

<h1>NAI Technology Products</h1>	DWG. NO.	001-00301-00	Rev. A
	SHEET:	1	of 5
<h2>D O C U M E N T</h2>	This document is the property of North American Imaging, Inc.. Its use is authorized only for responding to a request for quotation or for the performance of work. All questions must be referred to North American Imaging, Inc. North American Imaging, Inc. forbids the reproduction or distribution of this document without prior		
SUBJECT:  <b>Worklist Manager DICOM Conformance Statement</b>			
SUPERSEDES	ALL	EFFECTIVE DATE:	

### 0.0 Introduction

This document describes the NAI Technology Products, North American Imaging, Inc., Worklist Manager conformance to the ACR-NEMA DICOM (Digital Imaging and Communications in Medicine) standard and satisfies the DICOM requirements for a vendor conformance specification.

The Worklist Manager, (WLM), acquires a patient worklist from a DICOM Modality Worklist server and transfers data from selected patients to a modality's patient data entry screen.

### 0.1 DICOM Background

The DICOM information exchange specification provides a definite structure of commands and information that allow for the interoperability 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 service class 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 medical information with the Worklist Manager product.

This document is written with respect to the ACR-NEMA DICOM version number 3.0.

# NAI Technology Products

DWG. NO. 001-00301-00 Rev. A

SHEET: 2 of 5

SUBJECT:

## Worklist Manager DICOM Conformance Statement

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### 0.2 Acronyms and Abbreviations

The following acronyms and abbreviations are used in this document.

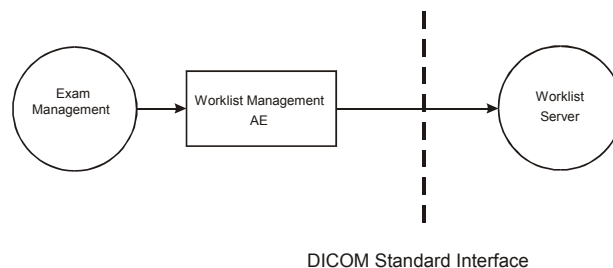
- ACR American College of Radiology
- AE Application Entity
- ANSI American National Standards Institute
- DICOM Digital Imaging and Communications in Medicine
- DIMSE DICOM Message Service Element
- IOD Information Object Definition
- NEMA National Electrical Manufacturers Association
- PDU Protocol Data Unit
- SCP Service Class Provider
- SCU Service Class User
- SOP Service Object Pair
- TCP/IP Transmission Control Protocol/Internet Protocol
- UID Unique Identifier
- WLM Worklist Manager

### 1.0 Implementation Model

The WLM is implemented as a single Application Entity, Modality Worklist SCU AE. The WLM acquires patient worklists from Modality Worklist Service Class Providers and transfers data from selected patients to a modality's patient data entry screen.

#### 1.1 Application Data Flow Diagram

Figure 1.1 - Implementation Model



# NAI Technology Products

DWG. NO. 001-00301-00 Rev. A

SHEET: 3 of 5

SUBJECT:

## Worklist Manager DICOM Conformance Statement

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### 1.2 Functional Definitions of AE

This AE acts as a Basic Worklist Management SCU and handles the worklist query, using selected search keys.

### 1.3 Sequencing of Real-World Activities

Real world activities are sequenced as required to meet the definition of the Service Classes. No additional sequencing activity is needed.

## 2.0 AE Specification

### 2.1 Basic Worklist Management AE - Specification

The Basic Worklist Management AE provides conformance to the following DICOM SOP Class as a SCU:

SOP Class Name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31

#### 2.1.1 Association Establishment Policies

The Basic Worklist Management AE will initiate an association with a Modality Worklist SCP in order to perform a worklist query.

##### 2.1.1.1 General

Maximum PDU size offered: 32,768 bytes

Maximum PDU size accepted: 65,536 bytes

##### 2.1.1.2 Number of Associations

The number of simultaneous associations for the Basic Worklist Management AE is one.

##### 2.1.1.3 Asynchronous Nature

The Basic Worklist Management AE will not use asynchronous operations window negotiation.

##### 2.1.1.4 Implementation Identifying Information

Implementation Class UID "1.2.840.113742.2.20010605"

Implementation Version name: "Aspect 2.8"

Notes: "113742" is registered by Aspect Electronics, Inc. with ANSI. The class UID and version name above are subject to change in subsequent versions.

#### 2.1.2 Association Initiation by real World Activity

The Basic Worklist Management AE will establish an association with a Modality Worklist SCP with only one active query at a time. The association is closed at completion of the query.

# NAI Technology Products

DWG. NO.	001-00301-00	Rev. A
SHEET:	4 of 5	

SUBJECT:

## Worklist Manager DICOM Conformance Statement

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### 2.1.2.1 Association Initiation by Opening New Exam/Worklist Search

The Basic Worklist Management AE will initiate an association with a Modality Worklist SCP when the operator presses the New/End Exam key when opening a new exam, or by selecting the Worklist Search menu item.

#### 2.1.2.1.1 Proposed Presentation Context to a Worklist SCP

Table 2.1.2.1.1 Worklist AE Proposed Context to Worklist SCP

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model	1.2.840.10008.5.1.4.31	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

#### 2.1.2.1.2 Modality Worklist Information Attributes

Table 2.1.2.1.2 Modality Worklist Information Model Attributes

Module	Attribute Name	Tag	Match Type	Return Type	Transferred to modality	Comments
Imaging Service Request	Accession Number	0008,0050	SV or UV	2	Yes	
Imaging Service Request	Referring Physician's Name	0008,0090	UV	2	No	
Patient Identification	Patient's Name	0010,0010	SV or UV	1	Yes	
Patient Identification	Patient ID	0010,0020	UV	1	Yes	
Patient Demographic	Patient's Birth Date	0010,0030	UV	2	Yes	
Patient Demographic	Patient's Sex	0010,0040	UV	2	Yes	
Requested Procedure	Study Instance UID	0020,000D	UV	1	No	
Requested Procedure	Requested Procedure Description	0032,1060	UV	1C	No	
Scheduled Procedure Step	Scheduled Procedure Step Sequence	0040,0100	(SQ)	1	No	
Scheduled Procedure Step	>Modality	0008,0060	SV or UV	1	No	
Scheduled Procedure Step	>Scheduled Station AE Title	0040,0001	UV	1	No	
Scheduled Procedure Step	>Scheduled Procedure Step Start Date	0040,0002	SV or UV	1	No	
Scheduled Procedure Step	>Scheduled Procedure Step Start Time	0040,0003	UV	1	No	
Scheduled Procedure Step	>Scheduled Performing Physician's Name	0040,0006	UV	2	No	
Scheduled Procedure Step	>Scheduled Procedure Step Description	0040,0007	UV	1C	No	

<h1>NAI Technology Products</h1>	DWG. NO.	001-00301-00	Rev. A
	SHEET:	5	of 5
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<p><b>3.0 Communication Profiles</b></p> <p><b>3.1 TCP/IP Stack Supported</b> The TCP/IP protocol is used.</p> <p><b>3.1.1 Physical Media Supported</b> Standard IEEE 802 (Ethernet) 10BaseT and 100BaseT are supported.</p> <p><b>4.0 Extensions/specializations/privatizations</b> None</p> <p><b>4.1 Standard Extended/Specialized/Private SOPs</b> None</p> <p><b>4.2 Private Transfer Syntaxes</b> None</p> <p><b>5.0 Configuration</b> This device obtains configuration information from two files:</p> <ul style="list-style-type: none"> <li>• \wlm\hosts\host.tbl – provides mapping from Application Entity Title to Presentation Address</li> <li>• \wlm\atl_wlm.ini – provides device configuration information</li> </ul> <p><b>5.1 AE Title/Presentation Address Mapping</b> Each entry in the host.tbl file provides mapping of the AE Title to Presentation Address. A Presentation Address consists of a host name, IP address, and port number. Each line has the following format:            &lt;host name&gt; &lt;IP address&gt; &lt;port number&gt; &lt;AE title&gt;  The \wlm\hosts\host.tbl file is used by the WLM to establish associations to remote Application Entities.</p> <p><b>5.2 Configurable Parameters</b> The following parameters are configurable:</p> <ul style="list-style-type: none"> <li>• Application Entity Title</li> <li>• IP Address</li> <li>• Sub-net mask</li> <li>• Gateway IP address</li> <li>• Port number</li> </ul> <p><b>6.0 Support of Extended Character Sets</b> The extended character set, ISO_IR 100, is supported.</p>			