840.10008.1.2.2	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	ILE	1.2.840.10008.1.2	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	ELE	1.2.840.10008.1.2.1	SCP	None
MR Image	1.2.840.10008.5.1.4.1.1.4	EBE	1.2.840.10008.1.2.2	SCP	None
NM Image	1.2.840.10008.5.1.4.1.1.20	ILE	1.2.840.10008.1.2	SCP	None
NM Image	1.2.840.10008.5.1.4.1.1.20	ELE	1.2.840.10008.1.2.1	SCP	None
NM Image	1.2.840.10008.5.1.4.1.1.20	EBE	1.2.840.10008.1.2.2	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	ILE	1.2.840.10008.1.2	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	ELE	1.2.840.10008.1.2.1	SCP	None
CR Image	1.2.840.10008.5.1.4.1.1.1	EBE	1.2.840.10008.1.2.2	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	ILE	1.2.840.10008.1.2	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	ELE	1.2.840.10008.1.2.1	SCP	None
SC Image	1.2.840.10008.5.1.4.1.1.7	EBE	1.2.840.10008.1.2.2	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	ILE	1.2.840.10008.1.2	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	ELE	1.2.840.10008.1.2.1	SCP	None
XA Image	1.2.840.10008.5.1.4.1.1.12.1	EBE	1.2.840.10008.1.2.2	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	ILE	1.2.840.10008.1.2	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	ELE	1.2.840.10008.1.2.1	SCP	None
RF Image	1.2.840.10008.5.1.4.1.1.12.2	EBE	1.2.840.10008.1.2.2	SCP	None

3.4.3.2.4. Transfer Syntax Selection Policies

Memory-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.5. Print-Server Specifications

Print-Server provides Standard Conformance to the following DICOM V3.0 Meta SOP Classes and DICOM V3.0 SOP Classes as an SCP:

Table 19. Supported SOP Classes as SCP

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9
Print Job	1.2.840.10008.5.1.1.14

Support for the Basic Grayscale Print Management Meta SOP Class as an SCP also implies support for the following SOP Classes as an SCP. However, the **Print-Server** shall not accept individual Presentation Contexts for these SOP Classes.

Table 20. Supported SOP Classes in the Meta Basic Grayscale SOP class

SOP Class Name	SOP Class UID
Basic Film Session	1.2.840.10008.5.1.1.1.
Basic Film Box	1.2.840.10008.5.1.1.2.
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4
Printer	1.2.840.10008.5.1.1.16

3.5.1. Association Establishment Policies

3.5.1.1. General

The maximum PDU size which the **Print-Server** will use is configurable, with a minimum of
2K byte.

3.5.1.2. Number of Associations

The number of simultaneous associations which will be accepted by **Print-Server** is limited only by the kernel parameters of the underlying TCP/IP implementation. **Print-Server** will spawn a new process for each connection request it receives. Therefore, **Print-Server** can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations which the Application Entity represented by **Print-Server** can maintain.

3.5.1.3. Asynchronous Nature

Print-Server will only allow a single outstanding operation on an association. Therefore
Print-Server will not perform asynchronous operations window negotiation.

3.5.1.4. Implementation Identifying Information

Print-Server provides a single Implementation Class UID which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.5.2. Association Initiation by Real-World Activity

Print-Server never initiates an association.

3.5.3. Association Acceptance Policy

Print-Server places no limitations on the number of simultaneous connections it will support. However, it is possible to control who may connect to **Print-Server** during the *Mx-View's* configuration process.

3.5.3.1. Remote Mx-View Requests Verification

A remote Mx-View requests verification from **Print-Server** by sending a C-ECHO command.

3.5.3.1.1. Associated Real World Activity

Print-Server performs the Verification Service Class by responding with C-ECHO-RSP.

3.5.3.1.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.12 is acceptable to the **Print-Server**:

Table 21. Acceptable Presentation Contexts for Print-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	ILE	1.2.840.10008.1.2	SCP	None
Verification	1.2.840.10008.1.1	ELE	1.2.840.10008.1.2.1	SCP	None
Verification	1.2.840.10008.1.1	EBE	1.2.840.10008.1.2.2	SCP	None

3.5.3.1.2.1. SOP Specific Conformance to Verification SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Verification Service Class as an SCU for the Verification SOP Class, UID=1.2.840.10008.1.1.

3.5.3.1.3. Presentation Context Acceptance Criterion

Print-Server will accept any Presentation Context from Table 2.12.

3.5.3.1.4. Transfer Syntax Selection Policies

Print-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.5.3.2. Remote Mx-View Requests Image Print

A remote Mx-View requests image print from **Print-Server** by creating film sessions, film boxes and image boxes, changing their attributes and requesting the film boxes (or sessions) to be printed as defined in Part 4 of the standard.

3.5.3.2.1. Associated Real World Activity

The Real World activity associated with the image printing request is the printing of the images on the printer which is associated with the current **Print-Server** instance. **Print-Server** does not support attributes values that are not supported by the associated printer. The valid attributes values as well as the default values used for the associated printer are defined in a printer capabilities configuration file. **Print-Server** will issue a failure status if it is unable to handle the printing request properly.

3.5.3.2.2. Presentation Context Table

Any of the Presentation Contexts shown in Table 2.13 is acceptable to the **Print-Server:**

Table 22. Acceptable Presentation Contexts for Print-Server

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Basic Grayscale Print Mgt.	1.2.840.10008.5.1.1.9	ILE	1.2.840.10008.1.2	SCP	None
Basic Grayscale Print Mgt.	1.2.840.10008.5.1.1.9	ELE	1.2.840.10008.1.2.1	SCP	None
Basic Grayscale Print Mgt.	1.2.840.10008.5.1.1.9	EBE	1.2.840.10008.1.2.2	SCP	None
Print Job	1.2.840.10008.5.1.1.14	ILE	1.2.840.10008.1.2	SCP	None
Print Job	1.2.840.10008.5.1.1.14	ELE	1.2.840.10008.1.2.1	SCP	None
Print Job	1.2.840.10008.5.1.1.14	EBE	1.2.840.10008.1.2.2	SCP	None

3.5.3.2.2.1. SOP Specific Conformance to Basic Grayscale Print Management Meta SOP Class

Print-Server provides standard conformance as an SCP to the DICOM V3.0 Basic Grayscale Print Management Meta SOP Class, UID=1.2.840.10008.5.1.1.9, which consists of the following SOP Classes:

- Basic Film Session, UID=1.2.840.10008.5.1.1.1.
- Basic Film Box, UID=1.2.840.10008.5.1.1.2.
- Basic Grayscale Image Box, UID=1.2.840.10008.5.1.1.4.
- Printer, UID=1.2.840.10008.5.1.1.16.

The Specific Conformance Statement for each of these SOP Classes is described in the subsequent sections.

3.5.3.2.2.2. SOP Specific Conformance to Basic Film Session SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Basic Film Session SOP Class, UID=1.2.840.10008.5.1.1.1, as an SCP.

N-CREATE - is sent by the SCU to create a Basic Film Session instance before the Basic Film Boxes are created.

Supported Attributes:

- **Number of Copies -** (2000,0010). Supported values are: 1 to 99. Default value is:1.
- **Print Priority** - (2000,0020). Supported values are: LOW, MEDIUM and HIGH. Default value is: LOW. Prioritization is supported by **Print-Server** regardless of the actual printer capabilities.

- **Medium Type** - (2000,0030). Supported and default value is the one supported by the printer.
- **Film Destination** - (2000,0040). Supported and default value is the one supported by the printer.
- **Film Session Label** - (2000,0050). Any value is accepted but has no effect on the actual printing.
- **Memory Allocation** - (2000,0060). Any value is accepted but has no effect on the actual printing.

If **Print-Server** returns one of the following status codes, it means that the N-CREATE has been unsuccessful.

- **0106** - Failure. Invalid attribute value. A list of invalid values is included in the response.
- **0210** - Failure. The previous film session has not been deleted.
- **B600** - Warning. Memory allocation is not supported.

N-SET - is used to update any attribute of the Basic Film Session instance subject to the limitations mentioned for N-CREATE.

If **Print-Server** returns one of the following status codes, it means that the N-SET has been unsuccessful:

- **0106** - Failure. Invalid attribute value. A list of invalid values is included in the response.
- **0210** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **B600** - Warning. Memory allocation is not supported.
- **C610** -Failure. Film Session has not been created.

N-DELETE - is used to delete all information describing the Basic Film Session. A status code **0112** is returned when the Film Session SOP Instance UID given is not in use, which results in a failure.

N-ACTION - is used to print a Film Session. The Film Boxes are printed in the order they were created. A Print Job SOP Instance is also created by the N-ACTION operation of the Film Session SOP Class.

If **Print-Server** returns one of the following status codes, it means that the N-ACTION has been unsuccessful:

- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **0211** - Failure. Unrecognized operation: the action type name is not PRINT.
- **0213** - Failure. Resource limitation.
- **B602** - Warning. Film session contains an empty film.
- **C600** - Failure. Film Session SOP instance hierarchy does not contain Film Box SOP Instances.
- **C610** - Failure. Film Session has not been created.

3.5.3.2.2.3. SOP Specific Conformance to Basic Film Box SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Basic Film Box SOP Class, UID=1.2.840.10008.5.1.1.2, as an SCP.
N-CREATE - is sent by the SCU to create a Basic Film Box once a Film Session has been successfully created. The Basic Film Box contains the presentation parameters common for all images on a given sheet of film.

The 'SLIDE' 'SUPERSLIDE' and 'CUSTOM' Image Display Format attribute (2010,0010) values are not supported. All other attributes are supported according to the actual printer capabilities. Default values are also taken from the printer capabilities configuration file.

If **Print-Server** returns one of the following status codes, it means that the N-CREATE was unsuccessful.

- **0106** - Failure. Invalid attribute value. A list of invalid values is included in the response.
- **0111**- Failure. Film Box UID given is already in use.
- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **0120** - Failure. Mandatory attributes are missing. A list of missing tags is included in the response.
- **C610**- Failure. Film Session has not been created.

N-SET - is used to update the Basic Film Box instance. Any Film Box in the current Film Session may be updated.

If **Print-Server** returns one of the following status codes, it means that the N-SET has been unsuccessful:

- **0106** - Failure. Invalid attribute value. A list of invalid values is included in the response.
- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **C600** - Failure. Film Session SOP Instance hierarchy does not contain Film Box SOP Instances.
- **C610** -Failure. Film Session has not been created.

N-DELETE - is used to delete the Basic Film Box. Any Film Box in the current Film Session may be deleted.

If **Print-Server** returns one of the following status codes, it means that the N-DELETE was unsuccessful:

- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **C600** - Failure. Film Session SOP instance hierarchy does not contain Film Box SOP Instances.

N-ACTION - is used to print one or more copies of a single film of the Film Box. A Print Job SOP Instance is also created by the N-ACTION operation of the Film Box SOP Class.

If **Print-Server** returns one of the following status codes, it means that the N-ACTION has been unsuccessful:

- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **0211** - Failure. Unrecognized operation: the action type name is not PRINT.
- **0213** - Failure. Resource limitation.
- **B603** - Failure. Film Box is empty.
- **C600** - Failure. Film Session SOP instance hierarchy does not contain Film Box SOP Instances.
- **C610** - Failure. Film Session has not been created.

3.5.3.2.2.4. SOP Specific Conformance to Basic Grayscale Image Box SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Basic Grayscale Image Box SOP Class, UID=1.2.840.10008.5.1.1.4, as an SCP.

The Basic Grayscale Image Box contains the presentation parameters and image pixel data which applies to a single image of a sheet of film. The N-SET DIMSE service is used to update the Basic Grayscale Image Box instance. Any Grayscale Image Box in the current Film Box may be updated.

If **Print-Server** returns one of the following status codes, it means that the N-SET has been unsuccessful:

- **0106** - Failure. Invalid attribute value. A list of invalid values is included in the response.
- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.
- **0120** - Failure. Mandatory attributes are missing. A list of missing tags is included in the response.
- **0213** - Failure. Resource limitation.
- **C600** - Failure. Film Session SOP instance hierarchy does not contain Film Box SOP Instances.
- **C610** - Failure. Film Session has not been created.

3.5.3.2.2.5. SOP Specific Conformance to Printer SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Printer SOP Class, UID=1.2.840.10008.5.1.1.16, as an SCP.

The Printer SOP Class is implemented using the N-EVENT-REPORT and N-GET DIMSE services. N-EVENT-REPORT is used to report the changes of the printer status to the SCU in an asynchronous way. If **Print-Server** returns one of the following status codes, it means that the
N-GET has been unsuccessful:

- **0117** - Failure. Invalid printer instance UID.
- **0110** - Failure. Processing failure - Can't read Printer Info File.

3.5.3.2.2.6. SOP Specific Conformance to Printer Job SOP Class

Print-Server provides standard conformance to the DICOM V3.0 Print Job SOP Class, UID=1.2.840.10008.5.1.1.14, as an SCP.
The Print Job SOP Class is created by a N-ACTION of the Film Session SOP Class or a N-ACTION of the Film Box SOP Class. After the films are printed or after a failure, the Print Job Instance is deleted.

The number of print jobs is limited only by the *Mx-View* resources (mainly disk space).

The Print Job SOP Class is implemented using the N-EVENT-REPORT and N-GET DIMSE services. N-EVENT-REPORT is used to report execution status changes to the SCU in an asynchronous way. If **Print-Server** returns one of the following status codes, it means that the N-GET has been unsuccessful:

- **0112** - Failure. No such object instance: the Film Session SOP Instance UID given is not in use.

3.5.3.2.3. Presentation Context Acceptance Criterion

Print-Server will accept any Presentation Context from Table 2.13.

3.5.3.2.4. Transfer Syntax Selection Policies

Print-Server prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.6. Print-Manager Specifications

Print-Manager provides Standard Conformance to the following DICOM V3.0 Meta SOP Classes and DICOM V3.0 SOP as an SCU:

Table 23. Supported SOP Classes as SCU

SOP Class Name	SOP Class UID
Basic Grayscale Print Manager	1.2.840.10008.5.1.1.9
Basic Color Print Management	1.2.840.10008.5.1.1.18
Print Job	1.2.840.10008.5.1.4.1.1.14

3.6.1. Association Establishment Policies

3.6.1.1. General

The maximum PDU size which the **Print-Manager** will use is configurable, with a minimum of
2K byte.

3.6.1.2. Number of Associations

Print-Manager can have only one open connection at a given time.

3.6.1.3. Asynchronous Nature

Print-Manager will only allow a single outstanding operation on an association. Therefore **Print-Manager** will not perform asynchronous operations window negotiation.

3.6.1.4. Implementation Identifying Information

Print-Manager provides a single Implementation Class UID which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.6.2. Association Initiation by Real-World Activity

3.6.2.1. User Selects a Printer

3.6.2.1.1. Associated Real World Activity

Print-Manager initiates an association when the user selects a new printer or when the film previewer is initialized. In case of printer selection, the previous association is closed.

3.6.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.17 are proposed by **Print-Manager**.

Table 24. Proposed Presentation Contexts for Print-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Basic Grayscale Print Mgt.	1.2.840.10008.5.1.1.9	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		
Basic Color Print Mgt.	1.2.840.10008.5.1.1.8	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		
Print Job	1.2.840.10008.5.1.1.14	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.6.2.1.2.1. SOP Specific Conformance Statement for Basic Grayscale Print Management Meta SOP Class

Print-Manager provides standard conformance as an SCU to the DICOM V3.0 Basic Grayscale Print Management Meta SOP Class, UID=1.2.840.10008.5.1.1.9, which consists of the following SOP Classes:

- Basic Film Session, UID=1.2.840.10008.5.1.1.1.
- Basic Film Box, UID=1.2.840.10008.5.1.1.2.
- Basic Grayscale Image Box, UID=1.2.840.10008.5.1.1.4.
- Printer, UID=1.2.840.10008.5.1.1.16.

3.6.2.1.2.2. SOP Specific Conformance Statement for Basic Color Print Management Meta SOP Class

Print-Manager provides standard conformance as an SCU to the DICOM V3.0 Basic Color Print Management Meta SOP Class, UID=1.2.840.10008.5.1.1.18, which consists of the following SOP Classes:

- Basic Film Session, UID=1.2.840.10008.5.1.1.1.
- Basic Film Box, UID=1.2.840.10008.5.1.1.2.
- Basic ColorImage Box, UID=1.2.840.10008.5.1.1.4.1.
- Printer, UID=1.2.840.10008.5.1.1.16.

3.6.2.1.2.3. SOP Specific Conformance Statement for Print Job SOP Class

Print-Manager provides standard conformance as an SCU to the DICOM V3.0 Print Job SOP Class, UID=1.2.840.10008.5.1.1.14.

3.6.3. Association Acceptance Policy

Print-Manager never accepts an association.

3.7. DentaCT-Print Specifications

DentaCT-Print provides Standard Conformance to the following DICOM V3.0 Meta SOP Classes and DICOM V3.0 SOP as an SCU:

Table 25. Supported SOP Classes as SCU

SOP Class Name	SOP Class UID
Basic Grayscale Print Manager	1.2.840.10008.5.1.1.9
Print Job	1.2.840.10008.5.1.4.1.1.14

3.7.1. Association Establishment Policies

3.7.1.1. General

The maximum PDU size which the **DentaCT-Print** will use is configurable, with a minimum of
2K byte.

3.7.1.2. Number of Associations

DentaCT-Print can have only one open connection at a given time.

3.7.1.3. Asynchronous Nature

DentaCT-Print will only allow a single outstanding operation on an association. Therefore **DentaCT-Print** will not perform asynchronous operations window negotiation.

3.7.1.4. Implementation Identifying Information

DentaCT-Print provides a single Implementation Class UID which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.7.2. Association Initiation by Real-World Activity

3.7.2.1. User Selects a Printer

3.7.2.1.1. Associated Real World Activity

DentaCT-Print initiates an association when the user selects to print from the Denta-CT application.

3.7.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.18 are proposed by **DentaCT-Print**.

Table 2.18 Proposed Presentation Contexts for DentaCT-Print

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Basic Grayscale Print Mgt.	1.2.840.10008.5.1.1.9	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		
Print Job	1.2.840.10008.5.1.1.14	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.7.2.1.2.1. SOP Specific Conformance Statement for Basic Grayscale Print Management Meta SOP Class

DentaCT-Print provides standard conformance as an SCU to the DICOM V3.0 Basic Grayscale Print Management Meta SOP Class, UID=1.2.840.10008.5.1.1.9, which consists of the following SOP Classes:

- Basic Film Session, UID=1.2.840.10008.5.1.1.1.
- Basic Film Box, UID=1.2.840.10008.5.1.1.2.
- Basic Grayscale Image Box, UID=1.2.840.10008.5.1.1.4.
- Printer, UID=1.2.840.10008.5.1.1.16.

3.7.2.1.2.2. SOP Specific Conformance Statement for Print Job SOP Class

DentaCT-Print provides standard conformance as an SCU to the DICOM V3.0 Print Job SOP Class, UID=1.2.840.10008.5.1.1.14.

3.7.3. Association Acceptance Policy

DentaCT-Print never accepts an association.

3.8. StorageComm-Manager Specifications

StorageComm-Manager provides Standard Conformance to the following DICOM V3.0 SOP Classes both as an SCU:

Table 26. SOP Classes supported as SCU

SOP Class Name	SOP Class UID
Storage Commitment Push Model	1.2.840.10008.1.20.1

Te following DICOM V3.0 SOP Classes as an SCP only:

Table 27. SOP Classes supported as SCU

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1

3.8.1. Association Establishment Policies

3.8.1.1. General

The maximum PDU size, which the **StorageComm-Manager** will use, is configurable, with a minimum of 2K byte.

3.8.1.2. Number of Associations

The number of simultaneous associations that will be accepted by **StorageComm-Manager** is limited only by the kernel parameters of the underlying TCP/IP implementation. **StorageComm-Manager** will spawn a new process for each connection request it receives. Therefore, **StorageComm-Manager** can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations that the Application Entity represented by **StorageComm-Manager** can maintain.

3.8.1.3. Asynchronous Nature

StorageComm-Manager will only allow a single outstanding operation on an association. Therefore **StorageComm-Manager** will not perform asynchronous operations window negotiation.

3.8.1.4. Implementation Identifying Information

StorageComm-Manager provides a single Implementation Class UID, which is 1.2.840.113704.7.0.2. The Application Context Name is 1.2.840.10008.3.1.1.1.

3.8.2. Association Initiation by Real-World Activity

StorageComm-Manager will attempt to initiate a new association when requested to commit the images that were stored on the remote device, which support the Storage Commitment Service.

3.8.2.1. Image was Stored on the Remote Device with Storage Commitment

3.8.2.1.1. Associated Real World Activity

The associated Real-Word Activity is a response about successful completion of storage request from the remote storage device.

3.8.2.1.2. Proposed Presentation Contexts

All the Presentation Contexts shown in Table 2.16 are proposed by **StorageComm-Manager**:

Table 28. Proposed Presentation Contexts for StorageComm-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Storage Commitment Push Model	1.2.840.10008.1.20.1	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.8.2.1.2.1. SOP Specific Conformance Statement for Storage Commitment Push Model

StorageComm-Manager provides standard conformance to the DICOM V3.0 Storage Commitment Service Class using Push Model as an SCU for the following SOP Class UID: 1.2.840.10008.1.20.1 and SOP Instance UID: 1.2.840.10008.1.20.1.1.

Multiple N-ACTION requests can be performed over a single association. Multiple N-EVENT-REPORT requests can be accepted over a single association.
After all N-ACTION requests that are waiting in the stack are issued, association will be closed with the timeout of 60 sec.

3.8.3. Association Acceptance Policy

StorageComm-Manager places no limitations on the number of simultaneous connections it will support.

3.8.3.1. Remote Mx-View Requests Verification

A remote Mx-View requests verification from **StorageComm-Manager** using the C-ECHO command.

3.8.3.1.1. Associated Real World Activity

StorageComm-Manager performs the Verification Service Class by responding with C-ECHO-RSP.

3.8.3.1.2. Presentation Context Table

The following Presentation Contexts are acceptable to the **StorageComm-Manager.**

Table 29. Acceptable Presentation Contexts for StorageComm-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	ILE	1.2.840.10008.1.2	SCP	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.8.3.1.2.1. SOP Specific Conformance to Verification SOP Class

StorageComm-Manager provides standard conformance to the DICOM V3.0 Verification Service Class as an SCP for the Verification SOP Class, UID=1.2.840.10008.1.1.

3.8.3.1.3. Presentation Context Acceptance Criterion

StorageComm-Manager will accept any Presentation Context from Table 2.3.

3.8.3.1.4. Transfer Syntax Selection Policies

StorageComm-Manager prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.8.3.2. Remote Mx-View Storage Commitment Report

A remote Mx-View reports about storage commitment completion using the N-EVENT-REORT command.

3.8.3.2.1. Associated Real World Activity

The Real World activity associated with the N-EVENT-REORT operation is the completion of the storage commitment by the remote device. **StorageComm-Manager** will issue a failure status if it is unable to handle in proper way the storage commitment report event.

3.8.3.2.2. Presentation Context Table

The following Presentation Contexts are acceptable to the **StorageComm-Manager.**

Table 30. Acceptable Presentation Contexts for StorageComm-Manager

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name	UID		
Storage Commitment Push Model	1.2.840.10008.1.20.1	ILE	1.2.840.10008.1.2	SCP	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.8.3.2.2.1. SOP Specific Conformance to Storage Commitment Push Model

StorageComm-Manager provides standard conformance to the DICOM V3.0 Storage Commitment Service Class using Push Model as an SCP for the SOP Class UID: 1.2.840.10008.1.20.1

3.8.3.2.3. Presentation Context Acceptance Criterion

StorageComm-Manager will accept any Presentation Context from Table 2.4.

3.8.3.2.4. Transfer Syntax Selection Policies

StorageComm-Manager prefers an explicit Transfer Syntax encoding. If offered a choice of Transfer Syntax's in a Presentation Context, it will apply the following priorities to the choice of Transfer Syntax:

- DICOM Explicit VR Big Endian.
- DICOM Explicit VR Little Endian.
- DICOM Implicit VR Little Endian (Default).

3.9. Media AE Specification

AE provides Standard Conformance to the DICOM Media Storage Service and File Format (PS 3.10) and the Media Storage Application Profiles (PS 3.11).

The supported Application Profiles, their Roles and the Service Class (SC) options, all defined in DICOM terminology, are listed in the following table.

Table 31. Supported Application Profiles

Application Profile	Identifier	Real World Activity	Role	SC Option
Basic cardiac X-Ray Angio-graphic Studies on CD-R media.	STD-XABC-CD STD-XABC-CD	Write image(s) on CD-R disk Read image(s) from CD-R disk	FSC FSR	Interchange Interchange
1024 X-Ray Angiographic Studies on CD-R Media.	STD-XA1K-CD STD-XA1K-CD	Write image(s) on CD-R disk Read image(s) on CD-R disk	FSC FSR	Interchange Interchange
Ultrasound Studies on CD-R Media	STD-US-ID-SF-CD STD-US-ID-SF-CD STD-US-ID-MF-CD STD-US-ID-MF-CD	Write image(s) on CD-R disk Read image(s) on CD-R disk Write image(s) on CD-R disk Read image(s) on CD-R disk	FSC FSR FSC FSR	Interchange Interchange Interchange Interchange

3.9.1. Service Name

3.9.1.1. Application Entity Title

The Application Entity title is registered into the DICOM File Meta Information header and is supported by the CD-writer (CD write option) acting as a Role.
Application Entity Title: “Name of AE Title”

3.9.1.2. Real World activity

Description of the Real world activity.

The SOP instances provided by the RWA are written to the CD-R media and a corresponding DICOMDIR is created.

3.9.1.3. Application Profiles

The following Table gives an overview of the supported SOP Classes for each Application Profiles.

Conformance supported Application Profiles

Application Profile Identifier	Supp. SOP Classes Name	UID	Supported Transfer Syntaxes Name	UID
STD-XABC-CD	XA Image	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless First-Order Prediction (Process 14) (Selection Value 1)	1.2.840.10008.1.2.4.70
STD-XA1K-CD	XA Image SC Image	1.2.840.10008.5.1.4.1.1.12.1 1.2.840.10008.5.1.4.1.1.7	JPEG Lossless First-Order Prediction (Process 14) (Selection Value 1) ELE	1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.1

3.9.1.4. DICOMDIR keys

Overview of the DICOMDIR Keys that are created by this service (if applicable)

4. COMMUNICATION PROFILES

4.1. Supported Communications Stacks (Parts 8,9)

The *Mx-View* provides DICOM v3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.2. TCP/IP Stack

All the Application Entities in the *Mx-View* inherit their TCP/IP stack from the UNIX Mx-View upon which they operate.

4.2.1. Physical Media Support

- The *Mx-View* is indifferent to the physical medium over which TCP/IP operates.

5. EXTENSIONS/SPECIALIZATIONS/PRIVATIZATIONS

5.1. Other issues

The *MXView* system supports trannsfer syntax conversion according to the following table:

Table 32. Transfer Syntax Conversion

Source Syntax	Destination Syntax					
	ILE	ELE	EBE			
ILE	+	+	+			
ELE	+	+	+			
EBE	+	+	+			

Table 33. Mapping between UI elements and DICOM attributes

DICOM Attribute name	Tag	UI Element	Note
Patient Name	(0008,0012)	Patient	
Scheduled Procedure Step ID	(0040,0201)	Examination ID	

6. CONFIGURATION

6.1. AE Title/Presentation Address Mapping

This mapping (including IP and port numbers) is defined during the *Mx-View* Network Configuration procedure.

6.2. Configurable Parameters

- Calling AE Titles
- Called AE Titles
- Maximum PDU size.
- Disable arbitrary Transfer Syntaxes to be proposed at the Association negotiation
- Disable generation of Icon Image sequence
- Disable generation of DICOM overlays (“burn-in” instead)

7. SUPPORT OF EXTENDED CHARACTER SETS

No Extended Character Sets supported.