Applies to Version 3.10

DICOM 3.0 Conformance Statement

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1. Conformance Statement Overview

Table 1.1
Network Services

SOP Classes	*User of Service (SCU)*	*Provider of Service (SCP)*
Query and Retrieve		
Study Root Query/Retrieve Information Model—Find	Yes	Yes
Study Root Query/Retrieve Information Model—Move	Yes	Yes
Transfer		
(see note 1)	Yes	Yes

1. All conforming DICOM SOP classes for Composite IODs are supported in SCU and SCP roles. Includes SOPs listed in DICOM PS3.4:B.5-1 Standard SOP Classes, as well as private SOPs. Association acceptance is determined by configuration.

Table 1.2
Media Services

Media Storage Application Profile	*Write Files (FSC)*	*Read Files (FSR)*
CD—Recordable		
General Purpose CD-R	See conformance note	Yes
General Purpose Secure CD-R	See conformance note	No
DVD—Recordable		
General Purpose DVD-R	See conformance note	No
General Purpose Secure DVD-R	See conformance note	No

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2. Table of Contents

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3. Introduction

This document describes the conformance of the Vertex Application Suite to the DICOM 3.0 Standard [DICOM].

3.1. Revision History

Revision	Author	Comments	Date
1	Cyrus Samari	Created	9/18/2015
2	Dion Barrier	Revised	04/27/2020
3	Dion Barrier	Revised	11/01/2023

3.2. Audience

This document is intended for the audience listed below. It is assumed that the reader has a working knowledge of the DICOM Standard.

The document structure was designed for easier access to relevant information for different user groups:

- Clinical Users, who want to get an overview of the implemented interoperability features of the system can see Section 4 Implementation Model
- Personnel involved in Sales can use Section 1 to assess the compatibility between different systems involved in a sales situation.
- Systems Integrators can use information in Section 6 during system installation and information from Section 5 Service and Interoperability Description for details regarding the implemented services.
- Field Service Engineers can use the details from Section 5 Service and Interoperability Description and from Section 6 Network and Media Communication Details for troubleshooting.
- Hospital IT staff focusing on security can use the details provided in Section 8 Security regarding implemented Security features.

3.3. Remarks

3.3.1. Disclaimer

The scope of this DICOM Conformance Statement is to facilitate integration between Vertex and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability.

- The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.
- This Conformance Statement should not replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, it is the user's responsibility to perform the following activities:
    - The comparison of Conformance Statements from Vertex with other DICOM conformant equipment is the first step towards assessing interconnectivity and interoperability between those systems.

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- Test procedures should be defined and executed to validate the required level of interoperability with specific DICOM conformant equipment, as established by the healthcare facility.

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3.3.4. Contact Address

Sorna Corporation
4101 Nicols Road
Eagan, MN 55122

3.4. Definitions, Terms and Abbreviations

AE	Application Entity
ANSI	American National Standard Institute
DICOM	Digital Imaging and Communications in Medicine
FSR	File Set Reader
FSC	File Set Creator
IOD	Information Object Definition
ISO	International Organization for Standardization
NEMA	National Electrical Manufacturers Association
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
XML	eXtensible Markup Language

3.5. References

[DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-3.22, 2023d

4. Implementation Model

4.1. Storage SCP AE

4.1.1. Application Data Flow Diagram

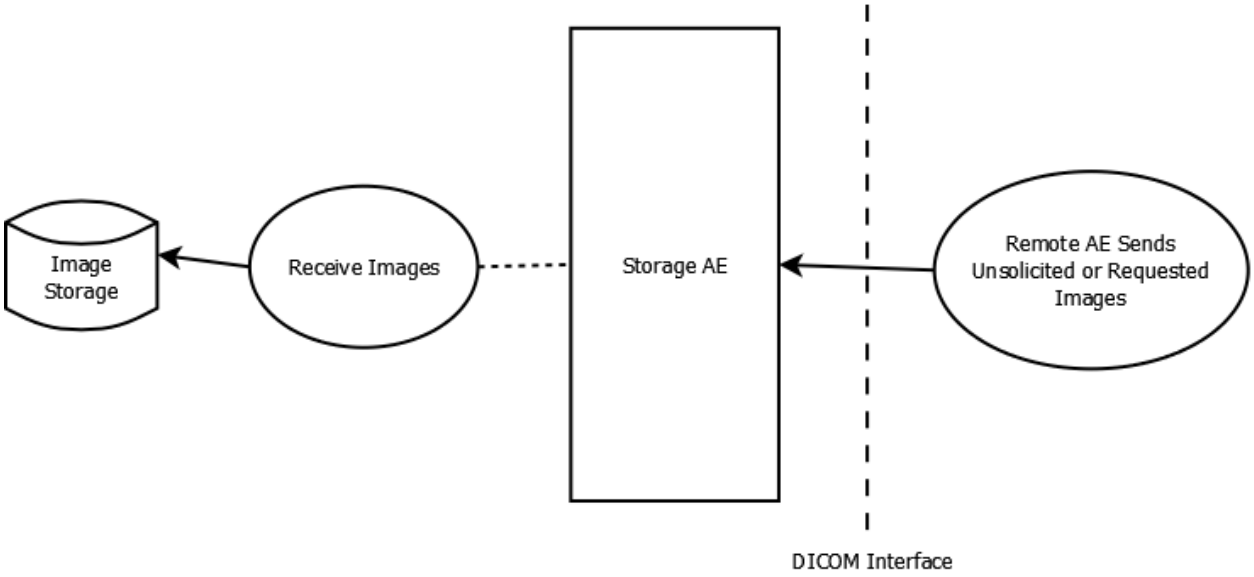

Figure 4.1—Storage SCP AE Dataflow

4.1.2. Functional Definition of AE

The Storage SCP AE accepts connections to the configured AE title's presentation address. Associations having presentation contexts with Storage SOP classes will be accepted.

4.1.2.1. Receive Images

The Receive Images operation is initiated by a successful association with a remote AE requesting to store images. Images received from the remote AE are sent to an image storage system(s). The system(s) to which received images are sent are determined by configuration for the destination AE title.

4.1.3. Sequencing of Real World Activities

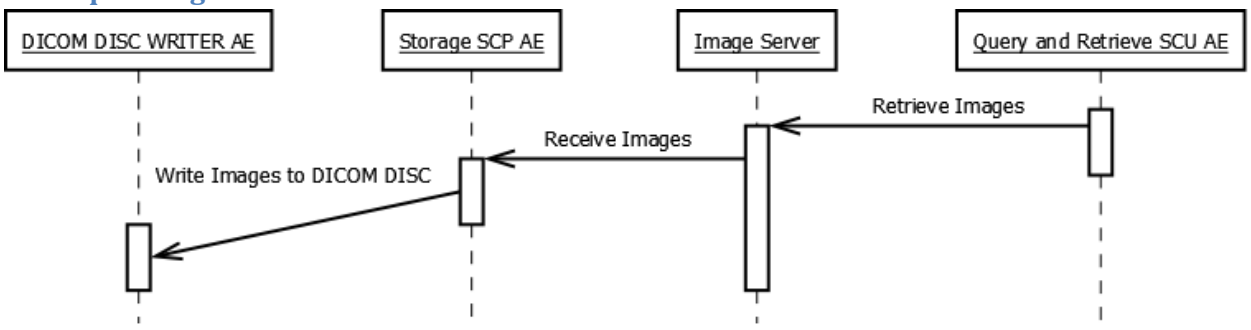

Figure 4.2—Example Real World Activity for Storage SCP AE

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4.2. Storage SCU AE

4.2.1. Application Data Flow Diagram

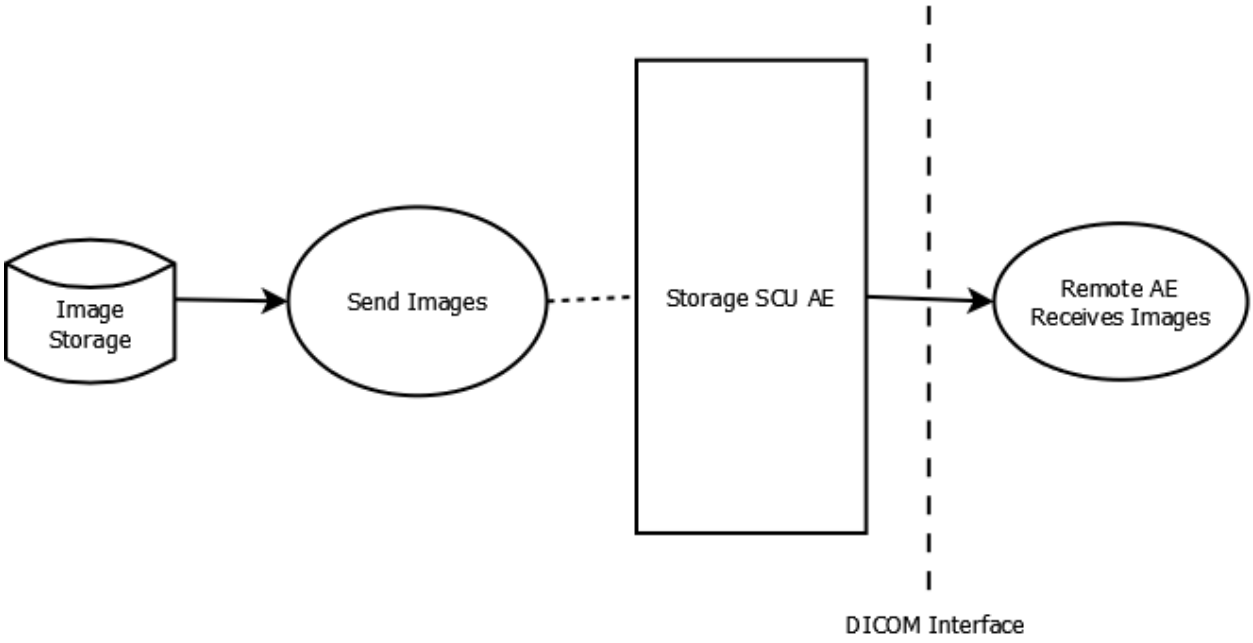

Figure 4.3—Storage SCU AE Dataflow

4.2.2. Functional Definition of AE

4.2.2.1. Send Images

The Send Images operation is initiated in response to Query and Retrieve or DICOM DISC media import operations. An association is initiated with the destination AE and is followed by a transfer of the requested images using C-Store operations.

4.2.3. Sequencing of Real World Activities

Not Applicable

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4.3. DICOM DISC Writer AE

4.3.1. Application Data Flow Diagram

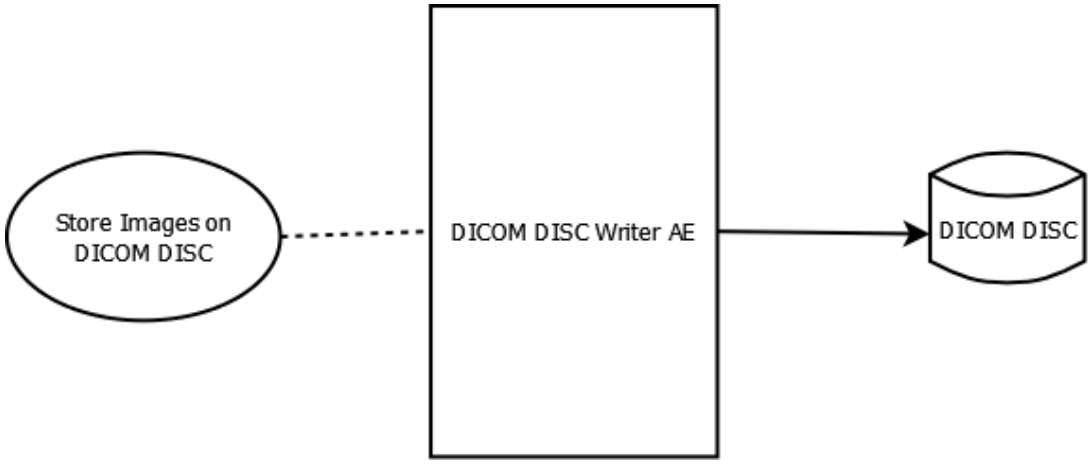

Figure 4.4—DICOM DISC Writer AE Dataflow

4.3.2. Functional Definition of AE

4.3.2.1. Store Images on DICOM DISC

The operation Store Images on DICOM DISC is initiated by the existence of a job production order in the build queue. Images bundled with the job will be conveyed to a DICOM DISC. Job production orders may include the following options:

- **Data Encryption**—writes images in Secure DICOM File Format.
- **Re-identification**—modifies patient demographic information.
- **DISC Write Verification**—verifies successful creation of DISC media.
- **Include Structured Reports**—retrieves associated structured reports from image source.

4.3.3. Sequencing of Real World Activities

Not applicable

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4.4. Query and Retrieve SCU AE

4.4.1. Application Data Flow Diagram

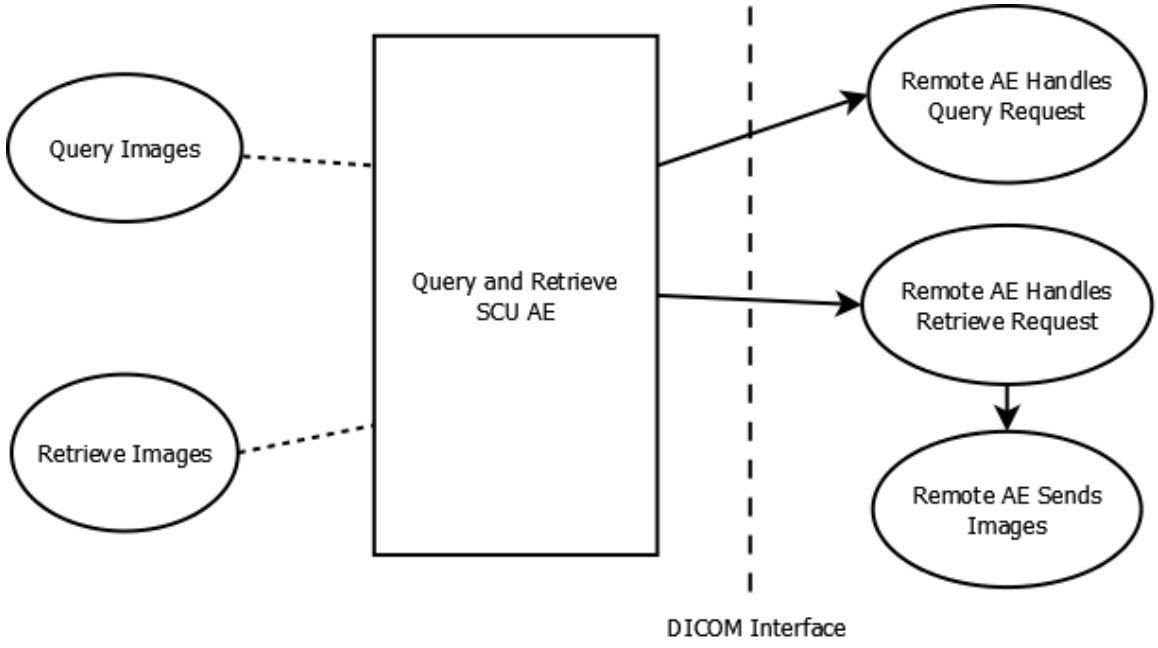

Figure 4.5—Query and Retrieve SCU AE Dataflow

4.4.2. Functional Definitions of AE

4.4.2.1. Query Images

Query Images establishes an association with a DICOM Query/Retrieve SCP using a presentation context having a Find SOP class. A Find request is sent with user specified query fields.

4.4.2.2. Retrieve Images

Retrieve Images establishes an association with a DICOM Query/Retrieve SCP using a presentation context having a Move SOP class. A Move request is sent for selected studies.

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4.4.3. Sequencing of Real World Activities

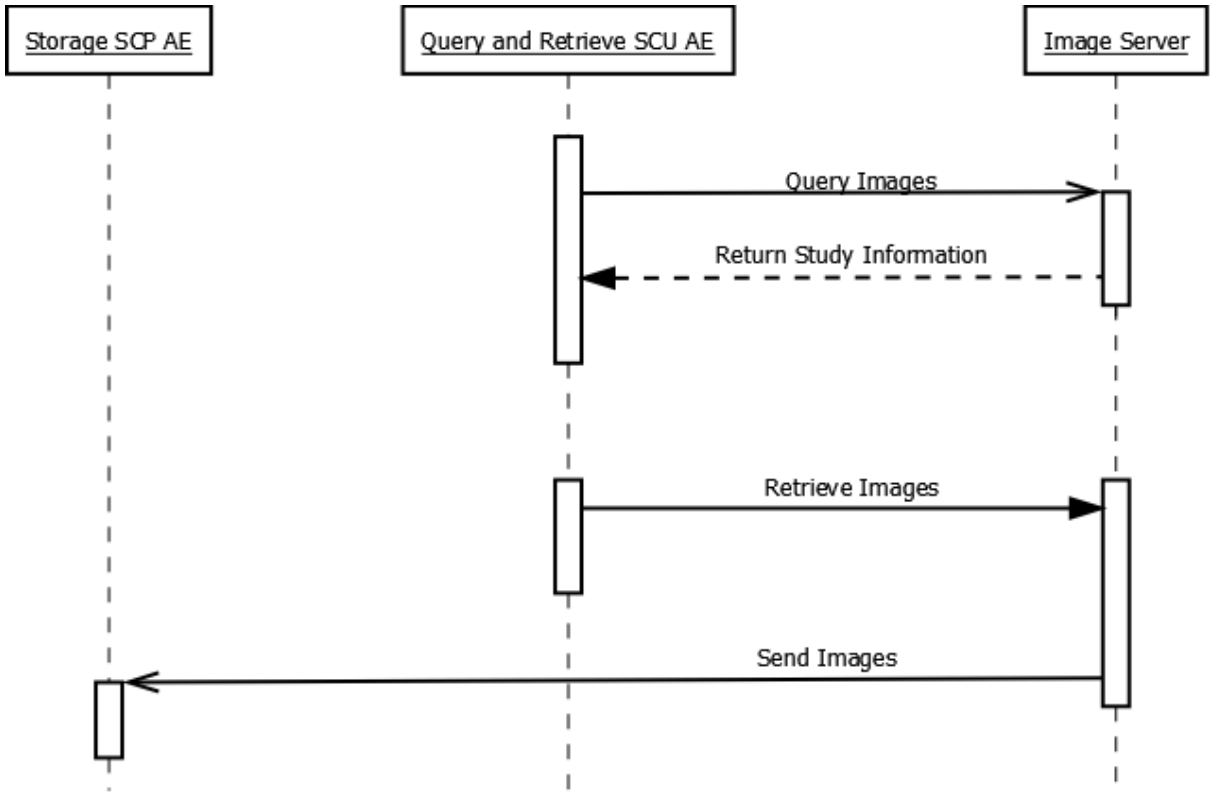

Figure 4.6—Example Real World Activity for Query and Retrieve SCU AE

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4.5. Query and Retrieve SCP AE

4.5.1. Application Data Flow Diagram

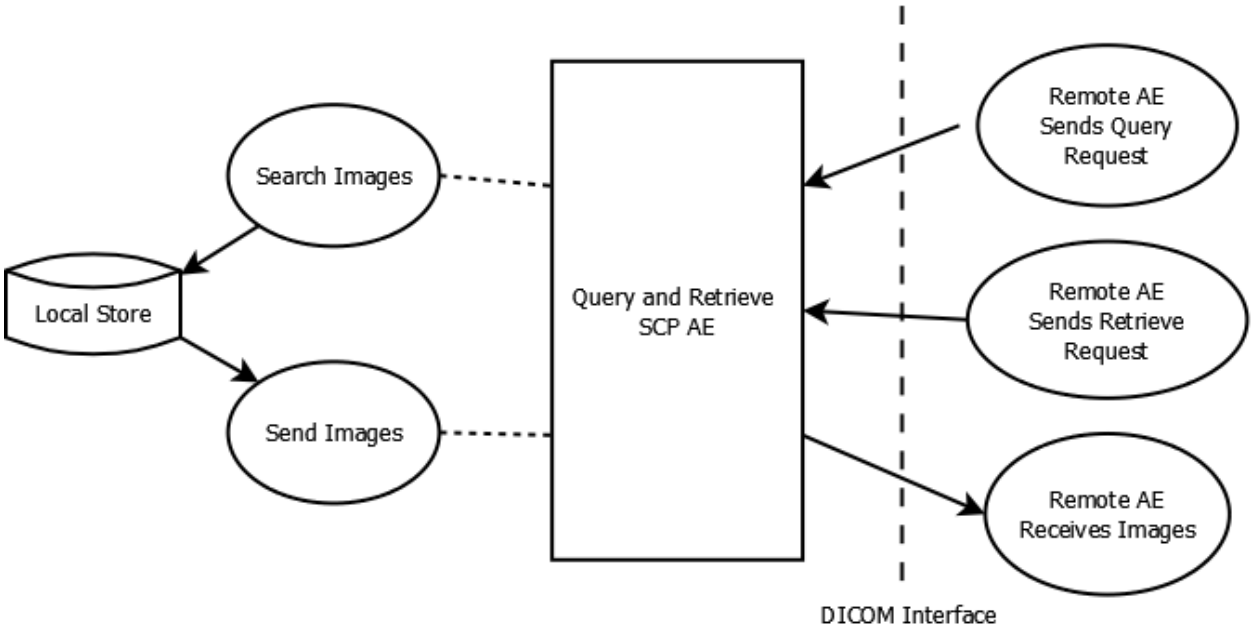

Figure 4.7—Query and Retrieve SCP AE Dataflow

4.5.2. Functional Definitions of AE

The Query and Retrieve SCP AE accepts connections to the configured AE title's presentation address. Associations having presentation contexts with Find or Move SOP classes will be accepted.

4.5.2.1. Search Images

Search Images is initiated by a Find request to the addressed local store. Search Images searches the host file system area assigned to the addressed local store for matches to user provided search criterion. Results are returned to the calling SCU.

4.5.2.2. Send Images

Send Objects is initiated by a Move request to the addressed local store. Send Images initiates Store requests through the Storage SCU AE for the image instances corresponding to the received Move request.

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4.5.3. Sequencing of Real World Activities

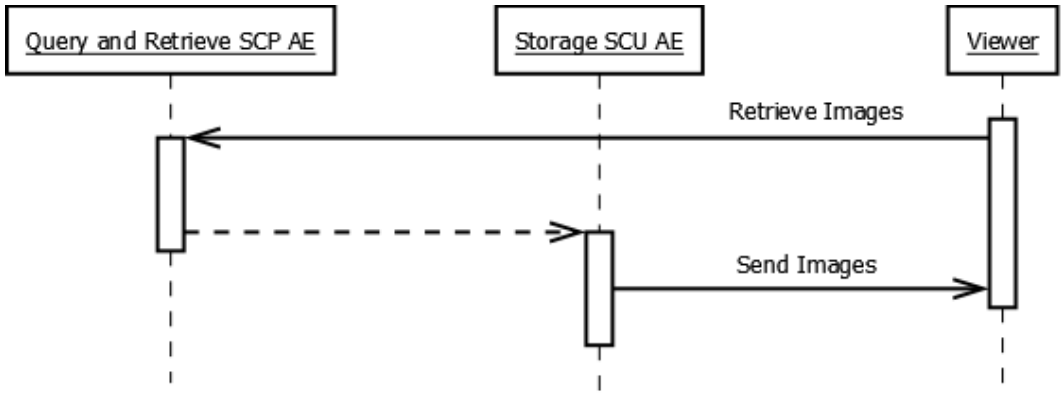

Figure 4.8—Example Real World Activity for Storage SCU AE

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4.6. Importer AE

4.6.1. Application Data Flow Diagram

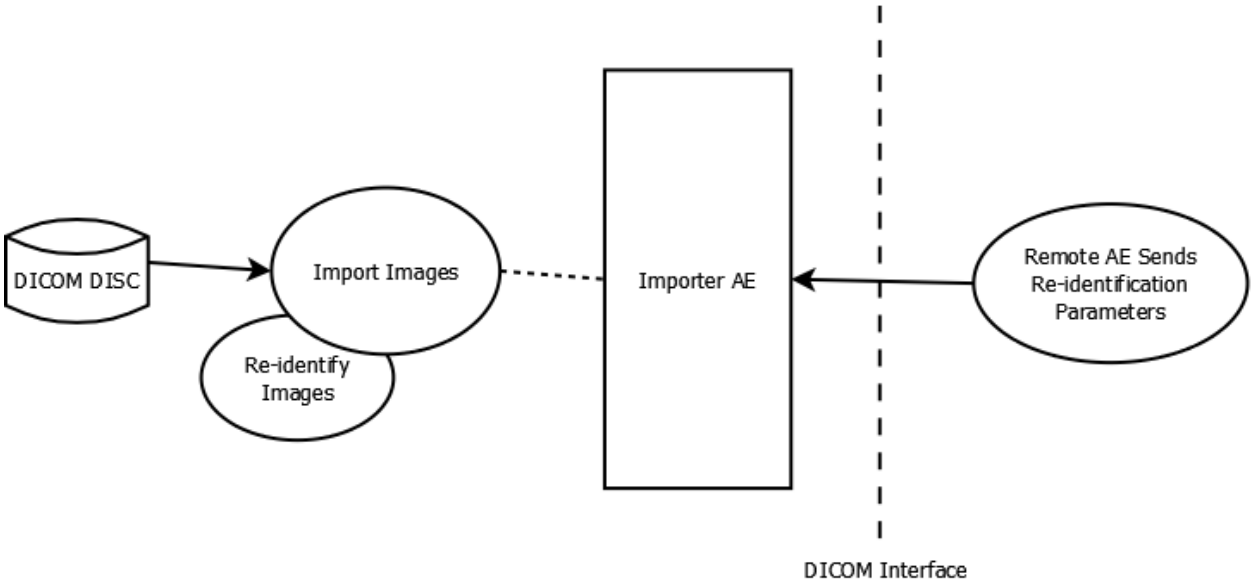

Figure 4.9—Importer AE Dataflow

4.6.2. Functional Definitions of AE

The Importer AE is a FSR enabling the importation of DICOM part 10 files from removable DICOM disc media.

4.6.2.1. Import Images

Import Images reads in a DICOM file set and sends Store requests to a user selected Storage. Import Images includes the ability to re-identify patient demographic using one of the following user selected source options:

- **Query and Retrieve SCP**
- **Modality Worklist Management SCP**
- **User-entered Values**

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4.6.3. Sequencing of Real World Activities

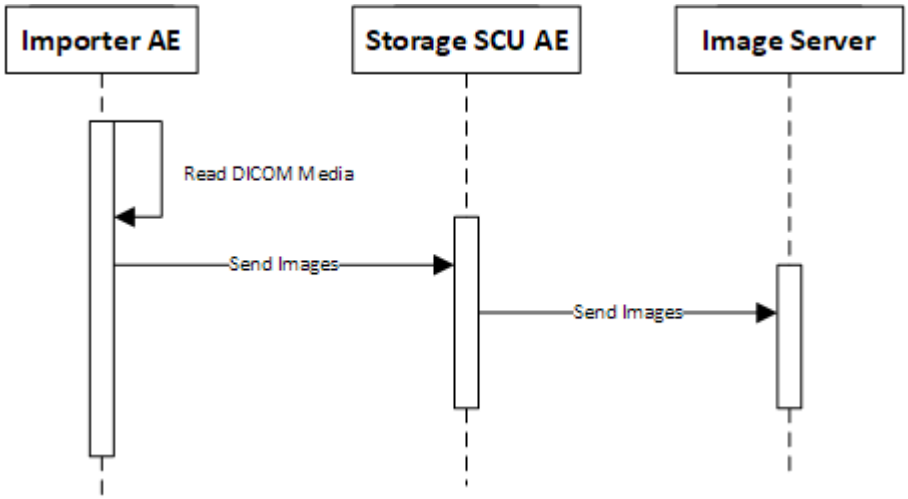

Figure 4.10—Example Real World Activity for Importer AE

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Verification AE

4.6.4. Application Data Flow Diagram

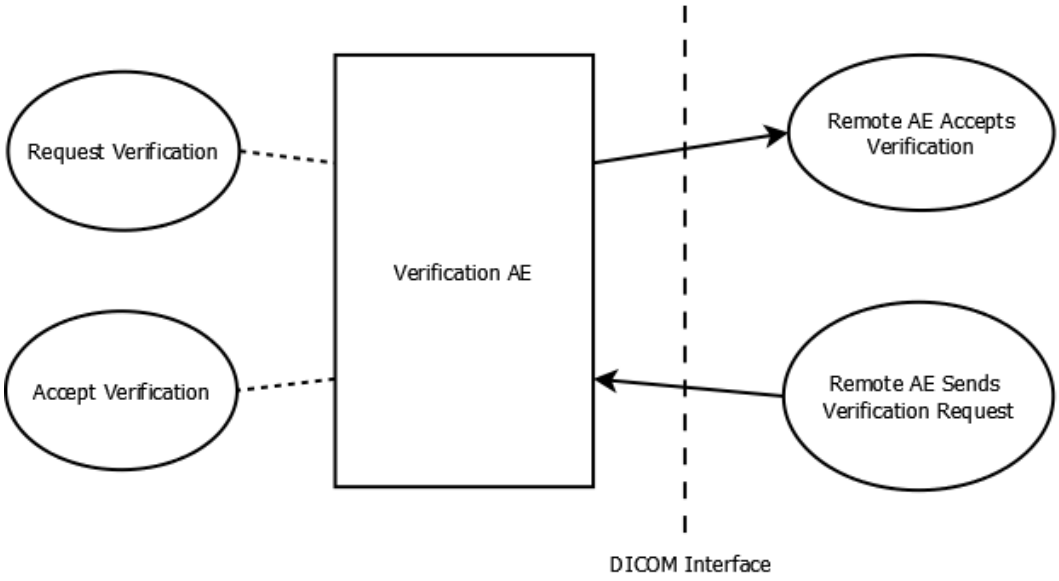

Figure 4.11—Verification AE Dataflow

4.6.5. Functional Definitions of AE

4.6.5.1. Request Verification

The Verification AE acts as an SCU by sending requests with a presentation context having a Verification SOP class.

4.6.5.2. Accept Verification

The Verification AE acts as an SCP by accepting connections for associations having presentation contexts for Verification SOP classes.

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4.6.6. Sequencing of Real World Activities

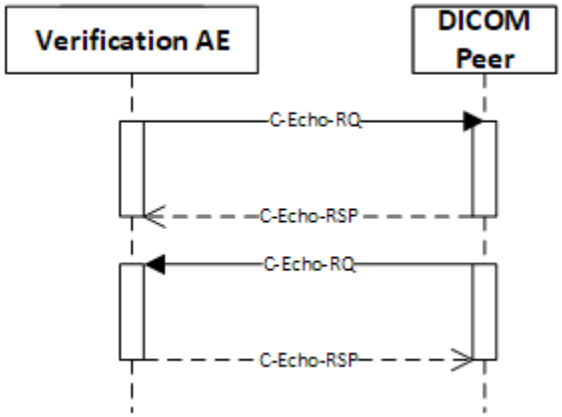

Figure 4.12—Example Real World Activity for Verification AE

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5. Service and Interoperability Description

5.1. Storage SCP AE

5.1.1. SOP Classes

The Storage SCP AE provides Standard Conformance to the following SOP classes:

Table 5.1
Supported SOP Classes

SOP Class Name	*SOP Class UID*	*SCU*	*SCP*
(see note 1)	(see note 1)	NO	Yes

1. All conforming DICOM SOP classes for Composite IODs are supported in SCU and SCP roles. Includes SOPs listed in DICOM PS3.4:B.5-1 Standard SOP Classes, as well as private SOPs. Association acceptance is determined by configuration.

5.1.2. Association Establishment Policies

5.1.2.1. General

The DICOM standard Application context shall be specified.

Application Context Name	1.2.840.10008.3.1.1.1

5.1.2.2. Number of Associations

The Storage SCP AE is internally limited by configuration in the number of simultaneous associations it may accept.

Maximum Number of Simultaneous Associations (acceptor)	100 (default)

5.1.2.3. Asynchronous Nature

Multiple outstanding operations over a single association are not supported.

Maximum Number of Outstanding Asynchronous Transactions	1

5.1.2.4. Implementation Identifying Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[1]

5.1.3. Association Initiation by Real World Activity

The Storage SCP AE never initiates an association.

5.1.4. Association Acceptance Policy

The Storage SCP AE accepts associations from remote AEs offering valid Presentation Contexts.

[1] "{x}" representing the application version number. E.g. "2.7.0.6"

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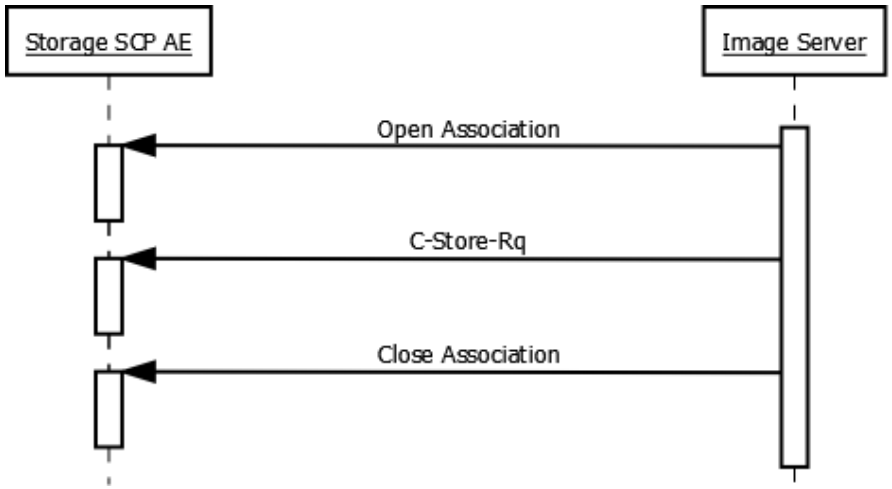

Figure 5.1—Receive Images Activity

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5.1.4.1. Accepted Presentation Contexts

Note: transfer syntax support is consistent across Storage classes.

Table 5.2
Accepted Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
See Table 5.1	See Table 5.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Process 1 Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Process Ext 24	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Process 14 Lossless	1.2.840.10008.1.2.4.57	SCP	None
		JPEG Process 14 Lossless SV1	1.2.840.10008.1.2.4.70	SCP	None
		JPEG Lossless	1.2.840.10008.1.2.4.80	SCP	None
		JPEG Near Lossless	1.2.840.10008.1.2.4.81	SCP	None
		JPEG 2000 Near Lossless	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCP	None
		MPEG 2	1.2.840.10008.1.2.4.100	SCP	None
		MPEG 4 High Profile	1.2.840.10008.1.2.4.102	SCP	None

Table 5.3
Storage SCP AE C-Store Status Return Reasons

Service Status	Further Meaning	Error Code	Reason
Refused	Out of resources	A700	Out of resources
Failed	Identifier Mismatch	A900	Identifier/SOP Class mismatch
	Not Supported	C001	Option is not supported on the Vertex system
	Volume Not Found	C002	Unable to find specified local store
	Not Responding	C003	The server is not responding. Try again later
	Not Authorized	C004	The system could not log you on
	Presentation Context Missing	C006	Cannot understand
Cancel	Request Cancelled	FE00	Cancelled
Pending	Pending	FF00	Pending
Success	Success	0000	Success

5.2. Storage SCU AE

5.2.1. SOP Classes

The Storage SCU AE provides Standard Conformance to the following SOP classes:

Table 5.4
Supported SOP Classes

SOP Class Name	SOP Class UID	SCU	SCP
(see note 1)	(see note 1)	Yes	No

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1. All conforming DICOM SOP classes for Composite IODs are supported in SCU and SCP roles. Includes SOPs listed in DICOM PS3.4:B.5-1 Standard SOP Classes, as well as private SOPs. Association acceptance is determined by configuration.

5.2.2. Association Establishment Policies

5.2.2.1. General

The DICOM standard Application context shall be specified.

Application Context Name	1.2.840.10008.3.1.1.1

5.2.2.2. Number of Associations

The Storage SCU AE is not internally limited in the number of simultaneous associations it may initiate.

Maximum Number of Simultaneous Associations (initiator)	No Limit

5.2.2.3. Asynchronous Nature

Multiple outstanding operations over a single association are not supported.

Maximum Number of Outstanding Asynchronous Transactions	1

5.2.2.4. Implementation Identifying Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[2]

5.2.3. Association Initiation by Real World Activity

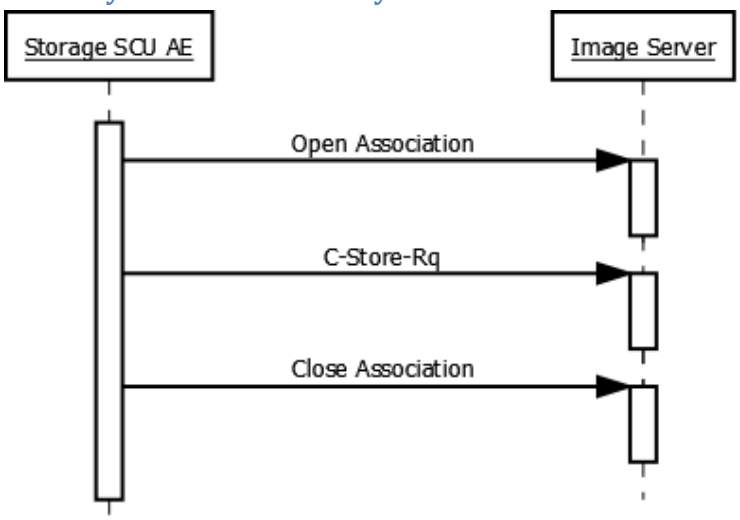

Figure 5.2—Send Images Activity

[2] "{x}" representing the application version number. E.g. "2.7.0.6"

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Table 5.5
Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
See Table 5.4	See Table 5.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		JPEG Process 1 Baseline	1.2.840.10008.1.2.4.50	SCU	None
		JPEG Process Ext 24	1.2.840.10008.1.2.4.51	SCU	None
		JPEG Process 14 Lossless	1.2.840.10008.1.2.4.57	SCU	None
		JPEG Process 14 Lossless SV1	1.2.840.10008.1.2.4.70	SCU	None
		JPEG Lossless	1.2.840.10008.1.2.4.80	SCU	None
		JPEG Near Lossless	1.2.840.10008.1.2.4.81	SCU	None
		JPEG 2000 Near Lossless	1.2.840.10008.1.2.4.90	SCU	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCU	None
		MPEG 2	1.2.840.10008.1.2.4.100	SCU	None
		MPEG 4 High Profile	1.2.840.10008.1.2.4.102	SCU	None

5.2.4. Association Acceptance Policy

The Storage SCU AE never accepts an association.

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5.3. DICOM DISC Writer AE

5.3.1.1. Conformance to DICOM Interchange of the Media Storage Service

DICOM DISC Writer AE supports DICOM Interchange of the Media Storage Service. It provides standard conformance as a FSC as defined in part 10 of the DICOM standard.

NOTE: The DICOM DISC Writer AE is agnostic with respect to transfer syntax as an FSC for Image Storage classes. Image instances included in a build job production order receive no conversion/post-processing. Standard conformant application profiles are only possible if images to be written already match profile transfer syntax options.

Table 5.6
Supported Application Profiles

Application Profiles Supported	*Real-World Activity*	*Roles*	*SC Option*
STD-GEN-CD	Store Images on DICOM DISC	FSC	Interchange
STD-GEN-SEC-CD	Store Images on DICOM DISC	FSC	Interchange
STD-GEN-DVD	Store Images on DICOM DISC	FSC	Interchange
STD-GEN-SEC-DVD	Store Images on DICOM DISC	FSC	Interchange

5.3.2. File Meta Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[3]

5.3.3. Real World Activity—Store Images on DICOM DISC

The DICOM DISC Writer AE acts as an FSC to export SOP instances associated with DICOM DISC build jobs.

The user is able to provide DISC production options that include the re-identification of patient demographics, encryption of DICOM files[4] as well as DISC verification.

[3] "{x}" representing the application version number. E.g. "2.7.0.6"
[4] Refer to the Security section of this document for DICOM conformance specifics.

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5.3.3.1. Options

DICOM DISC Writer AE supports the SOP classes and Transfer Syntaxes listed in the table below.

Table 5.7
Supported IODs, SOP Classes and Transfer Syntaxes

IOD	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
(see note 1)	(see note 1)	Implicit VR Little Endian	1.2.840.10008.1.2
		Explicit VR Little Endian	1.2.840.10008.1.2.1
		Explicit VR Big Endian	1.2.840.10008.1.2.2
		JPEG Process 1 Baseline	1.2.840.10008.1.2.4.50
		JPEG Process Ext 24	1.2.840.10008.1.2.4.51
		JPEG Process 14 Lossless	1.2.840.10008.1.2.4.57
		JPEG Process 14 Lossless SV1	1.2.840.10008.1.2.4.70
		JPEG Lossless	1.2.840.10008.1.2.4.80
		JPEG Near Lossless	1.2.840.10008.1.2.4.81
		JPEG 2000 Near Lossless	1.2.840.10008.1.2.4.90
		JPEG 2000	1.2.840.10008.1.2.4.91
		MPEG 2	1.2.840.10008.1.2.4.100
		MPEG 4 High Profile	1.2.840.10008.1.2.4.102

1. All conforming DICOM SOP classes for Composite IODs are supported in SCU and SCP roles. Includes SOPs listed in DICOM PS3.4:B.5-1 Standard SOP Classes, as well as private SOPs. Association acceptance is determined by configuration.

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5.4. Query and Retrieve SCU AE

5.4.1. SOP Classes

The Query and Retrieve SCU AE provides Standard Conformance to the following SOP classes:

Table 5.8
Supported SOP Classes

SOP Class Name	*SOP Class UID*	*SCU*	*SCP*
Study Root Query/Retrieve Information Model—Find	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve Information Model—Move	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

5.4.2. Association Establishment Policies

5.4.2.1. General

The DICOM standard Application context shall be specified.

Application Context Name	1.2.840.10008.3.1.1.1

5.4.2.2. Number of Associations

The Query and Retrieve SCU AE is not internally limited in the number of simultaneous associations it may initiate.

Maximum Number of Simultaneous Associations (initiator)	No Limit

5.4.2.3. Asynchronous Nature

Multiple outstanding operations over a single association are not supported.

Maximum Number of Outstanding Asynchronous Transactions	1

5.4.2.4. Implementation Identifying Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[5]

[5] "{x}" representing the application version number. E.g. "2.7.0.6"

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5.4.3. Association Initiation by Real World Activity

5.4.3.1. Real World Activity—Query Images

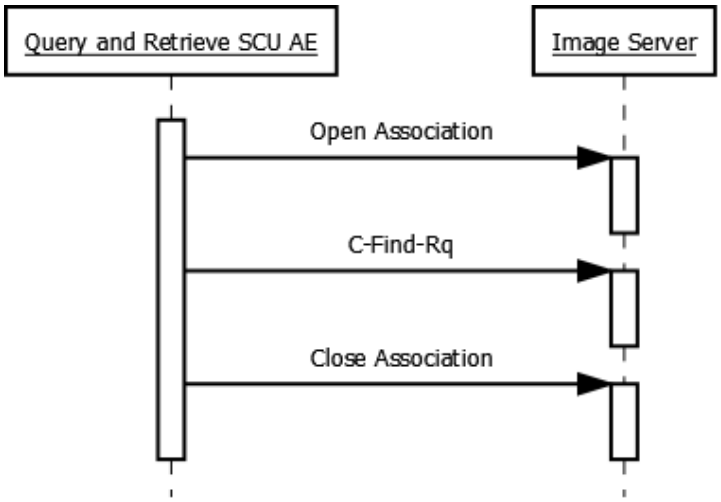

Figure 5.3—Query Images Activity

Table 5.9
Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
Study Root Query/Retrieve Information Model—Find	1.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

5.4.3.2. SOP Specific Conformance to C-Find SOP Class

Query and Retrieve AE SCU provides standard conformance to the C-Find SOP class. Only a single information model, Study Root is supported.

Table 5.10
Study Root Request Identifier for Query and Retrieve SCU AE

Name	*Tag*
Study Level	
Patient's ID	(0010,0020)
Patient's Name	(0010,0010)
Patient's Sex	(0010,0040)
Study ID	(0020,0010)
Study Date	(0008,0020)
Study Accession No.	(0008,0050)
Study Description	(0008,1030)
Modalities In Study	(0008,0061)
Series Level	
Series Instance UID	(0020,000E)
Modality	(0008,0060)

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Series Description	(0008,103E)
Series Date	(0008,0021)
Series Number	(0020,0011)

5.4.3.3. Real World Activity—Retrieve Images

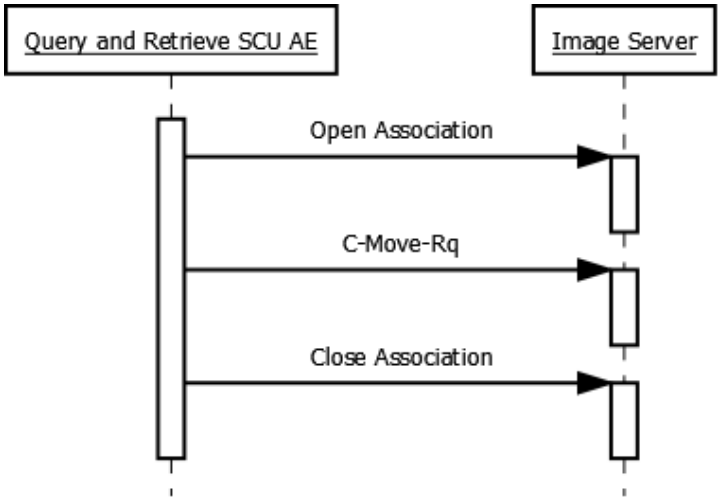

Figure 5.4—Retrieve Images Activity

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Table 5.11
Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
Study Root Query/Retrieve Information Model—Move	1.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

5.4.4. Sop Specific Conformance to C-Move SOP Class

Query and Retrieve AE SCU provides standard conformance to the C-Move SOP class.

5.4.5. Association Acceptance Policy

The Query and Retrieve SCU AE does not accept associations.

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5.5. Query and Retrieve SCP AE

5.5.1. SOP Classes

The Query and Retrieve SCP AE provides Standard Conformance to the following SOP classes:

Table 5.12
Supported SOP Classes

SOP Class Name	*SOP Class UID*	*SCU*	*SCP*
Study Root Query/Retrieve Information Model—Find	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
Study Root Query/Retrieve Information Model—Move	1.2.840.10008.5.1.4.1.2.2.2	No	Yes

5.5.2. Association Establishment Policies

5.5.2.1. General

The DICOM standard Application context shall be specified.

Application Context Name	1.2.840.10008.3.1.1.1

5.5.2.2. Number of Associations

The Query and Retrieve SCP AE is internally limited by configuration in the number of simultaneous associations it may accept.

Maximum Number of Simultaneous Associations (acceptor)	100 (default)

5.5.2.3. Asynchronous Nature

Multiple outstanding operations over a single association are not supported.

Maximum Number of Outstanding Asynchronous Transactions	1

5.5.2.4. Implementation Identifying Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[6]

5.5.3. Association Initiation by Real World Activity

The Query and Retrieve SCP AE never initiates an association.

5.5.4. Association Acceptance for Real World Activity

The Query and Retrieve SCP AE accepts associations from remote AEs offering valid Presentation Contexts.

[6] "{x}" representing the application version number. E.g. "2.7.0.6"

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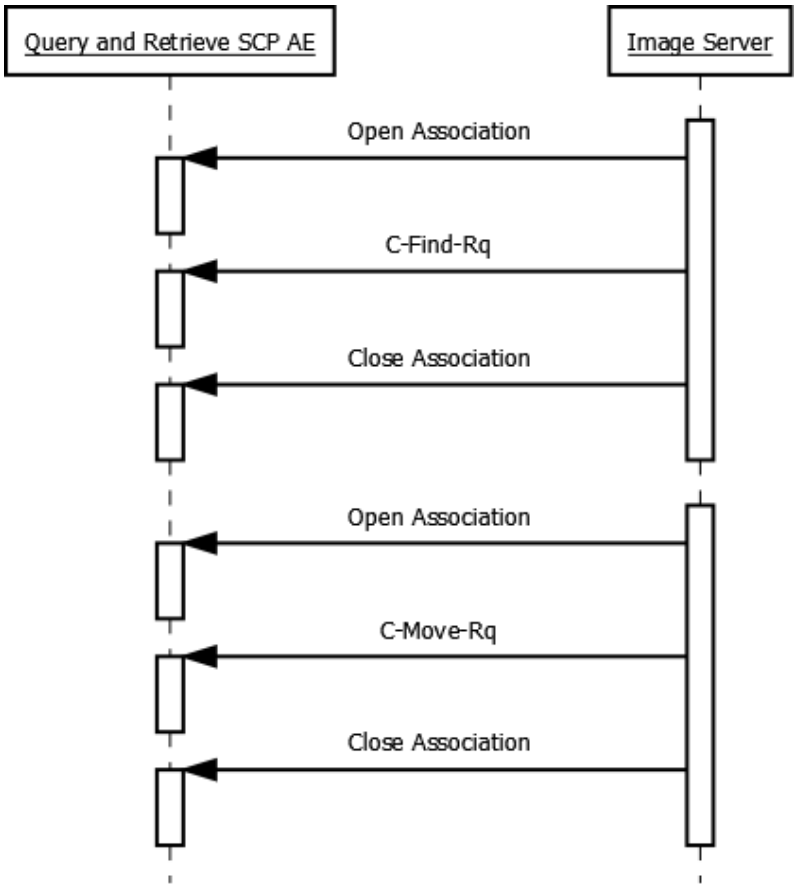

Figure 5.5—Search Images and Send Images

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5.5.4.1. Accepted Presentation Contexts

Table 5.13
Accepted Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
See Table 5.12	See Table 5.12	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		JPEG Process 1 Baseline	1.2.840.10008.1.2.4.50	SCP	None
		JPEG Process Ext 24	1.2.840.10008.1.2.4.51	SCP	None
		JPEG Process 14 Lossless	1.2.840.10008.1.2.4.57	SCP	None
		JPEG Process 14 Lossless SV1	1.2.840.10008.1.2.4.70	SCP	None
		JPEG Lossless	1.2.840.10008.1.2.4.80	SCP	None
		JPEG Near Lossless	1.2.840.10008.1.2.4.81	SCP	None
		JPEG 2000 Near Lossless	1.2.840.10008.1.2.4.90	SCP	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCP	None
		MPEG 2	1.2.840.10008.1.2.4.100	SCP	None
		MPEG 4 High Profile	1.2.840.10008.1.2.4.100	SCP	None

Table 5.14
Study Root Request Identifier for Query and Retrieve SCP AE

Name	Tag	Types of Matching
Study Level		
Patient's ID	(0010,0020)	S, U, W
Patient's Name	(0010,0010)	S, U, W
Patient's DOB	(0010,0030)	S, U
Patient's Sex	(0010,0040)	S, U
Study UID	(0020,000D)	S, U
Study ID	(0020,0010)	S, U
Study Date	(0008,0020)	R, U
Study Accession No.	(0008,0050)	S, U, W
Study Description	(0008,1030)	S, U, W
Legend: R= Range; S = Single Value; U = Universal; W = Wild Card		

NOTE: Wild card matching does not support the "OR" ('\') operator. Patient name matching does not support the "caret" ('^') operator.

Table 5.15
Query and Retrieve SCP AE Status Return Reasons

Service Status	Further Meaning	Error Code	Reason
Refused	Out of resources	A700	Out of resources
	Move Host Unknown	A801	Unknown move destination
Failed	Identifier Mismatch	A900	Identifier/SOP Class mismatch
	Not Supported	C001	Option is not supported on the Vertex system
	Volume Not Found	C002	Unable to find specified local store
	Not Responding	C003	The server is not responding. Try again later
	Not Authorized	C004	The system could not log you on

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	Data File Missing	C005	File Not Found
	Presentation Context Missing	C006	Cannot understand
Cancel	Request Cancelled	FE00	Cancelled
Pending	Pending	FF00	Pending
Success	Success	0000	Success

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5.6. Importer AE

5.6.1.1. Conformance to DICOM Interchange of the Media Storage Service

Importer AE supports DICOM Interchange of the Media Storage Service. It provides standard conformance as a FSR as defined part 10 of the DICOM standard.

NOTE: The Importer AE is agnostic with respect to transfer syntax as an FSR for Image Storage classes. Conversion/post-processing of images is delegated to the Storage SCU AE.

Table 5.16
Supported Application Profiles

Application Profiles Supported	*Real-World Activity*	*Roles*	*SC Option*
STD-GEN-CD	Store Images on DICOM DISC	FSR	Interchange

5.6.2. Initiation by Real World Activity—Import Images

The Importer AE acts as an FSR to import DICOM image instance files into the user specified remote AE.

5.6.2.1. Options

Importer AE supports the SOP classes and Transfer Syntaxes listed in the table below.

Table 5.17
Supported IODs, SOP Classes and Transfer Syntaxes

IOD	*SOP Class UID*	*Transfer Syntax*	*Transfer Syntax UID*
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
(see note 1)	(see note 1)	Implicit VR Little Endian	1.2.840.10008.1.2
		Explicit VR Little Endian	1.2.840.10008.1.2.1
		Explicit VR Big Endian	1.2.840.10008.1.2.2
		JPEG Process 1 Baseline	1.2.840.10008.1.2.4.50
		JPEG Process Ext 24	1.2.840.10008.1.2.4.51
		JPEG Process 14 Lossless	1.2.840.10008.1.2.4.57
		JPEG Process 14 Lossless SV1	1.2.840.10008.1.2.4.70
		JPEG Lossless	1.2.840.10008.1.2.4.80
		JPEG Near Lossless	1.2.840.10008.1.2.4.81
		JPEG 2000 Near Lossless	1.2.840.10008.1.2.4.90
		JPEG 2000	1.2.840.10008.1.2.4.91
		MPEG 2	1.2.840.10008.1.2.4.100
		MPEG 4 High Profile	1.2.840.10008.1.2.4.100

1. All conforming DICOM SOP classes for Composite IODs are supported in SCU and SCP roles. Includes SOPs listed in DICOM PS3.4:B.5-1 Standard SOP Classes, as well as private SOPs. Association acceptance is determined by configuration.

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5.7. Verification AE

5.7.1. SOP Classes

The Verification AE provides Standard Conformance to the following SOP classes:

Table 5.18
Supported SOP Classes

SOP Class Name	*SOP Class UID*	*SCU*	*SCP*
Verification	1.2.840.10008.1.1	Yes	Yes

5.7.2. Association Establishment Policies

5.7.2.1. General

The DICOM standard Application context shall be specified.

Application Context Name	1.2.840.10008.3.1.1.1

5.7.2.2. Number of Associations

The Verification AE is not internally limited in the number of simultaneous associations it may initiate.

Maximum Number of Simultaneous Associations (initiator)	No Limit
Maximum Number of Simultaneous Associations (acceptor)	100 (default)

5.7.2.3. Asynchronous Nature

Multiple outstanding operations over a single association are not supported.

Maximum Number of Outstanding Asynchronous Transactions	1

5.7.2.4. Implementation Identifying Information

Implementation Class UID	2.16.840.1.114444
Implementation Version Name	VERTEX{x}[7]

[7] "{x}" representing the application version number. E.g. "2.7.0.6"

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5.7.3. Association Initiation by Real World Activity

5.7.3.1. Activity—Request Verification

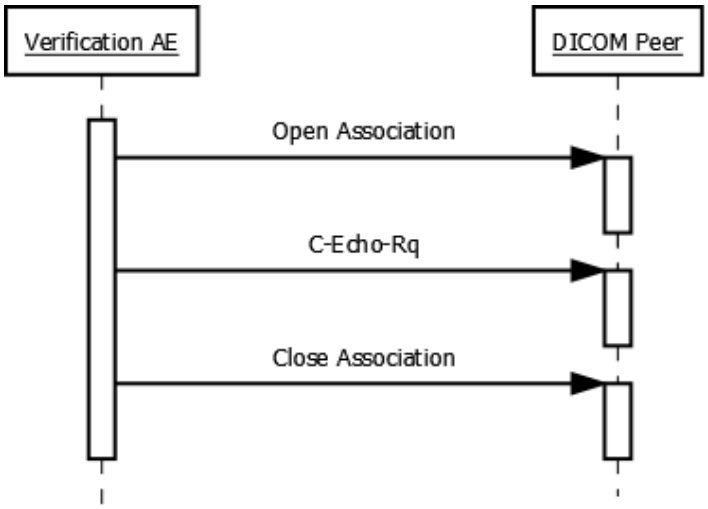

Figure 5.6—Request Verification Activity

Table 5.19
Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

5.7.4. Association Acceptance for Real World Activity—Accept Verification

The Verification AE accepts associations from remote AEs offering valid Presentation Contexts to fulfill the Accept Verification activity.

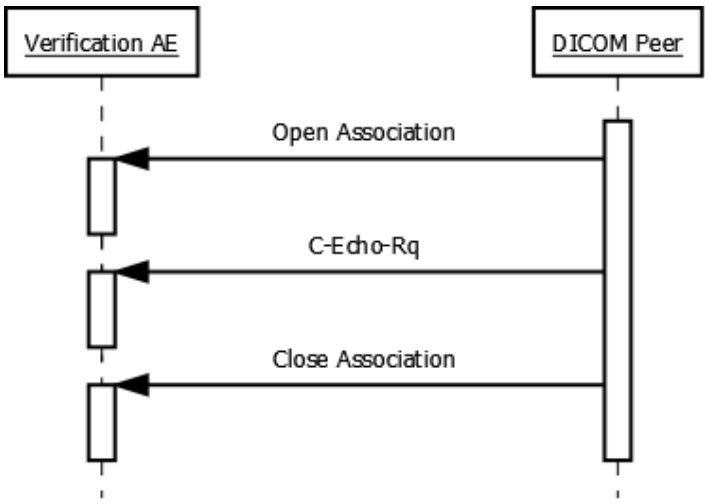

Figure 5.7—Accept Verification Activity

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5.7.4.1. Accepted Presentation Contexts

Table 5.20
Accepted Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
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	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

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6. Network and Media Communication Details

6.1. Supported Communication Stacks

DICOM Upper Layer over TCP/IP as defined by part 8 of the DICOM standard is supported.

6.2. TCP/IP Stack

The TCP/IP stack is inherited from the underlying host operating system.

6.3. API

The application makes use of the Windows Socket 2 interface.

6.4. Physical Media Support

Any physical medium supported by the host operating system can be used.

6.5. Support of Extended Character Sets

The Vertex Application Suite supports the following character sets:

- ISO-IR 6 (default ASCII)
- ISO-IR 13 (Japanese Katakana)
- ISO-IR 87 (Japanese)
- ISO-IR 100 (ISO/IEC 8859-1 Latin 1)
- ISO-IR 101 (ISO/IEC 8859-2 Latin 2)
- ISO-IR 109 (ISO/IEC 8859-3 Latin 3)
- ISO-IR 110 (ISO/IEC 8859-4 Latin 4)
- ISO-IR 126 (ISO/IEC 8859-7 Greek)
- ISO-IR 127 (ISO/IEC 8859-6 Arabic)
- ISO-IR 138 (ISO/IEC 8859-8 Hebrew)
- ISO-IR 144 (ISO/IEC 8859-5 Cyrillic)
- ISO-IR 148 (ISO/IEC 8859-9 Turkish)
- ISO-IR 149 (Korean)
- ISO-IR 166 (Thai Windows)
- GB18030 (Chinese Simplified)
- Unicode

7. Configuration

Configuration of the Vertex Application Suite may be accomplished through the Windows client or in some circumstances by editing the underlying documents.

7.1. Configurable Parameters

7.1.1. Host Configuration

- Port number
- Binding address

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- Maximum PDU size
- Maximum concurrent accepted connections
- Send/Receive buffer size
- Receive timeout
- Socket linger
- Socket keep-alive

7.1.2. DICOM Association for DIMSE-C services

- Accepted SOP classes

7.1.3. Storage SCP AE

- AE Title
- Originator timeout

7.1.4. Query and Retrieve SCU AE

- AE Title

7.1.5. Query and Retrieve SCP AE

- AE Title

7.1.6. Peer Configuration

- AE title
- IP address
- Port number

8. Security

8.1. Security Profiles

The DICOM DISC Writer AE provides standard conformance to the Basic DICOM Media Security Profile.

8.2. Association Level Security

The Vertex local store is secured against an acceptable peer list.

8.3. Application Level Security

Clients of the Vertex Application Suite are secured with password protected user accounts.

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