MPTronic Medical software	DICOM CONFORMANCE	Doc. Ref. : CONF-EZDPRINT-EN
	Ez Dicom Printer	Version : 1.3.x

MPTRONIC

Address: 78 Rue de Turbigo
75003 Paris France
Tel: (+33) 1 40 24 08 30
Website: www.mptronic.com
Email: sales@mptronic.com

UDI

3 760314 060035

CE

MD Ez Dicom Printer

TABLE OF CONTENTS

1 FOREWORD

This software is a Class I active medical device in the EU. It is CE marked, in compliance with the current requirements of European Regulation 2017/745.

Meaning of symbols:

Symbol	Symbol Title
	Manufacturer
	CE-Mark
	Medical device
	Unique Device ID

INTRODUCTION

1.1 Scope and field of application

This document is the DICOM conformance statement for the Ez Dicom Printer Software of MPTronic. This document describes how the Ez Dicom Printer Software collaborates in a DICOM network with other Medical Imaging applications that conform to the DICOM 3.0 Standard.

This DICOM Conformance Statement documents the conformance of the Ez Dicom Printer Software with the Digital Imaging and Communications in Medicine standard (DICOM). This document is essential in order to evaluate whether or not another DICOM compliant device can communicate with this software product. This statement is conformant with the recommended format as described in PS 3.2 of the DICOM standard.

1.2 Important considerations for the reader

This document on its own should not be interpreted as a guarantee of connectivity between Ez Dicom Printer and any equipment and/or applications offered by other vendors.

Integration of Ez Dicom Printer with the equipment and/or applications of different vendors, including MPTronic Systems, are outside the scope of the DICOM 3.0 standard and product conformance statements. Integration and interoperability of different equipment/applications are the sole responsibility of the user.

In the case of any possible connectivity inferred by a user to exist between Ez Dicom Printer and another product, the user is responsible for testing and verifying the inferred connectivity.

Future changes to the DICOM 3.0 standard may require alterations to be made to Ez Dicom Printer. MPTronic reserves the right to modify the Ez Dicom Printer architecture as needed, in order to meet changing standards.

The user should ensure that any existing DICOM equipment also changes with the future developments of the DICOM standards. Failure to keep pace with any alterations in the DICOM standards may result in decreased or lost connectivity.

All trade names mentioned in this document are recognized.

1.3 Revision history of the document

Revision	Date	Author	Description
1.0	15-05-2008	Gustavo Echenique	Initial Version
1.3	01-01-2020	Gustavo Echenique	New layout

2 CONFORMANCE OVERVIEW

2.1 Supported SOP classes

SOP Class Name	SOP Class UID
VerificationSOPClass	1.2.840.10008.1.1
BasicGrayscalePrintManagementMetaSOPClass	1.2.840.10008.5.1.1.9
BasicColorPrintManagementMetaSOPClass	1.2.840.10008.5.1.1.18
PrintJobSOPClass	1.2.840.10008.5.1.1.14
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Printer SOP Class	1.2.840.10008.5.1.1.16

2.2 Accepted transfer syntaxes

Name List	UID List
LittleEndianImplicitTransferSyntax	1.2.840.10008.1.2
LittleEndianExplicitTransferSyntax	1.2.840.10008.1.2.1
BigEndianExplicitTransferSyntax	1.2.840.10008.1.2.2

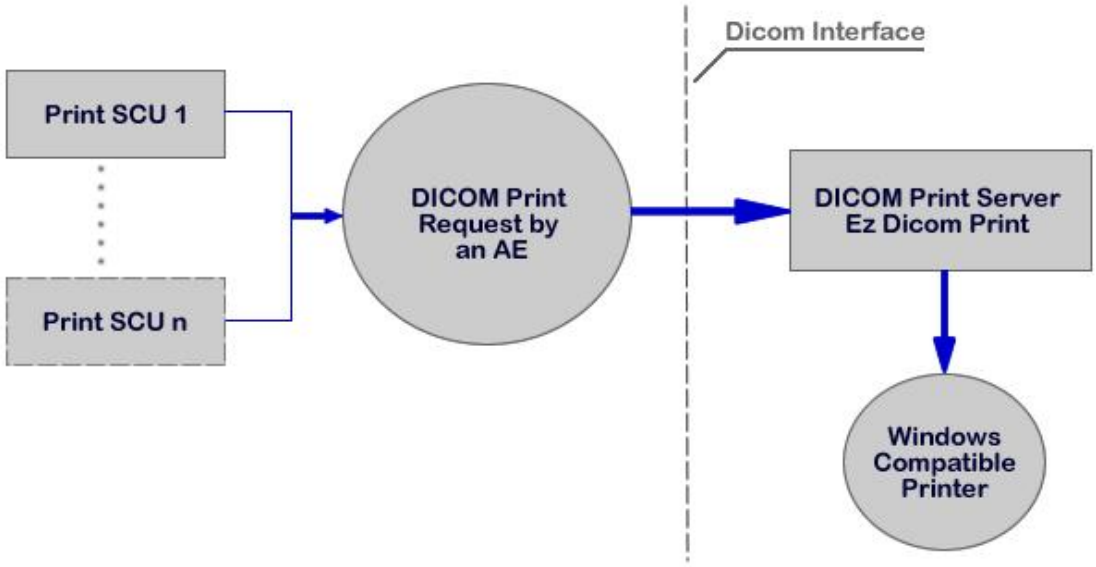
3 IMPLEMENTATION MODEL

Ez Dicom Printer provides the following features:

- Reception of DICOM print jobs and creation of windows printing jobs for printers configured on the system.

3.1 Application Data Flow

The Ez Dicom Printer receives DICOM print jobs. After negotiating of the association the datasets will be received. The received data will be processed regarding to a preset layout and a Windows printing job will be created.



3.2 Functional definition of Application Entities

Ez Dicom Printer acts as service class provider for the Basic Print

Management Classes and all in 2.1 and 4.1.1 mentioned other SOP classes. Multiple associations to Print SCUs are supported.

3.3 Sequencing of Real World activities

Not Applicable.

4 AE SPECIFICATIONS

4.1 Print Server Management (SCP) AE Specification

4.1.1 SOP Classes

Ez Dicom Printer application supports the following SOP Classes as an SCP (service class provider):

SOP Class Name	SOP Class UID
VerificationSOPClass	1.2.840.10008.1.1
BasicGrayscalePrintManagementMetaSOPClass	1.2.840.10008.5.1.1.9
BasicColorPrintManagementMetaSOPClass	1.2.840.10008.5.1.1.18
PrintJobSOPClass	1.2.840.10008.5.1.1.14

Ez Dicom Printer application will accept presentation contexts for all of the abovementioned supported SOP Classes using any of the transfer syntaxes:

Name List	UID List
LittleEndianImplicitTransferSyntax	1.2.840.10008.1.2
LittleEndianExplicitTransferSyntax	1.2.840.10008.1.2.1
BigEndianExplicitTransferSyntax	1.2.840.10008.1.2.2

The Ez Dicom Printer application does not support extended negotiation.

The default behaviour of the Ez Dicom Printer is to propose one presentation context for each supported SOP class (abstract syntax) with the above-mentioned three uncompressed transfer syntaxes. The first proposed transfer syntax is the explicit VR transfer syntax with local byte order, followed by the explicit VR transfer syntax with opposite byte order, followed by the default implicit VR transfer syntax.

4.1.2 Association Establishment Policy

4.1.2.1 GENERAL

Ez Dicom Printer accepts all association with supported SOP classes.

The DICOM Application Context Name (ACN) proposed by Ez Dicom Printer is 1.2.840.10008.3.1.1.

The maximum PDU size which can be transmitted by Ez Dicom Printer is fixed at 16 Kbytes (16384 bytes). The maximum PDU size which can be received by the Ez Dicom Printer is up to 16 Kbytes (16384 bytes).

The Ez Dicom Printer Software accepts incoming association requests on a single port number defined in the configuration file. It accepts association request if at least one presentation context of the association is accepted.

The access rights are checked by the AE-Title and the IP-address of the calling device.

Extended negotiations are not supported for any of the supported service classes.

4.1.2.2 NUMBER OF ASSOCIATIONS

The number of simultaneous associations which will be accepted by Ez DICOM Server is limited only by the kernel parameters of the underlying TCP/IP implementation. Ez DICOM Server will spawn a new process for each connection request it receives.

Therefore, Ez DICOM Server can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations which the Application Entity represented by Ez DICOM Server can maintain.

4.1.2.3 IMPLEMENTATION IDENTIFYING INFORMATION

The implementation class UID is **“1.2.826.0.1.3680043.2.1065”**. The implementation version name is **“MPTronic”.**

4.1.3 Association Initiation by Real World Activity

4.1.3.1 DICOM PRINT ASSOCIATION REQUEST

4.1.3.1.1 ASSOCIATED REAL-WORLD ACTIVITY

The remote application entity sends a DICOM print request as a service class user. The remote SCU initiates the association. The association will be released by the remote peer when all datasets have been transmitted.

4.1.3.1.2 PRINT MANAGEMENT AE SPECIFICATION

The Print Management Service Classes define an application-level class of services, which facilitate the printing of images on a hardcopy medium. The print management SCU and print management SCP are peer DICOM print management application entities. The DICOM Print server application supports the print management DIMSE services to act as SCP. It provides print management DIMSE services to transfer images from the remote AE to the local SCP AE to print images with defined layout on a Windows compatible printer.

4.1.3.1.3 SOP SPECIFIC CONFORMANCE

Ez Dicom Printer supports the following mandatory SOP classes which are defined under the Basic Grayscale and Color Print Management Meta SOP Class.

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1
Printer SOP Class	1.2.840.10008.5.1.1.16

Ez Dicom Printer supports the following optional SOP class attributes and DIMSE services. The attributes can be set in the configuration file.

SOP Class	Optional Attribute	Tag	Supported Values
Basic Film Session SOP Class	Number of Copies	(2000, 0010)	1 2 3 4 5
	Medium Type	(2000, 0030)	CLEAR FILM BLUE FILM PAPER
	Film Destination	(2000, 0040)	MAGAZINE PROCESSOR

SOP Class	Optional Attribute	Tag	Supported Values
Basic Film Box SOP Class	Image Display Format	(2010, 0010)	STANDARD\1,1 STANDARD\1,2 STANDARD\2,1 STANDARD\2,2 STANDARD\2,3 STANDARD\2,4 STANDARD\3,2 STANDARD\3,3 STANDARD\3,4 STANDARD\3,5 STANDARD\4,3 STANDARD\4,4 STANDARD\4,5 STANDARD\4,6 STANDARD\5,3 STANDARD\5,4 STANDARD\5,5 STANDARD\5,6 STANDARD\5,7
	Film Orientation	(2010, 0040)	PORTRAIT LANDSCAPE
	Film Size ID	(2010, 0050)	8INX10IN 10INX12IN 10INX14IN 11INX14IN 14INX17IN 14INX14IN

			14INX17IN
	Magnification Type	(2010, 0060)	BILINEAR CUBIC NONE REPLICATE
	Smoothing Type	(2010, 0080)	Any value supported from the printer (only if magnification type is cubic)
	Border Density	(2010, 0100)	BLACK WHITE
	Empty Image Density	(2010, 0110)	BLACK WHITE
	Min Density	(2010, 0120)	0 < Value < 100
	Max Density	(2010, 0130)	0 < Value
	Trim	(2010, 0140)	YES NO

5 COMMUNICATION PROFILES

5.1 Supported Communication Stacks

The TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard is supported.

5.1.1 TCP/IP Stack

The only supported network protocol is TCP/IP. Any physical media supporting TCP/IP may be used to connect to the Ez Dicom Printer Software. The application uses the TCP/IP stack of the under laying operating system.

5.1.2 Point-To-Point Stack

Not supported

6 EXTENSIONS/SPECIALIZATIONS/PRIVATIZATION

Not applicable.