



KONICA MINOLTA

ImagePilot

Version 1.80

DICOM 3.0 Conformance Statement

CE 0197



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27/06/2008	Rev.1	KONICA MINOLTA MEDICAL & GRAPHIC, INC	Articles relating to CR Image Storage SOP Class are added.
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21/07/2009	Rev.4	KONICA MINOLTA MEDICAL & GRAPHIC, INC	QUERY/RETRIEVE-SCP/SCU, Basic Worklist Management-SCU, veterinary DICOM are supported.
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CONFORMANCE STATEMENT OVERVIEW

This document “Conformance Statement” describes the compatibility of DICOM Interface for ImagePilot with DICOM PS3.2. Services provided by ImagePilot are listed below.

Table2-1: NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Storage		
CR(Computed Radiography) Image	Yes	Yes
DX (Digital X-Ray) Image Storage For Presentation	Yes	Yes
DX (Digital X-Ray) Image Storage For Processing	Yes	Yes
CT Image Information Object Storage	Yes	Yes
US Multi-Frame Image Storage	Yes	Yes
MR Image Information Object Storage	Yes	Yes
US Image Storage	Yes	Yes
SC (Secondary Capture) Image Storage	Yes	Yes
RF (X-Ray Radiofluoroscopic) Image Storage	Yes	Yes
VL Endoscopic Image Storage	Yes	Yes
VL Microscopic Image Storage	Yes	Yes
VL Slide-Coordinates Microscopic Image Storage	Yes	Yes
VL Photographic Image Storage	Yes	Yes
Grayscale Softcopy Presentation State Storage	Yes	Yes
Basic Text SR Storage	Yes	Yes
Enhanced SR Storage	Yes	Yes
Comprehensive SR Storage	Yes	Yes
Key Object Selection Document Storage	Yes	Yes
Print Management		
Basic Grayscale Print Management Meta	Yes	No
Presentation LUT	Yes	No
Workflow Management		
Basic Worklist Information Model-Find	Yes	Yes

SCU/SCP Table

SOP Classes	SCU	SCP
Query/Retrieve		
Patient Root Query/Retrieve Information Model - FIND	No	Yes
Patient Root Query/Retrieve Information Model -MOVE	No	Yes
Study Root Query/Retrieve Information Model - FIND	Yes	Yes
Study Root Query/Retrieve Information Model - MOVE	Yes	Yes

ImagePilot provides standard conformance to DICOM Interchange option of Media Storage Service Class.

DICOM Conformance Statement

Identifier	Real World Activity	Role	SC Option
STD-GEN-CD STD-GEN-DVD	Create CD-DVD-R	FSC	Interchange
	Import image	FSR	Interchange
STD-US-ID-SF-CD STD-US-ID-MF-CD STD-US-ID-SF-DVD STD-US-ID-MF-DVD	Create CD-DVD-R	FSC	Interchange
	Import image	FSR	Interchange
STD-CTMR-CD STD-CTMR-DVD	Create CD-DVD-R	FSC	Interchange
	Import image	FSR	Interchange

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1. INTRODUCTION

1.1 AUDIENCE

This document is prepared for hospital staff, medical device suppliers and software engineers/implementers, presuming they are familiar with DICOM Standard.

1.2 REMARKS

First of all, it should be noted that DICOM Standard itself does not guarantee interoperability of medical devices.

However, it allows with ease, implementing first validity verification of interoperating medical devices that support the same DICOM Services.

“Conformance Statement” is prepared to help networking “ImagePilot” to other DICOM devices, and it is presumed that the reader reads this document while referring to other documents describing DICOM Standard as well.

1.3 DEFINITIONS, TERM AND ABBREVIATIONS

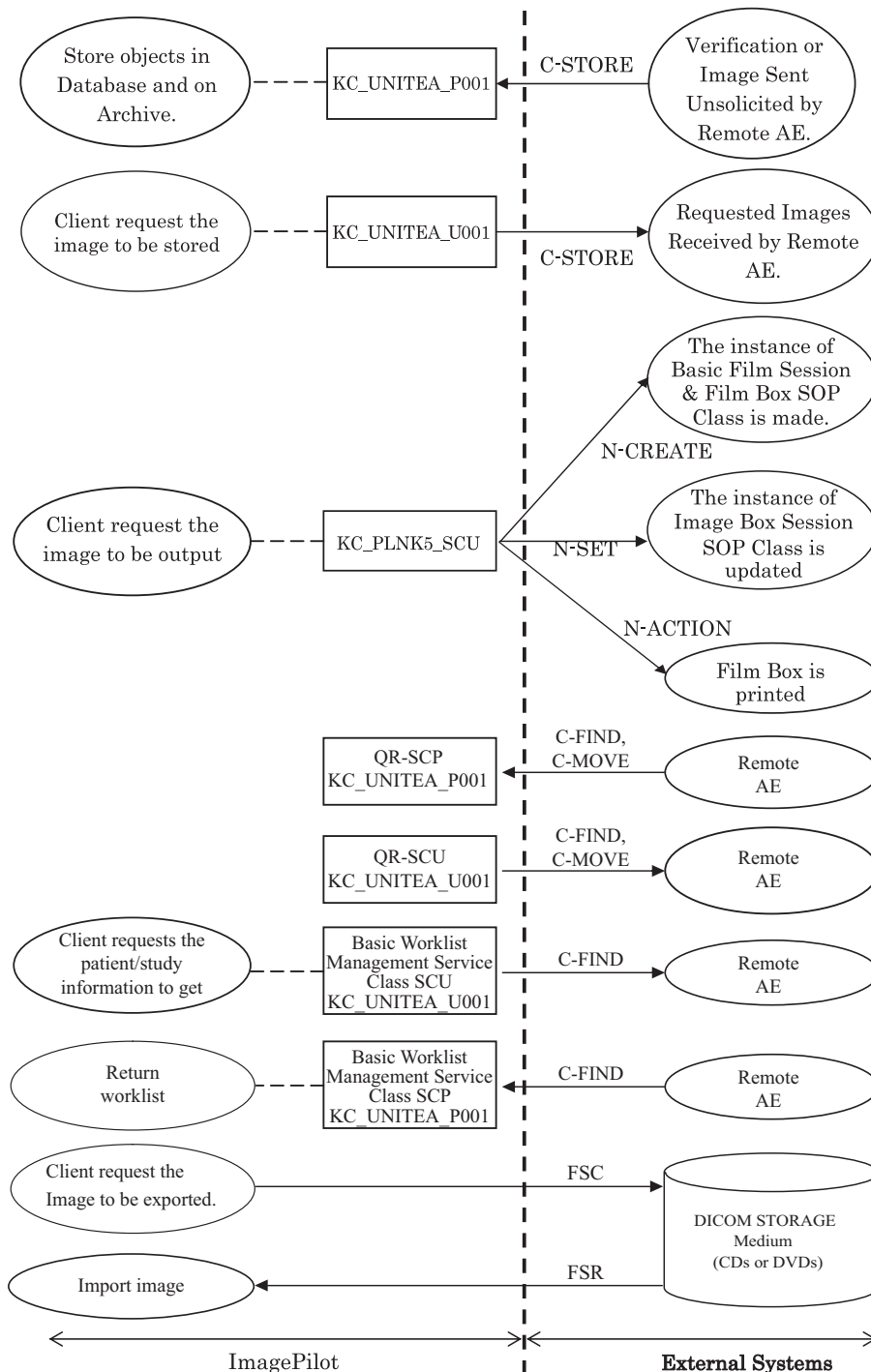
AE	Application Entity
CD-R	Compact Disk Recordable
CR	Computerized Radiography
CT	Computerized Tomography
DICOM	Digital Imaging and Communications in Medicine
DVD-R	DVD-Recordable
DX	Digital Radiography (Digital X-Ray)
FSC	File-Set Creator
FSR	File-Set Reader
FSU	File-Set Updater
IE	Information Entity
IOD	Information Object Definition
ISO	International Standards Organization
MR	Magnetic Resonance
PDU	Protocol Data Unit
RF	Radio Fluoroscopy
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier
US	Ultrasound
VM	Value Multiplicity
VR	Value Representation

2. NETWORKING

2.1 IMPLEMENTATION MODEL

AE implemented in DICOM Interface for ImagePilot allows receiving and requesting Association to/from external AE using DICOM STORAGE-SCP/SCU, QUERY/RETRIEVE-SCP/SCU, PRINT-SCU, Basic Worklist Management-SCU Service Class.

2.1.1 Application Data Flow



2.1.2 Function definition of Application Entities

2.1.2.1 STORAGE-SCP Application Entity

KC_UNITEA_P001(:Default AE Title for STORAGE-SCP) runs as background process and becomes ready to receive signal as soon as the system is started up.

KC_UNITEA_P001 operates as DICOM Storage Service Class SCP. KC_UNITEA_P001 starts reception against C-STORE-RQ from external AE after accepting Association Establishment Request.

Completion of image transfer from external AE is defined as when the Association is released.

External AE from which the Association Request should be received and accepted is set in configuration.

2.1.2.2 STORAGE-SCU Application Entity

KC_UNITEA_U001(:Default AE Title for STORAGE-SCU) runs as communication process and starts sending the image using STORAGE-SCU Service after the Association Request to external AE is accepted.

External AE that should send Association Request is set in configuration.

2.1.2.3 PRINT MANAGE-SCP Application Entity

KC_PLNK5_SCU(:Default AE Title for PRINT MANAGE-SCU) runs as communication process and starts hard copy transmission using N-CREATE-RQ after the Association Request to external AE is accepted.

External AE that should send Association Request is set in configuration.

2.1.2.4 QUERY/RETRIEVE-SCP Application Entity

KC_UNITEA_P001(:Default AE Title for QUERY/RETRIEVE-SCP) runs as the back ground process, and becomes ready to receive the data as soon as the system is activated.

KC_UNITEA_P001 operates as the communication process, and after accepting the request sent from the external AE to C-FIND-RQ for establishing the association, searches the requested image and sends the search results.

In addition, KC_UNITEA_P001 sends the images requested by "C-MOVE-RQ" to the external AE specified.

The external AE that accepts the request for establishing the association will be set using the configuration.

2.1.2.5 QUERY/RETRIEVE-SCU Application Entity

KC_UNITEA_U001(:Default AE Title for QUERY/RETRIEVE-SCU) runs as the communication process, and after acceptance of the request for establishing the association by the external AE, implements the search for images using C-FIND and commits the image acquisition using C-MOVE.

The external AE that accepts the request for establishing the association will be set using the configuration.

2.1.2.6 MWM-SCU Application Entity

KC_UNITEA_U001(:Default AE Title for Basic Worklist Management Service -SCU) runs as a communication process. After accepting the Association establishment request to an external AE, it obtains patient/study information by C-FIND-RQ.

2.1.2.7 MWM-SCP Application Entity

ImagePilot accepts Association Requests for Modality Worklist from MWL SCUs and responds to queries from these SCUs.

2.1.2.8 Media Storage

ImagePilot Media Storage has following functions:

- Initializing a medium and writing a collection of DICOM files to the medium

2.1.3 Sequencing of Real-World Activities

Those AEs do not support Sequencing of Real-World Activities.

2.2 AE SPECIFICATIONS

2.2.1 STORAGE-SCP Application Entity

KC_UNITEA_P001 has been set as default for STORAGE-SCP AE Title in ImagePilot.

2.2.1.1 SOP Class

KC_UNITEA_P001 supports following DICOM V3.0 SOP Classes as an SCP.

SOP Class name	SOP Class UID	SCU	SCP
CR (Computed Radiography) Image	1.2.840.10008.5.1.4.1.1.1	NO	YES
Digital X-Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	NO	YES
Digital X-Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	NO	YES
CT Image Information Object Storage	1.2.840.10008.5.1.4.1.1.2	NO	YES
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	NO	YES
MR Image Information Object Storage	1.2.840.10008.5.1.4.1.1.4	NO	YES
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	NO	YES
SC (Secondary Capture) Image Storage	1.2.840.10008.5.1.4.1.1.7	NO	YES
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	NO	YES
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	NO	YES
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	NO	YES
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	NO	YES
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	NO	YES
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	NO	YES
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	NO	YES
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	NO	YES
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	NO	YES
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	NO	YES

2.2.1.2 Association Policies

2.2.1.2.1 General

KC_UNITEA_P001 starts receiving the image data after Association is established. AE Title and Port No. from which the Association is accepted are set in configuration.

Application Context Name supports DICOM V3.0 SOP Class listed below.

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

2.2.1.2.2 Number of Associations

KC_UNITEA_P001 is capable of accepting Associations from maximum 5 external AEs including Associations for different services at the same time. Parallel processing will be implemented for each AE whose Association has been established.

Maximum number of simultaneous Associations	5
---	---

2.2.1.2.3 Asynchronous Nature

Asynchronous processing is not supported.

Maximum number of simultaneous Associations	1 (Not Configurable)
---	----------------------

2.2.1.2.4 Implementation Identifying Information

Implementation Class UID	Refer to description for Instance UID below
Implementation Version Name	KC_UNITEA_X.XX X.XX represents software version.

SOP Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

- Notes)
- [DivCode] : Section code 500
 - [Device] : Device type of source 220
 - [Serial No.] : Serial No. of the Device is specified.
 - [yyyymmdd] : Date is specified.
 - [hhmmss] : Time is specified.
 - [Study No.] : Study ID
 - [Series No.] : Series Number
 - [Unique No.] : Unique No. internally issued by the Device is specified.

2.2.1.3 Association Initiation Policy

KC_UNITEA_P001 does not request Association.

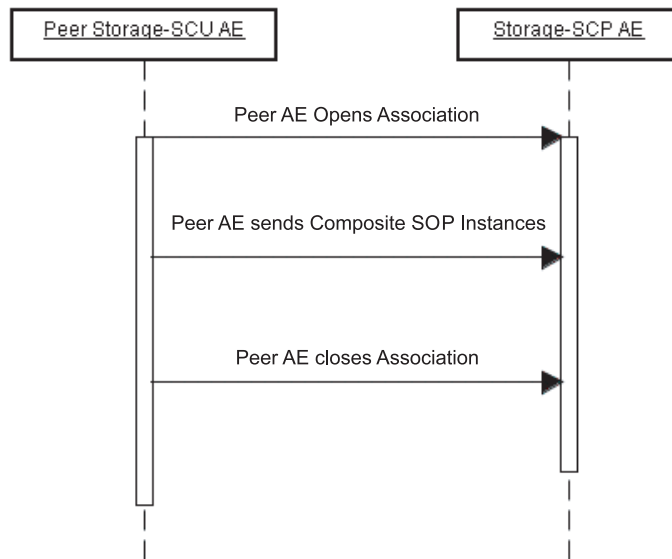
2.2.1.4 Association Acceptance Policy

2.2.1.4.1 Activity-Storage Image Requested by an External Peer AE

2.2.1.4.1.1 Description and Sequencing of Activity

KC_UNITEA_P001 becomes stand-by as soon as the system is started up so that it can receive request for Association from external AE. KC_UNITEA_P001 starts receiving images only after accepting the Association.

KC_UNITEA_P001 shall release the Association when the image transfer is completed. Registration of the image shall not be made if a request for release is not received.



Sequence of Image Storage requested from external AE in the above is described below.

1. External AE sends a request for Association to KC_UNITEA_P001.
2. External AE sends images to KC_UNITEA_P001.
3. External AE sends a request for release to KC_UNITEA_P001.

2.2.1.4.1.2 Accepted Presentation Contexts

KC_UNITEA_P001 is capable of accepting Presentation Contexts listed below.

Abstract Syntax			
Name	UID	Role	Extended Negotiation
CR Image Storage Service class	1.2.840.10008.5.1.4.1.1.1	SCP	None
Digital X-Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	SCP	None
Digital X-Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	SCP	None
CT Image Information Object Storage	1.2.840.10008.5.1.4.1.1.2	SCP	None
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	SCP	None
MR Image Information Object Storage	1.2.840.10008.5.1.4.1.1.4	SCP	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	SCP	None

Abstract Syntax			
Name	UID	Role	Extended Negotiation
SC (Secondary Capture) Image Storage	1.2.840.10008.5.1.4.1.1.7	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	SCP	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	SCP	None
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	SCP	None
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	SCP	None
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	SCP	None
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	SCP	None

KC_UNITEA_P001 supports following Transfer Syntax for Abstract Syntax mentioned above.

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG Baseline (Process1)	1.2.840.10008.1.2.4.50
JPEG Extended (Process2 & 4)	1.2.840.10008.1.2.4.51
JPEG Lossless	1.2.840.10008.1.2.4.70
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91

2.2.2 STORAGE-SCU Application Entity

KC_UNITEA_U001 has been set as default for STORAGE-SCU AE Title in ImagePilot.

2.2.2.1 SOP Class

KC_UNITEA_U001 supports following DICOM V3.0 SOP Classes as an SCP.

SOP Class name	SOP Class UID	SCU	SCP
CR (Computed Radiography) Image	1.2.840.10008.5.1.4.1.1.1	YES	NO
Digital X-Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	YES	NO
Digital X-Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	YES	NO
CT Image Information Object Storage	1.2.840.10008.5.1.4.1.1.2	YES	NO
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	YES	NO
MR Image Information Object Storage	1.2.840.10008.5.1.4.1.1.4	YES	NO
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	YES	NO
SC (Secondary Capture) Image Storage	1.2.840.10008.5.1.4.1.1.7	YES	NO
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	YES	NO
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	YES	NO
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	YES	NO
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	YES	NO
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	YES	NO
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	YES	NO
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	YES	NO
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	YES	NO
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	YES	NO
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	YES	NO

2.2.2.2 Association Establishment Policies

2.2.2.2.1 General

KC_UNITEA_U001 starts sending the image data after Association is established. AE Title and Port No. from which the Association is accepted are set in configuration.

KC_UNITEA_U001 does not accept Association Request from the external AEs.

Application Context Name supports DICOM V3.0 SOP Class listed below.

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

2.2.2.2.2 Number of Associations

KC_UNITEA_U001 is capable of sending Association Requests to maximum 5 external AEs including Associations for different services at the same time. Parallel processing will be implemented for each AE whose Association has been established.

Maximum number of simultaneous Associations	5
---	---

2.2.2.2.3 Asynchronous Nature

Asynchronous processing is not supported.

Maximum number of simultaneous Associations	1 (Not Configurable)
---	----------------------

2.2.2.2.4 Implementation Identifying Information

Implementation Class UID	Refer to description for Instance UID below
Implementation Version Name	KC_UNITEA_X.XX X.XX represents software version.

SOP Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

- Notes)
- [DivCode] : Section code 500
 - [Device] : Device type of source 220
 - [Serial No.] : Serial No. of the Device is specified.
 - [yyyymmdd] : Date is specified.
 - [hhmmss] : Time is specified.
 - [Study No.] : Study ID
 - [Series No.] : Series Number
 - [Unique No.] : Unique No. internally issued by the Device is specified.

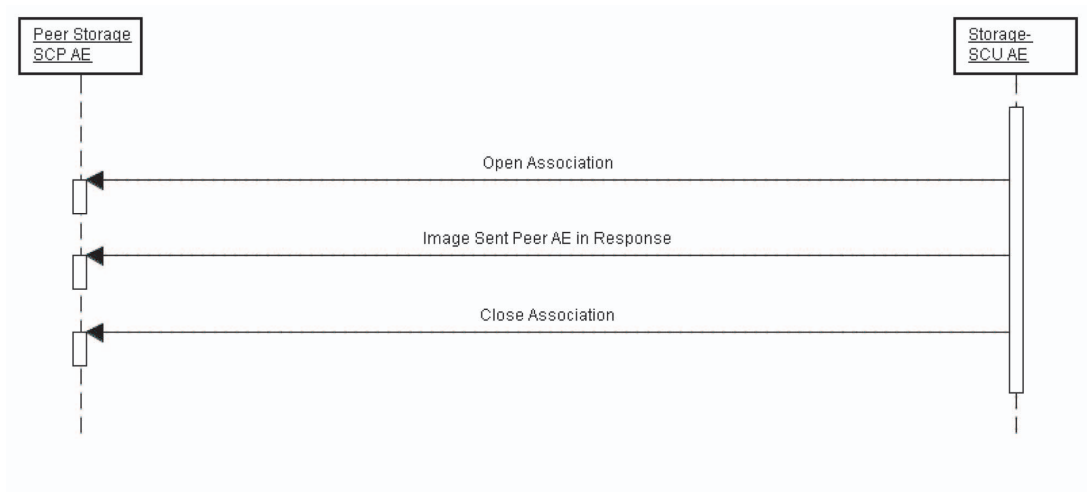
2.2.2.3 Association Initiation Policy

2.2.2.3.1 Activity-Send Image Requested by an External Peer AE

2.2.2.3.1.1 Description and Sequencing of Activity

STORAGE-SCU of ImagePilot will be started up when the image is sent to the external AEs.

STORAGE-SCU Service requests Association to external AEs, and sends the image after the request is accepted. Release will be made after the image transfer is completed.



Sequence of Image Transfer Request to the external AE in the above is described below.

1. KC_UNITEA_U001 sends Association Request to external AE.
2. KC_UNITEA_U001 sends the image requested by C-STORE Command of STORAGE SOP Class.
3. KC_UNITEA_U001 sends Release Request to external AE.

2.2.2.3.1.2 Proposed Presentation Contexts

KC_UNITEA_U001 proposes following Presentation Contexts as necessary.

Abstract Syntax			
Name	UID	Role	Extended Negotiation
CR Image Storage Service class	1.2.840.10008.5.1.4.1.1.1	SCU	None
Digital X-Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	SCU	None
Digital X-Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	SCU	None
CT Image Information Object Storage	1.2.840.10008.5.1.4.1.1.2	SCU	None
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	SCU	None
MR Image Information Object Storage	1.2.840.10008.5.1.4.1.1.4	SCU	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	SCU	None
SC (Secondary Capture) Image Storage	1.2.840.10008.5.1.4.1.1.7	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	SCU	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	SCU	None
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	SCU	None
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	SCU	None
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	SCU	None
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	SCU	None

KC_UNITEA_U001 supports following Transfer Syntax for Abstract Syntax mentioned above.

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG Baseline (Process1)	1.2.840.10008.1.2.4.50
JPEG Extended (Process2 & 4)	1.2.840.10008.1.2.4.51
JPEG Lossless	1.2.840.10008.1.2.4.70
JPEG 2000 Image Compression(Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91

2.2.2.4 Association Acceptance Policy

STORAGE-SCU Service does not accept Association Request.

2.2.2.5 CR Image Storage SOP Class

This model conforms with the CR Image SOP Class.

The KC_UNITEA_U001 uses C-STORE to store image data on an image storage device (SCP).

Behavior: For SOP instances matching the CR Image IOD request, the KC_UNITEA_U001 executes the C-STORE DIMSE service.

The KC_UNITEA_U001 recognizes the C-STORE response status and takes appropriate action depending on whether the service terminated normally or not.

CR Image IOD Modules

IE	Module	Usage
Patient	Patient	M
	Clinical Trial Subject	U
Study	General Study	M
	Patient Study	U
	Clinical Trial Study	U
Series	General Series	M
	CR Series	M
	Clinical Trial Series	U
Equipment	General Equipment	M
Image	General Image	M
	Image Pixel	M
	Contrast/bolus	C
	Display Shutter	U
	Device	U
	CR Image	M
	Overlay Plane	U
	Modality LUT	U
	VOI LUT	U
	SOP Common	M

Patient				
Tag	Name	VR	VM	Type
(0010,0010)	Patient's Name	PN	1	2
(0010,0020)	Patient ID	LO	1	2
(0010,0030)	Patient's Birth Date	DA	1	2
(0010,0040)	Patient's Sex	CS	1	2
(0010,0032)	Patient's Birth Time	TM	1	3
(0010,1000)	Other Patient IDs	LO	1	3
(0010,1001)	Other Patient Names	PN	1	3
(0010,4000)	Patient Comments	LT	1	3

Patient					
Tag	Name	VR	VM	Type	
(0010,2201),	Patient Species Description	LO	1	1C	*1
(0010,2292),	Patient Breed Description	LO	1	2C	*1
(0010,2293),	Patient Breed Code Sequence	SQ	1	2C	*1
>(0008,0102),	Coding Scheme Designator	SH	1	1C	*1
>(0008,0100),	Code Value	SH	1	1C	*1
>(0008,0104),	Code Meaning	LO	1	1C	*1
(0010,2294),	Breed Registration Sequence	SQ	1	2C	*1
>(0010,2295),	Breed Registration Number	LO	1	1	*1
>(0010,2296),	Breed Registry Code Sequence	SQ	1	1C	*1,*2
>>(0008,0102),	Coding Scheme Designator	SH	1	1C	*1
>>(0008,0100),	Code Value	SH	1	1C	*1
>>(0008,0104),	Code Meaning	LO	1	1C	*1
(0010,2297),	Responsible Person	PN	1	2C	*1
(0010,2298),	Responsible Person Role	CS	1	1C	*1
(0010,2299),	Responsible Organization	LO	1	2C	*1

General Study				
Tag	Name	VR	VM	Type
(0020,000D)	Study Instance UID	UI	1	1
(0008,0020)	Study Date	DA	1	2
(0008,0030)	Study Time	TM	1	2
(0008,0090)	Referring Physician's Name	PN	1	2
(0020,0010)	Study ID	SH	1	2
(0008,0050)	Accession Number	SH	1	2
(0008,1030)	Study Description	LO	1	3

Patient Study				
Tag	Name	VR	VM	Type
(0010,1010)	Patient's Age	AS	1	3
(0010,1020)	Patient's Size	DS	1	3
(0010,1030)	Patient's Weight	DS	1	3
(0010,2203),	Patient's Sex Neutered	CS	1	2C

*1,*3

General Series				
Tag	Name	VR	VM	Type
(0008,0060)	Modality	CS	1	1
(0020,000E)	Series Instance UID	UI	1	1
(0020,0011)	Series Number	IS	1	2
(0020,0060)	Laterality	CS	1	2C
(0008,0021)	Series Date	DA	1	3
(0008,0031)	Series Time	TM	1	3
(0008,1050)	Performing Physicians' Name	PN	1	3
(0008,103E)	Series Description	LO	1	3
(0008,1070)	Operators' Name	PN	1	3
(0018,0015)	Body Part Examined	CS	1	3
(0018,5100)	Patient Position	CS	1	3
(0028,0108)	Smallest Pixel Value in Series	US	1	3
(0028,0109)	Largest Pixel Value in Series	US	1	3

CR Series				
Tag	Name	VR	VM	Type
(0018,0015)	Body Part Examined	CS	1	2
(0018,5101)	View Position	CS	1	2

General Equipment				
Tag	Name	VR	VM	Type
(0008,0070)	Manufacturer	LO	1	2
(0008,0080)	Institution Name	LO	1	3
(0008,1010)	Station Name	SH	1	3
(0008,1040)	Institutional Department Name	LO	1	3
(0008,1090)	Manufacturer's Model Name	LO	1	3

General Image				
Tag	Name	VR	VM	Type
(0020,0013)	Instance Number	IS	1	2
(0020,0020)	Patient Orientation	CS	2	2C
(0008,0023)	Content Date	DA	1	2C
(0008,0033)	Content Time	TM	1	2C
(0008,0008)	Image Type	CS	1	3
(0020,0012)	Acquisition Number	IS	1	3
(0008,0022)	Acquisition Date	DA	1	3
(0008,0032)	Acquisition Time	TM	1	3
(0008,002A)	Acquisition DateTime	DT	1	3
(0020,4000)	Image Comments	LT	1	3

Image Pixel				
Tag	Name	VR	VM	Type
(0028,0002)	Samples per Pixel	US	1	1
(0028,0004)	Photometric Interpretation	CS	1	1
(0028,0010)	Rows	US	1	1
(0028,0011)	Columns	US	1	1
(0028,0100)	Bits Allocated	US	1	1
(0028,0101)	Bits Stored	US	1	1
(0028,0102)	High Bit	US	1	1
(0028,0103)	Pixel Representation	US	1	1
(7FE0,0010)	Pixel Data	OW	1	1
(0028,0006)	Planar Configuration	US	1	1C

CR Image				
Tag	Name	VR	VM	Type
(0028,0004)	Photometric Interpretation	CS	1	1
(0018,0060)	KVP	DS	1	3
(0018,1111)	Distance Source to Patient	DS	1	3
(0018,1150)	Exposure Time	IS	1	3
(0018,1151)	X-Ray Tube Current	IS	1	3
(0018,1152)	Exposure	IS	1	3
(0018,1164)	Imager Pixel Spacing	DS	2	3

Modality LUT				
Tag	Name	VR	VM	Type
(0028,1052)	Rescale Intercept	DS	1	1C
(0028,1053)	Rescale Slope	DS	1	1C

VOI LUT				
Tag	Name	VR	VM	Type
(0028,1050)	Window Center	DS	1	1C
(0028,1051)	Window Width	DS	1	1C

SOP Common				
Tag	Name	VR	VM	Type
(0008,0016)	SOP Class UID	UI	1	1
(0008,0018)	SOP Instance UID	UI	1	1
(0008,0005)	Specific Character Set	CS	1-3	1C
(0008,0012)	Instance Creation Date	DA	1	3
(0008,0013)	Instance Creation Time	TM	1	3
(0020,0013)	Instance Number	IS	1	3

Other				
Tag	Name	VR	VM	Type
(0008,0064)	Conversion Type	CS	1	
(0008,0100)	Code Value	SH	1	
(0008,0102)	Coding Scheme Designator	SH	1	
(0008,0104)	Code Meaning	LO	1	
(0010,1040)	Patient's Address	LO	1	
(0010,2154)	Patient's Telephone Numbers	SH	1	
(0020,1070)	Other Study Numbers	IS	1	
(0032,1032)	Requesting Physician	PN	1	

Private Data				
Tag	Name	VR	VM	Type
(0035,00B0)	Private Creator	LO	1	3
(0035,B001)	DIP Parameter A	DS	1	3
(0035,B002)	DIP Parameter B	DS	1	3

*1 Output only when the veterinary DICOM setting is ON.

*2 List of Breed Registry Organization

"Coding Scheme Designator (0008,0102)"	"Code Value (0008,0100)"	"Code Meaning (0008,0104)"
DCM	109200	America Kennel Club
DCM	109201	America's Pet Registry Inc.
DCM	109202	American Canine Association
DCM	109203	American Purebred Registry
DCM	109204	American Rare Breed Association
DCM	109205	Animal Registry Unlimited
DCM	109206	Animal Research Foundation
DCM	109207	Canadian Border Collie Association
DCM	109208	Canadian Kennel Club
DCM	109209	Canadian Livestock Records Association
DCM	109210	Canine Federation of Canada
DCM	109211	Continental Kennel Club
DCM	109212	Dog Registry of America
DCM	109213	Federation of International Canines
DCM	109214	International Progressive Dog Breeder's Alliance
DCM	109215	National Kennel Club
DCM	109216	North American Purebred Dog Registry
DCM	109217	United All Breed Registry
DCM	109218	United Kennel Club
DCM	109219	Universal Kennel Club International
DCM	109220	Working Canine Association of Canada
DCM	109221	World Kennel Club
DCM	109222	World Wide Kennel Club

*3 Animal's Sex

M :Male <-> (0010,0040) :M, (0010,2203) :UNALTERED
 F :Female <-> (0010,0040) :F, (0010,2203) :UNALTERED
 C :Castration <-> (0010,0040) :M, (0010,2203) :ALTERED
 S :Sterilization <-> (0010,0040) :F, (0010,2203) :ALTERED
 N :Other <-> (0010,0040) :O, (0010,2203) : 0 length value

2.2.2.6 Digital X-Ray Image Storage SOP Class

This model conforms with the DX Image SOP Class.

The KC_UNITEA_U001 uses C-STORE to store image data on an image storage device (SCP).

Behavior: For SOP instances matching the DX Image IOD request, the KC_UNITEA_U001 executes the C-STORE DIMSE service.

The KC_UNITEA_U001 recognizes the C-STORE response status and takes appropriate action depending on whether the service terminated normally or not.

DX Image IOD Modules

IE	Module	Usage
Patient	Patient	M
	Clinical Trial Subject	U
Study	General Study	M
	Patient Study	U
	Clinical Trial Study	U
Series	General Series	M
	Clinical Trial Series	U
	DX Series	M
Frame of Reference	Frame of Reference	U
Equipment	General Equipment	M
Image	General Image	M
	Image Pixel	M
	Contrast/Bolus	U
	Display Shutter	U
	Device	U
	Intervention	U
	Specimen	U
	DX Anatomy Imaged	M
	DX Image	M
	DX Detector	M
	X-Ray Collimator	U
	DX Positioning	U
	X-Ray Tomo Acquisition	U
	X-Ray Acquisition Dose	U
	X-Ray Generation	U
	X-Ray Filtration	U
	X-Ray Grid	U
	Overlay Plane	C
	VOI LUT	C
	Image Histogram	U
Acquisition Context	M	
SOP Common	M	

Patient					
Tag	Name	VR	VM	Type	
(0010,0010)	Patient's Name	PN	1	2	
(0010,0020)	Patient ID	LO	1	2	
(0010,0030)	Patient's Birth Date	DA	1	2	
(0010,0040)	Patient's Sex	CS	1	2	
(0010,0032)	Patient's Birth Time	TM	1	3	
(0010,1000)	Other Patient IDs	LO	1	3	
(0010,1001)	Other Patient Names	PN	1	3	
(0010,4000)	Patient Comments	LT	1	3	
(0010,2201),	Patient Species Description	LO	1	1C	*1
(0010,2292),	Patient Breed Description	LO	1	2C	*1
(0010,2293),	Patient Breed Code Sequence	SQ	1	2C	*1
>(0008,0102),	Coding Scheme Designator	SH	1	1C	*1
>(0008,0100),	Code Value	SH	1	1C	*1
>(0008,0104),	Code Meaning	LO	1	1C	*1
(0010,2294),	Breed Registration Sequence	SQ	1	2C	*1
>(0010,2295),	Breed Registration Number	LO	1	1	*1
>(0010,2296),	Breed Registry Code Sequence	SQ	1	1C	*1,*2
>>(0008,0102),	Coding Scheme Designator	SH	1	1C	*1
>>(0008,0100),	Code Value	SH	1	1C	*1
>>(0008,0104),	Code Meaning	LO	1	1C	*1
(0010,2297),	Responsible Person	PN	1	2C	*1
(0010,2298),	Responsible Person Role	CS	1	1C	*1
(0010,2299),	Responsible Organization	LO	1	2C	*1

General Study				
Tag	Name	VR	VM	Type
(0020,000D)	Study Instance UID	UI	1	1
(0008,0020)	Study Date	DA	1	2
(0008,0030)	Study Time	TM	1	2

General Study				
(0008,0090)	Referring Physician's Name	PN	1	2
(0020,0010)	Study ID	SH	1	2
(0008,0050)	Accession Number	SH	1	2
(0008,1030)	Study Description	LO	1	3

Patient Study				
Tag	Name	VR	VM	Type
(0010,1010)	Patient's Age	AS	1	3
(0010,1020)	Patient's Size	DS	1	3
(0010,1030)	Patient's Weight	DS	1	3
(0010,2203),	Patient's Sex Neutered	CS	1	2C

*1,*3

General Series				
Tag	Name	VR	VM	Type
(0008,0060)	Modality	CS	1	1
(0020,000E)	Series Instance UID	UI	1	1
(0020,0011)	Series Number	IS	1	2
(0020,0060)	Laterality	CS	1	2C
(0008,0021)	Series Date	DA	1	3
(0008,0031)	Series Time	TM	1	3
(0008,1050)	Performing Physicians' Name	PN	1	3
(0008,103E)	Series Description	LO	1	3
(0008,1070)	Operators' Name	PN	1	3
(0018,0015)	Body Part Examined	CS	1	3
(0018,5100)	Patient Position	CS	1	3
(0028,0108)	Smallest Pixel Value in Series	US	1	3
(0028,0109)	Largest Pixel Value in Series	US	1	3

DX Series				
Tag	Name	VR	VM	Type
(0008,0060)	Modality	CS	1	1
(0008,0068)	Presentation Intent Type	CS	1	1

General Equipment				
Tag	Name	VR	VM	Type
(0008,0070)	Manufacturer	LO	1	2
(0008,0080)	Institution Name	LO	1	3
(0008,1010)	Station Name	SH	1	3
(0008,1040)	Institutional Department Name	LO	1	3
(0008,1090)	Manufacturer's Model Name	LO	1	3

General Image				
Tag	Name	VR	VM	Type
(0020,0013)	Instance Number	IS	1	2
(0020,0020)	Patient Orientation	CS	2	2C
(0008,0023)	Content Date	DA	1	2C
(0008,0033)	Content Time	TM	1	2C
(0008,0008)	Image Type	CS	1	3
(0020,0012)	Acquisition Number	IS	1	3
(0008,0022)	Acquisition Date	DA	1	3
(0008,0032)	Acquisition Time	TM	1	3
(0008,002A)	Acquisition DateTime	DT	1	3
(0020,4000)	Image Comments	LT	1	3

Image Pixel				
Tag	Name	VR	VM	Type
(0028,0002)	Samples per Pixel	US	1	1
(0028,0004)	Photometric Interpretation	CS	1	1
(0028,0010)	Rows	US	1	1
(0028,0011)	Columns	US	1	1
(0028,0100)	Bits Allocated	US	1	1
(0028,0101)	Bits Stored	US	1	1
(0028,0102)	High Bit	US	1	1
(0028,0103)	Pixel Representation	US	1	1
(7FE0,0010)	Pixel Data	OW	1	1
(0028,0006)	Planar Configuration	US	1	1C

DX Anatomy Imaged				
Tag	Name	VR	VM	Type
(0020,0062)	Image Laterality	CS	1	1
(0008,2218)	Anatomic Region Sequence	SQ	1	2

DX Image				
Tag	Name	VR	VM	Type
(0028,1040)	Pixel Intensity Relationship	CS	1	1
(0028,1041)	Pixel Intensity Relationship Sign	SS	1	1
(0028,1052)	Rescale Intercept	DS	1	1
(0028,1053)	Rescale Slope	DS	1	1
(0028,1054)	Rescale Type	LO	1	1
(2050,0020)	Presentation LUT Shape	CS	1	1

DX Detector				
Tag	Name	VR	VM	Type
(0018,1164)	Imager Pixel Spacing	DS	2	1

DX Positioning				
Tag	Name	VR	VM	Type
(0018,5101)	View Position	CS	1	2

X-Ray Acquisition Dose				
Tag	Name	VR	VM	Type
(0018,0060)	KVP	DS	1	3
(0018,1151)	X-ray Tube Current	IS	1	3
(0018,1150)	Exposure Time	IS	1	3
(0018,1152)	Exposure	IS	1	3
(0018,1111)	Distance Source to Patient	DS	1	3
(0040,0306)	Distance Source to Entrance	DS	1	3

VOI LUT				
Tag	Name	VR	VM	Type
(0028,1050)	Window Center	DS	1	1C
(0028,1051)	Window Width	DS	1	1C

Acquisition Context				
Tag	Name	VR	VM	Type
(0040,0555)	Acquisition Context Sequence	SQ	1	2

SOP Common				
Tag	Name	VR	VM	Type
(0008,0016)	SOP Class UID	UI	1	1
(0008,0018)	SOP Instance UID	UI	1	1
(0008,0005)	Specific Character Set	CS	1-3	1C
(0008,0012)	Instance Creation Date	DA	1	3
(0008,0013)	Instance Creation Time	TM	1	3
(0020,0013)	Instance Number	IS	1	3

Other				
Tag	Name	VR	VM	Type
(0008,0064)	Conversion Type	CS	1	
(0008,0100)	Code Value	SH	1	
(0008,0102)	Coding Scheme Designator	SH	1	
(0008,0104)	Code Meaning	LO	1	
(0010,1040)	Patient's Address	LO	1	
(0010,2154)	Patient's Telephone Numbers	SH	1	
(0020,1070)	Other Study Numbers	IS	1	
(0032,1032)	Requesting Physician	PN	1	

Private Data				
Tag	Name	VR	VM	Type
(0035,00B0)	Private Creator	LO	1	3
(0035,B001)	DIP Parameter A	DS	1	3
(0035,B002)	DIP Parameter B	DS	1	3

*1 Output only when the veterinary DICOM setting is ON.

*2 List of Breed Registry Organization

"Coding Scheme Designator (0008,0102)"	"Code Value (0008,0100)"	"Code Meaning (0008,0104)"
DCM	109200	America Kennel Club
DCM	109201	America's Pet Registry Inc.
DCM	109202	American Canine Association
DCM	109203	American Purebred Registry
DCM	109204	American Rare Breed Association
DCM	109205	Animal Registry Unlimited
DCM	109206	Animal Research Foundation
DCM	109207	Canadian Border Collie Association
DCM	109208	Canadian Kennel Club
DCM	109209	Canadian Livestock Records Association
DCM	109210	Canine Federation of Canada
DCM	109211	Continental Kennel Club
DCM	109212	Dog Registry of America
DCM	109213	Federation of International Canines
DCM	109214	International Progressive Dog Breeder's Alliance
DCM	109215	National Kennel Club
DCM	109216	North American Purebred Dog Registry
DCM	109217	United All Breed Registry
DCM	109218	United Kennel Club
DCM	109219	Universal Kennel Club International
DCM	109220	Working Canine Association of Canada
DCM	109221	World Kennel Club
DCM	109222	World Wide Kennel Club

*3 Animal's Sex

M :Male <-> (0010,0040) :M, (0010,2203) :UNALTERED

F :Female <-> (0010,0040) :F, (0010,2203) :UNALTERED

C :Castration <-> (0010,0040) :M, (0010,2203) :ALTERED

S :Sterilization <-> (0010,0040) :F, (0010,2203) :ALTERED

N :Other <-> (0010,0040) :O, (0010,2203) : 0 length value

2.2.3 Print MANAGE-SCU Application Entity

KC_PLNK5_SCU has been set as default for PRINT MANAGE-SCU AE Title in ImagePilot.

2.2.3.1 SOP Class

ImagePilot supports following DICOM V3.0 SOP Classes in PRINT MANAGE-SCU Service.

SOP Class name	SOP Class UID	SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	YES	NO
Presentation LUT	1.2.840.10008.5.1.1.23	YES	NO

2.2.3.2 Association Establishment Policies

2.2.3.2.1 General

KC_PLNK5_SCU starts sending the image data after Association is established. AE Title and Port No. from which the Association is accepted are set in configuration.

KC_PLNK5_SCU does not accept Association Request from the external AEs.

Application Context Name supports DICOM V3.0 SOP Class listed below.

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

2.2.3.2.2 Number of Associations

KC_PLNK5_SCU is capable of sending Association Requests for maximum 1 external AE including Associations for different services at the same time. Parallel processing will be implemented for each AE whose Association has been established.

Maximum number of simultaneous Associations	1
---	---

2.2.3.2.3 Asynchronous Nature

Asynchronous processing is not supported.

Maximum number of simultaneous Associations	1 (Not Configurable)
---	----------------------

2.2.3.2.4 Implementation Identifying Information

Implementation Class UID	Refer to description for Instance UID below
Implementation Version Name	KC_UNITEA_X.XX X.XX represents software version.

SOP Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

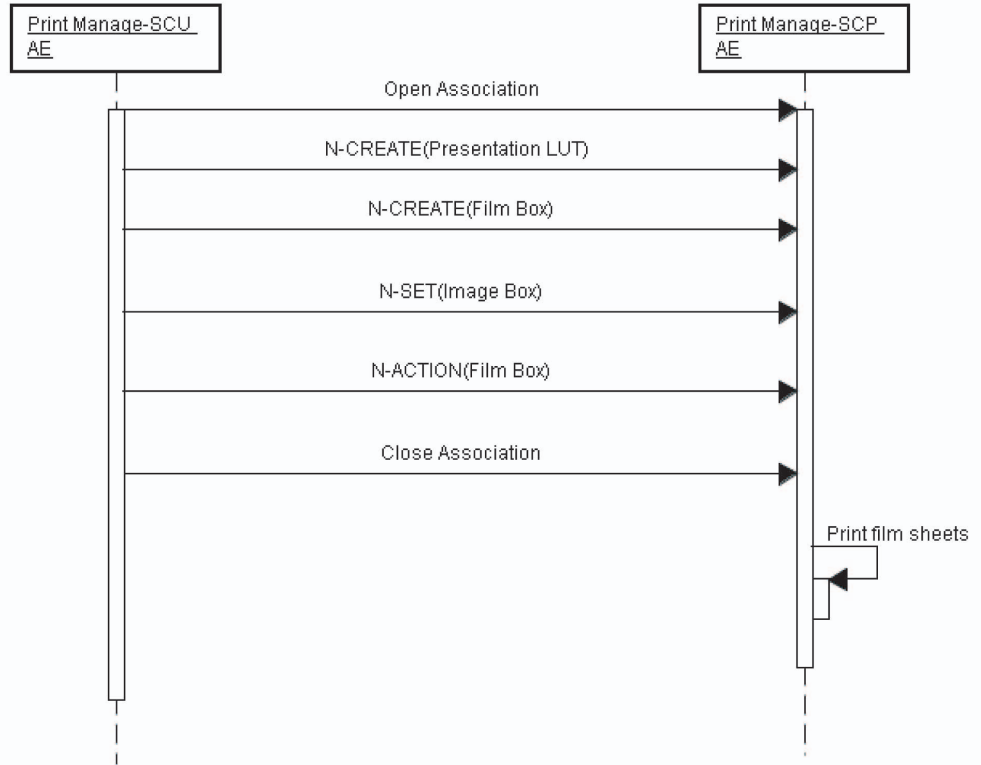
- Notes) [DivCode] : Section code 500
 [Device] : Device type of source 220
 [Serial No.] : Serial No. of the Device is specified.
 [yyyymmdd] : Date is specified.
 [hhmmss] : Time is specified.
 [Study No.] : Study ID
 [Series No.] : Series Number
 [Unique No.] : Unique No. internally issued by the Device is specified.

2.2.3.3 Association Initiation Policy

2.2.3.3.1 Activity-Print Image Requested to an External Peer AE

2.2.3.3.1.1 Description and Sequencing of Activity

KC_PLNK5_SCU sends Association Request to Print Service Request origin, and sends Print Service Request after Association Request is accepted.



Sequence of Print Service requested from external AE in the above is described below.

1. KC_PLNK5_SCU sends Association Request to external AE.
2. Creates Film Session using N-CREATE command of Film Session SOP Class.
3. Creates Presentation LUT using N-CREATE command of Presentation LUT SOP Class (assuming the Printer supports this command)
4. Creates File Box associated with Film Session using N-CREATE command of Film Box SOP Class.
5. Sends a sheet containing the data to be output from the Printer using N-SET command of Image Box SOP Class. If Presentation LUT is not supported, processing shall be continued using LUT that has been already received.
6. Sends a request for printing Film Box to the Printer using N-ACTION command of Film Box SOP Class.
7. Printer outputs the requested sheet.
8. KC_PLNK5_SCU sends Release Request to external AE.

2.2.3.3.1.2 Proposed Presentation Contexts

ImagePilot sends Association Request using Presentation Contexts listed below in PRINT MANAGE-SCU.

Abstract Syntax			
Name	UID	Role	Extended Negotiation
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	SCU	None
Presentation LUT	1.2.840.10008.5.1.1.23	SCU	None

ImagePilot supports following Transfer Syntax for Abstract Syntax mentioned above.

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2

2.2.3.3.1.3 SOP Specific Conformance for the Printer SOP Class

KC_PLNK5_SCU supports following DIMSE.

- N-GET

Details of DIMSE is described in the following paragraph.

2.2.3.3.1.3.1 Printer SOP Class Operations (N-GET)

SCU is capable of using N-GET to send Request for Print SOP Instance to SCP.

<< Printer SOP Class>>

N-GET successful	Successful Printlink5-IN(SCP) searched SOP Instance
N-GET failed	Failure Printlink5-IN(SCP) did not search SOP Instance

Printlink5-IN (SCP) returns either of the following status codes to HOST(SCP).

<< Status Codes common to Print Manage Service Class>>

0000H(successful)	U/M : Imager status, imager status information. U/U : Manufacturer, product model name, installation serial No., software version, imager name.
-------------------	--

<< Specific Status Code>>

No specific status code

2.2.3.3.1.4 SOP Specific Conformance for the Film Session SOP Class

KC_PLNK5_SCU supports following DIMSE.

- N-CREATE

Details of DIMSE is described in the following paragraph.

2.2.3.3.1.4.1 Film Session SOP Class Operations (N-CREATE)

Attributes of N-CREATE are listed below.

Tag	Name	VR	VM	Permitted Value
(2000, 0010)	Number Of Copies	IS	1	Print count. 1 ~ 99
(2000, 0020)	Print Priority	CS	1	Priority in print. LOW MED HIGH
(2000, 0030)	Medium Type	CS	1	Type of media. CLEAR FILM = Clear base BLUE FILM = Blue base DR BLUE FILM = DR blue base
(2000, 0040)	Film Destination	CS	1	Film output destination. MAGAZINE PROCESSOR BIN_1 ~ BIN_6
(2000, 0060)	Memory Allocation	IS	1	Memory allocation. Set the necessary memory contents. Value is displayed in KB.

Tags other than the above are not checked.

Header information that is not maintained yet will be maintained as necessary.

2.2.3.3.1.5 SOP Specific Conformance for the Film Box SOP class

KC_PLNK5_SCU supports following DIMSE.

- N-CREATE
- N-ACTION

Details of DIMSE is described in the following paragraph.

2.2.3.3.1.5.1 Film Box SOP Class Operations (N-CREATE)

Attribute that is sent using N-CREATE is listed below.

Tag	Name	VR	VM	Permitted Value
(2010,0010)	Image Display Format	ST	1	STANDARD? 1,1~STANDARD? 5.4
(2010,0040)	Film Orientation	CS	1	Film orientation. PORTRAIT LANDSCAPE
(2010,0050)	Film Size ID	CS	1	Film size (imager-dependent) 8INX10IN 10INX12IN 11INX14IN 14INX14IN 14INX17IN
(2010,0060)	Magnification Type	CS	1	Magnification type. REPLICATE = 0-dimensional interpolation CUBIC = 3-dimensional B-Spline interpolation.
(2010,0080)	Smoothing Type	CS	1	Smoothing type: 1 ~ 7 Valid only for the magnification type (2010,0060) = CUBIC.
(2010,0100)	Borders	CS	1	Border density: BLACK/ WHITE
(2010,0120)	Min Density	US	1	10 ~ 459 (imager-dependent)
(2010,0130)	Max Density	US	1	11 ~ 460 (imager-dependent)
(2010,0140)	Trim	CS	1	Trimming frame YES NO
(2010,0150)	Configuration Information	ST	1	Imager LUT description is as follows; KC_LUT=1 ~ 7
(2010,015E)	Illumination	US	1	Illumination
(2010,0160)	Reflected Ambient Light	US	1	Reflected ambient light

Tags other than the above are not checked.

Header information that is not maintained yet will be maintained as necessary.

2.2.3.3.1.5.2 Film Box SOP Class Operations (N-ACTION)

N-ACTION requests SCP to print the contents of Film Box.

However, it does not evaluate the contents returned as the response from N-ACTION.

2.2.3.3.1.6 SOP Specific Conformance for the Image Box SOP class

KC_PLNK5_SCU supports following DIMSE.

- N-SET

Details of DIMSE is described in the following paragraph.

2.2.3.3.1.6.1 Image Box SCP Class Operations (N-SET)

Attributes of N-SET are listed below.

Tag	Name	VR	VM	Permitted Value
(0028, 0002)	Samples per Pixel	US	1	Samples per pixel.
(0028, 0004)	Photometric Interpretation	CS	1	Photometric interpretation. Minimum VOI pixel value= White MinimumVOI pixel value = Black
(0028, 0010)	Rows	US	1	Image pixels in Y-axis direction.
(0028, 0011)	Columns	US	1	Image pixels in X-axis direction.
(0028, 0034)	Pixel Aspect Ratio	IS	2	Pixel aspect ratio.
(0028, 0100)	Bits Allocated	US	1	Bits allocated to pixel. Vacant bits included. 0008:8 (8 bits) 000A:16 (12 bits) Returns an error for those other than the above.
(0028, 0101)	Bits Stored	US	1	Bits per pixel. 0008:8 bits 000C:12 bits
(0028, 0102)	High Bit	US	1	High bit. MSB (Most Significant Bit) of pixel data. 0007: (Bits Stored = 8) 000B: (Bits Stored = 12)
(0028, 0103)	Pixel Representation	US	1	Presentation of pixel data. 0000 = integer without sign
(2020, 0010)	Image Position	US	1	Image position. Position of images comprising the page.
(2020, 0020)	Polarity	CS	1	Polarity NORMAL REVERSE
(2020, 0030)	Requested Image Size	DS	1	Requested image size (imager-dependent)
(2020, 0040)	Requested Decimate/Crop Behavior	CS	1	Requested behavior (imager-dependent)
(7FE0, 0010)	Pixel Data	OW OB	1	Pixel data.

Tags other than the above are not checked.

Header information that is not maintained yet will be maintained as necessary.

2.2.3.4 Association Acceptance Policy

KC_PLNK5_SCU does not accept Association Request.

2.2.4 QUERY/RETRIEVE -SCP Application Entity

ImagePilot defines KC_UNITEA_P001 as the default for "STORAGE-SCP AE Title".

2.2.4.1 SOP Class

KC_UNITEA_P001 supports the following DICOM V3.0 SOP Classes as the SCP.

SOP Class name	UID
Patient Root Query/Retrieve Information Model -FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model -MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model -MOVE	1.2.840.10008.5.1.4.1.2.2.2

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

2.2.4.2 Association Policies

2.2.4.2.1 General

KC_UNITEA_P001 implements reception of C-FIND and C-MOVE after the association is established. AE Title and Port No. that accept the request for establishing the association will be set using the configuration.

Application Context Name supports the following DICOM V3.0 SOP Class.

Application Context	1.2.840.10008.3.1.1.1
---------------------	-----------------------

2.2.4.2.2 Number of Associations

KC_UNITEA_P001 receives at the same time maximum one(1) association request to the external AE including associations to other services.

Maximum number of simultaneous Associations	1
---	---

2.2.4.2.3 Asynchronous Nature

Only single image is handled in the association. Asynchronous process is not supported.

Maximum number of simultaneous Associations	1 (Not Configurable)
---	----------------------

2.2.4.2.4 Implementation Identifying Information

Implementation Class UID	Refer to following Instance UID descriptions
Implementation Version Name	KC_UNITEA_X.XX X.XX represents the software version.

* X.XX represents the software version.

SOP Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

Note) [DivCode] : Division Code 500

[Device] : Source Device Type 220

[Serial No.] : Device's serial No.

[yyyymmdd] : Date.

[hhmmss] : Time.

[Study No.] : Study ID

[Series No.] : Series Number

[Unique No.] : Unique No. internally issued by the device.

2.2.4.3 Association Initiation Policy

KC_UNITEA_P001 does not request for the association. establishment.

2.2.4.4 Association Acceptance Policy

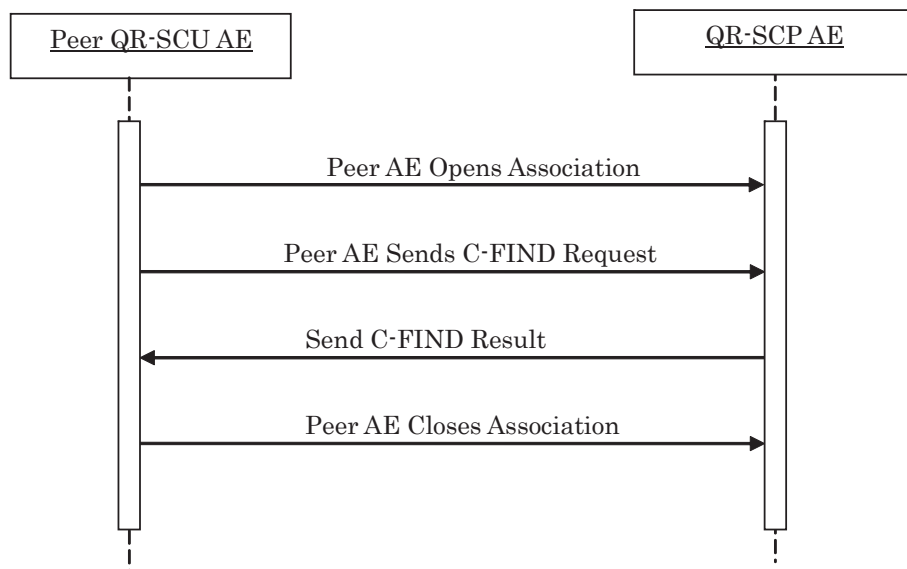
2.2.4.4.1 C-FIND, C-MOVE Requested by an External Peer AE

2.2.4.4.1.1 Description and Sequencing of Activity

KC_UNITEA_P001 becomes standby as soon as the system is activated to accept the request for association. After acceptance of the association, KC_UNITEA_P001 initiates reception of C-FIND and C-MOVE requests.

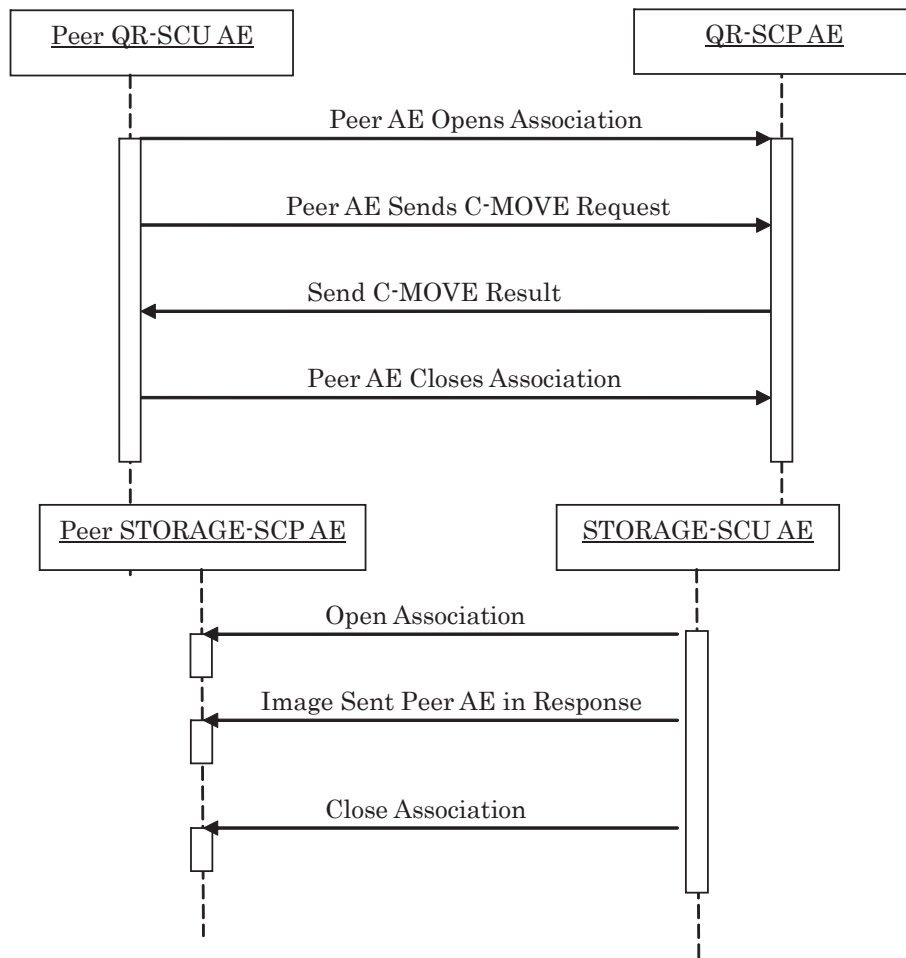
KC_UNITEA_P001 always releases the association as soon as C-FIND and C-MOVE complete sending the results.

C-FIND



Followings are the descriptions of sequences involved in the image storage request sent from the external AE as illustrated above.

1. External AE requests the association to KC_UNITEA_P001.
2. External AE sends C-FIND request to KC_UNITEA_P001.
3. KC_UNITEA_P001 sends C-FIND results to the external AE.
4. External AE requests the release to KC_UNITEA_P001.

C-MOVE

Followings are the descriptions of sequences involved in the image storage request sent from the external AE as illustrated above.

1. External AE requests the association to KC_UNITEA_P001.
2. External AE sends C-MOVE request to KC_UNITEA_P001.
3. KC_UNITEA_P001 sends C-MOVE results to the external AE.
4. External AE requests the release to KC_UNITEA_P001.
5. KC_UNITEA_U001 requests the association to the external AE as the subroutine.
6. KC_UNITEA_U001 sends the image to the external AE as the subroutine.
7. KC_UNITEA_U001 requests the release to the external AE as the subroutine

2.2.4.4.1.2 Accepted Presentation Contexts

KC_UNITEA_P001 is capable of receiving the presentation context listed in the following table.

Abstract Syntax Name			
SOP Class Name	UID	Function	Expanded Negotiation
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	SCU	None
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	SCU	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	SCU	None

Following transfer syntaxes are supported in regards to the above abstract syntaxes.

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

2.2.4.4.1.3 Compatibility Specific to SOP

Data items that shall be the search target are as follows;

Tag	Attributes	Patient Level		Study Level		Series Level		Composite Object Instance Level	
		Query Key	Returned Key	Query Key	Returned Key	Query Key	Returned Key	Query Key	Returned Key
(0008,0005)	Specific Character Set		○		○		○		○
(0008,0052)	Query/Retrieve Level	"PATIENT"	○	"STUDY"	○	"SERIES"	○	"IMAGE"	○
(0008,0054)	Retrieve AE Title		○		○		○		○
(0010,0010)	Patient's Name	S, *	○	S, *	○	S, *	○	S, *	
(0010,0020)	Patient ID	S, *	○	S, *	○	S, *	○	S, *	
(0010,0030)	Patient's Birth Date	S	○	S	○	S	○	S	
(0010,0032)	Patient's Birth Time	S, R	○	S, R	○	S, R	○	S, R	
(0010,0040)	Patient's Sex	S, *	○	S, *	○	S, *	○	S, *	
(0010,1000)	Other Patient IDs	S, *	○	S, *	○	S, *		S, *	
(0010,1001)	Other Patient Names	S, *	○	S, *	○	S, *		S, *	
(0010,1010)	Patient's Age	S	○	S	○	S	○	S	○
(0010,2160)	Ethnic Group	S, *	○	S, *	○	S, *		S, *	
(0010,4000)	Patient Comments	S, *	○	S, *	○	S, *	○	S, *	
(0020,1200)	Number of Patient Related Studies		○		○				
(0020,1202)	Number of Patient Related Series		○		○				
(0020,1204)	Number of Patient Related Instances		○		○				
(0008,0020)	Study Date			S	○	S	○	S	
(0008,0030)	Study Time			S, R	○	S, R	○	S, R	
(0008,0050)	Accession Number			S, *	○	S, *	○	S, *	
(0008,0061)	Modalities in Study			M	○	M		M	
(0008,0090)	Referring Physician's Name			S, *	○	S, *		S, *	
(0008,1030)	Study Description			S, *	○	S, *		S, *	
(0010,1020)	Patient's Size			S	○	S		S	
(0010,1030)	Patient's Weight			S	○	S		S	

Tag	Attributes	Patient Level		Study Level		Series Level		Composite Object Instance Level	
		Query Key	Returned Key	Query Key	Returned Key	Query Key	Returned Key	Query Key	Returned Key
(0020,000D)	Study Instance UID			S	○	S	○	S	
(0020,0010)	Study ID			S, *	○	S, *	○	S, *	
(0020,1070)	Other Study Numbers			S	○	S		S	
(0020,1206)	Number of Study Related Series				○				
(0020,1208)	Number of Study Related Instances				○				
(0008,0060)	Modality					S	○	S	
(0018,0015)	Body Part Examined					S, *	○	S, *	
(0020,000E)	Series Instance UID					S	○	S	
(0020,0011)	Series Number					S	○	S	
(0020,1209)	Number of Series Related Instances						○		
(0008,0016)	SOP Class UID							S	○
(0008,0018)	SOP Instance UID							S	○
(0020,0013)	Instance Number							S	○
(0028,0008)	Number of Frames							S	○
(0040,A043)	Concept Name Code Sequence								
>(0008,0100)	Code Value							S	
>(0008,0102)	Coding Scheme Designator							S	
>(0008,0103)	Coding Scheme Version							S	
>(0008,0104)	Code Meaning							S	
(0040,A491)	Completion Flag							S	
(0040,A493)	Verification Flag							S	

Query Keys Matching

S : Single Value Matching

M : Multi Value Matching

R : Range Matching

* : Wildcard Matching

2.2.5 QUERY/RETRIEVE-SCU Application Entity

ImagePilot defines KC_UNITEA_U001 as the default for "QUERY/RETRIEVE -SCU AE Title".

2.2.5.1 SOP Class

KC_UNITEA_U001 supports following DICOM V3.0 SOP Classes as the SCU.

SOP Class name	UID
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model -MOVE	1.2.840.10008.5.1.4.1.2.2.2

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2

2.2.5.2 Association Establishment Policies

2.2.5.2.1 General

ImagePilot Query/Retrieve Service Class SCU recognizes and uses the following application context name. KC_UNITEA_U001 sends C-FIND and C-MOVE requests after the association is established. AE Title and Port No. that accept the request for establishing the association will be set using the configuration. KC_UNITEA_U001 does not accept the request for establishing the association sent from the external AE. Application Context Name supports the following DICOM V3.0 SOP Class.

Application Context	1.2.840.10008.3.1.1.1
---------------------	-----------------------

2.2.5.2.2 Number of Associations

KC_UNITEA_U001 sends at the same time maximum one(1) association request to the external AE including associations to other services. Parallel processing is implemented for each AE with which the association is established.

Maximum number of simultaneous Associations	1
---	---

2.2.5.2.3 Asynchronous Nature

Asynchronous process is not supported.

Maximum number of simultaneous Associations	1 (Not Configurable)
---	----------------------

2.2.5.2.4 Implementation Identifying Information

Implementation Class UID	Refer to following Instance UID descriptions
Implementation Version Name	KC_UNITEA_X.XX X.XX represents the software version.

* X.XX represents the software version.

SOP Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is as follows;

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

- Note) [DivCode] : Division Code 500
- [Device] : Source Device Type 220
- [Serial No.] : Device's Serial No.
- [yyyymmdd] : Date.
- [hhmmss] : Time
- [Study No.] : Study ID
- [Series No.] : Series Number
- [Unique No.] : Unique No. internally issued by the device.

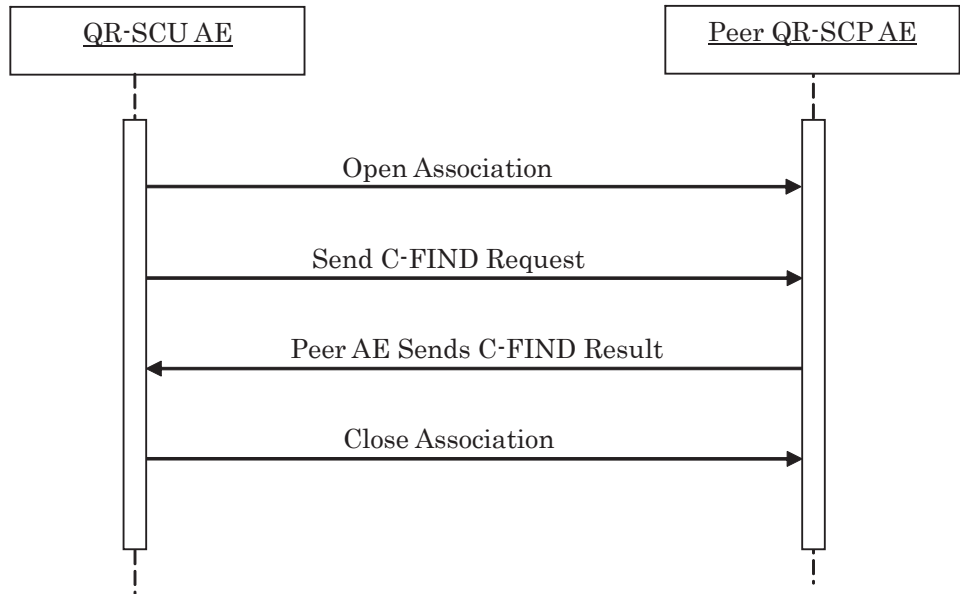
2.2.5.3 Association Initiation Policy

2.2.5.3.1 C-FIND,C-MOVE Request to an External Peer AE

2.2.5.3.1.1 Description and Sequencing of Activity

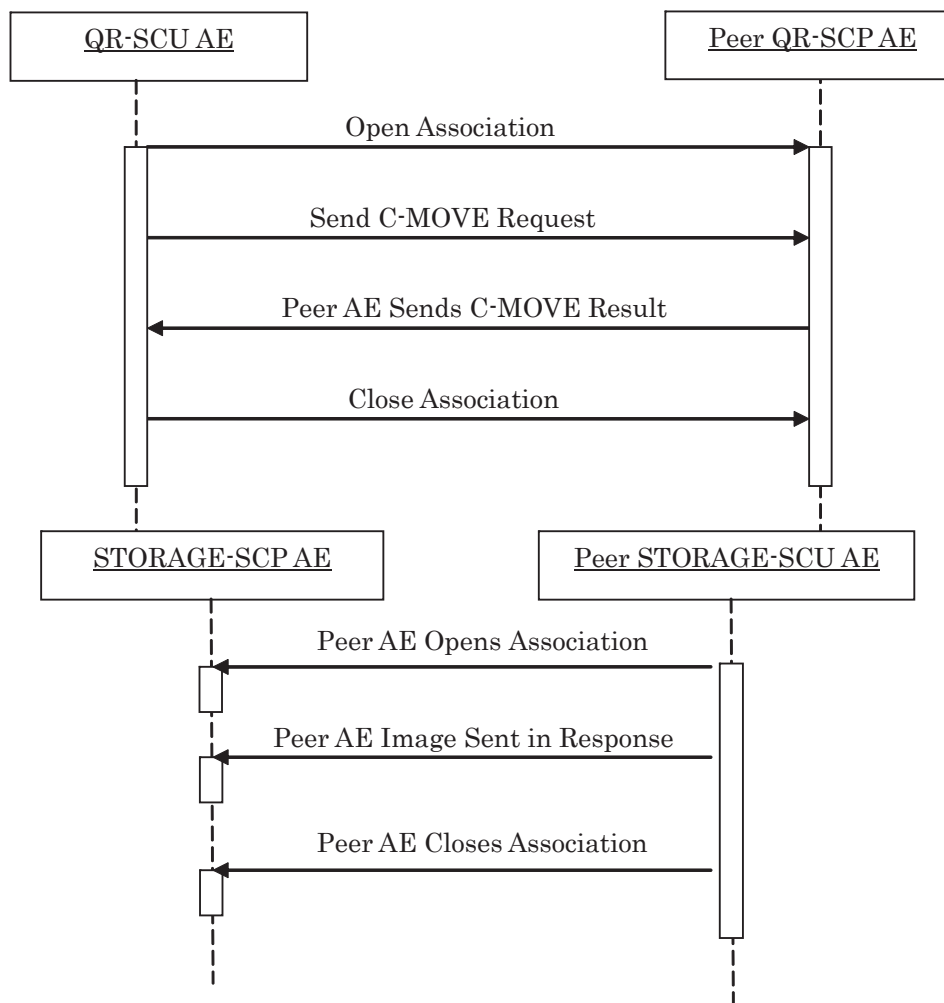
ImagePilot QUERY/RETRIEVE-SCU is activated when sending C-FIND and C-MOVE requests to the external AE.

QUERY/RETRIEVE-SCU service requests the association to the external AE, and sends C-FIND and C-MOVE requests after the request is accepted. QUERY/RETRIEVE-SCU service releases the association after the reception of the results is completed. Images will be received by the other association, i.e. Storage SCP AE.



Followings are the descriptions of sequences involved in the image storage request sent from the external AE as illustrated above.

1. KC_UNITEA_U001 requests the association to the external AE.
2. KC_UNITEA_U001 sends C-FIND request to the external AE.
3. External AE sends C-FIND results to KC_UNITEA_U001.
4. KC_UNITEA_U001 requests the release to the external AE.



Followings are the descriptions of sequences involved in the image storage request sent from the external AE as illustrated above.

1. KC_UNITEA_U001 requests the association to the external AE.
2. KC_UNITEA_U001 sends C-MOVE request to the external AE.
3. External AE sends C-MOVE results to KC_UNITEA_U001.
4. KC_UNITEA_P001 requests the release to the external AE.
5. External AE requests the association to KC_UNITEA_P001 as the subroutine.
6. External AE sends the image to KC_UNITEA_P001 as the subroutine.
7. External AE requests the release to KC_UNITEA_P001 as the subroutine.

2.2.5.3.2 Proposed Presentation Contexts

KC_UNITEA_U001 proposes the following presentation contexts as necessary.

Abstract Syntax Name			
SOP Class Nam	UID	Function	Expanded Negotiation
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	SCU	None

Following transfer syntaxes are supported in regards to the above abstract syntaxes.

Transfer Syntax	
Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2

2.2.5.3.3 Compatibility specific to SOP

ImagePilot implements hierarchical search in the search route.

Tag	Attributes	Query Keys Matching	
(0008,0052)	Query/Retrieve Level	"STUDY" or "SERIES"	
(0008,0020)	Study Date	S, R	
(0008,0030)	Study Time	R	
(0008,0050)	Accession Number	S	
(0008,0061)	Modalities in Study	M	
(0010,0010)	Patient's Name	S	
(0010,0020)	Patient ID	S	
(0010,0030)	Patient's Birth Date	S	
(0010,0040)	Patient's Sex	S	
(0010,4000)	Patient Comments	S	
(0020,0010)	Study ID	S	
(0008,0054)	Retrieve AE Title	S	*1
(0020,000D)	Study Instance UID	S	*1

Query Keys Matching

S : Single Value Matching

M : Multi Value Matching

R : Range Matching

*1 : The value received by the response of Study Level is specified.

2.2.5.4 Association Acceptance Policy

QUERY/RETRIEVE-SCU Service does not accept the association request.

2.2.6 MWM-SCU Application Entity

2.2.6.1 SOP Class

ImagePilot supports the following SOP classes as the Basic Worklist Management Service Class SCU.

SOP Class name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.3.1

2.2.6.2 Association Establishment Policy

2.2.6.2.1 General

The ImagePilot Basic Worklist Management Service Class SCU recognizes and uses the following application context name.

Descriptions	UID
Application context name	1.2.840.10008.3.1.1.1

Maximum and default PDU size is 64KB.

2.2.6.2.2 Number of Associations

The ImagePilot Basic Worklist Management Service Class SCU issues a single association request at one time for the external AE that is implemented as a separate device.

2.2.6.2.3 Asynchronous Nature

Asynchronous processing is not supported.

2.2.6.2.4 Implementation Identifying Information

Implementation Identifying Information value is issued by KonicaMinolta.

Implementation Class UID	Refer to descriptions for Instance UID below
Implementation Version Name	KC_UNITEA_X.XX X.XX represents software version.

SOP Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[yyyymmdd].[hhmmss].[Unique No.]

Study Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[11+Study No.]

Series Instance UID is defined as follows.

- 1.2.392.200036.9107.[DivCode].[Device].[Serial No.].[Study No.].[12+Series No.]

Notes) [DivCode] : Section code 500
 [Device] : Device type of source 220
 [Serial No.] : Serial No. of the Device is specified.
 [yyyymmdd] : Date is specified.
 [hhmmss] : Time is specified.
 [Study No.] : Study ID
 [Series No.] : Series Number
 [Unique No.] : Unique No. internally issued by the Device is specified.

2.2.6.3 Real World Activities

2.2.6.3.1 Associated Real World Activity

The ImagePilot Basic Worklist Management Service Class SCU in the Real World where the association has been established requests C-FIND to the Remote Basic Worklist Management Service Class SCP, and receives the patient/study information.

2.2.6.3.2 Presentation Context Tables

The ImagePilot Basic Worklist Management Service Class SCU sends requests using the following presentation contexts.

Abstract Syntax Name			
Name	UID	Function	Expanded Negotiation
Modality Worklist Information Model- FIND	1.2.840.10008.5.1.4.31	SCU	None

Transfer Syntax Name	
Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2

2.2.6.4 Modality Worklist Attributes

Tag	Attributes	VR	VM	Matching Key Type	Search Key
Common to SOP					
(0008,0005)	Specific Character Set	CS	1-n	O	
Scheduled Procedure Step					
(0040,0100)	Scheduled Procedure Step Sequence	SQ	1	R	
>(0040,0001)	Scheduled Station AE Title	AE	1-n	R	"At polling (by setting)"
>(0040,0002)	Scheduled Procedure Step Start Date	DA	1	R	At polling
>(0040,0003)	Scheduled Procedure Step Start Time	TM	1	R	
>(0008,0060)	Modality	CS	1	R	At polling and patient search
>(0040,0006)	Scheduled Performing Physician's Name	PN	1	R	
>(0040,0007)	Scheduled Procedure Step Description	LO	1	O	
>(0040,0010)	Scheduled Station Name	SH	1-n	O	
>(0040,0011)	Scheduled Procedure Step Location	SH	1	O	
>(0040,0008)	Scheduled Protocol Code Sequence	SQ	1	O	
>>(0008,0100)	Code Value	SH	1	O	
>>(0008,0102)	Coding Scheme Designator	SH	1	O	
>>(0008,0104)	Code Meaning	LO	1	O	
>(0040,0009)	Scheduled Procedure Step ID	SH	1	O	
>(0032,1070)	Requested Contrast Agent	LO	1	O	
Requested Procedure					
(0040,1001)	Requested Procedure ID	SH	1	O	
(0032,1060)	Requested Procedure Description	LO	1	O	
(0032,1064)	Requested Procedure Code Sequence	SQ	1	O	
>(0008,0100)	Code Value	SH	1	O	
>(0008,0102)	Coding Scheme Designator	SH	1	O	
>(0008,0104)	Code Meaning	LO	1	O	
(0020,000D)	Study Instance UID	UI	1	O	
Image Service Reques					
(0008,0050)	Accession Number	SH	1	O	At patient search
(0032,1032)	Requesting Physician	PN	1	O	
(0008,0090)	Referring Physician's Name	PN	1	O	
(0032,1033)	Requesting Service	LO	1	O	
Hospital Visit Category					
Hospital Visit State					
(0038,0300)	Current Patient Location	LO	1	O	
(0038,0400)	Patient's Institution Residence	LO	1	O	

Tag	Attributes	VR	VM	Matching Key Type	Search Key
Hospital Visit Related					
Visit Diagnosis					
Patient Related					
Patient Category					
(0010,0010)	Patient's Name	PN	1	R	
(0010,0020)	Patient ID	LO	1	R	At patient search
Patient Descriptions					
(0010,0030)	Patient's Birth Date	DA	1	O	
(0010,0032)	Patient's Birth Time	TM	1	O	
(0010,0040)	Patient's Sex	CS	1	O	
(0010,1010)	Patient's Age	AS	1	O	
(0010,4000)	Patient Comments	LT	1	O	
Patient Treatment					
(0038,0500)	Patient State	LO	1	O	
(0010,21C0)	Pregnancy Status	US	1	O	
(0010,2000)	Medical Alerts	LO	1-n	O	
(0010,2110)	Contrast Allergies	LO	1-n	O	
(0038,0050)	Special Needs	LO	1	O	
Animal Related					
(0010,2201)	Patient Species Description	LO	1	O	*1
(0010,2203)	Patient Sex Neutered	CS	1	O	*1
(0010,2292)	Patient Breed Description	LO	1	O	*1
(0010,2297)	Responsible Person	PN	1	O	*1
(0010,2299)	Responsible Person Organization	LO	1	O	*1

*1) Output only when the veterinary DICOM setting is ON.

2.2.7 MWM-SCP Application Entity

2.2.7.1 SOP Class

ImagePilot supports the following SOP classes as the Basic Worklist Management Service Class SCP.

SOP Class Name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.3.1

2.2.7.2 Association Establishment Policy

2.2.7.2.1 General

The ImagePilot Basic Worklist Management Service Class SCP recognizes and uses the following application context name.

Descriptions	UID
Application context name	1.2.840.10008.3.1.1.1

Maximum and default PDU size is 16KB.

2.2.7.2.2 Number of Associations

ImagePilot will support as many simultaneous associations as SCP as are requested by Workflow SCUs up to a configurable maximum. ImagePilot limits the number of concurrent associations to a given Workflow SCU as described below.

Maximum number of simultaneous Associations	Configurable value. Maximum of 5 simultaneous associations to a given SCU
---	--

2.2.7.2.3 Asynchronous Nature

Asynchronous processing is not supported.

2.2.7.2.4 Implementation Identifying Information

Implementation Identifying Information value is issued by KonicaMinolta.

Implementation Class UID	1.2.392.200036.9107.220.1
Implementation Version Name	KC_UNITEA_1.00

2.2.7.3 Real World Activities

2.2.7.3.1 Associated Real World Activity

ImagePilot will accept associations for the MWL SOP Classes as an SCP.

The job runs in the background and forks a new process for each connection request from a Remote AE.

ImagePilot responds to queries from these Remote AEs.

2.2.7.3.2 Presentation Context Tables

Abstract Syntax		Role	Expanded Negotiation
Name	UID		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	SCP	None

Transfer Syntax	
Name List	UID List
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

2.2.7.4 Modality Worklist Attributes

ImagePilot supports optional matching key attributes as described in the table below.

Tag	Attributes	Type	Query Value
(0008,0050)	Accession Number	O	Single Value Matching Only
(0010,0020)	Patient ID	O	Single Value Matching Only
(0040,0100)	Scheduled Procedure Step Sequence		
>(0008,0060)	Modality	O	Single Value Matching Only
>(0040,0001)	Scheduled Station AE Title	O	Single Value Matching Only
>(0040,0002)	Scheduled Procedure Step Start Date	O	Single or Range Matching

ImagePilot supports optional return key attributes as described in the table below.

Tag	Attributes	VR	VM
(0008,0005)	Specific Character Set	CS	1-n
(0008,0050)	Accession Number	SH	1
(0008,0090)	Referring Physician's Name	PN	1
(0010,0010)	Patient's Name	PN	1
(0010,0020)	Patient ID	LO	1
(0010,0030)	Patient's Birth Date	DA	1
(0010,0032)	Patient's Birth Time	TM	1
(0010,0040)	Patient's Sex	CS	1
(0010,1010)	Patient's Age	AS	1
(0010,2000)	Medical Alerts	LO	1-n
(0010,2110)	Allergies	LO	1-n
(0010,21C0)	Pregnancy Status	US	1
(0010,4000)	Patient Comments	LT	1
(0020,000D)	Study Instance UID	UI	1
(0032,1032)	Requesting Physician	PN	1
(0032,1033)	Requesting Service	LO	1
(0032,1060)	Requested Procedure Description	LO	1
(0032,1064)	Requested Procedure Code Sequence	SQ	1
>(0008,0100)	Code Value	SH	1
>(0008,0102)	Coding Scheme Designator	SH	1
>(0008,0104)	Code Meaning	LO	1
(0038,0050)	Special Needs	LO	1
(0038,0300)	Current Patient Location	LO	1
(0038,0400)	Patient's Institution Residence	LO	1
(0038,0500)	Patient State	LO	1
(0040,0100)	Scheduled Procedure Step Sequence	SQ	1
>(0008,0060)	Modality	CS	1
>(0032,1070)	Requested Contrast Agent	LO	1
>(0040,0001)	Scheduled Station AE Title	AE	1-n

Tag	Attributes	VR	VM
>(0040,0002)	Scheduled Procedure Step Start Date	DA	1
>(0040,0003)	Scheduled Procedure Step Start Time	TM	1
>(0040,0006)	Scheduled Performing Physician's Name	PN	1
>(0040,0007)	Scheduled Procedure Step Description	LO	1
>(0040,0008)	Scheduled Protocol Code Sequence	SQ	1
>>(0008,0100)	Code Value	SH	1
>>(0008,0102)	Coding Scheme Designator	SH	1
>>(0008,0104)	Code Meaning	LO	1
>(0040,0009)	Scheduled Procedure Step ID	SH	1
>(0040,0010)	Scheduled Station Name	SH	1-n
>(0040,0011)	Scheduled Procedure Step Location	SH	1
(0040,1001)	Requested Procedure ID	SH	1

2.2.8 Media Storage

2.2.8.1 File Meta Information for the Application Entity

Values for identifying information are issued by Konica Minolta.

Content	Value
Implementation Class UID	1.2.392.200036.9107.700
Implementation Version Name	MG.DICOM XXXXX

* A software version number is specified in X.XX.

2.2.8.2 Real-world Activity

2.2.8.2.1 Related Real-world Activity

ImagePilot Media Storage does the followings:

- Export image Files

Working as FSC that uses the interchange option in which direction for creating CD/DVD from a list is.

- Import image Files

Working as FSR that uses the interchange option in which direction for creating a list from CD/DVD is.

2.2.8.2.2 SOP Class Specifications

IOD and Transfer Syntax for STD-US-ID-SF/MF

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Basic Directory Explicit	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
US Image	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
US Multi-frame Image	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1

IOD and Transfer Syntax for STD-CTMR

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Basic Directory Explicit	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
CT Image	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
MR Image	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1
SC Image	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1

IOD and Transfer Syntax for STD-GEN

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Basic Directory Explicit	1.2.840.10008.1.3.10	Explicit VR Little Endian	1.2.840.10008.1.2.1
CR (Computed Radiography) Image	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
Digital X-Ray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
Digital X-Ray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
CT Image Information Object Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
US Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
MR Image Information Object Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
SC (Secondary Capture) Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1
XRF Image Information Object Storage	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Little Endian	1.2.840.10008.1.2.1
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Explicit VR Little Endian	1.2.840.10008.1.2.1
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Explicit VR Little Endian	1.2.840.10008.1.2.1
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Explicit VR Little Endian	1.2.840.10008.1.2.1
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian	1.2.840.10008.1.2.1

2.3 NETWORKING INTERFACE

2.3.1 Supported Communications Stacks (parts8, 9)

Provides higher-level protocols that are defined by DICOM PS3.8 for DICOM TCP/IP.

2.3.2 TCP/IP Stacks

2.3.2.1 Physical Network Interface

ImagePilot supports following Network Interface configuration.

Recommended is Ethernet 1000Base-TX. 100Base-TX can be an alternative as an option.

1000Base-TX
100Base-TX

2.3.3 IPv4 and IPv6 Support

This product only supports IPv4 connections.

2.4 CONFIGURATION

2.4.1 AE Title/Presentation Address Mapping

2.4.1.1 Local AE Titles

All Application Entities for DICOM Service in ImagePilot are set in configuration file.

AE setting shall be made in configuration by the service engineer.

Making the setting in configuration file allows the same AE Title to be applied to each service within the local network.

2.4.2 Parameters

Parameter	Default Value	Range
General Parameters		
Max PDU Size (Kbytes)	64	1 ~ 64Kbytes
Reception Time-Out for General Communication (ms)	180000	0 ~ 2147483648
Auto Release Time (sec)	600000	0 ~ 2147483648
STORAGE-SCU AE Parameters		
Transfer Syntax	0	0 : Implicit VR little endian 1 : Explicit VR little endian 2 : Explicit VR big endian 3 : Reversible JPEG 4 : Irreversible JPEG8 bits 5 : Irreversible JPEG12 bits 6 : JPEG2000-compatible, reversible JPEG 7 : JPEG2000-compatible, irreversible JPEG

Parameter	Default Value	Range
Print Manage-SCP AE Parameters		
Reception Time-Out for General Communication (ms)	180000	
Print Status Notification ON/OFF	0	0 : OFF, 1: ON
Presentation LUT AV/NA	0	0 : Available, 1 : Not available
Max Copies	99	Printer max copies
Memory Allocation	512	Printer setting
Requested Image Size AV/NA	0	0 : Available, 1 : Not available
Retry Process	-	-

3. SUPPORT OF SPECIFIC CHARACTER SETS

Following specific character sets are supported.

- none(ISO-IR 6 is the default)
- ISO_IR 100
- ISO_IR 101
- ISO_IR 110
- ISO_IR 126
- ISO_IR 144
- ISO_IR 148
- ISO_IR 192
- GB18030
- ISO_IR 13
- ISO 2022 IR 6~~ISO 2022 IR 13~~
- ISO 2022 IR 6~~ISO 2022 IR 87~~
- ISO 2022 IR 6~~ISO 2022 IR 87~~~~ISO 2022 IR 13~~
- ISO 2022 IR 6~~ISO 2022 IR 149~~
- ISO 2022 IR 13~~ISO 2022 IR 87~~

4. SECURITY

ImagePilot does not support special security measures presuming the system is protected by the institute’s security measures.

4.1 ASSOCIATION LEVEL SECURITY

In the process of each DICOM Service provided by ImagePilot, checks on Calling AE Title, Called AE Title and Application Contexts are made depending on its contents. Doing so helps protect from illegal access from AE that is not set in configuration.

5. EXTENSIONS/SPECIALIZATIONS/PRIVATIZATIONS

Reserves the following attributes by CR/DX IOD.

However, these are configured as necessary.

- (0035,00B0)
- (0035,B001)
- (0035,B002)



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