

1 Introduction

1.1 Scope and Field of Application

This document specifies the compliance of the MagView™ and RadView™ software systems to the DICOM standard, as implemented through the MagLink DICOM™ software suite. The goal of this document is to outline the expected behavior of the software in response to DICOM service requests. This document is available upon request to anyone who wishes to operate MagView™ or RadView™ in tandem with DICOM-compliant devices, or who wants to know more about how the MagLink DICOM™ software interface works.

1.2 Intended Audience

Readers of this document should be familiar with the DICOM standard version 3.0 as published by NEMA. This document will be fully understandable only by reference to that standard, which provides the definitions for DICOM terms used throughout. This document is intended for programmers and system integrators, in order to facilitate understanding of the potential interoperability of the MagView™ and RadView™ systems with other systems using DICOM technology.

1.3 References

This document makes frequent use of definitions, abbreviations, and concepts defined in the DICOM Standard, entitled:

**DIGITAL IMAGING AND COMMUNICATIONS IN MEDICINE
NEMA PS 3.1-16**

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1300 N. 17TH STREET
ROSSLYN, VIRGINIA 22209 USA**

It is also available, with the exception of part 9 (not used in this document) over the web at:

<http://medical.nema.org/dicom/2003.html>

1.4 Necessary Considerations

This document alone is not sufficient to ensure the interoperability of MagView™ with other vendors' systems. Applied Software, Inc. has a high level of commitment to working with clients to ensure this interoperability, but in all cases, hardware, network, and other compatibilities must be verified and any problems, if present, must be remedied. If any questions exist, please contact the Applied Software Support Department at 1.800.553.8996, option 2 and ask for a DICOM interface specialist or a service manager.

1.5 More Information

Recognized as a leader in Mammography Information Management for more than 15 years, MagView™ offers scalable mammography software for mammography tracking, mammography reporting and MQSA outcome monitoring to meet the needs of every mammography department or practice. MagView is flexible enough to adapt to the requirements of your group, and powerful enough to efficiently automate your patient workflow.

The RadView™ radiology billing system is a powerful tool for Radiology billing that has been proven reliable and effective for more than 20 years in the healthcare billing environment. RadView™ includes many features that improve the efficiency of the Radiology billing environment, generate cost savings to the Radiology practice, and help increase reimbursement and collections.

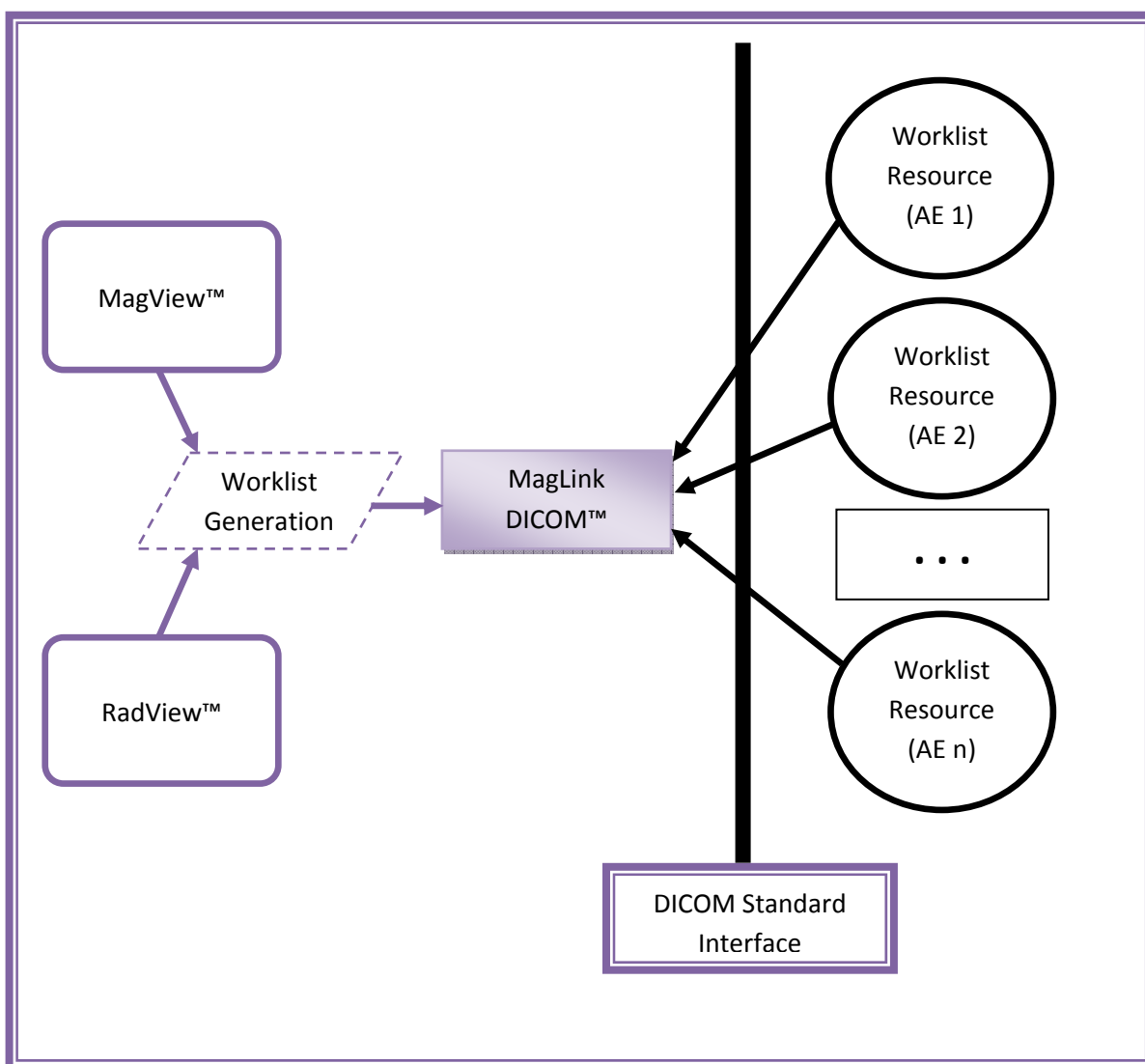
For more information about the MagView™ and RadView™ software products, as well as the other products and services that Applied Software has to offer, please visit www.magview.com. You can also call the MagView Sales Department at 1.888.MagView (1.888.624.8439) or e-mail sales@magview.com.

2 Implementation Model

MagView™ and RadView™ DICOM compliance is managed by an intermediary application called MagLink DICOM™ which handles the processing of all DICOM network messaging. This is a Windows-based application which remains resident permanently on a server at the client facility.

2.1 Application Flow Diagram

The diagram below illustrates the relationship of the MagLink DICOMJ program with other DICOM-conformant applications.



NOTE: The MagLink DICOM application shown above runs independent of the MagView™ and RadView™ applications, and can receive messages whenever it is running, regardless of the state of either MagView™ and RadView™. The same application will send and receive messages to the remote operator.

2.2 Functional Definitions of Application Entities

The MagLink DICOM application operates as an SCP for the Worklist Management SOP and Verification SOP. As a Worklist Management AE, it performs queries on local databases (created through the functioning of MagView™ and/or RadView™) and formats results to return to the requesting entity. As a Verification AE, it returns an echo message to confirm connectivity.

2.3 Sequencing of Real World Activities

Not applicable in this implementation.

3 Application Entity Specifications

3.1 MagLink DICOM™ Services Specification

MagLink DICOM™ provides the following services.

SOP Class Name	SOP Class UID
Modality Worklist Information Model Find	1.2.840.10008.5.1.4.31
Verification	1.2.840.10008.1.1

3.1.1 Association Establishment Policies

3.1.1.1 General

MagLink DICOM™ references a table which contains the AE title, host name, and port number of every SCU it will interact with, and must be set up with that information before accepting any messages. No associations will be initiated, as the application functions solely as a provider.

3.1.1.2 Number of Associations

The default maximum number of associations permitted is 10 by default; this number may be raised or lowered as bandwidth and applications require.

3.1.1.3 Synchronous Nature

All operations are synchronous.

3.1.1.4 Implementation Identifying Information

The Implementation Class UID is: 1.2.826.0.1.3680043.2.783.1.1

The Implementation Name is: MLDICOM_001

3.1.2 Association Initiation by Real World Activity

MagLink DICOM™ initiates associations by user request only to verify connectivity with a remote system. Worklist requests associations are initiated by the requesting system.

3.1.2.1 Verify Communication with a Remote System

3.1.2.1.1 Associated Real-World Activity

A user requests confirmation of connectivity with a remote system from the local user interface, or a remote system requests verification.

3.1.2.1.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR, Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR, Little Endian	1.2.840.10008.1.2.1		
		Explicit VR, Big Endian	1.2.840.10008.1.2.2		

3.1.2.1.3 SOP Specific Conformance Statement for SOP Class Verification

Standard conformance is provided.

3.1.3 Association Acceptance Policy

MagLink DICOM™ will accept an association request from a known Application Entity in order to verify connectivity or to request a Modality Worklist.

3.1.3.1 Verification of Connectivity at Remote Request

3.1.3.1.1 Associated Real World Activity

The remote user issues a request to confirm connectivity with the MagLink DICOM™ system. The remote system requests an association for this purpose.

3.1.3.1.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
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		
		Explicit VR, Big Endian	1.2.840.10008.1.2.2		

3.1.3.2 Create a Modality Worklist for a Remote System

3.1.3.2.1 Associated Real-World Activity

A remote system queries the MagLink DICOM™ interface for a modality worklist.

3.1.3.1.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Modality Worklist Information Model Find	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		
		Explicit VR, Big Endian	1.2.840.10008.1.2.2		

Provided keys for Modality Worklist Management		
Module	Description	Tag
Scheduled Procedure Step	Scheduled Procedure Step Sequence	(0040, 0100)
	> Scheduled Station AE Title	(0040, 0001)
	> Scheduled Procedure Step Start Date	(0040, 0002)
	> Scheduled Procedure Step End Date	(0040, 0003)
	> Modality	(0008, 0060)
	> Scheduled Performing Physician	(0040, 0006)
	> Scheduled Procedure Step Description	(0040, 0007)
	> Scheduled Station Name	(0040, 0010)
	> Scheduled Procedure Step Location	(0040, 0011)
Requested Procedure	Requested Procedure ID	(0040, 1001)
	Requested Procedure Description	(0032, 1060)
	Study Instance UID	(0020, 000D)
Imaging Service Request	Accession Number	(0008, 0050)
	Requesting Physician	(0032, 1032)
	Referring Physician's Name	(0008, 0090)
	Study Status ID	(0032, 000A)
Patient Identification	Patient's Name	(0010, 0010)
	Patient ID	(0010, 0020)
	Other Patient ID	(0010, 1000)
Patient Demographic	Patient's Birth Date	(0010, 0030)
	Patient's Sex	(0010, 0040)
	Patient's Size	(0010, 1020)
	Patient's Weight	(0010, 1030)
	Patient's Address	(0010, 1040)
	Country of Residence	(0010, 2150)
	Region of Residence	(0010, 2152)
	Patient's Telephone Numbers	(0010, 2154)
	Ethnic Group	(0010, 2160)
	Patient Comments	(0010, 4000)

MagLink DICOM™ supports Single Value matching, Universal matching, and Range matching on relevant fields. If a particular field's data is not available for the particular response, the field will be returned as empty. MagLink DICOM™ will attempt to retrieve information for every field requested, if supported by the underlying configuration.

4 Communication Profile

4.1 Supported Communication Stacks

The MagLink DICOM™ interface only supports the TCP/IP protocol (inherited from a Microsoft Windows™ operation system).

4.2 TCP/IP Stack

MagLink DICOM™ uses the TCP/IP protocol to communicate with remote application entities as specified in Part 8 of the DICOM standard v3.0.

4.2.1 API

MagLink DICOM™ uses the Microsoft Windows™ Winsock API to provide network connectivity over IP. The stack is inherited from the local operating system it executes under.

4.2.2 Physical Media Support

MagLink DICOM™ operates the same irrespective of the medium of communication.

5 Extensions/Specializations/Privatizations

No extensions to the DICOM standard have been performed. For more information, please contact Applied Software, Inc. at 1.800.553.8996.

6 Configuration

All configuration of the MagLink DICOM™ interface is done through modification of the local configuration utility of the MagLink DICOM™, and shall be performed only by a representative of Applied Software, Inc whenever set-up or configuration changes are necessary.

If you have any questions about the initial configuration of a DICOM interface or questions about changing the current configuration of an existing DICOM interface, please contact Applied Software, Inc. at 1.800.553.8996 and a DICOM Interface Engineer will be assigned to assist in the configuration process.

6.1 AE Title/Presentation Address Mapping

The AE Title-Presentation Address mapping will be performed by an Applied Software representative for each client. In order to perform this, the IP address or host name, port number, and AE title of the remote application entity must be provided.

6.2 Configurable Parameters

The operation of MagLink DICOM™ is configurable with respect to all required and optional keys.

6.2.1 Maximum number of associations

The default maximum number of associations defaults to 10, but can be increased or decreased if necessary.

NOTE: An Applied Software, Inc. DICOM Interface engineer must perform all configuration setup and changes

7 Support for Extended Character Sets

MagLink DICOM™ currently supports only the default character set. Please contact Applied Software, Inc. at 1.800.553.8996 if this does not meet your needs.