DICOM Conformance Statements
for
MiPublisher – Software
Storage, Query/Retrieve

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Vision Tools User Guide. CE

Document Information

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1. Introduction

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

1.1 Overview

This conformance statement refers to a Vision Tools family of products (Diagnostic and Viewing workstation) that are based on the same communication software. This document refers to each of the above products as a *System*. Unless otherwise indicated.

1.2 Scope and Field of Application

The scope of this DICOM Conformance Statement is to facilitate data exchange with equipment of MillenSys. 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 MillenSys equipment into an environment of medical devices. This Conformance Statement should be read in conjunction with the DICOM standard and its addenda [DICOM].

1.3 Intended Audience

This Conformance Statement is intended for:

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

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

1.3.1 Integration

The integration of any device into a system of interconnected devices goes beyond the scope of the DICOM 3.0 standard and this conformance statement when *interoperability* is desired. The responsibility for analyzing the applications

requirements and developing a solution that integrates the MillenSys equipment with other vendors' systems is the user's and should not be underestimated.

1.3.2 Validation

Testing the complete range of possibilities between the MillenSys devices and non-MillenSys devices, before the connection is declared operational, is deemed to be a necessity. The user should ensure that any non-MillenSys provider accepts full responsibility for all validation required for their connection with the MillenSys devices. The accuracy of image data once it has crossed the interface between MillenSys and non-MillenSys devices as well as the stability of the image data for the intended applications is the responsibility of the non-MillenSys provider.

1.3.3 Future Evolution

As the DICOM 3.0 standard evolves to meet the user's growing requirements and to incorporate new features and technologies, MillenSys will follow the evolution of the standard. This evolution of the standard may require changes to MillenSys devices that have implemented DICOM 3.0. The user should ensure that any non-MillenSys provider, who connects with MillenSys devices, also plans future evolution of the DICOM standard. A refusal to do so may reflect in the loss of functionality and/or connectivity between the different products.

1.4 References

The **D**igital **I**maging and **Co**mmunications in **M**edicine (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.

1.5 Definitions

- **Association Establishment -** An Association Establishment is the first phase of communication between two DICOM Application Entities (AEs). The AEs use the Association Establishment to negotiate how data will be encoded and the type of data to be exchanged.
- **Called Application Entity Title** - The Called AE Title defines the intended receiver of an Association.
- **Calling Application Entity Title** - The Calling AE Title defines the requestor of an Association.
- **DICOM Message Service Element (DIMSE)** - A DIMSE defines the services and protocols utilized by an Application Entity to exchange messages.
- **Information Object Definition (IOD)** - An IOD is the data model which is an abstraction of the real-world information. This data model defines the nature and attributes relevant to the class of real-world objects represented.
- **Service Class Provider (SCP)** - A SCP plays the **server** role to perform operations and invoke notifications during an Association. An example of a Storage Class Provider would be an image storage device. In this case,the image storage device is storing the image that was sent by a Service Class User.
- **Service Class User (SCU)** - A SCU plays the **client** role to invoke operations and perform notifications during an Association. An example of a SCU would be an image acquisition device. In this case, the image acquisition device will create and send DICOM image by requesting that a SCP store the image.
- **Service/Object Pair (SOP) Class** - A SOP Class is defined by the union of an Information Object Definition and set of DIMSE Services. A DICOM Application Entity may support one or more SOP Classes. Each SOP Class is uniquely identified by a SOP Class UID.
- **SOP Instance** - A specific occurrence of a Information Object.
- **Transfer Syntax** – The Transfer Syntax is a set of encoding rules that allow DICOM Application Entities to negotiate the encoding techniques (e.g data element structure, byte ordering, compression)they are able to support. The Transfer Syntax is negotiated during Association Negotiation.
- **Unique Identifier (UID)** – A UID is a globally unique, ISO compliant. ASCII – numeric string. It guarantees uniqueness across multiple countries, sites, vendors and equipment.

1.6 Acronyms, Abbreviations and Symbols

- **ACC** **A**merican **C**ollege of **C**ardiology
- **ACR** **A**merican **C**ollege of **R**adiology
- **ASCII** **A**merican **S**tandard **C**ode for **I**nformation **I**nterchanges
- **AE** **A**pplication **E**ntity
- **ANSI** **A**merican **N**ational **S**tandards **I**nstitute
- **DICOM** **D**igital **I**maging and **Co**mmunication in **M**edicine
- **DIMSE** **DICOM M**essage **S**ervice **E**lement
- **DIMSE-C** **DICOM M**essage **S**ervice **E**lement **- C**omposite
- **DIMSE-N** **DICOM M**essage **S**ervice **E**lement **- N**ormalized
- **HIS** **H**ospital **I**nformation **S**ystem
- **HL7** **H**ealth **L**evel **7**
- **IE** **I**nformation **E**ntity
- **IOD** **I**nformation **O**bject **D**efinition
- **ISO** **I**nternational **S**tandard **O**rganization
- **NEMA** **N**ational **E**lectric **M**anufacturers **A**ssociation
- **PDU** **P**rotocol **D**ata **U**nit
- **RIS** **R**adiology **I**nformation **S**ystem
- **SCP** **S**ervice **C**lass **P**rovider
- **SCU** **S**ervice **C**lass **U**ser
- **SOP** **S**ervice **O**bject **P**air
- **TCP/IP** **T**ransmission **C**ontrol **P**rotocol**/I**nternet **P**rotocol
- **UID** **U**nique **Id**entifier

2. Implementation Model

The MillenSys MIPUBLISHER is PC Windows NT-based software program used to work with MillenSys Vision Tools Products.

MIPUBLISHER Store SCP is designed to receive images from remote devices, using DICOM C-Store, maintaining the saving of these images in a local database which contains the whole demographic patient data as well as the study, series and image important information.

MIPUBLISHER Query/Retrieve SCU could find and Retrieve images from remote AE SCP, using DICOM C-Find/C-Move; the user could define the matching critical and remote AE which is predefined in the DICOM connecting remote AEs.

2.1 Verification

2.1.1 Application Data Flow Diagram

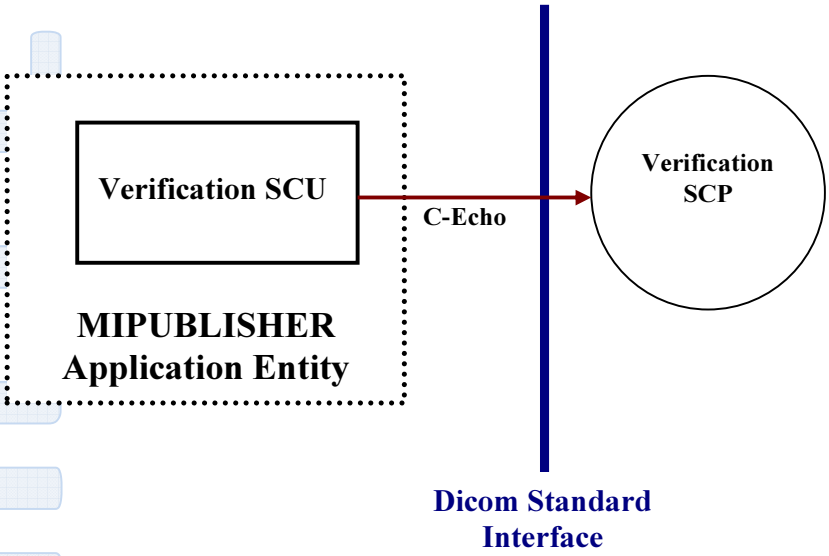

Figure 1: Application data flow diagram of verification SCU

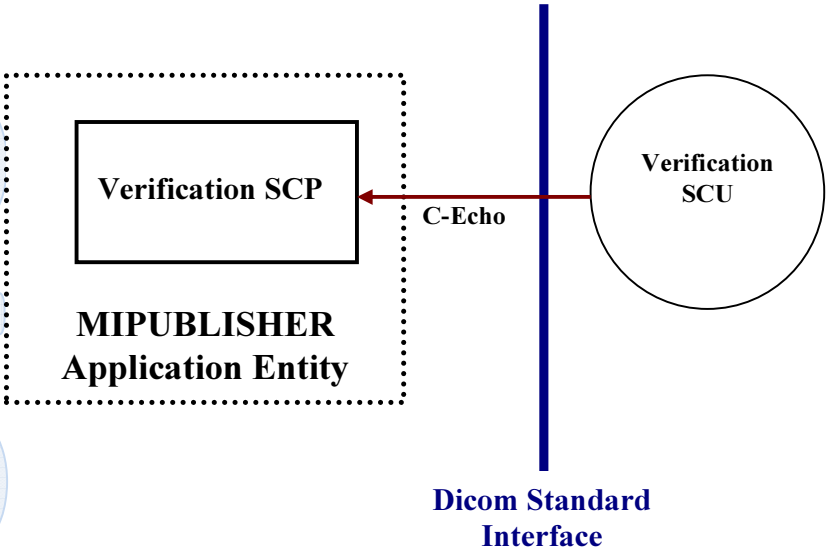

Figure 2: Application data flow diagram of verification SCP

2.1.2 Functional Definitions of AE's

2.1.2.1 Verification SCU

The Echo function provides an easy way to determine if the remote AE is available. When C-Echo Function is used, an association which includes a Presentation Context for Verification Class is proposed. A successful response indicates that the remote AE is available. The association is immediately closed.

2.1.2.2 Verification SCP

The Echo function provides an easy way to determine if the MIPUBLISHER is available. When C-Echo Function is used, an association which includes a Presentation Context for Verification Class is proposed. A successful response indicates that the MIPUBLISHER is available.

2.2 Storage

2.2.1 Application Data Flow Diagram

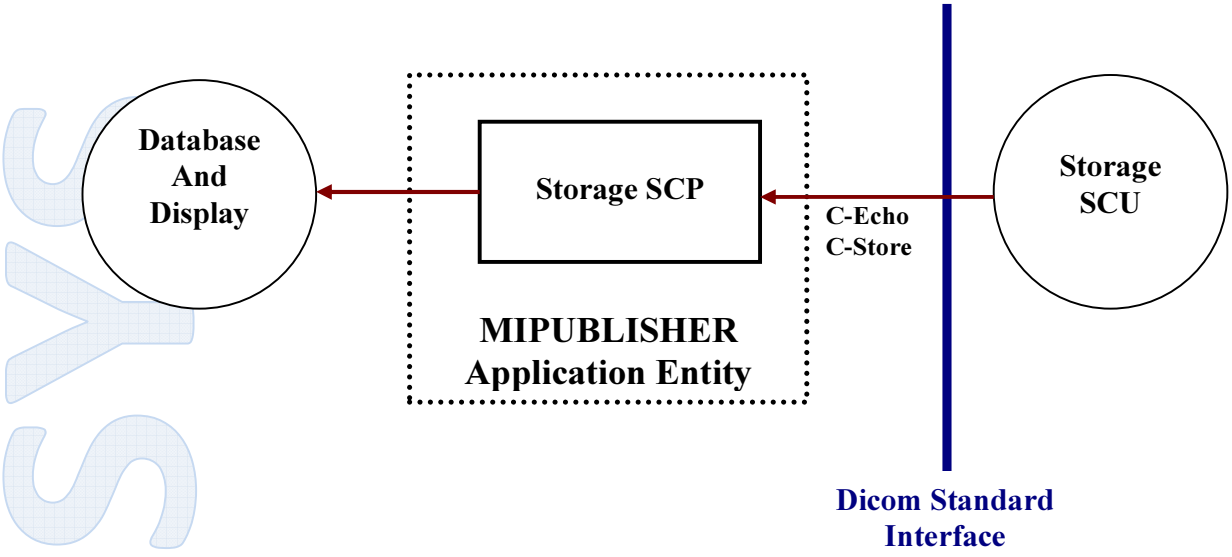

Figure 3: Application data flow diagram of Storage SCP

2.2.2 Functional Definitions of AE's

2.2.2.1 Storage SCP

MIPUBLISHER C-Store SCP (image receiving software) waits for another application to connect at the presentation address configured for its Application Entity Title. The application that connects must be a DICOM application. Associations are accepted with Presentation Contexts for SOP Classes of the Storage Service Class, or the Verification Service Class. It will receive images on the Storage Service Class Presentation Contexts and insert image information into local database. Images which are sent could be saved normally as they were sent or they could be compressed first, this is an option which the administrator could change per modality (AE) from settings.

2.3 Query and Retrieve

2.3.1 Application Data Flow Diagram

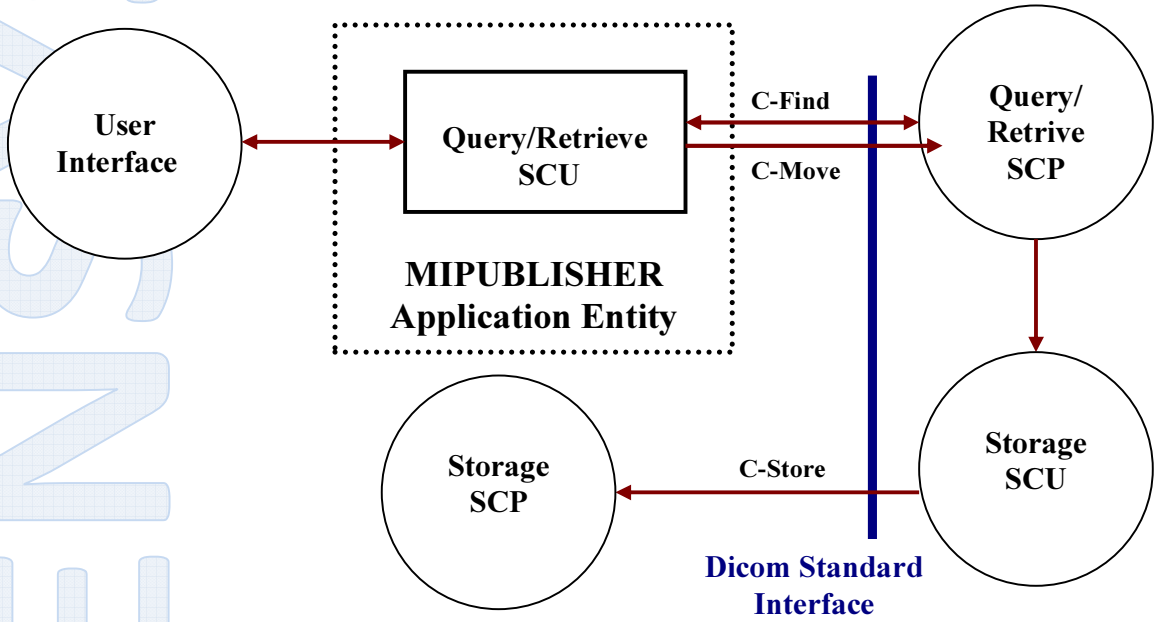

Figure 4: Application data flow diagram of Query/Retrieve SCU

2.3.2 Functional Definitions of AE's

2.3.2.1 Query/Retrieve SCU

When using MIPUBLISHER C-Find/C-Move SCU, an association which includes the Presentation Contexts of the selected Query Level defined by the user from the DICOM Query/Retrieve information models (i.e. Patient Root, Study Root, and Patient/Study Only). If Query/Retrieve SCP accepts the request. Then, a request directory information at any of these levels is sent depending on the user choice. A new association is created for each directory search, and is immediately closed as soon as the requested information is received. The operator may also request that a patient, study, series or image be retrieved from the remote AE by pressing the Move button. A new association is initiated for the request, which remains open until all files have been received. The actual file transfer occurs on a separate association initiated by the remote AE.

3. AE Specifications

3.1 AE Verification Specification

3.1.1 Association Initiation by Real-World Activity

The MIPUBLISHER DICOM Service Tool application attempts to initiate a new association for

- DIMSE C-ECHO Service operation.

3.1.1.1 Real-World Activity - Verification SCU

3.1.1.1.1 Associated Real-World Activity - Verification SCU

The associated Real-World activity is a C-ECHO request initiated by the DICOM Service Tool application. If the process successfully establishes an association to a remote Application Entity, it will send the C-ECHO-Request via the open association to verify that the remote Application Entity is responding to DICOM messages.

3.1.1.1.2 Proposed Presentation Contexts - Verification SCU

The MIPUBLISHER DICOM application will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Table 2: Initializing Presentation Context Verification

3.1.1.1.3 SOP Specific Conformance Statement - Verification SCU

The Application conforms to the definition of a Verification SCU in accordance to the DICOM Standard.

3.1.1.2 Real-World Activity - Verification SCP

3.1.1.2.1 Associated Real-World Activity - Verification SCP

The associated Real-World activity is a C-ECHO request initiated by the DICOM Service Tool application. If the process successfully establishes an association to a remote Application Entity, it will send the C-ECHO-Request via the open association to verify that the remote Application Entity is responding to DICOM messages.

3.1.1.2.2 Proposed Presentation Contexts - Verification SCP

The MIPUBLISHER DICOM application will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Table 3: Initializing Presentation Context Verification

3.1.1.2.3 SOP Specific Conformance Statement - Verification SCP

The Application conforms to the definition of a Verification SCP in accordance to the DICOM Standard.

3.2 Storage AE Specifications

3.2.1 Association Establishment Policies

3.2.1.1 General

The configuration of the MIPUBLISHER DICOM application defines the Application Entity Titles, the port numbers and of course the host name and net address.

3.2.1.2 Number of Association

The MIPUBLISHER DICOM application initiates several associations at a time, one for each transfer request being processed.

3.2.1.3 Asynchronous Nature

The MIPUBLISHER DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

3.2.1.4 Implementation Identifying Information

The MIPUBLISHER DICOM software provides a single Implementation Class UID of

- <"">

and an Implementation Version Name of

• <"MIPUBLISHER_Ver1.0">.

3.2.2 Association Acceptance Policy

The MIPUBLISHER DICOM application attempts to accept a new association for

- DIMSE C-ECHO Service operations.
- DIMSE C-STORE Service operations.

3.2.2.1 Real-World Activity - Storage SCP

3.2.2.1.1 Associated Real-World Activity - Storage SCP

The MIPUBLISHER receiving process will accept an association and will receive any images transmitted on that association and will store the images on disk in the local database.

3.2.2.1.2 Proposed Presentation Contexts - Storage SCP

The MIPUBLISHER DICOM application will propose Presentation Contexts as shown in the following table:

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID		
CR Image Storage Servive Class	1.2.840.10008.5.1. 4.1.1.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None

CT Image storage Service Class	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
MR Image storage Service Class	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
US Multi - Frame Image storage Service Class	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
US Image Storage Service Class	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
NM Image storage Service Class	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
XA Image storage Service Class	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
XRF Image storage Service Class	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
PET Image storage Service Class	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
Standalone PET curve storage Service Class	1.2.840.10008.5.1.4.1.1.129	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
RT storage Service Classes	1.2.840.10008.5.1.4.1.1.481.1 1.2.840.10008.5.1.4.1.1.481.3 1.2.840.10008.5.1.4.1.1.481.4 1.2.840.10008.5.1.4.1.1.481.5 1.2.840.10008.5.1.4.1.1.481.6 1.2.840.10008.5.1.4.1.1.481.7	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
VL Storage Service Classes	1.2.840.10008.5.1.4.1.1.77.1.1 1.2.840.10008.5.1.4.1.1.77.1.2 1.2.840.10008.5.1.4.1.1.77.1.3 1.2.840.10008.5.1.4.1.1.77.1.4	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
SC Image storage Service	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None

Class					
WAVE-FORM Storage Service Classses	1.2.840.10008.5.1.4.1.1.9.1 1.2.840.10008.5.1.4.1.1.9.1.1 1.2.840.10008.5.1.4.1.1.9.1.3 1.2.840.10008.5.1.4.1.1.9.2.1 1.2.840.10008.5.1.4.1.1.9.3.1 1.2.840.10008.5.1.4.1.1.9.4.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
DX Image Storage Service Classes	1.2.840.10008.5.1.4.1.1.1.1 1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
DX Mammography Image Storage Service Classes	1.2.840.1001.2.840.10008.5.1.4.1.1.2.108.5.1.4.1.1.1.2	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
Verification	1.2.840.10008.1.1	Implicit VR Little Endian Explicit VR Big Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None

Table 4: Accepting Presentation Contexts Storage

3.2.2.1.3 SOP Specific Conformance Statement - Storage SCP

The DICOM receiver returns the status

- **Success** (0000): upon successful operation
- **Refused** (A700): This error status indicates a lack of Resources (e.g. not enough disk space) on the <xxx> modality.
- **Error** (A900 or C000): An error occurred while processing the image which makes it impossible to proceed. The Image will not be stored and the association aborted.

If an image with the same SOP Instance UID (as that image being received) is already present in the database then the received image will be ignored. So if a remote node sends twice the same image (same SOP Instance UID) then there will still be only one image (the first) in the database of the DICOM receiver.

3.2.2.1.4 Presentation Context Acceptance Criterion - Storage SCP

The MIPUBLISHER DICOM application will accept any number of verification or storage SOP classes that are listed above. There is no limit on the number of presentation contexts accepted except for the DICOM limit. In the event that the MIPUBLISHER DICOM application runs out of resources, it will reject the association request.

3.2.2.1.5 Transfer Syntax Selection Policies - Storage SCP

The MIPUBLISHER DICOM application supports

- The Implicit VR Little Endian.
- The Explicit VR Little Endian.
- Explicit VR Big Endian.

Any proposed presentation context which includes one of these transfer syntaxes will be accepted. Any proposed presentation context that does not include one of these transfer syntaxes will be rejected.

3.3 Query/Retrieve AE Specification

The Query/Retrieve SCU request that the remote SCP perform a match of all keys specified in the request, against the information in its database and the identified images will be moved or retrieved to the same or a different storage association.
The Query/Retrieve SCP responds to queries based on the records based on its database and images will be send to the requesting SCU or to a different storage destination.
MIPUBLISHER DICOM application provides Standard Conformance to the following DICOM V3.0 SOP Classes as SCU and SCP:

SOP Class Name	SOP Class UID
Patient Root Query/Retrieve Information Model – FIND	**1.2.840.10008.5.1.4.1.2.1.1**
Patient Root Query/Retrieve Information Model – MOVE	**1.2.840.10008.5.1.4.1.2.1.2**
Patient Root Query/Retrieve Information Model – GET	**1.2.840.10008.5.1.4.1.2.1.3**
Study Root Query/Retrieve Information Model-FIND	**1.2.840.10008.5.1.4.1.2.2.1**
Study Root Query/Retrieve Information Model-MOVE	**1.2.840.10008.5.1.4.1.2.2.2**
Study Root Query/Retrieve Information Model-GET	**1.2.840.10008.5.1.4.1.2.2.3**
Patient/Study Only Query/Retrieve Information Model – FIND	**1.2.840.10008.5.1.4.1.2.3.1**
Patient/Study Only Query/Retrieve Information Model – MOVE	**1.2.840.10008.5.1.4.1.2.3.2**
Patient/Study Only Query/Retrieve Information Model – GET	**1.2.840.10008.5.1.4.1.2.3.3**

Table 5: SOP Classes for Query/Retrieve

3.3.1 Association Establishment Policies

3.3.1.1 General

The configuration of the MIPUBLISHER DICOM Query/Retrieve application defines the Application Entity Titles, the port numbers and of course the host name and net address.

3.3.1.2 Number of Associations

The MIPUBLISHER DICOM application initiates several association at a time, one for each Query/Retrieve request being processed.

3.3.1.3 Asynchronous Nature

The MIPUBLISHER DICOM software does not support asynchronous communication (multiple outstanding transactions over a single association).

3.3.2 Association Initiation Policy

The Query/Retrieve SCU and SCP establish an association by using the DICOM association services. During association establishment the Query/Retrieve application entities negotiate the supported SOP classes to exchange the capabilities of the SCU and the SCP.
The following DIMSE-C operations are supported as SCU:

- C-FIND Service operation.
- C-MOVE Service operation.

3.3.2.1 Real World Activity - Find SCU

3.3.2.1.1 Associated Real-World Activity - Find SCU

The associated Real-World activity is to initiate query request to an SCP with the query model Patient Root or Study Root or Patient/Study Only.

3.3.2.1.2 Proposed Presentation Contexts - Find SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Not supported
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	Not supported
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Not supported

Table 6: Initializing Presentation Contexts Query

3.3.2.1.3 SOP Specific Conformance Statement - Find SCU

The MIPUBLISHER DICOM Query/Retrieve SCU supports hierarchical queries with all mandatory and Required search keys. The following tables describe the search keys for the different query models that the MIPUBLISHER Query application supports as an SCU:

Attribute name	Tag	Type	Matching	User Input	Return Value Displayed
Patient Level					
Patient Name	(0010,0010)	R	Wild Char	Enter Value	yes
Patient ID	(0010,0020)	U-Patient Root R–Study Root U-Patient/Study Only	Wild Char	Enter Value	yes
Patient's Birth Date	(0010,0030)	O	universal (NULL)	-	yes
Patient's Sex	(0010,0040)	O	Single value	Enter Value	yes
Study Level					
Study Instance UID	(0020,000D)	U	Single value	Enter Value	yes

Study ID	(0020,0010)	R	Single value	Enter Value	yes
Study Date	(0008,0020)	R	Single value-Range value-Null	Enter Value	yes
Study Time	(0008,0030)	R	Single value-Range value-Null	Enter Value	yes
Accession Number	(0008,0050)	R	Single value	Enter Value	yes
Series Level					
Series Instance UID	(0020,000E)	U	Single value	Enter Value	yes
Series Number	(0020,0011)	R	Single value	Enter Value	yes
Modality	(0008,0060)	R	Single value	Enter Value	yes
Image Level					
SOP Instance UID	(0008,0018)	U	Single value	Enter Value	yes
Image Number	(0020,0013)	R	Single value	Enter Value	yes

Table 7: Patient root and Study root query attributes

The Find SCU can decode the following responses:

- **Success (0000)**: Success.
- **Refused (A702)**: Unable to perform sub operation (due to failure of a C-STORE).
- **Refused (A802):** Move destination unknown.
- **Refused (A700):** General refusal status.
- **Warning (B000):** General warning status.
- **Failure (C000)**: General failure status.

3.3.2.2 Real World Activity - Move SCU

3.3.2.2.1 Associated Real-World Activity - Move SCU

The associated Real-World activity is to initiate query request to an SCP with the query model Patient Root or Study Root or Patient/Study Only.

3.3.2.1.2 Proposed Presentation Contexts - Move SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Exten-ded Negoti-ation**
Name	**UID**	**Name List**	**UID**		
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Not supported
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	SCU	Not supported
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Not supported

Table 8: Initializing Presentation Contexts Retrieve

3.3.2.1.3 SOP Specific Conformance Statement - Move SCU

At association establishment time the C-MOVE presentation context shall be negotiated. The C-STORE sub-operations must be done on a different association to transfer images to another SCP of the Storage Service Class.

Attribute name	Tag	Type	Matching	User Input	Return Value Displayed
Patient Level					
Patient Name	(0010,0010)	R	Universal	Enter Value	Yes
Patient ID	(0010,0020)	U-Patient Root R–Study Root U-Patient/Study Only	Wild Char-Single value	Enter Value	Yes
Patient's Birth date	(0010,0030)	O	Universal (NULL)	-	Yes
Patient's Sex	(0010,0040)	O	Universal	-	Yes
Study Level					
Study Instance UID	(0020,000D)	U	Single value	Enter Value	Yes
Study ID	(0020,0010)	R	Universal	Enter	Yes

				Value	
Study Date	(0008,0020)	R	Single value -Range Value- Universal	Enter Value	Yes
Study Time	(0008,0030)	R	Single value -Range Value- Universal	Enter Value	Yes
Accession Number	(0008,0050)	R	Universal	Enter Value	Yes
Series Level					
Series Instance UID	(0020,000E)	U	Single Value	Enter Value	Yes
Series Number	(0020,0011)	R	Universal	Enter Value	Yes
Modality	(0008,0060)	R	Universal	Enter Value	Yes
Image Level					
SOP Instance UID	(0008,0018)	U	Single value	Enter Value	Yes
Image Number	(0020,0013)	R	Universal	Enter Value	Yes

Table 9: Patient root and Study root query/retrieve attributes

The Find SCU can decode the following responses:

- **Success (0000)**: Success.
- **Refused (A702)**: Unable to perform sub operation (due to failure of a C-STORE).
- **Refused (A802):** Move destination unknown.
- **Refused (A700):** General refusal status.
- **Warning (B000):** General warning status.
- **Failure (C000)**: General failure status.
- **Pending (FF00)**: Sub-operation are Continue.

4. Communication Profile

4.1 Supported Communication Stacks

The MIPUBLISHER DICOM application provide DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.1.1 OSI Stack

Not Supported.

4.1.2 TCP/IP Stack

The MIPUBLISHER DICOM application uses the TCP/IP stack from the Windows NT system upon which it executes.

4.1.2.1 API

The MIPUBLISHER DICOM application is based on a TCP/IP socket interface.

4.1.2.2 Physical Media Support

The MIPUBLISHER DICOM application is indifferent to the physical medium over which TCP/IP executes; it inherits this from the Windows NT system upon which it executes Supported physical media includes:

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

4.1.3 Point-to-Point Stack

Not Supported.

5. Configuration

5.1 AE Title / Presentation Address Mapping

To ensure unique identification the hostname should be part of the AE Titles (e.g. Mi_myhost).

The string can be up to 16 characters long and must not contain any extended characters, only 7 bit ASCII characters (excluding control characters) are allowed according to DICOM standard.

Local AE Titels and Presentation Addresses

The local AETs can be configured using the Service application.
The following AETs can be entered:

- One common AET for Storage AE and Query/Retrieve AE SCP.
- Query/Retrieve AE SCU.

Storage listen on port 104.

Remote AE Titles and Presentation Addresses

For remote AETs, host names, IP addresses and port numbers can be configured using the Service application. For each AET a list of supported services can also be configured.

5.2 Configurable Parameters

5.2.1 Storage and Query Retrieve

The Service application can be used to set the AETs, port numbers, host names, IP addresses and capabilities for the remote nodes' (SCP's). The user can select operator and compression types for each SCP separately.

5.2.2 Time out Parameters

The Service application can be used to set all the following time out constants to a certain value depending on user input

- Time-out for accepting/rejecting an association request.
- Time-out for responding to an association open/close request.
- Time-out for accepting a message over network.
- Time-out for waiting for data between TCP/IP-packets.
- Time-out for waiting for receiving request\response for Storage, Query/Retrieve and Basic Worklist SCP/SCU.

5.3 Default Parameters

- maximal PDU size is set to 16384 Bytes