DICOM

Conformance Statement

SpiralCT R1.0

PHILIPS

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1. DICOM CONFORMANCE STATEMENT OVERVIEW

The SpiralCT R1.0 system is a comprehensive range of hardware and software modules. It allows the operator to scan patient by controlling hardware and also allows him to view, analyze and process the images stored in local disks or got by scan.

SpiralCT R1.0 provides the following DICOM data exchange features:

- It is able to send images to remote systems and execute storage commitment action
  It is able to execute Worklist and MPPS actions by connecting RIS/PACS system.
- It allows the operator to print images on a DICOM printer.
- It is able to read and write DICOM CD-R disks.
- It is able to read and write MO disks.

Table 1-1 presents an overview of all network services and the applicable SOP classes as provided by SpiralCT

Table 1-1 Sop Class Overview

SOP Classes		**User of Service(SCU)**	**Provider of Service(SCP)**
Name	**UID**		
Storage			
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Print Management			
Basic Grayscale Print Management (Meta)	1.2.840.10008.5.1.1.9	Yes	No
> Basic Film Session	1.2.840.10008.5.1.1.1	Yes	No
> Basic Film Box	1.2.840.10008.5.1.1.2	Yes	No
> Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	Yes	No
> Printer	1.2.840.10008.5.1.1.16	Yes	No
WorkFlow Management			
MPPS	1.2.840.10008.3.1.2.3.3	Yes	No
MWL-FIND	1.2.840.10008.5.1.4.31	Yes	No
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No

The following table lists the Supported Media Storage Application Profiles (with roles).

Table 1-2 Supported Media Storage Application Profiles

Media Storage Application Profile	**Write Files (FSC or FSU)**	**Read Files (FSR)**
Compact Disk - Recordable		
General Purpose CD-R Interchange	Yes	Yes
Magneto-Optical Disk		
CT/MR Studies on 650MB	Yes	Yes

MOD		
CT/MR Studies on 1.2GB MOD	Yes	Yes

3.INTRODUCTION

3.1 REVISION HISTORY

Table 3-1 Revision History

Document Version	Date of Issue	Author	Description
1.0	21-March-2005	Cao jing tai	Create
1.1	22 -August -2005	Cao jingtai	Modify

3.2 AUDIENCE

This DICOM Conformance Statement is intended for:

— (Potential) customers
— System integrators of medical equipment
— Marketing staff interested in system functionality
— Software designers implementing DICOM interfaces

It is assumed that the reader is familiar with the DICOM standard.

3.3 REMARKS

The DICOM Conformance Statement is contained in chapter 1 through 8 and follows the contents and structuring requirements of the DICOM Standard PS 3.2- XXXX.

3.4 DEFINITIONS, TERMS AND ABBREVIATIONS

DICOM definitions, terms and abbreviations are used throughout this Conformance Statement. For a description of these, see NEMA PS 3.3-XXXX and PS 3.4-XXXX.

The following acronyms and abbreviations may be used in this document.

AE Application Entity
CD Compact Disc
CD-R CD-Recordable
MOD magneto-optical disks
MPPS MODALITY PERFORMED PROCEDURE STEP SOP CLASS
CT Computed Tomography
DICOM Digital Imaging and Communications in Medicine
DIMSE DICOM Message Service Element
EBE DICOM Explicit VR Big Endian
ELE DICOM Explicit VR Little Endian
FSC File-set Creator
FSR File-set Reader
FSU File-set Updater
ILE DICOM Implicit VR Little Endian
IOD Information Object Definition
N/A Not applicable
NEMA National Electrical Manufacturers Association
PDU Protocol Data Unit
RWA Real-World Activity

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
PRI Priority

3.5 REFERENCES

[DICOM] Digital Imaging and Communications in Medicine (DICOM), Part 1 – 18
(NEMA PS 3.1 – PS 3.18),
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1847 Rosalyn
Virginia. 22209, United States of America

4.NETWORKING

This section contains the networking related services (vs. the media related ones).

4.1 IMPLEMENTATION MODEL

The implementation model consists of three sections:
- The Application Data Flow Diagram, specifying the relationship between the **SpiralCT** Application Entity and the “external world”
- A functional description of the **SpiralCT** Application Entity, and
-The sequencing constraints among them.

4.1.1 Application Data Flow

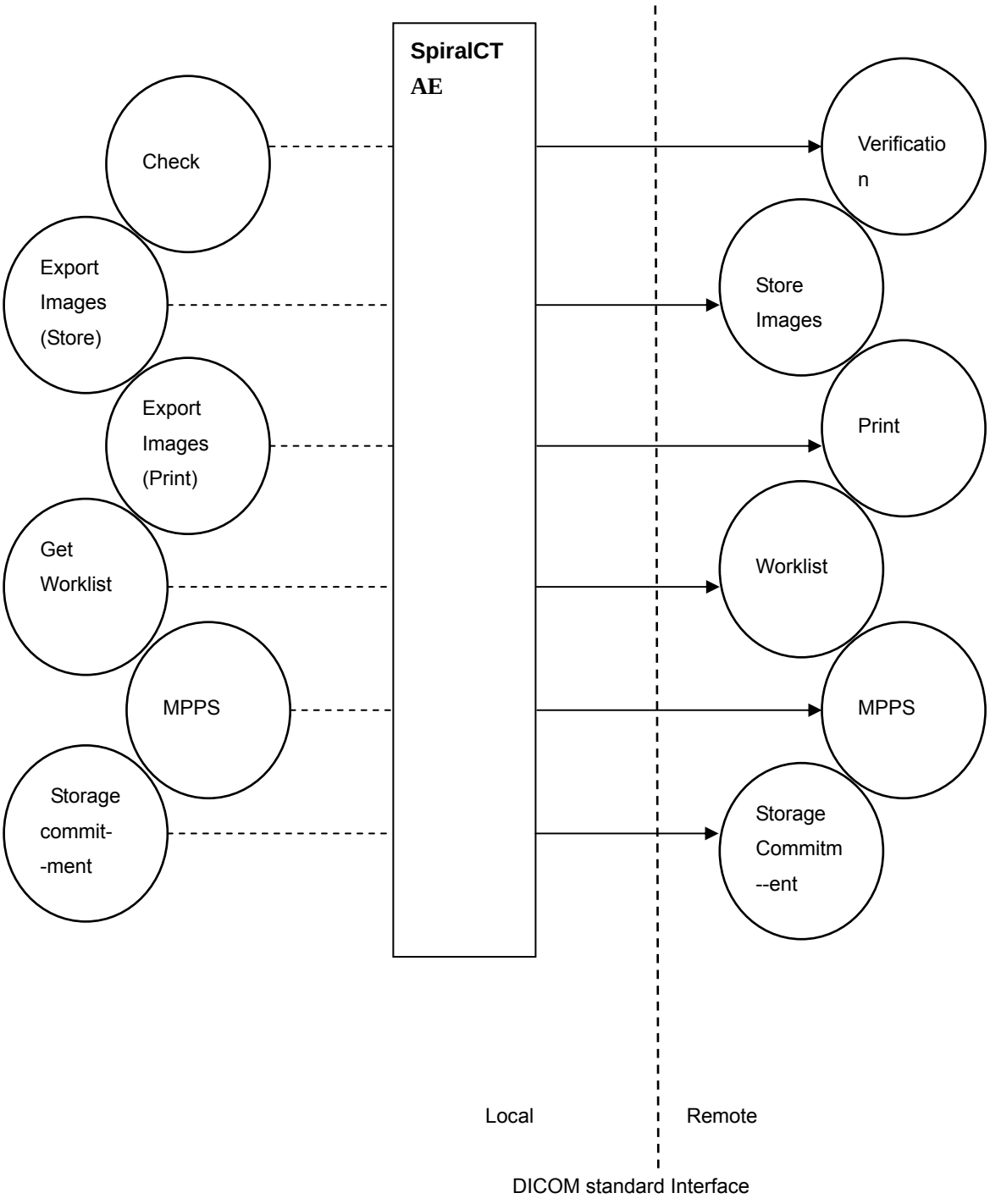

Figure 4-1 Application Data Flow Figure

4.1.2 Functional Definition of AE's

This section shall describe in general terms the functions to be performed by the AE,
And the DICOM services used to accomplish these functions.

4.1.2.1 Functional Definition of SpiralCT AE

The **SpiralCT AE** is the one and only application entity within **SpiralCT**
It includes the following service classes.

Verification Service Class

The SpiralCT AE can perform the Verification service as SCU (RWA Request Verification).

Storage Service Class

The **SpiralCT AE** can perform the Storage service as SCU (RWA Export Images, Triggered by operator or retrieve request).
The **SpiralCT AE** shall request an association with the selected remote SCP for all applicable Storage SOP classes. When the association is accepted, the **SpiralCT AE** shall send the Storage requests (including data from local database), receive the Storage responses and act accordingly, and release the association.

Print Management Service Class

The SpiralCT AE can perform the Print service as SCU (RWA Print Images).
The SpiralCT AE shall request an association with the selected remote SCP (printer) for all applicable SOP classes of the applicable Print Management Meta SOP Class. When the association is accepted, the SpiralCT AE shall send the Print requests, receive the Print responses and act accordingly, and finally release the association.

Basic Worklist Management Service Class

Basic Worklist Management Service allows scanner software to communicate with a remote HIS/RIS system.
The server translates these internal requests into DICOM Modality Worklist Class commands.
Basic Worklist Management **Service Class** can perform the following activities:
Establish an association with a remote AE.
Release an association with a remote AE.
Issue a C-Find request to get Modality Worklist Information.

MPPS

MPPS allows scanner software to communicate with a remote HIS/RIS system.
The server translates these internal requests into DICOM **MPPS** commands.
MPPS can perform the following activities:
Establish an association with a remote AE.
Release an association with a remote AE.
Issue a N-Create and N-Set requests to notify HIS/RIS by means of MPPS Service Class

Storage commitment

The SpiralCT AE can perform the Storage Commitment service as SCU

The SpiralCT AE shall request an association with the selected remote SCP for the Storage Commitment Push Model SOP class. When the association is accepted, the SpiralCT AE shall send the Storage Commitment requests, receive the Storage Commitment responses and act accordingly, and release the association.

When the remote commitment actions have been finished, the remote SCP should request an association with the SpiralCT AE (still SCU). After accepting the association, the SpiralCT AE shall receive the Storage Commitment reports, and release the association when requested.

The Storage Commitment Service can be done Synchronous and Asynchronous.

4.1.3 Sequencing of Real World Activities

Examinations, identified with a new UID, are created inside the SpiralCT as result of worklist management or on manual scheduling by the clinical user. Once a record from Worklist Server is Imported, MPPS CREATE messages are sent from the SpiralCT. When examination is finished, MPPS COMPLETED or DISCONTINUED message is sent from the SpiralCT on manual scheduling by the clinical user. Images produced can be stored to a remote server and printed.

4.2 AE SPECIFICATIONS:

The next section in the DICOM Conformance Statement contains the specification of The one and only SpiralCT 1.0 Application Entity: SpiralCT AE.

4.2.1 SpiralCT AE

4.2.1.1 SOP Classes

Table 4-1: SOP Classes for SpiralCT AE

SOP Class Name	SOP Class UID	SCU	SCP
Basic Grayscale Print Management (Meta)	1.2.840.10008.5.1.1.9	Yes	No
> Basic Film Session	1.2.840.10008.5.1.1.1	Yes	No
> Basic Film Box	1.2.840.10008.5.1.1.2	Yes	No
> Basic Grayscale Image Box	1.2.840.10008.5.1.1.4	Yes	No
> Printer	1.2.840.10008.5.1.1.16	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
MPPS	1.2.840.10008.3.1.2.3.3	Yes	No
MWL-FIND	1.2.840.10008.5.1.4.31	Yes	No
Storage commitment Push Model	1.2.840.10008.1.20.1	Yes	No

4.2.1.2 Association Policies

This section shall contain a description of the General Association Establishment and Acceptance policies of the AE

4.2.1.2.1 General

The DICOM standard application context shall be specified.

Table 4-2 DICOM Application Contexts

Application Context Name	1.2.840.10008.3.1.1.1

4.2.1.2.2 Number of Associations

The SpiralCT AE Support MPPS, MWL, store, verification, print service classes.

Table 4-3: Number of Associations as an Association Initiator for SpiralCT AE

Maximum number of simultaneous associations	7*

* As a result of local activities, SpiralCT will initiate only one association at a time for each service class(MPPS-NCreate, MPPS-NSet MWL, CT Image Storage, Print, Storage Commitment.), and for Storage Commitment there are 2 Associations, one for Synchronous association, the other for Asynchronous association.

4.2.1.2.3 Asynchronous Nature

SpiralCT does not support asynchronous operations, and will not perform asynchronous window negotiation.

4.2.1.2.4 Implementation Identifying Information

Following Implementation Class UID and Version Name are defined.

Table 4-4: DICOM Implementation Class and Version for SpiralCT AE

Implementation Class UID	1.2.156.14702.1
Implementation Version Name	SpiralCT R1.0

4.2.1.3 Association Initiation Policy

SpiralCT shall initiate associations as a result of the following events.

- The operator requests to print selected images of the SpiralCT
- The operator requests to get worklist from HIS/RIS
- The operator requests to create MPPS in the HIS/RIS
- The operator requests to verify a connection to a remote system
- The operator requests to send some images to a remote system

4.2.1.3.1 Export Images

4.2.1.3.1.1 Description and Sequencing of Activities

The SpiralCT AE can export Images to a remote system.

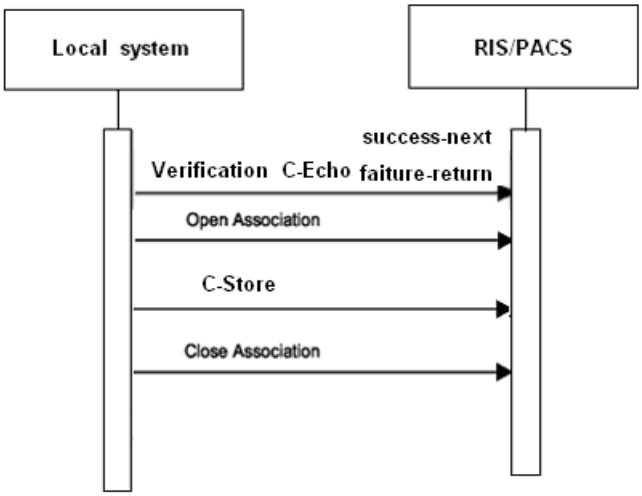

Figure 4-2 Sequencing of Export Images

4.2.1.3.1.2 Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of Presentation Contexts to be used on that association. The Presentation Contexts proposed by the SpiralCT AE for Export Images are defined in below Table.

Table 4-5: Proposed Presentation Contexts for Export Images

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	ELE ILE EBE	1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of transfer syntax is reduced sequentially from top to bottom.

4.2.1.3.1.3 SOP Specific Conformance for SOP Classes

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

Table 4-6: DICOM Command Response Status Handling Behavior

Service Status	Status Code	Further Meaning	Behavior
Success	0000	Success	Release Association
Refused	A7xx	Out of Resources	Release Association
Error	A9xx	Data Set Does Not Match SOP Class	Release Association
	Cxxx	Cannot Understand	
Warning	B000	Coercion of Data Elements	Continues send other images
	B007	Data Set Does Not Match SOP Class	
	B006	Elements Discarded	

4.2.1.3.2 Worklist

4.2.1.3.2.1 Description and Sequencing of Activities

The **Worklist** Server allows scanner software to communicate with a remote HIS/RIS system.

The server translates these internal requests into DICOM Modality Worklist Services Class commands. The Worklist Server can perform the following activities:

Establish an association with a remote AE.

Release an association with a remote AE.

Issue a C-Find request to get Modality Worklist information.

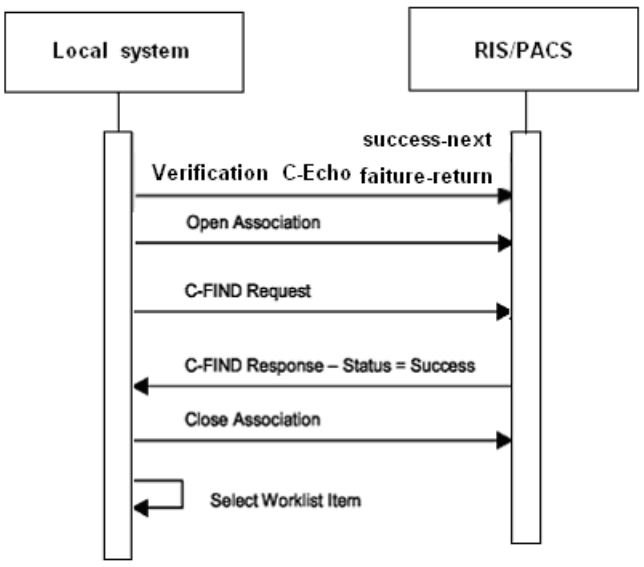

Figure 4-3 Sequencing of Worklist

4.2.1.3.2.2 Proposed Presentation Contexts

The Presentation Contexts proposed by the SpiralCT AE for **Patient Catalog Service** are defined in below Table.

Table 4-7: Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
MWL-FIND	1.2.840.10008.5.1.4.31	ELE ILE EBE	1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of the three transfer syntaxes in "UID List" is reduced sequentially from top to bottom.

4.2.1.3.2.3 SOP Specific Conformance for SOP Classes

The Patient-Catalog Server uses the C-FIND operation to receive a list of relevant (scheduled) patients from RIS or PACS.

The table(4-8) list the supported attributes which were used to be as the query conditions by the Worklist.

Modality Worklist is accomplished according to the real world activity described earlier. The SpiralCT AE provides Standard conformance to the Modality Worklist SOP Class. The attributes supported can be found in next Table:

Table 4-8: Modality Worklist Request Identifier

Attribute Name	Tag	Matching Type
Patient's Name	0010,0010	Wild Card Matching
Patient ID	0010,0020	Single Value Matching
Accession Number	0008,0050	Single Value Matching
Scheduled Procedure Step Sequence	0040,0100	
>Modality*	0008,0060	Const "CT"
>Scheduled Procedure Step Start Date	0040,0002	Range

*In Table 4-8 the "Modality" attribute always be set to "CT"

The table (4-9) lists the returned attributes from the Worklist server.

Table 4-9: Modality Worklist Returned Identifier from RIS/PACS

Attribute Name	Tag
Accession Number	0008,0050
Referring Physician's Name	0008,0090
Referenced Study Sequence	0008,1110
Patient's Name	0010,0010
Patient ID	0010,0020
Patient's Age	0010,1010
Patient's Sex	0010,0040
Patient's Birth Date	0010,0030
Patient's Size	0010,1020
Patient's Weight	0010,1030
Study Instance UID	0020,000d
Scheduled Procedure Step Sequence	0040,0100
>Scheduled Station AE Title	0040,0001
>Scheduled Procedure Step Start Date	0040,0002
>Scheduled Procedure Step Start Time	0040,0003
>Scheduled performing physicians Name	0040,0006
Requested Procedure ID (IHE-13)	0040,1001
Requested Procedure Description (IHE-16)	0032,1060
Scheduled Procedure Step ID(IHE-14)	0040,0009
Scheduled Procedure Step Description (IHE-15)	0040,0007
Specific Character Set	0008，0005

Before a patient is scheduled, we need register the patient. These attributes we have got From RIS/PACS can be used to register the patient automatically instead of manually.

.

The behavior on successful and unsuccessful transfer is given in the table below

Table 4-10: DICOM Command Response Status Handling Behavior

Service Status	Further meaning	Error code	Behavior
Failure	Refused: Out of Resources	A700	Cancel and release the association
	Identifier does not match SOP Class	A900	
	Unable to process	CXXX	
Cancel	Matching terminated due to Cancel request	FE00	Release the association
Success	Matching is complete – No final Identifier is supplied.	0000	Release the association
Pending	Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner as	FF00	Continue receive worklist item
	Matches are continuing – Warning that one or more Optional Keys were not supported for existence and/or matching	FF01	Continue receive worklist item

4.2.1.3.3 MPPS

4.2.1.3.3.1 Description and Sequencing of Activities

The **MPPS** Server allows scanner software to communicate with a remote HIS/RIS system.

The server translates these internal requests into DICOM **Modality Performed Procedure Step SOP Class** commands. The MPPS Server can perform the following activities:

Establish an association with a remote AE.

Release an association with a remote AE.

Issue a N-Create and N-Set requests to notify HIS/RIS by means of MPPS Service Class

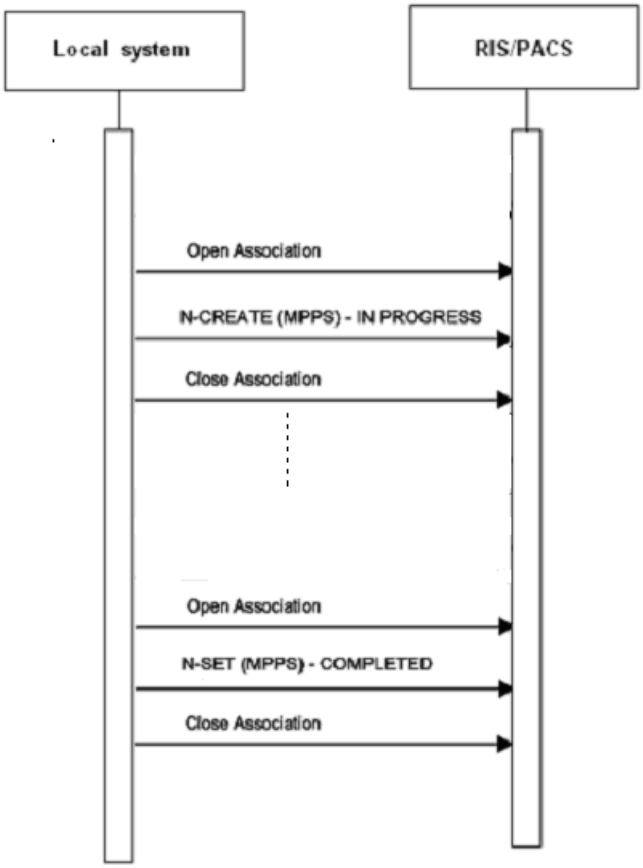

Figure 4-4 Sequencing of MPPS

4.2.1.3.2.2 Proposed Presentation Contexts

The Presentation Contexts proposed by the SpiralCT AE for **MPPS** are defined in below Table.

Table 4-11: Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
MPPS	1.2.840.10008.3.1.2.3.3	ELE ILE EBE	1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of transfer syntax in “UID List” is reduced sequentially from top to bottom.

4.2.1.3.3.3 SOP Specific Conformance for SOP Classes

Schedule a patient from the Worklist to scan, when the scan start, executes N-Create action, it will create object for the patient in the connected RIS/PACS, N-SET will be executed when the scan finish.

The SpiralCT AE provides Standard conformance to the Modality Performed Procedure Step SOP Class.

Table 4-12 provides a description of the MPPS N-CREATE request identifiers sent by The SpiralCT AE. The attribute Performed Procedure Step Status: 0040,0252 is “IN PROGRESS.” They also initialize other attributes. The following tables list the initial attributes when executes N-Create action by MPPS server.

Table 4-12: MPPS N-CREATE request identifiers

Attribute Name	Tag	Note
Modality	0008,0060	User input/from Worklist
Referring Physician's Name	0008,0090	User input/from Worklist
Study ID	0020,0010	User input
Performed Station AE Title	0040,0241	User input
Performed Station Name	0040,0242	
Performed Location	0040,0243	
Performed Procedure Step Start Date	0040,0244	Current date
Performed Procedure Step Start Time	0040,0245	Current time
Performed Procedure Step End Date	0040,0250	
Performed Procedure Step End Time	0040,0251	
Performed Procedure Step Status	0040,0252	IN PROGRESS
Performed Procedure Step ID	0040,0253	
Performed Procedure Step Description	0040,0254	
Performed Procedure Type Description	0040,0255	
Performed Protocol Code Sequence	0040,0260	
Performed Series Sequence	0040,0340	
Referenced Patient Sequence	0008,1120	
Patient's Name	0010,0010	User input/from Worklist
Patient ID	0010,0020	User input/from Worklist
Patient's Birth Date	0010,0030	User input/from Worklist
Patient's Sex	0010,0040	User input/from Worklist
Referring Physician's Name	0008,0090	User input/from Worklist
Scheduled Step Attribute Sequence	0040,0270	
>Accession Number	0008,0050	User input/from Worklist
>Study Instance UID	0020,000D	User input/from Worklist

>Scheduled Protocol Code Sequence	0040,0008	
>Scheduled Procedure Step Description	0040,0007	
>Scheduled Procedure Step ID		
>Requested Procedure ID	0040,1001	
>Requested Procedure Description	0032,1060	
Procedure Code Sequence	0008,1032	
Sop Class UID	0008,0016	
Sop Instance UID	0008,0018	
Protocol Name	0018,1030	

When executes N-Set action by the MPPS. The attribute Performed Procedure Step Status: 0040,0252 was been set "COMPLETED" and added some new attributes. The following tables list the attributes set in this action.

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-13: **MPPS N-SET request identifiers**

Attribute Name	Tag	Note
Performed Series Sequence	0040,0340	
>Series Description	0008, 103e	
>Retrieve AE Title	0008, 0054	
>Performing Physician's Name	0008,1050	User input
>Operator's Name	0008,1070	Auto
>Referenced Image Sequence	0008,1140	
>Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	
>Protocol Name	0018,1030	User input
>Series Instance UID	0020,000E	User input
Performed Procedure Step End Date	0040,0250	Current date
Performed Procedure Step End Time	0040,0251	Current time
Performed Procedure Step Status	0040,0252	COMPLETED
Referenced Non Image Composite SOP Instance Sequence	0040,0220	

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-14: DICOM Command Response Status Handling Behavior(N-SET)

Service Status	Further meaning	Error code	Behavior
Failure	Processing Failure	0110	Release the association

4.2.1.3.4 Verification

4.2.1.3.4.1 Description and Sequencing of Activities

The SpiralCT AE can send C-Echo DIMSE service to a remote system to verify the connection Status.

4.2.1.3.4.2 Proposed Presentation Contexts

The Presentation Contexts proposed by the SpiralCT AE for Verification are defined in below Table.

Table 4-15: Proposed Presentation Contexts for Verification

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		Role	Extended Negotiation
Name	**UID**	**Name List**	**UID List**		
Verification	1.2.840.10008.1.1	ELE ILE EBE	1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of transfer syntax is reduced sequentially from top to bottom.

4.2.1.3.4.3 SOP Specific Conformance for SOP Classes

Return 0 represent connect success.

4.2.1.3.5 Print Images

4.2.1.3.5.1 Description and Sequencing of Activities

The SpiralCT AE uses the following sequence of actions to communicate a film session to a printer. For each N-CREATE action, the SpiralCT AE lets the Print SCP determine the SOP Instance UID of the created object.

Table 4-16: Print Sequencing of Activities

Print Actions

A-ASSOCIATE
N-GET (PRINTER SOP Instance)
N-CREATE (Film Session SOP Instance)
for (each film of film session)
{
N-CREATE (Film Box SOP Instance)
for (each image of film)
{
N-SET (Image Box SOP Instance)
}
N-ACTION (PRINT, Film Box SOP Instance)
N-DELETE (Film Box SOP Instance)
}

N-DELETE(Film Session) A-RELEASE

4.2.1.3.5.2 Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of Presentation Contexts to be used on that association. In this subsection, the presentation Contexts proposed by the SpiralCT AE for Print Images are defined in below table.

Table 4-17: Proposed Presentation Contexts for Print Management

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		Role	Extended Negotiation
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management (Meta)	1.2.840.10008.5.1.1.9	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of transfer syntax is reduced sequentially from top to bottom.

4.2.1.3.5.3 SOP Specific Conformance Printer SOP Class

The Printer process conforms to the Printer Sop Class.
The following DIMSE service element is upported:

N-GET

Table 4-18: GET Printer request identifier

Name	Tag	Type	Comments
Printer Status	0x2110 0010	3	Printer status
Printer Status info	0x2110 0020	3	

N-GET DIMSE does not create any Data Set Attributes.

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-19 DICOM Command Response Status Handling Behavior for Printer N-GET

Service Status	Further meaning	Error code	Behavior
Success	Successful operation	0000	The print job continues
Warning	Any warning	xxxx	The print job continues and the warning is displayed to the user
Failure	Any Failure	xxxx	The print job stops and the failure reason is displayed to the user

4.2.1.3.5.4 SOP Specific Conformance Basic Film Session SOP Class

The Printer process conforms to the Basic Film Session Sop Class.

The following DIMSE service element is supported:

N-CREATE

N-DELETE

The following table lists the supported attributes for the N-CREATE DIMSE.

Table 4-20: Basic Film Session Presentation Module

Name	Tag	Type	Comments
Number of Copies	0x2000 0010	1	Number of copies to be printed for each film of the film session.
Print Priority	0x2000 0020	1	Specifies the priority of the print job. Enumerated Values: HIGH, MED, LOW.
Medium Type	0x2000 0030	1	Type of medium on which the print job will be printed. Defined Terms: PAPER CLEAR FILM BLUE FILM
Film Destination	0x2000 0040	1	Defined Terms: MAGAZINE = the exposed film is stored in film magazine. PROCESSOR = the exposed film is developed in film processor. BIN_i = the exposed film is deposited in a sorter bin where "I" represents the bin number. Film sorter BINs shall be numbered sequentially starting from one and no maximum is placed on the number of BINs. The encoding of the BIN number shall not contain leading zeros.
Film Session Label	0x2000 0050	3	Label of the film session

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-21: DICOM Command Response Status Handling Behavior for Basic Film Session N-CREATE

Service Status	Further meaning	Error code	Behavior
Success	Film Session Successful created	0000	The print job continues
Warning	Memory Allocation not supported	B600	The print job continues and g the warning is Displayed to the user

There are no specific status codes for N-DLETE DIMSE

The SCU uses the N-DELETE to request the SCP to delete the Basic Film Session SOP Instance hierarchy.

4.2.1.3.5.5 SOP Specific Conformance Basic Film Box SOP Class

The Printer process conforms to the Basic Film Box Class
The following DIMSE service elements are supported:

N-CREATE
N-ACTION
N-DELETE

The following table lists the supported attributes for the N-CREATE DIMSE

Table 4-22: Basic Film Box Presentation Module

Name	Tag	Type	Comments
Image Display Format	0x2010 0010	1	Type of image display format. Enumerated Values: STANDARD\C, R: film contains equal size rectangular image boxes with R rows of image boxes and C columns of image boxes; C and R are integers. ROW\R1, R2, R3, etc.: film contains rows with equal size rectangular image boxes with R1 image boxes in the first row, R2 image boxes in second row, R3 image boxes in third row, etc.; R1, R2, R3, etc. are integers. COL\C1, C2, C3, etc.: film contains columns with equal size rectangular image boxes with C1 image boxes in the first column, C2 image boxes in second column, C3 image boxes in third column, etc.; C1, C2, C3, etc. are integers. SLIDE: film contains 35mm slides; the number of slides for a particular film size is configuration dependent. SUPERSLIDE: film contains 40mm slides; the number of slides for a particular film size is configuration dependent. CUSTOM\i: film contains a customized ordering of rectangular image boxes; i identify the image display format; the definition of the image display formats is defined in the Conformance Statement; i is an integer.

Film Orientation	0x2010 0040	1	Film orientation. Enumerated Values: PORTRAIT = vertical film position. LANDSCAPE = horizontal film position.
Film Size ID	0x2010 0050	1	Film size identification. Defined Terms: 8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM A4 A3 Note: 10INX14IN corresponds with 25.7CMX36.4CM. A4 corresponds with 210 x 297 millimeters. A3 corresponds with 297 x 420 millimeters.
Magnification Type	0x2010 0060	1	Interpolation type by which the printer magnifies or decimates the image in order to fit the image in the image box on film. Defined Terms: REPLICATE BILINEAR CUBIC NONE
Max Density	0x2010 0130	3	Maximum density of the images on the film, expressed in hundredths of OD. If Max Density is higher than maximum printer density than Max Density is set to maximum printer density.
Min Density	0x2010 0120	3	
Configuration Information	0x2010 0150	3	
Referenced Film Session Sequence	0x2010 0500	1	
>Referenced SOP Class UID	0x0008 1150	1	
> Referenced SOP Instance UID	0x0008 1150	1	

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-23: DICOM Command Response Status Handling Behavior for Basic Film Box N-CREATE

Service Status	Further meaning	Error code	Behavior
Success	Film Box Successful created	0000	The print job continues
Warning	Requested Min Density or Max Density outside of Printer's operating Range	B605	The print job continues and g the warning is Displayed to the user
Failure	There is an existing Film Box that has not been printed	C616	The print job stops and the failure reason is displayed to the user

N-ACTION DIMSE does not create any Data Set Attributes.

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-24: DICOM Command Response Status Handling Behavior for Basic Film Box N-ACTION

Service Status	Further meaning	Error code	Behavior
Success	Film accepted forprinting	0000	The print job continues
Warning	Film Box SOP Instance Hierarchy does not contain Image Box SOP instances	B603	The print job continues and g the warning is Displayed to the user
	Image Size is larger than Image Box Size The Image has been demagnified	B604	The print job continues and g the warning is Displayed to the user
	Image Size is larger than Image Box Size The Image has been cropped to fit	B609	The print job continues and g the warning is Displayed to the user
	Image Size or combined Print Image Size is larger than Image Box Size The Image or combined Print Image has been decimated to fit	B60A	The print job continues and g the warning is Displayed to the user
Failure	Unable to create Print Job SOP Instance Print Queue is full	C602	The print job stops and the failure reason is displayed to the user
	Image Size is larger than Image Box Size	C603	The print job stops and the failure reason is displayed to the user

	Combined Print Image Size is larger than Image Box Size	C613	The print job stops and the failure reason is displayed to the user

There are no specific status codes for N-DLETE DIMSE
The SCU uses the N-DELETE to request the SCP to delete the Basic Film Box SOP Instance hierarchy.

4.2.1.3.5.6 SOP Specific Conformance Basic Grayscale Image Box SOP Class

The Printer process conforms to the Basic Grayscale Image Box Sop Class.
The following DIMSE service element is supported
N-SET
The following table lists the supported attributes for the N-SET DIMSE

Table 4-25: Basic Grayscale Image Box SOP Class - N-SET-RQ - Pixel Presentation Module

Name	Tag	Type	Comments
Image Position	0x2020 0010	1	The position of the image on the film, based on Image Display Format (2010,0010). See C.13.5.1 for specification.
Polarity	0x2020 0020	3	Specifies whether minimum pixel values (after VOI LUT transformation) are to printed black or white. Enumerated Values: NORMAL = pixels shall be printed as specified by the Photometric Interpretation (0028,0004). REVERSE = pixels shall be printed with the opposite polarity as specified by the Photometric Interpretation (0028,0004) If Polarity (2020,0020) is not specified by the SCU, the SCP shall print with NORMAL polarity.
Basic Grayscale Image Sequence	0x2020 0110	1	A sequence, which provides the content of the grayscale image pixel data to be printed. This is a specialization of the Image Pixel Module defined in C.7.6.3 of this part. It is encoded as a sequence of Attributes of the Image Pixel Module.
>Samples per Pixel	0x0028 0002	1	
>Photometric Interpretation	0x0028 0004	1	
>Rows	0x0028 0010	1	
>Columns	0x0028 0011	1	
>Pixel Aspect Ratio	0x0028 0034	1c	

>Bits Allocated	0x0028 0100	1	
>Bits Stored	0x0028 0101	1	
>High Bit	0x0028 0102	1	
>Pixel Representation	0x0028 0103	1	
>Pixel Data	0x7FE0, 0010	1	Image Pixel Module

The behavior on successful and unsuccessful transfer is given in the table below.

Table 4-26: DICOM Command Response Status Handling Behavior for Basic Color Image Box N-SET

Service Status	Further meaning	Error code	Behavior
Success	Image successfully stored in Image Box	0000	The print job continues
Warning	Image Size is larger than Image Box Size The Image has been demagnified	B604	The print job continues and g the warning is Displayed to the user
	Requested Min Density or Max Density outside of Printer's operating Range	B605	The print job continues and g the warning is Displayed to the user
	mage Size is larger than Image Box Size The Image has been cropped to fit	B609	The print job continues and g the warning is Displayed to the user
	Image Size or combined Print Image Size is larger than Image Box Size The Image or combined Print Image has been decimated to fit	B60A	The print job continues and g the warning is Displayed to the user
Failure	Image Size is larger than Image Box Size	C603	The print job stops and the failure reason is displayed to the user
	Insufficient Memory in Printer to store the Image	C605	The print job stops and the failure reason is displayed to the user
	Combined Print Image Size is larger than Image Box Size	C613	The print job stops and the failure reason is displayed to the user

4.2.1.3.6 Storage Commitment

4.2.1.3.6.1 Description and Sequencing of Activities

Request Storage Commitment involves the storage commitment of images on a remote system.

Storage Commitment will be initiated in a new association after closing the association of the related image storage (C-STORE). This new association will be open until the remote archive sends a storage commitment report (synchronous) or when the configured maximum time is passed. When this maximum configured period is passed, it is the responsibility of the remote archive to setup a new association with SpiralCT R1.0 and send the storage commitment report (asynchronous).

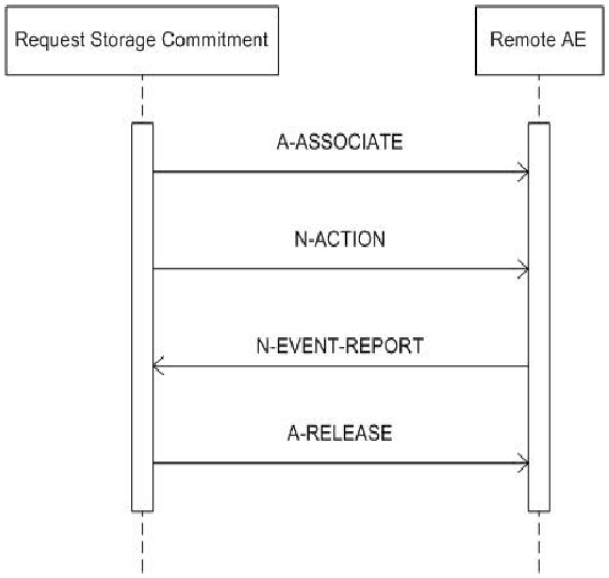

Figure 4-5: **Sequencing of Synchronous Request Storage Commitment**

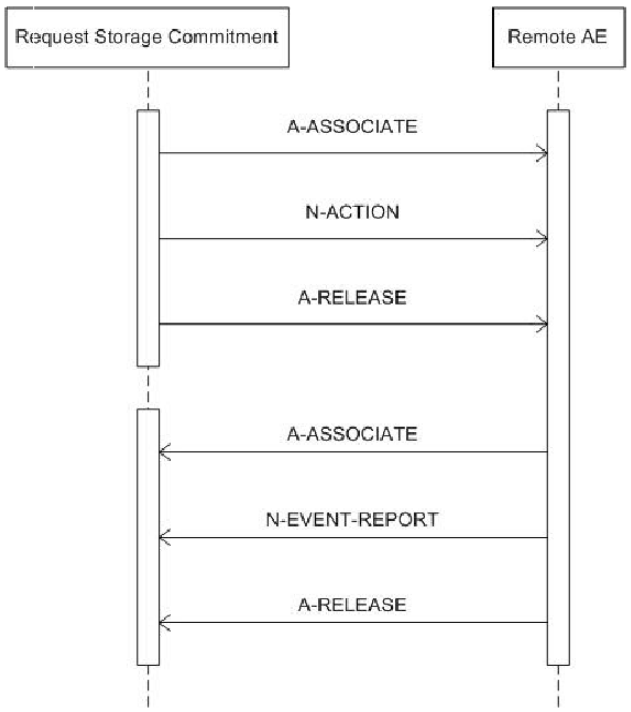

Figure 4-6: Sequencing of Asynchronous Request Storage Commitment

4.2.1.3.6.2 Proposed Presentation Contexts

Each time an association is initiated, the association initiator proposes a number of Presentation Contexts to be used on that association. In this subsection, the Presentation Contexts proposed by the SpiralCT AE for Request Storage Commitment are defined in below Table .

.

Table 4-27: Proposed Presentation Contexts for Request Storage Commitment

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage commitment Push Model	1.2.840.10008.1.20.1	ELE ILE EBE	1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.2	SCU	None

In above table The PRI of transfer syntax is reduced sequentially from top to bottom.

4.2.1.3.6.3 SOP Specific Conformance for SOP Classes

The SpiralCT AE provides standard conformance.

Following are the details regarding the specific conformance, including response behavior to all status codes, both from an application level and communication errors.

Table 4-28: DICOM Command Response Status Handling Behavior

Service Status	Further meaning	Error code	Behavior
Success	Operation complete	0000	Display success message
Failure	Any failure	xxxx	The reason is displayed

The SpiralCT AE does not take any more actions on receiving the N-EVENTREPORT, even when failures exist (Event Type ID 2).

4.2.1.4 Association Acceptance Policy

The SpiralCT AE doesn't accept any associations.

4.3 NETWORK INTERFACES

4.3.1 Physical Network Interface

The SpiralCT application provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of [DICOM]

SpiralCT inherits its TCP/IP stack from Windows XP (i.e. the operating system platform). SpiralCT supports a single network interface Ethernet ISO. 8802-3.

With standard supported physical medium include:

- IEEE 802.3 10BASE-T
- IEEE 802.3 100BASE-TX (Fast Ethernet)
- IEEE 802.3 1000BASE-X (Fiber Optic Gig)

4.3.2 Additional Protocols

No Additional Protocols.

4.4 CONFIGURATION

The SpiralCT R1.0 system is configured by means of a configuration program.
This program is accessible at start-up of the SpiralCT system it is password protect and intended to be used by Philips customer support engineers only.
The configuration program shall prompt the Customer Support Engineer to enter configuration information as required by the SpiralCT R1.0 application.

4.4.1 AE Title/Presentation Address Mapping

An important installation issue is the translation from AE title to Presentation Address
How this is to be performed shall be described in this section.

4.4.1.1 Local AE Titles

Per default the SpiralCT AE title is equal to the IP host name. At installation the Customer Support Engineer can change this host name. The SpiralCT AE can be changed independently.

Table 4-29: AE Title Configuration Table

Application Entity	Default AE Title	Default TCP/IP Port
SpiralCT AE	<IP host name>	104

4.4.1.2 Remote AE Title/Presentation Address Mapping

4.4.1.2.1 Remote Association Initiators

All relevant remote applications able to setup a DICOM association towards SpiralCT R1.0 must be configured at SpiralCT R1.0 configuration time.
The Customer Support Engineer must provide the following information for each remote application:

The Application Entity Title.
The SOP classes and transfer syntaxes for which SpiralCT R1.0 accepts associations.

4.4.1.2.2 Remote Association Acceptors

The following information must be provided for all relevant remote applications that are able to accept DICOM associations from SpiralCT:

- The Application Entity Title
- The host name/IP address on which the remote application resides.
- The port number at which the remote application accepts association requests.

4.4.2 Parameters

The specification of important operational parameters, and if configurable, their default

value and range, shall be specified here.
The configuration parameters are given in below Table, categorized in the following sections:
General Parameters of SpiralCT R1.0.
Local Configurable Parameters of the SpiralCT AE
□
Remote Configurable Parameters of the SpiralCT AE.
General Print Parameters.

Table 4-30 Printer Specific Print Parameters

Parameter	Configurable	Default Value
General Parameters of SpiralCT R1.0		
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	No	-
General DIMSE level time-out values	No	20s
Time-out waiting for response to TCP/IP connect request. (Lowlevel timeout)	No	20s
Local Configurable Parameters of the SpiralCT AE		
Maximum PDU size the AE can receive	No	128k
Maximum PDU size the AE can send	No	128k
Number of simultaneous associations by Service and/or SOP class	No	
SOP class support	No	Different with different service class
Transfer Syntax support	No	ILE IBE ELE
Remote Configurable Parameters of the SpiralCT AE		
Maximum PDU size the AE can receive	No	128k
Maximum PDU size the AE can send	No	128k
AE specific DIMSE level time-out values	Yes	20
Number of simultaneous associations by Service and/or SOP class	No	-
SOP class support	No	Different with different service class
Transfer Syntax support	No	ILE IBE ELE
Storage Commitment request	Yes	not

must be sent after Storage request		
Storage Commitment time-out (synchronous to asynchronous)	Yes	none
Export of pure DICOM images (i.e. only the standard DICOM attributes as defined in the related IOD) or extended DICOM images (with additional Standard DICOM, Private and Retired attributes)	Yes	allow all attributes
General Print Parameters		
The DICOM printers that may be selected by the operator	Yes	none
Printer Specific Print Parameters		
Medium type	Yes	All available
Film size ID (i.e. Media size)	Yes	All available
Destination	Yes	All available
Magnification	Yes	All available
Priority	Yes	All available
Film Format	Yes	All available
Orientation	Yes	All available
Resolution (300 / 600 dpi)	Yes	300
Color model (8 / 16 bits color)	Yes	8
Min Density	Yes	10
Max Density	Yes	300

5.MEDIA INTERCHANGE

5.1 IMPLEMENTATION MODEL

The Implementation Model identifies the DICOM Application Entities in a specific implementation, and relates the Application Entities to Real-World Activities.

5.1.1 Application Data Flow

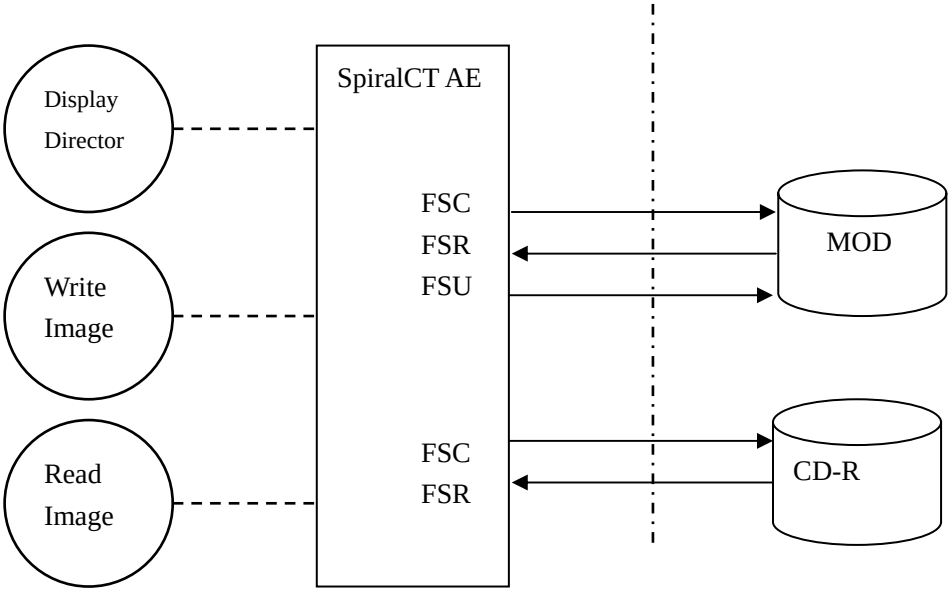

Figure 5-1 Application Data Flow Figure

5.1.2 Functional Definitions of AE's

This section shall describe in general terms the functions to be performed by the AE, and the DICOM services used to accomplish these functions.

5.1.2.1 Functional Definition of SpiralCT AE

Media Storage Service Class for CD-R, MOD

The SpiralCT AE can perform the CD-R Media Storage service , with capabilities for:
RWA Display Directory (as FSR),
RWA Write Images (as FSC),
RWA Read Images (as FSR).
The SpiralCT AE can perform the MOD Media Storage service, with capabilities for:
RWA Display Directory (as FSR),
RWA Write Images (as FSC / FSU),
RWA Read Images (as FSR).

5.1.3 Sequencing of Real World Activities

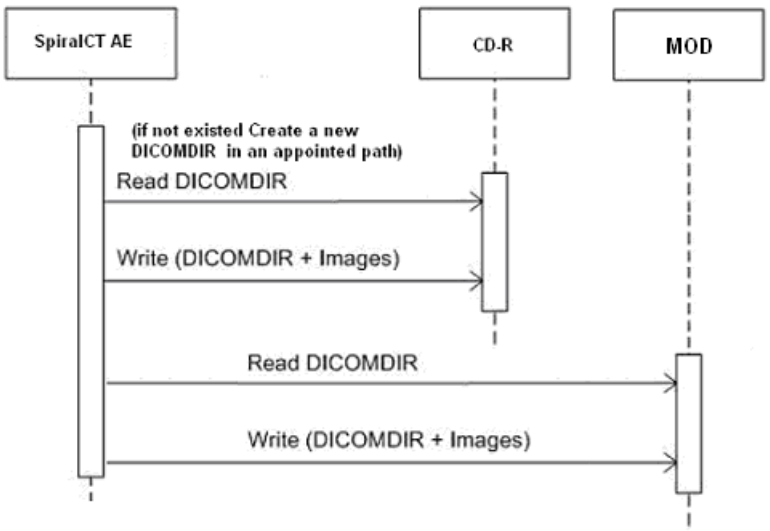

Figure 5-2 Sequencing of Real World Activities

5.1.4 File Meta Information for Implementation Class and Version

This section shall be used to list the values assigned to the File Meta Information attributes (ref. [DICOM] PS 3.10) that pertain to the Implementation Class and Version.

The Implementation Class UID and the Implementation Version Name in the File Meta Header are as specified for Networking (ref. Table **4-5** in section 04.2.1.2.4).

Table 5-1: DICOM Implementation Class and Version for SpiralCT AE

Implementation Class and Version	
File Meta Information Version	00\01
Implementation Class UID	1.2.156.14702.1
Implementation Version Name	SpiralCT R1.0

5.2 AE SPECIFICATIONS

The next section in the DICOM Conformance Statement contains the specification of the one and only SpiralCT Application Entity: SpiralCT AE.

5.2.1 SpiralCT AE

The SpiralCT AE provides Standard Conformance to
The DICOM Media Storage Service and File Format ([DICOM] PS 3.10),
The Media Storage Application Profiles STD-GEN-CD ([DICOM] PS 3.11)
The Media Storage Application Profiles STD-CTMR-MOD650 ([DICOM] PS 3.11)
The Media Storage Application Profiles STD-CTMR-MOD12 ([DICOM] PS 3.11)

For Reading and Writing.
SpiralCT supports multi-patient and multi-session CD-R /MOD for
Reading and Writing.
For CD: CD R / CD RW with the profile: STD-GEN-CD
For MOD: MOD with the profile: STD-CTMR-MOD650 and STD-CTMR-MOD12

The supported Application Profiles, their Roles and the Service Class (SC) options, all defined in DICOM terminology, are listed in **Table 5-2**

Table 5-2 AE Related Application Profiles, Real-World Activities, and Roles for CD-R and MOD

Supported Application Profile	Real-World Activity	Roles	SC Option
STD-GEN-CD	Display Directory	FSR	Interchange
	Write Images	FSC	Interchange
	Read Images	FSR	Interchange
STD-CTMR-MOD650	Display Directory	FSR	Interchange
	Write Images	FSC, FSU	Interchange
	Read Images	FSR	Interchange
STD-CTMR-MOD12	Display Directory	FSR	Interchange
	Write Images	FSC, FSU	Interchange
	Read Images	FSR	Interchange

5.2.1.1 File Meta Information for the SpiralCT AE

The Source Application Entity Title is configurable (see ref. section 5.4 Media Configuration).

5.2.1.2 Real-World Activities

5.2.1.2.1 Display Directory

When a database open action is initiated on the CD-R/MOD then the SpiralCT AE acts as an FSR using the interchange option to read the DICOMDIR of the CD-R/MOD medium. This will result in an overview of the patients, studies, series and images on the SpiralCT R1.0 screen .if doesn't exist DICOMDIR in the CD-R, it will Create a occasional DICOMDIR for the CD-R In an appointed path.

5.2.1.2.2 Write Images

When an image transfer to CD-R/MOD is initiated then the SpiralCT AE acts as an FSC or FSU (CD-R only) using the interchange option to export SOP Instances from the local database to a CD-R/MOD medium

5.2.1.2.3 Read Images

When an image transfer from CD-R or MOD is initiated then the SpiralCT AE acts as an FSR using the interchange option to import SOP Instances from the CD-R / MOD medium.

5.3 AUGMENTED AND PRIVATE APPLICATION PROFILES

This section shall be used for the description of Augmented and Private Application Profiles.

5.3.1 Augmented Application Profiles

None.

5.3.2 Private Application Profiles

None.

5.4 MEDIA CONFIGURATION

Any configuration issues may be found in the Networking section 4.4 Configuration.

6. SUPPORT OF CHARACTER SETS

SpiralCT AE supports the extended character set GB18030, which is the Chinese ideograms coded character set for information interchange -- Extension for the basic set.
When the SprialCT receives unsupported character set then it will not display the string attribute Properly.
In this version of SprialCT will not do any action with the unsupported character set.

7 SECURITY

A.7.1 SECURITY PROFILES

None supported.

A.7.2 ASSOCIATION LEVEL SECURITY

Any calling AE title and/or IP address may open an association

A.7.3 APPLICATION LEVEL SECURITY

None supported.

8 ANNEXES

8.1 IOD Contents

8.1.1 Created SOP Instance(s)

This section specifies each IOD created by the SpiralCT AE
Below abbreviations used in the Table 8-1
ALWAYS the module shall always be present
MAYBE the module may be present under specified condition

Below abbreviations used in the “Source” column(Table 8-2 ~ Table 8-13)

AUTO the attribute value is generated automatically
CONF the attribute value source is a configurable parameter
MPPS the attribute value source is a modality performed procedure step
MWL the attribute value source is a modality worklist
USER the attribute value source is explicit user input

Table 8-1. IOD of Created CT image storage SOP Instances

IE	Module	Reference	Presence of Module
Patient	Patient	Table **8-2**	ALWAYS
Study	General Study	Table**8-3**	ALWAYS
	Patient Study	Table **8-4**	MAYBE
Series	General Series	Table **8-5**	ALWAYS
	Frame of Reference	Table **8-6**	ALWAYS
Equipment	General Equipment	Table **8-7**	ALWAYS
Image	General Image	Table**8-8**	ALWAYS
	Image Pixel	Table**8-9**	ALWAYS
	Image Plane	Table**8-10**	ALWAYS
	CT Image	Table**8-11**	ALWAYS
	VOI LUT Module	Table **8-12**	MAYBE
	SOP Common	Table**8-13**	ALWAYS

Table 8-2 CT Image Storage SOP Class - Patient Module

Attribute name	Tag	Note	Source
Patient's Name	0010,0010		USER/MWL
Patient ID	0010,0020		USER/MWL
Patient's Birth Date	0010,0030		USER/MWL
Patient's Sex	0010,0040		USER/MWL

Table 8-3 CT Image Storage SOP Class - General Study Module

Attribute name	Tag	Note	Source
Study Date	0008,0020		AUTO
Study Time	0008,0030		AUTO
Accession number	0008,0050		USER/MWL
Referring Physician's Name	0008,0090		MWL
Study Instance UID	0020,000d		AUTO/MWL
Study ID	0020,0010		AUTO

Table 8-4 CT Image Storage SOP Class – Patient Study Module

Attribute name	Tag	Note	Source
Patient's Age	0010,1010		USER/MWL
Patient's Size	0010,1020		USER/MWL
Patient's Weight	0010,1030		USER/MWL

Table 8-5 CT Image Storage SOP Class - General Series Module

Attribute name	Tag	Note	Source
Modality	0008,0060		AUTO
Performing physician's Name	0008,1050		USER
Series Instance UID	0020,000E		AUTO/MWL
Series Number	0020,0011		USER
Patient Position	0018,5100		USER
Operators' Name	0008,1070		MPPS
Protocol name	0018,1030		USER

Table 8-6. CT Image Storage SOP Class - Frame of Reference Module

Attribute name	Tag	Note	Source
Frame of Reference UID	0020:0052		AUTO
Position Reference Indicator	0020:1040 -		USER

Table 8-7. CT Image Storage SOP Class - General Equipment Module

Attribute name	Tag	Note	Source
Manufacturer	0008,0070	Philips and Neusoft medic system	AUTO
Institution Name	0008,0080	the name of the hospital	CONF
Manufacturer's Model Name	0008,1090	Spiral CT	AUTO
Pixel Padding Value	0028,0120		AUTO
Spatial Resolution	0018,1050		AUTO
Software Version(s)	0018,1020		AUTO

Table 8-8. CT Image Storage SOP Class - General Image Module

Attribute name	Tag	Note	Source
Instance Number	0020,0013		AUTO

Table 8-9. CT Image Storage SOP Class - Image Pixel Module

Attribute name	Tag	Note	Source
Samples per Pixel	0x0028 0002		AUTO
Photometric Interpretation	0x0028 0004		AUTO
Rows	0x0028 0010		AUTO
Columns	0x0028 0011		AUTO
Bits Allocated	0x0028 0100		AUTO
Bits Stored	0x0028 0101		AUTO
High Bit	0x0028 0102		AUTO
Pixel Representation	0x0028 0103		AUTO
Pixel Data	0x7FE0 0010		AUTO

Table 8-10. CT Image Storage SOP Class - Image Plane Module

Attribute name	Tag	Note	Source
Image Orientation (Patient)	0x0020 0037		AUTO
Image Position (Patient)	0x0020 0032		AUTO
Slice Thickness	0x0018 0050		USER
Slice Location	0x0020 1041		USER
Pixel Spacing	0x0028 0030		AUTO

Table 8-11 CT Image Storage SOP Class -CT Image Module

Attribute name	Tag	Note	Source
Image Type	0008,0008 -		AUTO
Samples per Pixel	0x0028 0002		AUTO
Photometric Interpretation	0x0028 0004		AUTO
Bits Allocated	0x0028 0100		AUTO
Bits Stored	0x0028 0101		AUTO
High Bit	0x0028 0102		AUTO
Rescale Intercept	0028,1052		USER
Rescale Slope	0028,1053 -		USER
KVP	0018,0060 -		USER
Acquisition Number	0020,0012 -		AUTO
Data Collection Diameter	0018,0090 -		USER
Reconstruction Diameter	0018,1100 -		USER
Distance Source to Detector	0018,1110 -		USER
Distance Source to Patient	0018,1111 -		USER
Gantry/Detector Tilt	0018,1120 -		USER
Table Height	0018,1130 -		USER
Rotation Direction	0018,1140 -		USER
Exposure Time	0018,1150 -		USER
X-ray Tube Current	0018,1151 -		USER
Filter Type	0018,1160 -		USER

Table 8-12. CT Image Storage SOP Class - VOI LUT Module

Attribute name	Tag	Note	Source
Window Center	0028,1050		USER
Window Width	0028,1051		USER

Table 8-13. CT Image Storage SOP Class - Sop Common Module

Attribute name	Tag	Note	Source
SOP Class UID	0008,0016		AUTO
SOP Instance UID	0008,0018		AUTO
Specific Character Set	0008,0005		USER

8.1.2 Attribute Mapping

The relationships between attributes received via Modality Worklist, stored in acquired images and communicated via MPPS are summarized in Table 8-14.

Table 8-14 ATTRIBUTE MAPPING BETWEEN MODALITY WORKLIST, MPPS AND IMAGE

MWL	CT Image	MPPS
----	---	Scheduled Step Attributes Sequence
Study Instance UID	Study Instance UID (IHE-1)	>Study Instance UID (IHE-2)
Referenced Study Sequence (IHE-23)	Referenced Study Sequence (IHE-18) (IHE-22)	> Referenced Study Sequence (IHE-3) (IHE-22)
Accession Number (IHE-13)	Accession Number (IHE-7)	>Accession Number (IHE-4)
---	Request Attributers Sequence (IHE-11)	---
Requested Procedure ID (IHE-13)	>Requested Procedure ID (IHE-22)	>Requested Procedure ID (IHE-22)
Requested Procedure Description (IHE-16)	>Requested Procedure Description (IHE-22)	>Requested Procedure Description (IHE-22)
Scheduled Procedure Step ID(IHE-14)	> Scheduled Procedure Step ID	> Scheduled Procedure Step ID
Scheduled Procedure Step Description (IHE-15)	> Scheduled Procedure Step Description	>Scheduled Procedure Step Description
Scheduled Procedure Code Sequence (IHE-15)	> Scheduled Procedure Code Sequence	---
---	Performed Protocol Code Sequence (IHE-10)(IHE-19)	Performed Protocol Code Sequence (IHE-10)
---	Study ID(IHE-5)	Study ID
---	Performed Procedure Step ID (IHE-21)	Performed Procedure Step ID (IHE-21)
---	Performed Procedure Step Start Date (IHE-8)	Performed Procedure Step Start Date
---	Performed Procedure Step Start Time (IHE-8)	Performed Procedure Step Start Time
---	Performed Procedure Step Description (IHE-8)	Performed Procedure Step Description

Requested Procedure Code Sequence (IHE-16)	Requested Procedure Code Sequence (IHE-6)(IHE-22)	Requested Procedure Code Sequence (IHE-6)(IHE-22)
---	Referenced Study Component Sequence (IHE-12) Referenced Performed Procedure Step Sequence	---
---	>Referenced SOP Class UID	SOP Class UID
---	>Referenced SOP Instance UID	SOP Instance UID
---	Protocol Name(IHE-17)	Protocol Name

8.1.3 Coerced/Modified fields

Not applicable.

8.2 Data Dictionary of Private Attributes

Not applicable.

8.3 Coded Terminology and Templates

Not applicable.

8.4 Grayscale Image consistency

Not applicable.

8.5 Standard Extended/Specialized/Private SOPs

Not applicable.

8.6 Private Transfer Syntaxes

None.