

DICOM Conformance Statement
SMIIC-v 3.2
&
SMIIC-s 3.2

Date: 1999-03-30
SECTRA-Imtec Document number: 3-97.699-3.0

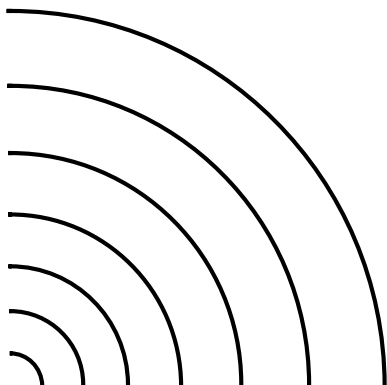


TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 REFERENCES	1
2. IMPLEMENTATION MODEL.....	1
2.1 APPLICATION DATA FLOW DIAGRAM	1
2.2 FUNCTIONAL DEFINITIONS OF AE'S	2
2.2.1 Print Management	2
2.2.2 Storage	2
2.3 SEQUENCING OF REAL-WORLD ACTIVITIES	2
3. AE SPECIFICATIONS.....	2
3.1 AE SMIIC SPECIFICATION.....	2
3.1.1 Association Establishment Policies	2
3.1.2 Association Initiation Policy	3
3.1.3 Association Acceptance Policy	4
4. COMMUNICATION PROFILES.....	5
4.1 SUPPORTED COMMUNICATION STACKS.....	5
4.2 TCP/IP STACK.....	5
4.2.1 Physical Media Support	5
4.3 OSI STACK.....	5
4.4 POINT-TO-POINT STACK	5
5. EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS.....	5
6. CONFIGURATION.....	5
6.1 AE TITLE/PRESENTATION ADDRESS MAPPING.....	5
6.1.1 Local AE Titles and Presentation Addresses	5
6.1.2 Remote AE Titles and Presentation Addresses	5
7. SUPPORT OF EXTENDED CHARACTER SETS.....	6

1. INTRODUCTION

This document describes the DICOM SOP classes supported by the SECTRA-Imtec SMIIIC-v and SMIIIC-s version 3.2. Sometimes in this document the SMIIIC-v and SMIIIC-s will both be referenced as just SMIIIC.

The document should be read together with the DICOM standard. Definitions and terms are used in this document according to the DICOM standard. It is assumed that the reader is familiar with the DICOM standard.

1.1 REFERENCES

- [1] Digital Imaging and Communications in Medicine (DICOM).
NEMA Standard Publications PS 3.1-13 and Supplements.

2. IMPLEMENTATION MODEL

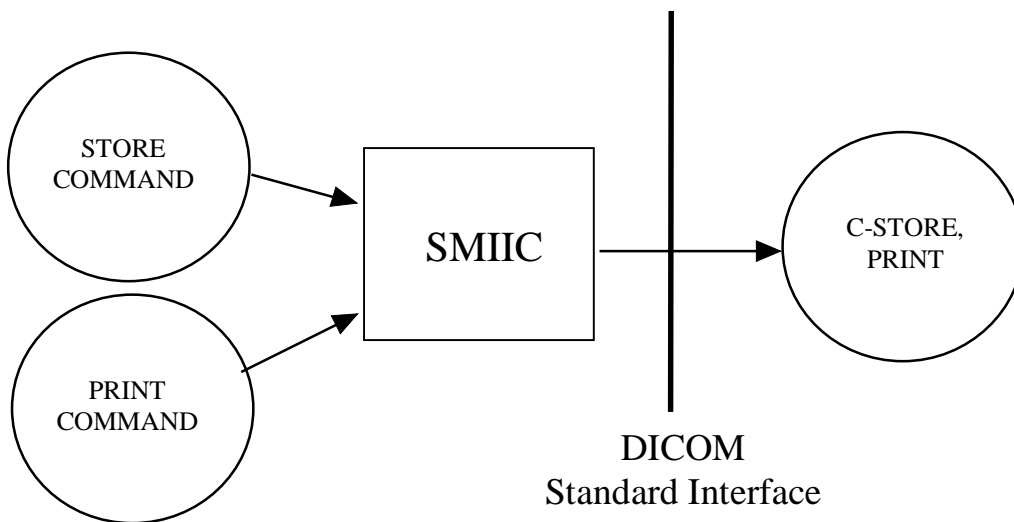
SMIIIC-v and SMIIIC-s is only available on Windows NT operating systems.

SMIIIC-v is a video grabbing and viewing station that can be used with e.g. US. It allows the user to:

- Grab, store and print images.

SMIIIC-s is a scanning and viewing station for radiology images. It allows the user to:

- Scan, store and print images.



2.1 APPLICATION DATA FLOW DIAGRAM

The Implementation Model is shown in the figure above

2.2 FUNCTIONAL DEFINITIONS OF AE'S

SMIIC acts as a SCU for the following DICOM Service Classes:

- Print.
- Storage.

2.2.1 PRINT MANAGEMENT

SMIIC is acting as a SCU waiting for requests from the workstation user. When a request is received, SMIIC initiates an association with a remote Application Entity.

2.2.2 STORAGE

SMIIC is acting as a SCU waiting for requests from the workstation user. When a request is received, SMIIC initiates an association with a remote Application Entity.

2.3 SEQUENCING OF REAL-WORLD ACTIVITIES

1. The patient data is fetched from the RIS or entered manually.
2. Video grabbing or film scanning is performed.
3. Store and/or Print is performed.

3. AE SPECIFICATIONS

3.1 AE SMIIC SPECIFICATION

SMIIC provides Standard Conformance to the following DICOM v3.0 SOP Classes as a SCU:

Table 3-1: Supported SOP classes as SCU

SOP Class Name	SOP Class UID
Standard Second Capture	1.2.840.10008.5.1.4.1.1.7
Basic Grayscale Print Management Meta Class	1.2.840.10008.5.1.1.9

3.1.1 ASSOCIATION ESTABLISHMENT POLICIES

3.1.1.1 General

The maximum PDU-length which SMIIC will use is configurable. Default is 16 Kbytes. Configuration should be done by SECTRA authorised personnel only.

3.1.1.2 Number of Associations

SMIIC can handle one simultaneous association.

3.1.1.3 Asynchronous Nature

SMIIC does not support asynchronous operations and will not perform asynchronous window negotiation.

3.1.1.4 Implementation Identifying Information

SMIIC will provide an implementation class UID which is: 1.2.752.24.3.3.8.8

SMIIC will provide an implementation version name of: SECTRA_SMIIC

3.1.2 ASSOCIATION INITIATION POLICY

SMIIC initiates associations as a result of the SMIIC user executing the print command or the store command.

3.1.2.1 Real-World Activity - Print Command

3.1.2.1.1 Associated Real-World Activity

The user wants to establish a connection to a printer for the purpose of formatting and printing films. SMIIC allows the user to define the film layout. Several images can be printed on one film. The images will however be mounted in the SMIIC and sent to the printer as one image.

3.1.2.1.2 Proposed Presentation Contexts

Table 3-2: Proposed Presentation Contexts for the Print Command

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	DICOM Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		DICOM Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		DICOM Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

3.1.2.1.3 SOP-Specific Conformance

SMIIC supports the following mandatory SOP classes which are defined under the Basic Grayscale Print Management Meta SOP Class.

Table 3-3: Mandatory SOP Classes

Name	UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Printer SOP Class	1.2.840.10008.5.1.1.16
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2

SMIIC does not support any optional SOP classes.

3.1.2.2 Real-World Activity - Store Command

3.1.2.2.1 Associated Real-World Activity

The user wants to establish a connection to a server for the purpose of storing images.

3.1.2.2.2 Proposed Presentation Contexts

Table 3-3: Proposed Presentation Contexts for the store Command

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Standard Secondary Capture	1.2.840.10008.5.1.4.1.1.7	DICOM Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		DICOM Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Note
		DICOM Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	Note

3.1.3 ASSOCIATION ACCEPTANCE POLICY

SMIIC does not handle incoming associations.

4. COMMUNICATION PROFILES

4.1 SUPPORTED COMMUNICATION STACKS

SMIIC provides DICOM 3.0 TCP/IP Network Communication Support as defined in part 8 of the DICOM Standard.

4.2 TCP/IP STACK

SMIIC uses the TCP/IP stack built into the Windows NT 4.0 operating system.

4.2.1 PHYSICAL MEDIA SUPPORT

SMIIC is neutral to the physical medium over which TCP/IP executes, (it can be used with fiber-optics, token ring, Ethernet, twisted pair etc.).

4.3 OSI STACK

Not supported.

4.4 POINT-TO-POINT STACK

Not supported.

5. EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS

Not applicable

6. CONFIGURATION

6.1 AE TITLE/PRESENTATION ADDRESS MAPPING

6.1.1 LOCAL AE TITLES AND PRESENTATION ADDRESSES

The Applications Entity's host name is specified in the file SMIIC_ENV\DLL\merge\mergecom.pro. Changes of the file is intended to be done by SECTRA-Imtec authorised personnel only.

6.1.2 REMOTE AE TITLES AND PRESENTATION ADDRESSES

The remote Applications Entity's host name and port number are specified in the configuration part of the SMIIC. See the Installation and Configuration manual for more information. Several remote AEs can be specified.

7. SUPPORT OF EXTENDED CHARACTER SETS

- ISO_IR 100.

APPENDIX

DICOM tags used by SMIIC

Tag	Tag number	Value	TYPE	VR	VM	MAX
IMPLEMENTATION_CLASS_UID	-----	<1.2.752.24.3.3.8.8>				
SPECIFIC_CHARACTER_SET	0008.0005	<ISO_IR 100>	1C	CS	1	16
INSTITUTION_NAME	0008.0080	Configurable	3	LO	1	64
MANUFACTURER	0008.0070	<SECTRA IMTEC>	2	LO	1	64
STATION_NAME	0008.1010	Configurable	3	SH	1	16
MODALITY	0008.0060	Configurable	1	CS	1	16
PATIENT_ID	0010.0020	ris_tag<PN> ¹	2	LO	1	64
PATIENTS_NAME	0010.0010	ris_tag<NA> ¹	2	PN	1	64
PATIENTS_BIRTH_DATE	0010.0030	ris_tag<BD> ¹	2	DA	1	8fix
PATIENTS_BIRTH_TIME	0010.0032	<>	3	TM	1	16
PATIENTS_SEX	0010.0040	ris_tag<SX> ¹	2	CS	1	16
BODY_PART_EXAMINED	0018.0015	<>	2	CS	1	16
PERFORMING_PHYSICIANS_NAME	0008.1050	<>	3	PN	1-n	64
SOP_CLASS_UID	0008.0016	<1.2.840.10008.5.1.4.1.1.6>	1	UI	1	64
SOP_INSTANCE_UID	0008.0018	<1.2.752.24.3.machine.study. series.image.date>	1	UI	1	64
STUDY_ID	0020.0010	ris_tags <XX><YY> ^{1 2} , configurable	2	SH	1	16
STUDY_INSTANCE_UID	0020.000D	<1.2.752.24.3.machine.study>	1	UI	1	64
STUDY_DATE	0008.0020	current_date (NT clock) or ris_tag <DA>	2	DA	1	8fix
STUDY_TIME	0008.0030	study_start_time (NT clock) or empty if ris_tag <DA> is used	2	TM	1	16
STUDY_DESCRIPTION	0008.1030	Ris_tag<TY>, configurable				
SERIES_NUMBER	0020.0011	<1>	2	IS	1	12
SERIES_INSTANCE_UID	0020.000E	<1.2.752.24.3.machine.study series>	1	UI	1	64

SERIES_DATE	0008.0021	current_date (NT clock) or ris_tag <DA>	3	DA	1	8fix
ACCESSION_NUMBER	0008.0050	ris_tags<QQ><ZZ>, configurable	2	SH	1	16
ACQUISITION_NUMBER	0020.0012	image_number_in_acquisition	3	IS	1	12
ACQUISITION_DATE	0008.0022	current_date (NT clock) or ris_tag <DA>	3	DA	1	8fix
ACQUISITION_TIME	0008.0032	Image_capture_time (NT clock) or empty if ris_tag <DA> is used	3	TM	1	16
IMAGE_NUMBER	0020.0013	Image_number_in_acquisition	2	IS	1	12
IMAGE_TYPE	0008.0008	<SECONDARY>	2	CS	1-n	16
IMAGE_DATE	0008.0023	Current_date (NT clock) or ris_tag <DA>	2C	DA	1	8fix
IMAGE_TIME	0008.0033	Image_capture_time (NT clock) or empty if ris_tag <DA> is used	2C	TM	1	16
ROWS	0028.0010	Image_height	1	US	1	2fix
COLUMNS	0028.0011	Image_width	1	US	1	2fix
PHOTOMETRIC_INTERPRETATION	0028.0004	<MONOCHROME2>	1	CS	1	16
PIXEL_REPRESENTATION	0028.0103	<0>	1	US	1	2fix
BITS_ALLOCATED	0028.0100	<8> ³ , <16> ⁴	1	US	1	2fix
BITS_STORED	0028.0101	<8> ³ , <12> ⁴	1	US	1	2fix
HIGH_BIT	0028.0102	<7> ³ , <11> ⁴	1	US	1	2fix
SMALLEST_IMAGE_PIXEL_VALUE	0028.0106	<0>	3	US or SS	1	2fix
LARGEST_IMAGE_PIXEL_VALUE	0028.0107	<255> ³ , <4095> ⁴	3	US or SS	1	2fix
SAMPLES_PER_PIXEL	0028.0002	<1>	1	US	1	2fix
WINDOW_CENTER	0028.1050	<128> ³ , <2048> ⁴	3	DS	1-n	
WINDOW WIDTH	0028.1051	<256> ³ , <4096> ⁴	1C	DS	1-n	
RESCALE_INTERCEPT	0028.1052	<0>	1C	DS	1	16
RESCALE_SLOPE	0028.1053	<1>	1C	DS	1	16
DATE OF SECONDARY CAPTURE	0018.1012	Current_date (NT clock)	3	DA	1	8fix
TIME OF SECONDARY CAPTURE	0018.1014	Image_capture_time (NT clock)	3	TM	1	16

1) See Sectra Installation and Configuration manual for more information about ris tags.

- 2) This contains two concatenated ris tags which are programmable from the SMIIIC interface. See the SMIIIC Installation and Configuration Manual document.
- 3) SMIIIC-v only.
- 4) SMIIIC-s only.