



MediaWriter™
DICOM Conformance Statement

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PACSGEAR, Inc. - Proprietary

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1 Introduction

This conformance statement is designed to communicate technical information regarding the PACSGEAR MediaWriter product and its compliance to the DICOM 3.0 standard. MediaWriter provides users a simple method of gathering and writing DICOM files to CDs/DVDs, USB memory sticks or flash memory.

2 Implementation Model

2.1 Application Data Flow Diagram

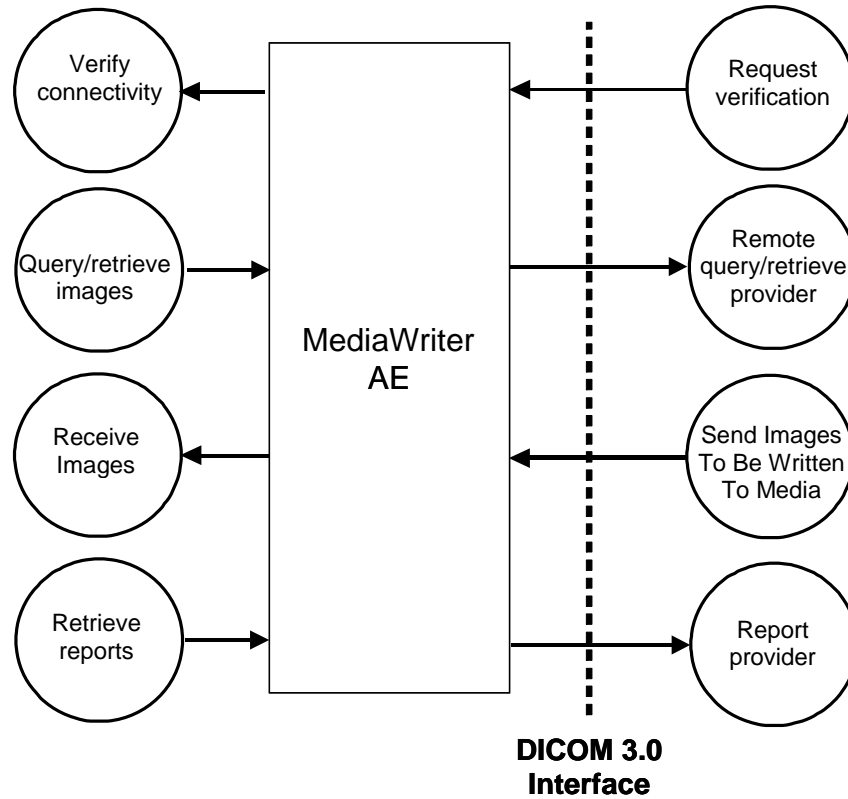


Figure 1. MediaWriter Implementation Model

MediaWriter provides a simple method of writing DICOM studies to various media types.

2.2 Functional Definition of AE's

The MediaWriter Application Entity supports the following four SCU/SCP functions:

- **Query/Retrieve Images**
This AE is responsible for the management of DICOM Query/Retrieve SCU activities.
- **Retrieve Reports**
This AE is responsible for retrieving relevant reports from a Mitra Report SCP.
- **Receive Images**
This AE provides the ability to receive and store images as a DICOM Storage SCP.
- **Verify Connectivity**
This AE provides the ability to acknowledge DICOM network connectivity as a DICOM Verification SCP.

2.3 Sequencing of Real-World Activities

Not applicable.

3 AE Specifications

3.1 MediaWriter AE Specifications

The MediaWriter AE provides standard conformance to the following DICOM 3.0 SOP classes as an SCU.

SOP Class Name	SOP Class UID
Study Root Q/R Information Model – Find	1.2.840.10008.5.1.4.1.2.2.1
Study Root Q/R Information Model – Move	1.2.840.10008.5.1.4.1.2.2.2
Mitra Report Management	1.2.840.113532.3500.8

The MediaWriter AE provides standard conformance to the following DICOM 3.0 SOP classes as an SCP. Please, note any additional class not listed may be added via configuration.

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
DX Image Storage (Presentation)	1.2.840.10008.5.1.4.1.1.1.1
DX Image Storage (Raw)	1.2.840.10008.5.1.4.1.1.1.1.1
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1
US Multi-Frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
SC Image Storage	1.2.840.10008.5.1.4.1.1.7
MG Storage (Presentation)	1.2.840.10008.5.1.4.1.1.1.2
MG Storage (Raw)	1.2.840.10008.5.1.4.1.1.1.2.1
Multi-frame True Color Secondary Capture Image	1.2.840.10008.5.1.4.1.1.7.4
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2
NM Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5
NM Image Storage	1.2.840.10008.5.1.4.1.1.20

XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1
RF Image Storage	1.2.840.10008.5.1.4.1.1.12.2
Standard PET Image	1.2.840.10008.5.1.4.1.1.128
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33

3.1.1 Association Establishment Policies

3.1.1.1 General

The maximum PDU size for any association establishment that is offered is 512 Kbytes.

3.1.1.2 Number of Associations

The MediaWriter AE can establish up to twenty simultaneous associations. This number is configurable.

3.1.1.3 Asynchronous Nature

The MediaWriter AE does not support asynchronous communication.

3.1.1.4 Implementation Identifying Information

The implementation identifying information for this DICOM 3.0 implementation is:

Implementation Class UID	1.2.7741.122
Version Name	pacsgear_dicom

Figure 2. Implementation Identifying Information

3.1.2 Association Initiation By Real-World Activity

3.1.2.1 Real-World Activity – Query/Retrieve Images

3.1.2.1.1 Associated Real-World Activity

The user is presented with a patient list that allows them to query one or more PACS archives by issuing one or more (C-Find) requests. After a user has selected one or more studies for a patient and has submitted the job, a retrieve (C-Move) will occur for the requested studies back to the MediaWriter station.

3.1.2.1.2 Presentation Contexts

Proposed Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Study Root Query/Retrieve Information Model – Find	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	SCU	None
Study Root Query/Retrieve Information Model – Move	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	SCU	None

Figure 3. Presentation Context Table – Query/Retrieve Images

3.1.2.1.2.1 SOP Specific Conformance for Study Root Query/Retrieve

Standard conformance is provided to the DICOM Study Root Q/R Service class.

This table contains the DICOM keys that are utilized by the MediaWriter AE when issuing a DICOM Q/R C-FIND request. The C-FIND request will always use the study root information model.

DICOM Attribute	Comment
(0008,0020) Study Date	A date range can be specified
(0008,0050) Accession Number	User can attempt an exact match
(0008,0052) Query/Retrieve Level	The value is always "STUDY"
(0008,0060) Modality	User can search for a specific modality
(0010,0010) Patient Name	User can narrow the search
(0010,0020) Patient ID	User can attempt an exact match
(0010,0030) Patient Birth Date	The specific birth date can be specified
(0010,0040) Patient Sex	
(0020,1208) No. of Study Related Instances	
(0020,000D) Study Instance UID	

Figure 4. DICOM Q/R C-FIND Attributes

3.1.2.2 Real-World Activity – Retrieve Reports

3.1.2.2.1 Associated Real-World Activity

A user has the ability to retrieve relevant reports using the Mitra Report Management service and have the reports placed on the specified media.

3.1.2.2.2 Presentation Contexts

Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Mitra Report Management	1.2.840.113532.3500.8	Implicit VR Little Endian	SCU	None

Figure 5. Presentation Contexts – Mitra Report Management

3.1.2.2.2.1 SOP Specific Conformance for Mitra Report Management

Standard conformance is provided to the DICOM Mitra Report Management Service Class.

3.1.3 Association Acceptance Policy

3.1.3.1 Real-World Activity – Verify Connectivity

The MediaWriter AE will accept associations for C-Echo and provide standard conformance to the DICOM Verification Service class.

3.1.3.1.1 Proposed Presentation Contexts

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

3.1.3.2 Real-world Activity – Receive Images

The MediaWriter AE will accept associations for C-Storage requests and provide standard conformance to the DICOM Storage Service class for the purpose of caching studies that will be placed on media.

3.1.3.2.1 Presentation Contexts

Proposed Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
DX Image Storage (Presentation)	1.2.840.10008.5.1.4.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
DX Image Storage (Raw)	1.2.840.10008.5.1.4.1.1.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		

Proposed Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
US Multi-Frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		

Proposed Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
MG Storage (Presentation)	1.2.840.10008.5.1.4.1.1.1.2	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
MG Storage (Raw)	1.2.840.10008.5.1.4.1.1.1.2.1	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
NM Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		

Proposed Presentation Context Table									
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation				
Name	UID	Name	UID						
XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1	JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCP	None				
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91						
		Implicit VR Little Endian	1.2.840.10008.1.2						
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50						
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51						
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70						
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90						
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91						
RF 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				
		JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50						
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51						
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70						
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90						
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91						
		Standard PET Image	1.2.840.10008.5.1.4.1.1.128			Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
						JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50		
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51								
JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70								
JPEG 2000 Lossless	1.2.840.10008.1.2.4.90								
JPEG 2000 Lossy	1.2.840.10008.1.2.4.91								
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11			Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None		
				JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50				
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51						
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70						
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90						
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91						
		Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian	1.2.840.10008.1.2			SCP	None
				JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50				
JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51								
JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70								
JPEG 2000 Lossless	1.2.840.10008.1.2.4.90								
JPEG 2000 Lossy	1.2.840.10008.1.2.4.91								
Comp. SR Storage	1.2.840.10008.5.1.4.1.1.88.33			Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None		
				JPEG Baseline-Process 1	1.2.840.10008.1.2.4.50				
		JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51						

Proposed Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
		JPEG Lossless Non-Hierarchical	1.2.840.10008.1.2.4.70		
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90		
		JPEG 2000 Lossy	1.2.840.10008.1.2.4.91		

4 Communication Profiles

4.1 Supported Communication Stacks

The MediaWriter AE provides DICOM 3.0 TCP/IP network communication support as defined in PS 3.8.

4.2 TCP/IP Stack

The MediaWriter AE implements DICOM 3.0 on top of the Windows TCP/IP stack.

4.2.1 Physical Media Support

The MediaWriter AE is indifferent to the physical medium over which TCP/IP executes.

5 Extension/Specialization/Privatization

Not applicable.

6 Configuration

The following items related to DICOM are configurable for the MediaWriter AE:

- Local AE Title
- Remote Query/Retrieve AE Titles
- Remote Query/Retrieve IP Address'
- Remote Query/Retrieve Ports
- Local Server Ports
- Supported Transfer Syntaxes
- Supported Abstract Syntaxes
- Server Socket Timeout
- Client Socket Timeout

Please note that one or more remote query locations can be configured.

7 Media Interchange

7.1 Implementation Model

7.2 Application Data Flow Diagram

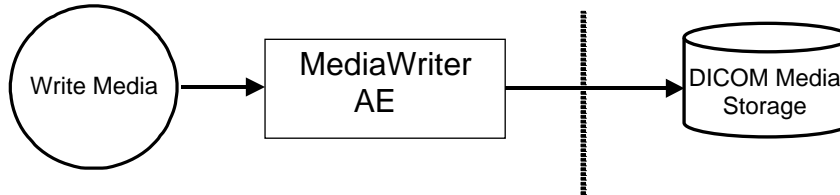


Figure 6. MediaWriter Implementation Model

MediaWriter provides the user the ability to write DICOM studies to various media types including CDs and DVDs.

7.3 Functional Definition of AE

7.3.1 Sequencing of Real-World Activities – Write Media

The MediaWriter AE provides standard conformance to the following DICOM 3.0 Interchange option for Media Storage service class with the following profiles and roles.

Application Profiles	Real World Activity	Role	SC Option
STD-GEN-CD	Write to a CD	FSC	Interchange
STD-GEN-DVD	Write to a DVD	FSC	Interchange

The MediaWriter AE supports writing to media the same set of SOP classes that are supported by storage.

8 Extended Character Sets

Not applicable.