



MEDICAL PRINT SERVER User's Guide

**MEDICAL PRINT SERVER Version 3.0.X.X and
above**

IMPORTANT:

This manual describes all the functionalities available in the full-option version of MEDICAL PRINT SERVER Ver 3.0.x.x. Available functionalities of your product may be different from those described in this manual.

Introduction

This manual describes how to print from MEDICAL PRINT SERVER to a Printer or MFP Printer using DICOM Protocol.

Refer to the user manual of your standard printer model for instructions on tasks such as how to load paper and replace the consumables.

MEDICAL PRINT SERVER prints on Printer or MFP Printer, DICOM format images sent via a network from medical imaging applications and medical devices.

MEDICAL PRINT SERVER can generate pages in both grayscale and color on Printer or MFP Printer

Features of MEDICAL PRINT SERVER

- High quality printing
- Compliant with the DICOM 3.0 standard
- Reliability
- Ergonomic features
- Achieves low-cost DICOM-compatible printing

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Document Terminology

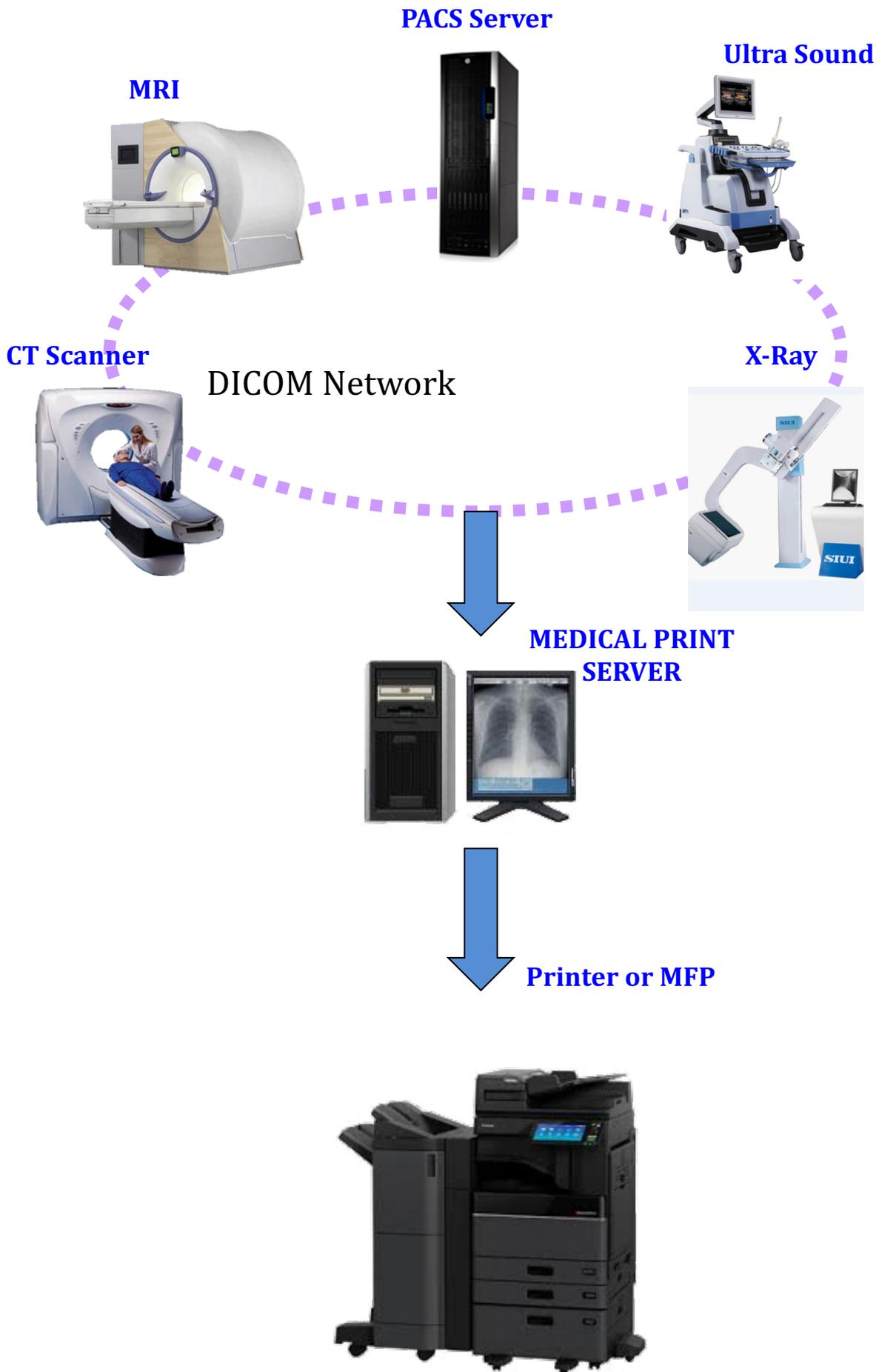
Control panel and interface messages are all provided in English in this document.

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Sample DICOM Network



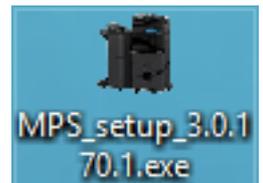
1. Setting up MEDICAL PRINT SERVER

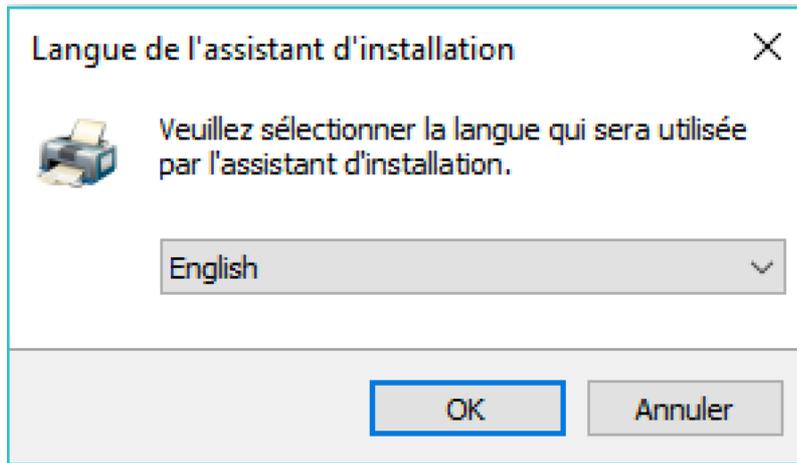
1-1 Install the Printer or MFP Printer

- (1) Prepare a Personal Computer (PC) connected to the same network as the modality.
 - Note *The Personal Computer must run Microsoft Windows© 7 as minimum.
- (2) Unpack your Printer or your MFP Printer (hereinafter referred to as printer) from the packing box and install it.
 - Note The following procedures are performed in accordance with the Setup Guide/User's Guide/Network Guide supplied on CD/DVD with the printer.
- (3) Remove the protective tapes and the protective sheets from the printer.
- (4) Install the image drum and Toner.
- (5) Load paper on the paper tray.
- (6) Connect the AC cord to the printer, and turn on the power.
- (7) Please refer to the printer appropriate manual on how to install and set the drivers on the PC.
- (8) Perform test printing, and confirm that the printer is correctly installed.

1-2 Install the MEDICAL PRINT SERVER on your PC

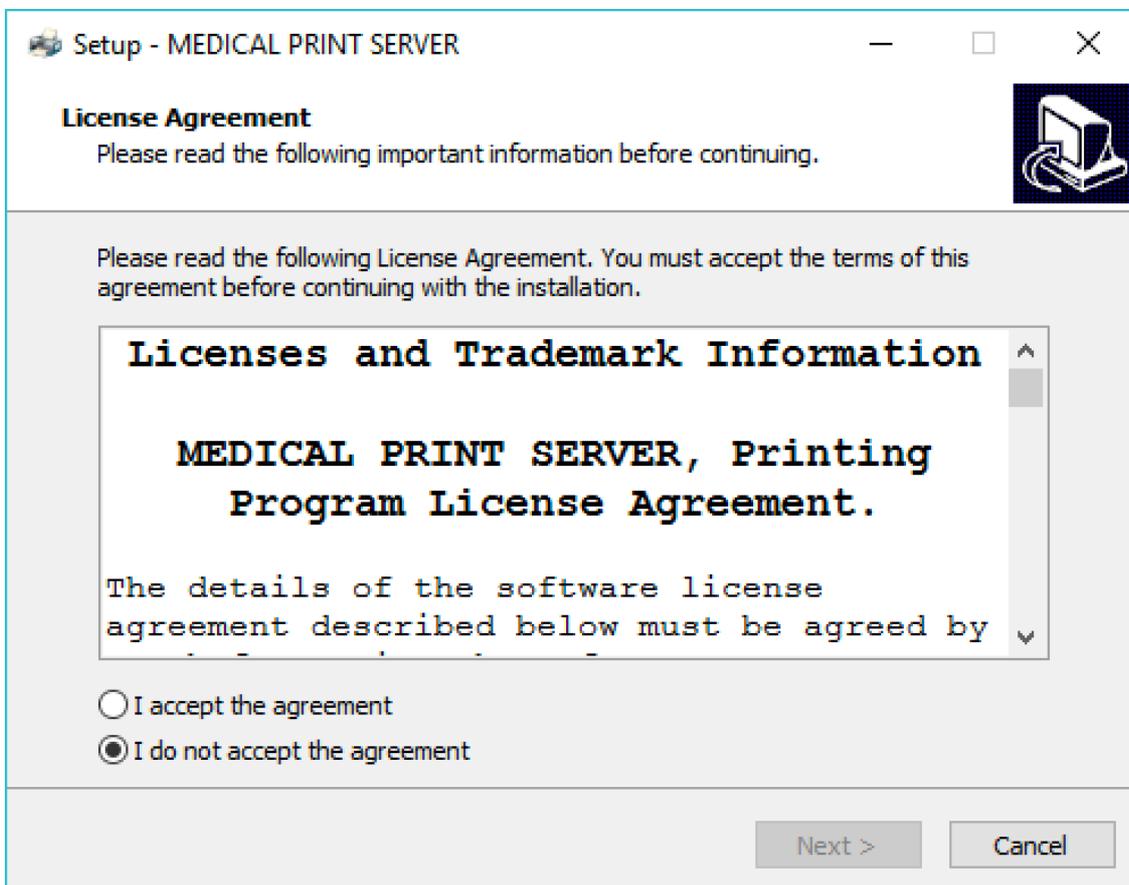
Launch "MEDICAL_PRINT_SERVER_Setup.exe" by double click on it.



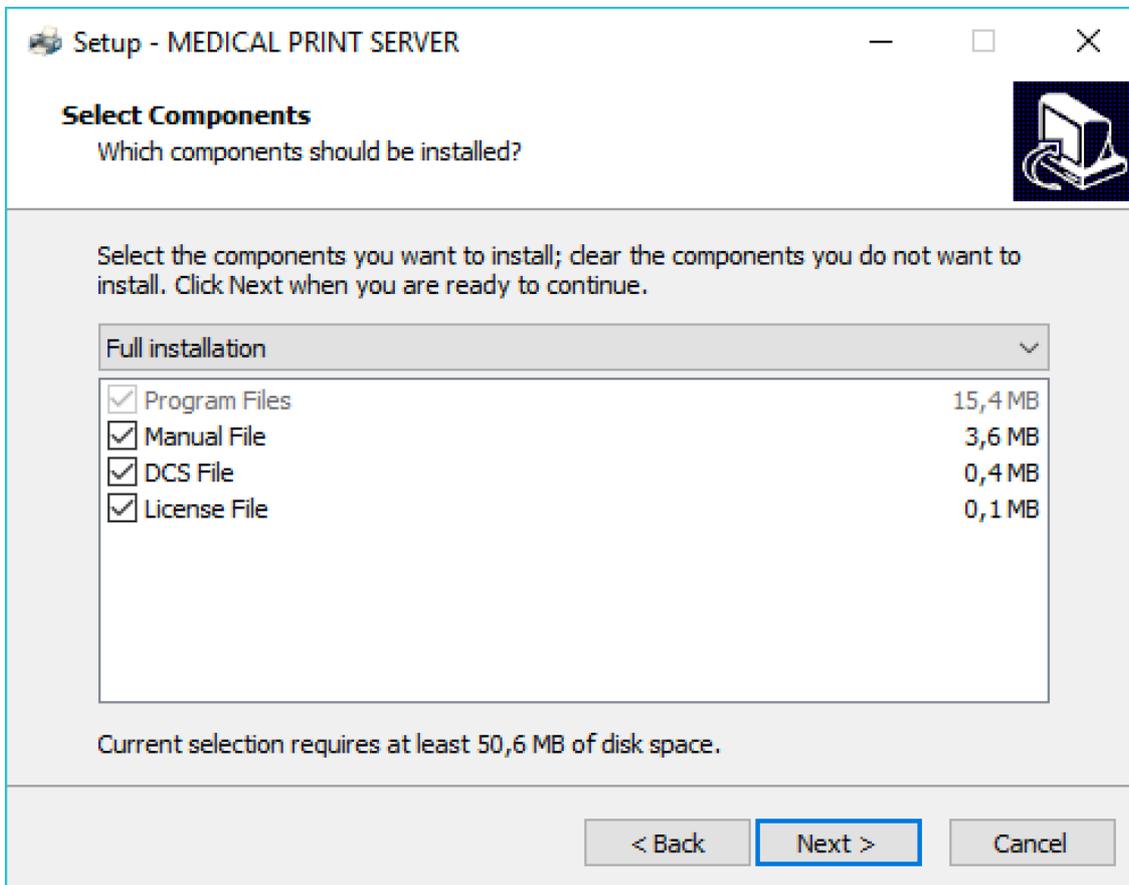


Select your favorite language then click "OK".

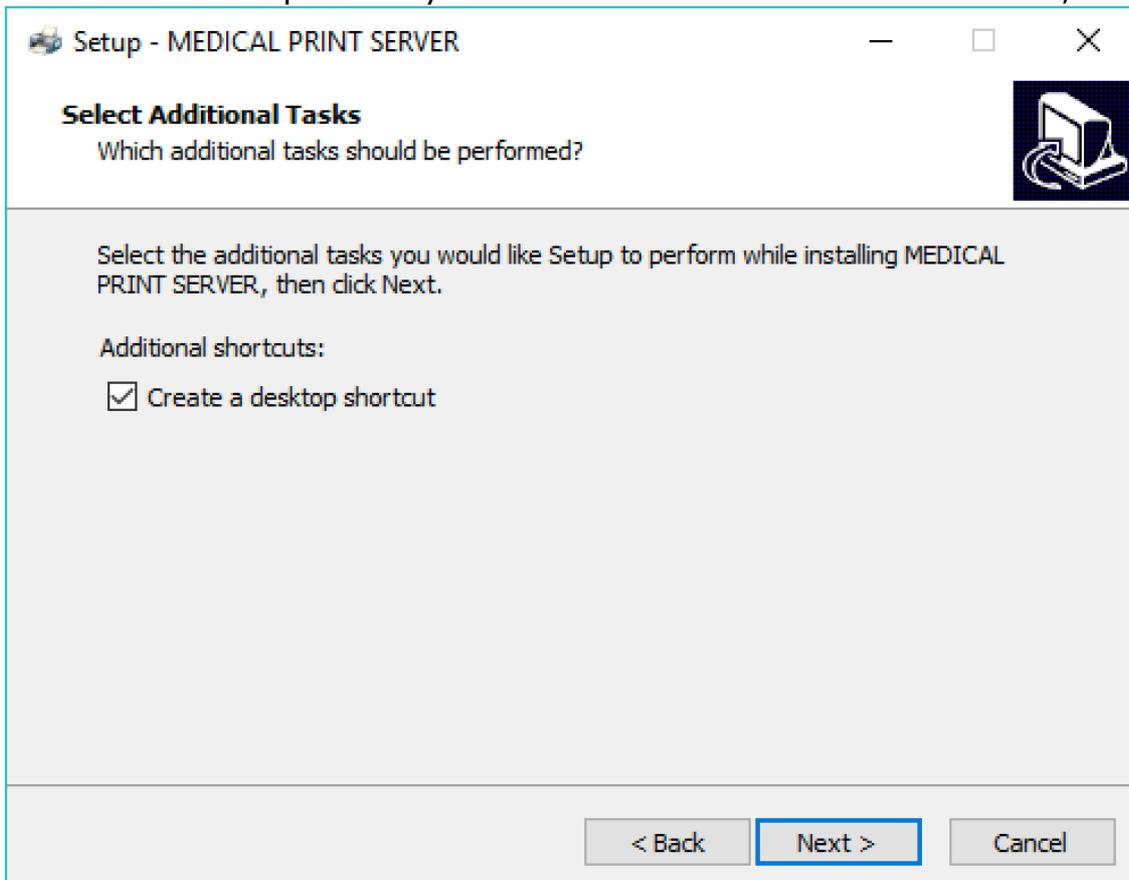
Trademark information is displayed.



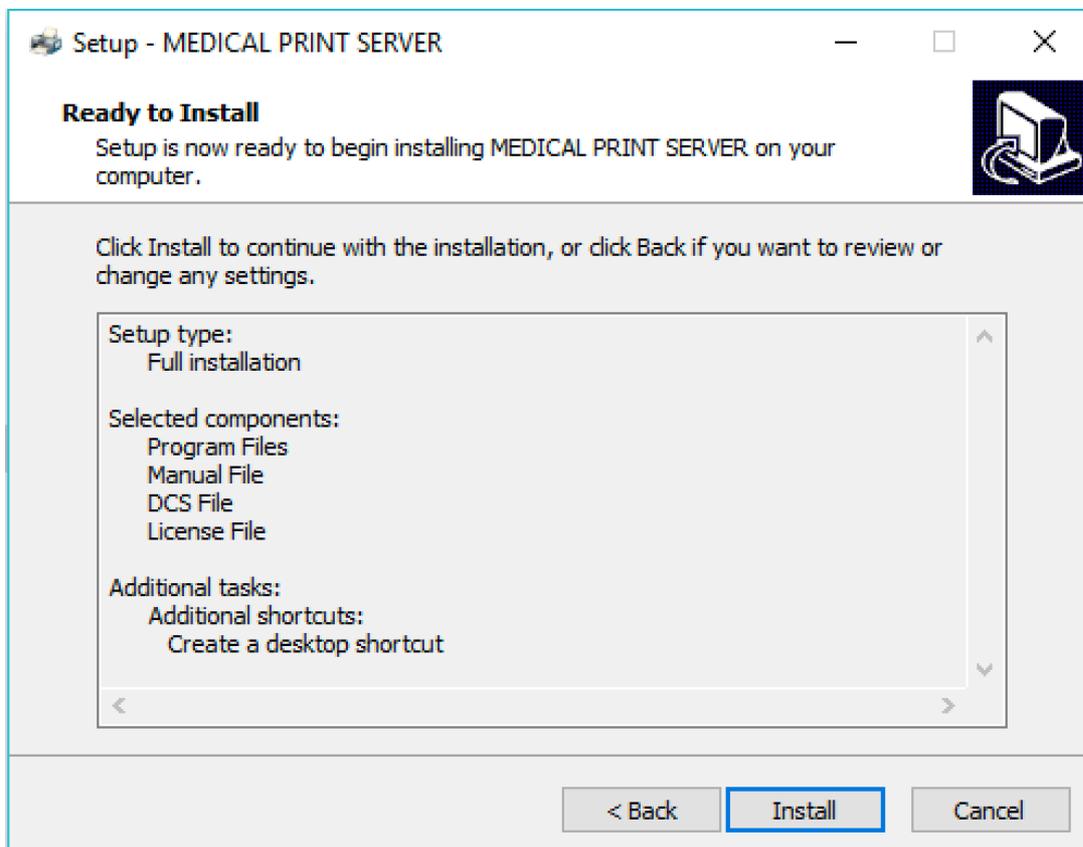
Read and accept the agreement then click on "Next",



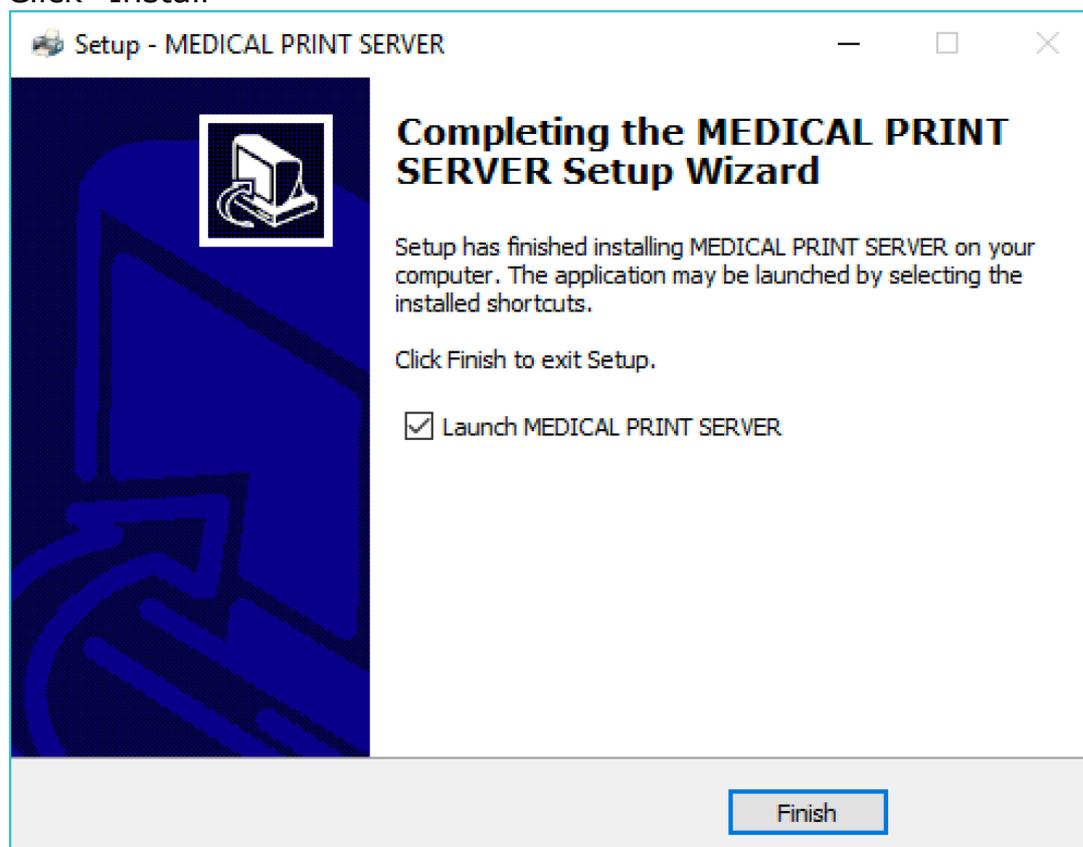
Select the components you want to install then Click on "Next",



Check "Create a desktop shortcut" If you want to add a shortcut on your desktop then Click "Next",



Click "Install"



Check "Launch MEDICAL PRINT SERVER" If you want to run MEDICAL PRINT SERVER
Click "Finish",

MEDICAL PRINT SERVER is now installed on your PC

1-3 Start MEDICAL PRINT SERVER

Start MEDICAL PRINT SERVER by double click on the Desktop shortcut

A screenshot of the Medical Print Server application window. The window has a title bar with "Medical Print Server" and a close button. The main area is divided into several sections: a "DICOM Settings" panel on the left with various dropdown menus, a central graphic area with the text "Medical Print Server" and "Print DICOM images on any Printers and MFP...", a "Start" button, and a checked "Auto Start" checkbox. Below this is a table with columns for AE Title, Printer, Tray, Preview, Booklet, Profil, Border Black, Sharpen, Level, Contrast, Brightness, and Gamma. The table contains one row of data. At the bottom of the window are buttons for "Add AE Title", "Delete", "AE Title Settings", and "License".

AE Title	Printer	Tray	Preview	Booklet	Profil	Border Black	Sharpen	Level	Contrast	Brightness	Gamma
NEWAET	ES9466 MFP(PS)	Auto	False	False	1	False	False	1	0	0	1

MEDICAL PRINT SERVER main form

Enter your Password

Password:

Login

MEDICAL PRINT SERVER Password form. Password is : "operator"

AE Title Settings

AE Title:

Printer:

Tray:

Format:

Booklet Profile:

Add Page for CD:

Image on last Page:

Multi_Association:

Film Session Label:

Add Label on Cover:

Add Report:

Font size:

Label Position X / Y:

Label's item 1:

Label's item 2:

Label's item 3:

Label's item 4:

Label's item 5:

Label's item 6:

Label's item 7:

Label's item 8:

Preview Only | Border Black | Color/bw Auto

Contrast:

Brightness:

Gamma:

Sharpen Filter | Sharpen Level:

OK | Cancel



MEDICAL PRINT SERVER Printer settings form

1-4 Options for MEDICAL PRINT SERVER main Form

The screenshot shows the 'Medical Print Server' configuration window. It features a 'DICOM Settings' section on the left with eight numbered callouts (1-8) pointing to dropdown menus for: 1. DICOM Port (104), 2. Maximum PDU Size (65536), 3. Socket Timeout (30), 4. RMSE Timeout (180), 5. Brottles (KB/s) (0), 6. Multi-Association Timer (6), 7. Wait Patient Info (60), and 8. Days to add the Report (8). On the right, there is a 'Start' button (9), an 'Auto Start' checkbox (10), and a 'DICOM Log' link (11). Below this is a table of printer configurations with callouts 12-15 pointing to specific cells. At the bottom, there are buttons for 'Add AE Title' (13), 'Delete' (14), 'AE Title Settings' (15), and 'License' (16).

AE Title	Printer	Tray	Preview	Booklet	Profil	Border Black	Sharpen	Level	Contrast	Brightness	Gamma
NEWAET	466 MFP(PS)	Auto	False	False	1	False	False	1	0	0	1

Main interface option

1-5 Options for MEDICAL PRINT SERVER main form (Description)

MEDICAL PRINT SERVER print rules represented by the AET (Application Entity Title) will be listed in the main interface. You can create as many rules you want to match your requirements.

(1) DICOM Port:



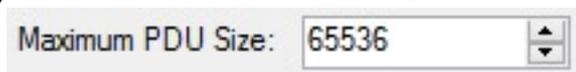
DICOM Port:

This function is used to define the input DICOM Port from 0 to 65535. The values must be an integer.

As default, [**104**] is defined.

Note: • if you set a DICOM port, you must Quit and restart MEDICAL PRINT SERVER to apply the new input DICOM port

(2) Maximum PDU size:



Maximum PDU Size:

The "Maximum PDU size" is part of the association negotiation procedure that

takes place at the start of each DICOM network connection (association).

As default, [**65536**] is defined.

(3) Socket Timeout:



Socket Timeout:

A socket timeout is dedicated to monitor the continuous incoming data flow.

As default, [**30**] is defined.

(4) DIMSE Timeout:

DIMSE Timeout:

The timeout in seconds for receiving DIMSE-RSP on an open association..
As default, [**180**] is defined.

(5) Throttle:

Throttle (KB/s):

This function is used to regulate the flow.
As default, [**0**] is defined.

(6) Multi Association Timer:

Multi Association Timer:

This function is used to define the time to wait another association in case of creating Booklet,
As default, [**6**] is defined.

(7) Wait Patient Info:

Wait Patient Info:

This function is used when you want to add patient information on the cover page, it is to define the time to wait the image sent using DICOM Store SCU.

Note: • If during this defined time the image have not been sent MEDICAL PRINT SERVER will create and print the Booklet without patient information on cover pages.

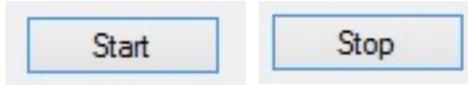
(8) Days to add the Report:

Days to add the Report:

This function is used when you want to add patient report in the leaflet, it is to define the time until to wait the report sent.

Note: • If during this defined time the report have not been sent MEDICAL PRINT SERVER will delete the images without printing.

(9) Start/Stop:

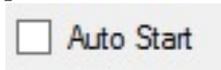


This function is used to start and stop the MEDICAL PRINT SERVER.

Note: • You must stop the MEDICAL PRINT SERVER to add, delete or edit a Printer rule.

- To exit and close the MEDICAL PRINT SERVER you must stop the server first,
if not, it will hide MEDICAL PRINT SERVER in Windows system tray

(10) Auto Start:



When checked, this function is used to start MEDICAL PRINT SERVER at Windows Logon,

(11) DICOM Log:



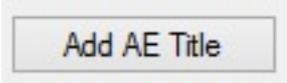
This function is used to display the DICOM dialogue logs during printing. This is useful for identifying the source of an error in the event of problems.

(12) AE Title List:

AE Title	Printer	Tray	Preview	Booklet	Profil	Border Black	Sharpen	Level	Contrast	Brightness	Gamma
NEWAET	ES9475 MFP(PS)		False	False	1	False	False	1	0	0	1,19
NEWAET2	Microsoft Print to PDF		False	False	3	False	True	4	2	1	1,22

This is used to display the AE Title list and rules used for each of them.

(13) Add AE Title:

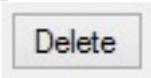


This function is used to add a new AE Title rule in the AE Title List and to define the settings rules.

Note: • You must stop the MEDICAL PRINT SERVER to add, delete or edit a AE Title rule.

• You must enter the password "operator" to add, delete or edit a AE Title rule.

(14) Delete:



This function is used when you want to delete and remove a printer rule from the printer list.

Note: • You must stop the MEDICAL PRINT SERVER to add, delete or edit a AE Title rule.

• You must enter the password "operator" to add, delete or edit a AE Title rule.

(15) AE Title Settings:



This function is used to edit a Printer rule.

Note: • You must stop the MEDICAL PRINT SERVER to add, delete or edit a AE Title rule.

• You must enter the password "operator" to add, delete or edit a AE Title rule.

(16) License:

License

Register Medical Print Server

Medical Print Server is available in 5 versions,
- Light: Only 1 AETitle can be defined and used
- Standard: Light + DICOM Store to Print
- Premium : Standard + Unlimited AETitle
- Pro: Premium + booklet printing feature.
- Ultimate: Pro + Report printing feature.

R	B
3	L

Medical Print Server Ultimate registered until

Personal computer ID

To use Medical Print Server Software, you must buy it.
Before buying, you can test it.
In trial mode, Light version of Medical Print Server is functional with the text "This Software is not Registered" on each printout.

Send us your Personal Computer ID and the needed version by email with your payment.
We will give you a serial key for unlock the software.

info@rb3l.com

Register your key

This function is used to register MEDICAL PRINT SERVER in order to work properly with your printers, Enter the license key you received from RB3L

Note: • You must be a registered [MEDICAL EXPERT] partner.

Note: • you can request a license key at info@rb3l.com Please provide us the Personal Computer ID displayed and the needed version.

Note: • In order to display the Personal Computer ID you must install MEDICAL PRINT SERVER on a Windows based PC running Windows 7 or above.

1-6 Options for MEDICAL PRINT SERVER AE Title Settings form

AE Title Settings

AE Title: **1**

Printer: **2** **3**

Tray: **4** **28** **6**

Format: **5** **7**

17 **18** **19** **9**

Contrast: **20** **21** **29** **11** **10**

Brightness: **22** **23** **12** **11**

Gamma: **24** **13** **12** **13**

25 **26** **14** **15**

16 **15**

27

Label's item 2 :

Label's item 3 :

Label's item 4 :

Label's item 5 :

Label's item 6 :

Label's item 7 :

Label's item 8 :



30 **31**

1-7 Options for MEDICAL PRINT SERVER AE Title Settings form (Description)

(1) AE Title:

AE Title:

AET is an abbreviation for Application Entity Title. The call method is assumed to be compliant with DICOM Print SCU Protocol.

The AETs defined in this rule have a maximum length of 16 characters (a - z, A - Z, 0 - 9).

Note: • The names are case-sensitive.

(2) Printer:

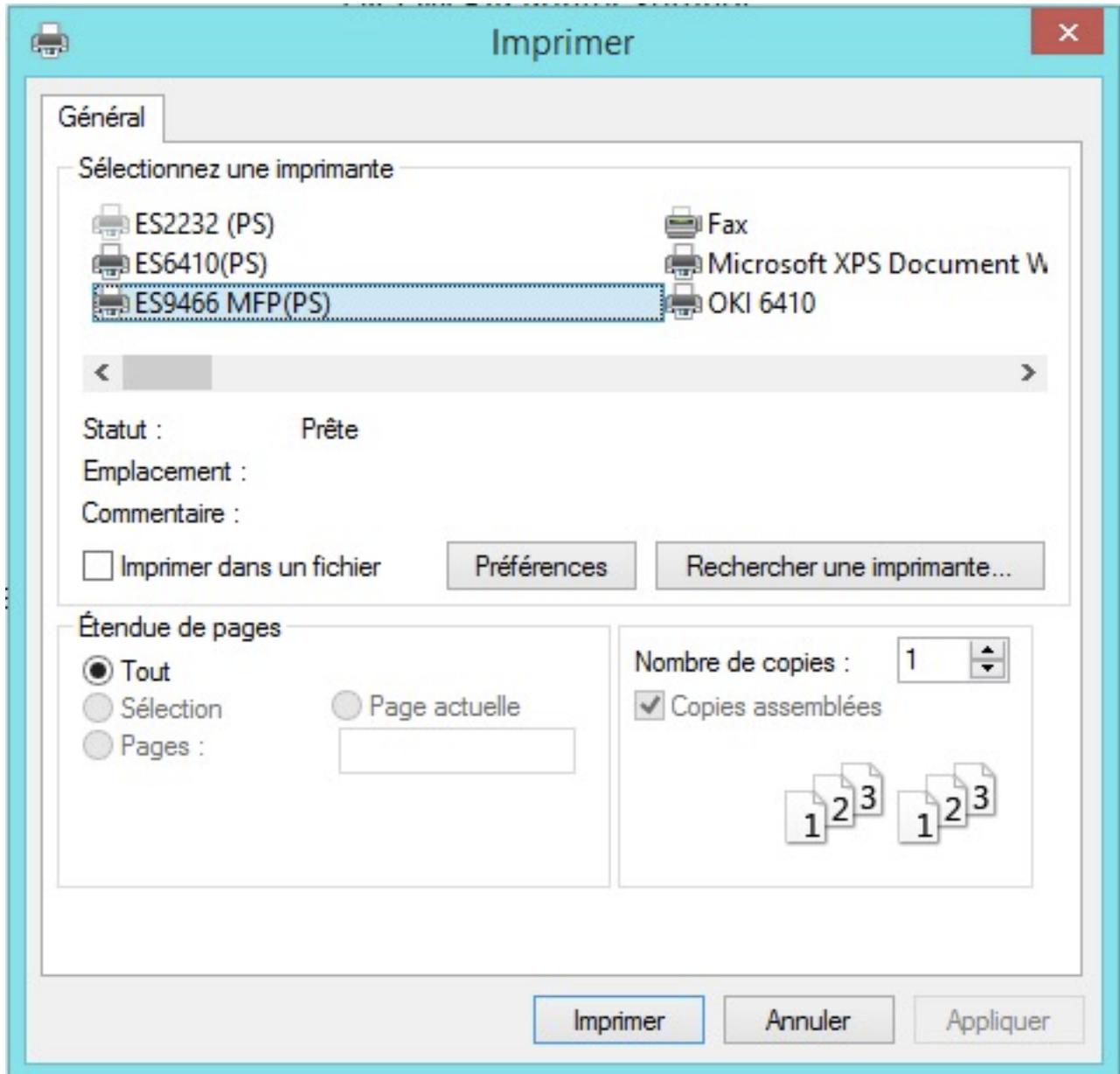
Printer:

This function display the selected Windows Printer.

(3) Select Printer:

Select Printer

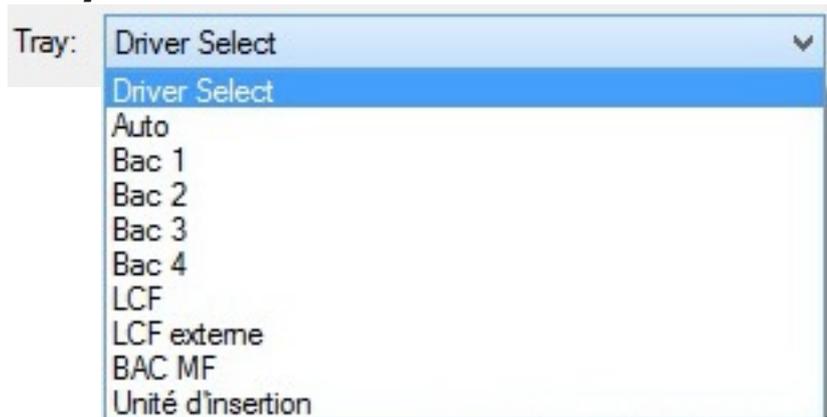
This function is used to select and define the Printer or MFP that MEDICAL PRINT SERVER will use to print DICOM requests.



Select your Printer or MFP and then Click [**OK**]

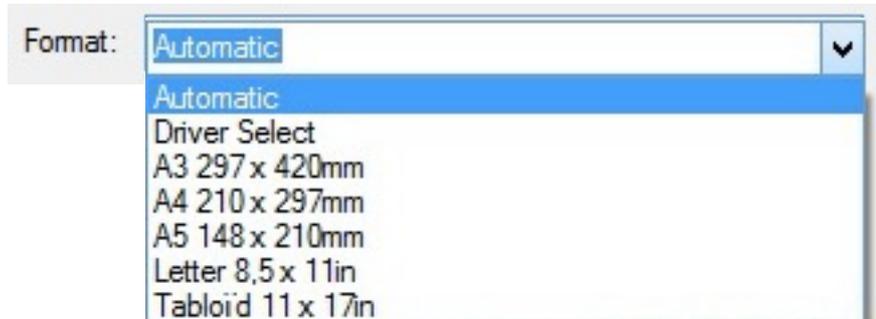
Note: • You must use a Printer or MFP Printer installed on your Windows based PC. Please refer to the Setup Guide/User's Guide/Network Guide supplied on CD/DVD with the printer.

(4) Tray:



Forces the printer to use the selected tray regardless of the needed format. This is useful when paper of different quality is loaded in the different trays

(5) Format:



If the printer supports different paper formats, you can force the printout into the format you wish. In [**Automatic**] mode, the printout will be resized to the nearest paper size. Refer to DCS (DICOM Conformance Statement) for more details.

(6) Booklet Printing:



When "Booklet Printing" is enabled, the printer equipped with a duplex unit will add a cover page and a back page to your job, and then print all pages in a booklet. The number of sheets of paper is limited to 5 sheets of paper.

CAUTION!

You must define the selected printer settings in Windows preferences and not in MEDICAL PRINT SERVER software

- Note: • Once this mode is enabled, the maximum of simultaneous DICOM print association is set to 1.

(7) Booklet Profile:

Booklet Profile 1 ▾

You can use up to 25 different Covers and Backs, Create your own covers and backs pages in **pdf 1.4** format and store it in :
"C:\RB3L\MPS\lib\pdf".

You must save your **pdf 1.4** files in the format below for each Profile

Profile 1 = "start1.pdf" and "end1.pdf",
Profile 2 = "start2.pdf" and "end2.pdf",
Bis repetita...

For each profile selected you can use a different cover and back page.
Profile 1 will be use if wrong profile is selected or missing files.

Note: • Profile 1 will be use if wrong profile is selected or missing files.

(8) Add Pages for CD:

Add Page for CD

Add Page for CD" will insert a page to stick a CD holder. This page is the first one just after the cover page.

(9) Multi Association:

Multi_Association

This function is used with modalities that are not able to send more than one pages per association

Note: • This mode also enable the possibility to add Patient Name on the booklet cover page,

(10) Image on Last Page:

Image on last Page

This function is used to put images on the booklet last page instead of the end cover page.

(11) Film Session Label.

Film Session Label

This function is used to add a label with Patient Name, Exam Date and Exam type on the booklet cover.

Once Film Session Label is enabled MEDICAL PRINT SERVER will use the content of "Film Session Label" DICOM Tag, to create and add a label on the booklet cover page.

Note: • If the "Film Session Label" DICOM Tag is empty, the booklet will be printed without label.

Note: • This function must be used with "Multi_Association" enabled.

(12) Add Label on Cover:

Add Label on Cover

This function is used to add a label with Patient Name, Patient birthdate, Patient ID and Exam type on the booklet cover.

Important:

The modality must send an image using DICOM Store protocol to release and print the booklet. If not, the booklet will be printed after 1mn but without label.

Note: • Must be used with "Multi Association" enabled.

(13) Add Report.

Add Report

This function is used to add the examination report in the printed booklet.

Once Add Report is enabled, all booklet pages are stored in "C:\RB3L\MPS\scanReport" spool folder.

Booklet pages will stay in this spool folder until the operator will add a report in this spool folder, the file must be named with "patient Name.pdf" in (pdf version 1.4)
example for Pierre Dupont report, it should be named "Pierre Dupont.pdf".
Once the report will be in the spool folder, MEDICAL PRINT SERVER will start the process to merge the report with pages' images, printing them and delete pages and report.

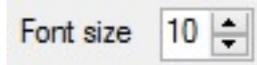
Note: • The spool folder can keep Booklet pages during 8 days before receiving the report, after all pages will be deleted.

Note: • The spool folder can keep Report pages during 8 days before receiving image pages, after all pages will be deleted.

Note: • This function must be used with "Film Session Label" or "Add Label on Cover" function enabled.

Note: • Optional, You can manage booklet pages images and report using "RB3L Report Monitor" application.

(14) Font Size:



This function is used to define the Label Font size.

As default, [10] is defined

Note: • Must be used with "Multi Association" and "Add Label Name" enabled.

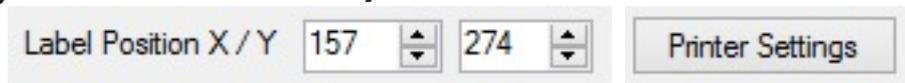
(15) Color:



This function is to define and select the font color.

Note: • Must be used with "Multi Association" and "Add Label Name" enabled.

(16) Label Position X/Y:



This function is used to define the Label Position based from top left page, X and Y values are in mm.

Note: • Must be used with "Multi Association" and "Add Label Name" enabled.

(17) Preview Only:

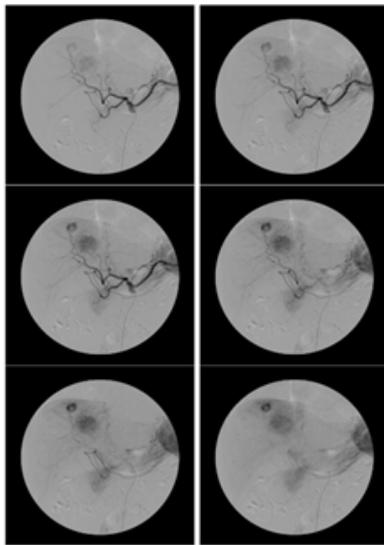
Preview Only

This function is used to activate preview mode of printing page.

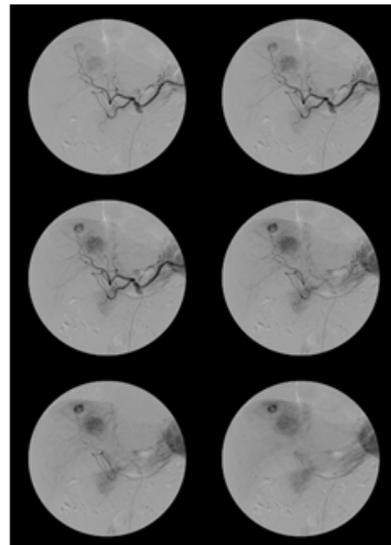
(18) Border Black:

Border Black

This function is used to define the border images to black. or to manages the settings from the DICOM console.



Border: White



Border: Black

(19) Color/bw Auto:

Color/bw Auto

This function is designed to follow the DICOM protocol when printing color or B&W images.

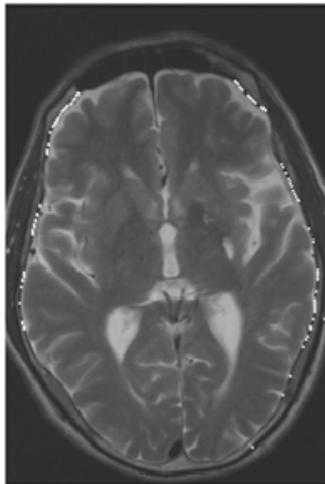
Once enabled, if the modality images are sent in BW, the printer driver is set in BW, the printout will be in pure black, and if the modality images are sent in color, the printer driver is set in color, the printout will be in color.

Note: • This function manages driver preferences when enabled, you must define again the driver preferences when disabling.

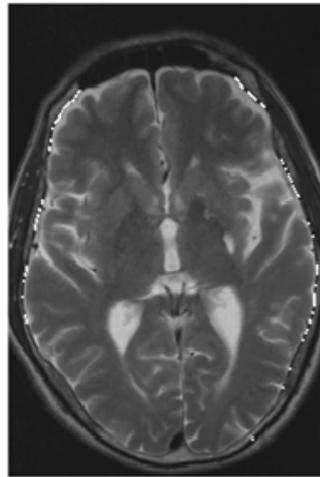
(20) Contrast:



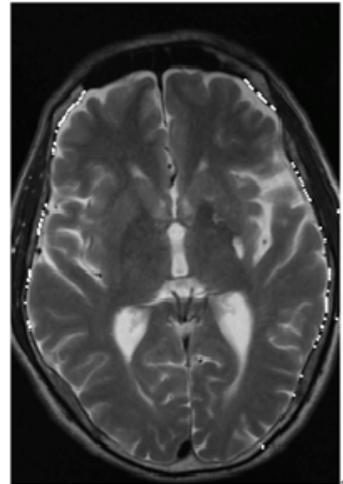
This function is used to change the level of contrast of the printouts. The choices are from **[-10]** to **[+10]**. Negative values reduce contrast to flatten the image, 0 doesn't change the level of contrast, and positive values increase contrast to enhance the image.



Contrast: -5



Contrast: 0

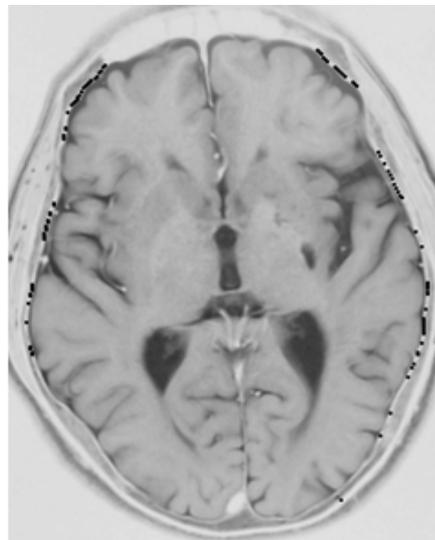
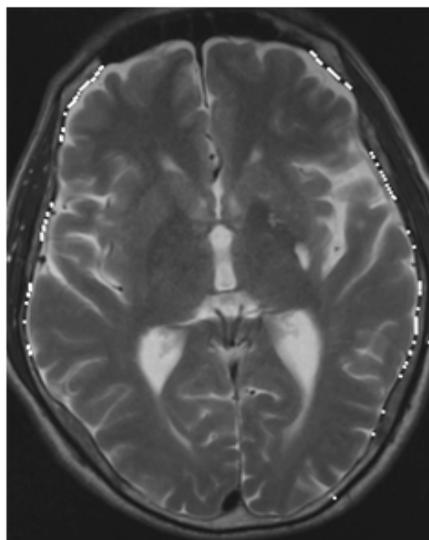


Contrast: +5

(21) Inverse:



Once enabled, this function is used to print images in positive or negative. As default, the settings are managed from the DICOM console.



Normal

Inverse

(22) Brightness:



This function is used to change the level of brightness of the printouts. The choices are from **[-10]** to **[+10]**. Negative values reduce light to darken the image, 0 doesn't change the level of brightness, and positive values increase light to lighten the image.



Brightness: -5



Brightness: 0



Brightness: +5

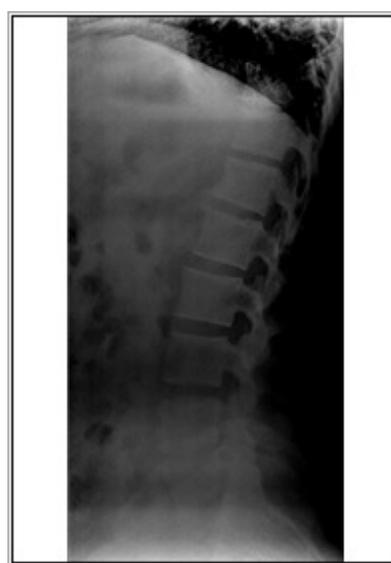
(23) Enhancement

Enhancement

This function is used to activate the Enhancement filter. This is useful for enhancing low density X-Ray images.



Disabled



Enabled

(24) Gamma:



This function is used to adjust the gamma for images. Values can be within a range from 0.01 to 2.99, in increments of 0.01. Values below 1.00 will lighten the Black component of the image, and values above 1.00 will darken it.

As default, [**1.0**] is defined



Gamma : 0,70



Gamma : 1.0



Gamma : 1.7

(25) Sharpen Filter:



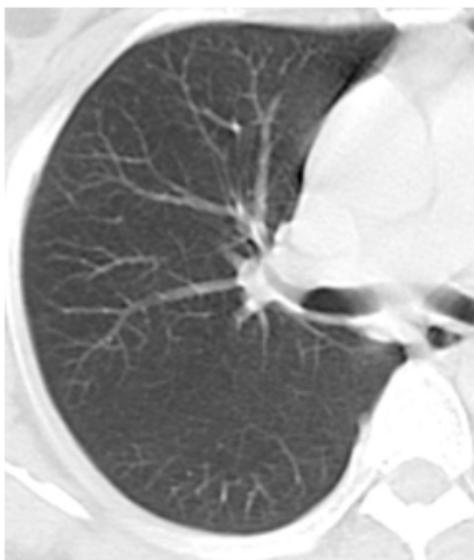
This function is used to define the aspect rendering of the printed image.

(26) Sharpen Level:

Sharpen Level 1 ▾

Once Sharpen Filter enabled, MEDICAL PRINT SERVER can define and manage the aspect rendering of the printed image.

This function is used to change the level of the printouts sharpen. The choices are from [1] to [4].



Sharpen disabled



Sharpen level [2]

(27) Label's item:

Label's item 1 :	PatientsName ▾
Label's item 2 :	PatientID ▾
Label's item 3 :	StudyDate ▾
Label's item 4 :	StudyDescription ▾
Label's item 5 :	▾
Label's item 6 :	▾
Label's item 7 :	ReferringPhysicians ▾
Label's item 8 :	▾

This function give to MEDICAL PRINT SERVER (MPS) the possibility to select the information you will add on the booklet label.

Note: • Must be used with "Add Label on Cover" enabled.

(28) DICOM Store Printing:

DICOM Store Printing

This function give to MEDICAL PRINT SERVER (MPS) the possibility to support DICOM Store Protocol to print images,

Note!:

• Only Echography, Ophthalmic and endoscopy images are supported in DICOM Store protocol. Supported classes are following in detail.

1.2.840.10008.5.1.4.1.1.6 Ultrasound Image Storage SOP Class (old version)
1.2.840.10008.5.1.4.1.1.6.1 Ultrasound Image Storage SOP Class
1.2.840.10008.5.1.4.1.1.7 Secondary Capture Image Storage SOP Class
1.2.840.10008.5.1.4.1.1.7.1.1 Endoscopic Image Storage SOP Class
1.2.840.10008.5.1.4.1.1.7.1.4 Photographic Image Storage SOP Class
1.2.840.10008.5.1.4.1.1.7.1.5.1 Ophthalmic Photography 8-Bit Image Storage SOP Class

Note: • This function manages an automatic layout from Standard\1,1, to Standard\3,3 and an automatic page format, based on the number of DICOM images received.

Note: • This function manages to add in the "Film Session Label" DICOM tag, The Patient information "Patient Name", "Study Date" and "Study Description".

(29) Use Logo:

Use Logo

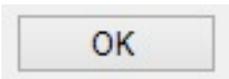
This function is used to customize the header of your printout, it allow you to use 1x inch height and the paper width for logo .

Free creation is possible. Refer to the printer drivers manual on how to create and use "image overlay".

Note: • The "Image Overlay" must be 1x inch height and the selected paper width.

Note: • You may not be able to access at this function if "Booklet Printing" is activated.

(30) OK:



When you have finished editing the values, save the settings by clicking [OK]

(31) Cancel.



Click [CANCEL] to close and discard the Printer settings form