J-TECH DIGITAL®

USER MANUAL

4-INPUT H.264 H.265 ENCODER

JTD-671 | JTECH-ENCH54

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HIGH-DEFINITION MULTIMEDIA INTERFACE

TABLE OF CONTENTS

Dear Customer

Thank you for purchasing the JTECH-ENCH54. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

FEATURES

- Supports H.264 & H.265 Encoding
- Supports UDP, HTTP, RTSP, RTMP, ONVIF Protocols
- CBR/VBR Rate: 32 Kbps – 32 Mbps
- 1000M Network Interface uses Full Duplex Mode
- Supports up to 4K 30Hz HD Video Input
- Supports Image Parameter Settings
- Supports Remote Management in WAN (webGUI)
- Supports Customized Resolution Settings

PACKAGE CONTENTS

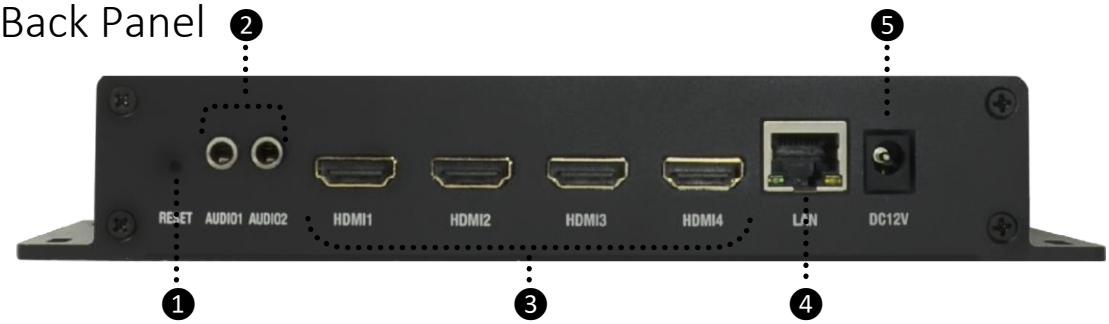
1) J-Tech Digital JTECH-ENCH54 H.264/H.265 Encoder
2) Power Adapter 12VDC 1A
3) User Manual

HARDWARE DESCRIPTION

Front Panel

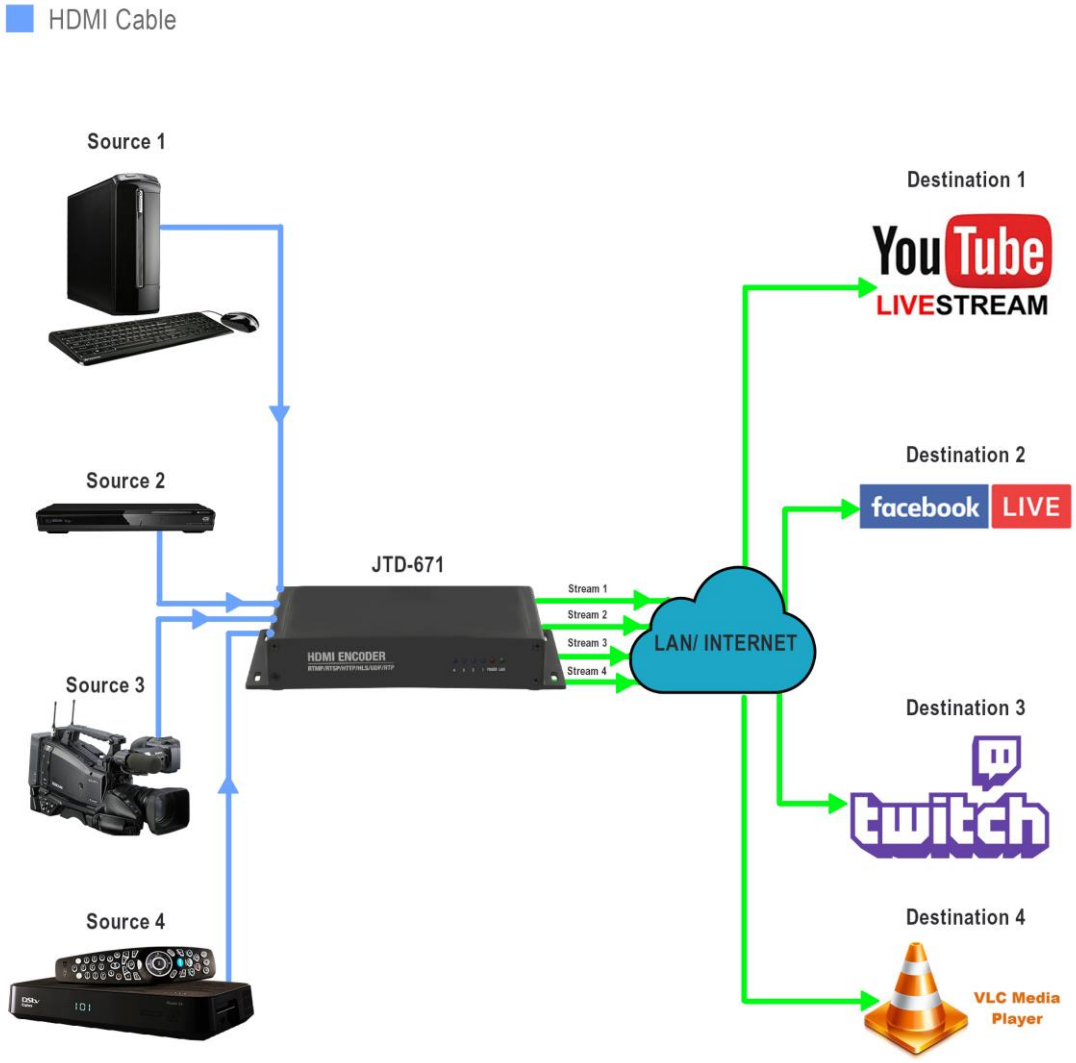
1) HDMI Inputs 1-4 Status LEDs
2) Power Status LED
3) LAN Status LED

Back Panel



1) Reset Button *(Factory Default Settings – Press & hold the reset button for 10 seconds until the Power and LAN Status LEDs turn off)*
2) Analog Audio Input Ports 1 & 2
3) HDMI Input Ports 1 – 4
4) LAN Port *(Default IP: 192.168.1.168)*
5) DC12V Power Adapter Port

TYPICAL APPLICATION



CONNECTION CONFIGURATION

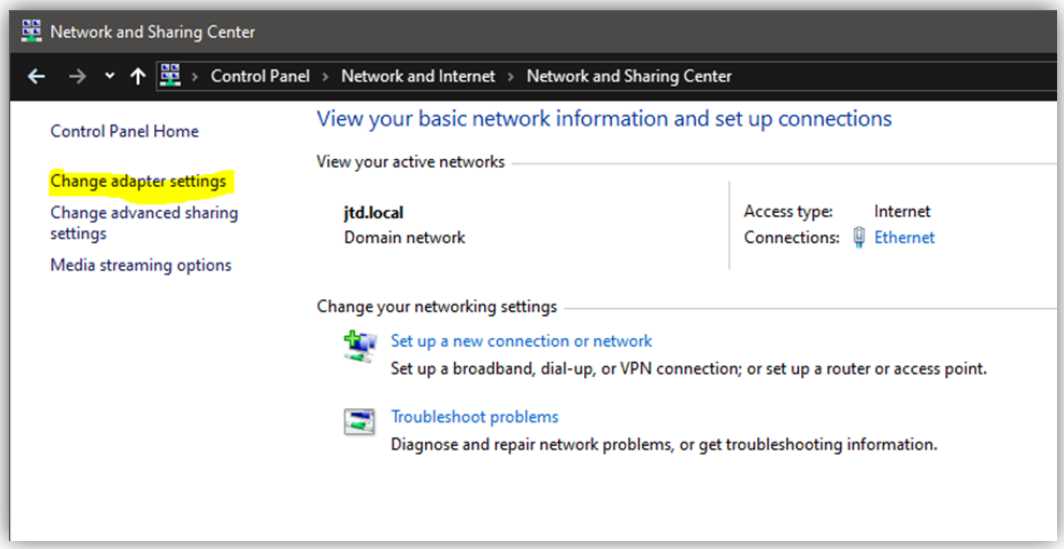
Communicating with the JTECH-ENCH54 H.264|H.265 Encoder

You will need to utilize your computer's ethernet port in order to communicate with the encoder.

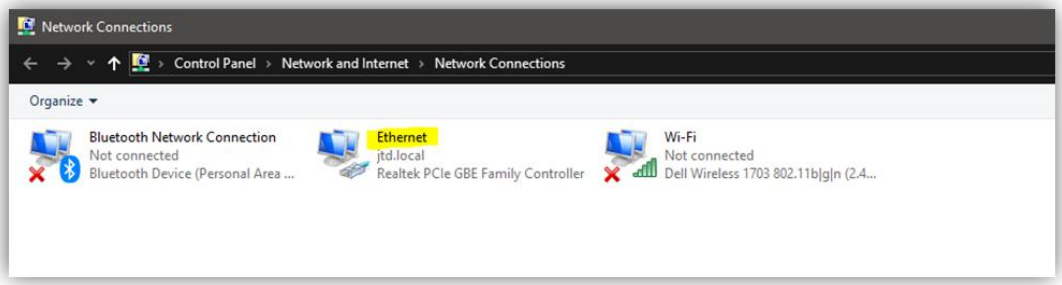
CHANGING YOUR PC'S IP ADDRESS

You will start by changing the IP address of your computer to match the default IP address scheme of the encoder (192.168.1.168) so that the two can communicate. This means we will need to change your PC's ethernet IP address to 192.168.1.XXX.

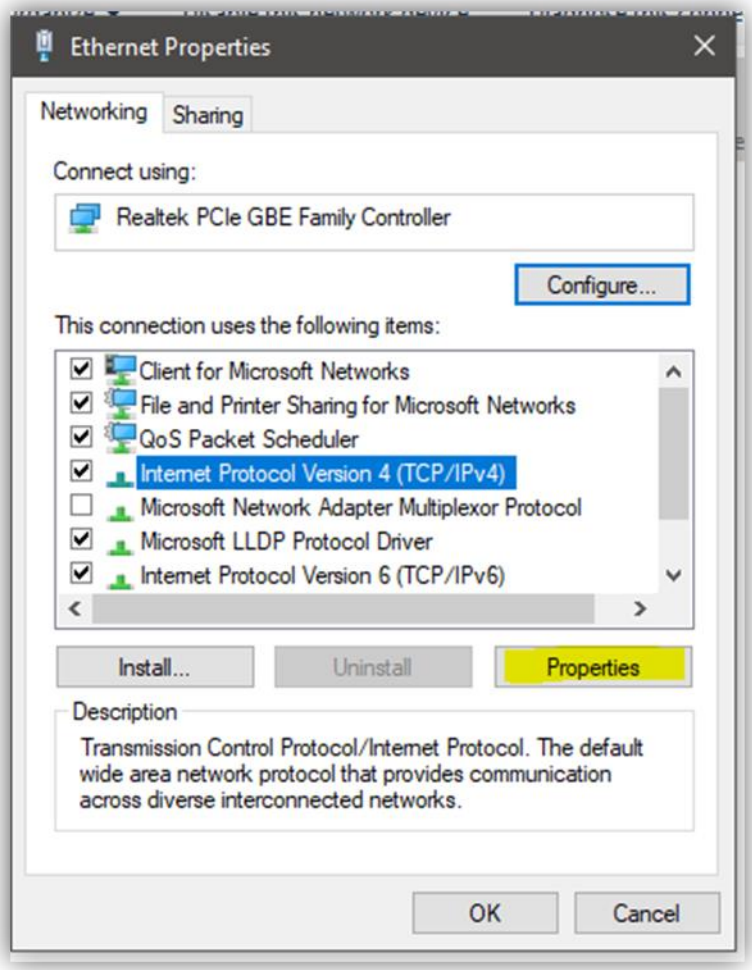
To do so navigate to -
Control Panel > Network and Internet > Network and Sharing Center
Then, on the left-hand side select **'Change Adapter Settings'**



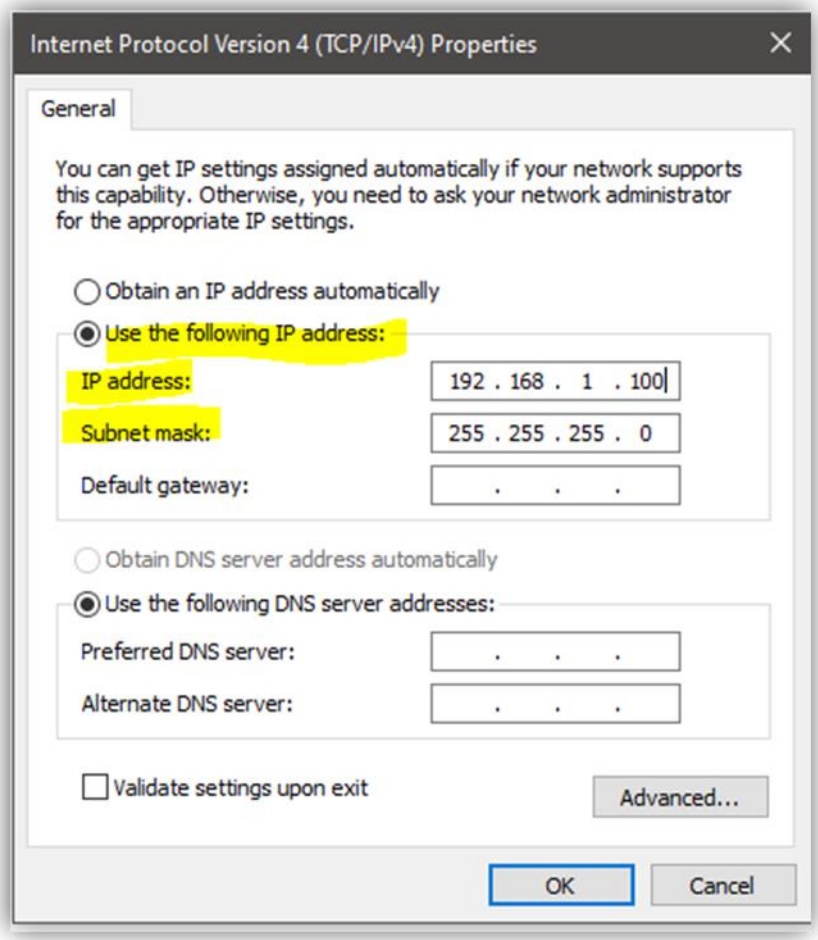
This will bring up a new window.



Right-Click on **'Ethernet'** and select **'Properties'**. This will bring up a new window.



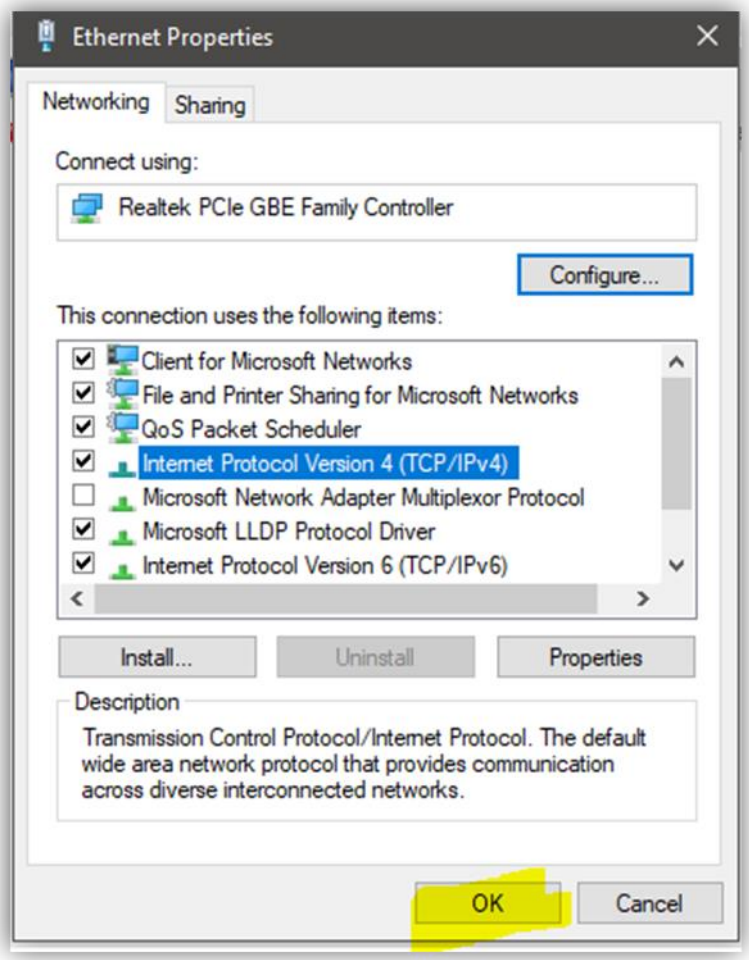
Highlight **'Internet Protocol Version 4 (TCP/IPv4)'** and select the **'Properties'** button.



This will bring up a new window.

By default, your PC's network adapter is set to **"Obtain an IP address automatically"** or allow your router to use DHCP to assign your PC an IP address. In this instance, we want to set a static IP address for our PC that matches the default IP scheme of the encoder (192.168.1.168). In the above instance, I set a static IP address of **'192.168.1.100'** to my PC and a subnet mask of **'255.255.255.0'** (Class C).

After you have assigned your IP address and subnet mask, you may hit the '**OK**' button to apply the changes.



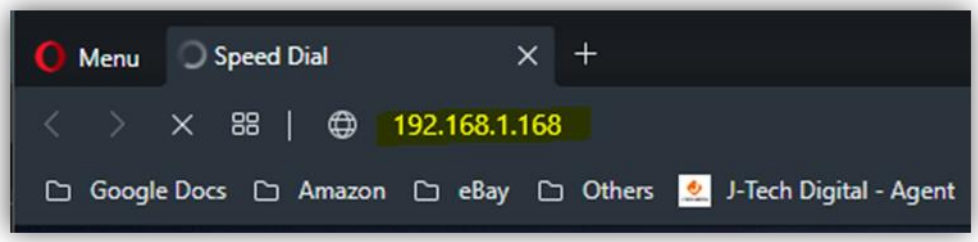
Then hit the **'OK'** button on the Ethernet Properties Window.

Now that your PC's IP address matches the scheme of the encoder's default IP address, the two devices should be able to communicate with each other.

Next, connect an ethernet cable directly from your PC's ethernet port to the encoder's ethernet port.

Afterwards, open up a web browser *(Google Chrome, Mozilla Firefox, Microsoft Edge).* Don't be alarmed if your home page does not load.

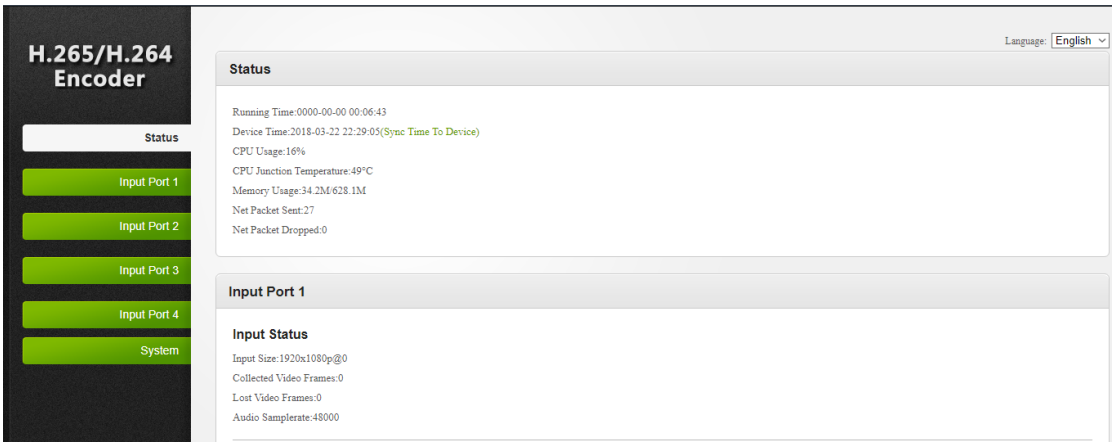
In the address bar, type in the default IP address of the encoder **(192.168.1.168)** and hit **'enter'** -



When you are prompted to enter login information, please enter the following credentials -

Username: admin
Password: admin

From here, you should now have access to the encoder's WEB GUI.

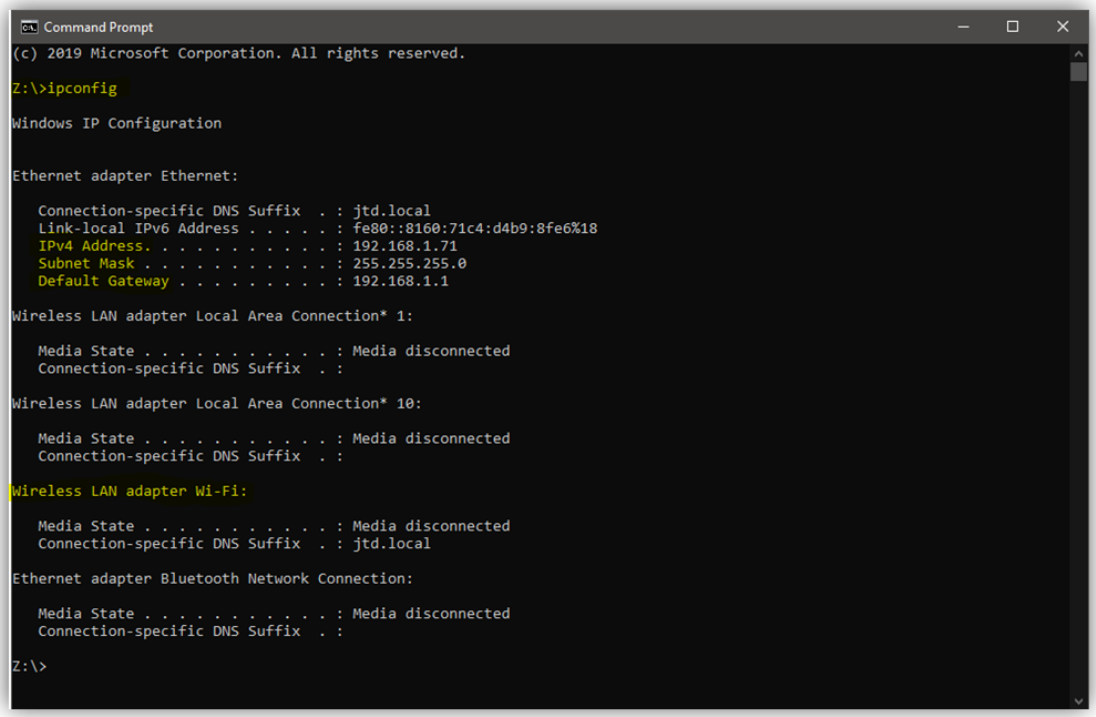


Assigning the H.264 | H.265 Encoder a Static IP Address

DETERMINING THE IP SCHEME OF YOUR NETWORK – WINDOWS

In order to setup your encoder for the first time, you will need to find out the IP scheme of your network and locate an unused IP address to be assigned to the encoder.
Note – You must be connected to your network via ethernet or WiFi to determine the IP scheme of your network.

If you are on a Windows PC and are connected to your network, begin by opening the **'Command Prompt'** application.
Once the application is open, type the command **'ipconfig'** and press **'enter'**.
Information about your computer and network will populate below.



Above you will see that the **'ipconfig'** command provides you with different pieces of information, including:

- Your PC's IPv4 IP address
- The Default Gateway of your network
- The Subnet Mask of your network

Please be sure to write down this information for future use as this is all information you will enter into your encoder during setup. You can determine the scheme of your network by your **'IPv4 Address'** and your **'Default Gateway'**.

Above, you can see that the IP address of the computer is *192.168.1.71* and the Default Gateway is *192.168.1.1*. This lets the user know that the scheme of your network is **'192.168.1.XXX'**.

LOCATING AN UNUSED IP ADDRESS ON YOUR NETWORK

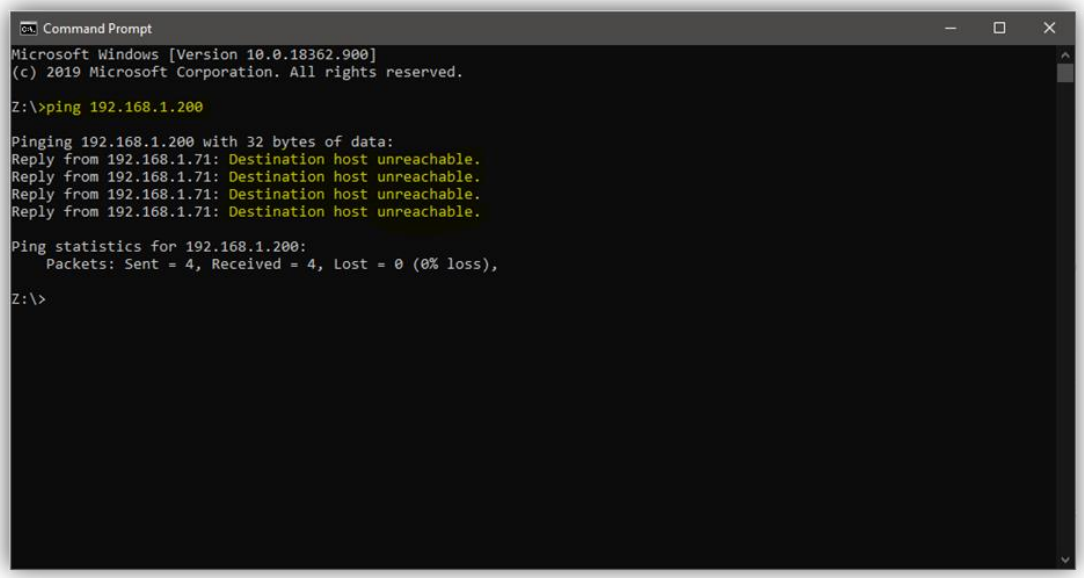
Now that you know the IP Scheme of your network, you will need to locate a static IP address that is not being used by a device on your local area network (LAN).

Most networks have a router that uses a function called DHCP (dynamic host configuration protocol). This function allows the router to assign an IP address to the devices on the LAN. We **do not** want to utilize DHCP with your encoder because the IP address assigned by the router has a "lease" time and may be changed after the lease expires. If the IP address changes and you do not know the IP address of the encoder, then you cannot make any necessary changes to the encoder.

If you are on a Windows PC, navigate back to or open the **'Command Prompt'** application. Once the application is open, type the command **'ping XXX.XXX.XXX.200'** and press **'enter'**.

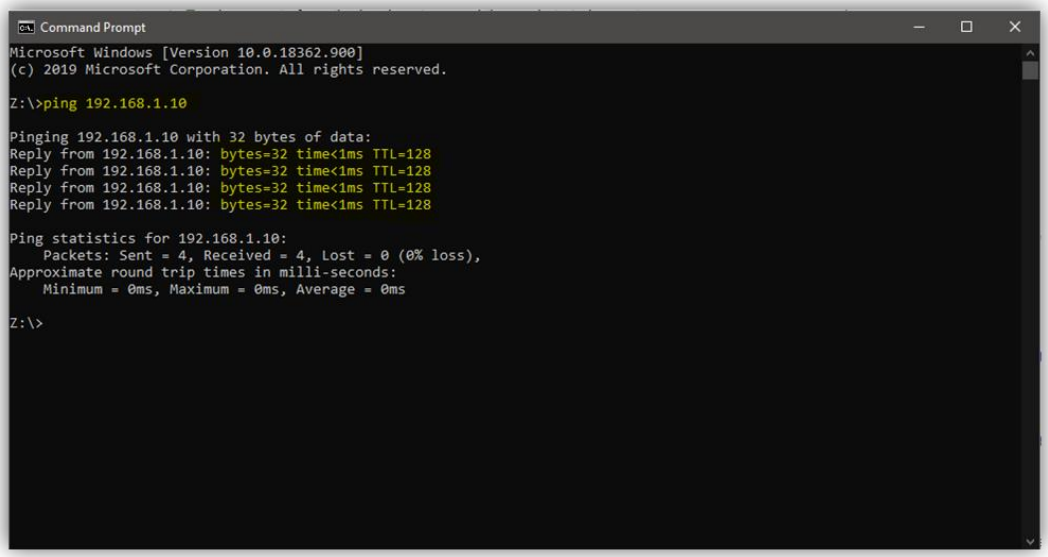
*We will start checking for unused IP addresses with **XXX.XXX.XXX.200**. **XXX.XXX.XXX** will be replaced by your network's IP scheme. For the example below, we use the command **'ping 192.168.1.200'** because our network's IP scheme is 192.168.1.XXX.*

After you press '**enter**', information will populate below the command -



In the above example, you can see that after trying to ping the IP address 192.168.1.200, the results show that the **"Destination Host is Unreachable"**. This means that the remote gateway was unable to direct our ping request to the device/host itself and sends an echo message back to say that it cannot be found. Most likely there is not a device on your LAN that is using the 192.168.1.200 IP address.

If your results show the following, there is a device/host on your network with that IP address already. In the example below, the results from command **'ping 192.168.1.10'** show that there is a device on the LAN at that IP address responding to our ping request.



If there is a device using the IP address 192.168.1.200 on your network, try to ping another IP address like 192.168.1.201 until your results show “Destination Host Unreachable”.

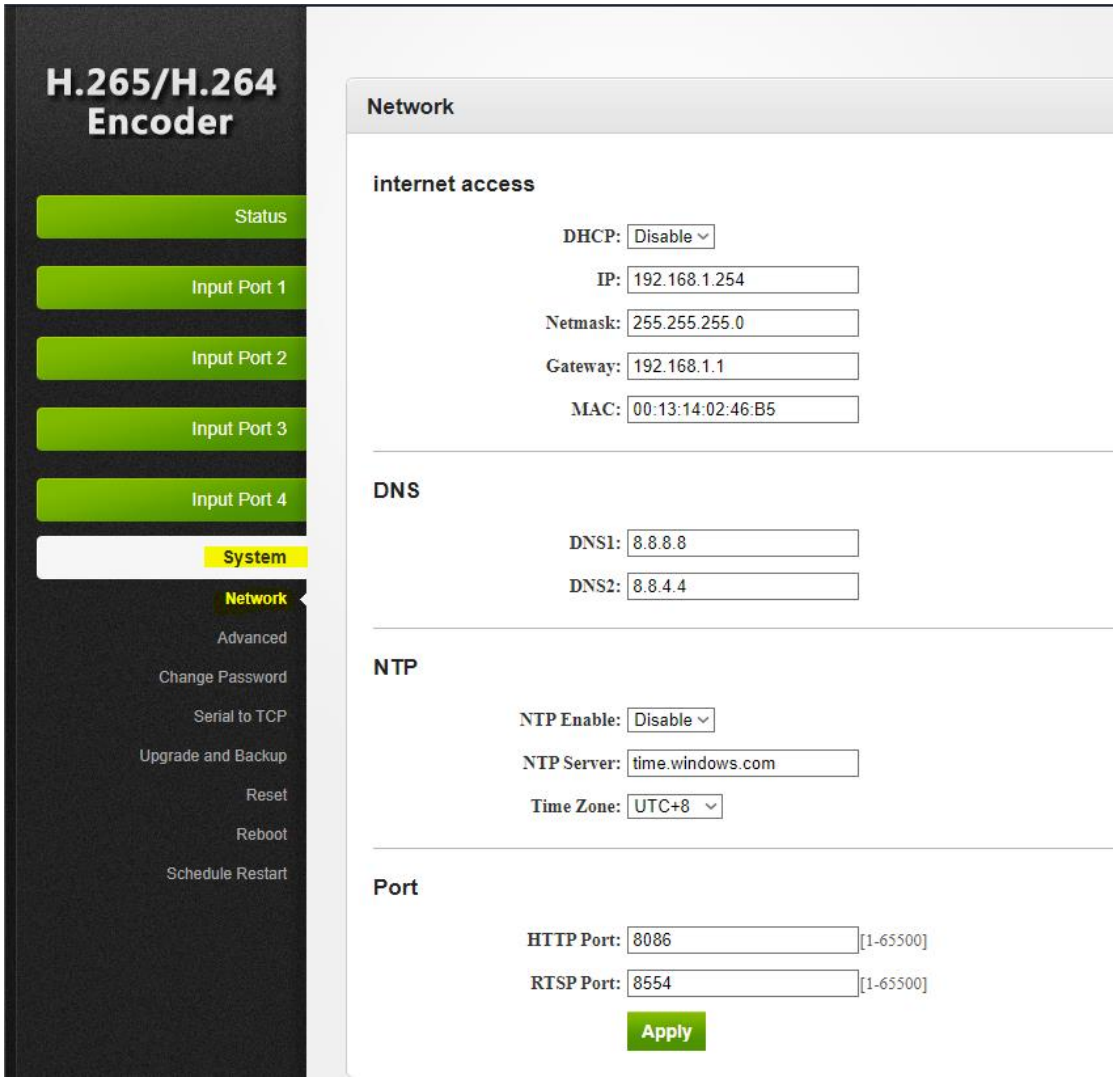
Once you have found an unused IP address on your network, write this IP address down as it will become the static IP address of your encoder. In the examples above, we know that the IP address **192.168.1.200** is not being used by a device on our network and will become our encoder’s static IP address.

ASSIGNING THE JTECH-ENCH54 A STATIC IP ADDRESS IN THE WEB GUI

In order for the JTECH-ENCH54 to operate correctly, the device needs to live on your existing network and have access to the internet. The best way to ensure that these two things happen is to assign your encoder a new static IP address.

Before you assign the encoder a static IP address, you will need to know the scheme of your current network and ensure that the IP address it not being used. Please review sections “Determining the IP Scheme of your Network” and “Locating an Unused IP Address on your Network”.

Once you know the IP address you want to assign the encoder, navigate to the **'System' Tab > 'Network' menu.**



In this menu, you can customize your network settings for the encoder.

DHCP - Disable/Enable - It is recommended you leave DHCP disabled and assign a static IP address to your encoder so that you know where to access the WEB GUI.

IP - This is the field where you will enter your new static IP address for the encoder that matches your current network's scheme

Netmask - Set the netmask based on your connected network. In the above example, our network is Class C so our subnet mask is 255.255.255.0

Gateway - Enter the gateway address of your network's router

MAC - This is the MAC address of your encoder and does not need to be edited.

After you have customized your settings, hit the 'Apply' button at the bottom of the screen. A notification window will pop up saying that the changes were saved and that a reboot is required.

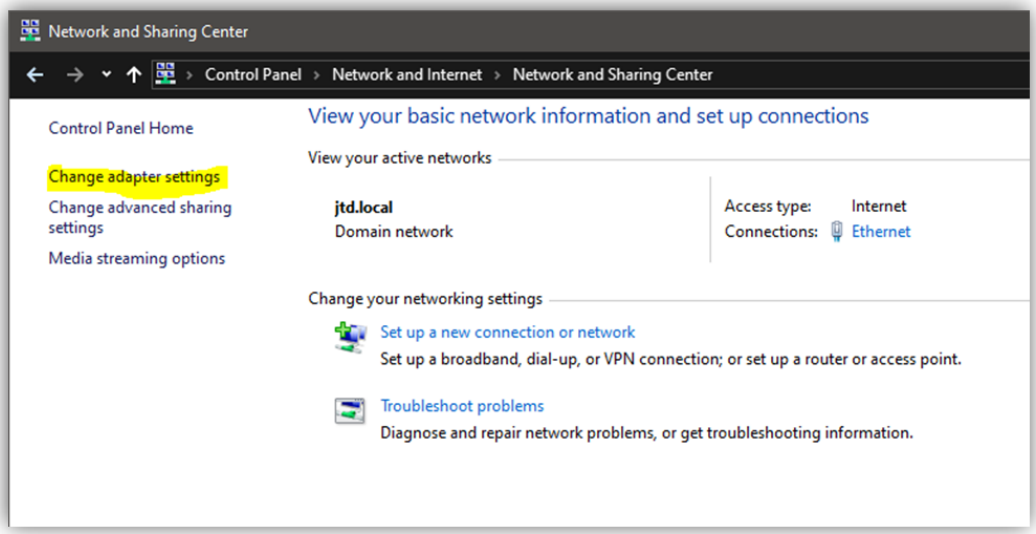
To reboot your encoder, navigate to **System > Reboot**

After your device has rebooted and your changes have saved, directly connect your JTECH-ENCH54 encoder to your network switch or router via ethernet cable.

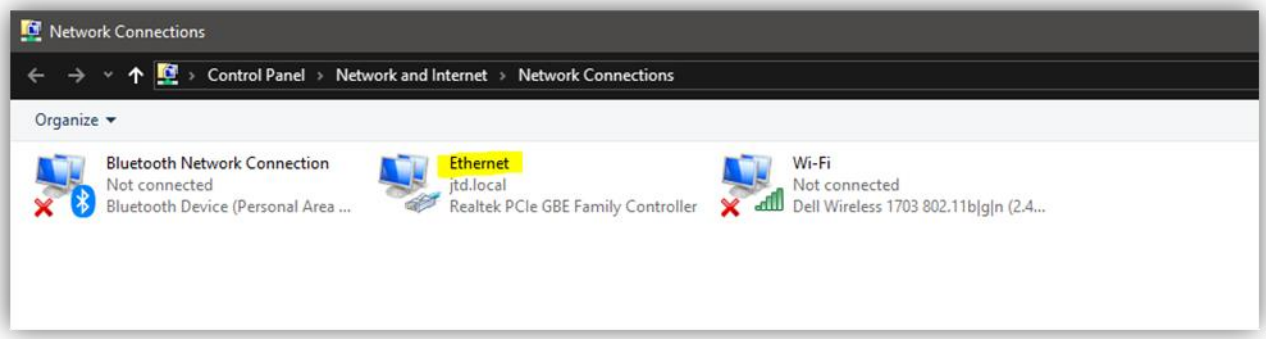
Reconnect your computer to your network switch or router via ethernet cable or ensure you still have connectivity to the network via WiFi.

If connecting to your network via ethernet, you'll want to change your PC's IP address settings back from the static IP address you set (192.168.1.100) to DHCP.

Navigate to **Control Panel > Network and Internet > Network and Sharing Center**
Then, on the left-hand side select **'Change Adapter Settings'**

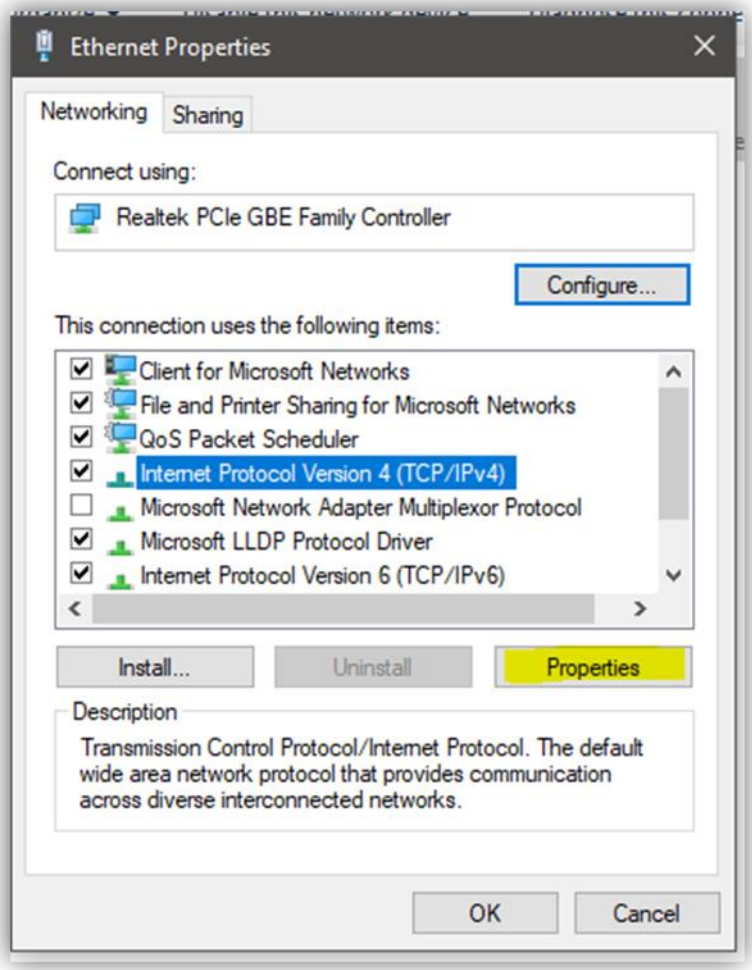


This will bring up a new window.



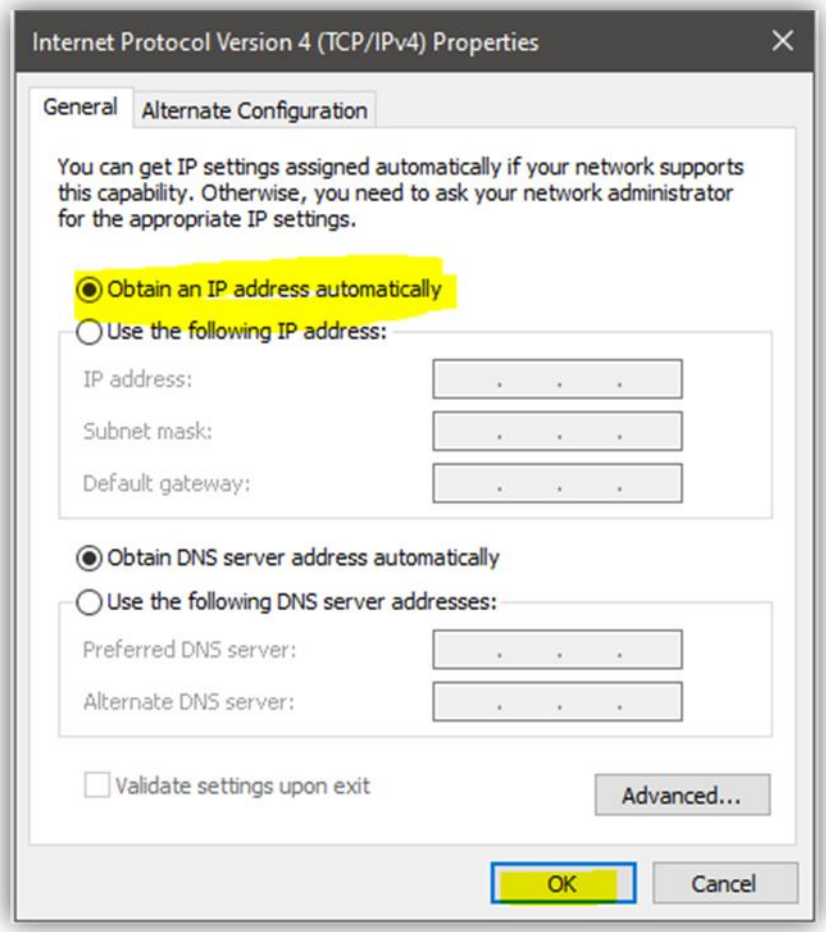
Right-Click on **'Ethernet'** and select **'Properties'**.

This will bring up a new window.



Highlight **'Internet Protocol Version 4 (TCP/IPv4)'** and select the **'Properties'** button.

This will bring up a new window.



Select '**Obtain an IP address automatically**' (or use DHCP) and hit the '**OK**' button to confirm the changes. This will allow your router to assign you an IP address that works with your network's scheme and provide you access to the internet.

After these changes have been made, you can confirm two things:

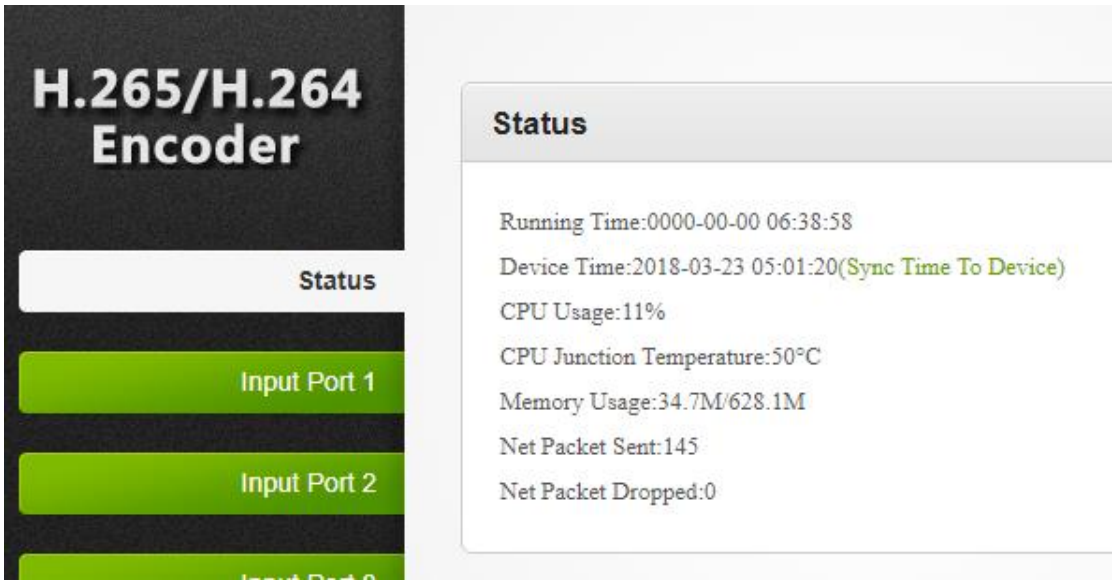
1) Open a web browser to confirm you have regained internet access

2) Open a web browser, type in the new static IP address of your encoder in the web address bar and ensure you can now access the encoder's WEB GUI via your own network (vs direct connection). *(User name – admin, Password – admin)*

NAVIGATING THE JTECH-ENCH54 WEB GUI

Status Menu

DEVICE STATUS INFORMATION



Running Time – Amount of time elapsed since encoder has powered on

Device Time – Time that the encoder references

CPU Usage – Current percentage of CPU processing power being used

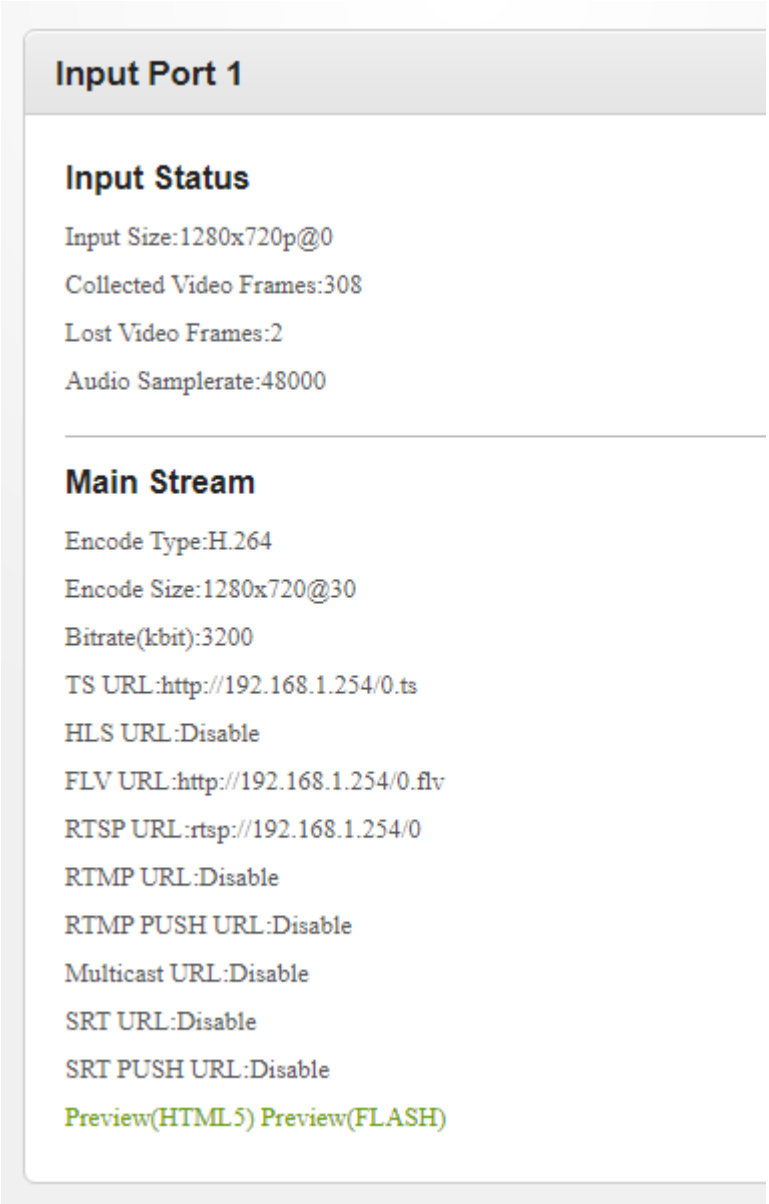
CPU Junction Temperature – Current temperature of CPU

Memory Usage – Current memory usage / Available memory total

Net Packet Sent – Amount of packets sent from encoder

Net Packet Dropped – Amount of packets dropped by encoder

INPUT PORT 1 – INPUT STATUS | MAIN STREAM URLS



Input Status

Input Size – HDMI Input Resolution & Refresh Rate

Collected Video Frames – Captured Video Frames

Lost Video Frames – Lost Video Frames

Audio Sample Rate – HDMI Input Audio Sample Rate

Main Stream

Encode Type: H.264 | H.265 | MJPG

Encode Size: Stream Resolution & Refresh Rate

Bitrate (kbit): Bitrate Setting

TS URL: Transport Stream URL

HLS URL: HTTP Live Stream URL

FLV URL: HTTP-Flash Video Stream URL

RTSP URL: Real Time Streaming Protocol URL

RTMP URL: Real Time Messaging Protocol URL

RTMP PUSH URL: Real Time Messaging Protocol Push URL

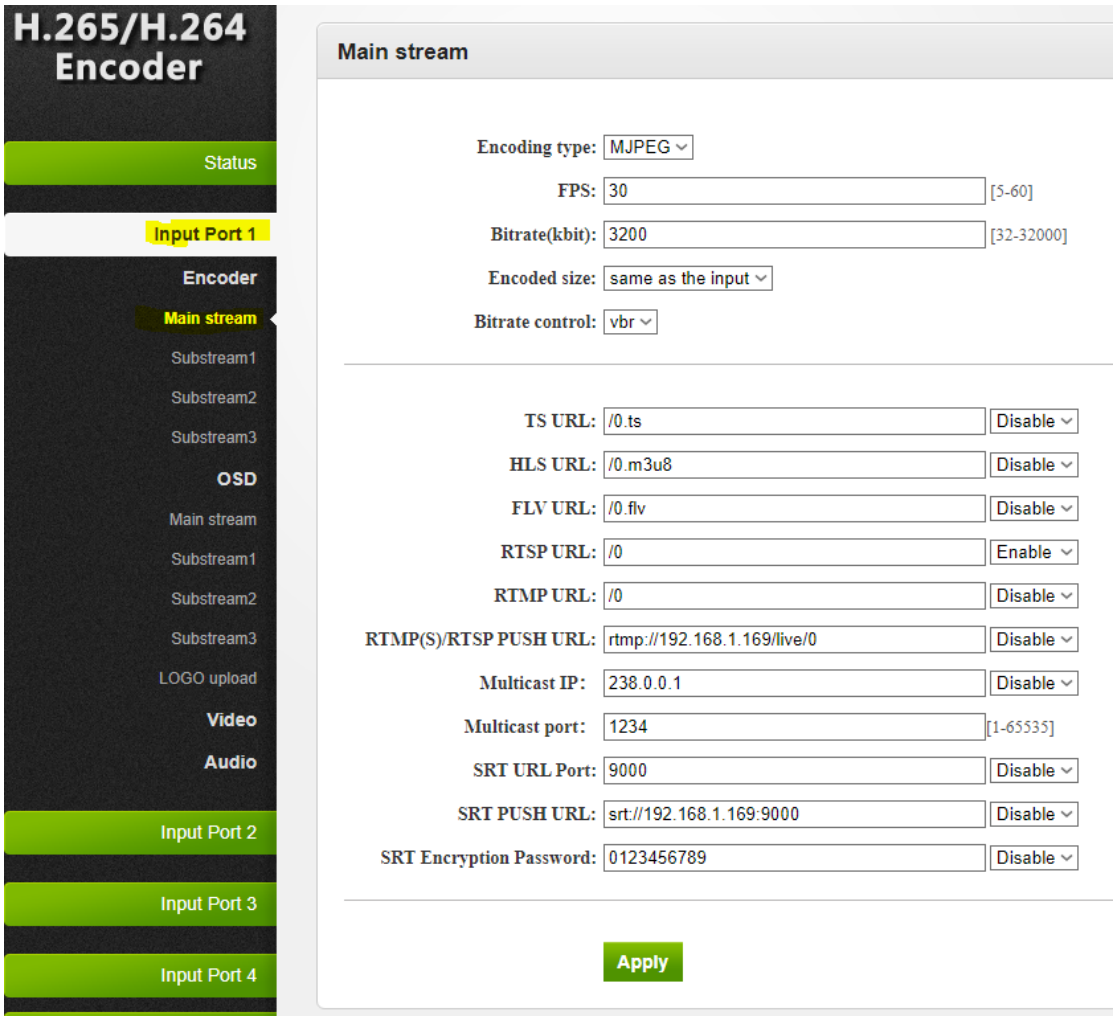
Multicast URL: Multicast Stream URL

SRT URL: Secure Reliable Transport URL

SRT PUSH URL: Secure Reliable Transport Push URL

Input Port 1 – 4 Menu

ENCODER (MAIN STREAM – SUBSTREAM 3)



Your encoder setting options are the same for 'Main Stream' & all substreams. However, each stream must be configured as desired.

Encode Type: H.264 | H.265 | MJPG – Select your compression type

FPS: Frames Per Second – Set your stream FPS *(5-60 fps)*

Bitrate (kbit): Stream's Bitrate Setting *(32 – 32000 kbps)*

Bitrate Control: VBR *(Variable Bit Rate)* | CBR *(Constant Bit Rate)*

TS URL: Enable/Disable Transport Stream URL

HLS URL: Enable/Disable HTTP Live Stream URL

FLV URL: Enable/Disable HTTP-Flash Video Stream URL

RTSP URL: Enable/Disable Real Time Streaming Protocol URL

RTMP URL: Enable/Disable Real Time Messaging Protocol URL

RTMP(S) / RTSP PUSH URL: Enable/Disable Real Time Messaging/Streaming Protocol Push URL

Multicast IP: Enable/Disable & set the Multicast IP to be used

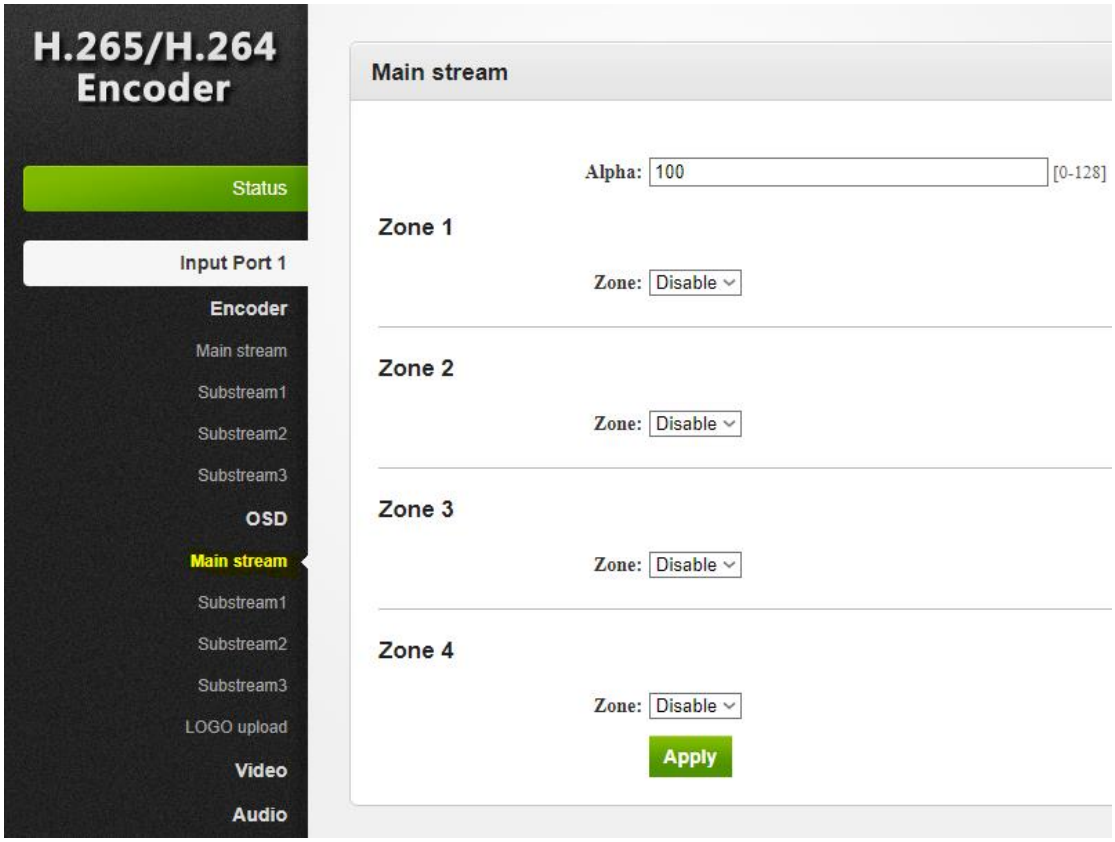
Multicast Port: Assign the multicast port to be used *(1 – 65535)*

SRT URL: Enable/Disable Secure Reliable Transport URL

SRT PUSH URL: Enable/Disable Secure Reliable Transport Push URL

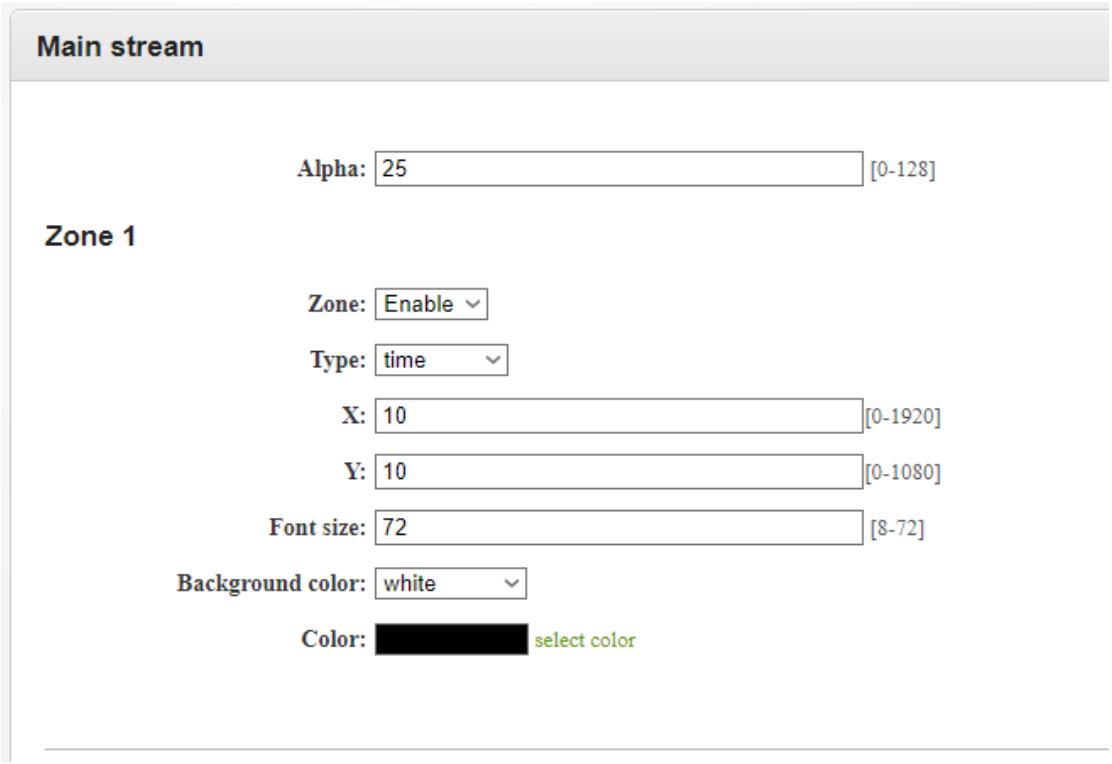
SRT Encryption Password: Set password necessary to view SRT stream

OSD (MAIN STREAM – SUBSTREAM 3)



Alpha – Transparency of Zone 1 OSD *(0-128, 0 = 100% transparency)*

Zone 1 – Zone 4



Zone – Enable/Disable OSD 1, 2, 3 or 4

Type -

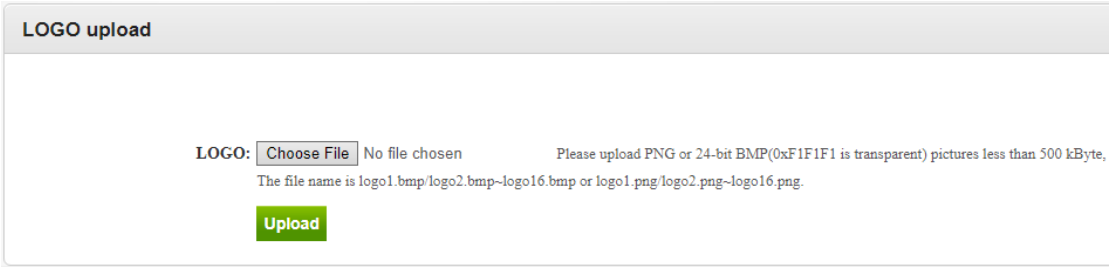
- **txt** – Customizable OSD Text
    - **X:** Location on x-axis *(0 - 1920)*
    - **Y:** Location on y-axis *(0 - 1080)*
    - **Text**: Customized text you'd like shown on the OSD
    - **Font Size:** Size of font on OSD *(8 - 72)*
    - **Background Color:** Transparent | White | Black
    - **Color:** Color of text
- **bmp** – Select a "logo.bmp" Image for OSD
    - **X**: Location of image on x-axis *(0 - 1920)*
    - **Y:** Location of image on y-axis *(0 – 1080)*

- **Logo**: Choose between uploaded images “logo1.bmp” – “logo16.bmp”

- **scroll txt** – Customizable OSD Text that Scrolls
  - **Position:** Location of scrolling text on y-axis *(0 – 1080)*
  - **Speed**: Rate at which text scrolls *(0 – 30)*
  - **Text**: Customized text you’d like shown on the OSD
  - **Font Size:** Size of font on OSD *(8 - 72)*
  - **Background Color:** Transparent | White | Black
  - **Color:** Color of text

- **time** – OSD Shows Date & Time
  - **X:** Location of image on x-axis *(0 - 1920)*
  - **Y:** Location of image on y-axis *(0 – 1080)*
  - **Font Size**: Size of font on OSD *(8 - 72)*
  - **Background Color**: Transparent | White | Black
  - **Color:** Color of text

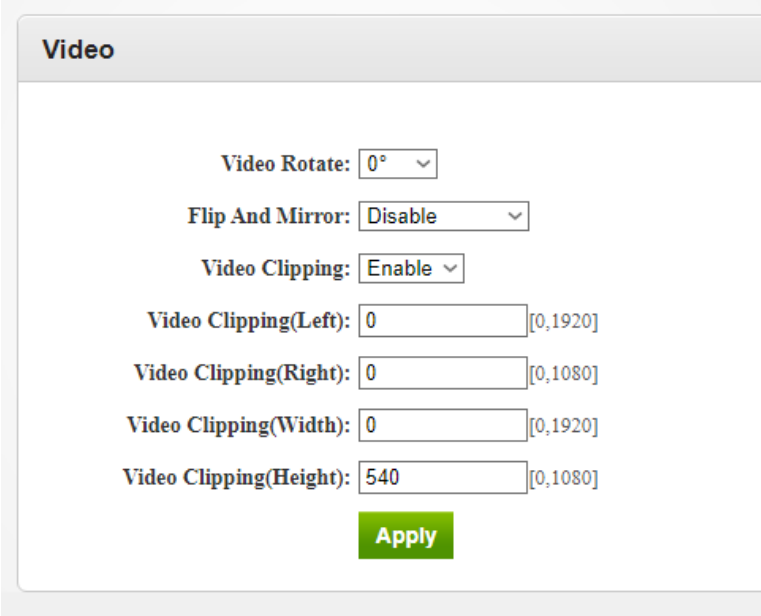
LOGO UPLOAD



In this section, the end user can upload up to 16 custom images to their encoder. The requirements for each image are as follows:

- Image file must be in PNG or 24-bit BMP format (0xF1F1F1 is transparent)
- Image file must be less than 500 KB in size
- File name must be “logo1.bmp” “logo2.bmp” “logo3.bmp” etc.

VIDEO



Video Rotate – Rotate your image 90°| 180°| 270°

Flip and Mirror -

Flip: Flip image over Y-Axis

Mirror: Mirror image over X-Axis

Flip & Mirror: Flip & Mirror image over X and Y axis

Video Clipping – Enable | Disable Clipping Functions

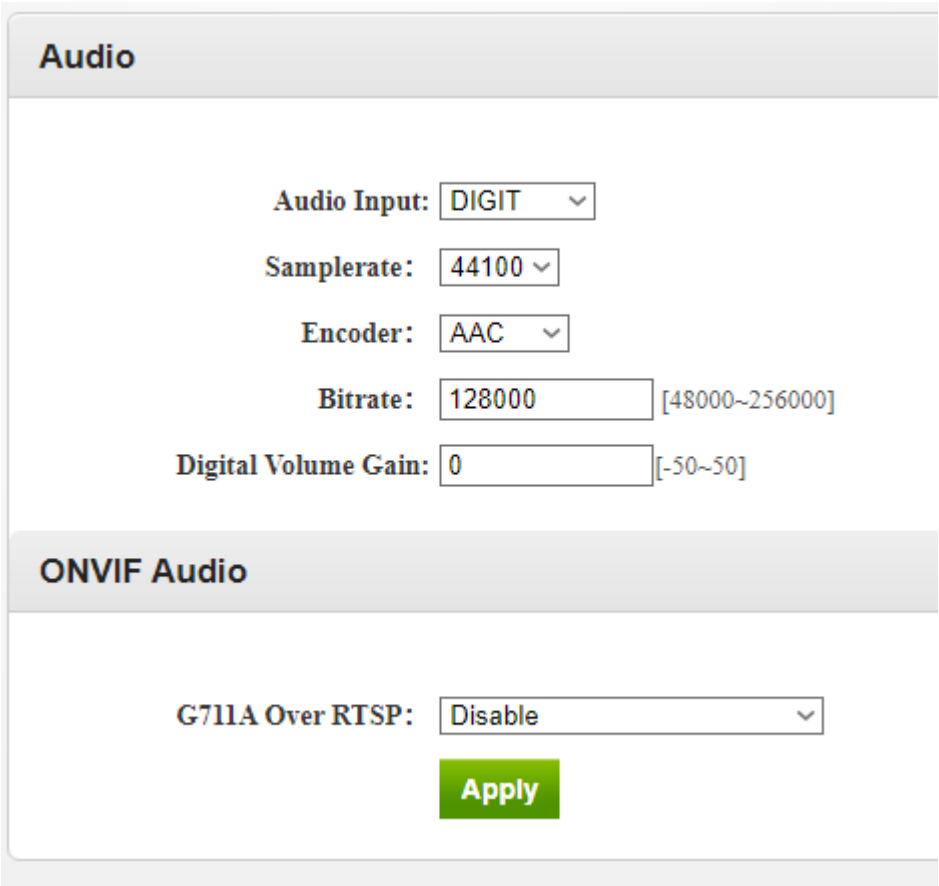
Video Clipping (Left): Shifts image horizontally from left side *(0 – 1920, 0 = left)*

Video Clipping (Right): Shifts image vertically from bottom *(0 – 1080, 0 = bottom)*

Video Clipping (Width): Shifts image horizontally from right side *(0 – 1920, 0 = right)*

Video Clipping (Height): Shifts image vertically from top *(0 – 1080, 0 = top)*

AUDIO



Audio Input –

Digital: Audio from HDMI input port

Analog: Audio from analog audio input port *(only available for Input Port 1 & 2)*

Mix: Audio from both HDMI input port and analog audio input port

Sample Rate – 44100 Hz | 48000 Hz

Encoder – Audio Encoding Type (AAC | AAC+ | AAC++ | AC3 | MP3 | MP2

Bit Rate – 48000 – 256000 Kbps

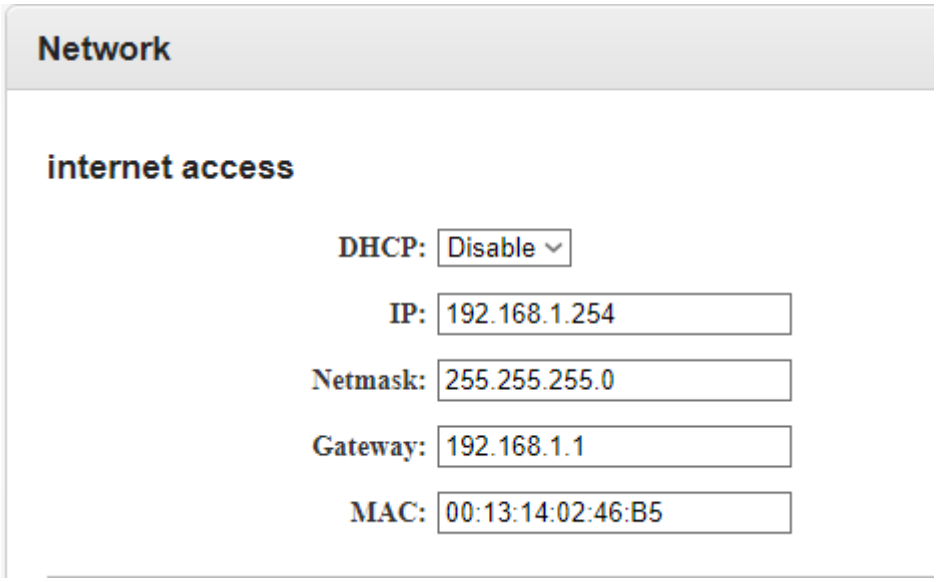
Digital Volume Gain – (-50 – 50)

ONVIF AUDIO

G711A Over RTSP – Enable | Disable | Enable & Resample with 8K *(enable or disable G711A audio codec)*

System

NETWORK



Internet Access

DHCP – Enable | Disable

IP – Field for assigning static IP address

NetMask – Field for assigning custom netmask

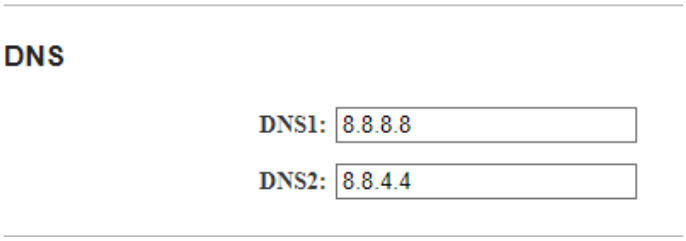
Gateway – Field for assigning custom gateway

MAC – MAC Address of device

DNS

DNS1 - Address of DNS Server 1

DNS2 - Address of DNS Server 2

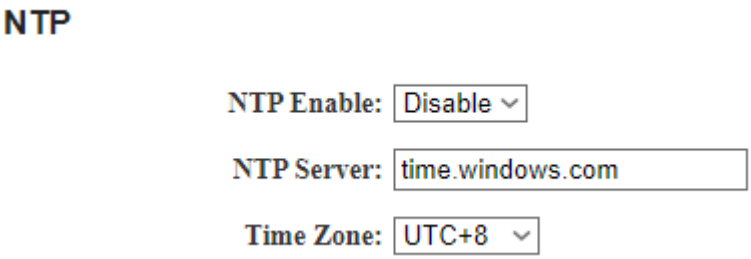


NTP

NTP Enable – Enable | Disable (enable or disable network time protocol)

NTP Server – Network Time Protocol Reference Server Address

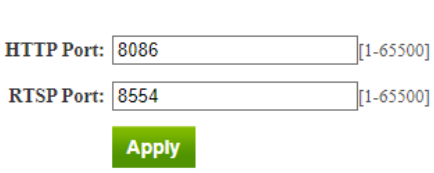
Time Zone – UTC Time Zone Selection



Port

HTTP Port – Field for assigning custom HTTP Port

RTSP Port – Field for assigning custom RTSP Port



ADVANCED

EDID – 4K30 + 1080P60 | 1920 x 1080 @ 60Hz (ITE) | 1920 x 1080 @ 60Hz (Dell U2414H)
Video Only – Enable | Disable Video Only Stream
Audio Only – Enable | Disable Audio Only Stream
Deinterlaced – Both | Bottom Only | Field to Frame; When the input signal is interlaced, the format stream is divided into even and odd fields.

- Both – Even and odd fields are treated in turn
- Bottom Only – Only one of odd or even fields is dealt with
- Field to Frame – Even and odd fields are converted into a frame

HLS Splitter Time (s) – HLS segmented output setting for each period of time
HLS Number – Number of cached HLS streams
SRT Latency (ms) – Latency of SRT stream
TS Muxer - FFMPEG or VLC audio video library for TS streams
Net Drop Threshold - The buffer length for the encoder. If the data is blocked due to network congestion or the decoder is busy, and the buffer data is over the buffer threshold, the encoder will drop the buffered data.

TS Once Pack - The number of bytes per TS package pushed by the encoder.
TS_Transport_Stream_ID - The transport ID of the TS stream
TS_PMT_Start_PID - The initial ID for the PMT in the TS stream
TS_Start_PID - The initial ID for the TS stream
TS_Tables_Version - The version of the PAT in the TS stream
TS_Service_Name – The service name of the TS stream
TS_Service_Provider - The provider of the TS stream
TS Empty Packet - Inserting empty package to the TS stream
TS Password Enable - Client will input password to access the stream via HTTP
Vmix Compatible - Enable VMix playing
TS OVER RTSP - setting the working mode for RTSP
Multicast Type - the protocols for multicast
Enable SAP – Enables service access point
UDP TTL – Time to live setting for UDP packet
UDP Socket_Buf_Size – Socket Buffer Size for UDP
Slice Split Enable - The setting for H264 slice
Slice Size - The size for H264 slice
Min_QP - Usually, the lower the QP equates to better image quality & higher bit rate. The higher the QP, the image quality will decrease and bit rate will be lowered. The encoder will select the QP from MIN to MAX to fit the network.
Max_QP - Usually, the lower the QP equates to better image quality & higher bit rate. The higher the QP, the image quality will decrease and bit rate will be lowered. The encoder will select the QP from MIN to MAX to fit the network.
Contrast Improve – Image contrast enhancement
Image Enhance – Image sharpness enhancement
Y Space Filter – Intensity of brightness static denoising
Y Time Filter – Intensity of brightness dynamic denoising
C Space Filter – Intensity of chroma static denoising
C Time Filter – Intensity of chroma dynamic denoising

CHANGE PASSWORD

Old Password – Field for entering current password

New Password – Field for entering new desired password

Confirm New Password – Field for confirming new desired password

SERIAL TO TCP

Baud Rate – 300 | 600 | 1200 | 2400 | 4800 | 9600 | 19200 | 38400 | 43000 | 56000 | 57600 | 115200

TCP Port – Port 1 – 65535

UPGRADE AND BACKUP

Upload Firmware and Configuration – In this section, the user can identify their current firmware version as well as upload new firmware *(up.rar)* or configuration *(box.ini)* files

Backup Firmware and Configuration – In this section, the user can backup and save their current firmware version and/or configuration

RESET

Clicking the 'Reset' button will reset all of the encoder's settings to factory default.

REBOOT

Clicking the 'Reboot' button will power cycle the encoder.

SCHEDULE RESTART

Restart Enable – Disable | Enable Scheduled Restart Function

Restart Time – Field for entering schedule restart time

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