NANORIP

User Manual

For PRINTRONIX LP654C or LP844C printers

IMPORTANT:

This manual describes all the functionalities available in the full-option version of NANORIP Ver 1.0.0.x. Available functionalities of your product may be different from those described in this manual.

Notes

IP Address:……

Serial Number: ……

Default DICOM Print SCP port Number: 11112

Default DICOM Store SCP port Number: 11114

Notes : ……

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1. Presentation :

1.1 Introduction

NANORIP transforms PRINTRONIX LP654C or LP844C printers into DICOM imagers in order to produce high quality low-cost prints, on paper with different sizes (A6, A5, A4, A3, etc. ..) for all medical imaging modalities. This imager can generate both GSDF compatible grayscale or color pages, and match them to the screen rendering.

Fonctions

*** High print quality with ProQ2400© multi-level technology**
*** DICOM 3.0 Embedded with advanced features**
*** Reliability**
*** Ergonomics**
*** Cost reduction.**

This document describes how to manage the DICOM Imager (NANORIP with an PRINTRONIX printer).

1.2 Document term

The DICOM conformance statement, license, control panel and web interface messages are all provided in English in this document.

2. Start

To perform the operations described in this guide, you must have a NANORIP as well and an PRINTRONIX LP654C or LP844C printer.

This section describes the procedure for configuring and using the NANORIP with an PRINTRONIX printer.

NANORIP Server Configuration Guide for the PRINTRONIX Printer Series

Prerequisites:

- A computer connected to the same network as the printer. (See step 1)
- Graphics software such as Adobe **Photoshop**©, **MS Paint**©, **GIMP**©, etc.… (See step 6)
- Charruasoft **TestSCU** software(See step 6)
- Downloadable from this link https://www.charruasoft.com/products/free/testscu.zip

Index:

Step 1: Setting up the printer.

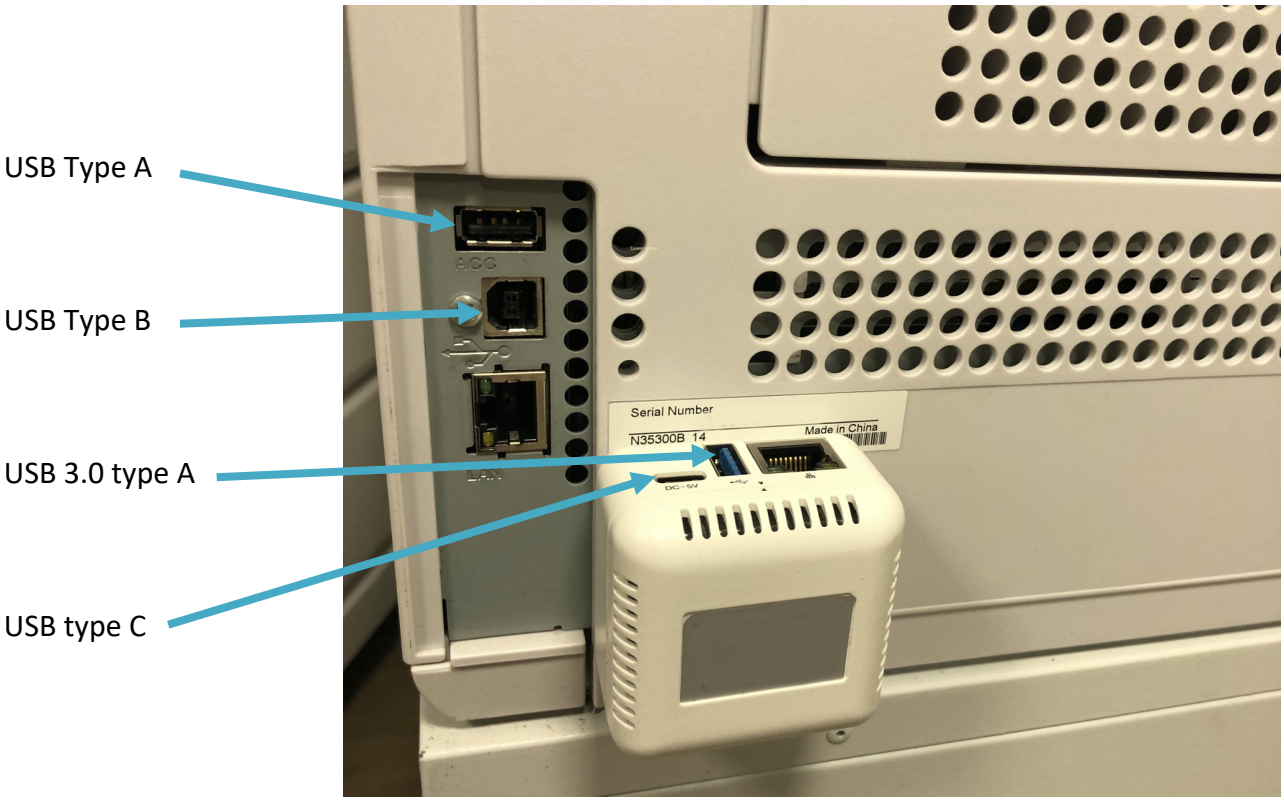
Let's start by making sure that the PRINTRONIX printer is correctly installed with all its consumables and paper, so that we can continue with the configuration of the NANORIP server.

CAUTION!

You must set the printer sleep mode with a minimum value of 5 minutes (please see printer documentation).

Once the printer is ready, we will now install NANO DICOM RIP.

Secure NANORIP to the printer back with the fasteners provided as shown in the picture bellow.

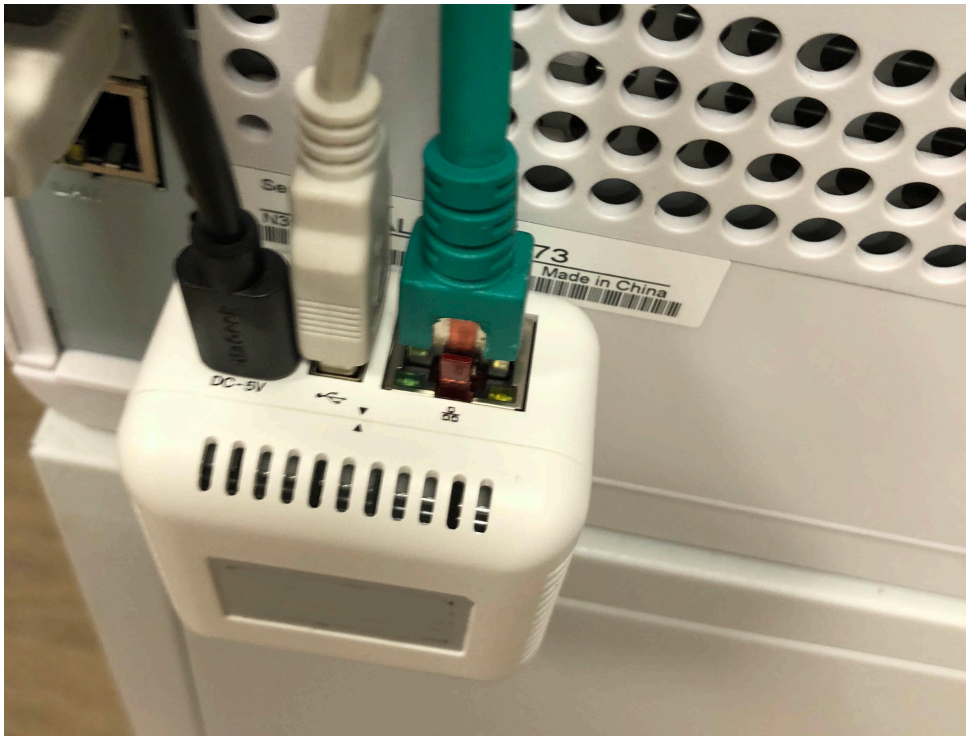


Connect the USB power cable to the NANORIP USB type C port, as well as to the USB type A port of the printer as shown in the photo below.

If your printer does not have a USB Type A port, please use a 5V 2A Power Adapter.

Connect the USB printing cable to the NANORIP USB 3.0 type A port, as well as to the USB type B port of the printer as shown in the photo below.

Connect the NANORIP using a network cable (RJ45) to your network socket as shown in the photo below.



Once NANORIP is plugged to the printer and connected to your network, plug in the printer power cable and power on the printer. Enter using the printer's control panel (see the printer documentation), the IP address, subnet mask and the gateway that will have been provided to you by the person in charge of your computer network.

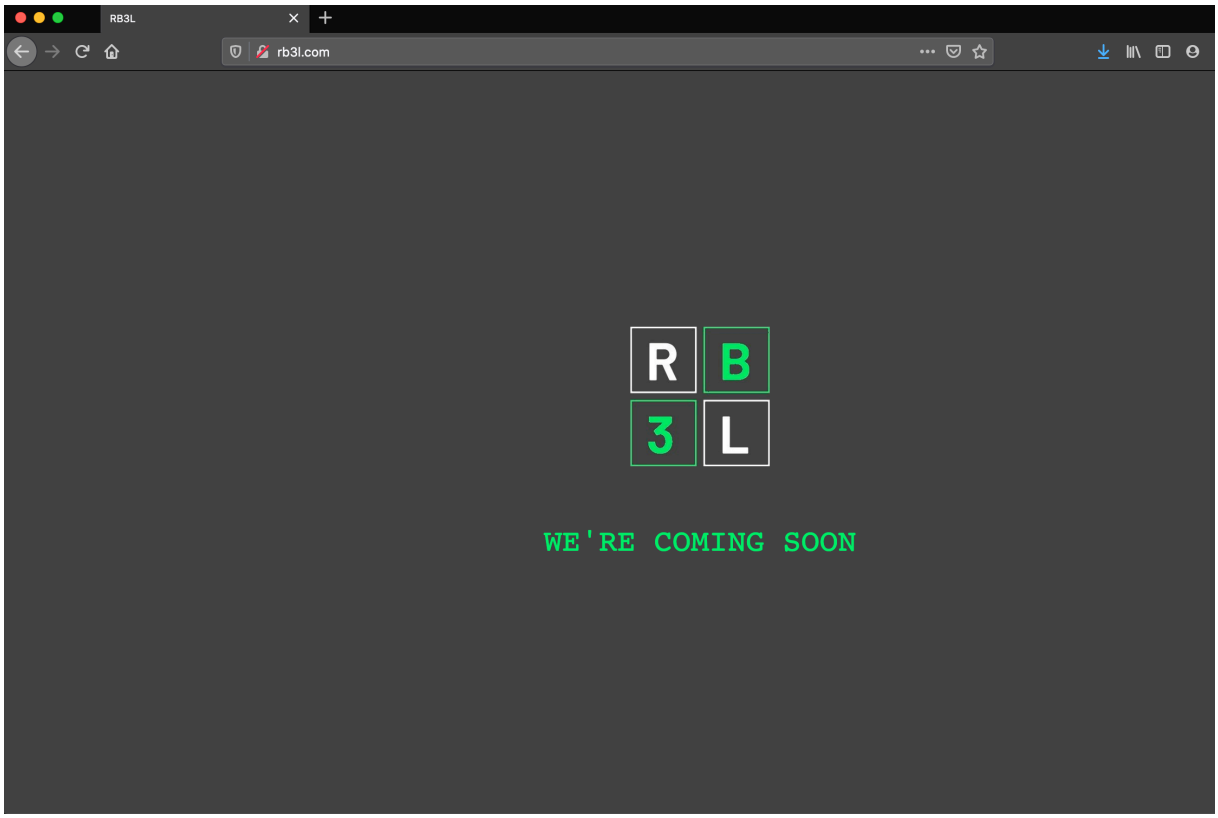
Step 2 : Access to the DICOM server home page.

Once step 1 has been validated, we can access the reprographer's management interface. To do this, from a computer connected to the same network as NANO DICOM RIP, please launch an internet browser (Internet Explorer, Firefox etc.)

CAUTION!

When starting for the first time, NANORIP may take up to 5 minutes to configure and retrieve printer information.

A web page will be displayed:



PS: If you do not have internet access, no page will appear but the procedure is still doable as long as you can access the address bar (see below)

In your web browser [address bar] enter the printer IP address (the one we has set previously):

http://<<Printer IP>>

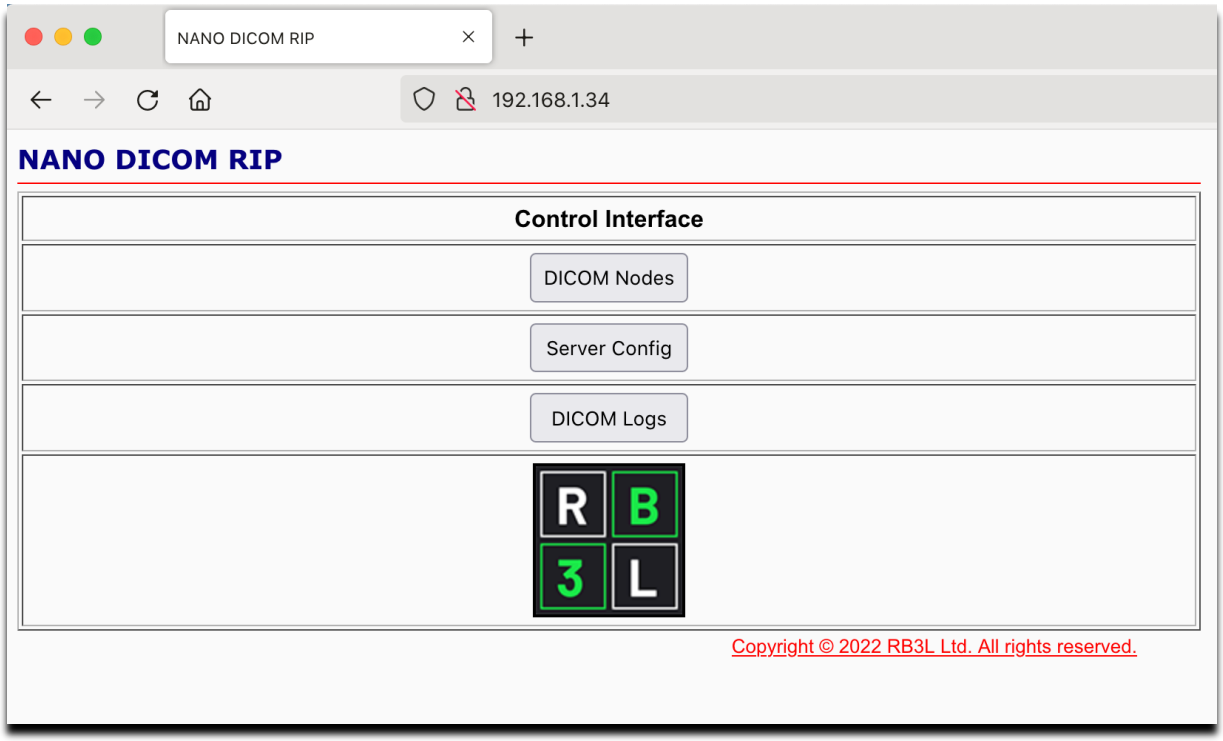
(For our example, our printer's IP address is 192.168.1.34)

Either in our case: http://192.168.1.34

CAUTION!

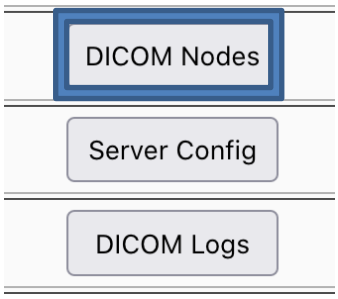
The operation may fail if performed immediately after [Ready to Print] is displayed on the printer's control panel. Please wait 5 to 10 seconds and then start again.

DICOM configuration page will then be displayed:



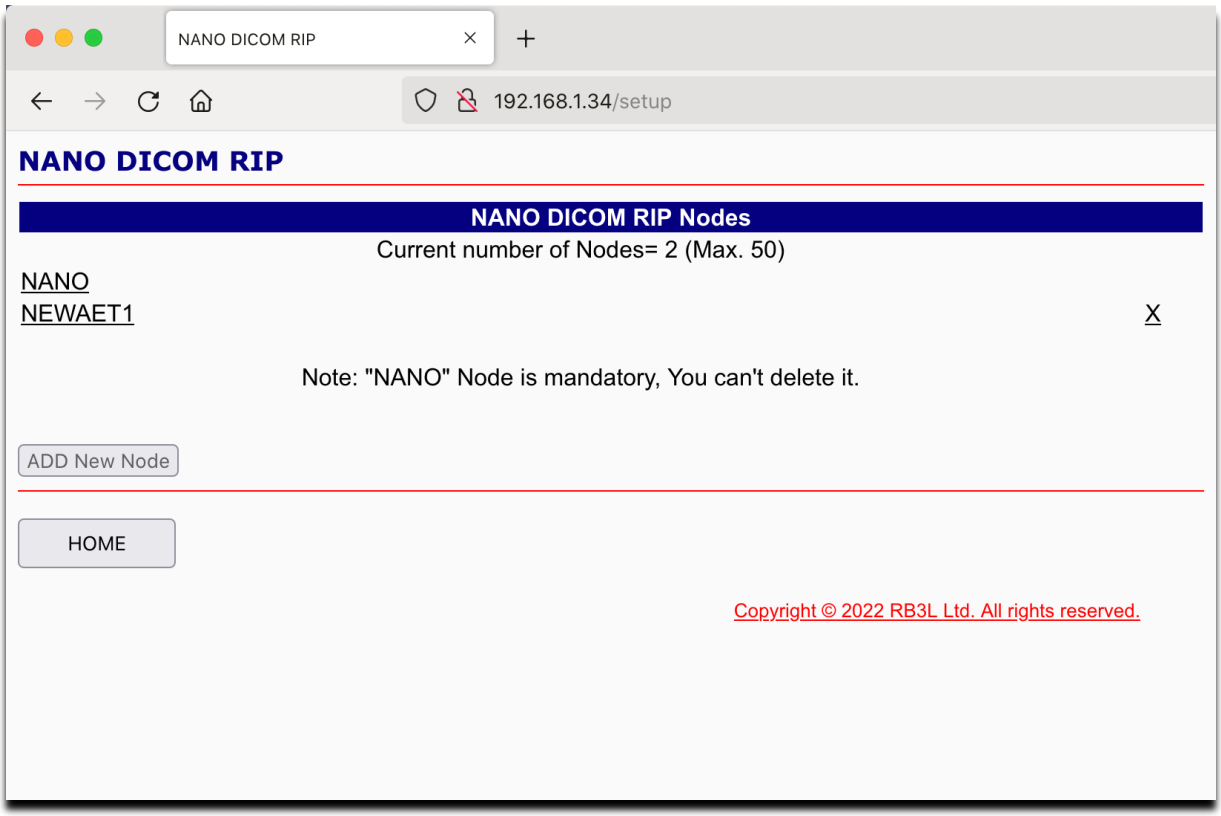
NANORIP Home Page.

Step 3 : Description of [DICOM Nodes] menu

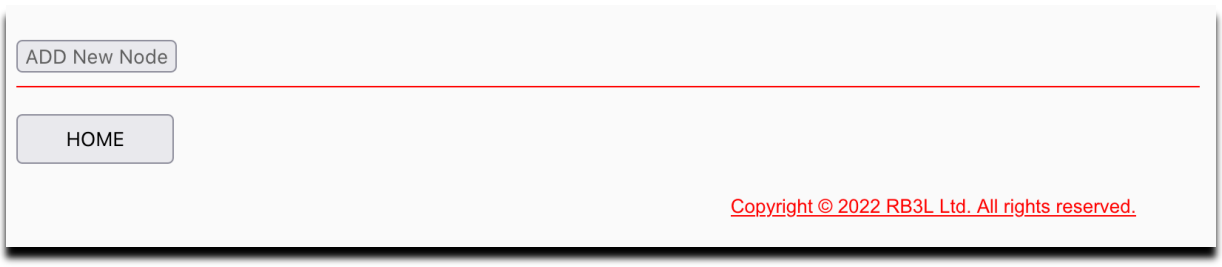


To open the Setup menu, click on the [DICOM Nodes] button.

This will show us the list of printing rules represented by their AETitle.



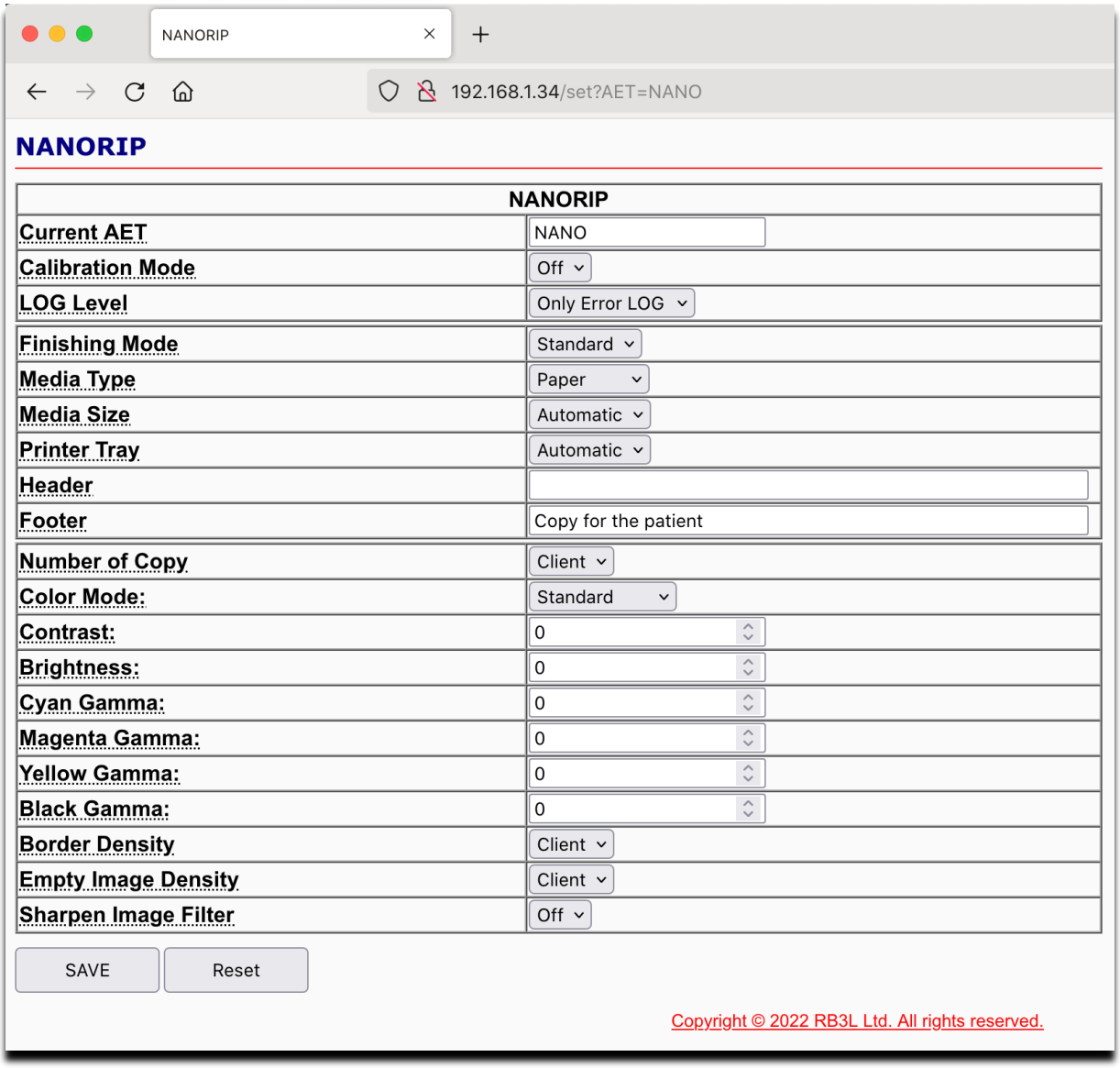
You can add new rules by clicking on [Add new Node], edit them by click on their name (in our case, [NANO]), or delete them by click on [X] in front of their name.



Please note [NANO] AET is mandatory for NANORIP work properly and cannot be deleted.

At any time you can go back to home page by click on [HOME]

Click on NANO to edit this printing rule.



Description of the different options for the printing rules:

A large number of rules can be added to the system, and for each, the following information is configurable:

Current AET	NANO

[**Current AET**] **:** AET is an abbreviation for Application Entity Title. The invocation method is assumed to conform to the DICOM Print SCU protocol.

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

Note: ● Names are case sensitive.

● the AET is only definable and modifiable when creating a rule.

● In error case, the printer will use the default AET [NANO] and print the overlay text: "**This AET** (with the name of the AET) **does not exist**".

LOG Level	Only Error LOG

[**Log Level**] : This function is used to display the DICOM dialog logs when printing. This is useful for identifying the source of an error in case of problems. You can manage 3x logs level, [**Only Error LOG**], and [**High Level Msg**].

[**Only Error LOG**] only display error messages.

[**High Level Msg**] displays all DICOM Tag messages.

Finishing Mode	Standard

[**Finishing Mode**] : This function allows you to choose the printout in page mode [**STANDARD**] or brochure mode [**BROCHURE**].

When brochure mode is enabled [**BROCHURE**] 3 x new submenus appear.

Finishing Mode	Brochure
..Brochure format	A4
..Add a Blank Page	Off
..Image on the Last brochure Page	Off

[**Brochure format**] : This function allows you to choose the printout paper format for your Brochure [**A4**], [**LETTER**], [**A3**] or [**TABLOID**]

Note: ● [A3] and [TABLOID] is only available when using an PRINTRONIX CLP844C printer.

[**Add a Blank Page**] : This function allows you to add a blank page behind the cover page to paste a CD-Rom or to staple the examination report.

[Image on the Last brochure Page] : This function allows you to use the last brochure page to put images in place of the end cover page.

Media Size	A4

[Media Size] : This function allows you to select the paper size you want to use, the sizes range from [A6] to [A3 NOBI] depending on the printer used

Printer Tray	Automatic

[Printer Tray] : This function allows you to choose the paper tray to use for printing [AUTOMATIC] the printer will select the paper tray according to the requested format.

Header	
Footer	Copy for the Patient

[Header] : This function allows you to customize printout header.

Note: ● Customization is a single line of text only.

[Footer] : This function allows you to customize the footer of your prints

Note: ● Customization is a single line of text only.

Number of Copy	Client

[Number of Copy] : This function allows you to choose the number of copies. Copies numbers varies from [1] to [5], [CLIENT] means that the copies number come from the modality.

Color Mode:	Standard

[Color Mode]: This function sets the filter action level. Choices are [STANDARD] [ENHANCED] [PHOTO] or [MONOCHROME]. By default, [STANDARD] is selected.

[STANDARD], Sets printing color images with low toner usage (CMYK).

[ENHANCED], Sets printing color images in enhanced quality (CMYK).

[PHOTO], Sets printing color images in highest quality (CMYK).

[MONOCHROME], Sets printing color images in monochrome (K toner only).

Contrast:	0
Brightness:	0

[Contrast] : This function allows you to modify printout contrast. The choices range from [-10] to [+10]. Negative values reduce contrast to flatten the image, [0] means no change, positive values increase contrast to improve the image.

[**Brightness**] : This function is used to change printout brightness. The choices range from [**-10**] to [**+10**]. Negative values reduce light to darken the image, [**0**] means no change, positive values increase light to brighten the image.

Cyan Gamma:	0
Magenta Gamma:	0
Yellow Gamma:	0
Black Gamma:	0

[**Cyan Gamma**] : This function is used to adjust printout cyan gamma channel. The choices range from [**-30**] to [**+30**].

[**Magenta Gamma**] : This function is used to adjust printout magenta gamma channel. The choices range from [**-30**] to [**+30**].

[**Yellow Gamma**] : This function is used to adjust printout yellow gamma channel. The choices range from [**-30**] to [**+30**].

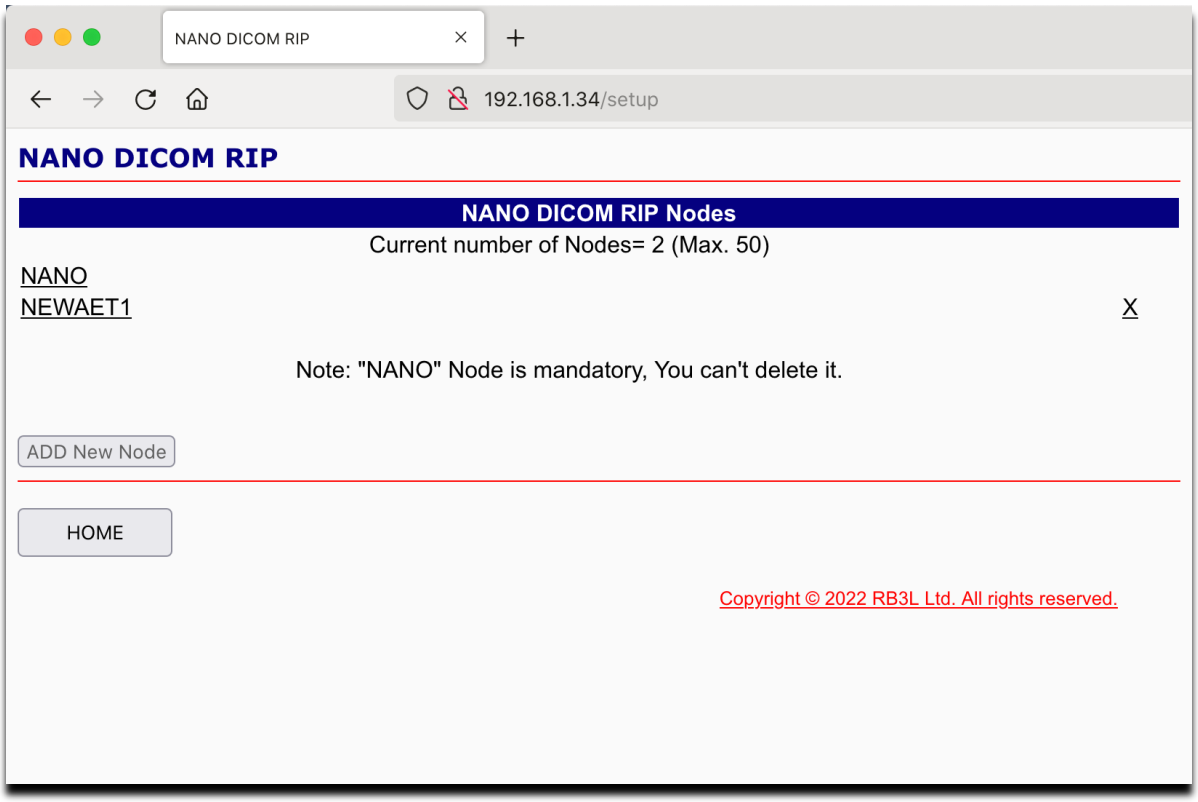
[**Black Gamma**] : This function is used to adjust printout black gamma channel. The choices range from [**-30**] to [**+30**].

Border Density	Client
Empty Image Density	Client

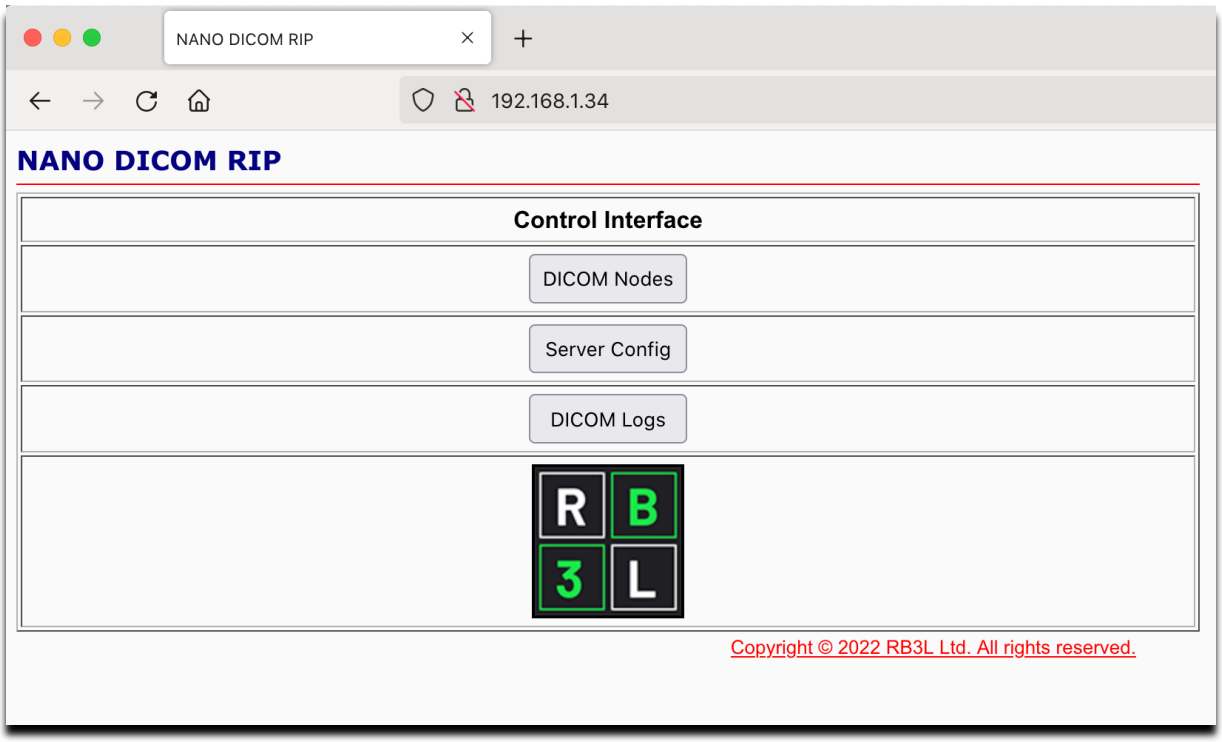
[**Border Density**] : This option defines the background images, in black or white. Choices are [**BLACK**] [**WHITE**] or [**CLIENT**]. [**CLIENT**] means that the settings will be managed by the DICOM calling modality

[**Empty Image Density**] : This option defines the image-free zone in black or white. Choices are [**BLACK**] [**WHITE**] or [**CLIENT**]. [**CLIENT**] means that the settings will be managed by the DICOM calling modality

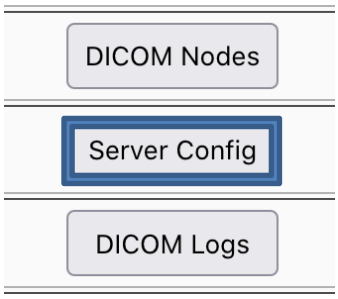
Once the values have been edited, you can save this configuration by click on [**SAVE**] or return to the previous values by click on [**Reset**]. Click on [**SAVE**] to saves and sends you to the AETs list page.



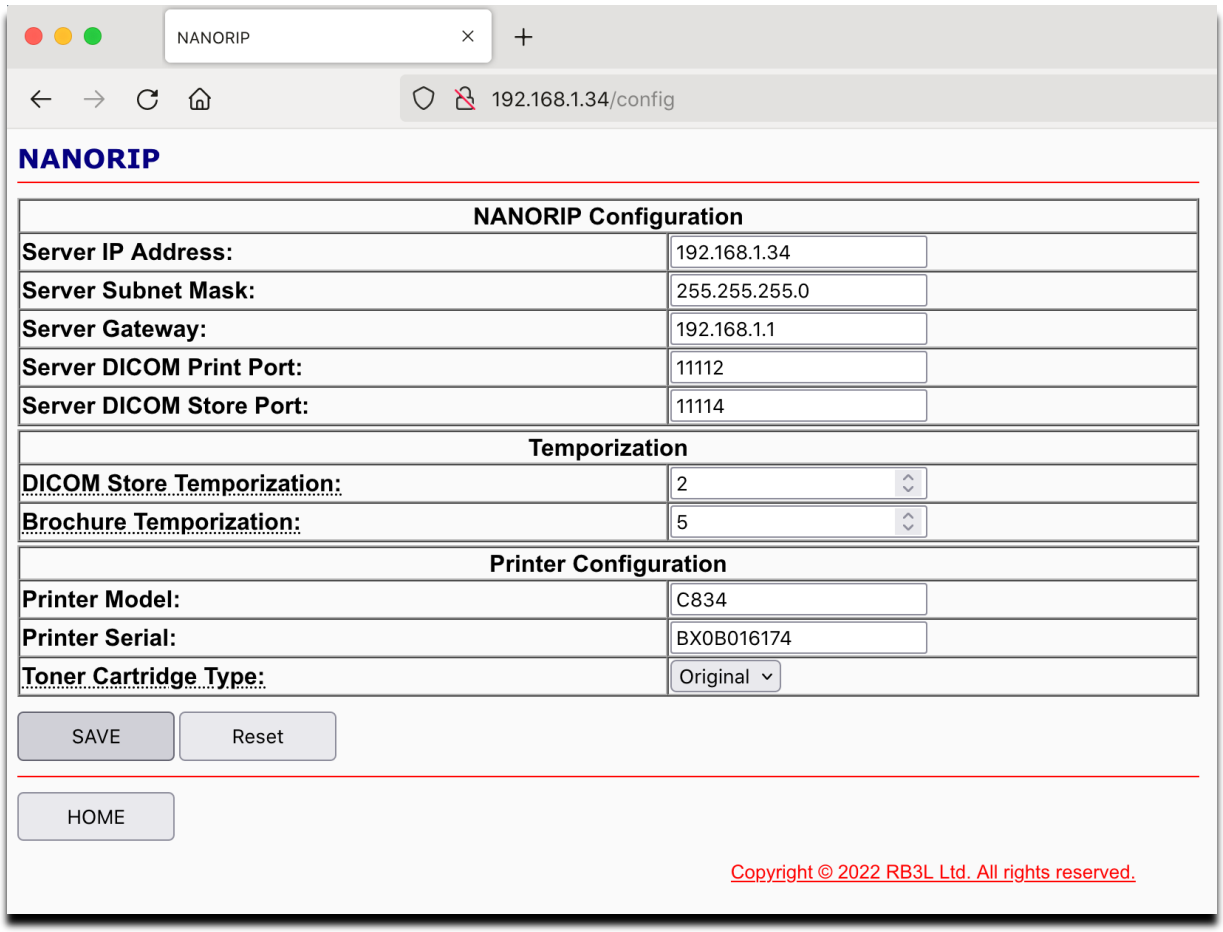
Click on [**HOME**] to go back to the home page.



Step 4 : Description of [Server Config] menu



Click on [**Server Config**] to enter in the config menu.



Server IP Address	192.168.1.37
Server Subnet Mask	255.255.255.0
Server Gateway	192.168.1.1

[**Server IP Address**] : Displays the NANORIP IP address.

[**Server IP Subnet Mask**] : Displays the NANORIP subnet mask.

[Server IP Gateway] : Displays the NANORIP gateway.

Server DICOM Print Port	11112
Server DICOM Store Port	11114

[Server DICOM Print Port] This function is used to display the input DICOM PrintSCP port.

[Server DICOM Store Port] This function is used to display the input DICOM StoreSCP port.

DICOM Store Temporization:	3
Brochure Temporization:	5

[DICOM Store Temporization] : This function is used for StoreSCP to set the waiting time to get all images before sending DICOM printing request. The choices are from [1] to [60] seconds.

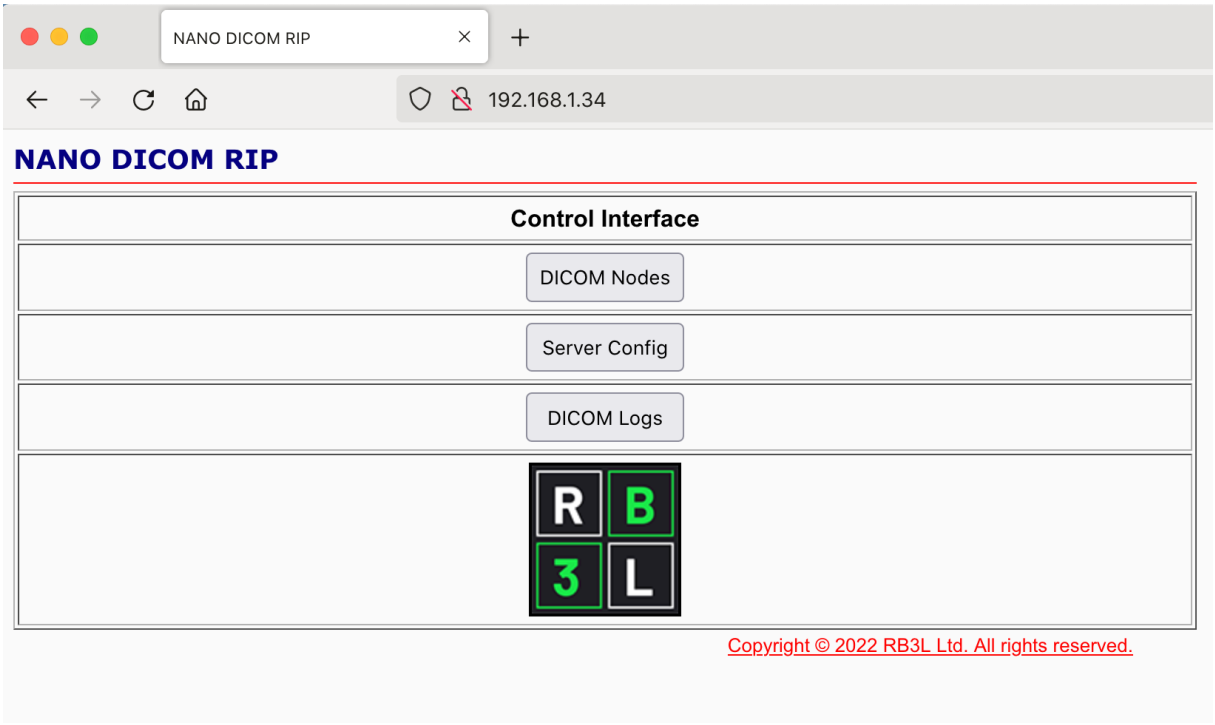
[Brochure Temporization] : This function is used for PrintSCP to set the waiting time to get all images before sending Brochure printing request. The choices are from [1] to [60] seconds.

Printer Model	C834
Printer Serial	AL54007618

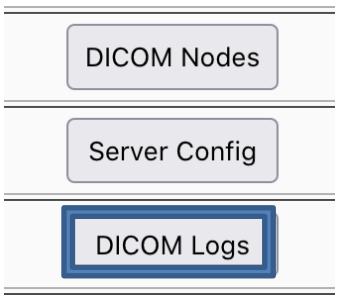
[Printer Model] : This function is used to display the connected printer model.

[Printer Serial] : This function is used to display the printer serial number.

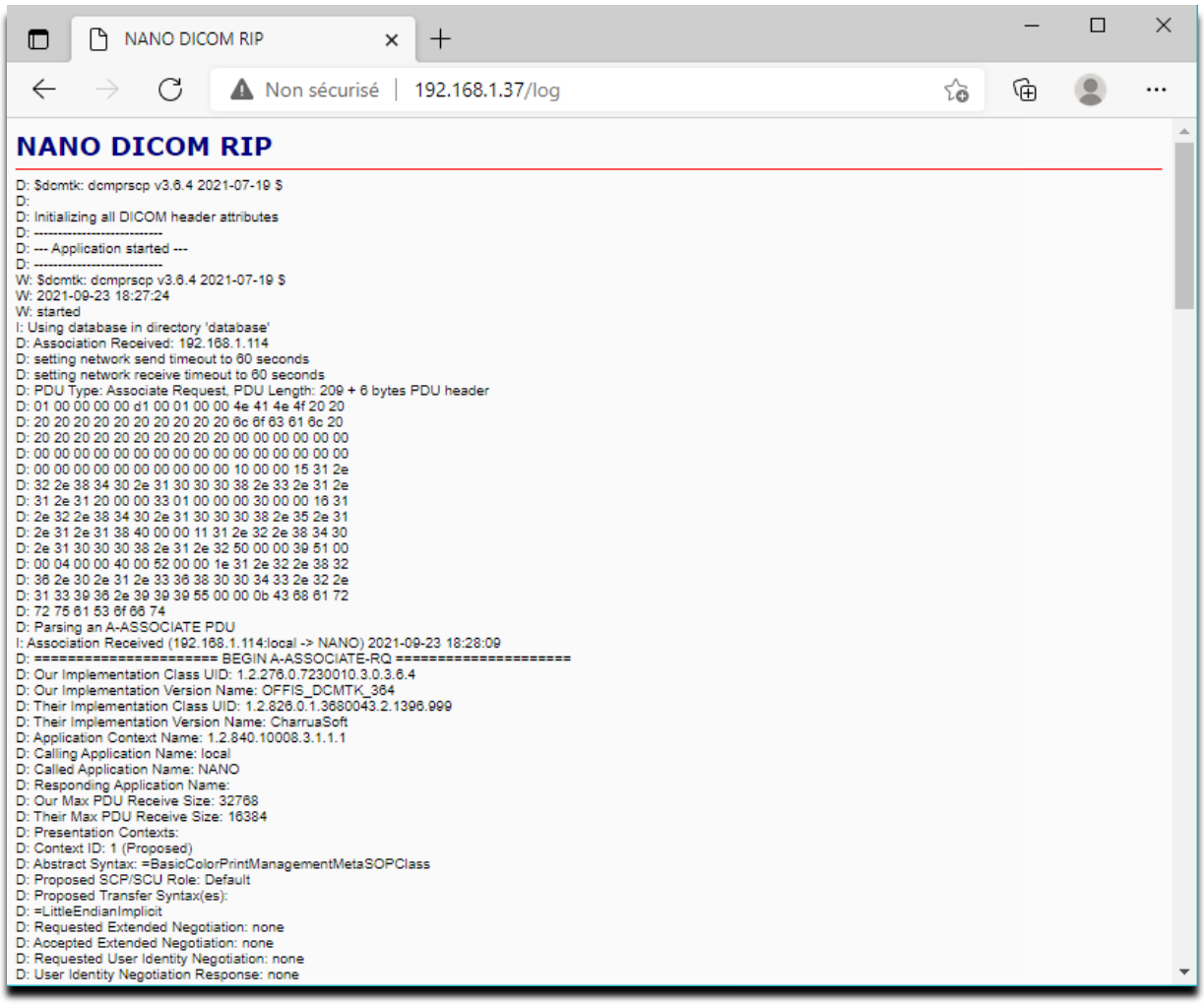
Click on [HOME] to go back to the home page.



Step 5 : Description of [LOGS] menu



Click on [**DICOM Logs**] to enter in the logs menu.



This page display the Logs of DICOM exchanges during printing, it is useful to debug in a problem event in order to identify the error source.

Step 6 : Brochure customization.

6.1 Introduction

NANORIP can print your exams as an A4, Letter, Tabloïd or A3 brochure with customizable cover and end pages. We will see here how to proceed with these pages creation.

Prerequisites :

- A computer connected to the same network as the printer. (See step 1)
- Graphics software such as Adobe **Photoshop**©, **MSPaint**©, **GIMP**©, etc… (See step 6)
- Charruasoft **TestSCU** software(See step 6)
- Downloadable from this link https://www.charruasoft.com/products/free/testscu.zip

6.2 Démarrage

From your computer, using your graphics software, create a Jpeg A4 image size for A4 or A3 brochure or Letter for a Letter or Tabloid brochure in order to use it for your brochure cover page. Repeat the same operation for the brochure end page.

CAUTION!

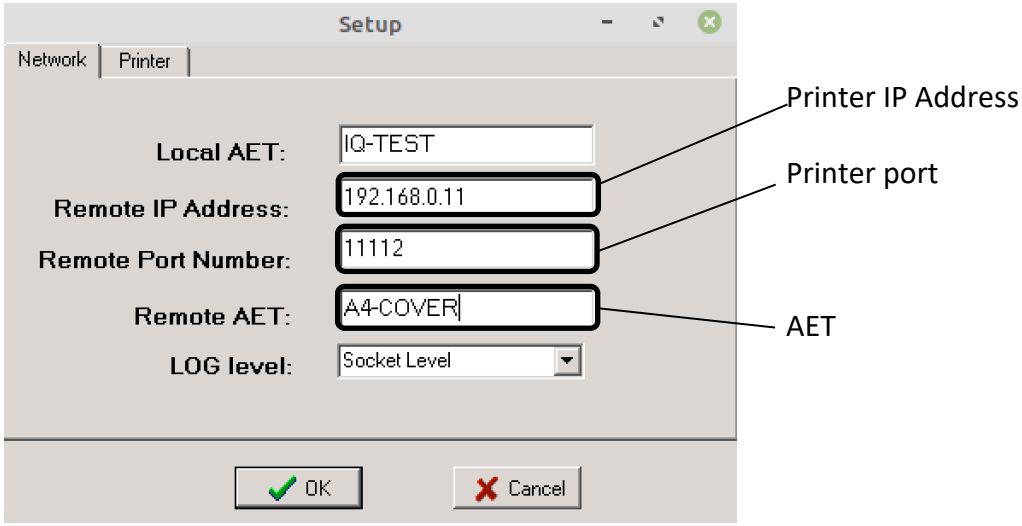
To use the previously created cover and end pages, we need to send them to the NANORIP server using TestSCU.exe set with specific AETs for the cover and end pages. It is not necessary to create these AETs on the NANORIP server.

Once these operations have been performed, and still from your computer, unzip the testscu.zip file and double-click on TestSCU.exe to start it

At the top of PrintSCU software, there is a list of buttons

Click the setup button to configure the software to connect to the printer.

Enter the printer's DICOM settings in this window as shown in the photo below.



Enter the NANORIP IP address in the Remote IP Address box (for our example, we entered 192.168.0.11)

Enter the NANORIP server port in Remote Port Number box (we entered 11112 which is the NANORIP default port)

Important:

The AETs to be used for brochure cover page are:

[**A4-COVER**] for A4 and A3 paper size or [**LETTER-COVER**] for Letter and Tabloid paper size.

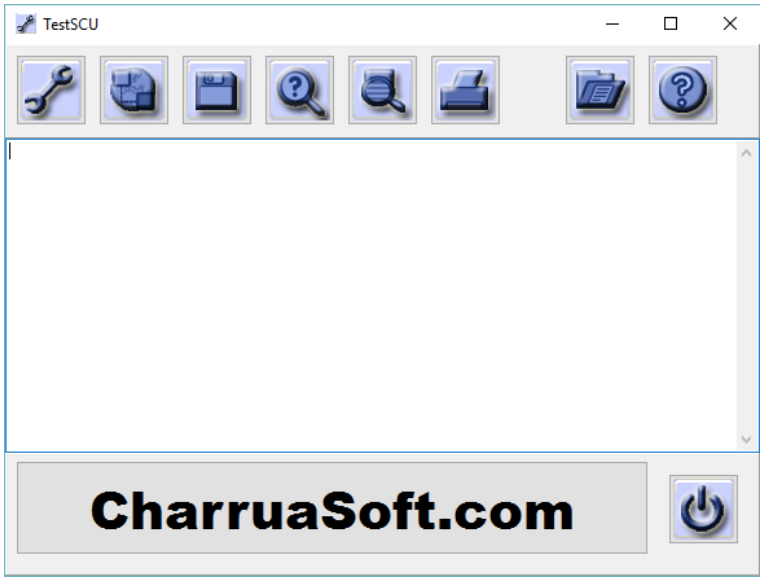
The AETs to use for brochure end page are:

[**A4-BACK**] for A4 and A3 paper size or [**LETTER-BACK**] for Letter and Tabloid paper size..

Enter the proper AET to use in remote AET box (for our example, we want to create the A3 brochure cover page , we entered A4-COVER)

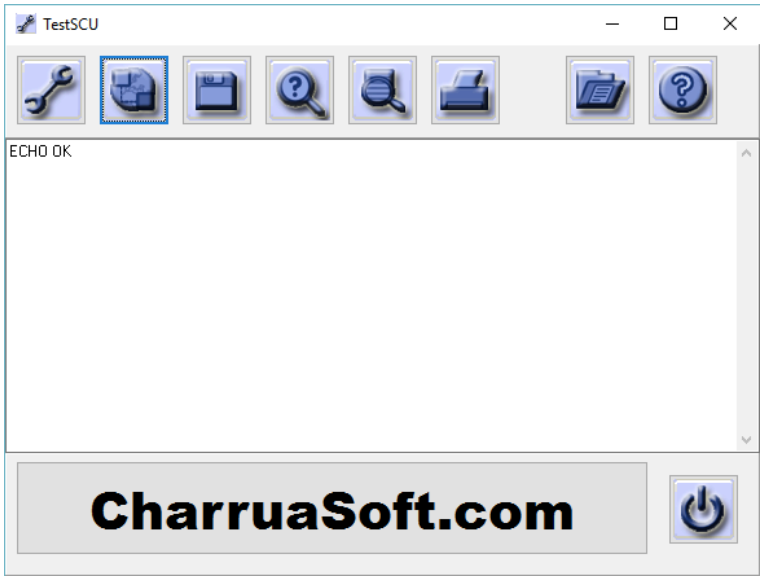
Once you have finished entering all the parameters, you must click [**OK**] to save and start using TestSCU.

You are now on the main PrintSCU window.




We are going to test the DICOM connection, click on the echo check button

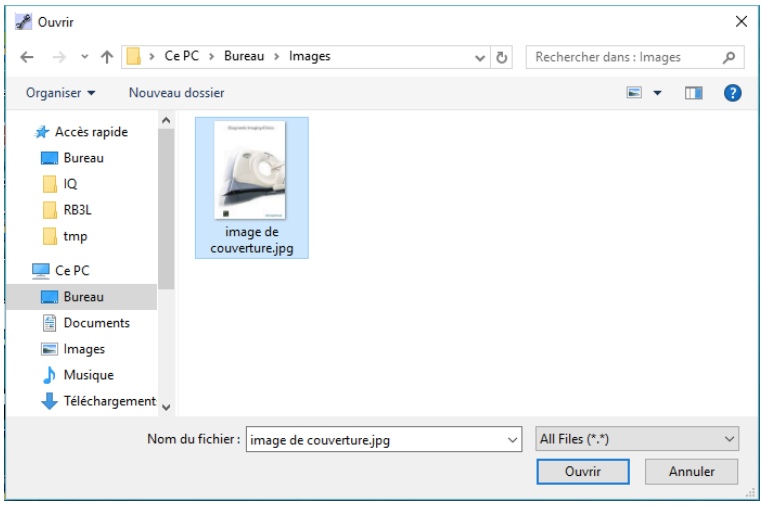
If the parameters you entered are OK, this window will appear with the message <<ECHO OK>>.



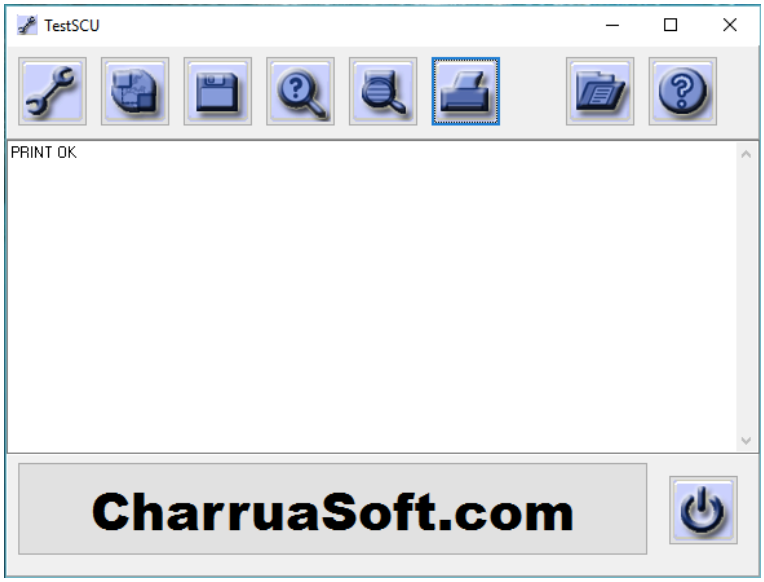
We are now going to send our cover image to the NANORIP server

Click on the DICOM Print button

Select the Jpeg file of your cover image then click [Open].



After a few seconds, the image will be loaded into the NANORIP server and the message <<PRINT OK>> will appear in this window.



Restart the operation to install the brochure end page in NANORIP server.

Your printer is now ready to print in brochure mode with your cover page and end page elements.

Dealer's stamp:

71-75, Shelton Street,
Covent Garden,London,
WC2H 9JQ, ENGLAND

info@rb3l .com
http://www.rb3l.com