



4K Video over IP System Vy-Net2

User's Guide

Before connecting, operating or adjusting this product, please read this instruction booklet carefully and completely.

1. Contents

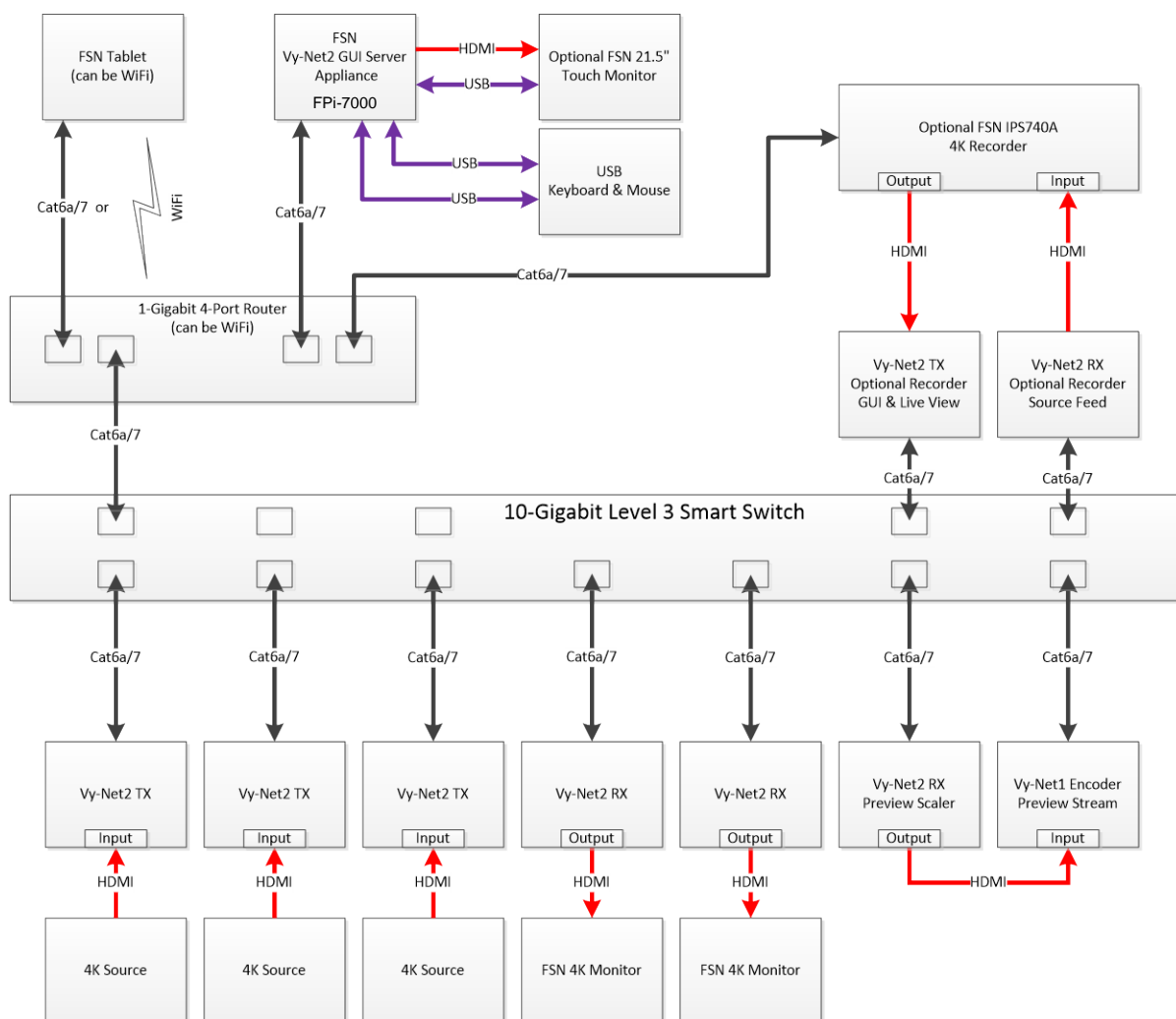
1. Contents	2
1. Vy-Net2 (Hardware)	3
1.1. Introduction	3
1.2. Connection Diagram	3
1.3. Components	4
1.4. Vy-Net2 GUI Server Appliance FPi-7000	4
2. Vy-Net2 GUI (software)	5
2.1. Introduction	5
2.2. Configuration	5
3. Operation	11
3.1. Main Page	11
3.2. Routing	12
3.3. Multiview	13
3.4. Un-select	14
3.5. Un-route	14
3.6. Zoom	15
3.7. KVM	16
4. Appendix 1	17
4.1. Specifications	17
5. Appendix 2	18
5.1. Switch Selection and Configuration	18
6. Appendix 3	18
6.1. Vy-Net1 Preview Configuration	18

1. Vy-Net2 (Hardware)

1.1. Introduction

4K Vy-Net2 video over IP system is made up of a dedicated 10-Gigabit copper network; Vy-Net2 TX's (encoder) and RX's (decoder) and Cat6a/Cat7 interconnect cables. The Vy-Net2 GUI control system is available on the FPi-7000 mini PC appliance and can be accessed via a Chrome web browser (PC or tablet) or a directly connected touch monitor. Preview is available with the use of a Vy-Net1 encoder. The system can be expanded just by adding more TX's and RX's and is limited only by the number of ports on the 10-Gigabit switch. A 1-Gigabit router is required for control and to serve DHCP IP addresses. **Note:** Connection to tablet can be WiFi if desired.

1.2. Connection Diagram



1.3. Components

The following components are available through FSN Medical Technologies.

- Vy-Net2 TX/RX 4K video over IP devices – sold in pairs.
- Vy-Net2 GUI server appliance FPi-7000.
- Vy-Net1 encoder for preview stream.
- FSN 4K medical monitors.
- 10.1" tablet.
- Optional 21.5" touch monitor.
- Optional IPS740A 4K medical recorder.

Additional required “off the shelf” components can be sourced locally.

- Level 3 10-Gigabit smart managed network switch.
 - Recommended - Netgear XS708T, XS712Tv2, XS716T, XS728T, and XS748T with 8, 12, 16, 24, or 44 10-Gigabit Copper ports.
 - See **Appendix 2** for additional switches and configuration procedure.
- 4-port 1-Gigabit WiFi router.
 - Recommended - Linksys WRT1900ac.
- USB Keyboard & Mouse with scroll wheel.
- Cat6a/Cat7 network cabling.
- HDMI 2.0 video cabling.

1.4. Vy-Net2 GUI Server Appliance FPi-7000



2. Vy-Net2 GUI (software)

2.1. Introduction

Vy-Net2 GUI can control FSN Vy-Net2 video over IP devices and route up to 4K@60 fps video sources to one, many or all outputs (monitors, capture and streaming devices etc.). Audio and KVM functions are also available.

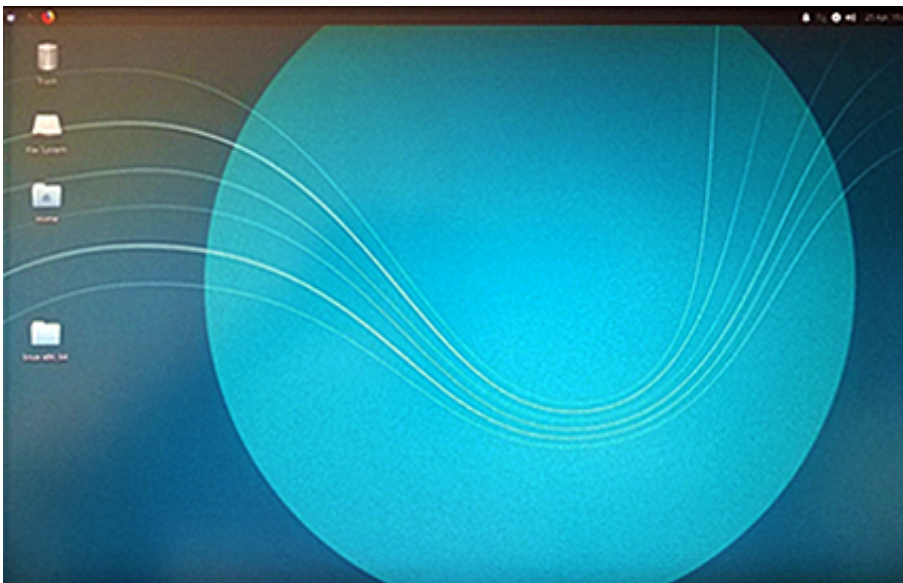
The GUI web server is a mini PC running Linux O/S and is typically located in or near the operating room with network access to Vy-Net2 encoder/decoder devices it will be controlling. The intuitive GUI is web based and can be accessed from any device running Chrome browser with access to the Vy-Net2 network. **Note:** Support for other browsers will be available in future releases.

2.2. Configuration

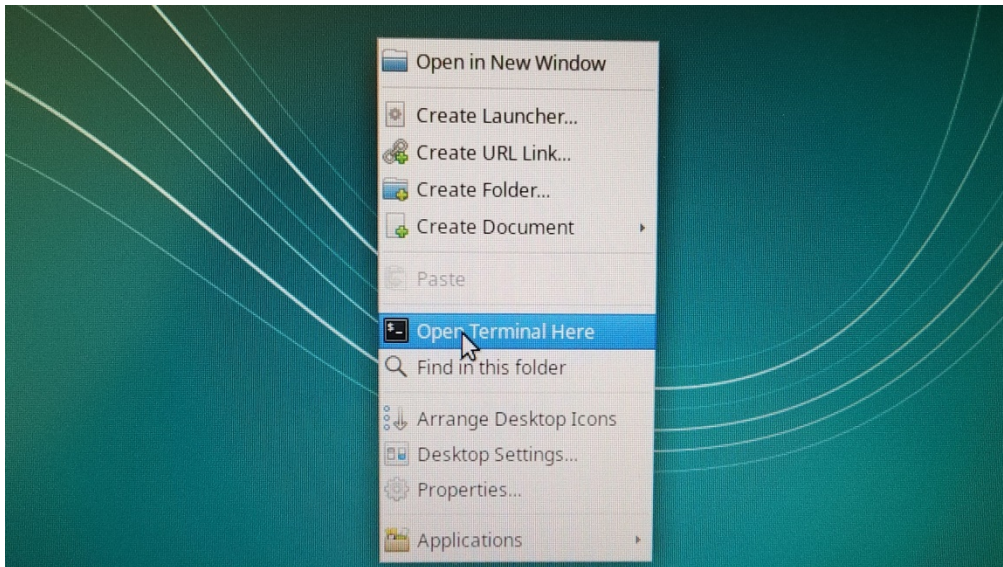
Make sure all components have been connected per connection diagram and are powered ON before continuing with GUI configuration. The following items have to be configured before using the GUI.

- Configure Vy-Net1 box for preview stream (See appendix 3)
- Blueriver server IP address.
- Vy-Net1 IP address (for preview stream).
- Vy-Net2 IP address (for preview scaling).
- Source and output naming.

2.2.1. Attach keyboard/mouse and monitor to FPi-7000 mini PC GUI appliance and power it ON using front panel power button. You should see the following screen.

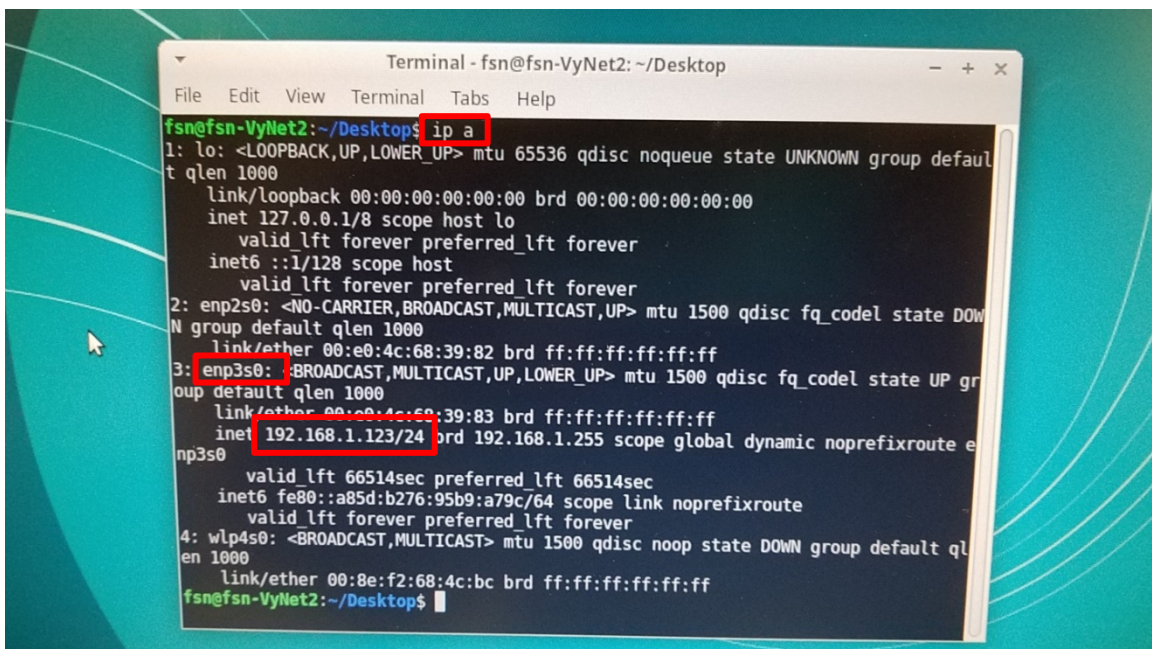


2.2.2. Right click on desktop and select **Open Terminal Here**.

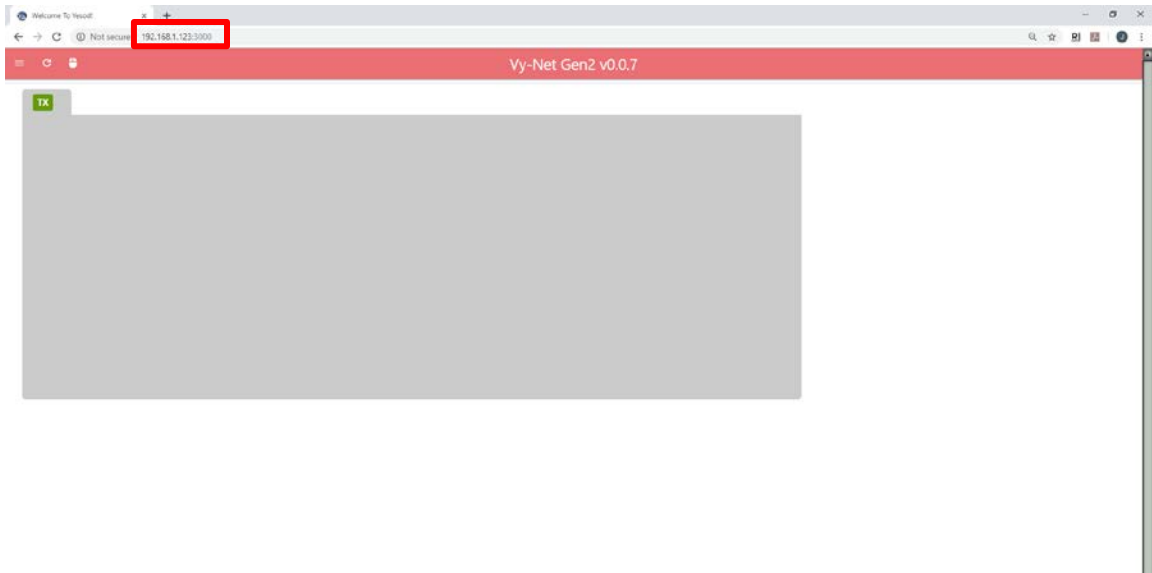


2.2.3. Type **ip a<enter>** to determine IP address of Vy-Net2 GUI web server.

Note: There are 2 network ports on the mini PC, depending on which port you are plugged into will determine which line you look at for IP address. In the example below we are plugged into the left port which is “enp3s0” with an IP address of 192.168.1.123. The “/24” at the end of the IP address signifies a netmask of 255.255.255.0.



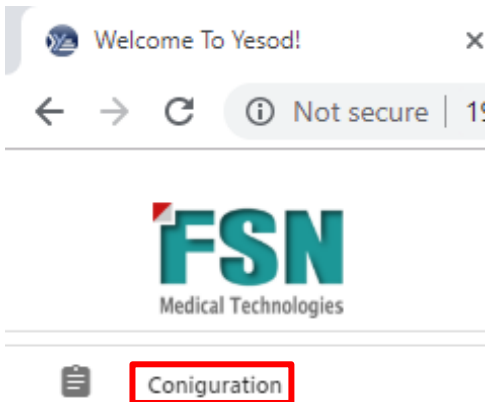
2.2.4. Launch Chrome browser on a device connected to this network and go to **ip_address_from_step_3:3000** to access GUI. **Note:** “:3000” is the port number.



2.2.5. Click on the 3 Lines (menu) in the upper right.



2.2.6. Click on **Configuration**.



2.2.7. The Blueriver control server is running on the mini PC appliance, enter the IP address obtained in **step 3** and click **NEXT**.

Vy-Net Gen2 Server Configuration

Blue River Server IP

Enter blue river control server ip address.

192

168

1

123

NEXT

Preview RX

Preview VyNet1 IP

2.2.8. Now click on the MAC address of the Vy-Net2 RX that will be used for the preview scaler. **Note:** A unique MAC address is listed on the bottom of each RX and TX. In the example below, MAC address D88039ECB566 is used.

Vy-Net Gen2 Server Configuration

Blue River Server IP

Preview RX

Choose preview RX

D88039ECB566

D88039ECB5D9

Preview VyNet1 IP

2.2.9. Enter the IP address of the Vy-Net1 encoder used for preview stream and click **DONE**. **Note:** The default is 192.168.1.10 after factory reset. See **Appendix 3** for Vy-Net1 configuration.

Vy-Net Gen2 Server Configuration

Blue River Server IP

Preview RX

Preview VyNet1 IP

Enter VyNet1 preivew ip address.

192

168

1

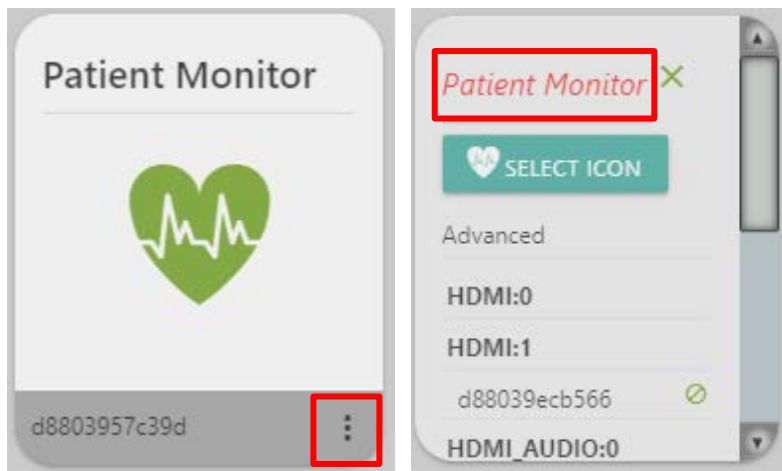
10

DONE

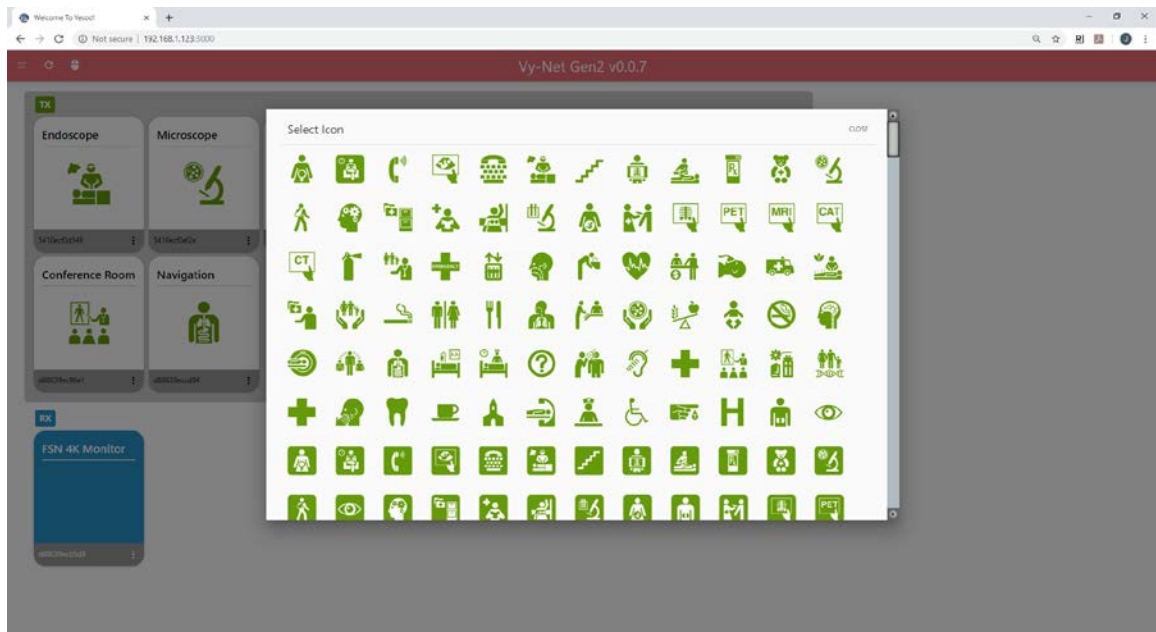
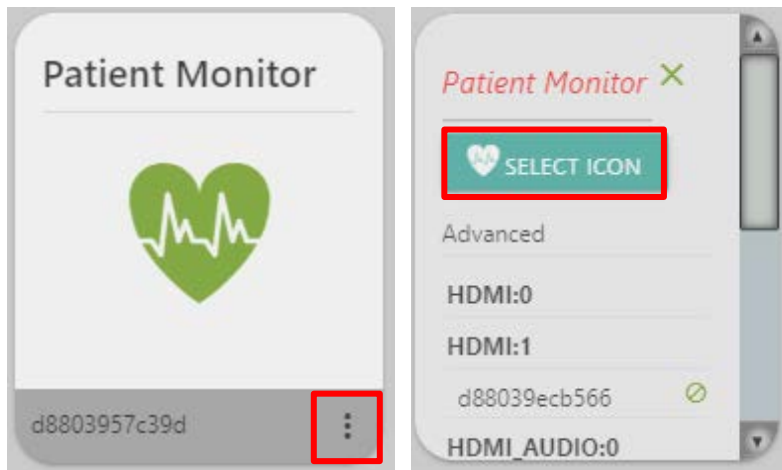
2.2.10. If the configuration was successful you should see the main page populated with all connected and powered on Vy-Net2 devices.



2.2.11. **Naming** – Click on 3 dots in bottom right of a TX or RX, click on top line and enter new name, click **X** to save. **Note:** Naming may not be saved if any sources are routed at the time of saving the new name.

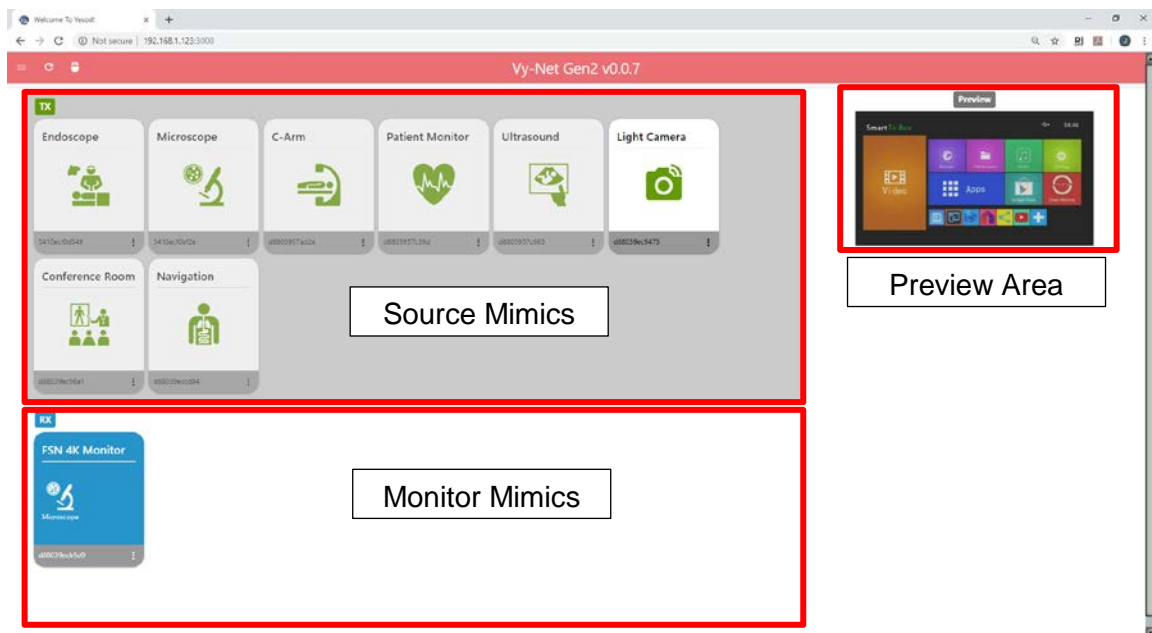


2.2.12. **Icons** – Click on 3 dots in bottom right of RX or TX, click on **Select Icon** and select new icon, click **X** to save. **Note:** Icons may not be saved if any sources are routed at the time of saving the new icon.



3. Operation

3.1. Main Page

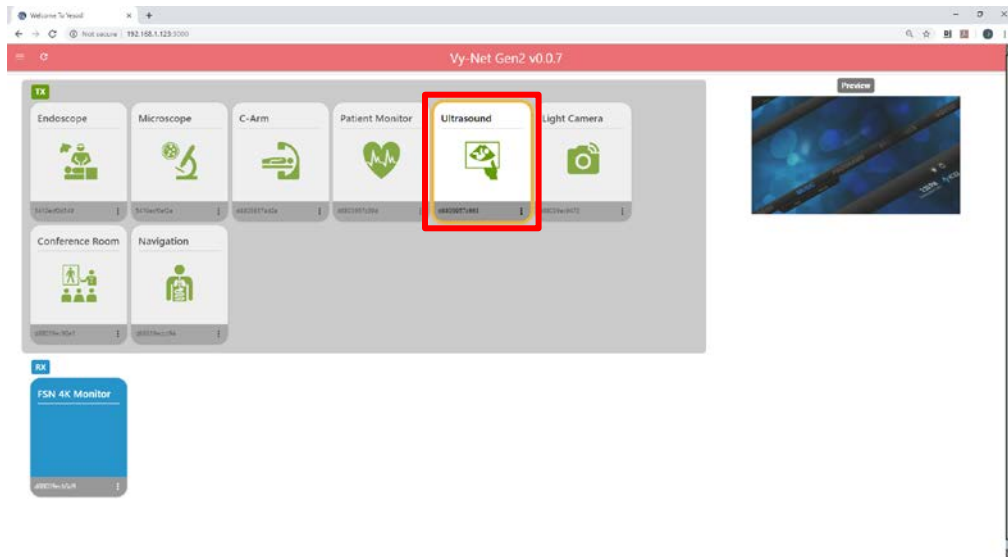


Note: No simultaneous streaming of scaled and un-scaled images, i.e. you cannot stream one source to a single display and to a multiview (scaled) display at the same time. If you attempt this, the duplicate image will be removed from the first route and routed to the new destination. Also, one source cannot be used in two different multiview outputs at once.

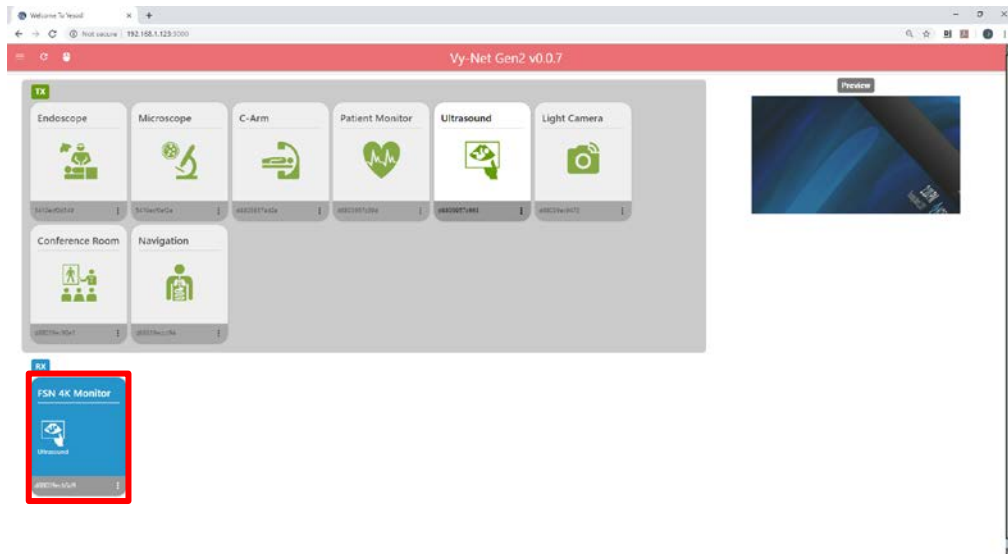
3.2. Routing

3.2.1. One to One

- 3.2.1.1. Click on a source mimic (TX). The source will be highlighted with yellow frame. **Note: Preview** will be displayed of the selected source (or just by hovering over the source mimic if using mouse for control).



- 3.2.1.2. Then click on a monitor mimic (RX), the source icon will now be displayed in the monitor mimic and routed to the appropriate monitor.



Or the reverse can be done by clicking on a monitor mimic (RX) first and then clicking on a source mimic (TX).

3.2.2. One to Many

3.2.2.1. Click on a source mimic and then click on multiple monitor mimics.

3.3. Multiview

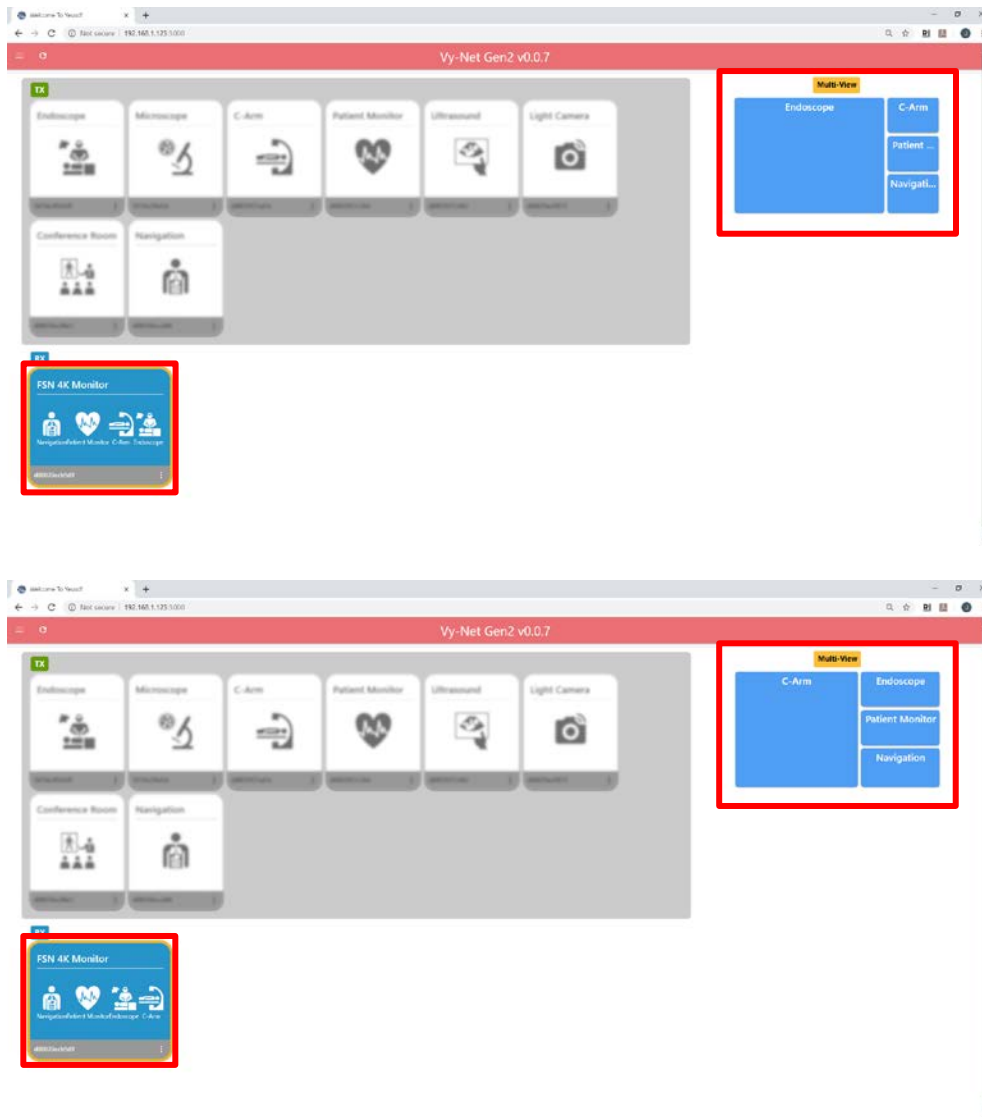
3.3.1. Click on all sources required (up to max of 8) for **multiview** output. Adjust size and location of sources displayed in multiview window by clicking on separation lines and dragging to desired size. Source position can also be swapped by clicking and dragging a source to a new location in the multiview window.



3.3.2. Then click on a monitor mimic to route **multiview** image. The source icons will be displayed in the monitor mimic.



3.3.3. You can change the **multiview layout** by clicking on the monitor mimic and readjusting in the multiview window as in previous step (3.3.1), click on the monitor mimic again to route new layout to monitor.

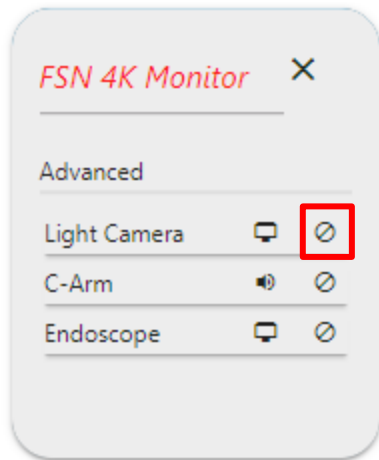


3.4. Un-select

Left click anywhere on the background to un-select any previously selected RX's and TX's.

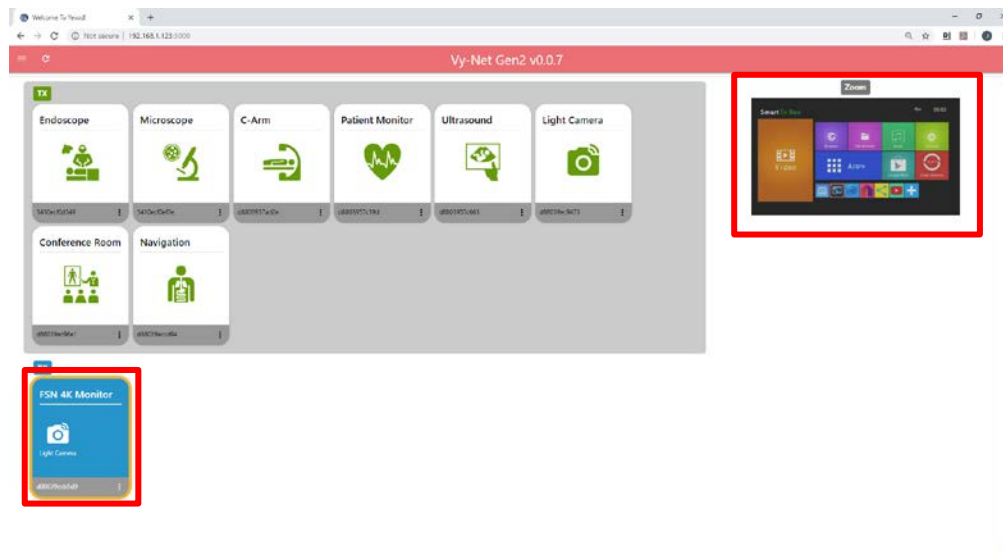
3.5. Un-route

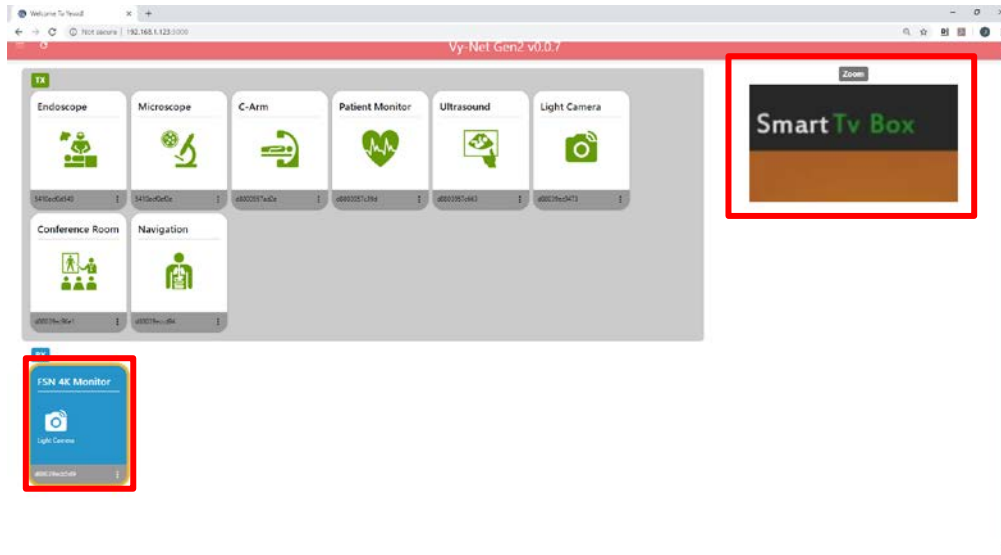
Click on 3 dots in lower right of RX mimic, click on any **O** to un-route all sources from this output, and click **X** when done.



3.6. Zoom

Route one TX to one RX and click on the RX mimic again. **Zoom** header will appear above preview area. Hover mouse over preview area and turn mouse wheel to zoom in/out the routed image to the desired size, click and drag zoomed image to center image, click the RX mimic again to route zoomed image to display.





3.7. KVM

Keyboard/Video/Mouse from the control workstation can be used to remote control any device that requires keyboard/mouse input.

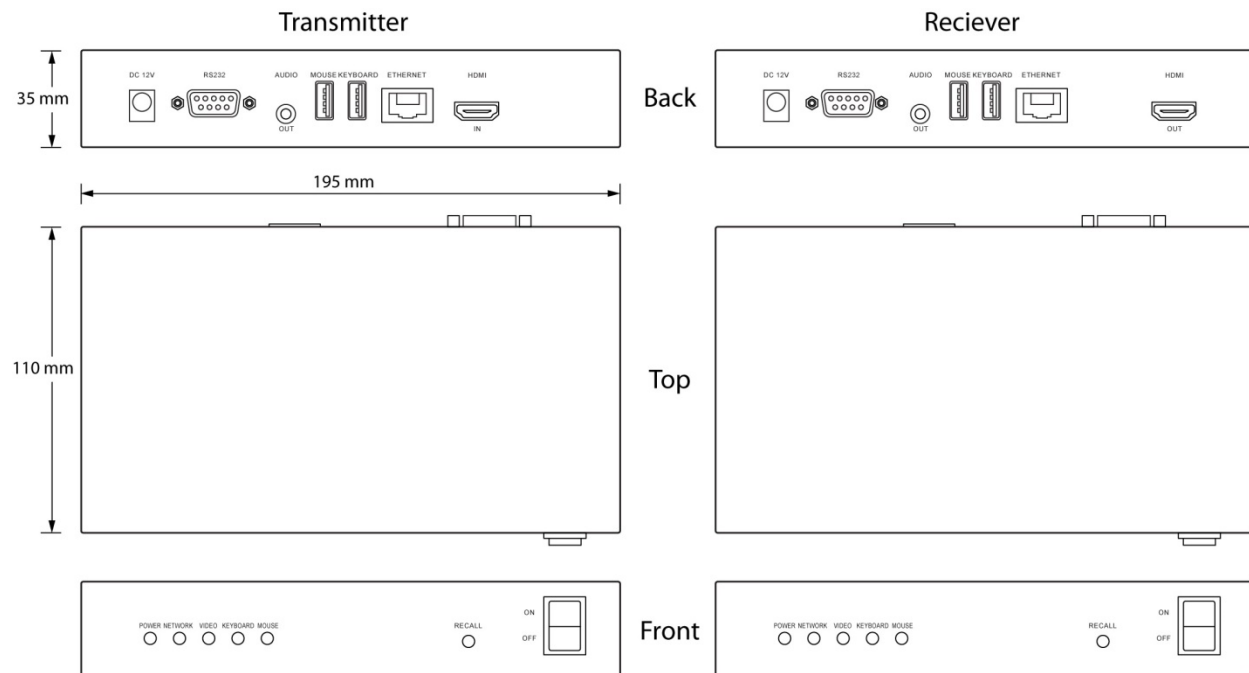
3.7.1. Select Mouse icon in upper left of browser window and click on source you want to control remotely with keyboard/mouse. The mouse icon will appear in source mimic.



4. Appendix 1

4.1. Specifications

Item	TX	RX	Description
Input Signal	•		HDMI 2.0
		•	10GbE (copper)
Output Signal	•		10GbE (copper)
		•	HDMI 2.0
Maximum Resolution	3840 x 2160 @ 60Hz		
Keyboard Connector	USB A-Type x 1		
Mouse Connector	USB A-Type x 1		
Audio Connector	Phone Jack, 3.5 mm		
Unit Dimension	195(W) x 35(H) x 110(D) mm 7.68(W) x 1.38(H) x 4.33(D) inch		
Power Supply	DC + 12V		
Operating Temperature	0° - 40° C		
Relative Humidity	1 - 80%, non-condensing		
Recommended Cable	CAT6A/CAT7		
Weight	•		600g, 1.32 lbs.
		•	605g, 1.33 lbs.



5. Appendix 2

5.1. Switch Selection and Configuration

10G switch features required

- IGMP version 2 support
- Enable IGMP Snooping (on VLAN1 or other VLAN if being used)
- Enable Filter/Drop unregistered Multicast traffic
- Disable Unregistered Multicast Flooding
- Enable FASTLEAVE (for VLAN1 or other VLAN if being used)
- Enable IGMP Querier (for VLAN1 or other VLAN if being used)

Non-blocking will depend on the capacity of the switches internal backplane, which needs to be enough to handle a full 10Gbps from all ports. Most switches will be non-blocking in this regard, but for lower end switches we advise the customer/integrator to check the specs.

6. Appendix 3

6.1. Vy-Net1 Preview Configuration

- 6.1.1. Plug in external power supply into Vy-Net1 device and wait 1 minute for unit to complete boot process.

LED Indicators

After power on and boot process is complete, VyNet unit should have solid green **Ready** LED, flashing green **Streaming** LED and **Power** LED green if powered by external power supply (included with each VyNet unit).

Note: If any LED's (except power) are amber, restart the unit by cycling power or momentarily pressing the **RESET** button on front panel.

- 6.1.2. Press and hold the **Factory** button for 6 seconds (all front panel LED's will go solid amber), then release **Factory** button. Wait 1 minute for unit to reboot.



- 6.1.3. **Note:** This will reset all settings to factory default including static IP address to **192.168.1.10**.

- 6.1.4. Open Chrome browser and go to **192.168.1.10**. Enter credentials, (default) username: **admin** and password: **admin**, click **Login**.

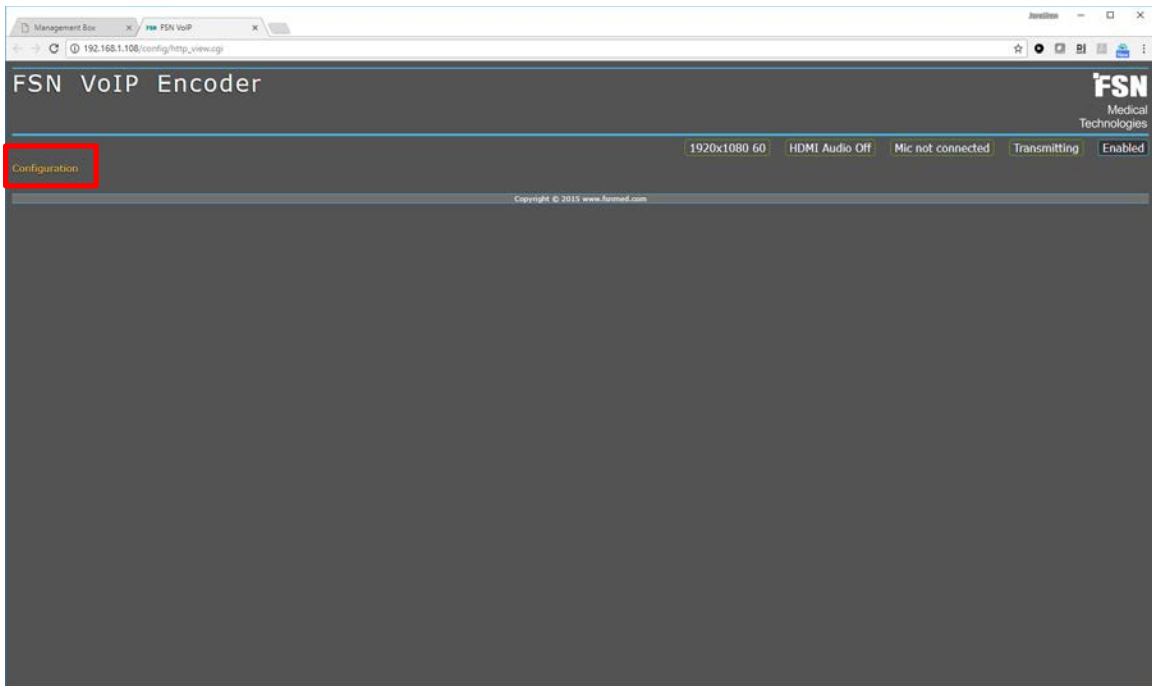
Authentication required

<http://192.168.1.10>
Your connection to this site is not private

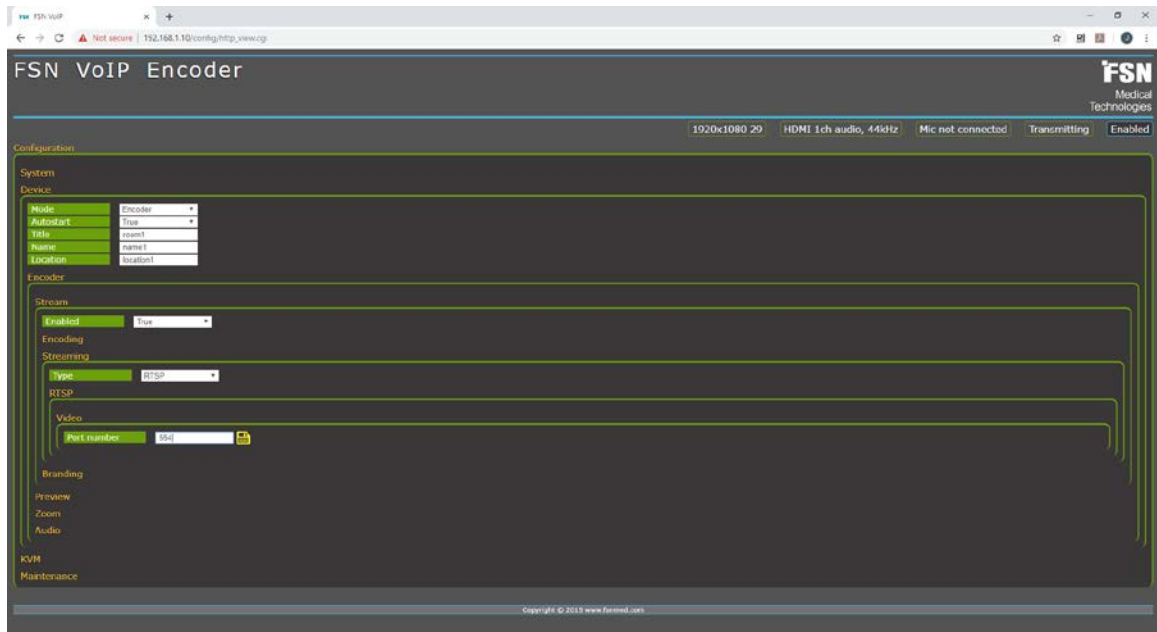
Username

Password

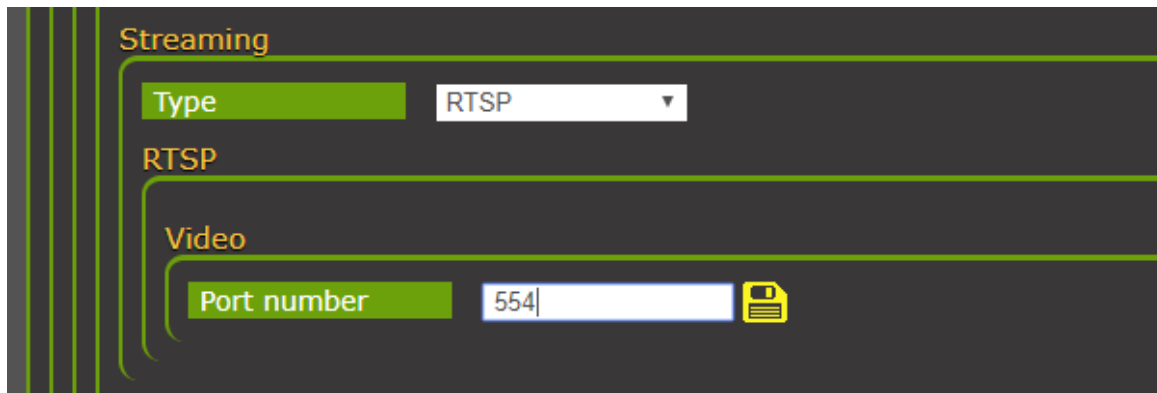
6.1.5. The advanced configuration page will be displayed, click on **Configuration**.



6.1.6. Click on **Device > Encoder > Stream > Streaming**.



6.1.7. Set Streaming Type to **RTSP** and Video Port Number to **554**, Click yellow disk icons to save settings.



6.1.8. Reboot Vy-Net1 device by momentarily pressing the front panel **Reset** button to complete configuration.

Thank you for choosing our product.

Service

Please contact our customer service if you need any information or help with our products.

Vy-Net2 Technical Support

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Warranty

One year, parts and labor.

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