Title	**DICOM Conformance Statement**		
Product Name	HCP DICOM Net®	Version	5.00.00

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TABLE OF CONTENTS

1. INTRODUCTION

SoftLink's HCP DICOM Net® PACS product is a medical image archival and distribution system designed for operation within the healthcare network. The product is based on the medical industry standard DICOM 3.0 protocol to exchange information with other DICOM compliant devices on the network. The primary use of the DICOM protocol within the HCP DICOM Net® product is for local and remote storage of images, remote printing of images, remote query of image storage related information and local query of modality worklist information.

1.1 SCOPE AND FIELD OF APPLICATION

The scope of this DICOM Conformance Statement is to facilitate data exchange between the HCP DICOM Net Server and medical equipment of other vendors. This document specifies the compliance of the HCP DICOM Net® product 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. HCP DICOM Net® is designed to work within the healthcare-IT environment and handle information exchange with other DICOM compliant devices on the network.

This Conformance Statement should be read in conjunction with the DICOM 3.0 standard and its addenda in order to obtain unambiguous specifications for HCP DICOM Net® implementations.

1.2 INTENDED AUDIENCE

The reader of this document is concerned with software design and/or system integration issues. It is assumed that the reader of this document is familiar with the DICOM 3.0 Standard and with the terminology and concepts which are used in this standard. This DICOM Conformance Statement is intended for:

- (Potential) customers
- System integrators of medical equipment
- Marketing staff interested in system functionality
- Software designers implementing DICOM interfaces

1.3 ABBREVIATIONS AND SYMBOLS

Frequently used abbreviations or acronyms in this document are defined in the table below. For detailed DICOM definitions, terms and their description please refer NEMA PS 3.3 and 3.4

TERMS	DEFINITIONS
SoftLink	SoftLink International Pvt. Ltd.
HCPDN	HCP DICOM Net®
ACC	American College of Cardiology
AE	Application Entity
ACR	American College of Radiology
ANSI	American National Standard Institute
BOT	Basic Offset Table
CD-R	CD Recordable
CD-M	CD Medical
DCR	Dynamic Cardio Review
DICOM	Digital Imaging and Communication in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
DIMSE-N	DICOM Message Service Element-Normalized
ELE	Explicit VR Little Endian
EBE	Explicit VR Big Endian
FSC	File Set Creator
GUI	Graphic User Interface
HIS	Hospital Information System
HL7	Health Level Seven
ILE	Implicit VR Little Endian
IOD	Information Object Definition
ISIS	Information System - Imaging System
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
RIS	Radiology Information System
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
UID	Unique Identifier

TCP/IP	Transmission Control Protocol/Internet protocol
WLM	Worklist Management

1.4 NOTE TO READER

This Conformance Statement by itself does not guarantee successful interoperability of the system with all types of medical equipment from all vendors. 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 networked 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 HCP DICOM Net® Server with all types of medical equipment from all vendors. It is the user's responsibility to analyze thoroughly the application requirements and to specify a solution that integrates HCP DICOM Net® Server with medical equipment from other vendors.

- **Validation**

SoftLink product has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement. When HCP DICOM Net® (HCPDN) is linked to medical equipments or systems from other vendors, 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. SoftLink plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, SoftLink reserves the right to make changes to its products or to discontinue its delivery. The user should ensure that any other medical equipment provider linking to SoftLink equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into SoftLink equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

2. CONFORMANCE STATEMENT OVERVIEW

This section is an abbreviated DICOM conformance statement for HCPDN. Tables of supported DICOM service (SOP) classes are provided with roles (User/Provider), organized into 4 categories: Transfer, Query/Retrieve, Print Management and Modality Worklist Server.

2.1 TRANSFER / STORING

SOP CLASS NAME	UID	SCU	SCP
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	YES	YES
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	YES	YES
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	YES	YES
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	YES	YES
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	YES	YES
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	YES	YES
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	YES	YES
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	YES	YES
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	YES	YES
Secondary Image Capture Storage	1.2.840.10008.5.1.4.1.1.7	YES	YES
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	YES	YES
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	YES	YES
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.11.1	YES	YES
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	YES	YES
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	YES	YES
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	YES	YES
Verification	1.2.840.10008.1.1	YES	YES

2.2 QUERY / RETRIEVE

SOP CLASS NAME	UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	YES	YES
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	YES	YES
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	YES	YES
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	YES	YES

2.3 PRINT MANAGEMENT

SOP CLASS NAME	UID	SCU

Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	YES
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	YES
Print Job SOP Class	1.2.840.10008.5.1.1.14	YES
Printer SOP Class	1.2.840.10008.5.1.1.16	YES
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	YES

2.4 MODALITY WORKLIST SERVER

SOP CLASS NAME	UID	SCU	SCP
Verification	1.2.840.10008.1.1	NO	YES
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	NO	YES
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	NO	YES
Modality Performed Procedure Step Retrieve	1.2.840.10008.3.1.2.3.4	NO	YES
Modality Performed Procedure Step Notification	1.2.840.10008.3.1.2.3.5	NO	YES

3. IMPLEMENTATION MODEL

The HCP DICOM Net system consists of integrated client and server applications which is primarily intended for archiving and viewing of X-Ray Angiographic multi-frame, SC, US multi-frame, US single-frame, CT, MR CR, DR and RF images from the local file system as well as CD media. This system provides DICOM compliant interfaces for Storage, Verification, Query/Retrieve, Printing and Modality Worklist services. All of the DICOM features presented in this document are optional and may not be available on different version of the product.

3.1 APPLICATION DATA FLOW DIAGRAM

Fig. 1 depicts the DICOM data flow to and from the HCPDN server. This section discusses the application's data flow represented in this diagram.

In the remote real world activity "Verify Communication", a remote application entity (AE) initiates an association and requests verification from HCPDN. Assuming HCPDN receives the request, it responds to the remote AE verifying the communication between the two. The verification parameters depend on the service it is called in context with. For example, "Store Objects" verification parameters will be different from those for "Find Objects".

In the remote real world activity "Store Objects", a remote AE initiates an association with HCPDN and sends one or more composite IODs to it. When HCPDN receives a composite IOD it stores the IOD on the disk and indexes it in its database. HCPDN can also initiate an association request to a remote AE for storing IODs on that remote AE. Upon receipt of request acknowledgement, HCPDN initiates transfer of the IODs to the remote AE.

In the remote real world activity "Find Objects", a remote AE initiates an association with HCPDN and sends a query. HCPDN supports queries at the Patient, Study and Series levels and Image level requests are not supported. HCPDN searches its database for possible matches with composite IODs. The results of the query are returned to the remote AE using the same association. HCPDN can also initiate an association with a remote AE to send a query to it. These queries can be generated at the Patient, Study or Series levels and Image level queries are not generated.

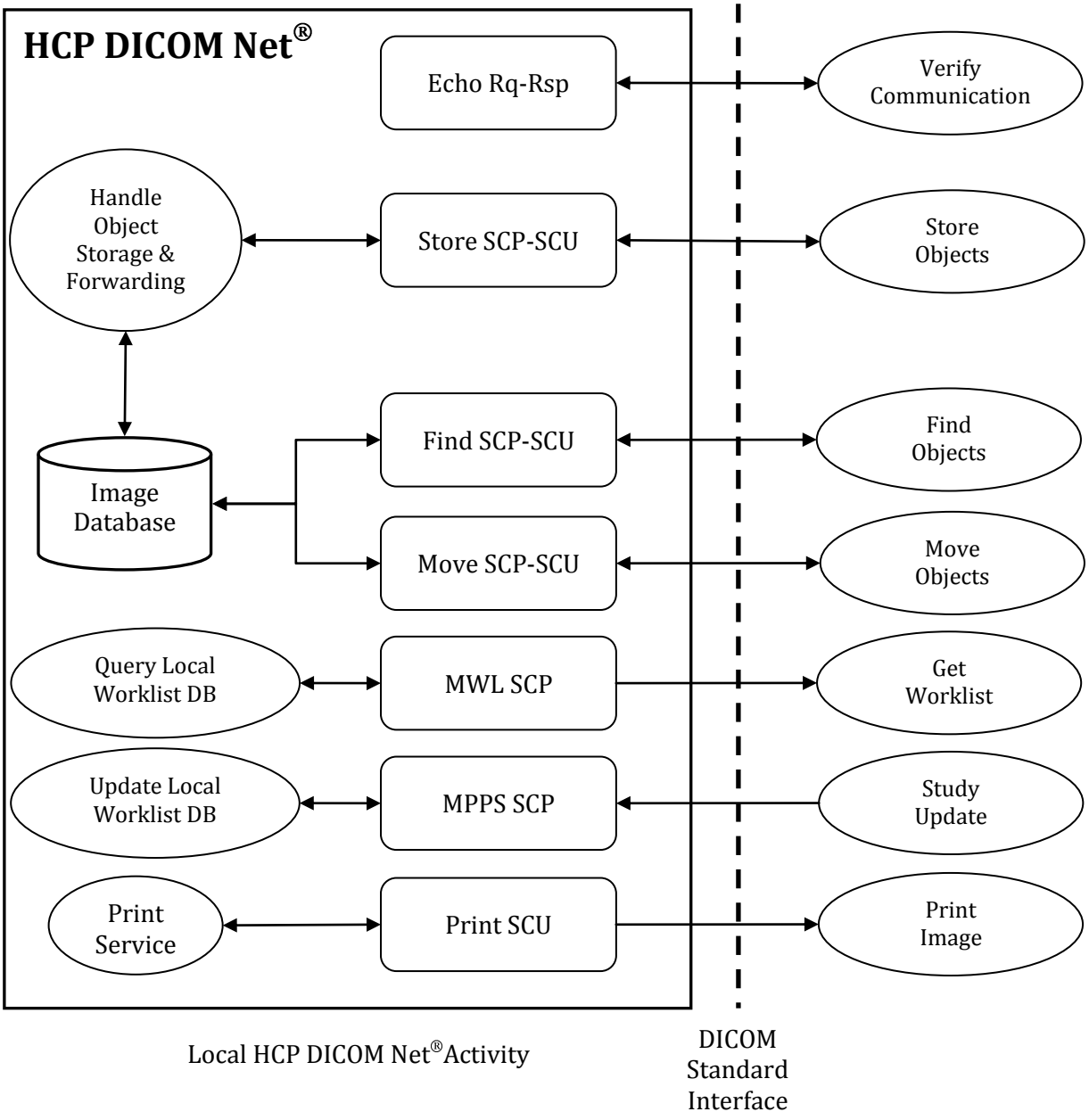

Fig. 1: HCP DICOM Net® Implementation Model

In the remote real world activity "Move Objects" a remote AE initiates an association with HCPDN and requests some composite IODs to be retrieved. HCPDN searches the database for possible matches with composite IODs and the resulting instances are transferred to the AE referenced in the request via a new association using "Store Objects". HCPDN can also initiate an association with a remote AE and request some composite IODs to be retrieved from it.

In the remote real world activity "Get Worklist", a remote AE initiates an association with HCPDN's Broker application and sends a query for information about a patient or study. Upon receipt of this request, the Broker application provides procedure worklist information to the remote AE.

In the remote real world activity "Study Update", a remote AE initiates an association with HCPDN and sends an MPPS message indicating the status of a study being performed. Upon receipt of this request, HCPDN will update the procedure status changes accordingly.

In the remote real world activity "Print Image", HCPDN initiates an association with a remote AE and sends a request to print one or more images. Upon receipt of request acknowledgement, HCPDN transfers the images to the remote AE for printing.

3.2 FUNCTIONAL DEFINITIONS OF AES

HCPDN can both initiate and receive DICOM association requests. The services providing storage and query functionality will automatically be started as the part of the operating system and wait for the connection from remote AEs. HCPDN operates with multiple AEs depending on the service being invoked. The functional definitions of these AEs in context of the functions described in Section 3.1 are as follows:

AE DEFINITION	**FUNCTION**
GENERIC-SCU	Find-SCU, Move-SCU, Echo-Rq, Store-SCU, Print-SCU
QR-SCP	Find-SCP, Move-SCP, Echo-Rsp
STORE-SCP	Store-SCP
MWLMPPSServer	MWL-SCP, MPPS-SCP

3.3 SEQUENCING OF REAL-WORLD ACTIVITIES

HCPDN must store objects to a remote AE before it sends storage commitment requests for those objects. All other activities are asynchronous processes that can run at the same time.

4. AE SPECIFICATIONS

HCPDN consists of 4 AE definitions as described in Section 3.3, namely: GENERIC-SCU, QR-SCP, STORE-SCP and MWLMPPS-SCP. While the GENERIC-SCU only initiates associations, the remaining 3 AEs only accept associations. Further, whereas the MWLMPPS-SCP AE can run independently of the other 3 AEs, HCPDN's design necessarily requires the GENERIC-SCU, QR-SCP and STORE-SCP to function within a common application in HCPDN's environment. Consequently, and in order to simplify the descriptions for AE specifications, the AEs GENERIC-SCU-QR-SCP, and STORE-SCP have been grouped together as one, namely HCPDNServer.

4.1 HCPDNSERVER SPECIFICATIONS

The HCPDNServer Application Entity provides Standard Conformance to the DICOM 3.0 SOP Classes listed below as an SCP and/or SCU.

SOP CLASS NAME	UID	SCU	SCP
Verification	1.2.840.10008.1.1	YES	YES
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	YES	YES
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	YES	YES
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	YES	YES
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	YES	YES
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	YES	YES
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	YES	YES
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	YES	YES
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	YES	YES
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	YES	YES
Secondary Image Capture Storage	1.2.840.10008.5.1.4.1.1.7	YES	YES
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	YES	YES
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	YES	YES
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.11.1	YES	YES
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	YES	YES
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	YES	YES
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	YES	YES
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	YES	YES
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	YES	YES
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	YES	YES
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	YES	YES
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	YES	
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	YES	
Print Job SOP Class	1.2.840.10008.5.1.1.14	YES	
Printer SOP Class	1.2.840.10008.5.1.1.16	YES	
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	YES	

4.1.1 ASSOCIATION ESTABLISHMENT POLICIES

4.1.1.1 GENERAL

The server always proposes the DICOM Application Context Name 1.2.840.10008.3.1.1.1. The maximum length PDU negotiation is included in all association establishment requests. The default maximum length PDU for an association initiated is 32 KB.

4.1.1.2 NUMBER OF ASSOCIATIONS

The number of associations for the storage and Query Retrieve SCP service that may be active simultaneously is 5.

4.1.1.3 ASYNCHRONOUS NATURE

DICOM asynchronous mode is not supported meaning that only one transaction may be out-standing over an association at any given point in time.

4.1.1.4 IMPLEMENTATION IDENTIFYING INFORMATION

The system uses following implementation identifying parameters:

- Implementation Class UID 1.3.46.670589.7.5.1.11
- Implementation Version Name HCPDICOMNET

4.1.2 ASSOCIATION INITIATION BY REAL-WORLD ACTIVITY

The HCPDNServer initiates associations for the following Real-World activities:

- Verify Communication
- Store Objects
- Find Objects
- Move Objects
- Print Image

4.1.2.1 REAL WORLD ACTIVITY – VERIFY COMMUNICATION

4.1.2.1.1 ASSOCIATED REAL WORLD ACTIVITY – VERIFY COMMUNICATION

HCPDNServer will verify DICOM connections. An association is established from HCPDNServer to a remote AE when a user initiates a verification request from the application. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.2.1.2 PROPOSED PRESENTATION CONTEXT – VERIFY COMMUNICATION

HCPDNServer will propose the presentation context shown in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	**UID**	**NAME**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.1.2.1.2.1 SOP SPECIFIC CONFORMANCE FOR "VERIFICATION" SOP CLASS

HCPDNServer provides standard conformance to the "Verification" SOP Class as an SCU.

4.1.2.2 REAL WORLD ACTIVITY – STORE OBJECTS

4.1.2.2.1 ASSOCIATED REAL WORLD ACTIVITY – STORE OBJECTS

HCPDNServer can initiate DICOM associations with remote AEs for storing IODs to it. It will initiate an association when a user requests sending of data that is already present in HCPDN's database, via a GUI. Alternatively, it can initiate automatic associations in response to a C-MOVE request or pre-configured rules for auto-forwarding or auto-routing of studies. It expects a C-STORE response when the complete image has been transferred on the established association. For all associations,

the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.2.2.2 PROPOSED PRESENTATION CONTEXT – STORE OBJECTS

HCPDNServer can propose any of the Presentation Contexts listed in the following table depending upon the IODs that are to be exported via this association. For each Abstract Syntax, HCPDNServer proposes all supported Transfer Syntaxes. The actual transfer takes place using the Transfer Syntax that the remote AE specifies as its preference as part of its response.

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2			SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCU	None
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1			SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	JPEG Lossless First-Order Prediction (Process 14)	1.2.840.10008.1.2.4.70	SCU	None
Secondary Image Capture Storage	1.2.840.10008.5.1.4.1.1.7			SCU	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCU	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	JPEG Baseline Coding (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.11.1			SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	RLE	1.2.840.10008.1.2.5	SCU	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22			SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33			SCU	None

4.1.2.2.2.1 SOP SPECIFIC CONFORMANCE FOR SOP CLASS

The HCPDNServer conforms to the SOP's of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the HCPDNServer. Private Tags are not processed while converting the imported images for DICOM Storage.

C-Store Status Responses that are returned by the HCPDNServer Export AE are:

FAILURE A800 Illegal SOP Class

FAILURE A700 Out of Resource

SUCCESS 0000 Success

4.1.2.3 REAL WORLD ACTIVITY – FIND OBJECTS

4.1.2.3.1 ASSOCIATED REAL WORLD ACTIVITY – FIND OBJECTS

HCPDNServer can query a remote AE for composite IODs up to the Study level. An association is initialized when a user sends a query via HCPDN's GUI. In the case that certain study pre-fetching rules have been configured in HCPDN, the HCPDNServer can initiate an automatic query without need for any manual intervention. HCPDN expects a C-FIND/C-MOVE response when the transaction is successfully completed on the established association. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.2.3.2 PROPOSED PRESENTATION CONTEXT – FIND OBJECTS

HCPDNServer will propose the presentation context shown in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

4.1.2.3.2.1 SOP SPECIFIC CONFORMANCE FOR "PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND" SOP CLASS

All DICOM attributes specified as valid keys for C-FIND messages are acceptable by HCPDN query keys as well. In real practice only an important subset is defined as per client side requests, which would be used.

PATIENT ROOT QUERY ATTRIBUTES		
QUERY LEVEL	**DESCRIPTION**	**TAG**
Patient	Patient Name	(0010,0010)
Patient	Patient ID	(0010,0020)
Patient	Patient Sex	(0010,0040)
Patient	Medical Record Number	(0010,1090)
Patient	Birthdate	(0010,0030)
Patient	No. of Patient related Studies	(0020,1200)
Patient	No. of Patient related Series	(0020,1202)
Patient	No. of Patient related Instances	(0020,1204)
Study	Accession Number	(0008,0050)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Description	(0008,1030)
Study	Study ID	(0020,0010)
Study	Study Instance UID	(0020,000D)
Study	Reading Physician(s) Name	(0008,1060)
Study	Referring Physician(s) Name	(0008,0090)
Study	Performing Physician(s) Name	(0008,1050)
Study	Retrieve AET	(0008,0054)
Study	No. of Study related Series	(0020,1206)
Study	No. of Study related Instances	(0020,1208)
Series	Series Description	(0008,103E)
Series	Body Part	(0018,0015)
Series	Series Date	(0008,0021)
Series	Series Time	(0008,0031)
Series	SOP Instance UID	(0008,0018)
Series	Series Instance UID	(0020,000E)
Series	Acquisition Date	(0008,002A)
Series	Modality	(0008,0060)
Series	Manufacturer	(0008,0070)
Series	Operator Name	(0008,1070)
Series	Institution Name	(0008,0080)
Series	Institutional Department Name	(0008,1040)
Series	No. of Series related Instances	(0020,1209)

4.1.2.3.2.2 SOP SPECIFIC CONFORMANCE FOR "STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND" SOP CLASS

All DICOM attributes specified as valid keys for C-FIND messages are acceptable by HCPDN query keys as well. In real practice only an important subset is defined as per client side requests, which would be used.

STUDY ROOT QUERY ATTRIBUTES		
QUERY LEVEL	**DESCRIPTION**	**TAG**
Study	Patient Name	(0010,0010)
Study	Patient ID	(0010,0020)
Study	Patient Sex	(0010,0040)
Study	Medical Record Number	(0010,1090)
Study	Birthdate	(0010,0030)
Study	No. of Patient related Studies	(0020,1200)
Study	No. of Patient related Series	(0020,1202)
Study	No. of Patient related Instances	(0020,1204)
Study	Accession Number	(0008,0050)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Description	(0008,1030)
Study	Study ID	(0020,0010)
Study	Study Instance UID	(0020,000D)
Study	Reading Physician(s) Name	(0008,1060)
Study	Referring Physician(s) Name	(0008,0090)
Study	Performing Physician(s) Name	(0008,1050)
Study	Retrieve AET	(0008,0054)
Study	No. of Study related Series	(0020,1206)
Study	No. of Study related Instances	(0020,1208)
Series	Series Description	(0008,103E)
Series	Body Part	(0018,0015)
Series	Series Date	(0008,0021)
Series	Series Time	(0008,0031)
Series	SOP Instance UID	(0008,0018)
Series	Series Instance UID	(0020,000E)
Series	Acquisition Date	(0008,002A)
Series	Modality	(0008,0060)
Series	Manufacturer	(0008,0070)
Series	Operator Name	(0008,1070)
Series	Institution Name	(0008,0080)
Series	Institutional Department Name	(0008,1040)
Series	No. of Series related Instances	(0020,1209)

4.1.2.4 REAL WORLD ACTIVITY – MOVE OBJECTS

4.1.2.4.1 ASSOCIATED REAL WORLD ACTIVITY – MOVE OBJECTS

HCPDNServer can retrieve composite IODs from a remote AE. Upon fulfillment of response from remote AE to the query request sent from HCPDNServer, the HCPDNServer will establish an association to retrieve composite IODs residing on the remote AE. A user selects one or more composite IODs from those present in the query response for retrieval using HCPDN's GUI. Alternatively, HCPDNServer initiates a retrieve request automatically depending on study pre-fetching rules configured in HCPDN. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.2.4.2 PROPOSED PRESENTATION CONTEXT – MOVE OBJECTS

HCPDNServer will propose the presentation context shown in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2			SCU	None

4.1.2.4.2.1 SOP SPECIFIC CONFORMANCE FOR "PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL – MOVE" SOP CLASS

HCPDNServer provides standard conformance to the "Patient Root Query/Retrieve Information Model – MOVE" SOP Class as an SCU.

4.1.2.4.2.2 SOP SPECIFIC CONFORMANCE FOR "STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – MOVE" SOP CLASS

HCPDNServer provides standard conformance to the "Study Root Query/Retrieve Information Model – MOVE" SOP Class as an SCU.

4.1.2.5 REAL WORLD ACTIVITY – PRINT IMAGE

4.1.2.5.1 ASSOCIATED REAL WORLD ACTIVITY – PRINT IMAGE

The Print Management Service Classes define an application-level class of services which facilitate the printing of images on a hardcopy medium. The HCPDNServer print application supports the print management DIMSE services to act as SCU. The HCPDNServer print management SCU invokes print management DIMSE services to transfer images from the local AE to the remote SCP AE to print images with defined layout on a selected network-based DICOM hardcopy printer.

4.1.2.5.2 PROPOSED PRESENTATION CONTEXT

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	**UID**	**NAME**	**UID**		
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2			SCU	None
Print Job SOP Class	1.2.840.10008.5.1.1.14	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
Printer SOP Class	1.2.840.10008.5.1.1.16			SCU	None
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4			SCU	None

4.1.2.5.2.1 SOP SPECIFIC CONFORMANCE FOR SOP CLASS

HCPDNServer provides standard conformance to the above “Print” SOP Classes as an SCU.

The application uses a setting platform to define the properties of the connected DICOM SCP, e.g.:

<u>File Session Dataset</u>

- Number of Copies (Number of copies to be printed for each film of the film session.)
- Print Priority (Enumerated Values: HIGH/MED/LOW)
- Medium Type (Defined Terms: PAPER/CLEAR FILM/BLUE FILM/MAMMO CLEAR FILM/MAMMO BLUE FILM)
- Film Destination(Defined Terms: MAGAZINE/PROCESSOR/BIN_i)
- Film Session Label (Human readable label that identifies the film session)

<u>File Box Dataset</u>

- Image Display Format
- Film Orientation (Enumerated Values: PORTRAIT/LANDSCAPE)

- Film Size ID(Defined Terms: 8INX10IN/8_5INX11IN/10INX12IN/10INX14IN/11INX14IN/11INX17IN/14INX14IN/14INX17IN/24CMX24CM/
- Border Density(Defined Terms: BLACK/WHITE)
- Empty Image Density (Defined Terms: BLACK/WHITE)
- Trim (Defined Terms: YES/NO)

The printing is only suspended in the case of a failure return status of the SCP.

4.1.3 ASSOCIATION ACCEPTANCE POLICY

The HCPDNServer accepts associations for the following Real-World activities:

- Verify Communication
- Store Objects
- Request Storage Commitment
- Find Objects
- Move Objects

4.1.3.1 REAL WORLD ACTIVITY – VERIFY COMMUNICATION

4.1.3.1.1 ASSOCIATED REAL WORLD ACTIVITY – VERIFY COMMUNICATION

HCP DICOM Net PACS DICOM Server will accept and respond to verification requests initiated by remote AEs. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.3.1.2 ACCEPTED PRESENTATION CONTEXTS – VERIFY COMMUNICATION

HCPDNServer will accept the presentation contexts listed in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	**UID**	**NAME**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

4.1.3.1.2.1 SOP SPECIFIC CONFORMANCE FOR "VERIFICATION" SOP CLASS

HCPDNServer provides standard conformance to the "Verification" SOP Class as an SCP.

4.1.3.1.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION – VERIFY COMMUNICATION

HCPDNServer will only accept Presentation Contexts described in Section 4.1.3.1.2 for the "Verification" SOP Class as SCP.

4.1.3.1.4 TRANSFER SYNTAX SELECTION POLICIES – VERIFY COMMUNICATION

If HCPDNServer is offered a choice of Transfer Syntaxes within a Presentation Context while acting as an SCP for the "Verification" SOP Class, then it will apply the following priority to the choice of Transfer Syntax for that association:

1. Explicit VR Little Endian
2. Implicit VR Little Endian

4.1.3.2 REAL WORLD ACTIVITY – STORE OBJECTS

4.1.3.2.1 ASSOCIATED REAL WORLD ACTIVITY – STORE OBJECTS

A remote AE can send composite IODs to HCPDNServer for storage. HCPDNServer continuously listens on a configurable port for association requests from remote AEs. If the presentation context of the remote AE is acceptable to HCPDNServer, it will process and store the composite IODs in its disk and will index them in HCPDN's database. It replies with a C-STORE response when a complete composite IOD has been received on the established association. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.3.2.2 ACCEPTED PRESENTATION CONTEXTS – STORE OBJECTS

HCPDNServer will accept the presentation contexts listed in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1			SCP	None

X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1			SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1			SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2			SCP	None
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1			SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1			SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	JPEG Lossless First-Order Prediction (Process 14)	1.2.840.10008.1.2.4.70	SCP	None
Secondary Image Capture Storage	1.2.840.10008.5.1.4.1.1.7			SCP	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2			SCP	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	JPEG Baseline Coding (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.11.1			SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	RLE	1.2.840.10008.1.2.5	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22			SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33			SCP	None

4.1.3.2.2.1 SOP SPECIFIC CONFORMANCE FOR SOP CLASS

The HCPDNServer conforms to the SOP's of the Storage Service Class at level 2 (full). No data elements are discarded or coerced by the HCPDNServer. Private Tags are not processed while converting the imported images for DICOM Storage.

C-Store Status Responses that are returned by the HCPDNServer Import AE are:

FAILURE A800 Illegal SOP Class

FAILURE A700 Out of Resource

SUCCESS 0000 Success

4.1.3.2.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION – STORE OBJECTS

HCPDNServer can accept Presentation Contexts described in Section 4.1.3.2.2 for the "Store" SOP Class as SCP.

4.1.3.2.4 TRANSFER SYNTAX SELECTION POLICIES – STORE OBJECTS

If HCPDNServer is offered a choice of Transfer Syntaxes within a Presentation Context while acting as an SCP for the "Store" SOP Class, then it will prioritize the choice of Transfer Syntax for that association based on the configuration at application level with preference given to the compressed type.

4.1.3.3 REAL WORLD ACTIVITY – FIND OBJECTS

4.1.3.3.1 ASSOCIATED REAL WORLD ACTIVITY – FIND OBJECTS

HCPDNServer supports queries for objects from a remote AE via an association initiated by the remote AE. It continuously listens on a configurable port for query requests. HCPDNServer supports queries at the Patient, Study and Series levels and Image level requests are not supported. If the presentation context of the remote AE is acceptable to HCPDNServer, it searches HCPDN's database for possible matches with composite IODs. The results of the query are returned to the remote AE using the same association. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.3.3.2 ACCEPTED PRESENTATION CONTEXTS – FIND OBJECTS

HCPDNServer will accept the presentation contexts listed in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	**UID**	**NAME**	**UID**		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

4.1.3.3.2.1 SOP SPECIFIC CONFORMANCE FOR "PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND" SOP CLASS

All DICOM attributes specified as valid keys for C-FIND messages are acceptable by HCPDN query keys as well. In real practice only an important subset is defined as per client side requests, which would be used.

PATIENT ROOT QUERY ATTRIBUTES		
QUERY LEVEL	**DESCRIPTION**	**TAG**
Patient	Patient Name	(0010,0010)
Patient	Patient ID	(0010,0020)
Patient	Patient Sex	(0010,0040)
Patient	Medical Record Number	(0010,1090)
Patient	Birthdate	(0010,0030)
Patient	No. of Patient related Studies	(0020,1200)
Patient	No. of Patient related Series	(0020,1202)
Patient	No. of Patient related Instances	(0020,1204)
Study	Accession Number	(0008,0050)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Description	(0008,1030)
Study	Study ID	(0020,0010)
Study	Study Instance UID	(0020,000D)
Study	Reading Physician(s) Name	(0008,1060)
Study	Referring Physician(s) Name	(0008,0090)
Study	Performing Physician(s) Name	(0008,1050)
Study	Retrieve AET	(0008,0054)
Study	No. of Study related Series	(0020,1206)
Study	No. of Study related Instances	(0020,1208)
Series	Series Description	(0008,103E)
Series	Body Part	(0018,0015)
Series	Series Date	(0008,0021)
Series	Series Time	(0008,0031)
Series	SOP Instance UID	(0008,0018)
Series	Series Instance UID	(0020,000E)
Series	Acquisition Date	(0008,002A)
Series	Modality	(0008,0060)
Series	Manufacturer	(0008,0070)
Series	Operator Name	(0008,1070)
Series	Institution Name	(0008,0080)
Series	Institutional Department Name	(0008,1040)
Series	No. of Series related Instances	(0020,1209)

4.1.3.3.2.2 SOP SPECIFIC CONFORMANCE FOR "STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – FIND" SOP CLASS

All DICOM attributes specified as valid keys for C-FIND messages are acceptable by HCPDN query keys as well. In real practice only an important subset is defined as per client side requests, which would be used.

STUDY ROOT QUERY ATTRIBUTES		
QUERY LEVEL	**DESCRIPTION**	**TAG**
Study	Patient Name	(0010,0010)
Study	Patient ID	(0010,0020)
Study	Patient Sex	(0010,0040)
Study	Medical Record Number	(0010,1090)
Study	Birthdate	(0010,0030)
Study	No. of Patient related Studies	(0020,1200)
Study	No. of Patient related Series	(0020,1202)
Study	No. of Patient related Instances	(0020,1204)
Study	Accession Number	(0008,0050)
Study	Study Date	(0008,0020)
Study	Study Time	(0008,0030)
Study	Study Description	(0008,1030)
Study	Study ID	(0020,0010)
Study	Study Instance UID	(0020,000D)
Study	Reading Physician(s) Name	(0008,1060)
Study	Referring Physician(s) Name	(0008,0090)
Study	Performing Physician(s) Name	(0008,1050)
Study	Retrieve AET	(0008,0054)
Study	No. of Study related Series	(0020,1206)
Study	No. of Study related Instances	(0020,1208)
Series	Series Description	(0008,103E)
Series	Body Part	(0018,0015)
Series	Series Date	(0008,0021)
Series	Series Time	(0008,0031)
Series	SOP Instance UID	(0008,0018)
Series	Series Instance UID	(0020,000E)
Series	Acquisition Date	(0008,002A)
Series	Modality	(0008,0060)
Series	Manufacturer	(0008,0070)
Series	Operator Name	(0008,1070)
Series	Institution Name	(0008,0080)
Series	Institutional Department Name	(0008,1040)
Series	No. of Series related Instances	(0020,1209)

4.1.3.3.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION – FIND OBJECTS

HCPDNServer can accept Presentation Contexts described in Section 4.1.3.4.2 for the “Find” SOP Class as SCP.

4.1.3.3.4 TRANSFER SYNTAX SELECTION POLICIES

HCPDNServer only supports Implicit VR Little Endian for this Real-World activity

4.1.3.4 REAL WORLD ACTIVITY – MOVE OBJECTS

4.1.3.4.1 ASSOCIATED REAL WORLD ACTIVITY – MOVE OBJECTS

HCPDNServer can support requests from a remote AE to retrieve composite IODs from HCPDN's database. It needs SOP instance UIDs to match and retrieve IODs corresponding to the remote AE's requests. If the Move Objects activity follows the Find Objects activity, HCPDNServer gets the SOP Instance UIDs from the Find Objects response. In the case that the Move Objects activity is invoked in isolation, the requesting remote AE should explicitly provide patient and/or study level identifiers. For all associations, the remote AE's DICOM communication information (AE Title, IP address and port) must be pre-configured and licensed in HCPDN.

4.1.3.4.2 ACCEPTED PRESENTATION CONTEXTS – MOVE OBJECTS

HCPDNServer will accept the presentation contexts shown in the following table:

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	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	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

4.1.3.4.2.1 SOP SPECIFIC CONFORMANCE FOR "PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL – MOVE" SOP CLASS

HCPDNServer provides standard conformance to the “Patient Root Query/Retrieve Information Model – MOVE” SOP Class as an SCP.

4.1.3.4.2.2 SOP SPECIFIC CONFORMANCE FOR “STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL – MOVE” SOP CLASS

HCPDNServer provides standard conformance to the “Study Root Query/Retrieve Information Model – MOVE” SOP Class as an SCP.

4.1.3.4.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION

HCPDNServer can accept Presentation Contexts described in Section 4.1.3.5.2 for the “Move” SOP Class as SCP.

4.1.3.4.4 TRANSFER SYNTAX SELECTION POLICIES

HCPDNServer only supports Implicit VR Little Endian for this Real-World activity

4.2 MWLMPPSSERVER

The MWLMPPSServer Application Entity runs within HCPDN's Broker application and provides Standard Conformance to the DICOM 3.0 SOP Classes listed below as an SCP.

SOP CLASS NAME	UID	SCU	SCP
Verification	1.2.840.10008.1.1	NO	YES
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	NO	YES
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	NO	YES
Modality Performed Procedure Step Retrieve	1.2.840.10008.3.1.2.3.4	NO	YES
Modality Performed Procedure Step Notification	1.2.840.10008.3.1.2.3.5	NO	YES

4.2.1 ASSOCIATION ESTABLISHMENT POLICIES

4.2.1.1 GENERAL

The server always proposes the DICOM Application Context Name 1.2.840.10008.3.1.1.1. The maximum length PDU negotiation is included in all association establishment requests. The default maximum length PDU for an association initiated is 32 KB.

4.2.1.2 NUMBER OF ASSOCIATIONS

The number of associations for the storage and Query Retrieve SCP service that may be active simultaneously is 5.

4.2.1.3 ASYNCHRONOUS NATURE

DICOM asynchronous mode is not supported meaning that only one transaction may be out-standing over an association at any given point in time.

4.2.1.4 IMPLEMENTATION IDENTIFYING INFORMATION

The system uses following implementation identifying parameters:

- Implementation Class UID 1.3.46.670589.7.5.1.11

- Implementation Version Name HCPDICOMNET

4.2.2 ASSOCIATION INITIATION BY REAL-WORLD ACTIVITY

The MWLMPPSServer Application Entity does not initiate Associations.

4.2.3 ASSOCIATION ACCEPTANCE POLICY

The MWLMPPSServer Application Entity accepts associations for the following Real-World activities:

- Get Worklist
- Study Update

4.2.3.1 REAL WORLD ACTIVITY – GET WORKLIST

4.2.3.1.1 ASSOCIATED REAL WORLD ACTIVITY – GET WORKLIST

The MWLMPPSServer accepts Associations only if they have valid Presentation Contexts. If none of the requested Presentation Contexts are accepted then the Association Request itself is rejected. It can be configured to only accept Associations from certain Application Entities. When Modality Worklist SCUs query the MWLMPPSServer the queries run against the MWL items in the local database.

4.2.3.1.2 ACCEPTED PRESENTATION CONTEXTS – VERIFY COMMUNICATION

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

4.2.3.1.2.1 SOP SPECIFIC CONFORMANCE FOR "VERIFICATION" SOP CLASS

MWLMPPSServer provides standard conformance to the "Verification" SOP Class as an SCP.

4.2.3.1.2.2 SOP SPECIFIC CONFORMANCE FOR "MODALITY WORKLIST" SOP CLASS

MWLMPPSServer provides standard conformance to the "Modality Worklist" SOP Class as an SCP. Query responses always return values from the Modality Worklist Server database.

4.2.3.1.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION – VERIFY COMMUNICATION & MODALITY WORKLIST

MWLMPPSServer will only accept Presentation Contexts described in Section 4.2.3.1.2 for the "Verification" and "Modality Worklist" SOP Classes as SCP.

4.2.3.2 REAL WORLD ACTIVITY – STUDY UPDATE

4.2.3.2.1 ASSOCIATED REAL WORLD ACTIVITY – STUDY UPDATE

A remote system wants to create a new or update an existing Performed Procedure Step using the N-CREATE or N-SET commands.

4.2.3.2.2 ACCEPTED PRESENTATION CONTEXTS – MPPS

ABSTRACT SYNTAX		TRANSFER SYNTAX		ROLE	EXT. NEG.
NAME	UID	NAME	UID		
Modality Performed Procedure Step Modality Performed Procedure Step Retrieve Modality Performed Procedure Step Notification	1.2.840.10008.3.1.2.3.3 1.2.840.10008.3.1.2.3.4 1.2.840.10008.3.1.2.3.5	Implicit VR Little Endian Explicit VR	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

		Little Endian			

4.2.3.2.2.1 SOP SPECIFIC CONFORMANCE FOR "MPPS" SOP CLASS

MWLMPPSServer provides standard conformance to the "DICOM MPPS" SOP Class as an SCP. The MPPS SCP responds only with a status code (i.e. no attribute list) and possibly with a failure class instance if an error has occurred.

4.2.3.2.3 PRESENTATION CONTEXT ACCEPTANCE CRITERION – MPPS

MWLMPPSServer will only accept Presentation Contexts described in Section 4.2.3.2.2 for the "DICOM MPPS" SOP Class as SCP.

5. COMMUNICATION PROFILES

5.1 SUPPORTED COMMUNICATION STACKS

5.1.1 TCP/IP

HCPDN DICOM services use the TCP/IP stack supported by the underlying operating system.

5.1.2 API

The API is the WinSock2 interface as supported by the underlying operating system.

5.1.3 PHYSICAL MEDIA SUPPORT

HCPDN DICOM services are not dependent on the physical medium over which the TCP/IP executes. For ideal performance the recommended physical media include:

- IEEE 802.3 – 1995 (Fast Ethernet) 100BASE-TX
- IEEE 802.3 – 1995 10BASE-TX

6. EXTENSIONS/SPECIALIZATION/PRIVATIZATION

6.1 STANDARD EXTENDED

None

6.2 PRIVATE TRANSFER SYNTAXES

None

7. CONFIGURATION

7.1 AE TITLE/PRESENTATION ADDRESS MAPPING

All local applications use the AE Titles and TCP/IP ports configured via the Admin tool in HCPDN. The AE Titles must be configured during installation. The local AE Title used by each individual application can be configured independently of the AE Titles used by other local applications.

7.2 CONFIGURABLE PARAMETERS

The configurable parameters of the HCPDN server are stored in the database. The following items are configurable:

Remote Client's IP address	IP address of the remote client for DICOM communication
Remote Client's AE Title	AE Title used by remote client for DICOM communication
Remote Client's Port	Listening port used by the remote client to accept DICOM communication
Local Application's AE Title	AE Title used by a local application for DICOM communication with a remote client
Packet Size	The maximum size in bytes of the packet used to communicate with the remote client
Association Timeout	How long HCPDN waits for a response when trying to establish communication with a remote client

8. SUPPORT FOR EXTENDED CHARACTER SET

Extended character sets are not supported.