

# Image Stream Medical



## *nStream Version 3.1 DICOM Conformance Statement*

### **Revision History:**

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# 1. Introduction

This document describes the Image Stream Medical (ISM) nStream System's conformance to the ACR-NEMA DICOM (Digital Imaging and Communications in Medicine) standard and satisfies the DICOM requirement for a vendor conformance specification. The ISM nStream is a medical digital recording and image management device. The ISM nStream DICOM option provides a means to query a DICOM Modality Worklist (MWL) Application Entity SCP and to export images to DICOM storage. This Conformance Statement is intended for:

- Potential customers
- Software designer(s) & system integrator(s) of nStream
- Marketing staff interested in nStream functionality

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

## 1.1 DICOM Background

The DICOM information exchange specification provides a definitive structure of commands and information that allow for the inter-communication of medical imaging devices. Developed by the American College of Radiology (ACR) and the National Electrical Manufacturers Association (NEMA), the DICOM standard strives to promote communication of image information through the use of a standardized set of command classes and information semantics.

The DICOM standard defines classes of information that are common to many modalities of medical imaging. However, to meet the specific needs of information content for such a diverse range of information, the DICOM specification defines structures for a multitude of medical data. To alleviate the need for applications to implement every aspect of the DICOM specification, a list of conformance tables for every modality was created to define the minimum set of information necessary for data exchanges. A requirement of the DICOM specification is to maintain a compliance document that outlines a subset of DICOM services and data classes that are supported by an application. The purpose of this document is to define a subset of DICOM for the exchange of information with the nStream via its DICOM feature. This document is written with respect to the ACR-NEMA Digital Imaging and Communications in Medicine (DICOM) version number 3.0.

## 1.2 References

ACR-NEMA Digital Imaging and Communications in Medicine, DICOM V3.0. Digital Imaging and Communications in Medicine (DICOM) standard by the National Electrical Manufacturers Association (NEMA).

## 1.3 Definitions

- **Association Establishment** - An Association Establishment is the first phase of communication between two DICOM Application Entities (AE). 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 a data model which is an abstraction of 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 Service Class Provider plays the “server” role to perform operations and invoke notifications during an Association. An example of a Storage Service 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 Service Class User plays the “client” role to invoke operations and perform notifications during an Association. An example of a Storage Service Class User would be an image acquisition device. In this case, the image acquisition device will create and send a DICOM image by requesting that a Service Class Provider store that image.
- **Service/Object Pair (SOP) Class** - A SOP Class is defined by the union of an Information Object Definition and a 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 an 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 Unique Identifier is a globally unique, ISO compliant, ASCII-numeric string. It guarantees uniqueness across multiple countries, sites, vendors and equipment

## 1.4 Acronyms, Abbreviations and Symbols

ACC	American College of Cardiology
ACR	American College of Radiology
ASCII	American Standard Code for Information Interchange
AE	Application Entity
ANSI	American National Standards Institute
CEN TC251	Committee European de Normalization - Technical Committee 251 - Medical Informatics
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element – Composite
DIMSE-N	DICOM Message Service Element – Normalized

FSC	File Set Creator
FSR	File Set Reader
HIS	Hospital Information System
HL7	Health Level 7
IE	Information Entity
IOD	Information Object Definition
ISO	International Standards Organization
JIRA	Japan Industries Association of Radiological Systems
NEMA	National Electrical Manufacturers Association
OSI	Open Systems Interconnection
PDU	Protocol Data Unit
RIS	Radiology Information System
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier

### **1.5 Important Note**

The fact that equipment is compatible according to this Conformance Statement, does not in itself guarantee interoperability. Though compatibility with the DICOM standard has been tested, interoperability conflicts may arise when trying to use the ISM nStream with other devices. Interoperability does not lie within the scope of the DICOM standard.

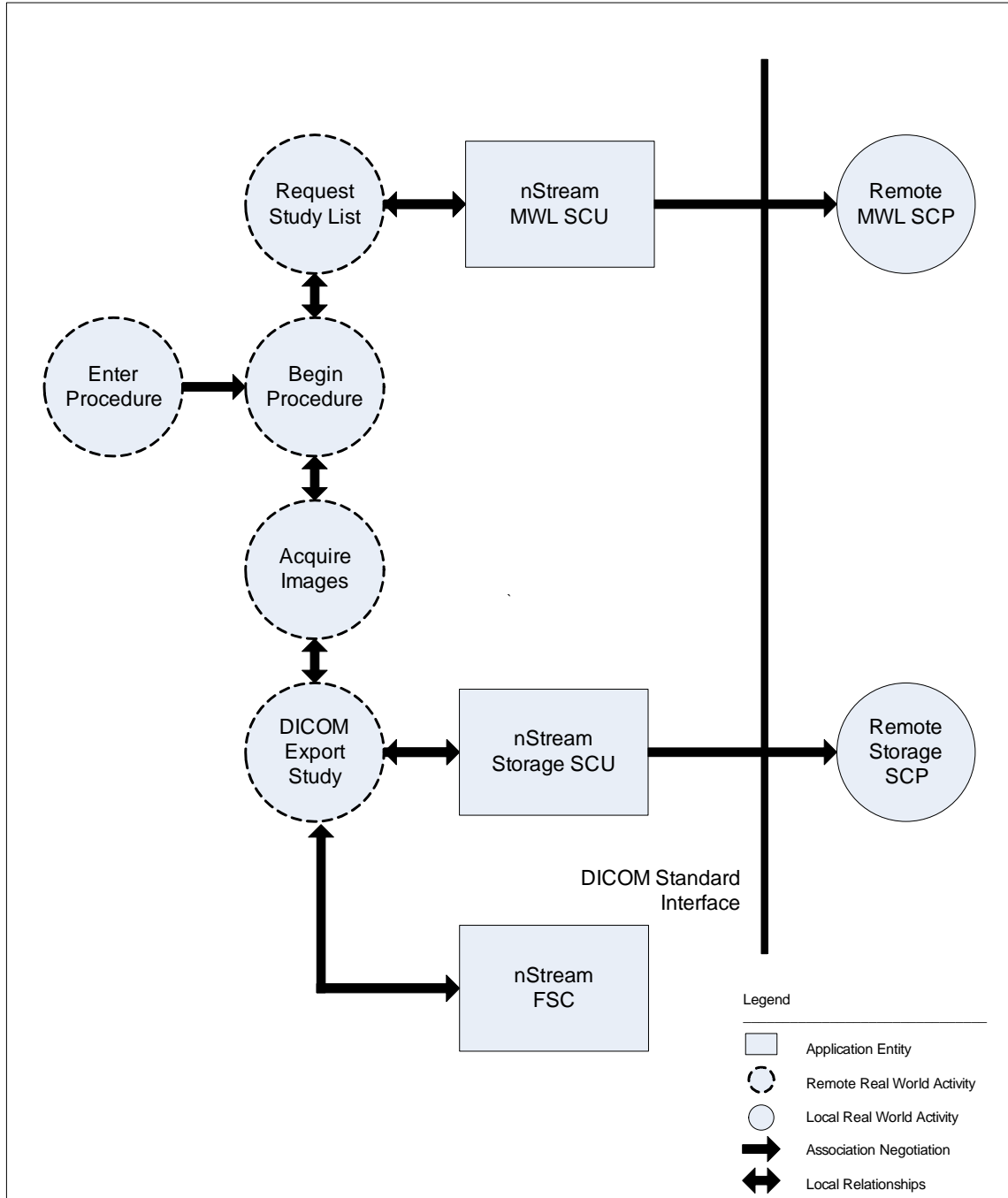
### **1.6 Implementation Model**

The ISM nStream DICOM feature incorporates the DICOM 3.0 standard for networked image store and Modality Worklist query functions. Exam requests are returned from the Modality Worklist server that allows the operator to select which exam request to perform. The data returned from the query includes patient demographic data that the operator is not required to enter manually. Additional patient information from the Modality Worklist server is passed on to the storage library with the associated images. Images are transferred from the ISM nStream system using standard network connections to be processed on a DICOM Storage SCP. The system can also export images to media conforming to DICOM Part 10 for reading by generic File Set Readers (FSR).

### **1.7 Application Data Flow Diagram**

The diagram below represents the relationship between the ISM nStream system's real-world activities that invoke of the device's Application Entity's local use of DICOM on the left side, and depicts the remote DICOM destination AE's on the right side. All Application Entities are in boxes.

**Figure 1.7-1 Application Data Flow Diagram**



## 1.8 Functional Definitions of AE's

**nStream Storage** - This AE handles sending images to a storage server using the DICOM C-STORE SCU Services. The remote SCP must support the Verification SOP Class. The Images may also be saved internally for later writing to media.

**nStream MWL** - This AE handles querying the Modality Worklist server as an SCU using the DICOM Basic Modality Worklist Service Class C-FIND service. It will locate

and retrieve study requests that match user defined criteria. The remote SCP must support Verification SOP Class as well.

The nStream Storage AE and nStream MWL AE are independent AE's and can function separately in the system.

## 1.9 Sequencing of Real-World Activities

For storing using the End Procedure commands, an association must be opened. The destination device must have successfully responded to the Verification SOP class (storage and Modality Worklist) prior to use. An association for Modality Worklist will be made when the user initiated query is executed.

## 2. AE Specifications

### 2.1 Storing AE - Specification

The Storing AE provides conformance to the following DICOM SOP Classes as an SCU:

Table 2.1-1 Supported DICOM SOP Classes

SOP Class Name	SOP Class UID	Conformance Level
Verification SOP Class	1.2.840.10008.1.1	Standard
VL Endoscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.1	Standard
VL Microscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.2	Standard
VL Photographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.4	Standard

#### 2.1.1 Association Establishment Policies

The system will open the association at the end of the exam, transfer the entire study, then close the association. If an error occurs and the connection is broken, the system will not reattempt association to transfer the remaining data. The user can manually attempt to retransmit the data from the Review Mode of the nStream application.

##### 2.1.1.1 General

Maximum PDU size offered: 32,768 bytes  
 Minimum PDU size accepted: 1,024 bytes

##### 2.1.1.2 Number of Associations

The Storing AE can initiate one simultaneous association.

Note that the other Application Entities in this device may be simultaneously active and thus other associations may be open simultaneously.

##### 2.1.1.3 Asynchronous Nature

The Storing AE will not use asynchronous operations.

**2.1.1.4 Implementation Identifying Information**

Implementation Class UID: “1.2.826.0.1.3680043.2.557.3.1”

Implementation Version name: “nStream\_v31”

**2.1.2 Association Initiation by: Real-World Activity**

The Storing AE will open an association to the Remote Storage SCP when the real-world activity occurs corresponding to the user invocation of Select Remote Storage SCP.

**2.1.3 Association Initiation by: Finish Patient**

The user invocation of Finish Patient will cause an association to be initiated to a Remote Storage SCP.

**2.1.4 Proposed Presentation Context to a Storage Server**

The presentation context is configurable from the SOPs in the following table. Any combination of Storage SOP Classes plus Verification may be configured via the associated device file. The system will only request the SOP Classes enabled therein. Therefore the Proposed Presentation Contexts are configuration dependent.

**TABLE 2.1.4-1 Storing AE Proposed Presentation Contexts to a Storage Server**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None
VL Endoscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None
VL Microscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.2	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None
VL Photographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.4	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None

**2.1.4.1 SOP Specific Conformance to Verification SOP Class**

The Storing AE provides standard conformance to the Verification SOP Class as an SCU. The remote SCP must support the Verification SOP Class on the same Association as the Storage SOP Class.

### 2.1.4.2 SOP Specific Conformance to VL Image Storage SOP Class

The Modality Worklist implementation will combine new image data with specific tags in various modules within the VL Photographic Image IOD, VL Endoscopic Image IOD or the VL Microscopic IOD. These additions are listed in Table 2.2.3.3-4 Worklist Attributes added to the standard DICOM image header for C-STORE.

#### VL Endoscopic Image Storage Modules Used:

IE	Module	Usage	Description
Patient	Patient	M	Used
	Clinical Trial Subject	U	Not used
Study	General Study	M	Used
	Patient Study	U	Used
	Clinical Trial Study	U	Not used
Series	General Series	M	Used
	Clinical Trial Series	U	Not used
Equipment	General Equipment	M	Used
Image	General Image	M	Used
	Image Pixel	M	Used
	Acquisition Context	M	Present
	VL Image	M	Used
	Overlay Plane	U	Not used
	SOP Common	M	Used

Each module which is used by the Storing AE has a table below which indicates the elements supported.

#### Patient Module Elements:

Name	Tag	Type	VR	Range	Description
Patient's Name	0010, 0010	2	PN		Used, when provided by MWL server or specified by Operator. Patient name with ^ delimiters, supporting LAST^FIRST^M only. As of 10.1.2, Last Name field may contain up to 64 characters. If Last is less, then first will be filled. If space remains, Middle is added. Tag will not exceed 64 characters total, including ^ delimiters.
Patient ID	0010, 0020	2	LO		Used, when provided by MWL server or specified by Operator.
Birth Date	0010, 0030	2	DA		Used, when provided by MWL server or specified by Operator.

Patient Sex	0010, 0040	2	CS		Used, when provided by the MWL server or specified by Operator. M, F, or O.
Referenced Patient Sequence		3			Not used
Patient's Birth Time		3			Not used
Other Patient ID		3			Not used
Other Patient Names		3			Not used
Ethnic Group		3			Not used
Patient Comments		3			Not used

### General Study Module Elements:

Name	Tag	Type	VR	Range	Description
Study Instance UID	0020, 000D	1	UI		System generated.
Study Date	0008, 0020	2	DA	yyyymmdd	Exam date
Study Time	0008, 0030	2	TM	hhmmss	Exam time
Referring Physician Name	0008, 0090	2	PN		Blank, unless provided by MWL server.
Study ID	0020, 0010	2	SH		System Generated.
Accession Number	0008, 0050	2	SH		Blank if none entered or provided by MWL server.
Study Description	0008, 1030	3	LO		Blank, unless provided by MWL server.

### General Series Module Elements:

Name	Tag	Type	VR	Range	Description
Modality	0008, 0060	1	CS	ES	ES, GM, or XC
Series Instance UID	0020, 000E	1	UI		Used
Series Number	0020, 0011	2	IS		Series number in exam
Laterality	0020, 0060	2C			Not used
Series Date	0008, 0021	3	DA	yyyymmdd	Used
Series Time	0008, 0031	3	TM	hhmmss	Used
Performing Physician's Name	0008, 1050	3	PN	1-n	Used
Protocol Name	0018, 1030	3			Not used
Series Description	0008, 103E	3			Not used.
Operator's Name	0008, 1070	3	PN	1-n	Used
Referenced Study Component Sequence	0008, 1111	3			Not used
Body Part Examined	0018, 0015	3			Not used
Patient Position	0018, 5100	2C			Not used
Smallest Pixel Value in Series	0028, 0108	3			Not used
Largest Pixel Value in Series	0028, 0109	3			Not used

### General Equipment Module Elements

Name	Tag	Type	VR	Range	Description
Manufacturer	0008,0070	2	LO	Image Stream Medical	Used
Institution Name	0008, 0080	3	LO	1	Used, from configuration file.
Institution Address		3			Not used
Station Name	0008, 1010	3	SH	1	Used, nStream station name from configuration file.
Institutional Department Name		3			Not used
Manufacturer's Model Name	0008, 1090	3			Not used
Device Serial Number		3			Not used
Software Version	0018, 1020	3	LO	1-n	Used , nStream application software version.
Spatial Resolution		3			Not used
Date of Last Calibration		3			Not used
Time of Last Calibration		3			Not used
Pixel Padding Value		3			Not used

### General Image Module Elements

Name	Tag	Type	VR	Range	Description
Image Number	0020, 0013	2	IS	1-n	Used, Image number in exam
Patient Orientation	0020, 0020	2	CS		Blank
Image Date	0008 ,0023	2C	DA	yyyymmdd	Used
Image Time	0008 ,0033	2C	TM	hhmmss	Used
Image Type	0008, 0008	2	CS	ORIGINAL/ PRIMARY	Used
Acquisition Number	0020, 0012	3			Not used
Acquisition Date	0008, 0022	3			Not used
Acquisition Time	0008, 0032	3			Not used
Image Comments	0020, 4000	3	LT		Used, when provided by user input for image annotation .

### Image Pixel Module Elements:

Name	Tag	Type	VR	Range	Description
Samples/ Pixel	0028, 0002	1	US	3	Color
Photometric Interpretation	0028, 0004	1	CS	RGB	Color
Rows	0028, 0010	1	US	480	Used
Columns	0028, 0011	1	US	640	Used
Bits Allocated	0028, 0100	1	US	8	Used
Bits Stored	0028, 0101	1	US	8	Used
High Bit	0028, 0102	1	US	7	Used
Pixel Representation	0028, 0103	1	US	0	Unsigned integers
Pixel Data	7FE0, 0010	1	OB		Used
Planar Configuration	0028, 0006	1C	US	0	0=Pixel
Aspect Ratio	0028, 0034	1C			Not used
Smallest Image Pixel Value	0028, 0106	3			Not used
Largest Image Pixel Value	0028, 0107	3			Not used
Red Palette Color Lookup Table Descriptor	0028, 1101	1C			Not used
Green Palette Color Lookup Table Descriptor	0028, 1102	1C			Not used
Blue Palette Color Lookup Table Descriptor	0028, 1103	1C			Not used
Red Palette Color Lookup Table Data	0028, 1201	1C			Not used
Green Palette Color Lookup Table Data	0028, 1202	1C			Not used
Blue Palette Color Lookup Table Data	0028, 1203	1C			Not used

### VL Endoscopic Image Module Elements:

Attribute Name	Tag	Type	VR	Range	Description
Image Type	0008,0008	1	CS	ORIGINAL/ PRIMARY	Used
Photometric Interpretation	0028,0004	1	CS	RGB	Used.
Bits Allocated	0028,0100	1	US	8	Used.
Bits Stored	0028,0101	1	US	8	Used
High Bit	0028,0102	1	US	7	Used
Pixel Representation	0028,0103	1	US	0	Used
Samples per Pixel	0028,0002	1	US	3	Used
Planar Configuration	0028,0006	1C	US	0	Used
Content Time	0008,0033	1C			Not used

Lossy Image Compression	0028,2110	2	CS	00	Used, if configured for compression.
Lossy Image Compression Ratio	0028,2112	2	DS	20	Used, if configured for compression.
Lossy Image Compression Ratio	0028,2114	2	CS	ISO_10918_1	Used, if configured for compression.
Referenced Image Sequence	0008,1140	1C			Not used
Referenced SOP Class UID	0008,1150	1C			Not used
Referenced SOP Instance UID	0008,1155	1C			Not used.

### SOP Common Module Elements:

Status Value	Meaning	Description	Storing AE Behavior
0000	Success		Upon successfully storing data to an archive server, the Storing AE will continue operation without user notification.
A7xx	Refused	Out of resources	The association is terminated. The user is notified of the failure.
A9xx	Error	Data set does not match SOP class	Same as A7xx.
Cxxx	Error	Cannot understand	Same as A7xx.
B000	Warning	Coercion of data elements	Ignored.
B007	Warning	Data set does not match SOP class	Same as A7xx.
B006	Warning	Elements discarded	Ignored.

## 2.1.5 Storing AE Behavior to SCP Status

### Storing AE Behavior to Status Returned from SCP:

Status Value	Meaning	Description	Storing AE Behavior
0000	Success		Upon successfully storing data to an archive server, the Storing AE will continue operation without user notification.
A7xx	Refused	Out of resources	The association is terminated. The user is notified of the failure.
A9xx	Error	Data set does not match SOP class	Same as A7xx.
Cxxx	Error	Cannot understand	Same as A7xx.
B000	Warning	Coercion of data elements	Ignored.
B007	Warning	Data set does not match SOP class	Same as A7xx.
B006	Warning	Elements discarded	Ignored.

## 2.2 Modality Work List AE - Specification

The Modality Worklist SOP Class in the Basic Worklist Service Class identifies the Modality Worklist Information Model, and the DIMSE-C operations supported. The following Standard SOP Class is used here:

SOP Class Name	SOP Class UID	Conformance Level
Verification SOP Class	1.2.840.10008.1.1	Standard
Modality Worklist Information Model – FIND	1.2.840.100008.5.1.4.31	Standard

### 2.2.1 Association Establishment Policies

The Modality Worklist AE will initiate an association under several conditions. The user may manually initiate a Worklist Update which will use the settings of the Automatic Query to determine the search criteria, and then issue the C-FIND command to the Modality Worklist server. After the requested data is returned, the association is closed.

The system may also be set for an automatic query to occur at intervals set by the user in the configuration screens.

#### 2.2.1.1 General

Maximum PDU size offered: 32,768 bytes

Minimum PDU size accepted: 1,024 bytes

#### 2.2.1.2 Number of Associations

The Modality Worklist AE can initiate one simultaneous association.

Note that the other Application Entities in this device may be simultaneously active and thus other associations may be open simultaneously.

#### 2.2.1.3 Asynchronous Nature

The Modality Worklist AE will not use asynchronous operations.

#### 2.2.1.4 Implementation Identifying Information

Implementation Class UID: “1.2.826.0.1.3680043.2.557.3.1”

Implementation Version name: “nStream\_v31”

### 2.2.2 Association Initiation by: Real-World Activity

Not Applicable.

#### 2.2.2.1 Association Initiation by: New Patient

The user invocation of New Patient will cause an association to be initiated to a Remote MWL SCP to retrieve patient demographic information.

**2.2.2.2 Association Initiation by: Update List**

Not Supported.

**2.2.2.3 Association Initiation by: New Patient Data Entry Panel**

Not Supported.

**2.2.2.4 Association Initiation by: Select Modality Worklist Server**

Upon exiting the configuration panel for selecting the Modality Worklist Server, the system will initiate a DICOM Ping to verify the Modality Worklist server is available. If available it will retrieve Modality Worklist data.

**2.2.3 Proposed Presentation Context to a Modality Worklist Server**

**TABLE 2.2.3-1 Modality Worklist AE Proposed Presentation Contexts to a Worklist Server:**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND	1.2.840.100008.5.1.4.3.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None
Verification SOP Class	1.2.840.10008.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None

**2.2.3.1 SOP Specific Conformance to Verification SOP Class**

The Modality Worklist AE provides standard conformance to the Verification SOP Class as an SCU. The remote SCP must support the Verification SOP Class on the same Association as the Worklist C-FIND Service.

**2.2.3.2 System Query Configuration Options**

**Table 2.2.3.2-1 System Query Configuration Options:**

Query Action	Location of Entry	Settings
When selecting “New Patient”	Patient Data Entry Screen	Query criteria set in Define Query
Upon User Request (Search)	Patient Data Entry Screen. After Worklist is present, and Patient Name, ID, Accession #, or specific date.	Query criteria set in Patient Data Entry Screen.

**2.2.3.2.1 System Query Functions**

**Table 2.2.3.2.1-1 Data Used For Different System Or User Queries.**

Query Type	Data Used	Located in:
Search (User Request)	Modality	Used

### 2.2.3.3 Attributes Used for Modality Worklist Information Model

**Table 2.2.3.3-1 System Query Matching Keys:**

Attribute Name	Tag	Key Type	Comments
Modality	0008,0060	R	User specified
Scheduled Station AE Title	0040,0001	R	As set in the Host Table for the selected system
Scheduled Station Name	0040,0010	O	System Name – Determined with CIS Administrator
Scheduled Procedure Step Location	0040,0011	O	System Location – Determined with CIS Administrator

**Table 2.2.3.3-2 Procedure Query Matching Keys:**

Attribute Name	Tag	Key Type	Comments
Patient's Name	0010,0010	R	Single Value Matching or Wild Card Matching
Patient ID	0010,0020	R	Single Value Matching
Scheduled Procedure Start Date	0040,0002	R	Current system date
Accession Number	0008,0050	O	
Requested Procedure ID	0040,1001	O	
Modality	0008,0060	R	

**Table 2.2.3.3-3 Returned Attributes:**

Attribute Name	Tag	Key Type	Comments
Accession Number	0008,0050	2	
Modality	0008,0060	1	
Referring Physician Name	0008,0090	2	
Patient's Name	0010,0010	1	
Patient ID	0010,0020	1	
Patient's Birth Date	0010,0030	2	
Patient's Sex	0010,0040	2	
Scheduled Station AE Title	0040,0001	1	
Scheduled Procedure Step Start Date	0040,0002	1	
Scheduled Procedure Step Start Time	0040,0003	1	
Scheduled Performing Physician's Name	0040,0006	2	
Scheduled Procedure Step Description	0040,0007	1C	
Scheduled Procedure Step ID	0040,0009	1	
Scheduled Station Name	0040,0010	2	
Scheduled Procedure Step Location	0040,0011	2	
Scheduled Procedure Step Sequence	0040,0100	1	
Requested Procedure ID	0040,1001	1	
Names Of Intended Recipients Of Results	0040,1010	3	

Note: All requested tags are sent blank, and blank return values are accepted. The following tags, if returned, will be added to the C-Store Image Header. This feature is configurable on the system.

**Table 2.2.3.3-4 Worklist Attributes Added To the Standard DICOM Image Header for C-Store:**

Attribute Name	Tag	Comments
Study Description	0008, 0030	Mapped from Scheduled Procedure Step Description (0040,0007)
Accession Number	0008, 0050	
Referring Physician Name	0008, 0090	
Series Description	0008, 103E	Mapped from Scheduled Procedure Step Description (0040,0007)
Patient's Name	0010, 0010	
Patient ID	0010, 0020	
Patient's Birth Date	0010, 0030	
Patient's Sex	0010, 0040	
Study Instance UID	0020, 000D	

Scheduled Procedure Step Description	0040, 0007	
Scheduled Procedure Step ID	0040, 0009	
Requested Procedure ID	0040, 1001	

## 2.2.4 Modality Worklist AE Behavior to SCP Status (C-FIND Response)

**Table 2.2.4-1 Modality Worklist AE Behavior to Status Returned From SCP:**

Status Value	Meaning	Related Fields	Description	Modality Worklist AE Behavior
0000	Success	None	Matching is Complete. No final Identifier is supplied.	Upon successfully connecting to a Modality Worklist server, and retrieving the requested data, the Modality Worklist AE will continue operation without user notification.
A700	Refused	0000, 0902	Out of resources	The association is terminated. The user is notified of the failure.
A900	Failed	0000, 0901 0000, 0902	Identifier does not match SOP class	Same as A7xx.
Cxxx	Failed	0000, 0901 0000, 0902	Unable to Process	Same as A7xx.
FE00	Cancel	None	Matching is Terminated due to Cancel Request	Terminated due to a Cancel Request.
FF00	Pending	Identifier	Matches are continuing.	Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.
FF01	Pending	Identifier	Matches are continuing.	Warning that one or more Optional Keys were not supported for existence for this Identifier.

## 3. Communication Profiles

### 3.1 TCP/IP Stack Supported

The TCP/IP protocol is used.

### 3.2 Physical Media Supported

Standard IEEE 802 (Ethernet) 10/100BaseT (twisted pair) is supported.

## 4. Extensions/Specializations/Privatizations

### 4.1 Standard Extended/Specialized/Private SOPs

None

### 4.2 Private Transfer Syntaxes

None

## **5. Configuration**

This device obtains configuration information at the time of installation to provide the following.

- Mapping from Application Entity Title to Presentation Address
- Device configuration information

### **5.1 AE Title/Presentation Address Mapping**

The translation from AE Title to Presentation Address is to be performed using a look up table loaded at installation or some other time.

### **5.2 Configurable Parameters**

- A lookup table contains the following configuration parameters.
- Application Entity Titles (Calling AE and Called AE)
- Node: hostname or IP address (e.g. host1.mynetwork.com or xxx.xxx.xxx.xxx )
- Remote SCP Port number.

## **6. Support of Extended Character Sets**

Extended character sets are not supported.