

Infinium

QUICK SETUP

Encoders + RF Modulator module Setup

for IP MOD-64 2023 module

The IP-MOD-64 converts up to 64 IPTV streams to RF channels over 4 Coaxial Multiplex Frequencies.

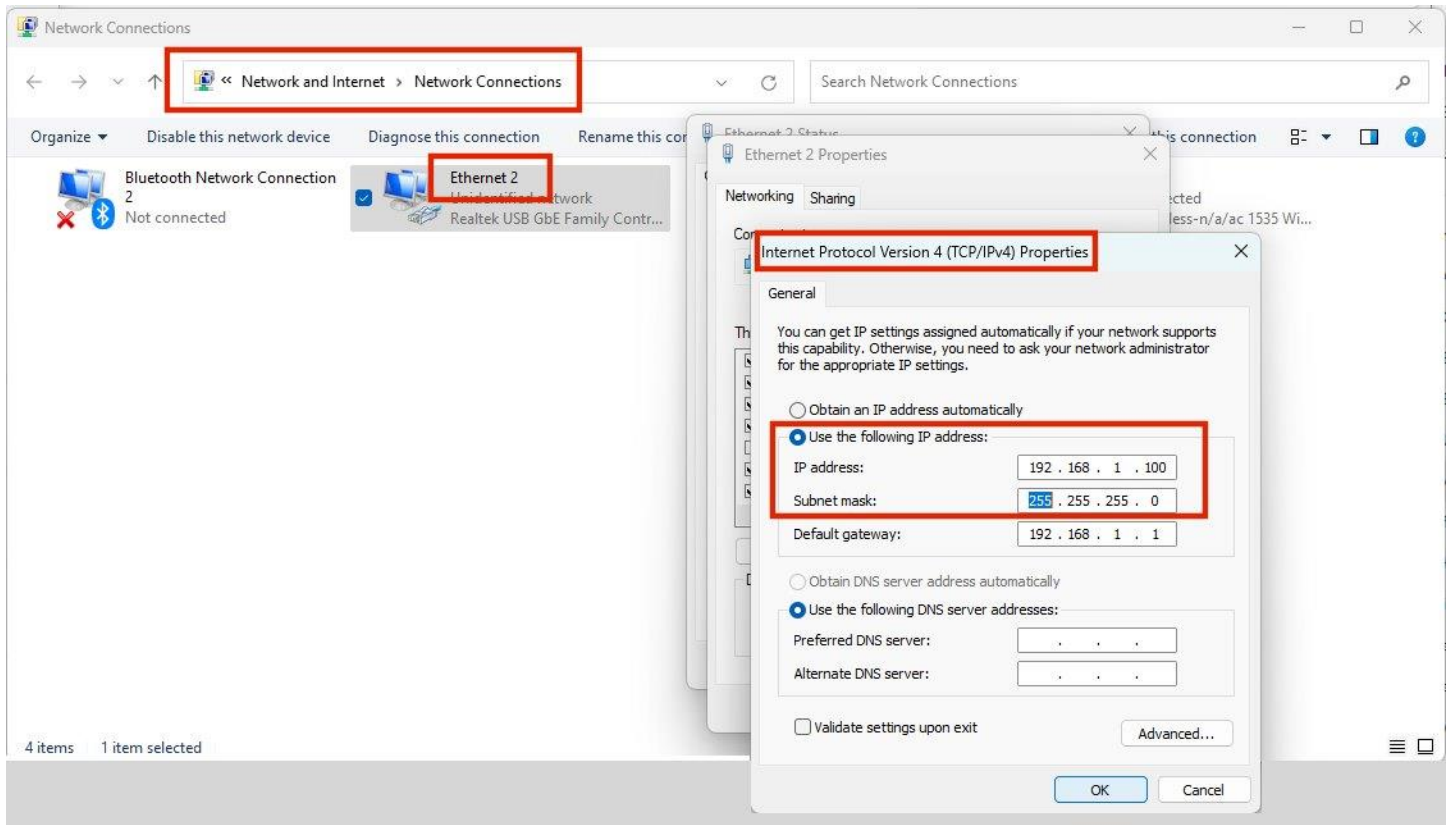
Each of the 4 Frequencies can assign multiple IP Streams coming from the IPTV input RJ45 Ethernet port.

Each assigned stream can be NAMED as wanted as well Numbered to list in the wanted sequence on the TVs remote controls

Configure the Infinium Encoders to stream

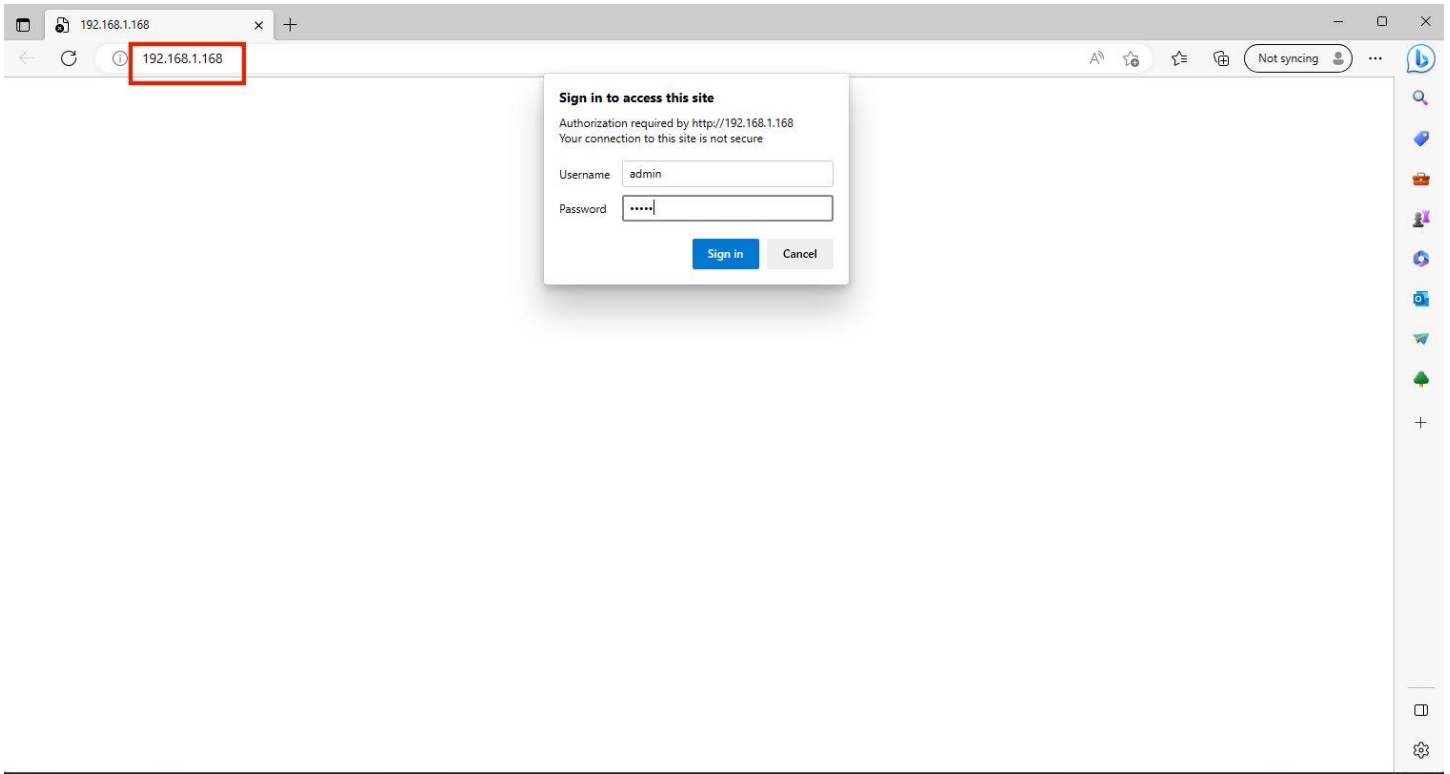
When you receive the INFINIUM chassis with encoders, each encoder needs to be set to the final IP_ADDRESS and the final MULTICAST IP ADDRESS, so when you connect all the modules to the network switch they will not conflict each others.

- 1) Configure your computer to a static IP address 192.168.1.100



- 2) Connect your computer ethernet to the first Infinium encoder ethernet port
- 3) Open your computer browser and enter in the link bar 192.168.1.168
- 4) If all is configured as expected, the WEB INTERFACE of the encoder module should display
IF NOT, please check your computer settings for a static ip address as above.
IF THE INFINIUM MODULE IS NOT NEW, the ip address might have been changed, so it is necessary to reset the module to factory by holding the micro reset button (mini hole) on the encoder card panel for 30 seconds. This way the IP address will go back to 192.168.1.168 default and you will need to set the module again from scratch to your ip addresses and other settings.

5) Login to the encoder web interface with user name “admin” and password “admin”

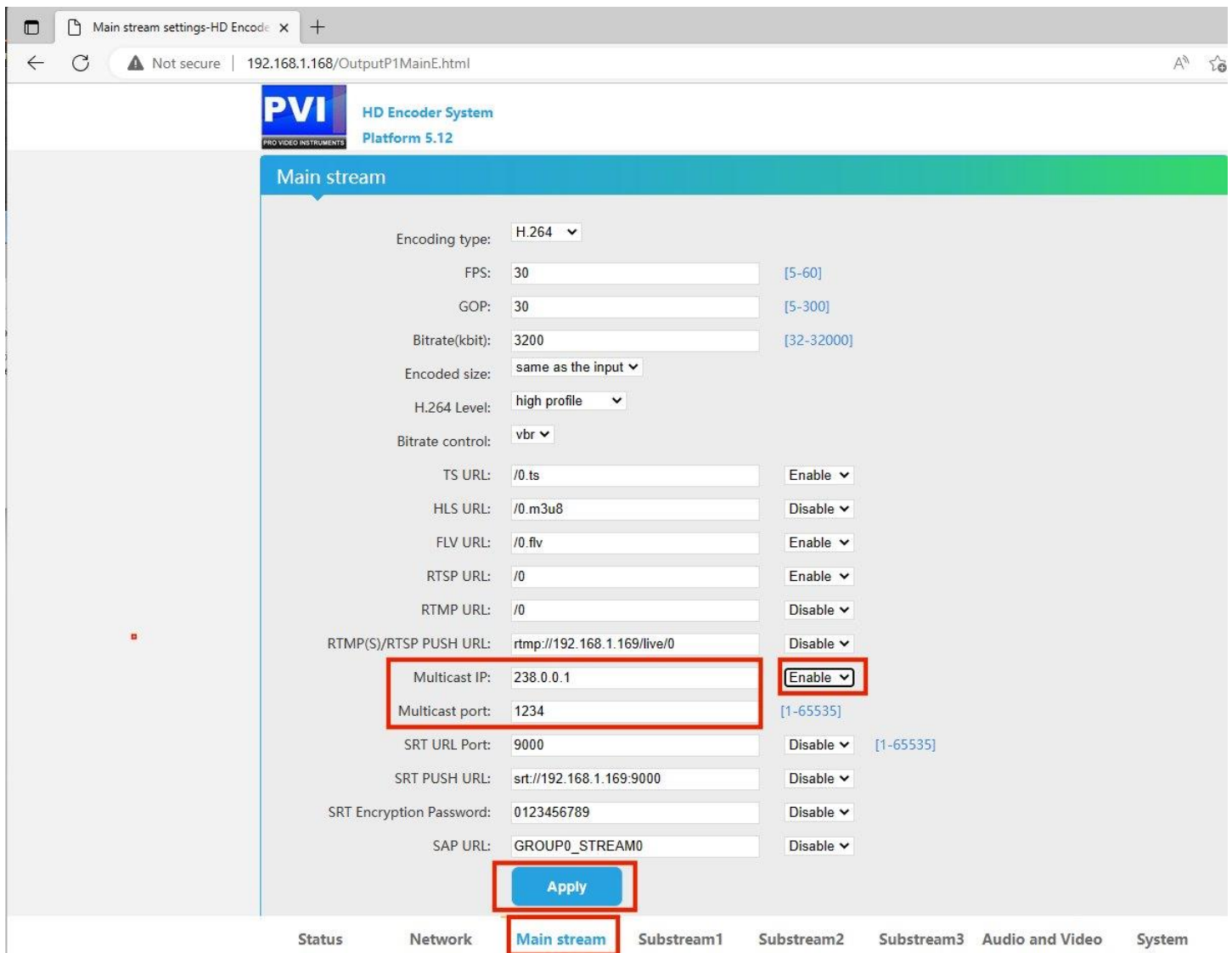


- 6) On the encoder go to the MAIN STREAM and set the MULTICAST IP ADDRESS to use for this channel. In our example we use 238.0.0.1 and port 1234

Please MAKE SURE NOT TO USE THE SAME ADDRESS ON EACH ENCODER OR THEY WILL CONFLICT !!!

As example use 238.0.0.1 on the first encoder, then 238.0.0.2 on the second, then 238.0.0.3 on the third encoder card, and so on. There is no need to change the port which can be 1234 for all encoders.

Remember to ENABLE the multicast via the drop down selector on the right of the multicast line, and to APPLY to save on the bottom of the page.



Main stream settings-HD Encode x +

Not secure | 192.168.1.168/OutputP1MainE.html

PVI HD Encoder System Platform 5.12

Main stream

Encoding type: H.264

FPS: 30 [5-60]

GOP: 30 [5-300]

Bitrate(kbit): 3200 [32-32000]

Encoded size: same as the input

H.264 Level: high profile

Bitrate control: vbr

TS URL: /0.ts Enable

HLS URL: /0.m3u8 Disable

FLV URL: /0.flv Enable

RTSP URL: /0 Enable

RTMP URL: /0 Disable

RTMP(S)/RTSP PUSH URL: rtmp://192.168.1.169/live/0 Disable

Multicast IP: 238.0.0.1 Enable

Multicast port: 1234 [1-65535]

SRT URL Port: 9000 Disable [1-65535]

SRT PUSH URL: srt://192.168.1.169:9000 Disable

SRT Encryption Password: 0123456789 Disable

SAP URL: GROUP0_STREAM0 Disable

Apply

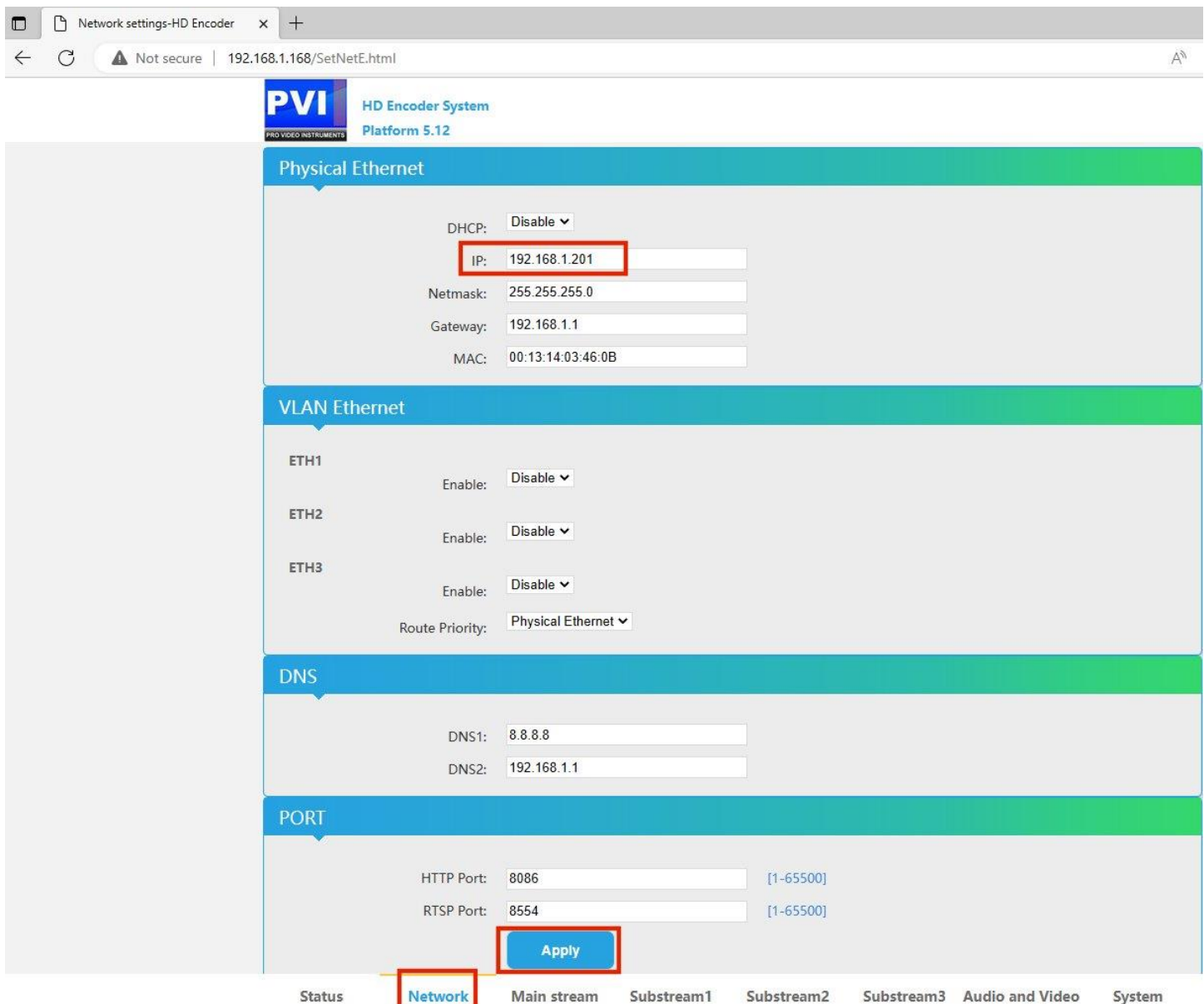
Status Network Main stream Substream1 Substream2 Substream3 Audio and Video System

- 7) On the ENCODER NETWORK TAB make sure to change the web interface IP ADDRESS so each **encoder has a DIFFERENT IP and will not conflict**

As example you can use 192.168.1.201 on the first encoder, then 192.168.1.202 on the second encoder, 192.168.1.203 on the third and so on..

Click APPLY on the bottom of the page to save.

Remember the ip address you set per each module or you won't be able to access the web interfaces after you apply



Network settings-HD Encoder x +

Not secure | 192.168.1.168/SetNetE.html

PVI HD Encoder System
Platform 5.12

Physical Ethernet

DHCP: Disable ▾

IP: 192.168.1.201

Netmask: 255.255.255.0

Gateway: 192.168.1.1

MAC: 00:13:14:03:46:0B

VLAN Ethernet

ETH1 Enable: Disable ▾

ETH2 Enable: Disable ▾

ETH3 Enable: Disable ▾

Route Priority: Physical Ethernet ▾

DNS

DNS1: 8.8.8.8

DNS2: 192.168.1.1

PORT

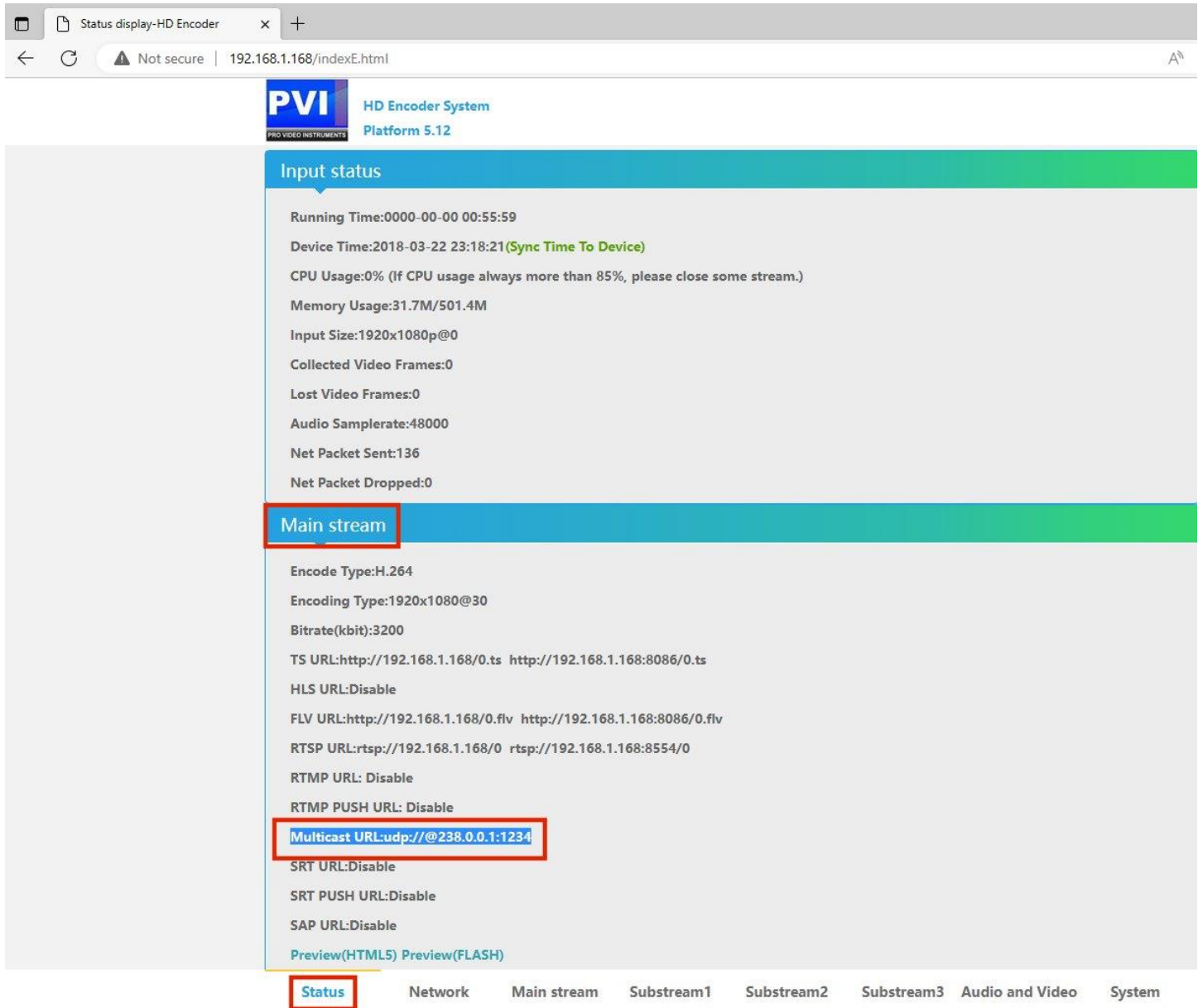
HTTP Port: 8086 [1-65500]

RTSP Port: 8554 [1-65500]

Apply

Status **Network** Main stream Substream1 Substream2 Substream3 Audio and Video System

- 8) On the STATUS PAGE of the encoder you can check if the MULTICAST of this encoder card has been properly configured and see the multicast address it is streaming on



The screenshot shows the PVI HD Encoder System status page. The browser address bar shows the URL 192.168.1.168/indexE.html. The page title is "HD Encoder System Platform 5.12". The "Input status" section displays various system metrics. The "Main stream" section is highlighted with a red box, and the "Multicast URL:udp://@238.0.0.1:1234" is highlighted with a red box. The "Status" tab is also highlighted with a red box.

Input status

- Running Time:0000-00-00 00:55:59
- Device Time:2018-03-22 23:18:21(Sync Time To Device)
- CPU Usage:0% (If CPU usage always more than 85%, please close some stream.)
- Memory Usage:31.7M/501.4M
- Input Size:1920x1080p@0
- Collected Video Frames:0
- Lost Video Frames:0
- Audio Samplerate:48000
- Net Packet Sent:136
- Net Packet Dropped:0

Main stream

- Encode Type:H.264
- Encoding Type:1920x1080@30
- Bitrate(kbit):3200
- TS URL:http://192.168.1.168/0.ts http://192.168.1.168:8086/0.ts
- HLS URL:Disable
- FLV URL:http://192.168.1.168/0.flv http://192.168.1.168:8086/0.flv
- RTSP URL:rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0
- RTMP URL: Disable
- RTMP PUSH URL: Disable
- Multicast URL:udp://@238.0.0.1:1234**
- SRT URL:Disable
- SRT PUSH URL:Disable
- SAP URL:Disable
- Preview(HTML5) Preview(FLASH)

Status Network Main stream Substream1 Substream2 Substream3 Audio and Video System

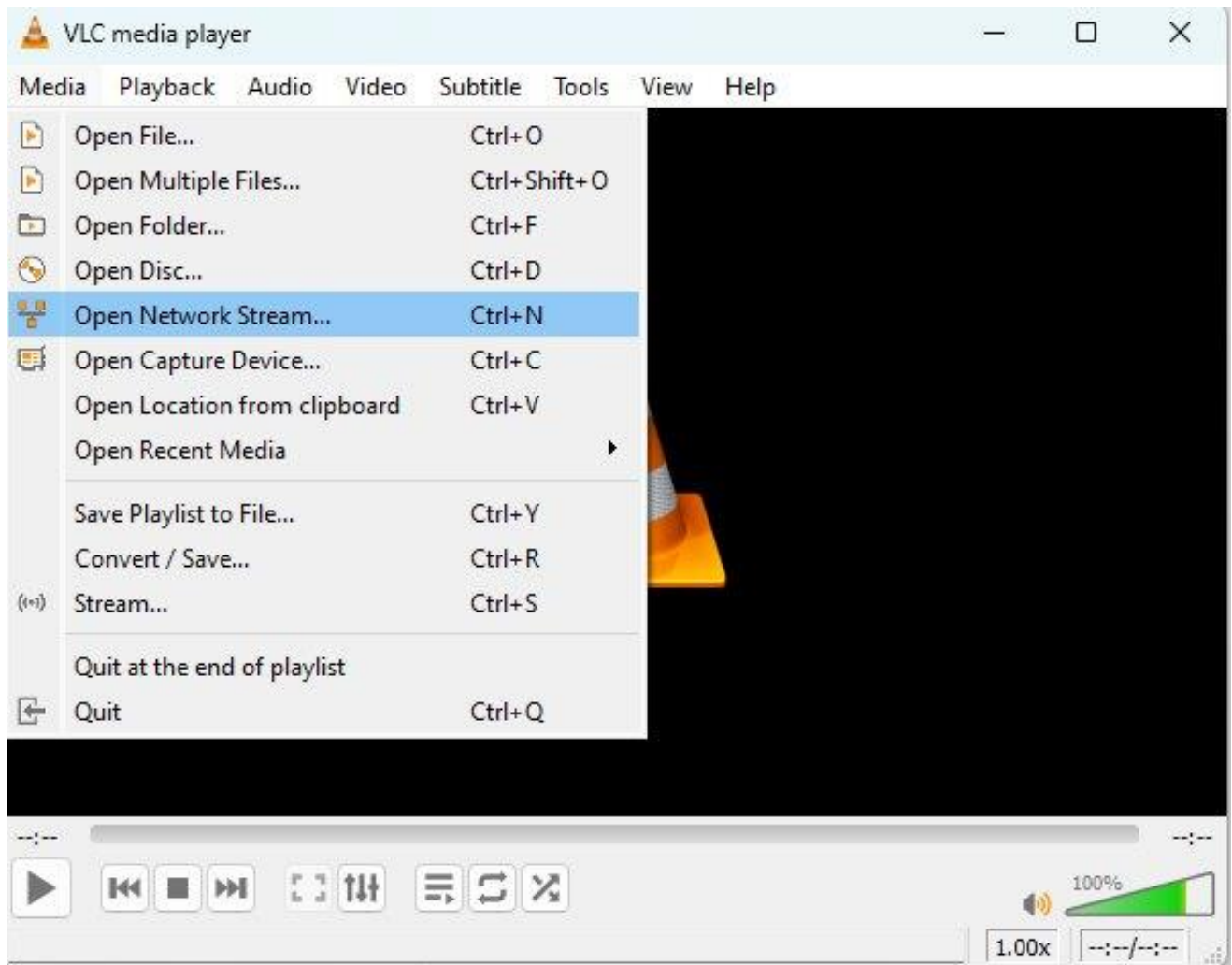
- 9) Repeat steps 1 through 7 per each encoder card of your system
- 10) Connect the Encoders to a NETWORK SWITCH. If the encoders are streaming their own TEST PATTERN each related LED on the switch will start flashing continuously indicating there is streaming coming from that encoder card.

- 11) Connect your Computer to the switch and Use VLC VIDEOLAN software to test / play each stream to verify all is working. In this example we test the stream from the first encoder 238.0.0.1 port 1234

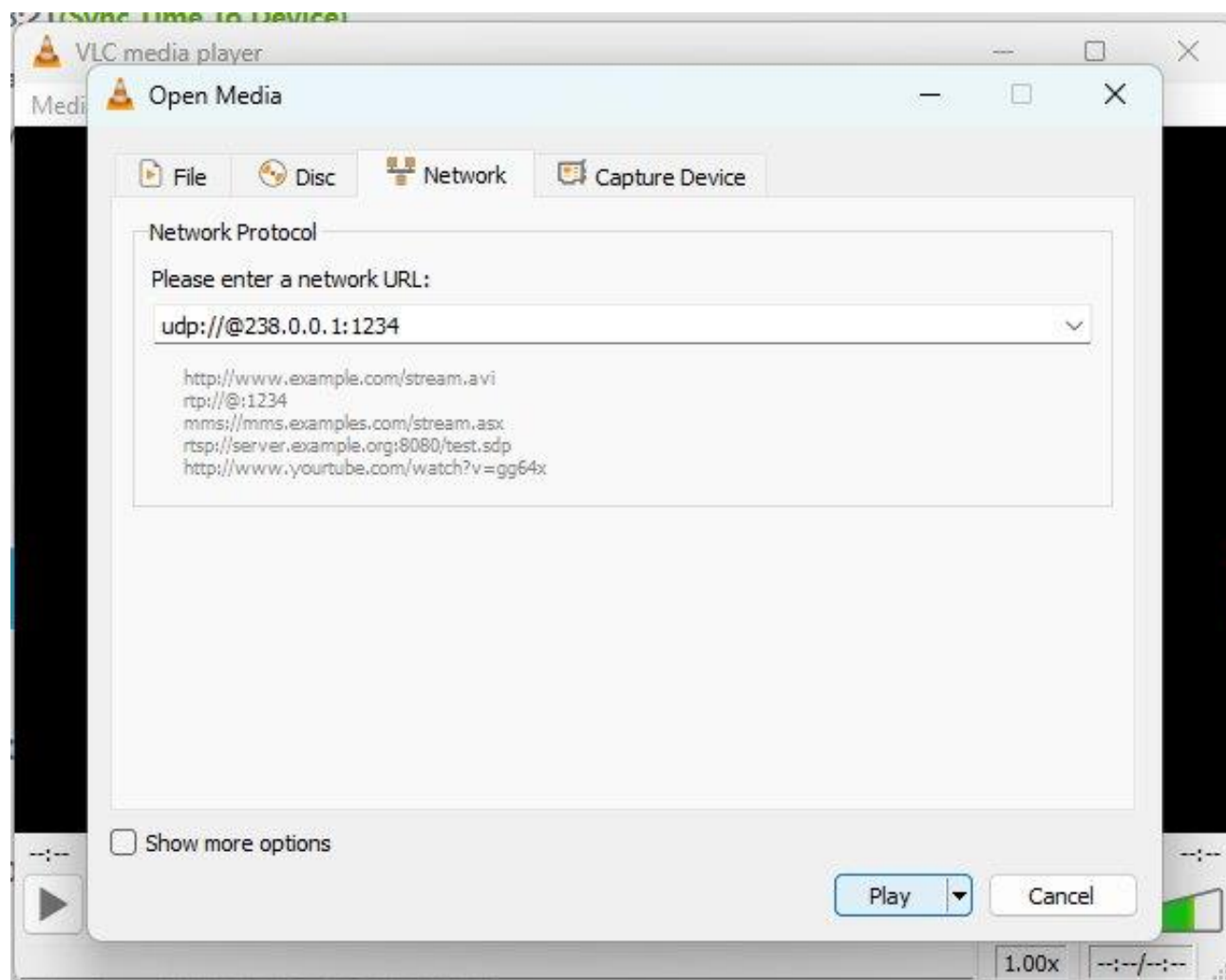
we can take the test link from the STATUS PAGE of the encoder as per step #8 above.

udp://@238.0.0.1:1234

- 12) On VLC software click FILE > OPEN NETWORK STREAM



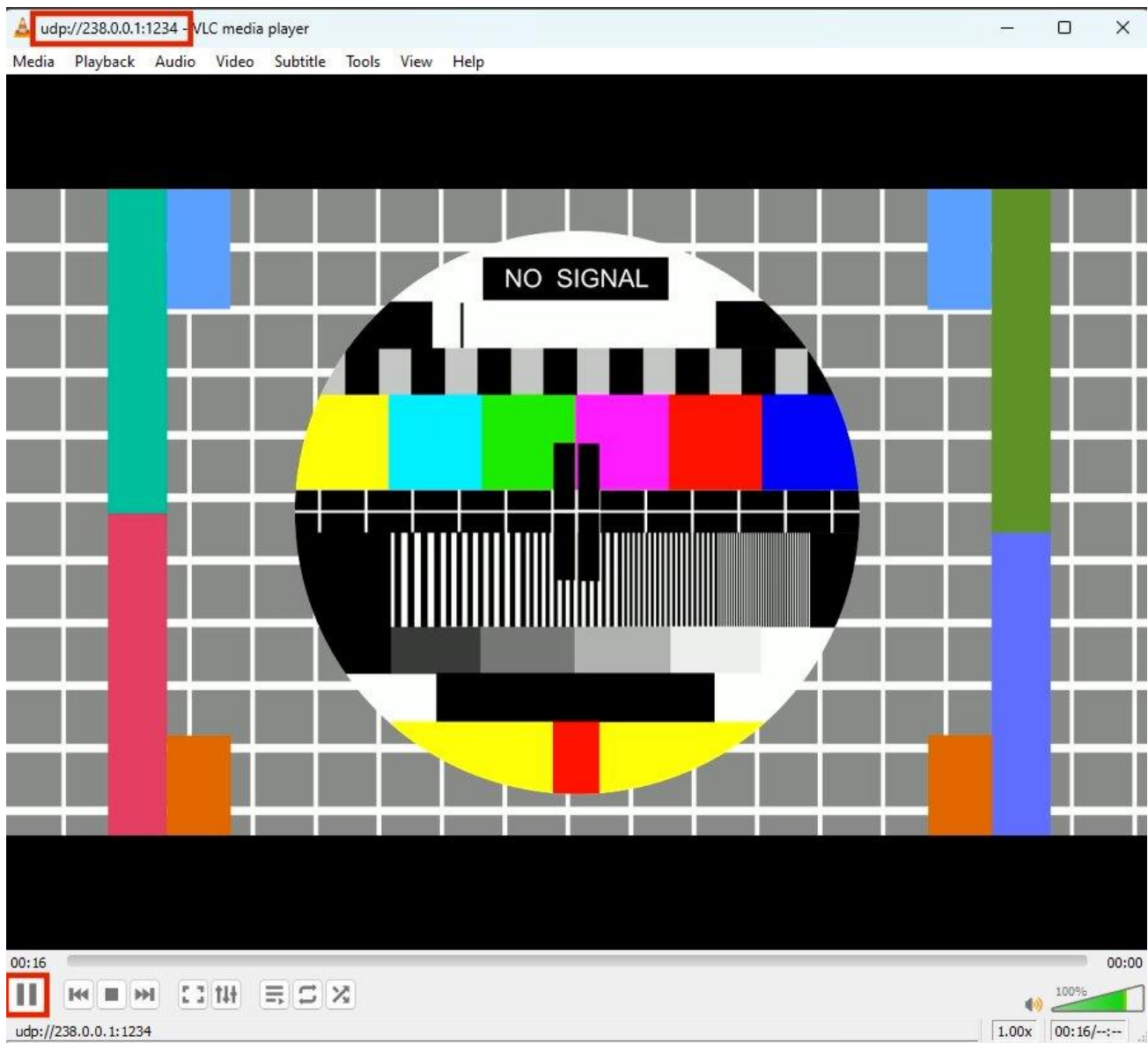
13) Enter the UDP multicast address `udp://@238.0.0.1:1234`



14) Hit PLAY

VLC will start playing the stream coming from this encoder.

Repeat the same test for all encoder using the proper multicast ip address UDP://@238.0.0.2:1234 then UDP://@238.0.0.3:1234 then UDP://@238.0.0.4:1234 and so on, so you can test each encoder IS streaming



For any other setting on the encoders, please follow the MAIN instruction manual.

15) Connect the IP-MOD-64 Ip to RF Modulator module to the switch.

BOTH PORTS CAN BE CONNECTED TO THE SWITCH

The computer will be connected to the switch to manage everything at once.

- The TOP ETHERNET PORT on the IP MOD receives the ip streams

- The BOTTOM ETHERNET PORT on the IP MOD is to control the IP MOD web interface

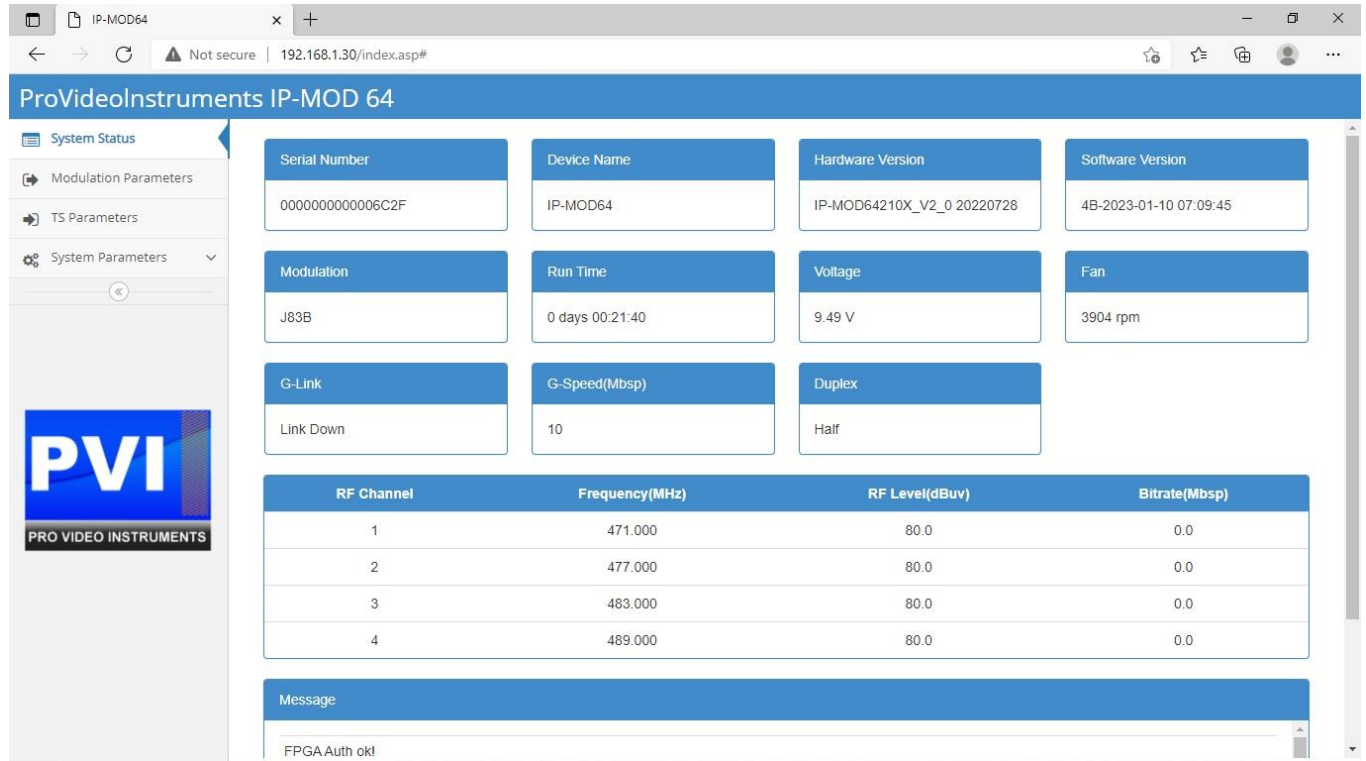
- The **DEFAULT IP ADDRESS of the IP MOD is 192.168.1.30**

user name: user

password: user



- 16) Use the WEB BROWSER of your control computer to login to the IP-MOD web interface typing the address 192.168.1.30



ProVideoInstruments IP-MOD 64

System Status

Modulation Parameters

TS Parameters

System Parameters

Serial Number: 0000000000006C2F

Device Name: IP-MOD64

Hardware Version: IP-MOD64210X_V2_0 20220728

Software Version: 4B-2023-01-10 07:09:45

Modulation: J83B

Run Time: 0 days 00:21:40

Voltage: 9.49 V

Fan: 3904 rpm

G-Link: Link Down

G-Speed(Mbps): 10

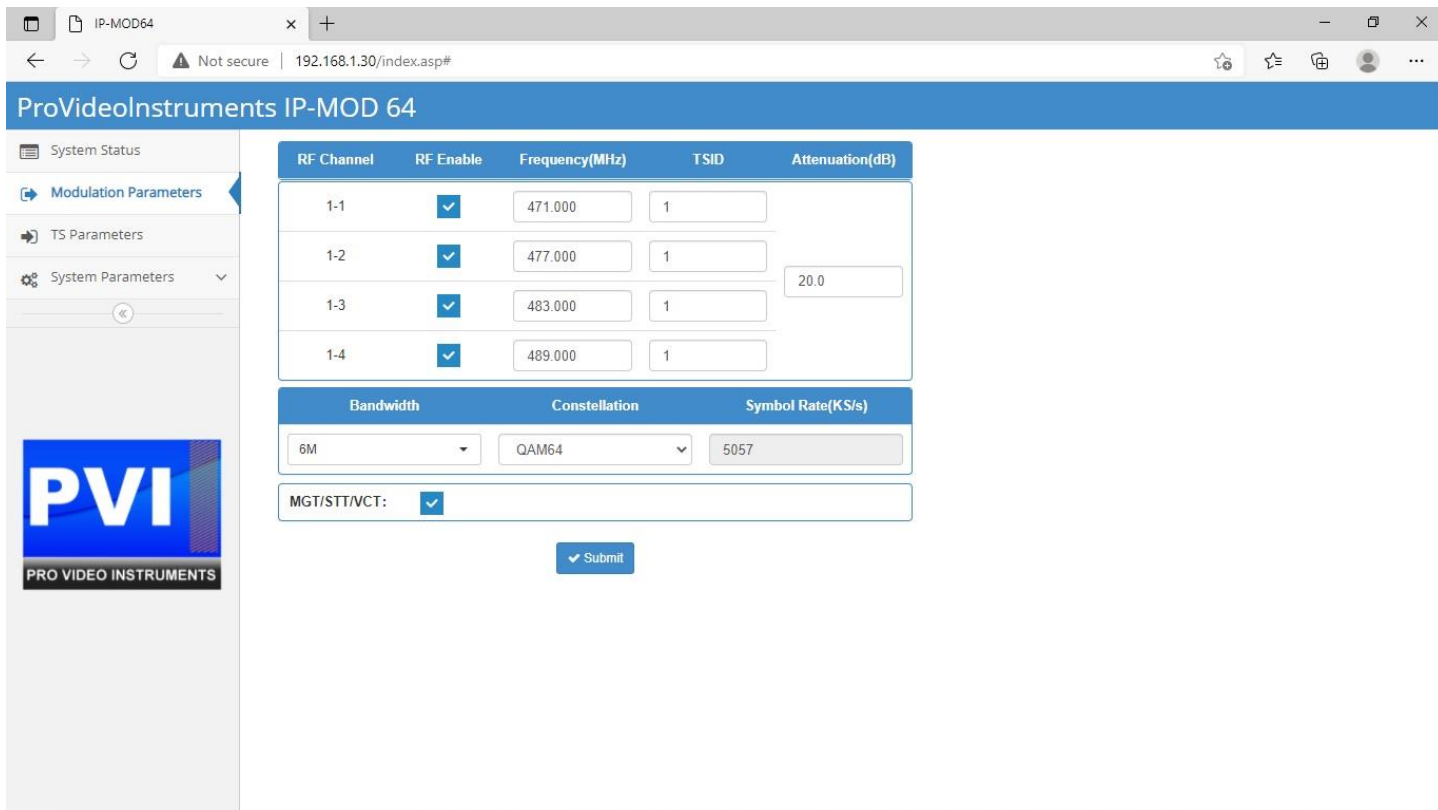
Duplex: Half

RF Channel	Frequency(MHz)	RF Level(dBuv)	Bitrate(Mbps)
1	471.000	80.0	0.0
2	477.000	80.0	0.0
3	483.000	80.0	0.0
4	489.000	80.0	0.0

Message: FPGAAuth ok!

The SYSTEM STATUS shows the actual main settings and status of this IP MOD CARD.

17) Click on MODULATION PARAMETERS to set the 4 frequencies of this module



The screenshot shows the ProVideoInstruments IP-MOD 64 web interface. The left sidebar contains navigation links: System Status, Modulation Parameters (selected), TS Parameters, and System Parameters. The main content area displays the Modulation Parameters configuration. It includes a table for RF Channels, a section for Bandwidth, Constellation, and Symbol Rate, and a checkbox for MGT/STT/VCT.

RF Channel	RF Enable	Frequency(MHz)	TSID	Attenuation(dB)
1-1	<input checked="" type="checkbox"/>	471.000	1	20.0
1-2	<input checked="" type="checkbox"/>	477.000	1	
1-3	<input checked="" type="checkbox"/>	483.000	1	
1-4	<input checked="" type="checkbox"/>	489.000	1	

Bandwidth	Constellation	Symbol Rate(KS/s)
6M	QAM64	5057

MGT/STT/VCT: ☒

RF ENABLE : turn on/off the output of this frequency on the coaxial spectrum

FREQUENCY : Set the wanted frequency per each channel (in mhz). Use the CENTER FREQUENCY of the channel you need. Refer to our frequencies chart for QAM / ATSC / DVBT / ISDBT / DVBC standard.

TSID : TRANSPORT STREAM ID number per each of the frequency. Leave to 1 if no need to change.

BANDWIDTH: 6M for QAM J83B USA CABLE STANDARD. See our frequencies chart for other settings.

CONSTELLATION: use QAM64 if you have few channels, or switch to QAM 256 for the maximum capacity of bitrate on the frequencies to fit more channels.

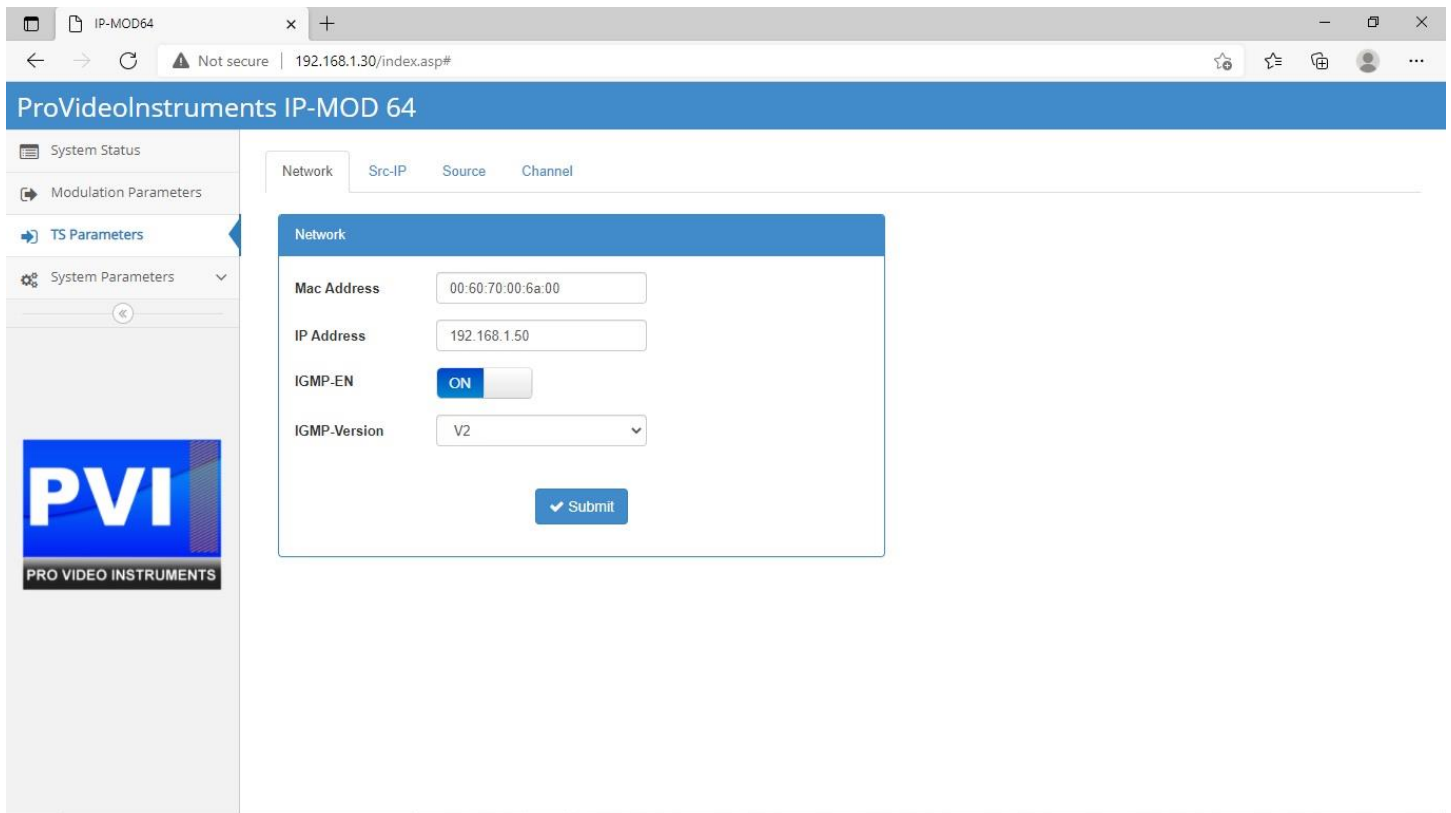
MGT/STT/VCT : descriptors tables injection - Must be ON or the TV will not recognize the channels.

IMPORTANT: This example is for QAM J83B USA CABLE TV use. This modulator supports ATSC / DVBT / DVBC also

To change please email to support@provideoinstruments.com your request so we can provide you with the specific instructions.

18) Select TS PARAMETERS to add the incoming streaming to the IP MOD ethernet port receiver

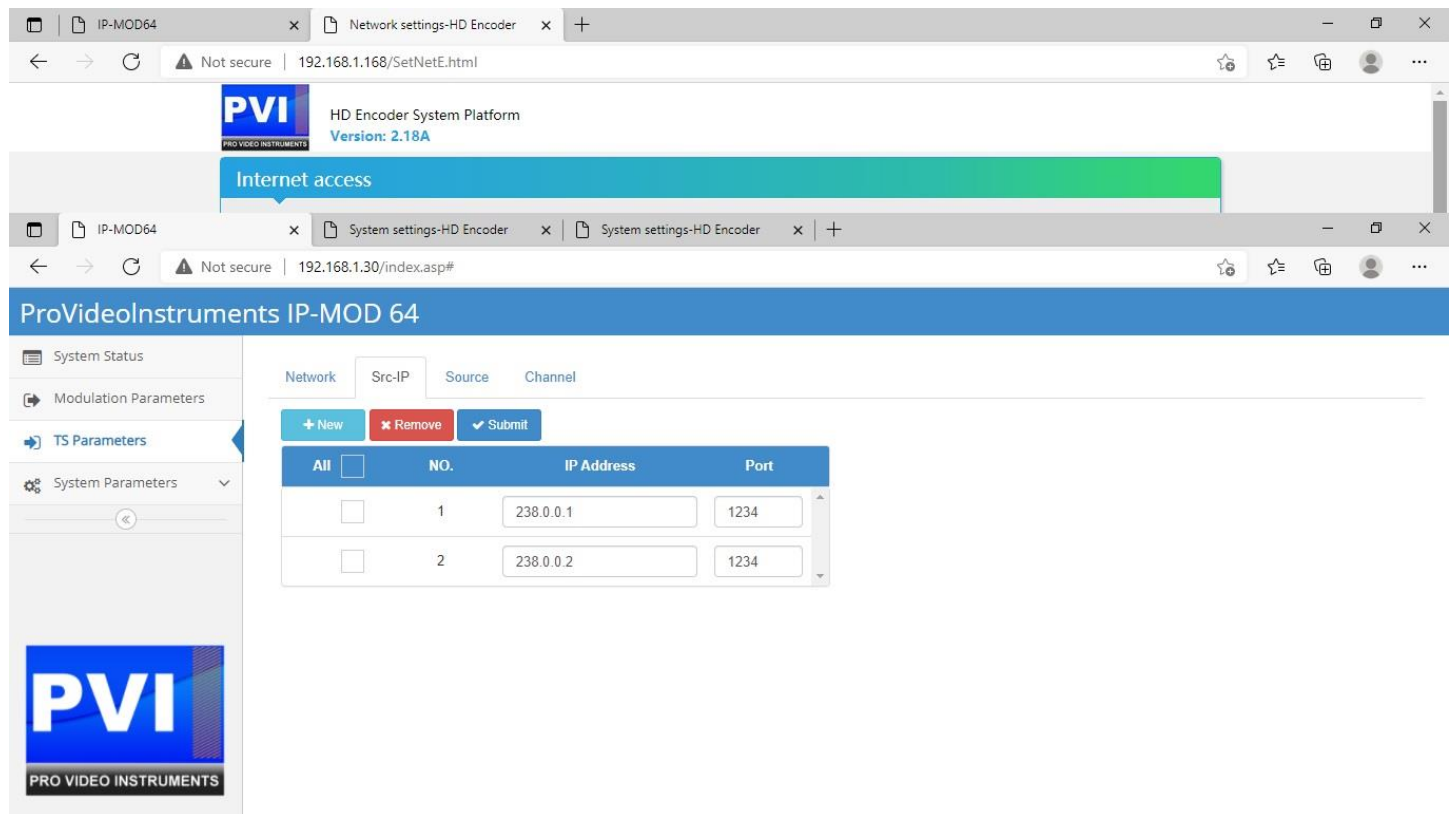
NETWORK TAB: do not change these parameters unless needed.



The screenshot shows a web browser window with the address bar displaying "192.168.1.30/index.asp#". The page title is "ProVideoInstruments IP-MOD 64". On the left sidebar, the "TS Parameters" menu item is selected. The main content area has four tabs: "Network", "Src-IP", "Source", and "Channel". The "Network" tab is active, showing the following configuration fields:

Network	
Mac Address	00:60:70:00:6a:00
IP Address	192.168.1.50
IGMP-EN	<input checked="" type="checkbox"/> ON
IGMP-Version	V2
<input type="button" value="✓ Submit"/>	

SRC-IP TAB : the source IP tab is where you add the INCOMING MULTICAST STREAMS to the modulator STREAM LIST



The screenshot displays the PVI HD Encoder System Platform interface, version 2.18A. The top navigation bar includes tabs for 'IP-MOD64', 'Network settings-HD Encoder', and 'System settings-HD Encoder'. The 'Network' tab is active, showing the 'Src-IP' configuration. A green banner at the top of the main content area reads 'Internet access'. Below this, the 'Src-IP' tab is selected, displaying a table of source IP addresses. The table has columns for 'All', 'NO.', 'IP Address', and 'Port'. Two entries are listed: NO. 1 with IP Address 238.0.0.1 and Port 1234, and NO. 2 with IP Address 238.0.0.2 and Port 1234. The interface also includes a sidebar with navigation options like 'System Status', 'Modulation Parameters', 'TS Parameters', and 'System Parameters'.

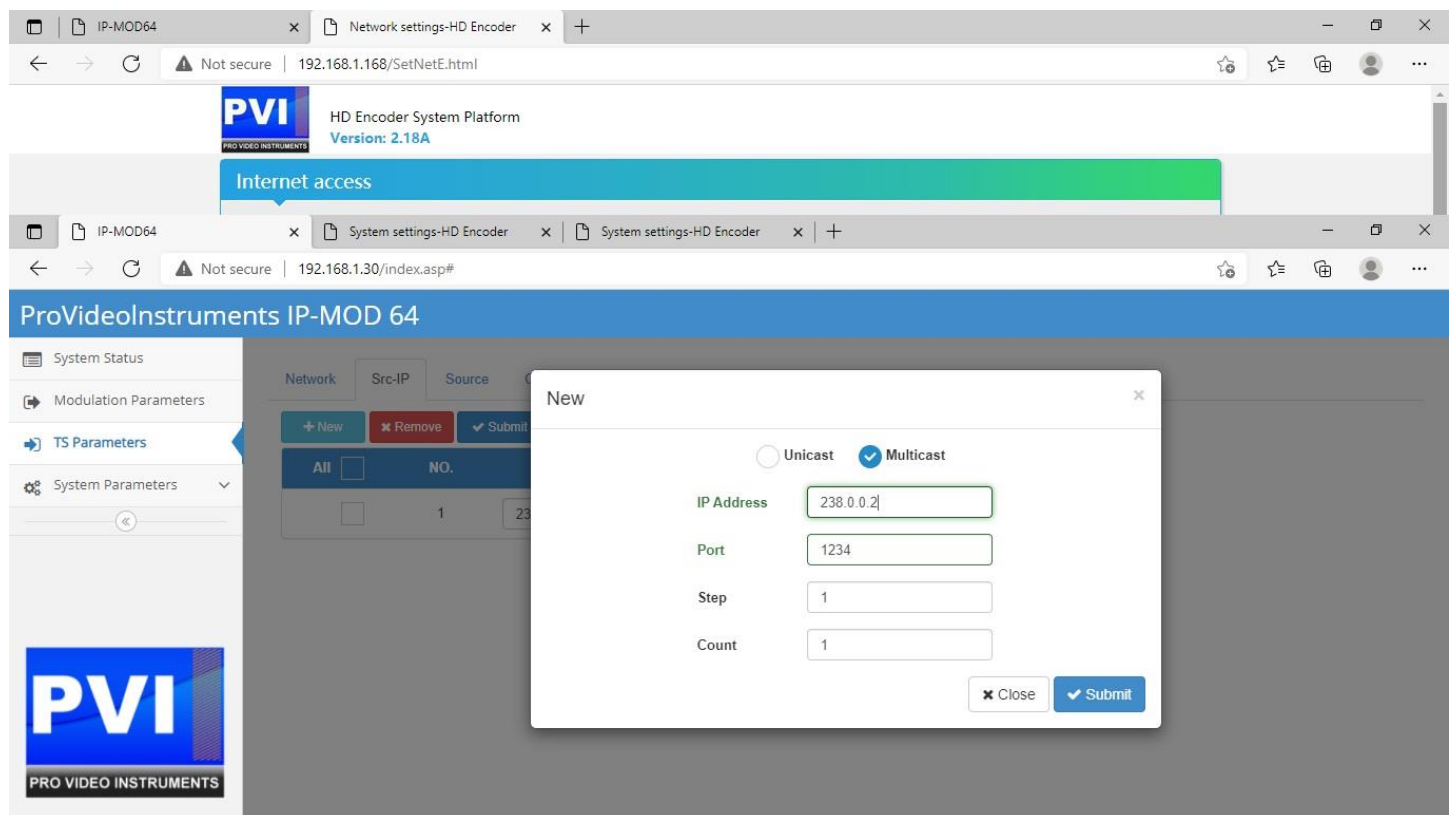
All	NO.	IP Address	Port
<input type="checkbox"/>	1	238.0.0.1	1234
<input type="checkbox"/>	2	238.0.0.2	1234

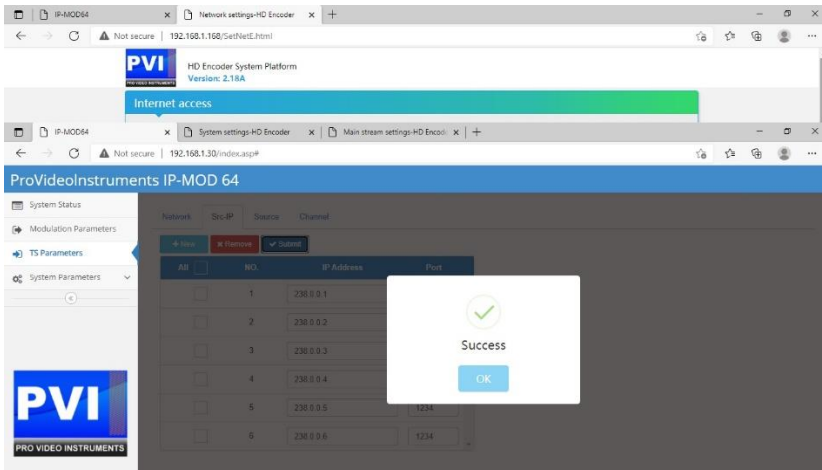
Click on NEW to add a new stream to the list

select MULTICAST then enter the IP and PORT for the multicast stream you want to add.

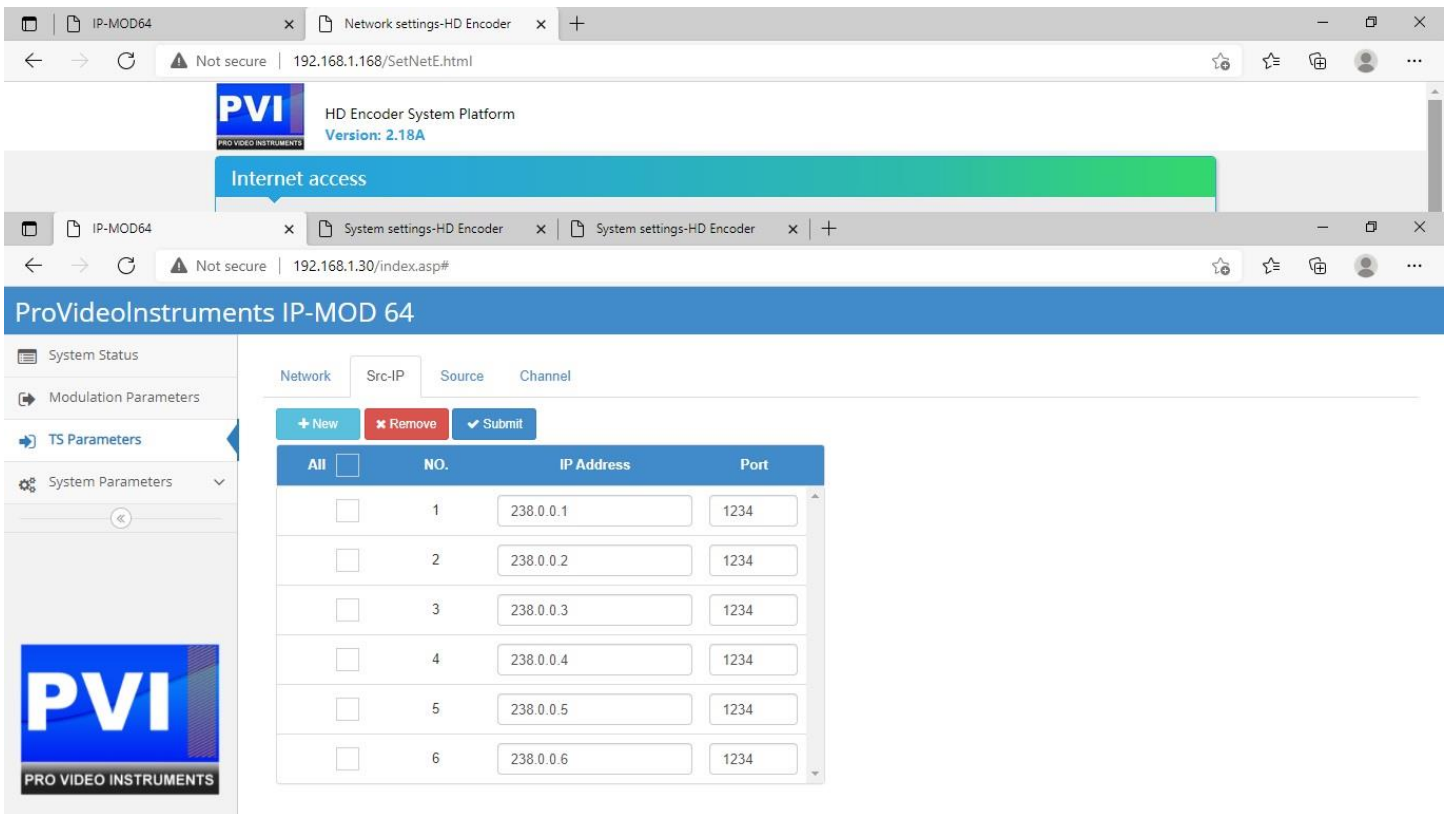
In our example we will repeat this to add to the list all the multicast ip addresses from the encoders.

You can also add external third party streams from your network and add them to the coaxial tv distribution

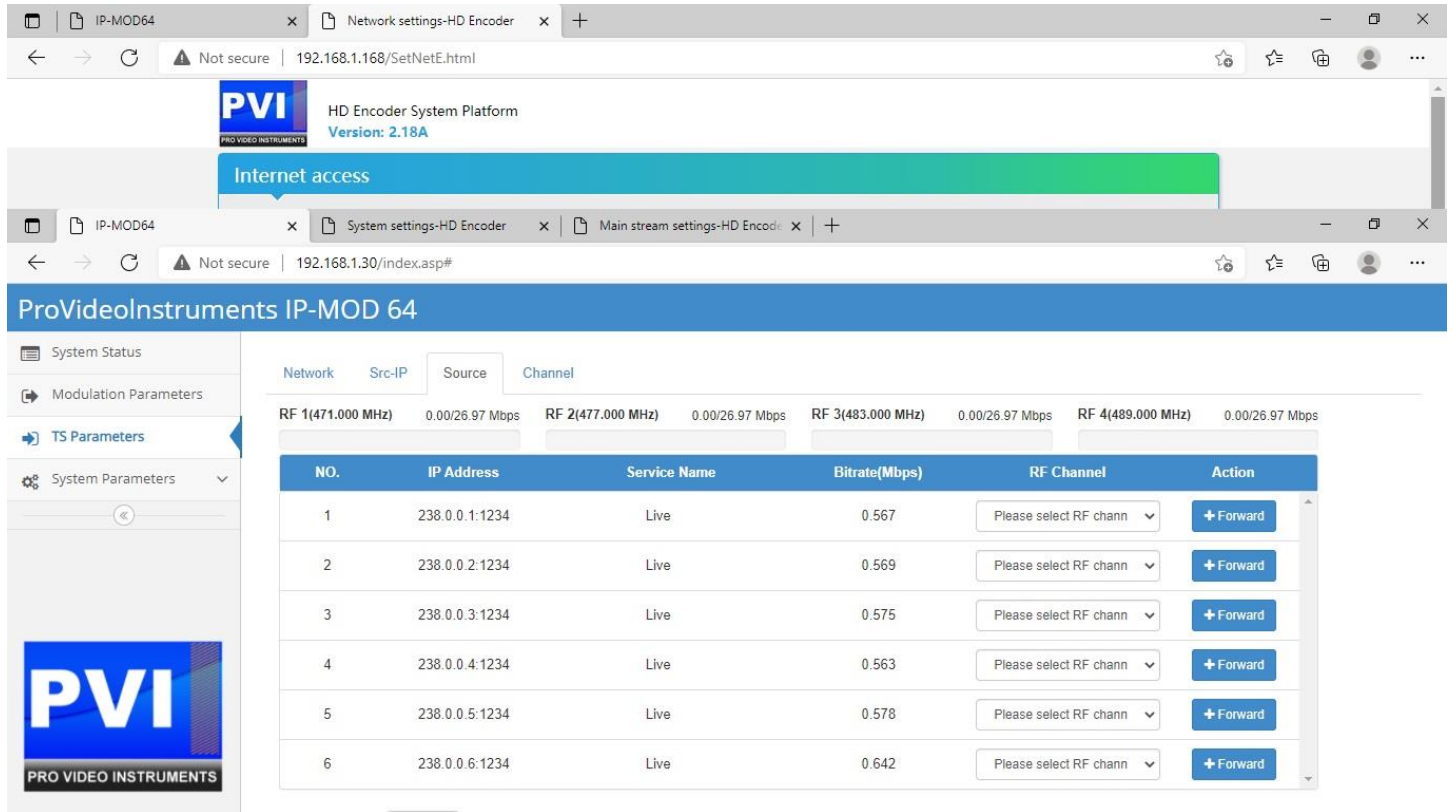




The list of incoming streams will show like this picture. You can add up to 64 streams.



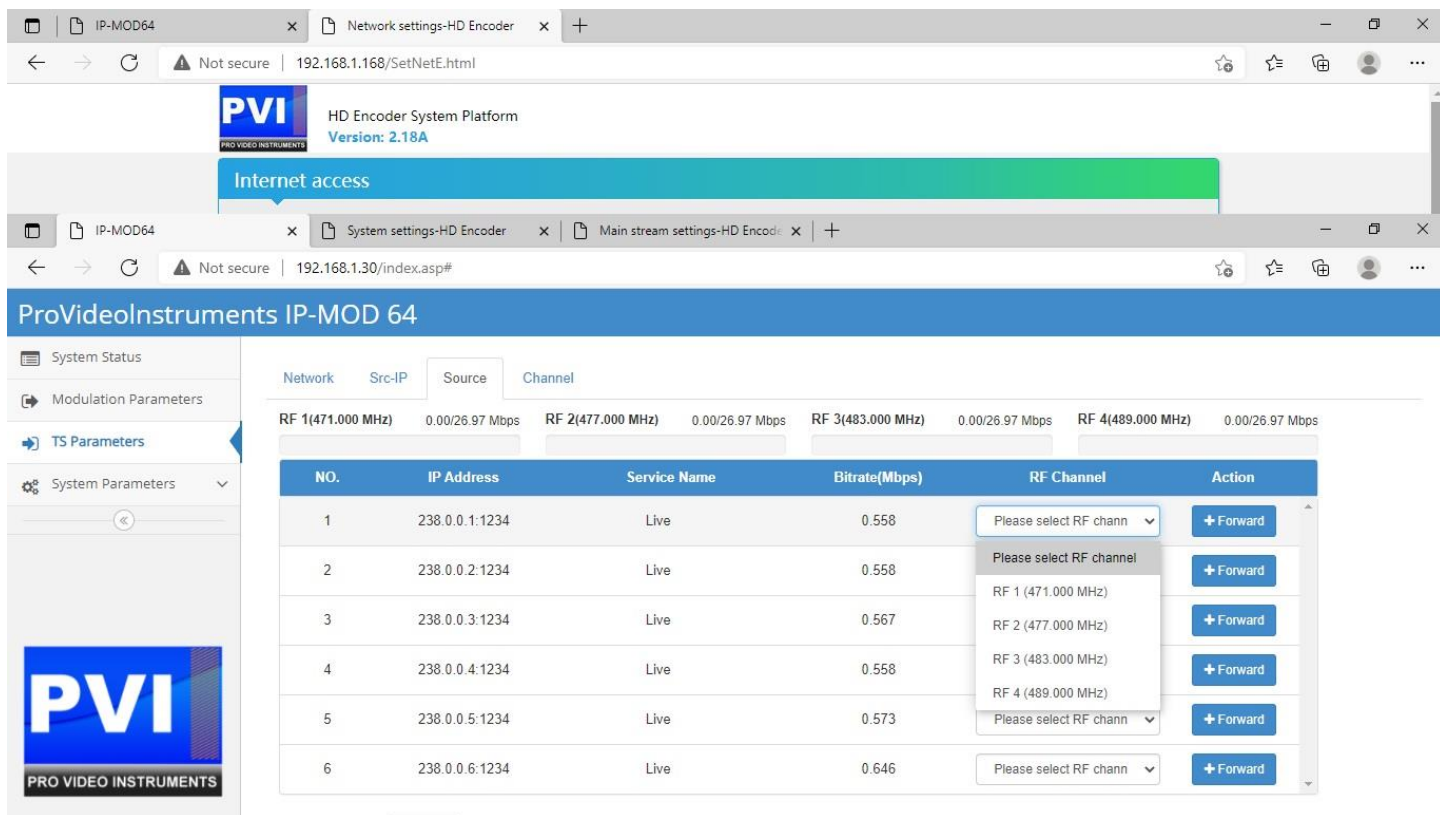
SOURCE TAB : in this tab you assign the streams to the 4 Frequencies channel out up to the maximum bandwidth capacity of each frequency.



The screenshot shows the PVI HD Encoder System Platform interface. The top navigation bar includes tabs for 'Network settings-HD Encoder' and 'Main stream settings-HD Encoder'. The main content area is titled 'ProVideoInstruments IP-MOD 64' and features a sidebar with 'System Status', 'Modulation Parameters', 'TS Parameters', and 'System Parameters'. The 'Source' tab is active, displaying a table of streams and their assignment to RF channels.

NO.	IP Address	Service Name	Bitrate(Mbps)	RF Channel	Action
1	238.0.0.1:1234	Live	0.567	Please select RF channel	+ Forward
2	238.0.0.2:1234	Live	0.569	Please select RF channel	+ Forward
3	238.0.0.3:1234	Live	0.575	Please select RF channel	+ Forward
4	238.0.0.4:1234	Live	0.563	Please select RF channel	+ Forward
5	238.0.0.5:1234	Live	0.578	Please select RF channel	+ Forward
6	238.0.0.6:1234	Live	0.642	Please select RF channel	+ Forward

Use the DROP DOWN SELECTOR on the side of each stream to MAP THAT STREAM TO THE WANTED FREQUENCY MUX OUT. After selected, click FORWARD to add this stream to the multiplex of that frequency.



When a stream is assigned, the FORWARD BUTTON becomes red. You can use the RED button to cancel that stream to go out on a frequency.

IMPORTANT: A GREEN COLOR BAR on top of the list shows per each frequency the actual channel occupation.

The more streams you add to a frequency, the more the GREEN BAR fills up.

When the frequency is FULL, the bar can become RED in case the mapped streaming EXCEEDS the available bandwidth on that frequency. If so, please CANCEL the stream and add it to the next frequency channel.

To maximize the available bandwidth per each frequency, please consider to use the QAM 256 mode as seen in the modulation parameters on page #13 here above.

IP-MOD64

Network settings-HD Encoder

192.168.1.168/SetNetE.html

Not secure



HD Encoder System Platform

Version: 2.18A

Internet access

IP-MOD64

System settings-HD Encoder

Main stream settings-HD Encoder

192.168.1.30/index.asp#

Not secure


ProVideoInstruments IP-MOD 64

System Status

Modulation Parameters

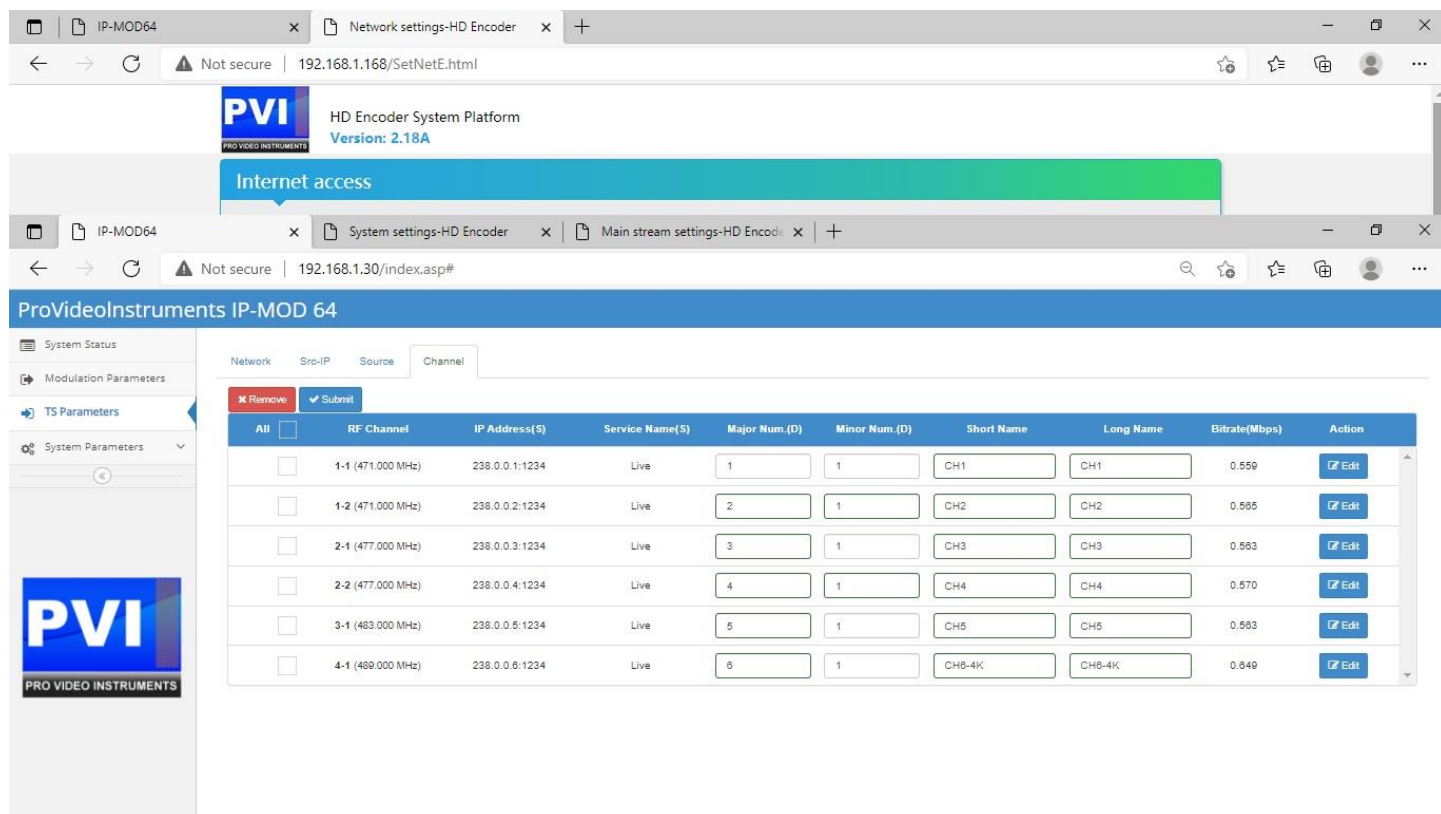
TS Parameters

System Parameters



Network					
Src-IP					
Source					
Channel					
<div> <div>RF 1(471.000 MHz)</div> <div>1.49/26.97 Mbps</div> <div>RF 2(477.000 MHz)</div> <div>1.49/26.97 Mbps</div> <div>RF 3(483.000 MHz)</div> <div>0.00/26.97 Mbps</div> <div>RF 4(489.000 MHz)</div> <div>1.02/26.97 Mbps</div> </div>					
NO.	IP Address	Service Name	Bitrate(Mbps)	RF Channel	Action
1	238.0.0.1:1234	Live	0.558	RF 1 (471.000 MHz)	Cancel
2	238.0.0.2:1234	Live	0.576	RF 1 (471.000 MHz)	Cancel
3	238.0.0.3:1234	Live	0.566	RF 2 (477.000 MHz)	Cancel
4	238.0.0.4:1234	Live	0.569	RF 2 (477.000 MHz)	Cancel
5	238.0.0.5:1234	Live	0.555	RF 3 (483.000 MHz)	Cancel
6	238.0.0.6:1234	Live	0.645	RF 4 (489.000 MHz)	Cancel

CHANNEL TAB : here you set the channel NAME and NUMBER per each of the stream as they will show on TVs



The screenshot shows the PVI HD Encoder System Platform interface. The top browser window displays the 'Internet access' page. The bottom browser window shows the 'System settings-HD Encoder' page, specifically the 'Channel' tab. The interface includes a sidebar with navigation options: System Status, Modulation Parameters, TS Parameters, and System Parameters. The main content area shows a table of channel configurations.

All	RF Channel	IP Address(S)	Service Name(S)	Major Num.(D)	Minor Num.(D)	Short Name	Long Name	Bitrate(Mbps)	Action
<input type="checkbox"/>	1-1 (471.000 MHz)	238.0.0.1:1234	Live	1	1	CH1	CH1	0.559	Edit
<input type="checkbox"/>	1-2 (471.000 MHz)	238.0.0.2:1234	Live	2	1	CH2	CH2	0.565	Edit
<input type="checkbox"/>	2-1 (477.000 MHz)	238.0.0.3:1234	Live	3	1	CH3	CH3	0.563	Edit
<input type="checkbox"/>	2-2 (477.000 MHz)	238.0.0.4:1234	Live	4	1	CH4	CH4	0.570	Edit
<input type="checkbox"/>	3-1 (483.000 MHz)	238.0.0.5:1234	Live	5	1	CH5	CH5	0.563	Edit
<input type="checkbox"/>	4-1 (489.000 MHz)	238.0.0.6:1234	Live	6	1	CH6-4K	CH6-4K	0.649	Edit

MAJOR NUMBER: is the number for this channel on the TV remote control

MINOR NUMBER: is the SUB number for this channel on the TV remote control

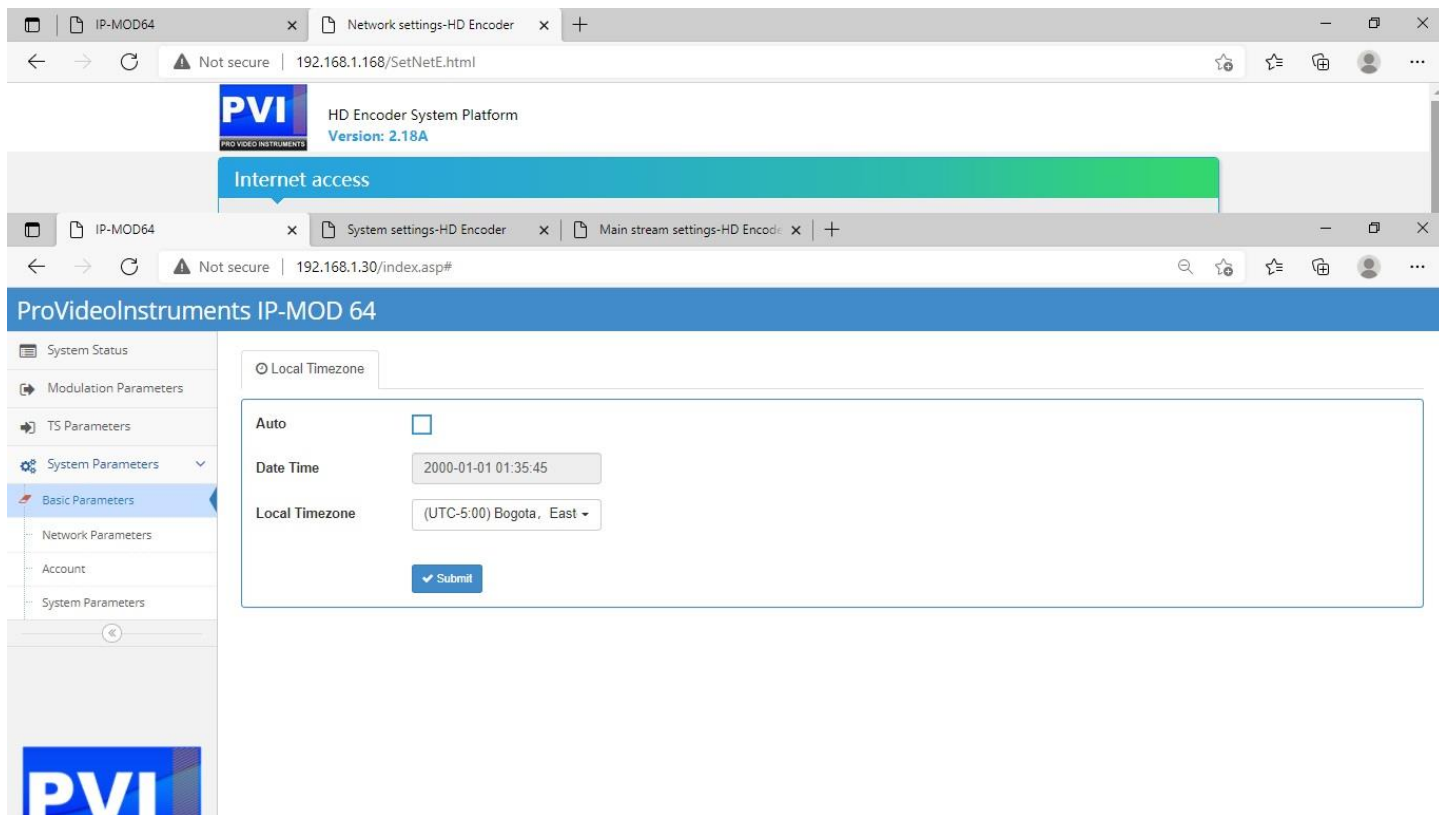
SHORT NAME / LONG NAME : the channel name used by the TVs to display the available channels list

After this is set you can connect a local TEST TV and rescan the channels to find these channels to confirm all is working

IMPORTANT: THE IP-MOD DOES NOT DO ANY TRANSCODING, SO IF A STREAM IS 4K OR HEVC OR H264 THE TVS WILL NEED TO BE ABLE TO DECODE THESE FORMATS OR WILL PLAY ONLY THE AUDIO. MOST OF THE MODERN 4K 8K TVs can play any format so will play H264 and HEVC formats from our encoders.

19) SYSTEM PARAMTERS

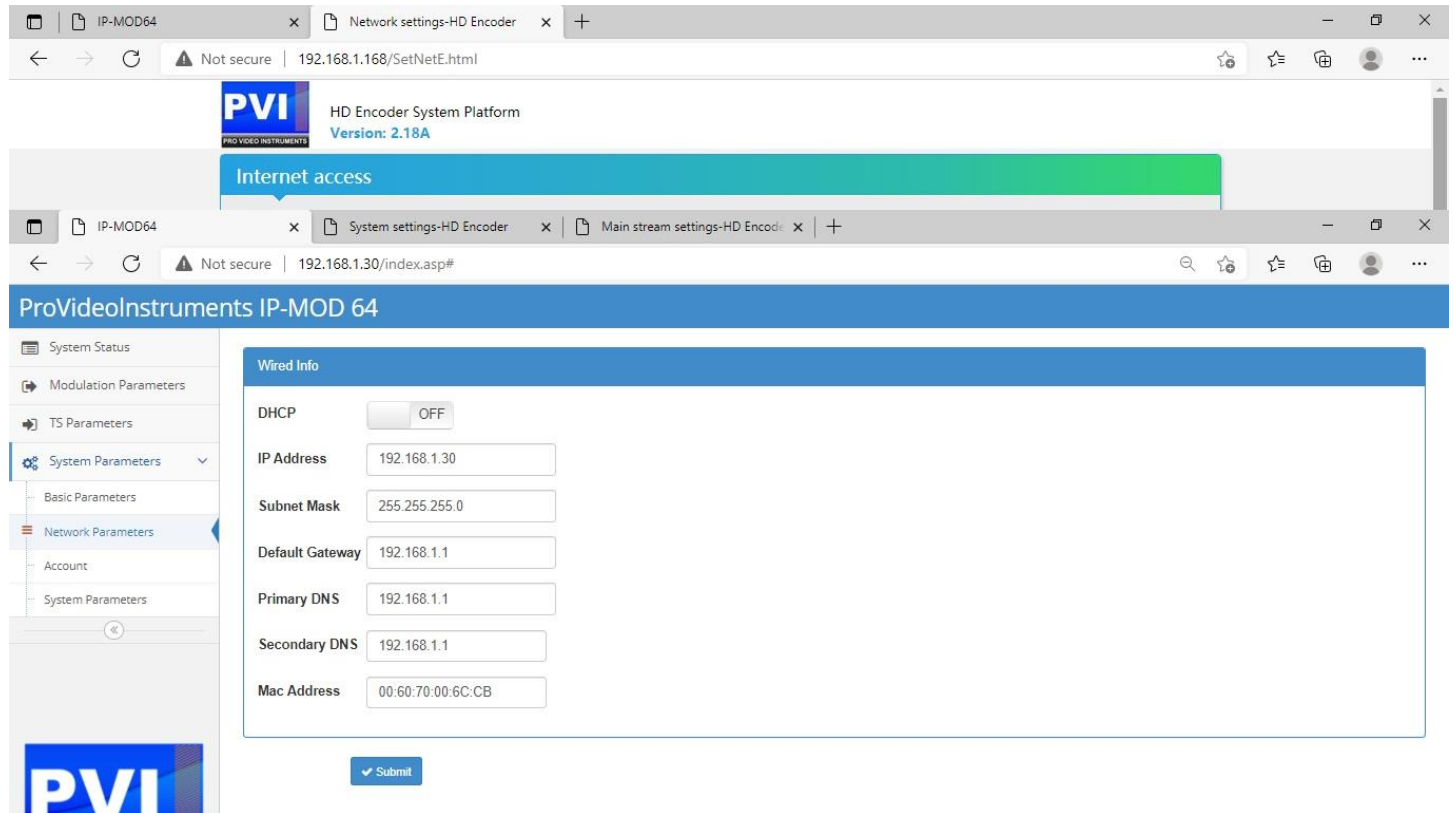
LOCAL TIMEZONE : Set the parameters for the TIME TABLE of the modulator, useful when DVR RECORDERS are used to record customers-side the channels. AUTO will take the automatic time sync from the internet IF available to the IP MOD management port.



The screenshot displays the PVI HD Encoder System Platform web interface. The top navigation bar includes the PVI logo and the text "HD Encoder System Platform Version: 2.18A". Below this, a green banner reads "Internet access". The main content area is titled "ProVideoInstruments IP-MOD 64" and features a sidebar menu with options: System Status, Modulation Parameters, TS Parameters, System Parameters (expanded), Basic Parameters (selected), Network Parameters, Account, and System Parameters. The "Local Timezone" settings are visible, including an "Auto" checkbox, a "Date Time" field showing "2000-01-01 01:35:45", and a "Local Timezone" dropdown menu set to "(UTC-5:00) Bogota, East". A "Submit" button is located at the bottom of the settings area.

NETWORK PARAMTERES: set the IP ADDRESS of the modulator to access the control

DO NOT CHANGE UNLESS IT IS NEEDED. IF YOU CHANGE THE IP AND YOU FORGET THE IP YOU WILL NEED TO USE A NETWORK SCANNER (WIRESHARK) TO FIND THE ACTUAL IP OF THIS MODULE, OR RESET TO FACTORY THE WHOLE SYSTEM



The screenshot displays the PVI HD Encoder System Platform web interface. The top navigation bar includes the PVI logo and the text "HD Encoder System Platform Version: 2.18A". Below this, a blue banner reads "Internet access". The main content area is titled "ProVideoInstruments IP-MOD 64" and features a sidebar menu with options: System Status, Modulation Parameters, TS Parameters, System Parameters (selected), Basic Parameters, Network Parameters, Account, and System Parameters. The "Network Parameters" section is active, showing a "Wired Info" panel with the following fields:

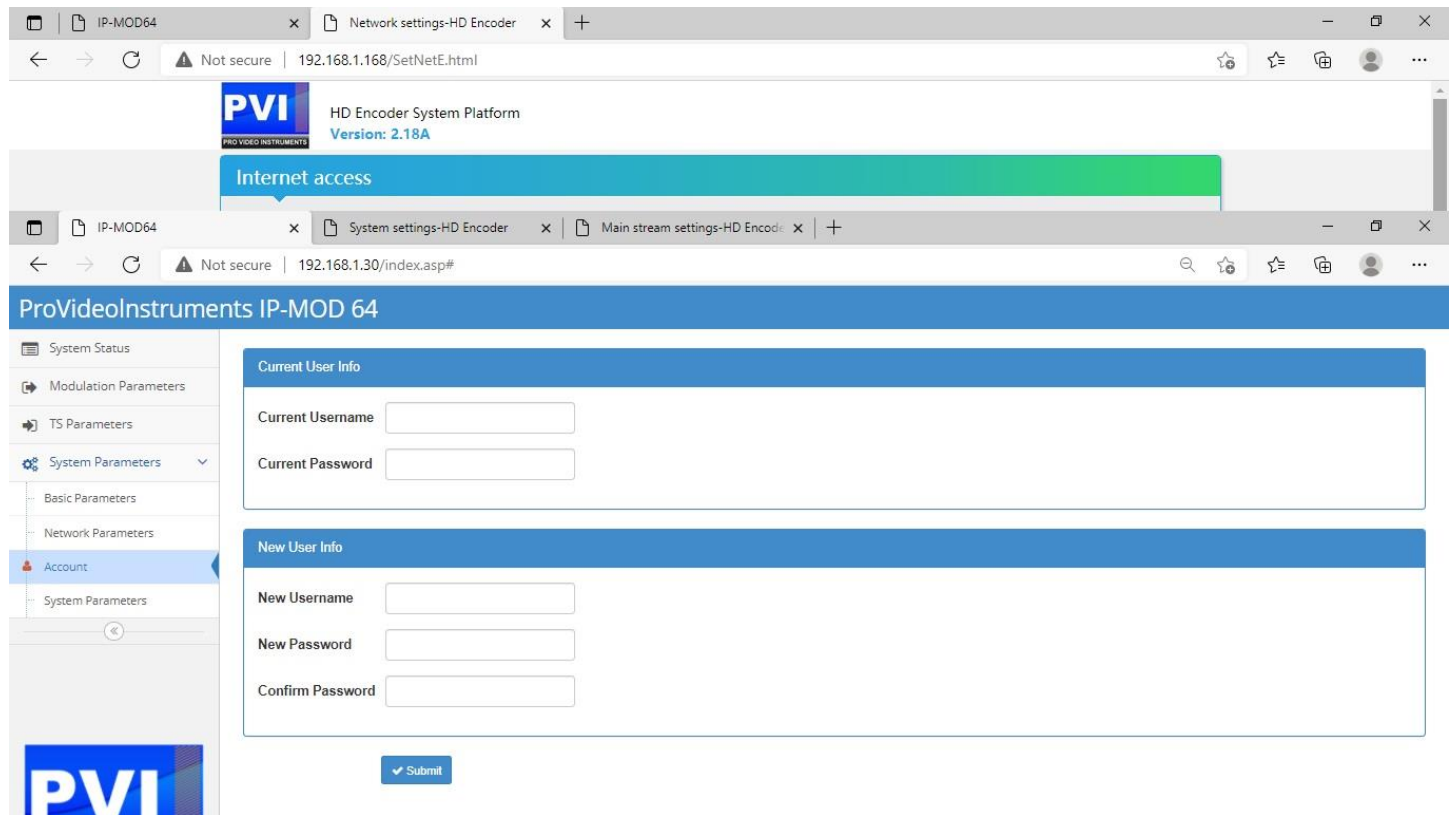
Wired Info	
DHCP	<input type="checkbox"/> OFF
IP Address	<input type="text" value="192.168.1.30"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.1.1"/>
Primary DNS	<input type="text" value="192.168.1.1"/>
Secondary DNS	<input type="text" value="192.168.1.1"/>
Mac Address	<input type="text" value="00:60:70:00:6C:CB"/>

A "Submit" button is located at the bottom of the "Wired Info" panel.

ACCOUNT: this sets the USER NAME AND PASSWORD for the WEB INTERFACE of the IP MOD.

default is user / user

DO NOT CHANGE UNLESS NECESSARY. USE A FIREWALL TO DISTRIBUTE THE PUBLIC STREAMING AND DIVIDE THE MAIN INFINIUM SWITCH FROM THE PUBLIC NETWORK.



The screenshot displays the PVI HD Encoder System Platform web interface. The top navigation bar includes the PVI logo and the text "HD Encoder System Platform Version: 2.18A". Below this, a green banner reads "Internet access". The main content area is titled "ProVideoInstruments IP-MOD 64" and features a sidebar menu on the left with options: System Status, Modulation Parameters, TS Parameters, System Parameters (expanded), Basic Parameters, Network Parameters, Account (selected), and System Parameters. The main content area contains two sections: "Current User Info" and "New User Info". The "Current User Info" section has input fields for "Current Username" and "Current Password". The "New User Info" section has input fields for "New Username", "New Password", and "Confirm Password". A blue "Submit" button is located at the bottom of the "New User Info" section.

IP-MOD64 x Network settings-HD Encoder x +

Not secure | 192.168.1.168/SetNetE.html

PVI HD Encoder System Platform
Version: 2.18A

Internet access

IP-MOD64 x System settings-HD Encoder x Main stream settings-HD Encode x +

Not secure | 192.168.1.30/index.asp#

ProVideoInstruments IP-MOD 64

System Status
Modulation Parameters
TS Parameters
System Parameters
Basic Parameters
Network Parameters
Account
System Parameters

Current User Info

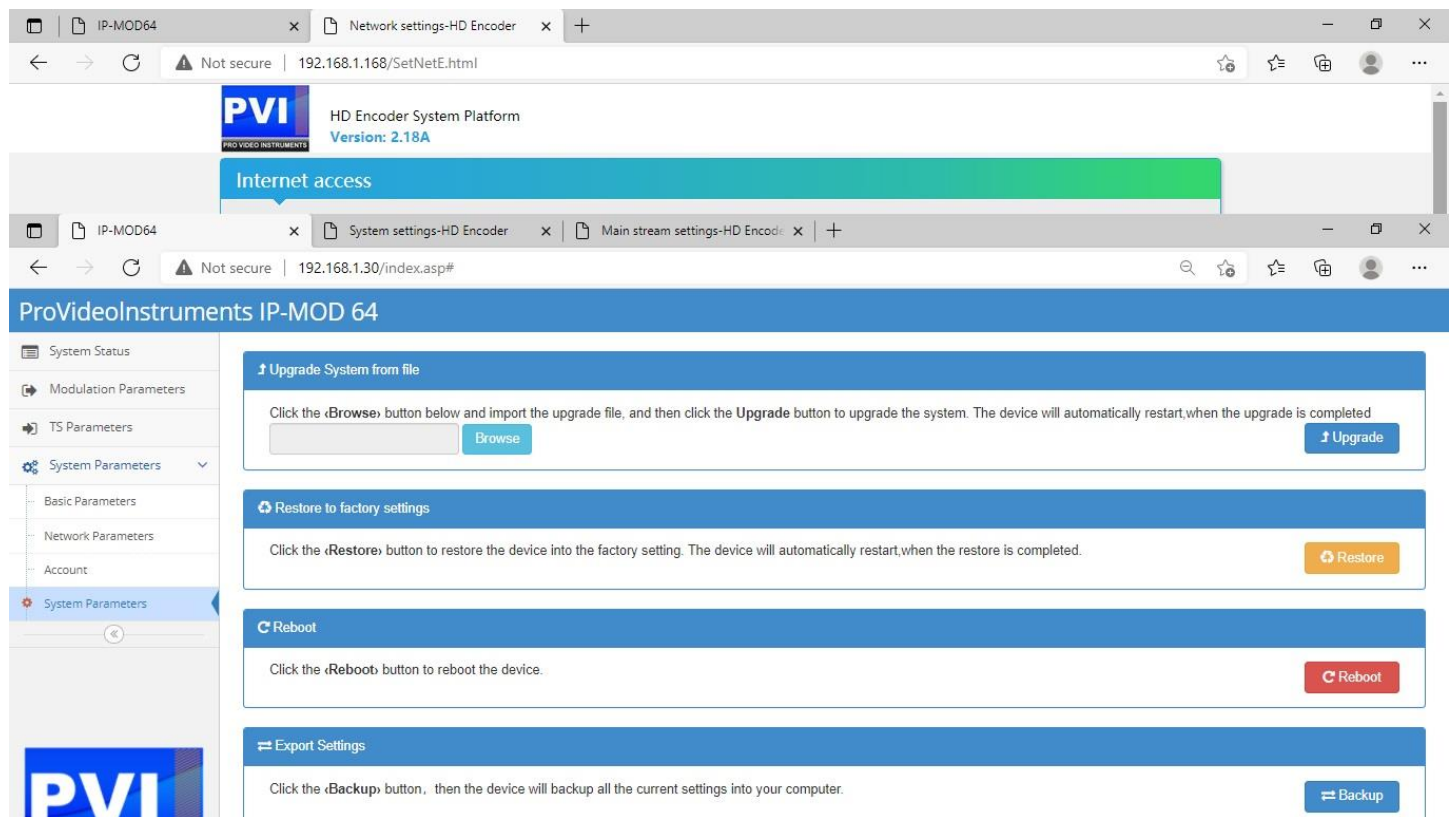
Current Username
Current Password

New User Info

New Username
New Password
Confirm Password

Submit

UPGRADE: this page is to upgrade the module firmware or the restore factory default or to reboot the module



The screenshot displays the PVI HD Encoder System Platform web interface. The top navigation bar includes the PVI logo and the text "HD Encoder System Platform Version: 2.18A". Below this, a blue banner reads "Internet access". The main content area is titled "ProVideoinstruments IP-MOD 64" and features a sidebar on the left with a menu containing "System Status", "Modulation Parameters", "TS Parameters", "System Parameters" (selected), "Basic Parameters", "Network Parameters", "Account", and "System Parameters" (repeated). The main content area contains four sections: "Upgrade System from file" with a "Browse" button and an "Upgrade" button; "Restore to factory settings" with a "Restore" button; "Reboot" with a "Reboot" button; and "Export Settings" with a "Backup" button. Each section includes instructions on how to use the respective function.