MAGEWELL®

Pro Convert Decoder Family

User Manual, Reference and FAQ



TABLE OF CONTENTS

03 Getting Started

Overview 03
Key Features 03
System Requirements 05

06 Installation

Safety Information 06
Interfaces & Indicators 07
Connections 11

13 Web UI Configuration

Accessing the Web UI 13
Signing In/Out 17
Dashboard 18
Signal 23
Video 25
Audio 32
EDID 34
Source 35
System 47
Rebooting/Resetting Pro Convert 58

61 OSD Menu Configuration

Accessing the Options Menu 62
Options 63
Source 64
Video 65
Audio 72
PTZ 74
Resolution 76
System 77

78 FAQ

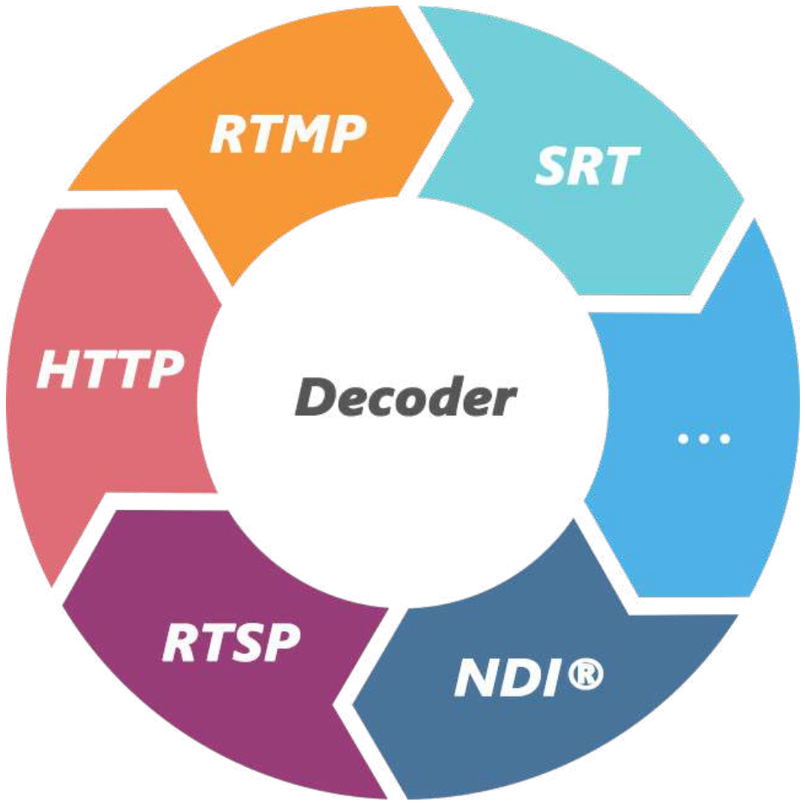
90 Support

91 Warranty

93 Notice

94 Glossary and Abbreviations

Getting Started



Overview

Pro Convert™ family decoders convert live NDI, H.264 and H.265 streams into high-quality outputs for connection to baseband devices such as monitors and projectors. The low-latency decoder simplifies the use of NewTek's popular media-over-IP technology in applications such as digital signage and video walls. The decoder supports a wide range of streaming protocols and is compatible with various sources, making it suitable for distributed video deployment, remote production, video surveillance, and digital signage in enterprise, campus, and house of worship environments. The ultra-compact Pro Convert devices are ideal for both in-studio and portable field use. The decoder features DHCP-based automatic network configuration, while a browser-based interface provides access to status monitoring and advanced features such as hardware-based up/down/cross-conversion. On-device buttons also enable users to select source content and match the output format to their target display without requiring a computer.

Key Features

- Decoding streams of NDI, RTSP, HTTP(S), HLS, RTMP Pull/Push, MPEG-TS over UDP/SRT/RTP, TVU ISSP in H.264 or H.265 format.
- Support decoding H.264 and H.265 format video streams.
- Decoding embedded audio.
- PoE (Power over Ethernet).

- Plug-and-play.
- Ethernet over USB.
- Web-based and cloud-based UI for remote configuration and management.

System Requirements

Network

- Gigabit Ethernet

Supported Web Browsers for the Web UI

- Google Chrome version 49 and above
- Microsoft Internet Explorer 11
- Microsoft Edge
- Mozilla Firefox version 61 and above
- Apple Safari 11.1 and above
- Opera 55.0.2994.44 and above

Product Models

This User Guide is intended to provide guidance to use the Pro Convert decoders, including:

- Pro Convert for NDI® to HDMI 4K
- Pro Convert for NDI® to HDMI
- Pro Convert for NDI® to AIO
- Pro Convert for NDI® to SDI

Decoder module products of the same series compatible with the MAGEWELL Modator 2U have also been launched. For the supported modules, please refer to Modator 2U.

Installation

Safety Information

Electrical Safety

- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that you are using the correct power adapter for the local voltage. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power adapter is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer for help.

Operation Safety

- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you notice any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact your dealer or the Magewell Support Team via support@magewell.net.

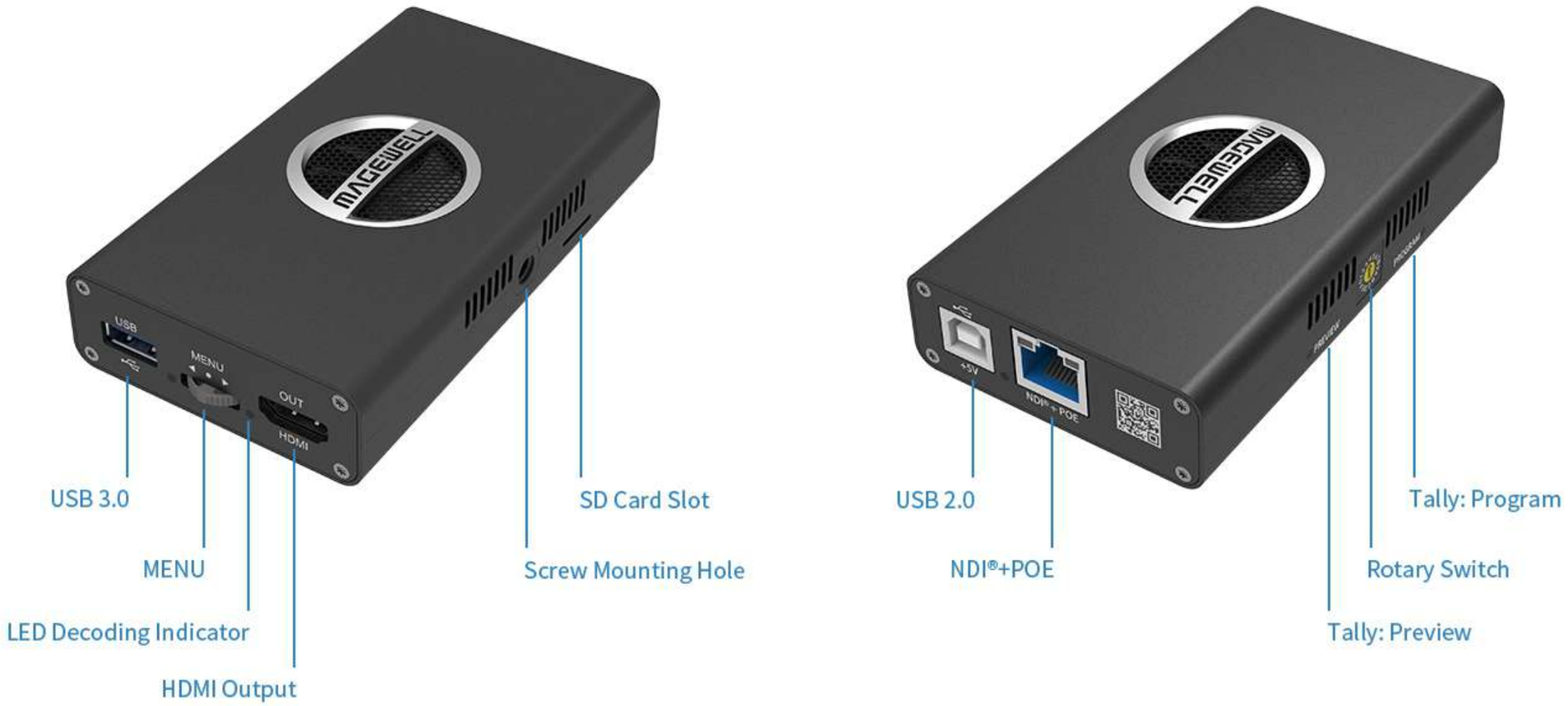
Interfaces & Indicators

Pro Convert for NDI® to HDMI



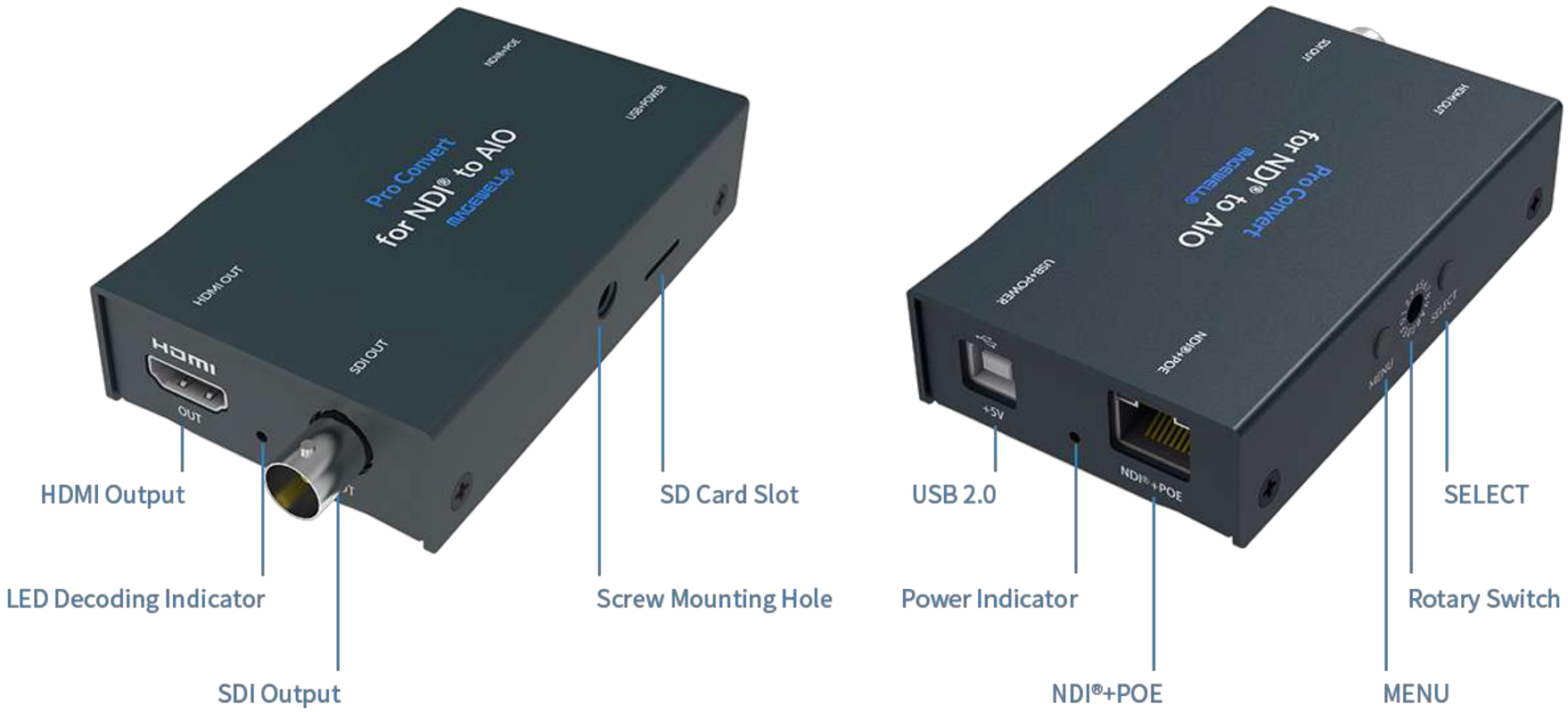
Note: The SD card function is not available currently.

Pro Convert for NDI® to HDMI 4K



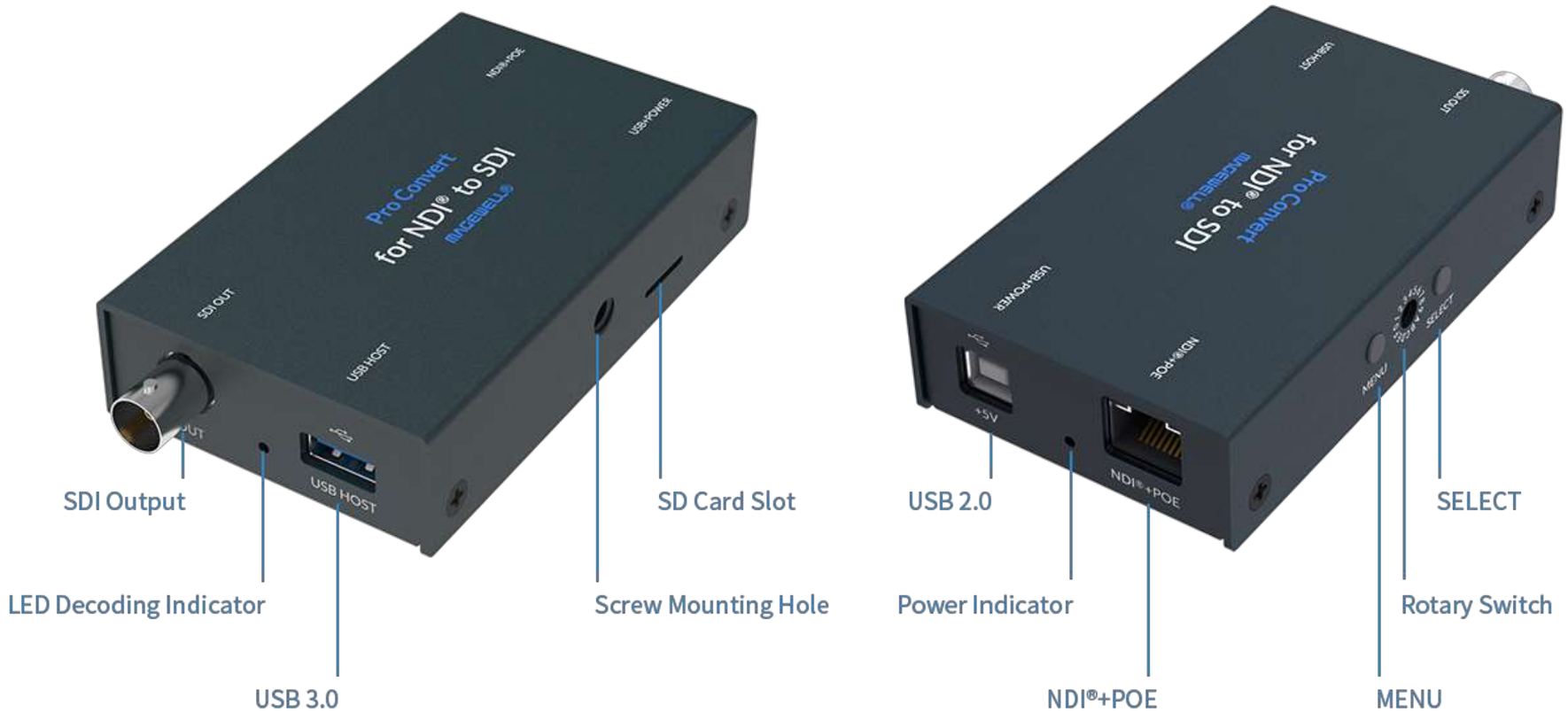
Note: The SD card function is not available currently.

Pro Convert for NDI® to AIO



Note: The SD card function is not available currently.

Pro Convert for NDI® to SDI



Note: The SD card function is not available currently.

Connections

Interfaces and cables varies according to signal supported by Pro Convert.

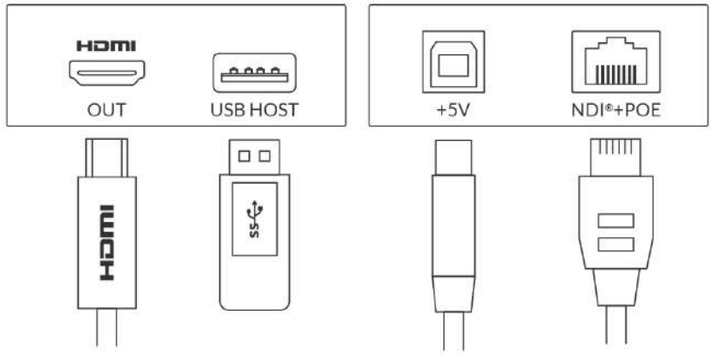


Figure 1. Pro Convert for NDI® to HDMI

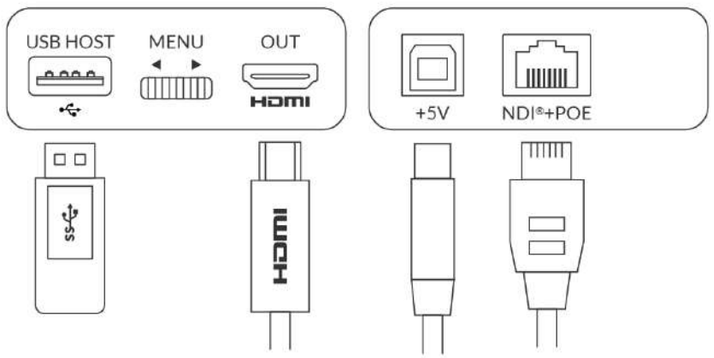


Figure 2. Pro Convert for NDI® to HDMI 4K

Cable your device for power, network connectivity, output and device control.

- Plug in the USB cable to the power interface.
  - For power supply: connect the other end of the USB cable to the power adapter.
  - For Ethernet over USB (RNDIS/ECM): connect the other end of the USB cable to your computer.
- Plug in the Ethernet cable to the network interface.
  - For PoE: connect the other end of the Ethernet cable to a PoE switch or a PoE adapter for power and Ethernet connection.
  - For Ethernet connection: to ensure high speed transmission, it is recommended to connect the Pro Convert unit to a gigabit network.
- Plug in the HDMI or/and SDI cable by the interface type to connect the AV equipment(s), such as a monitor, a video switcher, a video capture card, or a projector.
  - AV facility loaded with a smart OS is not recommended if low latency matters.
- Connect a wired or wireless keyboard or mouse to the USB HOST interface to make it more convenient to control advanced settings without requiring a computer.
  - AIO product does not have this interface, so peripherals cannot be

connected.

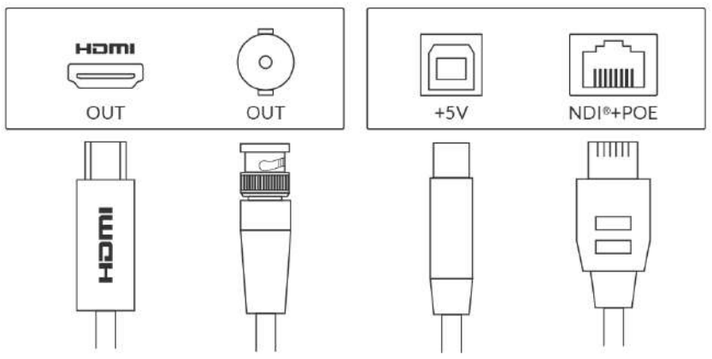


Figure 3 Pro Convert for NDI® to AIO

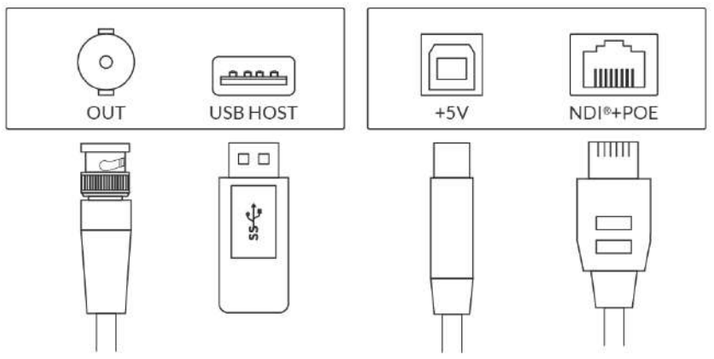


Figure 4 Pro Convert for NDI® to SDI

Web UI Configuration

Pro Convert supports monitoring and configuring the device via its web-based user interface. Through the Web UI, you can monitor the device's working status and input signal status, as well as configure parameters tailored to your application scenarios. This document uses Pro Convert for NDI® to HDMI as an example to illustrate the Web UI functionalities.

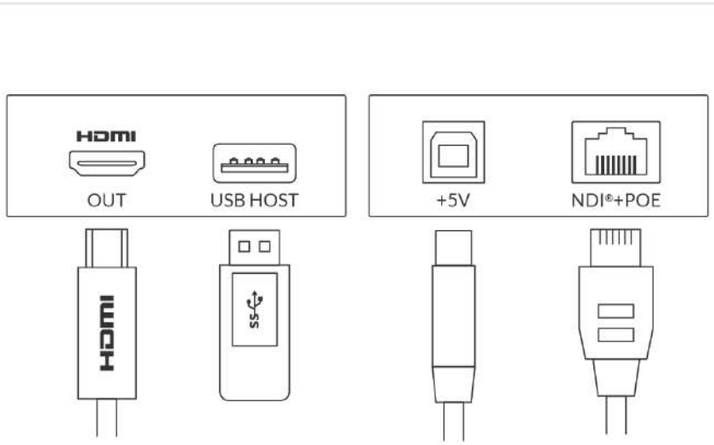


Figure 1 Connections

Accessing the Web UI

If you know your device's IP address, type it into your web browser to display the Web UI. Alternatively, you can access the Web UI in one of the following ways.

Solution 1: For Windows7/8/8.1/10 users, you can find and access your Pro Convert device as a Network device in a File Explorer window.

Solution 2: Using the Ethernet over USB function.

Solution 3: Using the on-screen menu Options.

Solution 1: using Windows File Explorer

This method is available for Windows7/8/8.1/10 users.

1 Connect your decoder via Ethernet and power it up as shown on the left figure.

2 Open a **File Explorer** window in one of the following ways.

- Click on the **Start** button and find File Explorer in the Start menu.
- Press the Windows logo key + E.
- Select the folder icon on the taskbar.

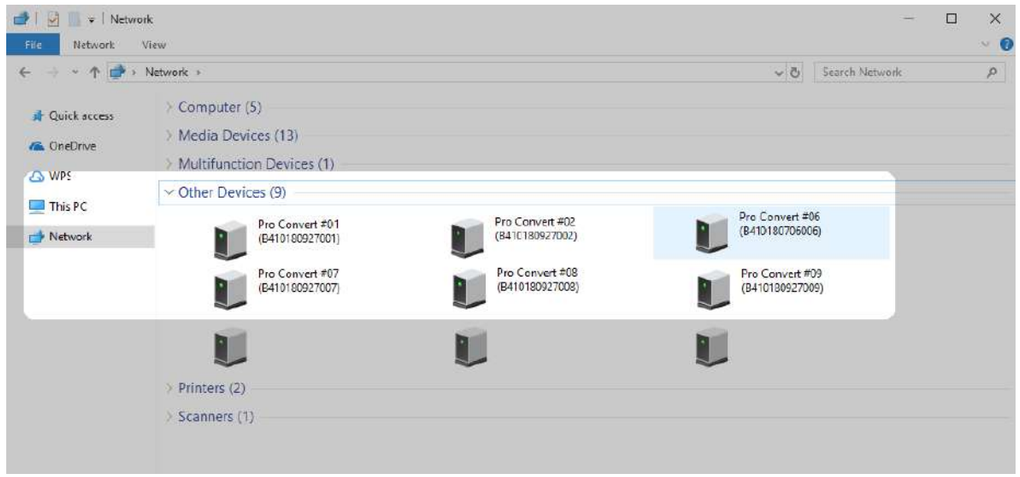


Figure 2 Find your Pro Convert device in the Network > Other Devices section

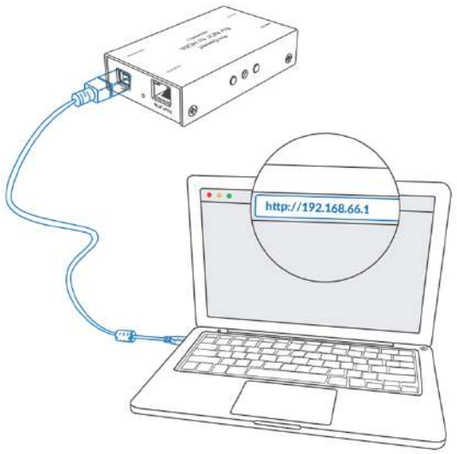
3 Select the **Network** at the bottom of the list of items on the left side of the File Explorer.

4 Turn on the network discovery function if prompted.

5 Find your Pro Convert device in the **Other Devices** section, where it will be shown as "**Pro Convert + #board index + (serial number)**".

- The **serial number** (marked on your device) will be in a form like "A410180706006".
- The **board index** (the rotary switch number on your device) is shown like "06" or "#06".

6 Double click the decoder icon to open the Web UI of the device in your web browser.



Solution 2: using Ethernet over USB

RNDIS (For Microsoft)/ECM (For Mac/Linux) provides a virtual Ethernet link to the computer's operating system.

1 Connect the device and your computer using a USB cable as shown on the left.

2 Type the Ethernet over USB IP address in your web browser. The default address is **192.168.66.1**.

The pop-up web UI of the connected device will be shown in your browser.

Please do not change it unless there is a conflict in your network.

⚠ Do not connect more than one Pro Convert device simultaneously to the same system via Ethernet over USB.

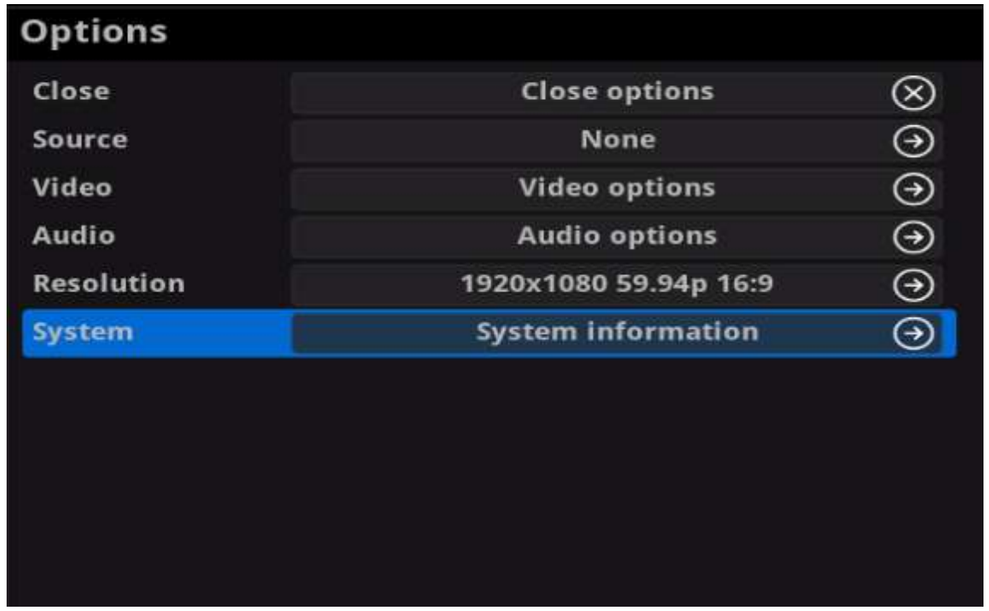


Figure 1 Select System in Options menu



Figure 2 Check the WebGUI

Solution 3: using the on-screen menu Options

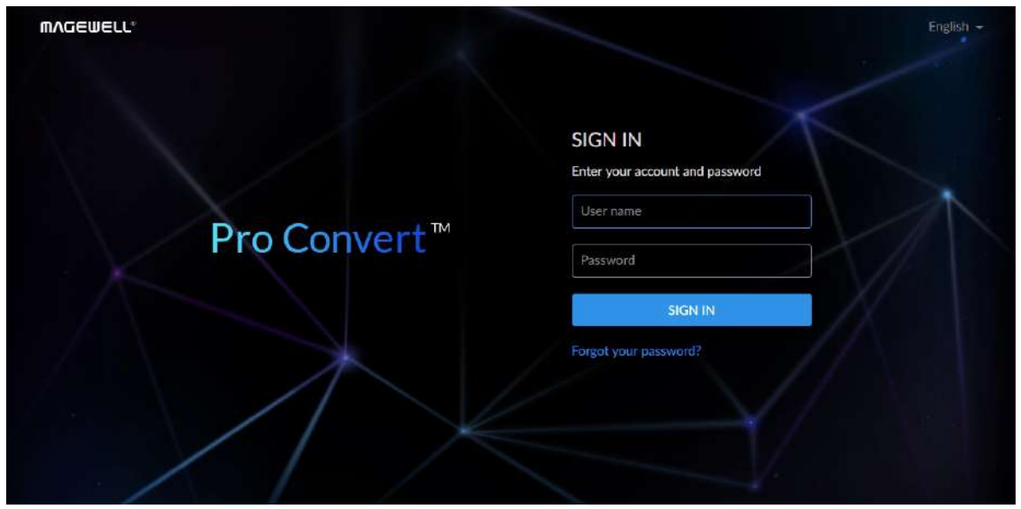
1 Connect your decoder via Ethernet, power it up and connect a presentation device as shown in the Figure1. Connections.

2 Press the on-device MENU button, click the mouse or the keyboard(if connected), to display the Options overlaid on the output.

3 Go to the **System** option and check for the device WebGUI URL or scan the WebGUI QR to open the web UI in your web browser within the same LAN with your decoder.

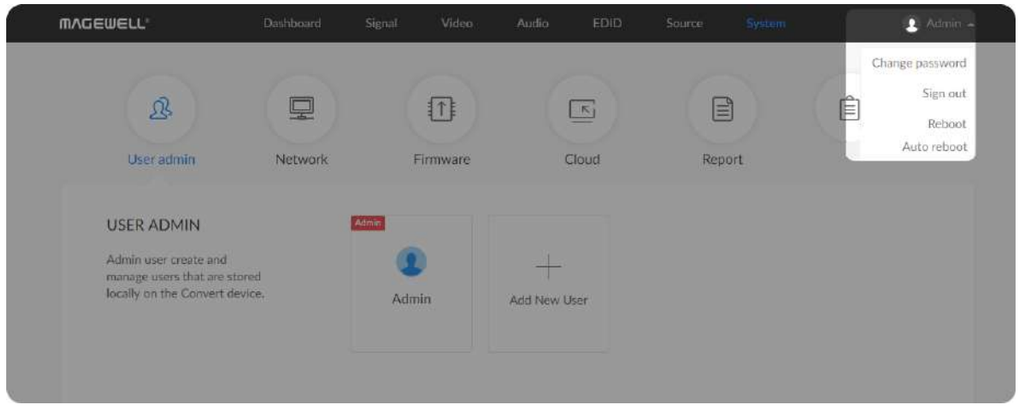
Signing In/Out

The Web UI allows multi-users to have read/write access to make configuration settings at the same time after logging-in. However, to avoid configuration conflicts, we do not recommend you to operate one device simultaneously.



1 Signing In: enter your account and password in the **SIGN IN** page.

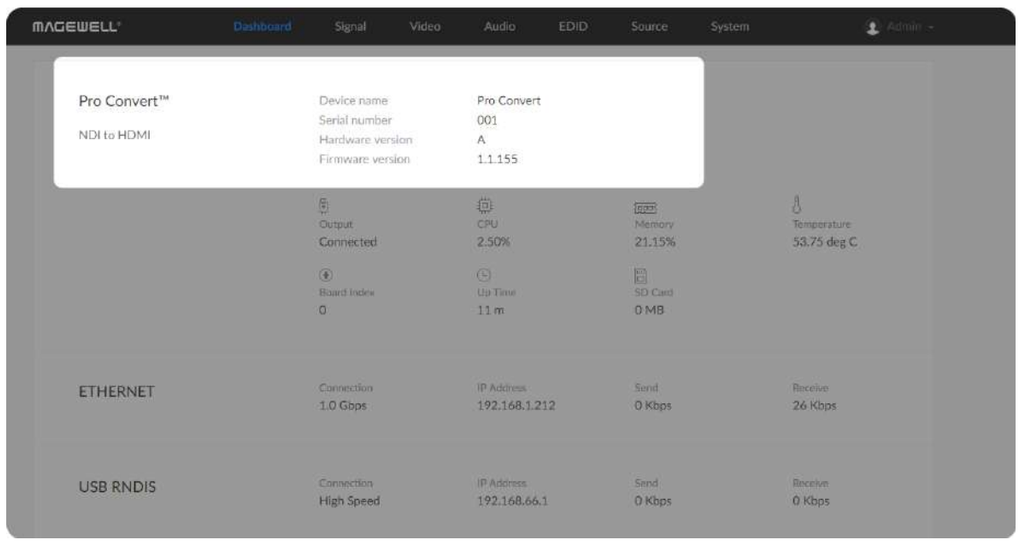
- The default administrator account name and password are as follows:
  Username: **Admin**
  Password: **Admin**
- It is recommended to change the admin password after login (see modify the admin password). Unlike the password, the administrator username cannot be modified.
- Your account will sign out automatically if there is no operation performed within ten minutes.



2 Signing Out: click the drop-list icon ▼ behind your username at the top-right of the Web UI, and select **Sign out**.

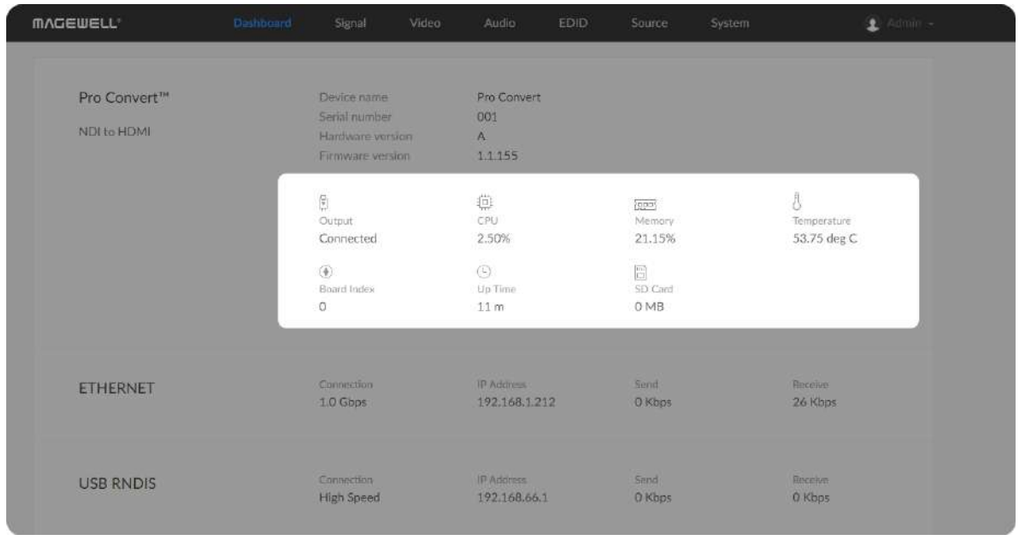
Dashboard

The Dashboard tab in the web UI can show the real-time status and parameters of the Pro Convert device. Click and enter the **Dashboard** tab to check current device status.



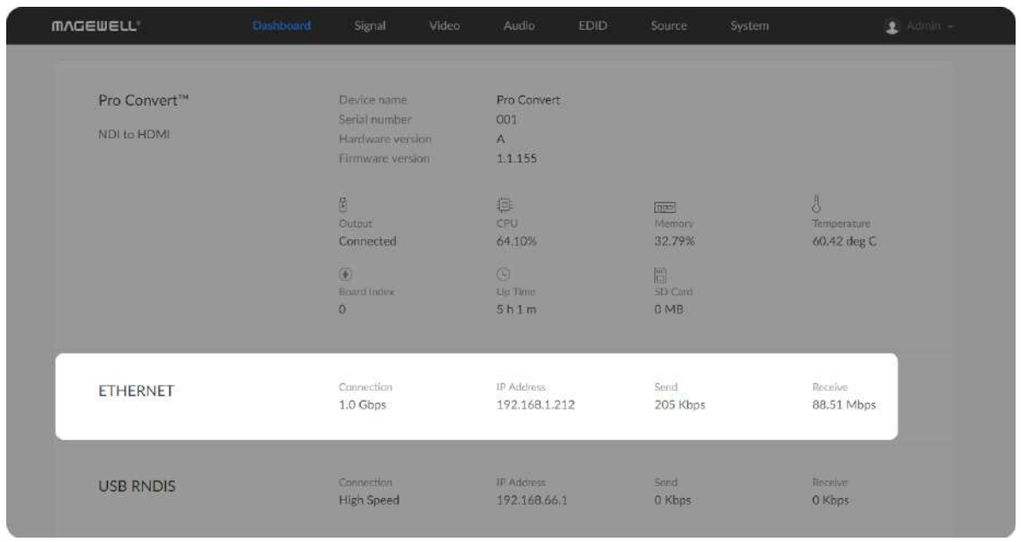
Checking Basic Information

- **Device name** shows the name of your Pro Convert unit.
  Only the Administrator can modify the device name in the System > Network tab. For detailed information, refer to Setting Device Name.
- **Serial number** shows the serial number of your unit, which is also marked on your device.
- **Hardware version** shows the hardware version of your unit.
- **Firmware version** shows the current firmware version that's installed in your unit. Only the Administrator can update the firmware, via the **System > Firmware** tab. For detailed information, refer to Updating the Firmware.



Checking the Current Working Status

- **Output** shows whether an output device is connected to the Pro Convert device.
  This parameter would be displayed for device which has an HDMI interface. For AIO unit, it is **HDMI Output**.
- **CPU** shows the current CPU usage (the load on the processor, shown as a percentage) of the Pro Convert device.
  CPU usage increases when the device is handling more complex video processing tasks (e.g. decoding at higher resolutions and frame rates).
- **Memory** shows current memory usage.
  You can find out the free memory in **System > Report** tab, subject to administrative rights.
- **Temperature** shows the current temperature of the unit's processor.
  Keeping the device free from dust and avoiding a high-temperature work environment may help to avoid overheating of the device. If the core temperature is approaching 100℃, please try to lower the temperature by ensuring a supply of cooler air.
- **Board Index** shows the rotary switch number.
  You can change the number on the rotary switch to set a different Board Index.
- **Up Time** shows the elapsed time since your device's last boot-up.
- **SD Card** shows the capacity of current inserted SD card.
  This function is not available now.
- **Fan Speed** shows the current speed of fan, which automatically changes according to temperature.
  NOTE: This parameter is ONLY available for 4K products.

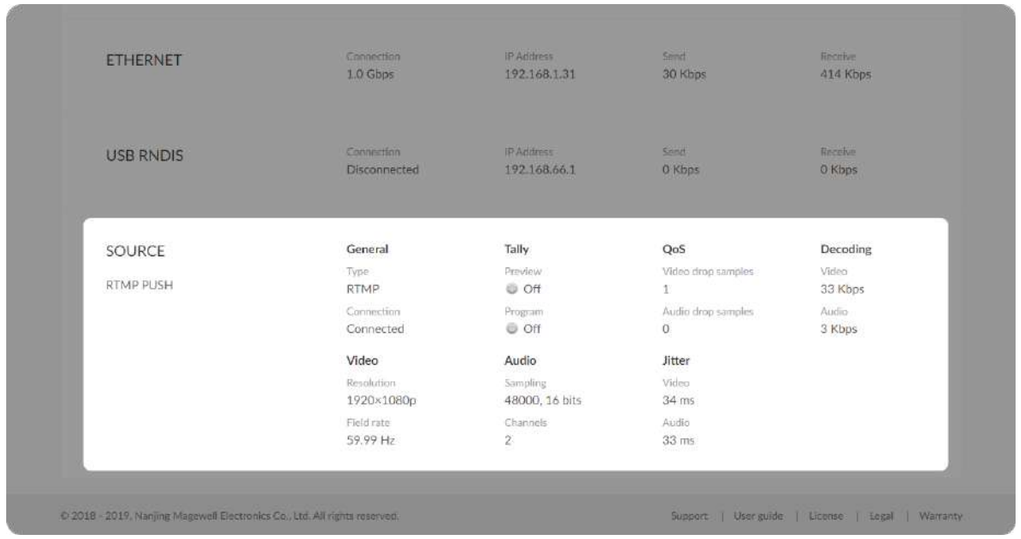


Checking Ethernet Status

- **Connection** shows Ethernet network connection status.
- **IP Address** shows Ethernet IP Address. You can manually change it in the **System > Network** tab with administrative rights.
- **Send** shows the current Ethernet transmission speed.
- **Receive** shows the current Ethernet receive speed.

Checking Ethernet over USB Status

- **Connection** shows Ethernet over USB connection status.
- **IP Address** shows Ethernet over USB IP Address.
  By default, it is 192.168.66.1. You can manually change it in the **System > Network** tab, with administrative rights.
- **Send** shows current Ethernet over USB send speed.
- **Receive** shows current Ethernet over USB receive speed.



Checking Source Status

Settings of decoded video stream refers to the Source tab.

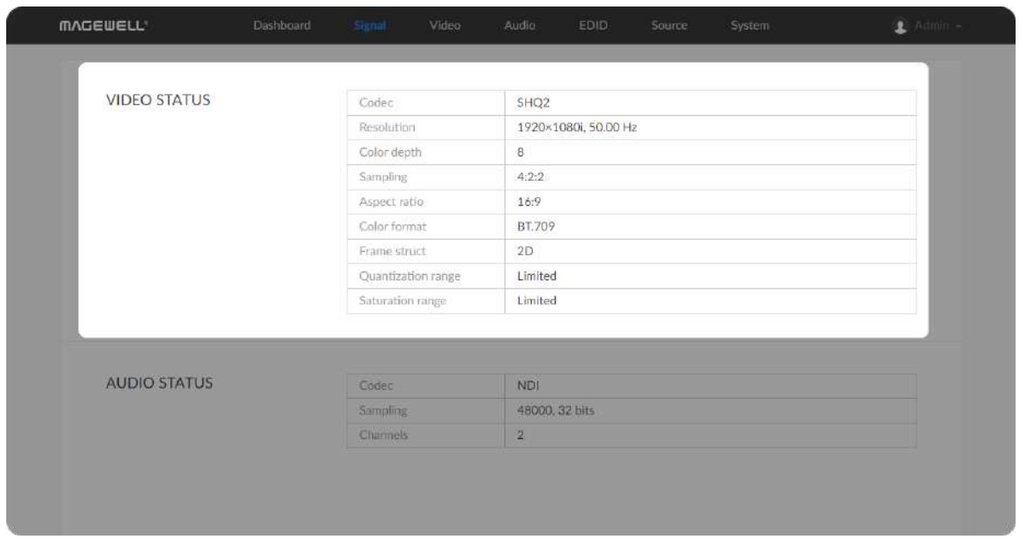
- **General** shows video source information.
  - **Type** shows the decoding stream type which is specified in the **Source** tab.
  - **Connection** shows whether a stream data is received by your decoder.
- **Tally** shows the decoded stream "on-air" status.
  NOTE: This group of parameters is ONLY available for NDI ® decoders.
  - **Preview** shows whether the decoded source stream is being previewed. If yes, it shows **On** and is green, otherwise, it is **Off** and grey.
  - **Program** shows whether the decoded source stream is being programmed. If yes, it shows **On** and is red, otherwise, it is **Off** and grey.
- **QoS** shows the number of frames dropped in the previous second.
  - **Video drop samples** shows dropped video samples in the previous second.
  - **Audio drop samples** shows dropped audio samples in the previous second.
- **Decoding** shows the decoding speed in the previous second.
  - **Video** shows the video bitrate for the previous second.

- **Audio** shows the audio bitrate for the previous second.

- **Video** shows the decoded video information.
  - **Resolution** shows the decoded video resolution.
  - **Field rate** shows the decoded video field rate.
- **Audio** Shows audio information.
  - **Sampling** shows the sampling rate and bit depth of the audio source.
  - **Channels** shows the total number of source audio channels.
- **Jitter** Shows the time difference between the estimated and actual arrival time of a frame of source image.
  - **Video** shows the video time difference.
  - **Audio** shows the audio time difference.

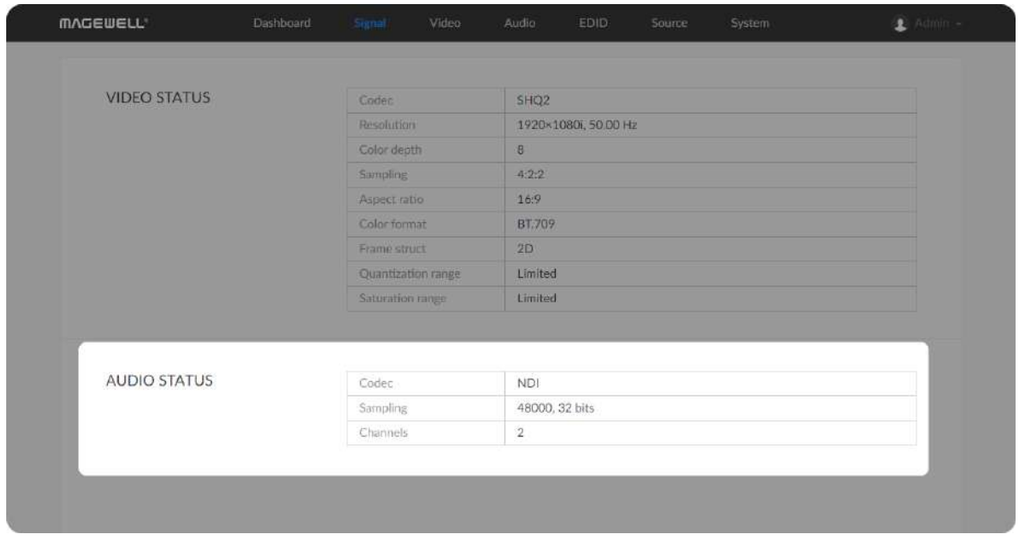
Signal

Click and enter the **Signal** tab to check the signal information which is being decoded by the device. The displayed parameters vary depending on the incoming signal.



Checking VIDEO STATUS

- **Codec** shows the video encoding format.
- **Resolution** shows the chosen stream pixel resolution & frame rate.
- **Color depth** shows the chosen stream color depth, in bits.
- **Sampling** shows the chosen stream color sampling format.
- **Aspect ratio** shows the chosen stream aspect ratio.
- **Color format** shows the chosen stream color encoding format.
- **Frame struct** shows the chosen stream frame type, it is always 2D.
- **Quantization range** shows the quantization range, e.g. Full or Limited.
- **Saturation range** shows the saturation range, e.g. Full or Limited.

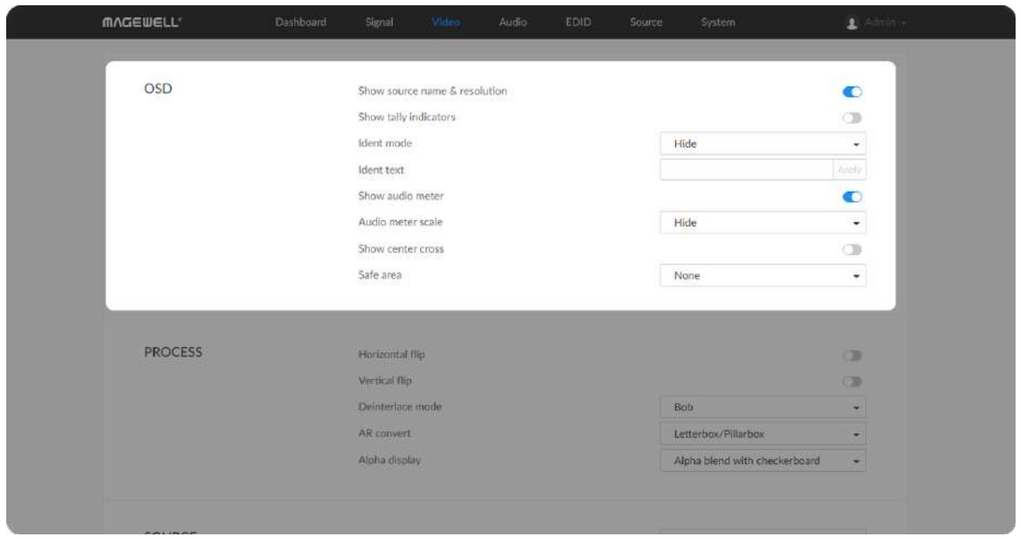


Checking AUDIO STATUS

- **Codec** shows the audio encoding format.
- **Sampling** shows the audio sampling rate and bit depth of the chosen stream.
- **Channels** shows the number of audio channels of the chosen stream.

Video

Click and enter the **Video** tab to view the signal information decoded by the device and modify settings as needed. By clicking **Reset to Default** in the bottom right corner of the page, you can cancel your modified settings.



Setting OSD

Choose the overlay layers on the output gear.

- **Show source name & resolution**

  Turn on the switch to show current decoded stream name at the top of the output display. By default, it is off.

- **Show tally indicators**

  NOTE: This function is ONLY available for NDI® decoders.

  Turn on the switch to show the "on-air" status of selected stream at the top field of the output. If being previewed, it is ***PREVIEW***; if being on-air, it is ***PROGRAM***. The indicators locate beside the source name & resolution; otherwise, there is nothing displayed. By default, it is off.

- **Ident mode**

  Choose to show/hide the device name or ident text that overlays the output. It is used to separate multiple decoders from each other when they are working together. By default, it is Hide.

  The device name can be modified in the **System** tab with administrative rights. The steps refer to Setting Device Name.

  Ident text can be edited in the **Ident text** option.

- **Ident text**

  Custom digital label overlaid on the output. By default, it is null. The text will be overlaid on the output when the **Ident mode** is set to **Show ident**

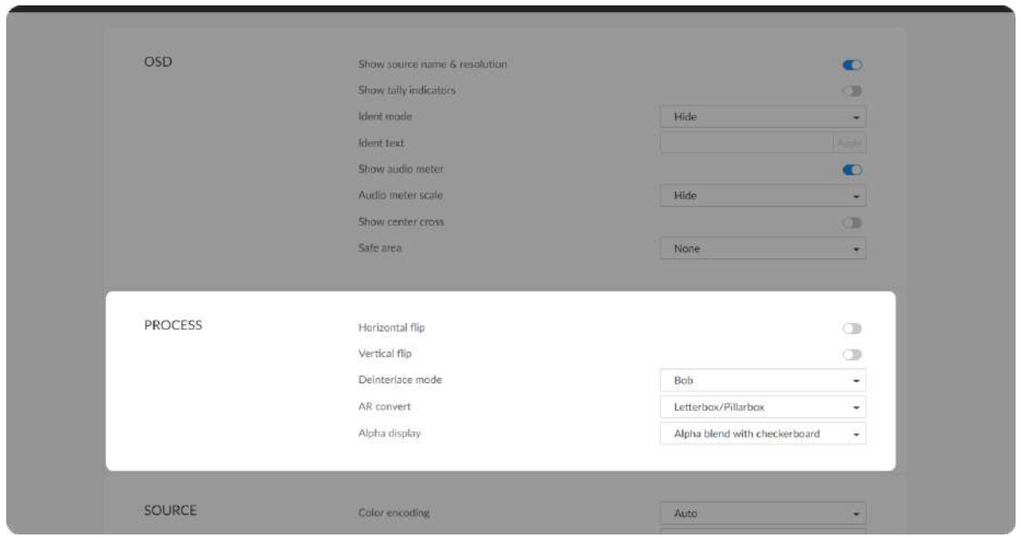
text. The label text ranges from 1 to 32 characters which contains A to Z, a to z, 0 to 9, and special characters including spaces, dash(_), minus(-) and plus(+) sign.

- **Show audio meter**
  Check the box to show the volume bar on the left side of presentation screen. By default, it is overlaid on the output.
- **Audio meter scale**
  Choose the scale for the measurement of the volume.

  - If **CONVERT MODE** in the **Audio** tab is EBU, options are **Hide**, **Show dBu scale**, **Show post gain dBu scale**, and **Show post gain dBFS scale**. If audio gain is set, the **Show post gain dBu scale**, and **Show post gain dBFS scale** will show the gain effect. By default, it is **Hide**.
  - If **CONVERT MODE** in the **Audio** tab is SMPTE, options are **Hide**, **Show dBVU scale**, **Show post gain dBVU scale**, and **Show post gain dBFS scale**. If audio gain is set, the **Show post gain dBVU scale**, and **Show post gain dBFS scale** will show the gain effect. By default, it is **Hide**.

- **Show center cross**
  Turn on the switch to overlay the center cross on the output screen which determines the center position of the entire image, helps with interlaced scans check and static convergence.
- **Safe area**
  It ensures that the most important parts of the picture are seen by the majority presentation device. Choose from **None**, **Show 80% center**

view area, **Show 4:3 aspect ratio area**, and **Show square aspect ratio area**. By default, it is **None**.



Setting PROCESS Format

By clicking **Reset to Default** in the bottom right corner of the page, you can cancel all settings.

- **Horizontal flip**

  Turn on the switch to set a mirror effect of the video, making sure the viewer see the image in the right direction. By default, it is off.

- **Vertical flip**

  Turn on the switch to reverse the active image vertically, making sure the viewer see the image in the right direction. By default, it is off.

- **Deinterlace mode**

  - **Weave** takes pairs of fields and puts them together (every other line) to one frame. This mode is used for the original data or a static video.
  - **Bob** means the act of vertically scaling a single field to the size of a single frame. This mode is used for the motion fluidity. By default. this is used.

- **AR convert**

  Set the method to convert the aspect ratio of the decoded video.

  - **Letterbox/Pillarbox** indicates to adapt the display size of the presentation screen by filling with black borders to keep the aspect ratio of the source image. Letterbox features to fill in black bars at the top and bottom while pillarbox filling in left and right. By default, this is used.
  - **Full Screen** indicates to stretch the video image to fill the presentation screen.
  - **Zoom/Crop** indicates to use the screen aspect ratio as the decoded video aspect ratio by stretch or compression.

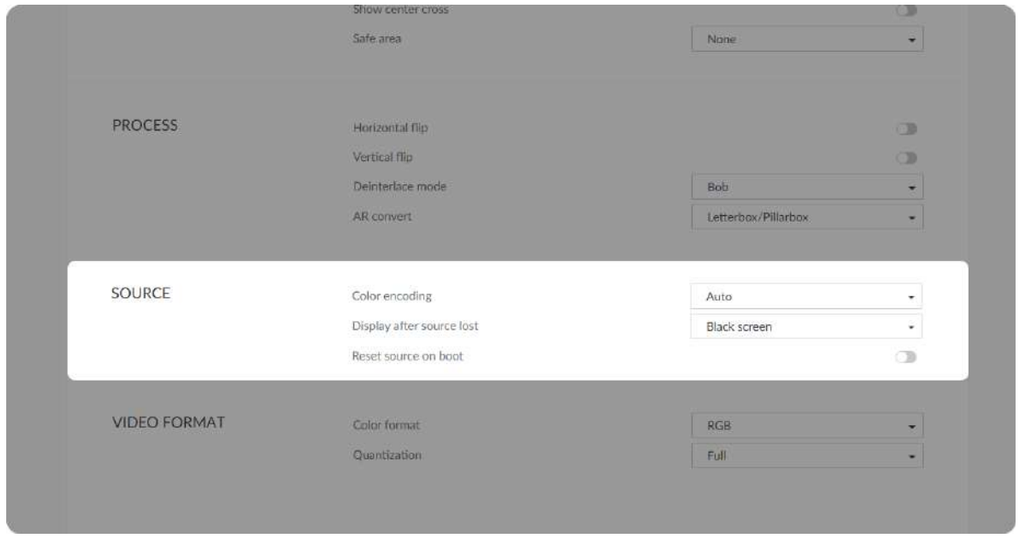
- **Alpha display**

  Note: This feature is ONLY supported by NDI® to HDMI 4K decoder.

  Specify the effect of the alpha channel. By default, a gray checkerboard will be displayed in images where an alpha channel is present. Options are:

  Original image 

  - **Alpha only**: 
  - **Alpha blend with white**: 
  - **Alpha blend with black**: 
  - **Alpha blend with checkerboard**: 



Setting SOURCE Format

- **Color encoding**

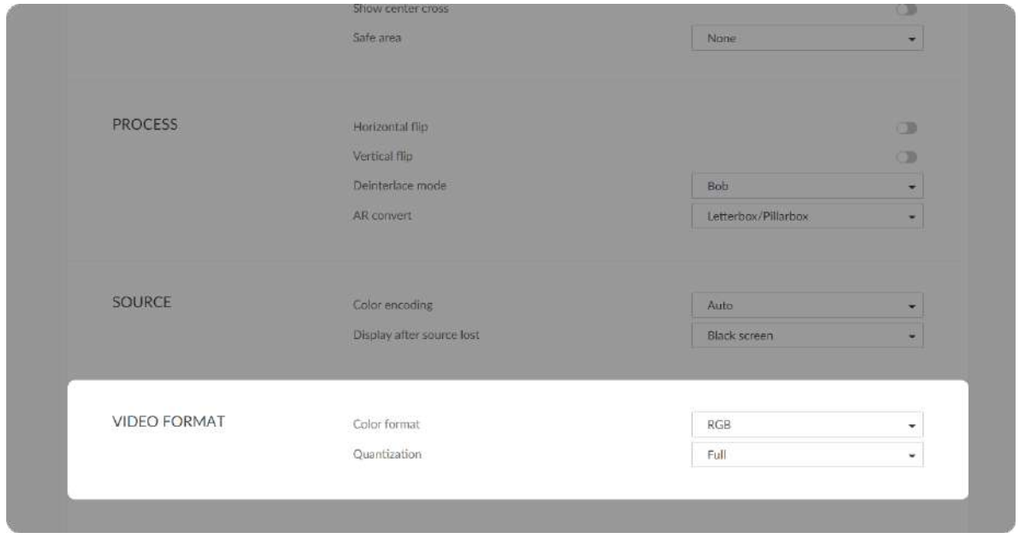
  Set the color space to **BT.601** or **BT.709**. When it is set to **Auto**, the color space will be BT.601 for SD and BT.709 for HD according to the source.

- **Display after source lost**

  Set the image to either **Black screen** or **Keep last picture** of the previous video when the source is changed.

- **Reset source on boot**

  Off by default. When enabled, the source will be automatically set to None upon each device boot.



Setting output VIDEO FORMAT

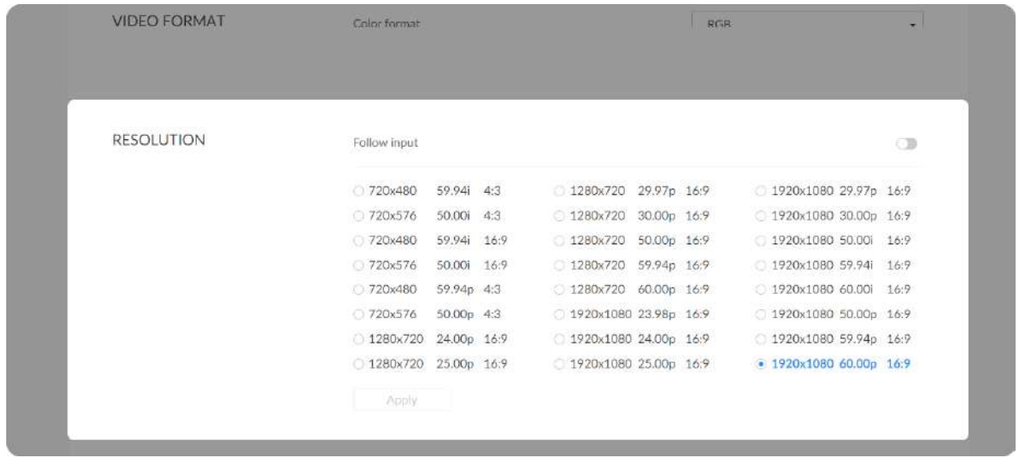
- **Color format** (HDMI/AIO module supported)

  HDMI module decoder: Options are **RGB** (default), **YUV444**, and **YUV422**. Select the color format according to capability of your presentation device.

  AIO module decoder: Options are **YUV444** (default), and **YUV422**. Select the color format according to capability of your presentation device.

- **Quantization** (HDMI module supported)

  Options are **Full** (default), **Limited** when **Color format** is **RGB**.



Setting RESOLUTION

"Follow input": If the connected presentation device does not support the format, the default resolution format is used.

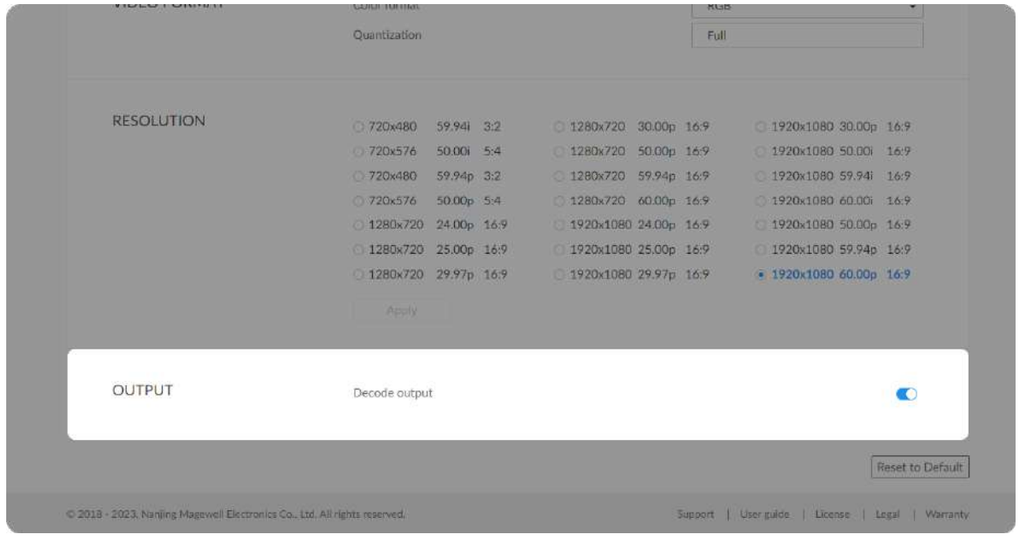
Specify the resolution to meet your needs, or else the default mode is recommended.

HDMI decoder lists all selections of resolution, frame rate and aspect ratio according to the capability of the connected presentation gear in the RESOLUTION section.The options vary depending on the presentation devices.

For interlaced input and output, use a buffer of at least 100ms for stability.
NDI to SDI/AIO decoder lists all supported output formats, including:

- 1920x1080p60/59.94/50/30/29.97/25/24/23.98
- 1920x1080i60/59.94/50
- 1280x720p60/59.94/50/30/29.97/25/24
- 720x576p50
- 720x576i50
- 720x480i59.94

For an AIO decoder, if HDMI and SDI output are connected simultaneously, choose the appropriate resolution based on the capability of the connected presentation devices to ensure that both ports have smooth data flow.

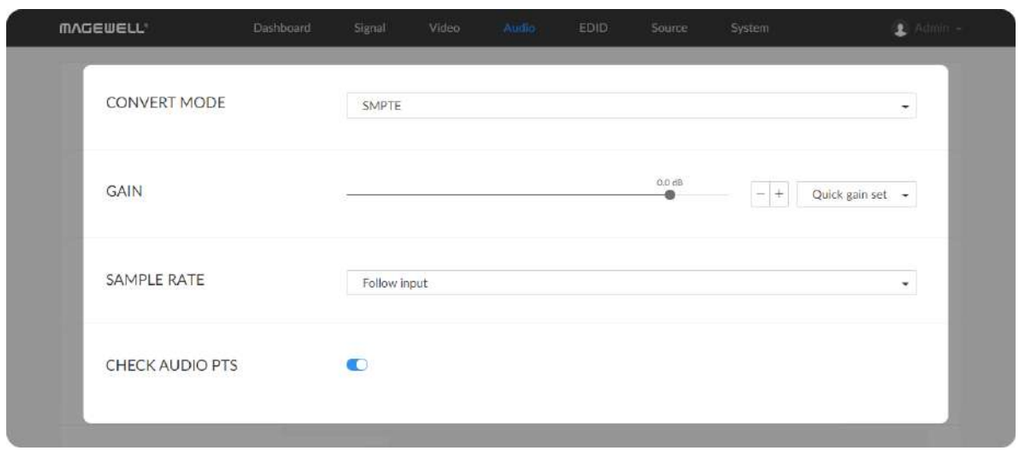


Setting Decoding Output

You can turn off the **Decode output** to stop A/V output. It is on by default.

Audio

Click and enter the **Audio** tab to set the output.



- **CONVERT MODE**

  Two ways are provided for audio values conversion between source and output signal: **EBU**, **SMPTE**. By default, it is SMPTE.

- **GAIN**

  Adjust the gain from -100.00dB to 20.00dB as needed. Or you can select **+20 dB**, **+10 dB**, **+0 dB**, **-20 dB**, **-40 dB** or **Mute (-inf dB)** from the **Quick gain set**. By default, it is 0.

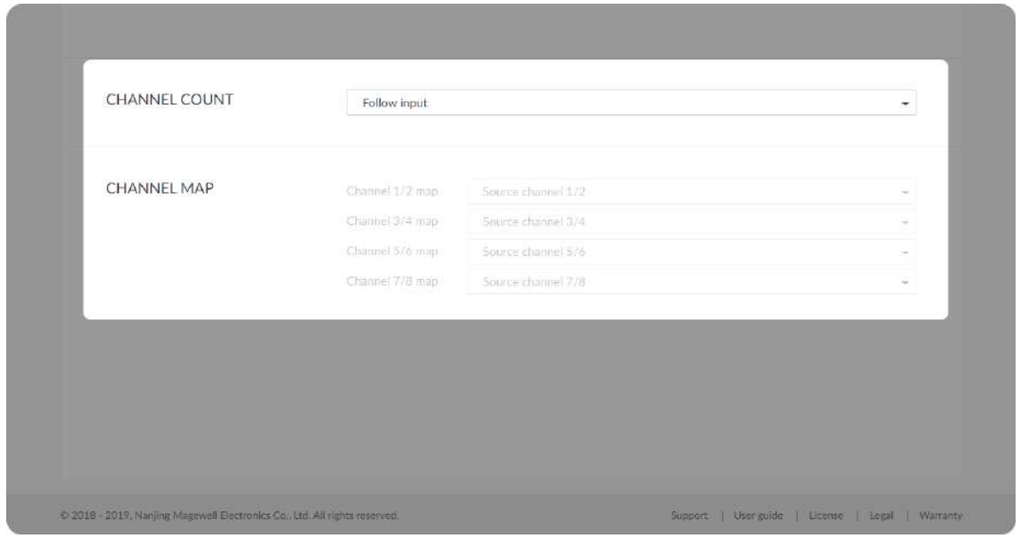
- **SAMPLE RATE**

  Choose the proper sample rate for your work, including **Follow input**, **32000Hz**, **44100Hz**, **48000Hz**, **88200Hz**, **96000Hz**. By default, it is **Follow input**.

  > ⚠ For decoder with SDI output, sample rate can only be set to **48000Hz**.

- **CHECK AUDIO PTS**

  By default, it is on. PTS, Presentation Time Stamp, is used to tell the device when to play this frame. When the decoding output gets lags due to inaccurate time stamps, you may try to disable this function. Otherwise, keep it on.



- **CHANNEL COUNT**

  Choose the proper audio channels for your work, including **Follow input**, **2 Channels**, **4 Channels**, **8 Channels**. Then you can set the mapping relationship between the output and source channels. By default, it is **Follow input**.

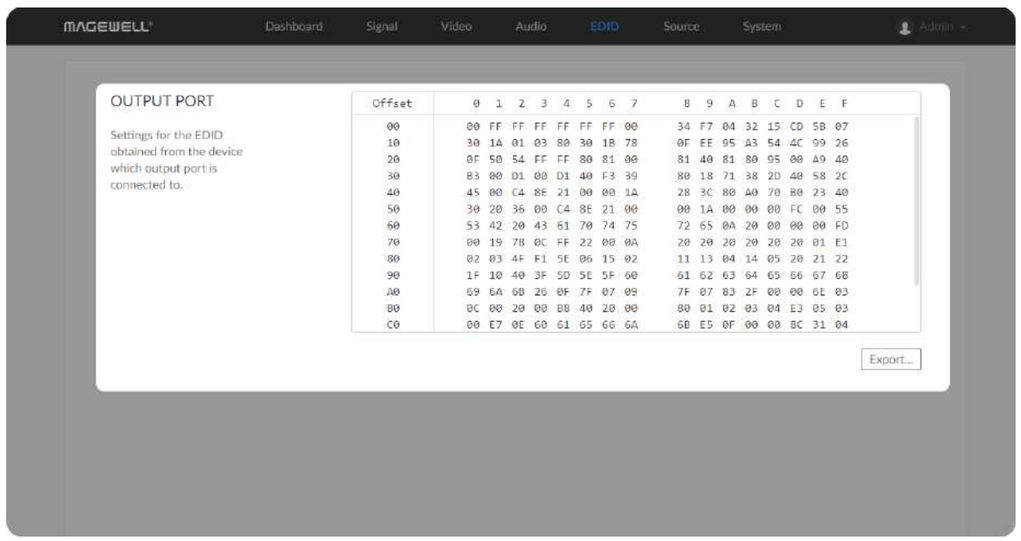
- **CHANNEL MAP**

  Map the audio channels between the output and source channels when the **CHANNEL COUNT** is not **Follow input**.

  - If the **CHANNEL COUNT** is set to **2 Channels**, you can select audio channels mapping for Channel 1/2.
  - If the **CHANNEL COUNT** is set to **4 Channels**, you can select audio channels mapping for Channel 1/2 & 3/4.
  - If the **CHANNEL COUNT** is set to **8 Channels**, you can select audio channels mapping for Channel 1/2, 3/4, 5/6, 7/8.

EDID

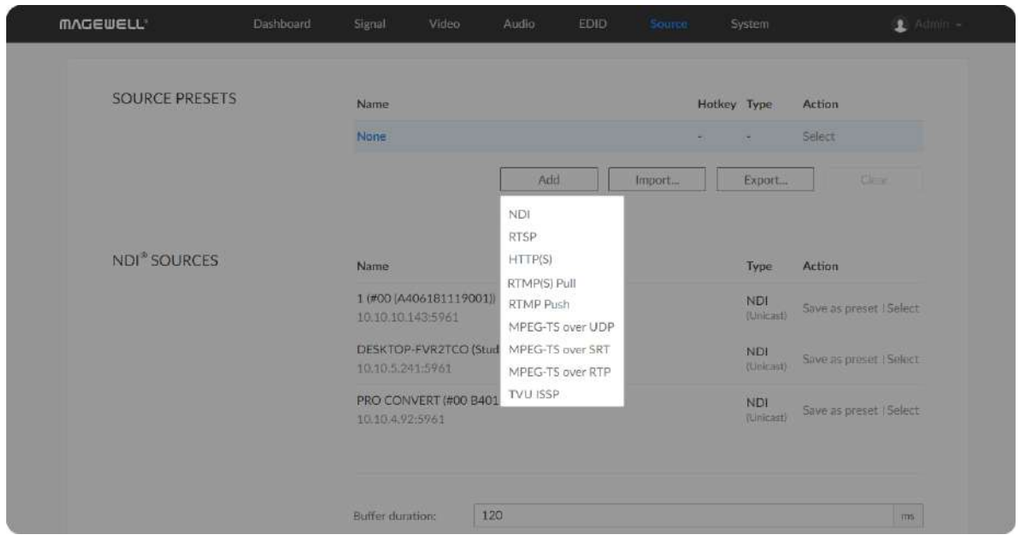
EDID shows the EDID of the presentation device connected via HDMI output port. Decoders equipped with HDMI interface support this function. SDI decoders do not have this tab.



- **Export**: Click and set the file name to export the current EDID as a .bin file.

Source

Click and enter the **Source** tab to do the settings.



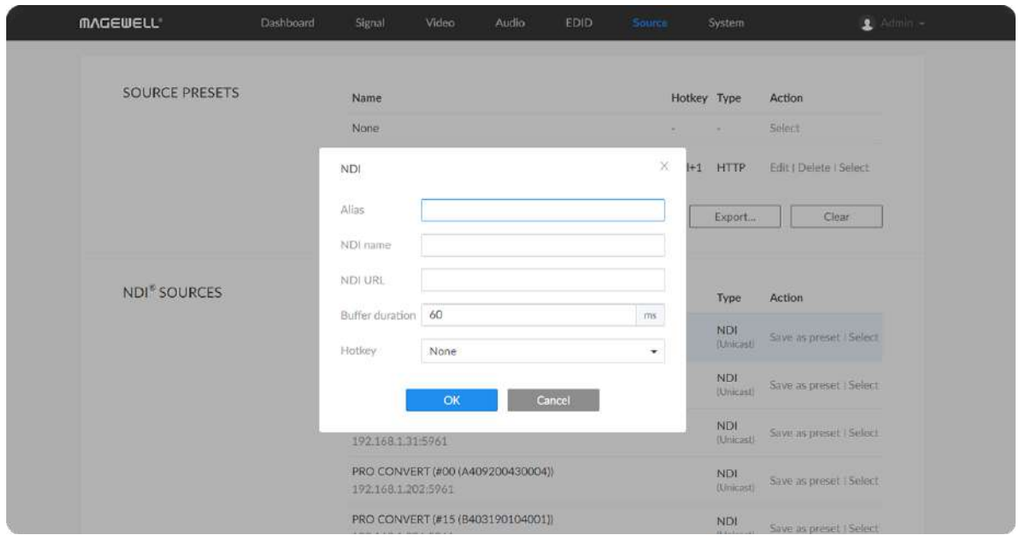
Setting SOURCE PRESETS

SOURCE PRESETS shows saved stream sources adding manually. For NDI ® decoders, you can also choose the sources from the **NDI® SOURCES**. By default, it is **None**, which means not to decode.

- Click **Edit** to modify the parameters of the stream.
- Click **Delete** to remove the source from the list.
- Click **Select** to decode current source stream.
- Click **Add** to select a protocol stream to join to the list.
- Click **Import...** to choose the JSON file listing all converted data sources.
- Click **Export...** to save current preset list as a JSON file.
- Click **Clear** to delete all presets. Please be cautious that it will delete all listed presets.
- Hover the mouse over an added source to reveal a **Copy** button, and click it to copy the URL.

Notes

- The source name of each stream in the presets list should be unique.
- Either name or URL is required when adding a new NDI ® source to an NDI® decoder.
- NDI® sources that can not be auto-detected but can be pinged by the NDI® decoder, can be added to the preset list.

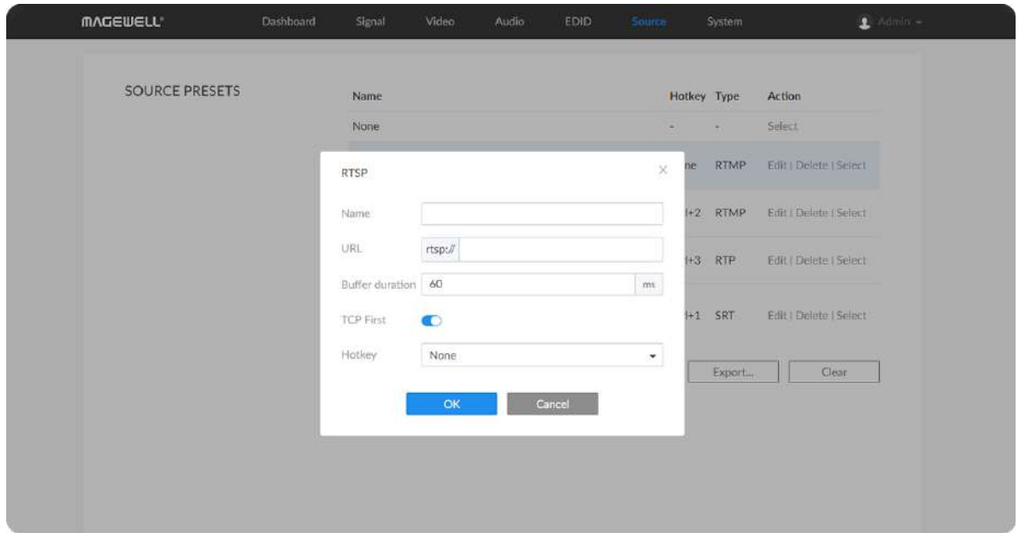


- When adding **RTMP Push** stream to the decoder, the port number specified by the sender should be 1935 or be omitted, and the stream key of the sender and receiver should be identical.
- If the source **MPEG-TS over SRT** stream has a password, **Encrypted** and **Passphrase** is required when being added to decoding list. The decoder can be either a caller or a listener.
- For NDI® source, the buffer duration ranges from 1 to 360 ms, while the non-NDI type of source ranges from 1 to 5000 ms.

NDI

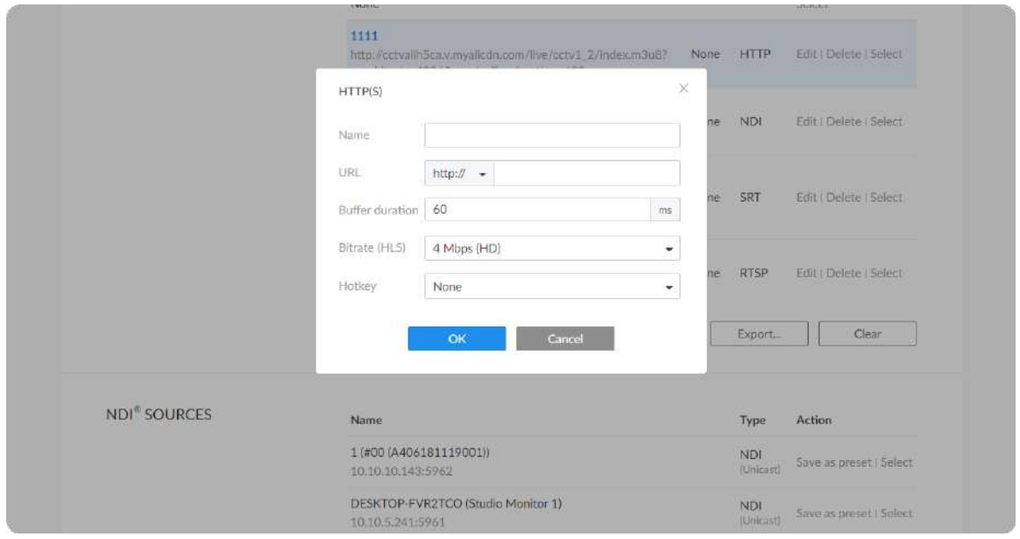
- To add an NDI source discovered by the decoder automatically
  - The auto-detected NDI sources are listed in the **NDI® SOURCES** section below. Select the target stream and click **Save as preset** to add it to the preset list after specifying an **Alias** name for it.
- To add an NDI source manually
  - **Alias:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
  - **NDI name:** Enter the steam name of ndi source, which is case insensitive.
  - **NDI URL:** Enter the steam address of ndi source formed like **ip-address:port**. For example, if you want to add a source named PRO CONVERT (#00 (A409200420003)) 192.168.1.1:5961 to the presets list, fill in the parameter with **192.168.1.1:5961**.

- Either a name or a URL is required when adding a new NDI ® source. Ensure that the two properties are those of the same unit when you are filling in them both.
- **Buffer duration:** Enter a number between 1 and 360 ms, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



RTSP

- **Name:** Specify a name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **URL:** Enter the RTSP URL. The URL syntax is **rtsp://username:password@IP-address:port**, username and password are from RTSP digest authentication.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **TCP First:** By default it is on. As is, the decoder connects to the RTSP server over a TCP connection. When the switch is off or the TCP



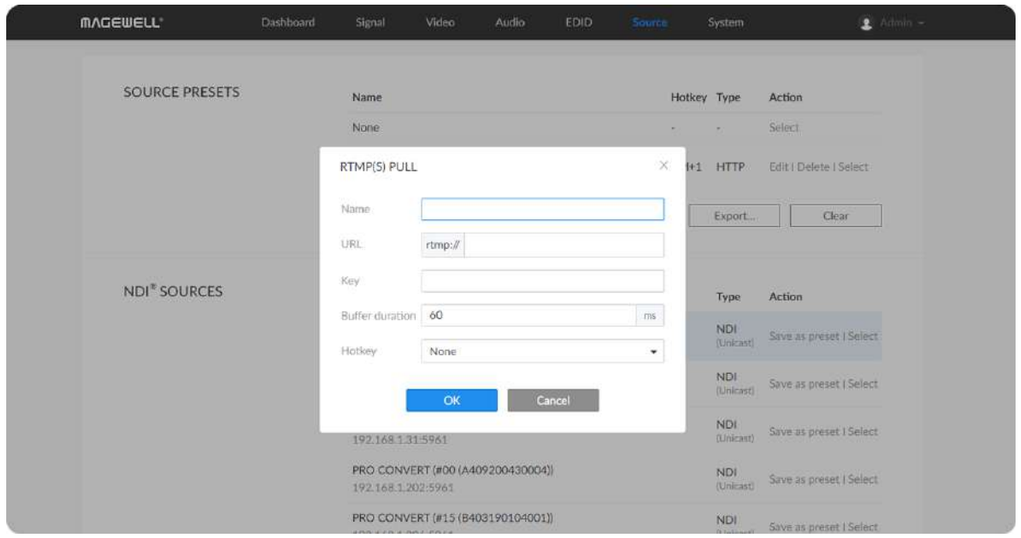
connection is timeout, a UDP connection is used instead. Set the switch by your network quality and layout.

- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.

HTTP(S)

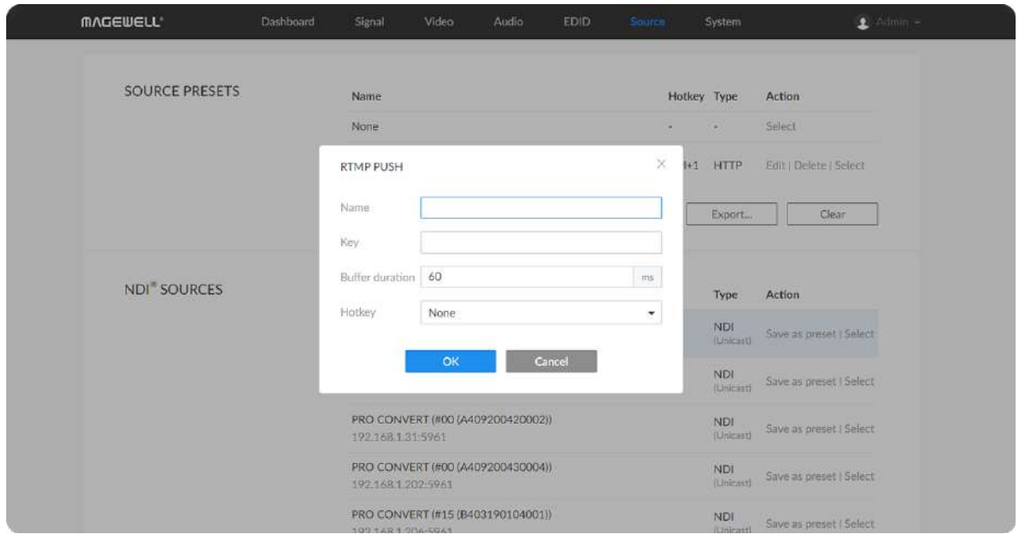
- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **URL:** Enter the URL of the decoded HTTP/HTTPS or HLS stream.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **Bitrate (HLS)** the default value is 4 Mbps (HD). The range is from 10 Mbps to 256 Kbps. If the source sends multiple quality broadcasts such as 4K60, HD720p and SD480p, and here the **Bitrate** is specified as 6 Mbps, the HD720p streams is likely be the chosen one, or if the **Bitrate** is specified as 256 Kbps, the SD480p is most likely be chosen. Streams with high resolution and bitrate / quality requires larger bandwidth and better network connection, so you are recommended to set the parameter by your needs and network conditions.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by

pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



RTMP(S) Pull

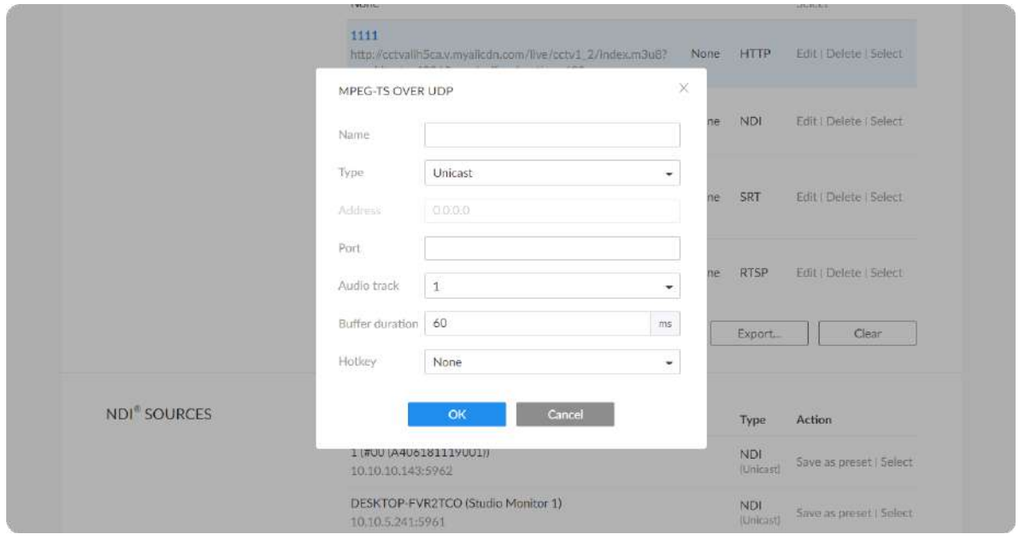
- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **URL:** Enter the RTMP(S) URL address, or an RTMP(S) address you obtained from the live stream platform.
- **Key:** Enter the stream key.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



RTMP Push

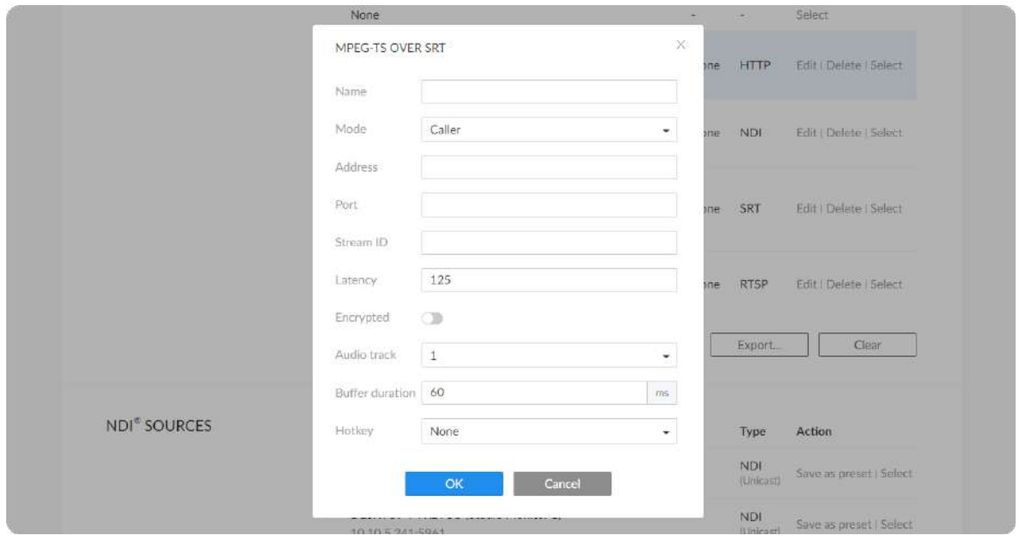
As is to send RTMP streams to the decoder, the URL of the decoder is the destination.

- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **Key:** Enter the stream key.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- The destination address of the sender must be consistent with the automatically generated address at the bottom of the pop-up configuration window.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



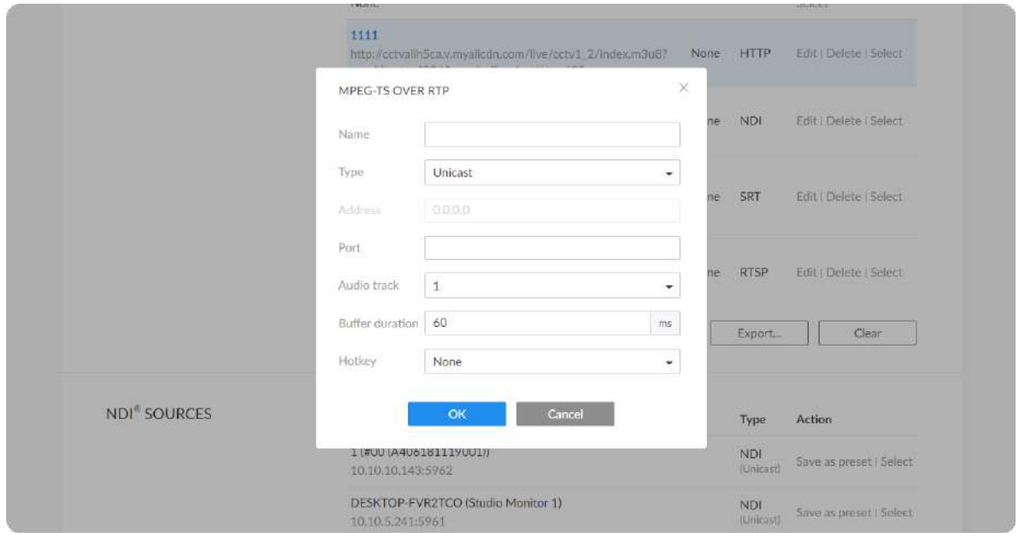
MPEG-TS over UDP

- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **Type:** Select the **Unicast** or **Multicast**. When unicast is selected, the data source streams to the decoder. When selecting multicast, you need to specify the multicast address to get the decoded stream.
- **Address:** Enter the address when the **Type** is **Multicast**.
- **Port:** Enter the port number specified by the streamer.
- **Audio track:** Select an audio track from 1 to 8. By default, track 1 is used.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters to your session, otherwise the default value is recommended.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



MPEG-TS over SRT

- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **Mode:** Select the **Caller** or **Listener**. The decoder can be worked as either a SRT Caller to call a listener, or a SRT Listener to be called.
- **Address:** Enter the Listener address when the **Mode** is set to **Caller**. If the SRT listener and caller are on the same LAN, enter the private IP address of the SRT listener on the LAN. If the SRT listener and caller are in different network environments, enter the public IP address of the SRT listener.
- **Port:** Enter the port number specified by the streamer.
- **Stream ID:** It should be consistent with the Stream ID of the sender, ranging from 0 to 512 characters. You can leave it empty if sender has no stream ID.
- **Latency:** Enter a number between 20 to 8000. The default value is 125. We recommend that the latency of the decoder is configured the same as that of the streamer.
- **Encrypted:** Turn on the switch when decoding an encrypted stream.
- **Passphrase:** Enter the password phrase for the encrypted stream.
- **Audio track:** Select an audio track from 1 to 8. By default, track 1 is used.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when

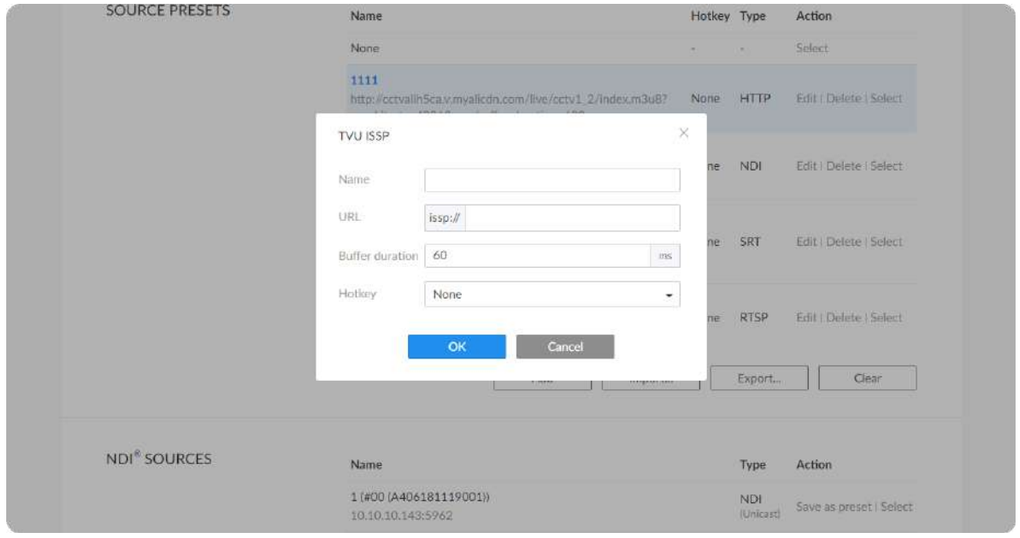


low latency matters, otherwise the default value is recommended.

- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.

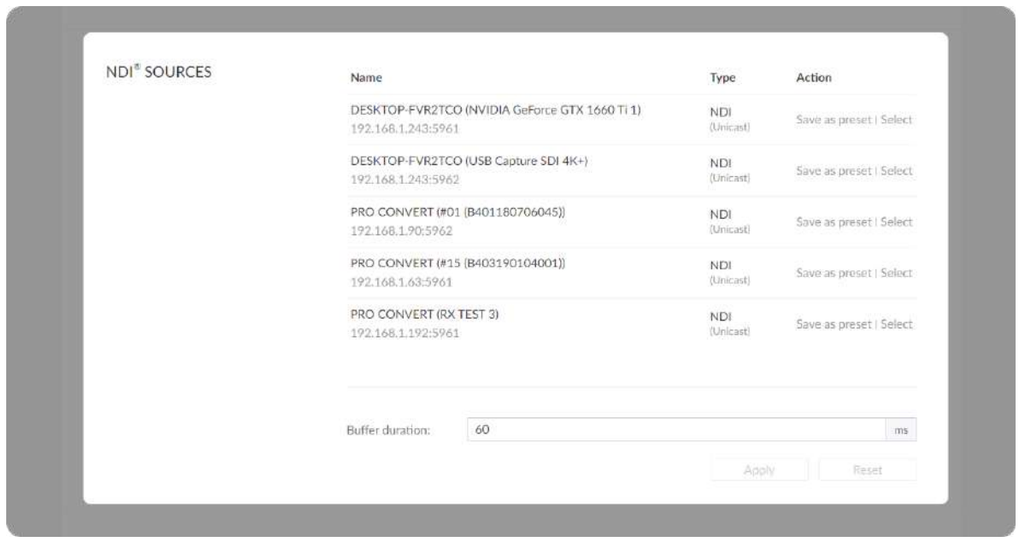
MPEG-TS over RTP

- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **Type:** Select the **Unicast** or **Multicast**. When unicast is selected, the data source streams to the decoder. When selecting multicast, you need to specify the multicast address to get the decoded stream.
- **Address:** Enter the address when the **Type** is **Multicast**.
- **Port:** Enter the service port specified by the streamer.
- **Audio track:** Select an audio track from 1 to 8. By default, track 1 is used.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



TVU ISSP

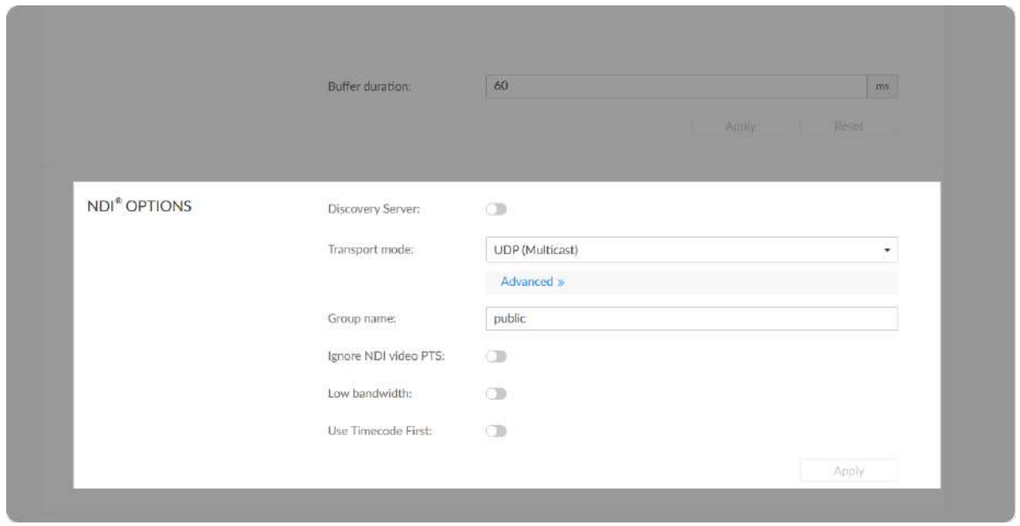
- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **URL:** Enter the issp address.
- **Buffer duration:** Enter a number between 1 and 5000, and the default value is 60. The buffer duration is suggested to be greater than the **Jitter** value shown in the **Dashboard** tab for a smoothy video. Shorten it when low latency matters, otherwise the default value is recommended.
- **Hotkey:** By default it is none. It allows you to switch decoding stream by pressing the specified Hotkey on the keyboard connected to the decoder. AIO decoder does not have the function as the peripheral connected USB interface is replaced by SDI socket.



Setting NDI® SOURCES

NOTE: This section of parameters is ONLY available for NDI ® decoders.

- NDI® sources auto-detected by the decoder are listed here. The sources, which are in the specified group and can be pinged, are included, if **Discovery Server** is enabled in the **NDI® OPTIONS** section.
  - Click **Save as preset** to add current stream to **SOURCE PRESETS** list.
  - Click **Select** to start decoding current stream.



- **Buffer duration** ranges from 1 to 360 ms. We recommend that you set the value greater than the **Jitter** in the **Dashboard** tab.

- If low latency matters, you can shorten the **Buffer duration**. Otherwise, the default value 60 ms is recommended.
- Click **Apply** after modification.
- You can click **Reset** to reset the buffer to default value.

Setting NDI® OPTIONS

NOTE: This section of parameters is ONLY available for NDI ® decoders.

- **Discovery Server**

  Turn on the switch to allow the decoder to auto-detect a source sender in a different network segment, provided they can ping each other. And the **Server IP** should be the IP address of the server running discovery server software. By default, it is off.

  Pro Convert family product can be used as a discovery server due to the built-in Discovery Service. This feature starts automatically when your device is power on, and requires zero configuration.

- **Server IP**

  Specify one or more NDI discovery servers separated by comma.

- **Transport Mode**
  - **UDP (Unicast)** receive A/V packets via unicast UDP.
  - **UDP (Multicast)** receive A/V packets via multicast UDP. This mode is used by default. Click the "Advanced" and specify the "Multicast source subnet" for cross-segment multicast transmission.

- **RUDP (Unicast)** receive A/V packets via reliable UDP.
- **TCP (Uni-connection)** receive A/V packets are transferred via one TCP port.
- **TCP (Multi-connection)** receive A/V packets via different TCP ports.

- **Group name**
  Specify the **Group name** which the source belongs to. It is non case-sensitive, and should contain A to Z, a to z, 0 to 9 and special characters like _-. The group name entry can contain comma-separated values, allowing your decoder to receive all the groups listed here.
  By default, it is public.

- **Ignore NDI Video PTS**
  When the decoding output gets lags due to inaccurate time stamps, you may try to disable this function. Otherwise, keep it on.
  By default, it is off.

- **Low bandwidth**
  Turn on the switch for decoding NDI® stream when the network bandwidth is too low to have a smooth video. Generally, if the resolution is higher than 2048 x 1080, the height and width will be reduced to a quarter of the original, that is one-sixteenth of the original resolution; otherwise the height and width will be reduced to half of the original value, that is one-quarter of the original resolution. Meanwhile, the frame rate will drop to about 15 FPS. By default, it is off.

- **Use Timecode First**
  When enabled, Timecode is used for synchronization to avoid stuttering caused by inaccurate timestamps on some sources.

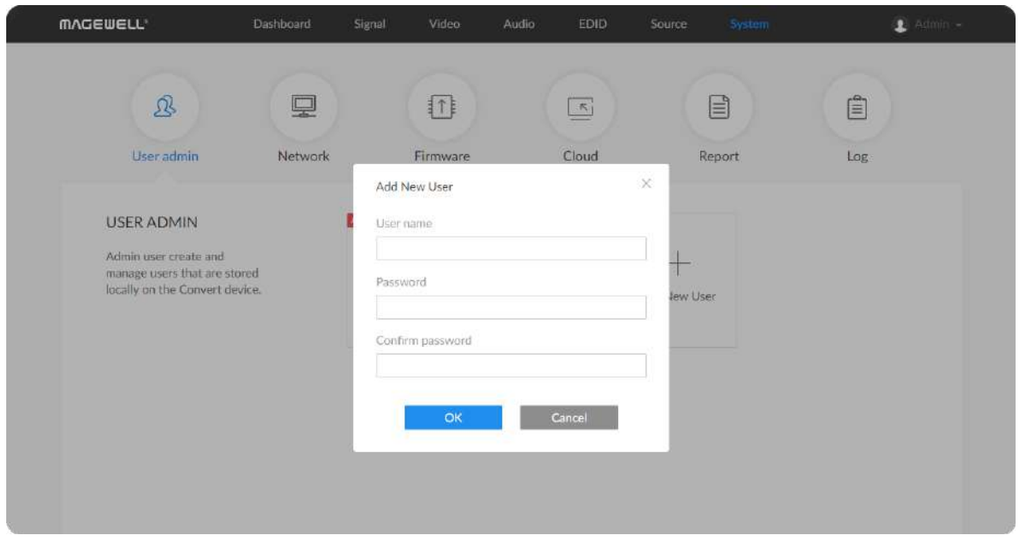
Note: Click **Apply** to save the changes.

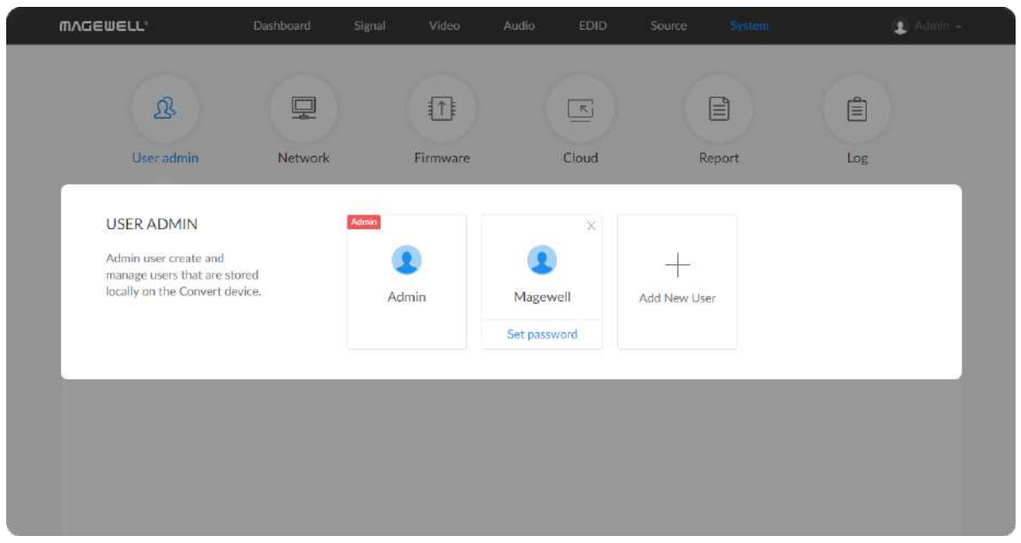
System

With administrative rights, you can access the **System** tab to control more functions, such as:

- Creating or removing general user accounts for accessing the decoder
- Changing passwords for all users of the decoder
- Changing the decoder's name
- Network settings for joining a specific LAN
- Updating firmware for the latest features and improvements
- Support for cloud-based device management
- Exporting reports and logs to get technical support
- Rebooting or resetting the decoder to fix problems

Otherwise, the **System** tab is invisible when you log in as a general user.





Creating/Removing General Users

After signing in with default admin account, you may need to add general users to give them permissions to do basic operations, like monitoring the device, or setting some of the parameters.

1 Access the Web UI, and sign in as administrator.

2 Click and enter the **System > User admin** tab.

3 Click **Add New User**.

4 Type in the user name, password, and confirm your password.

- The username is a string of 3 to 12 characters, which contains the letters A-Z, a-z, numbers 0-9 and underscore.
- The password is a string of 1 to 32 characters, which contains the letters A-Z, a-z, numbers 0-9 and special characters _-~!@#$%^&*-+=.

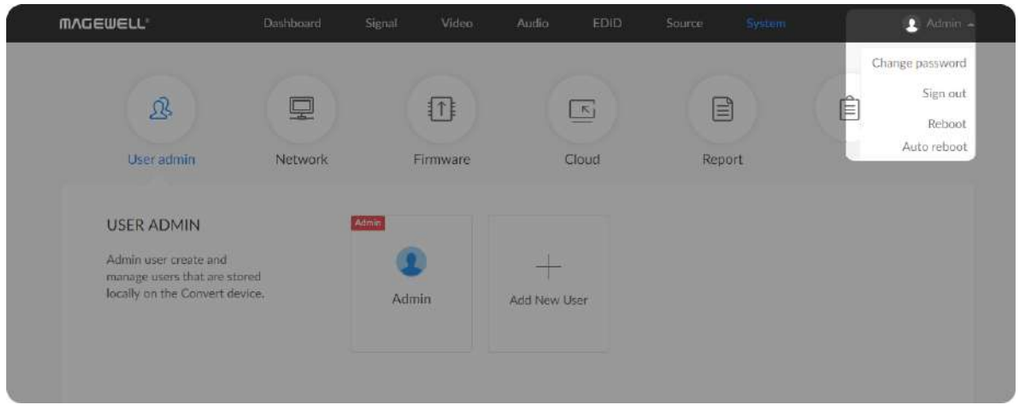
5 Click **OK**.

6 Repeat Step 3 to 5 to add multiple users.

Decoders support the addition of up to 15 general users.

7 To delete a user, move the cursor to the user name you want to delete, then click the delete button **X** appeared at the top-right corner.

8 Confirm the deletion when prompted.



Setting Password

After login, You can either set up a password in the user account drop-list, or in the **System** tab (with administrative rights).

Solution 1: Setting via the user account drop-list

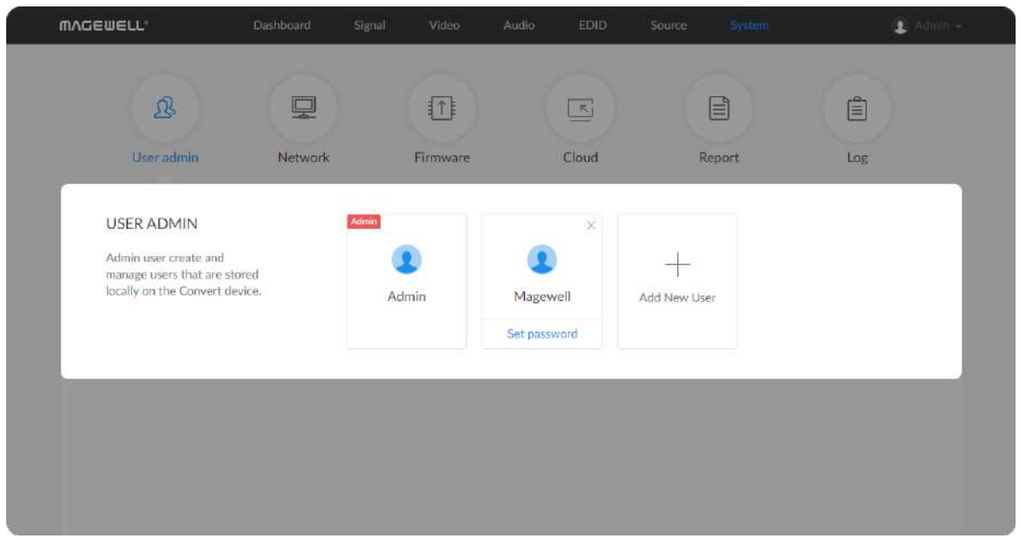
1 Access the Web UI, and sign in with your username and password.

2 Click the drop-list icon beside the logged-in username, and click **Change password**.

3 In the prompt window, type in your old password, the new password, and confirm your new password.

The password is a string of 1 to 32 characters, which contains letters A-Z, a-z, numbers 0-9 and special characters _~!@#$%^&*-+=.

4 Click **OK**.



Solution 2: Setting in the System tab

1 Access the Web UI and sign in from the administrator account, then you can change any user's password.

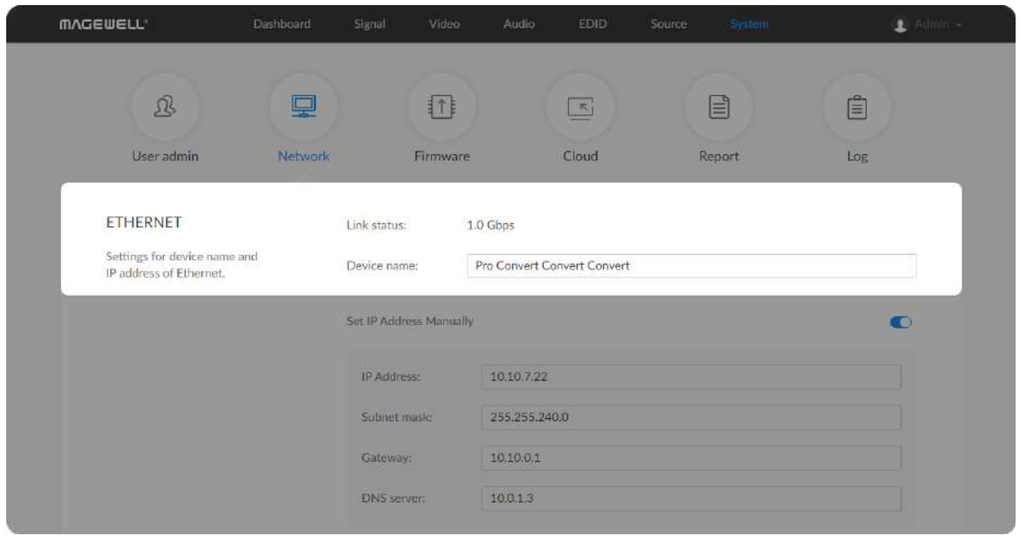
2 Click and enter the **System** tab.

3 Move the cursor to the specific user name, then click **Set password**.

4 In the prompt window, type in and confirm your password.

The password is a string of 1 to 32 characters, which contains letters A-Z, a-z, numbers 0-9 and special characters _~!@#$%^&*-+=.

5 Click **OK**.

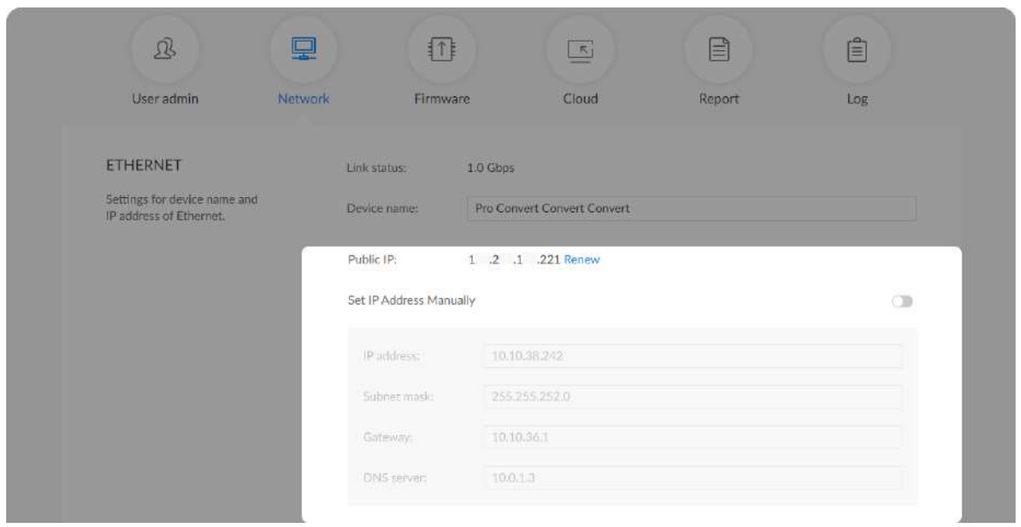


Setting Device Name

To change device name in the **System** tab requires administrative rights. By default, the device name is 'Pro Convert + serial number' .

1. Access the Web UI, and sign in as administrator.
2. Click and enter the **System** tab, then select **Network**.
3. Enter a new **Device name**.

   The device name is a string of 1 to 30 non-case sensitive characters, containing letters a to z, A to Z, 0-9, spaces and special characters like _-+.
4. Click **Apply** to save changes, and confirm with **Yes** when prompted.

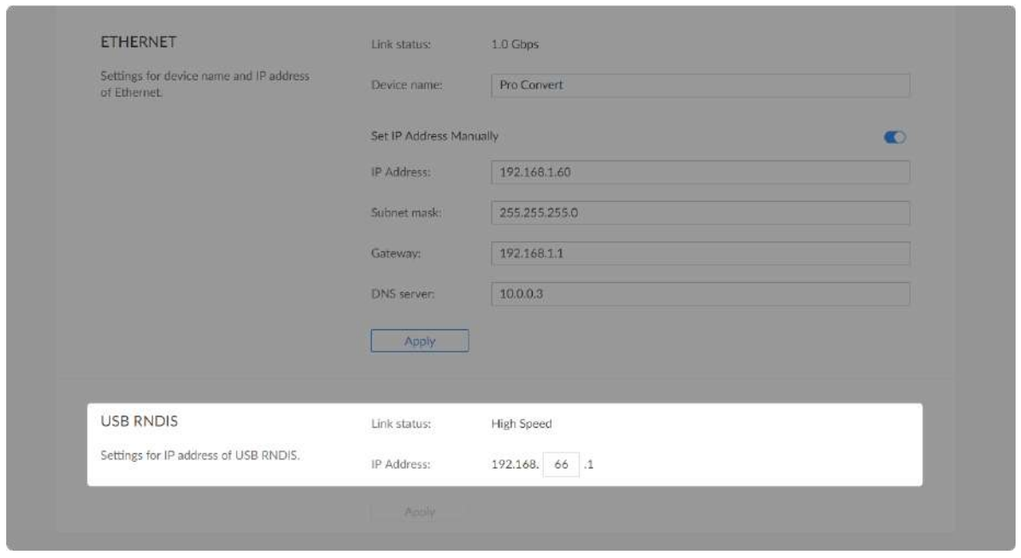


Network Settings

To change network connections in the **System** tab requires administrative rights. You can change the device name while setting network parameters. By default, the Pro Convert unit automatically detects any connected network. You can set a static IP Address if the device failed to auto-configure using DHCP. If multiple devices are connected using Ethernet over USB, change the RNDIS IP address according to your own arrangement.

Setting Ethernet IP Address

1. Access the Web UI, and sign in as administrator.
2. Click and enter the **System** tab, then select **Network**.
3. Click **Obtain Public IP** to get a dedicated, reachable public IP address, and click **Renew** to obtain a new one.



4 Turn on **Set IP Address Manually**, then enter a new **IP address**, **Subnet mask**, **Gateway**, and **DNS server**.

5 Click **Apply** to save changes.
When the prompt appears, click **Yes**.

6 Type the manually assigned IP address in your web browser to access the Web UI, verifying if the network settings work.

Setting Ethernet over USB IP Address

RNDIS (Microsoft's widely used Ethernet over USB protocol)/ECM (Ethernet Control Model) provides a virtual Ethernet link for the decoder to connect to a computer operating system.

Note:

- It is not recommended that you modify this IP address unless there is a conflict on your LAN.
- Do not connect more than one decoder simultaneously to one system when using Ethernet over USB.

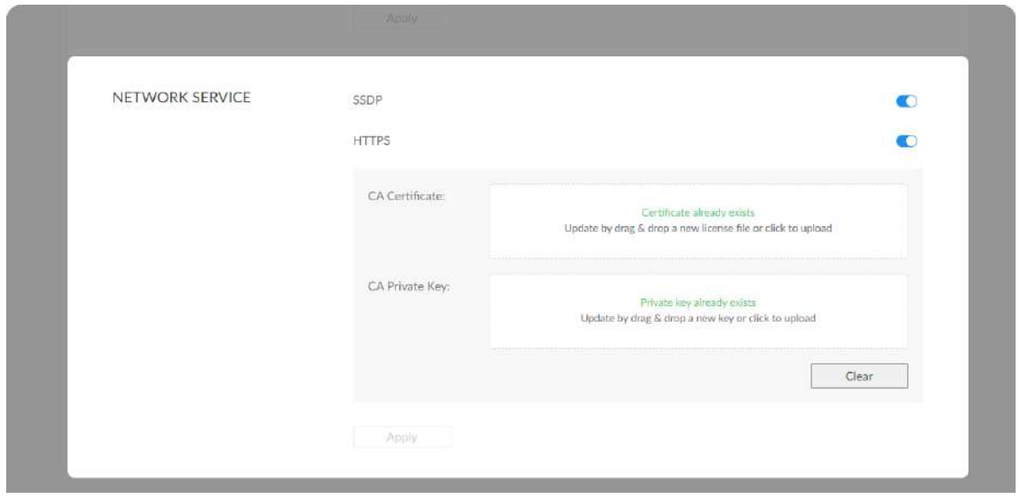
1 Access the Web UI and sign in as administrator.

2 Click and enter the **System** tab, then select **Network**.

3 Click **Obtain Public IP** to get a dedicated, reachable public IP and click **Renew** to get a new one.

4 Enter a new **IP address** for Ethernet over USB.

5 Click **Apply** to save changes, then click **Yes** when prompted.



Setting Network Services

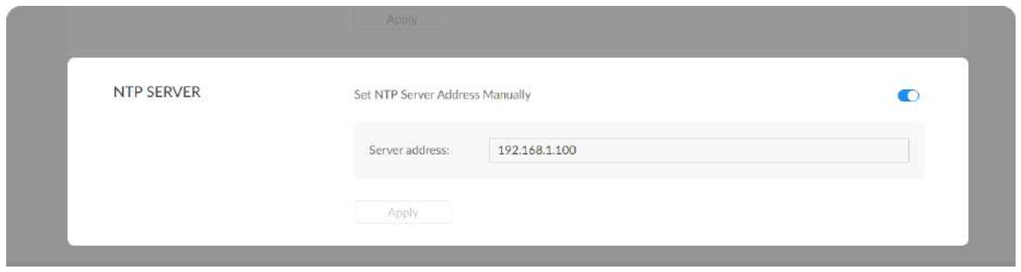
- Set SSDP

  Simple Service Discovery Protocol, it is on by default. After turning it off, the device will stop advertising and can not be discovered by others.

- Set HTTPS

  1. Turn on HTTPS, then import a CA certificate and private key into the device.
  2. (Optional) Click Clear to delete the CA certificate and private key from the device.
  3. Click **Apply**.

     You need to reboot the device to make your modifications of HTTPS work.



Setting NTP Server

- Set NTP Server Address Manually

  Off by default. Turn it on to specify an IPv4 server address to synchronize the clocks of the device to a precise time source.

- Click **Apply**.

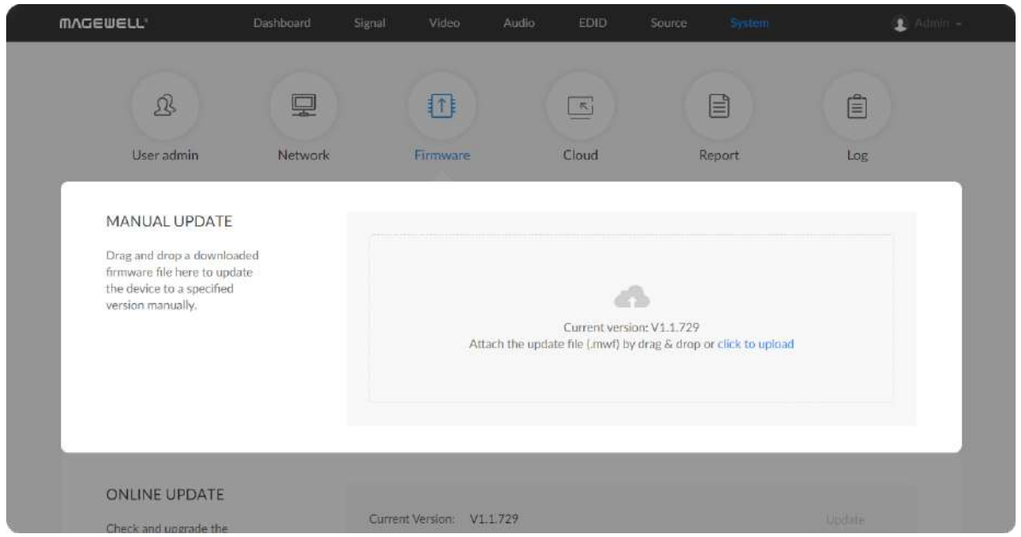


Figure1. Click to update



Figure2. Click Reboot

Updating the Firmware

To update the firmware via the **System** tab requires administrative rights.

Note: Currently online update is not supported.

1. Access the Web UI, and sign in as administrator.
2. Click and enter the **System** tab, then select **Firmware**.
3. Click on **click to update** to select the **.mwf** firmware update file from your local storage, or just drag and drop the file from your computer into the upload zone.

   You can download the Pro Convert firmware package from the Downloads section of the Magewell website: www.magewell.com/downloads/pro-convert.
4. Click **Open** to upload the updates package.

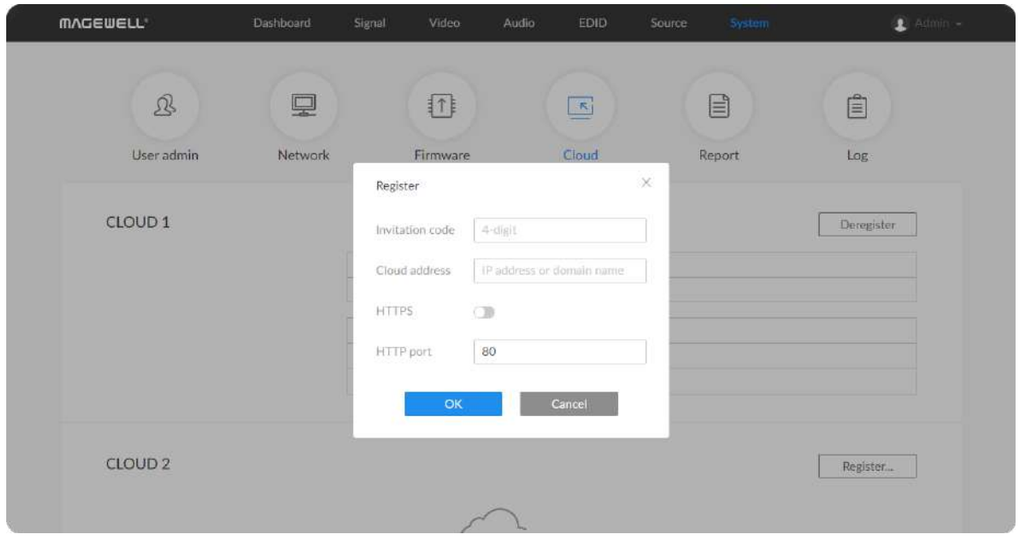
   The device will automatically verify the update file.

   The unit will upload the file after the file verification is passed.
5. In the **Manual Update** window, click **Update**.

   DO NOT shut down or reboot the device when updating firmware.
6. Click **Reboot** to complete the update.

   The changes take effect after you reboot the device.
7. Log in to your unit's Web UI and check the current **Firmware version** in the **Dashboard** tab.

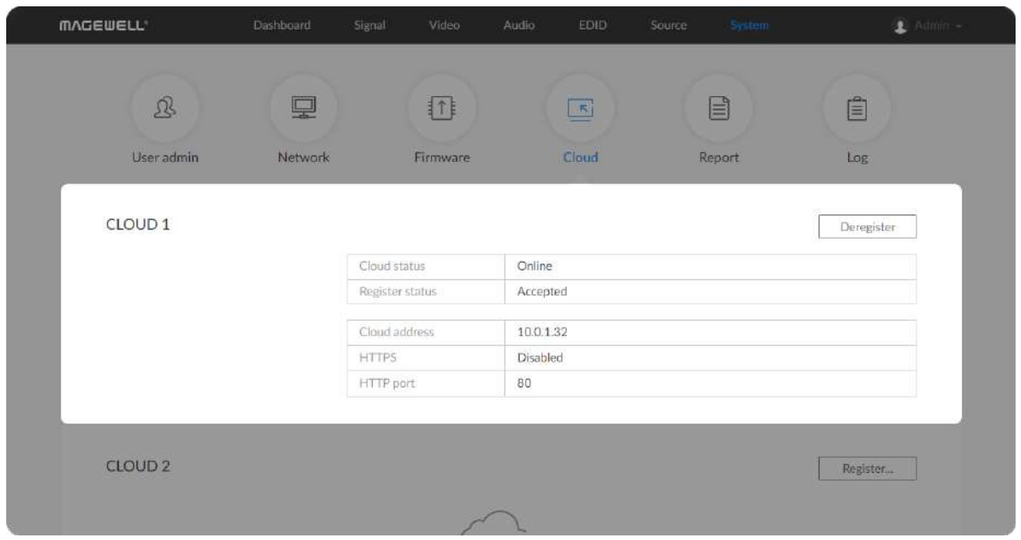
   The **Firmware version** should have changed to show the number of the new update.



Registering for Cloud-based Device Management

Pro Convert can be remotely controlled using Control Hub. Detailed information refers to official site. Currently, the device supports joining up to two cloud management platforms simultaneously (Cloud 1 and Cloud 2).

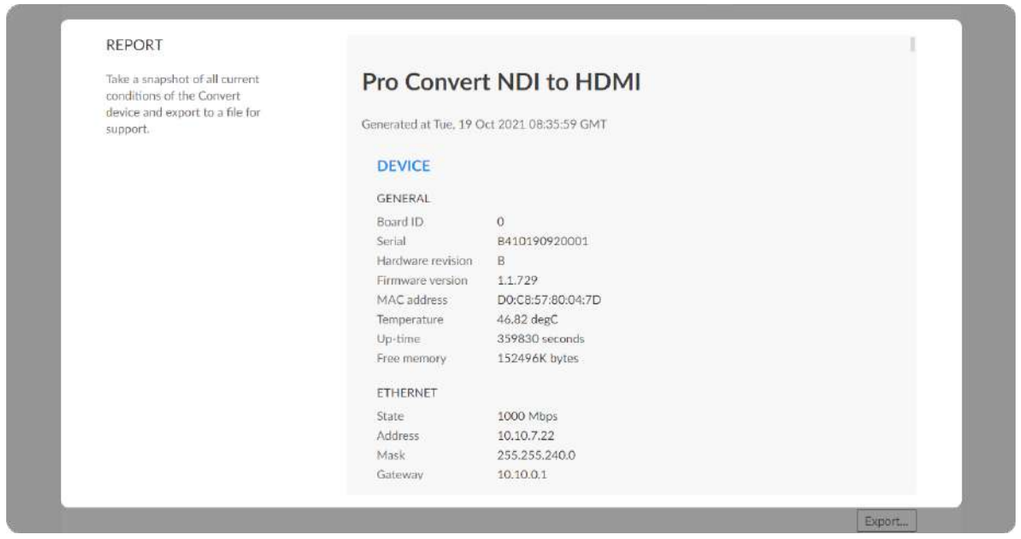
- Click **Register...** and input parameters in the prompted window.
  - **Invitation code:** 4-number security code obtained from cloud platform. If none, leave it empty.
  - **Cloud address:** input IP address or domain name of cloud platform.
  - **HTTPS:** turn it on when using HTTPS connection.
  - **HTTP/HTTPS port:** input HTTP/HTTPS port number, which should be consistent with that of the connected Cloud. The default HTTP port is 80.



Checking Cloud Status

- **Cloud status: Online** or **Offline**. Online indicates that the communication between device and Cloud platform goes well. On the other hand, Offline indicates the communication is interrupted.
- **Register status:** shows current status of cloud-join permission, including
  - Incorrect invitation code: you need to change your registration with correct code.
  - Waiting: registration is successfully submitted to Cloud and you can click **Cancel** to withdraw the registration.
  - Approved: registration is approved. This device can be remotely controlled.

  - Rejected: Registration is denied.
  - Deleted: Registration is deleted, you can re-apply for joining the Cloud.
- **Cloud address:** shows IP address or domain name of cloud platform.
- **HTTPS:** show **Enabled** when using HTTPS connection. Otherwise, it is **Disabled**.
- **HTTP/HTTPS port:** shows the HTTP/HTTPS port of device used to communicate with Cloud.



Exporting Reports and Logs

You can export reports and logs from your decoder when you want to get help from the Magewell Support team. These files will help our support engineers get a better understanding of your device status and other related equipment like the source device. These operations require administrative rights.

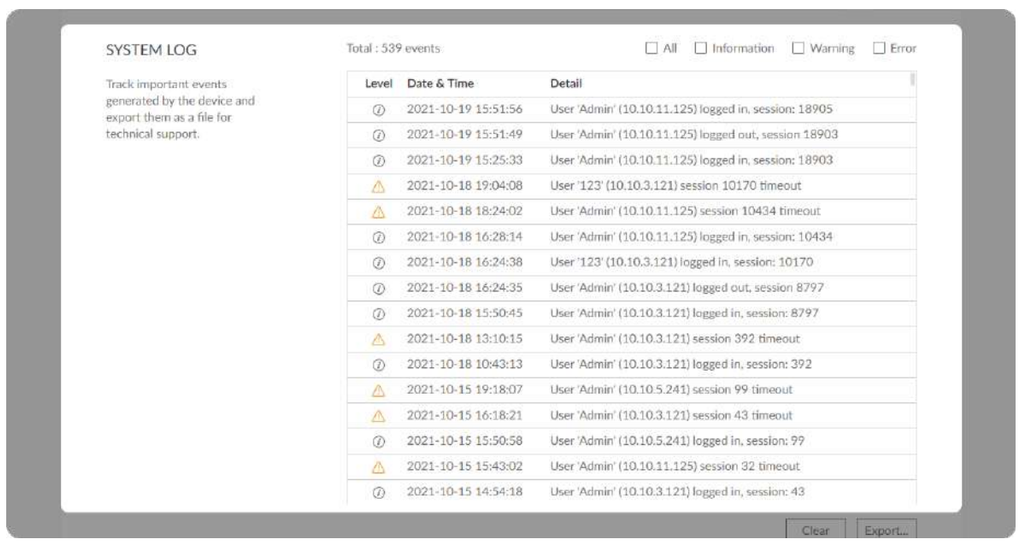
Exporting Reports

1 Access the Web UI and sign in as administrator.

2 Click and enter the **System** tab, then select **Report**.

3 Click **Export...** to generate a .html file.

4 When the prompt appears, click **Export**.



Clearing/Exporting All Logs

1 Access the Web UI and sign in as administrator.

2 Click and enter the **System** tab, then select **Log**.

3 (Optional) Filter current logs.

By default, all logs are displayed in the table. Log entries can be categorized as "error", "warning", and "information".

- **Total** shows the total number of filtered events.
- **All**: Check to show all logs.

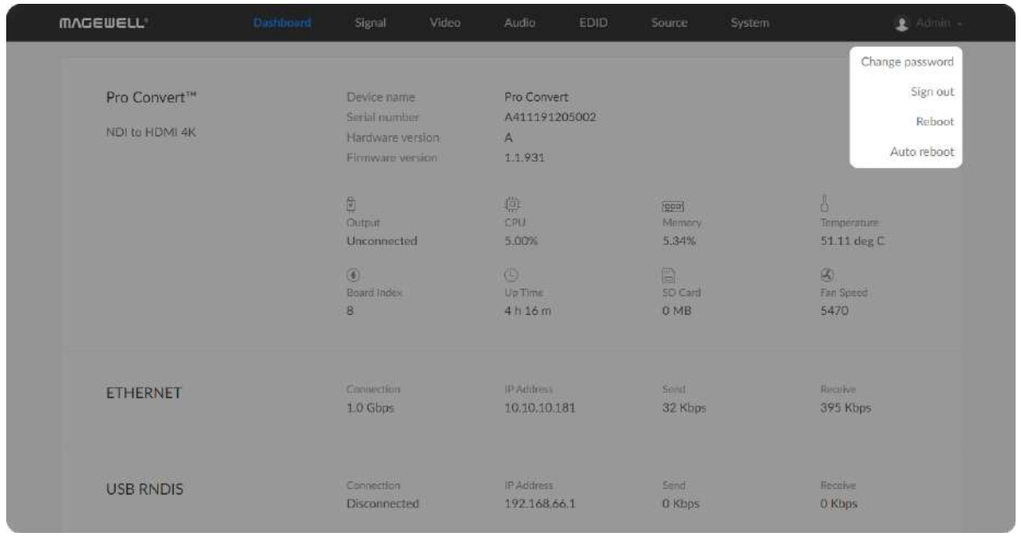
  The device can store up to 1000 local log entries. After 1000 entries have been recorded, the oldest entry will be deleted before a new one can be added.
- **Information**: Check to show information logs - which record user actions or significant system events, e.g. login and signal locked.
- **Warning**: Check to show warning logs - which mean something has not worked as it should. e.g. Ethernet is disconnected or signal is unlocked.
- **Error**: Check to show error logs - which mean some serious error has happened.

4 (Optional) Click **Export...** to get a .html file of all logs.

When prompted in the window, click **Export**.

5 (Optional) Click **Clear** to delete all logs.

When prompted in the window, click **Yes**.



Rebooting/Resetting Pro Convert

Rebooting/resetting your Pro Convert when problems are encountered.

Rebooting Pro Convert

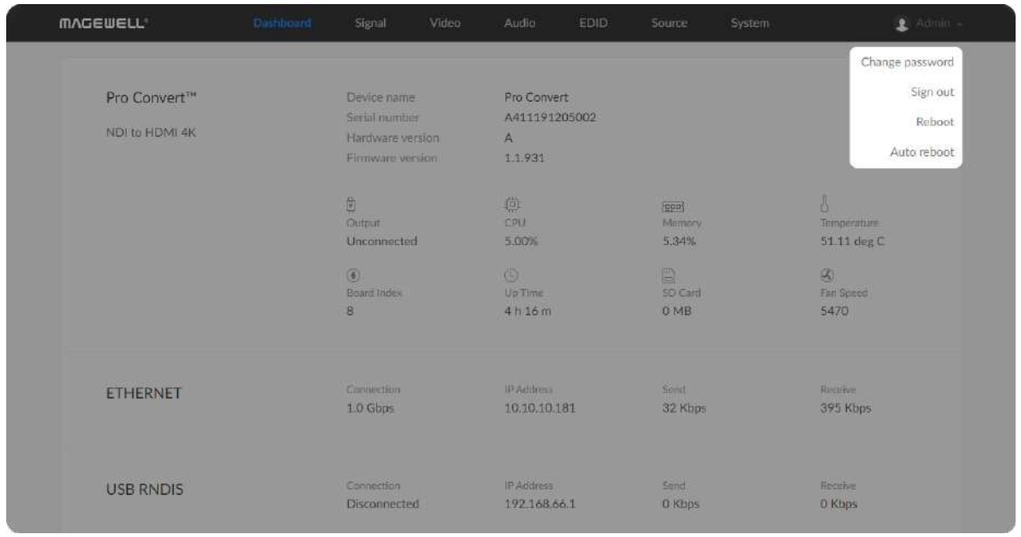
⚠ Rebooting your device will not lose any of your configuration settings.

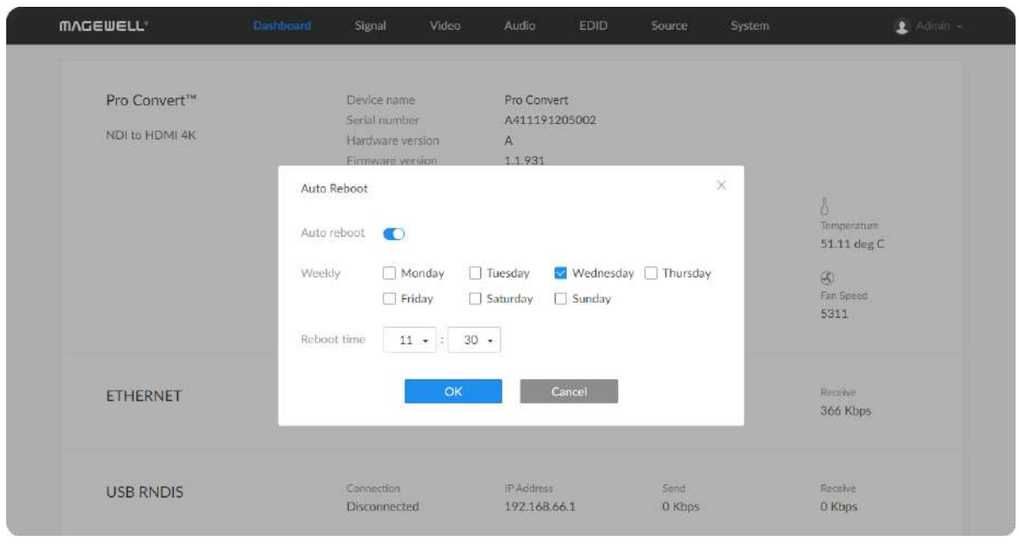
1 Access the Web UI and sign in as administrator.

2 Click the drop-list icon ▼ behind your username at the top-right of the Web UI and select **Reboot** or **Auto reboot**.

3 When prompted in the window, click **Reboot** to restart decoder immediately; or turn on **Auto reboot** to schedule device restart and set **Weekly** and **Reboot time** in 24H.

You can specify a specific time weekly in the prompt **Auto reboot** window.





Scheduling Auto Reboot

Set up a restart schedule for your device.

By default, Auto Reboot is disabled.

1. Access the Web UI and sign in as administrator.
2. Click the drop-list icon behind your username at the top-right of the Web UI and select **Auto reboot**.
3. Turn on the **Auto reboot** switch.
   Specify the weekday and time for your reboot schedule. Then your device will automatically restart at the scheduled time.
4. Click **Apply** to save your change.

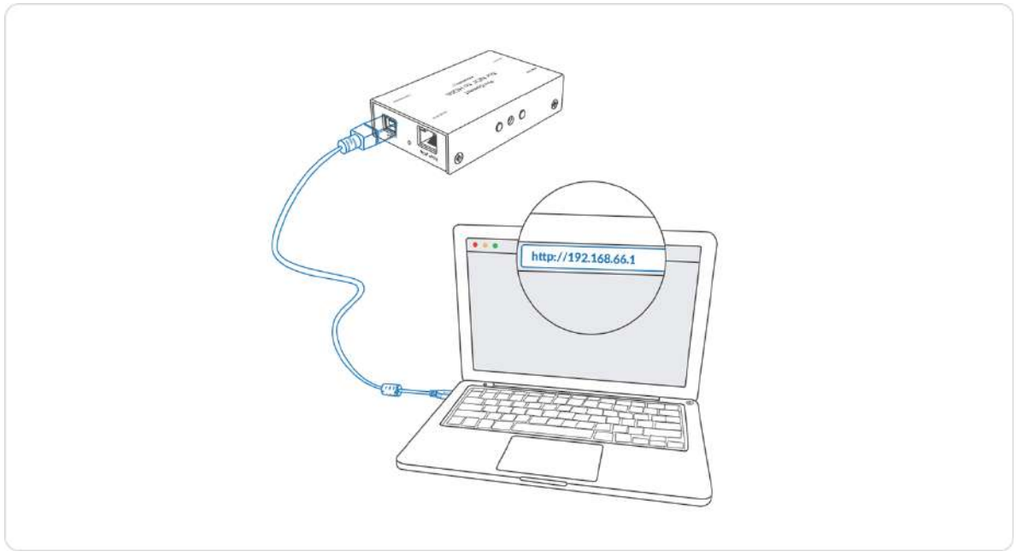


Figure1. Connections



Figure2. Reset all settings

Resetting All Settings

⚠ Warning: Resetting your device will lose all your configuration data.

1. Connect the device and your computer with the USB cable.
2. Launch your web browser and type in the Ethernet over USB address to access the Web UI **SIGN IN** page.

   The default address is 192.168.66.1. Please do not change it unless there is a conflict in your network.
3. Click **Reset all settings** at the top right corner of the **SIGN IN** page.

   The reset process may take a few minutes.

OSD Menu Configuration

Pro Convert provides quick settings for your device via an on-screen Options menu, allowing you to quickly set up new sessions. In the following sections, we take Pro Convert for NDI® to HDMI 4K as an example to describe the functions which can be configured by the OSD Options menu. Configurations and operations of other decoders are alike.

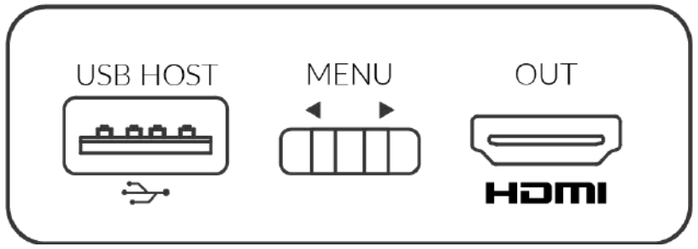


Figure 1. MENU button on 4K device

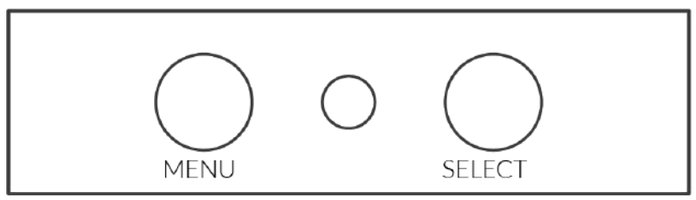
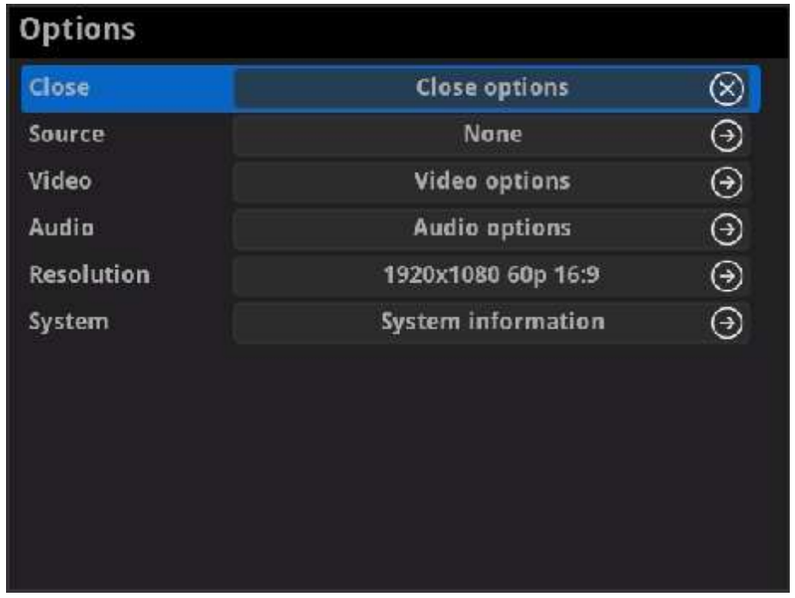


Figure 2. MENU&SELECT buttons on 2K device

Table 1. Functions of the on-board button(s)

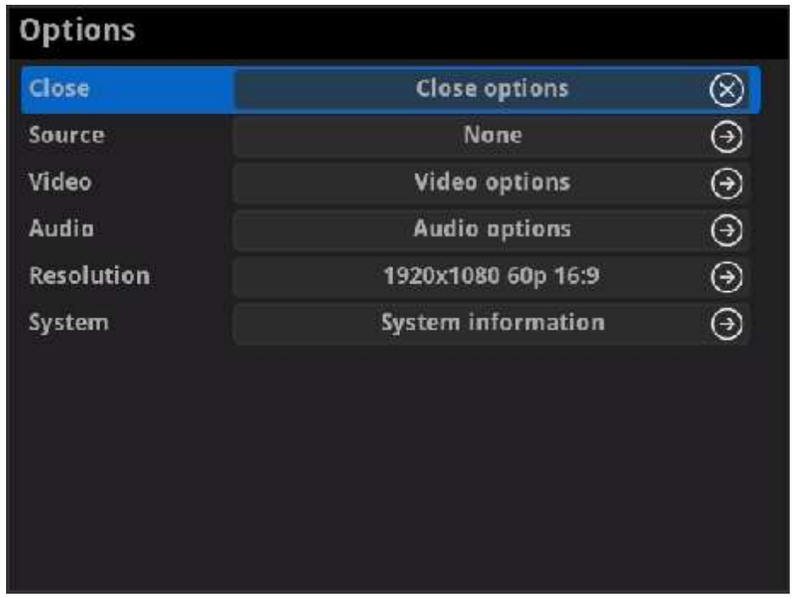
Product name	Button	Functions
for NDI® to HDMI 4K	MENU	Press to display the menu or select current parameter, or toggle the switch left and right to cycle through the options.
for NDI® to SDI for NDI® to HDMI for NDI® to AIO	MENU	Press to display the menu, or cycle through the options.
for NDI® to SDI for NDI® to HDMI for NDI® to AIO	SELECT	Press to display the menu, enter current option, or confirm the selection of specific function.



Accessing the Options Menu

Follow the operations below to turn on/off the Options menu.

- Press the **MENU** or **SELECT** (only on 2K device) button on the device to activate the Options menu.
- Click the mouse or space/enter key of the key board connected to the decoder to activate the Options menu.
- Select the **Close > Close options** to exit from the Options menu.



Options

- **Close**

  Choose to exit from the Options menu.

- **Source**

  Choose the specific video source to decode. Supports quickly switching decoding sources using hotkeys. To check hotkey of presets refer to SOURCE PRESETS in the Web UI.

  You can use Web UI to add source manually. For detailed information, refer to Web UI > Source tab.

- **Video**

  Choose to specify video parameters for your session. For detailed information, refer to Options > Video.

- **Audio**

  Choose to specify audio parameters for your session. For detailed information, refer to Options > Audio.

- **PTZ**

  Choose to specify PTZ parameters for source connected IP camera. For detailed information, refer to Options > PTZ.

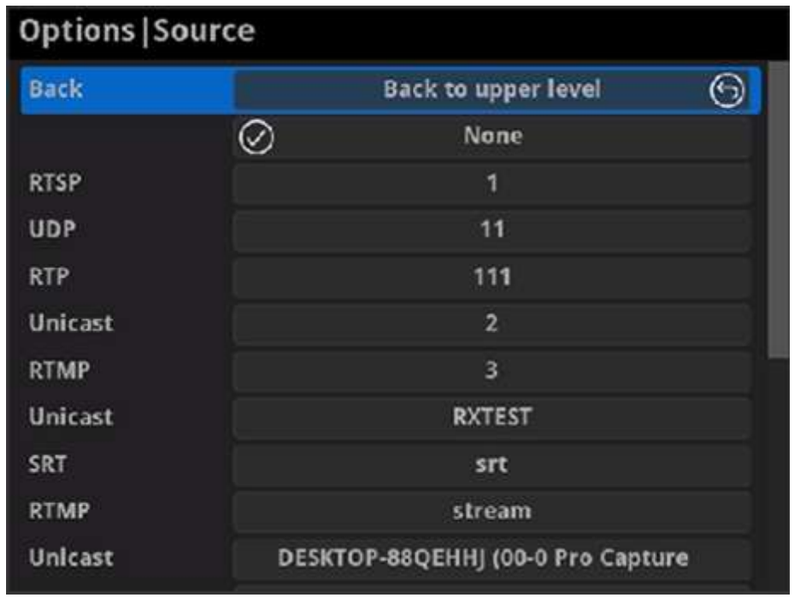
- **Resolution**

  Choose to specify resolution for presentation.

  The decoder will list supported selections of resolution, frame rate and aspect ratio in the RESOLUTION section. Options varies according to the presentation appliances.

  Specify the resolution to meet your needs, or else the default value is recommended. For detailed information, refer to Options > Resolution.

- **System**



Choose to check the device information, including IP address etc,. For detailed information, refer to Options > System.

Source

- **Back**

  Choose to go back to Options interface.

- Select streams of RTSP, Unicast (only supported by NDI ® decoders), Multicast (only supported by NDI® decoders), RTMP (Pull/Push), UDP, RTP, HTTP (including HTTP and HLS, HTTP Live Streaming) or SRT stream to decode.

  You can use Web UI to add source manually. For detailed information, refer to Web UI > Source.



Video

- **Back**

  Choose to go back to Options interface.

- **Title**

  Set the overlay layers on the output appliance.

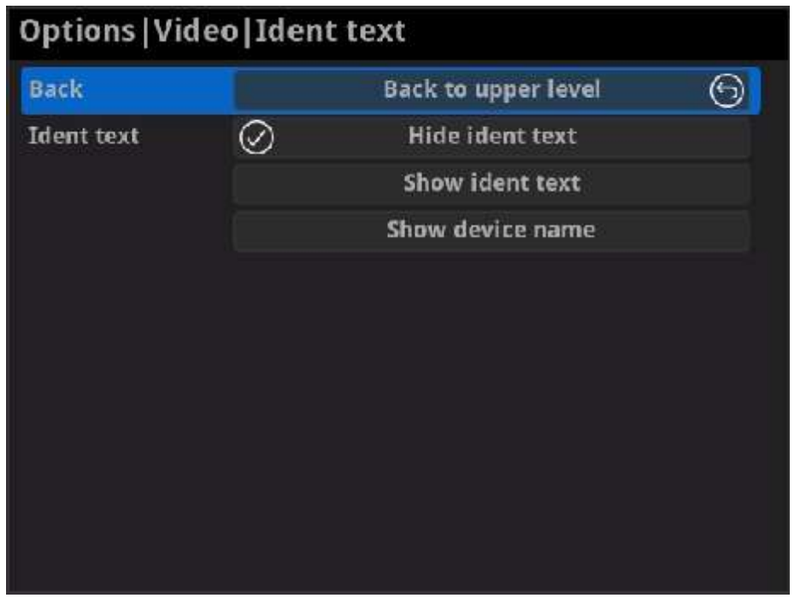
  - **Show source name & resolution**

    Check the box to show current decoded stream name at the top of the output display. By default, it is off.

  - **Show tally indicators**

    NOTE: This function is ONLY available for NDI® decoders.

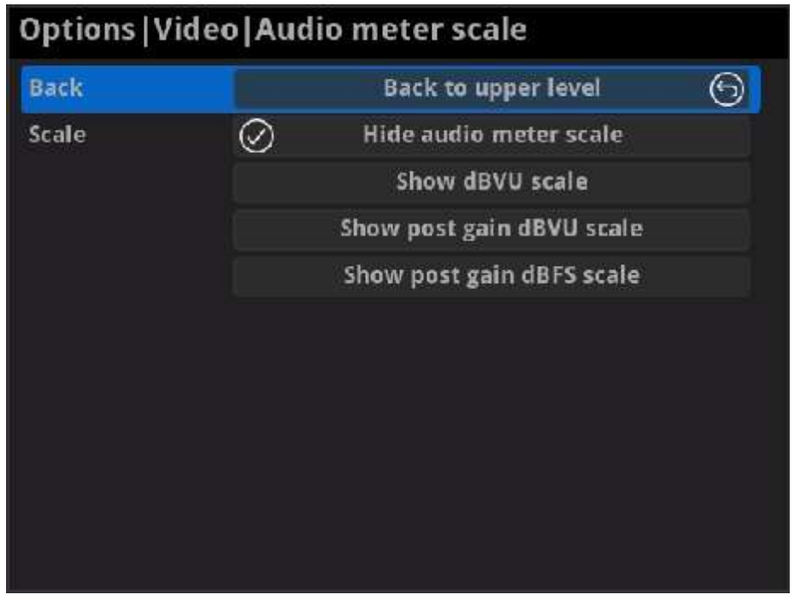
    Check the box to show the "on-air" status of selected stream at the top field of the output. If being previewed, it is ***PREVIEW***; if being on-air, it is ***PROGRAM***. The indicators locate beside the source name & resolution; otherwise, there is nothing displayed. By default, it is off.



- **Ident text**

  Choose to show/hide the ident text that overlays the output. It is used to separate multiple decoders from each other when they are working together. By default, it is Hide.

  The device name can be modified in the **Web UI > System** tab with administrative rights. The steps refer to setting device name. The steps to editing ident text refer to setting ident text.



- **Audio Meter**
  - **Show audio meter**

    Check the box to show the volume bar on the presentation screen. By default, it is overlaid on the output.

  - **Audio meter scale**

    Choose/hide the scale for the measurement of the volume.

    If **MODE** in the **Audio** tab is **EBU**, options are **Hide audio meter scale**, **Show dBu scale**, **Show post gain dBu scale**, and **Show post gain dBFS scale**. If audio gain is set, the **Show post gain dBu scale**, and **Show post gain dBFS scale** will show the gain effect. By default, it is **Hide audio meter scale**.

    If **MODE** in the **Audio** tab is **SMPTE**, options are **Hide audio meter scale**, **Show dBVU scale**, **Show post gain dBVU scale**, and **Show post gain dBFS scale**. If audio gain is set, the **Show post gain dBVU scale**,

and **Show post gain dBFS scale** will show the gain effect. By default, it is **Hide audio meter scale**.



- **Safe area**

  It ensures that the most important parts of the picture are seen by the majority presentation device. Choose from **None**, **Show 80% center view area**, **Show 4:3 aspect ratio area**, and **Show square aspect ratio area**. By default, it is **None**.

- **Center cross**

  Choose **Show center cross** to overlay the center cross on the output screen which determines the center position of the entire image, helps with interlaced scans check and static convergence.

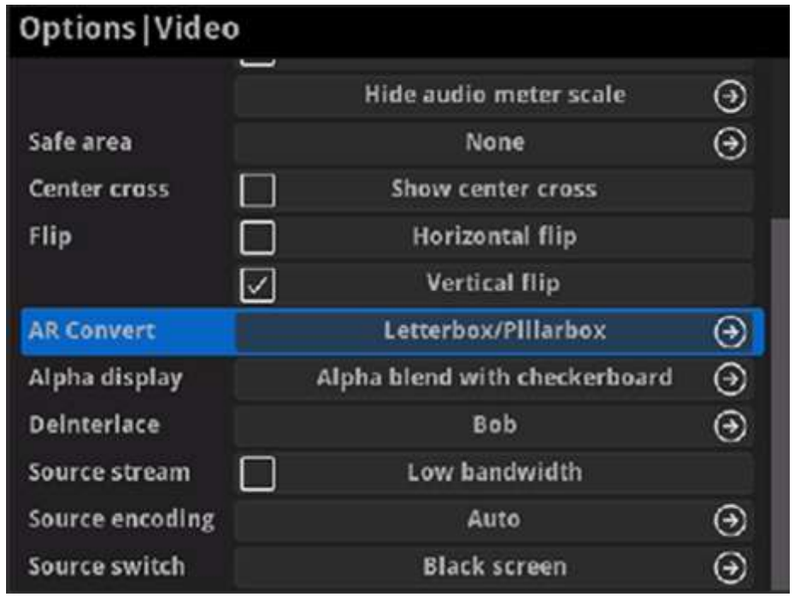
- **Flip**

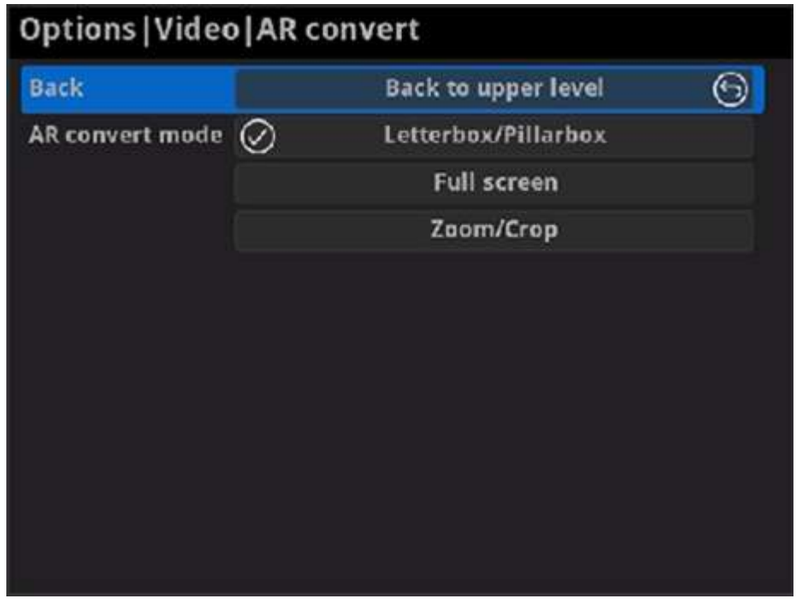
  - **Horizontal flip**

    Check the box to set a mirror effect of the video, making sure the viewer see the image in the right direction. By default, it is off.

  - **Vertical flip**

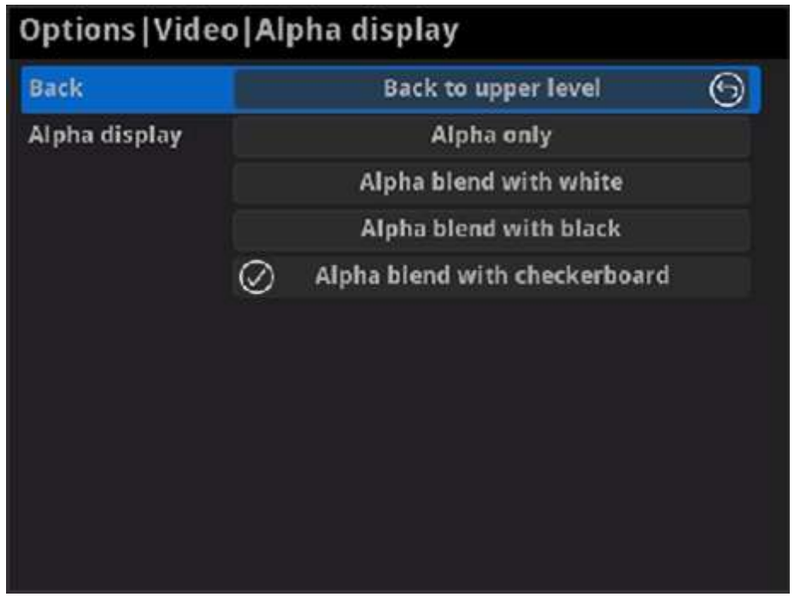
    Check the box to reverse the active image vertically, making sure the viewer see the image in the right direction. By default, it is off.

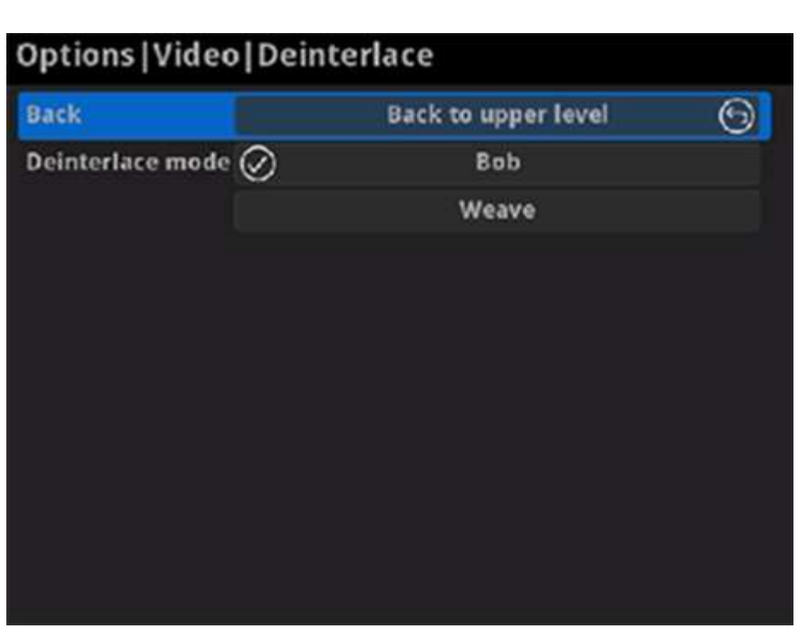




- **AR Convert**

  - **Letterbox/Pillarbox** indicates to adapt the display size of the presentation screen by filling with black borders to keep the aspect ratio of the source image. Letterbox features to fill in black bars at the top and bottom while pillarbox filling in left and right. By default, this is used.
  - **Full Screen** indicates to stretch the video image to fill the presentation screen.
  - **Zoom/Crop** indicates to use the screen aspect ratio as the decoded video aspect ratio by stretch or compression.





- **Alpha display**

  Note: This feature is ONLY supported by the NDI to HDMI 4K decoder. Set the background displayed in images where an alpha channel is present. Options are **Alpha only**, **Alpha blend with white**, **Alpha blend with black** and **Alpha blend with checkerboard**.

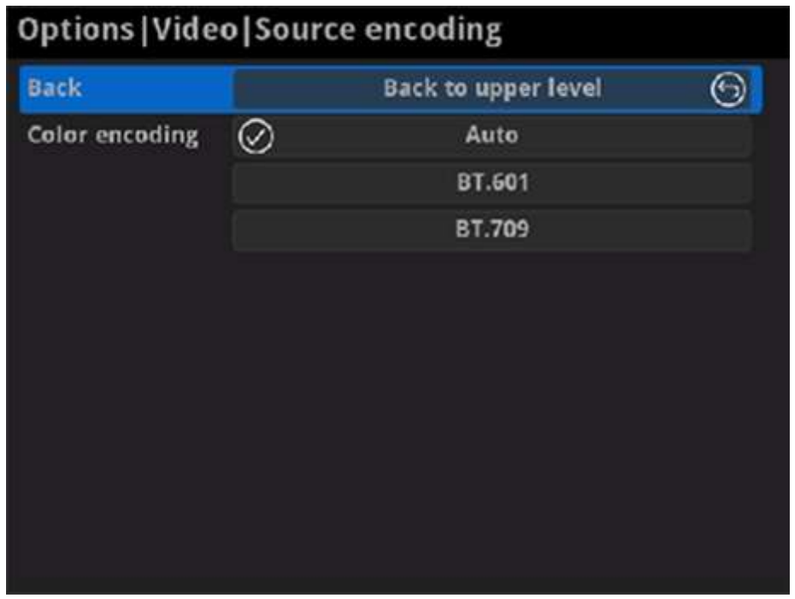
- **Deinterlace**

  Convert an interlaced source video into a progressive one using **Weave** or **Bob** method.

  - **Weave** takes pairs of fields and puts them together (every other line) to one frame. This mode is used for the original data or a static video.
  - **Bob** means the act of vertically scaling a single field to the size of a single frame. This mode is used for the motion fluidity. By default. this is used.

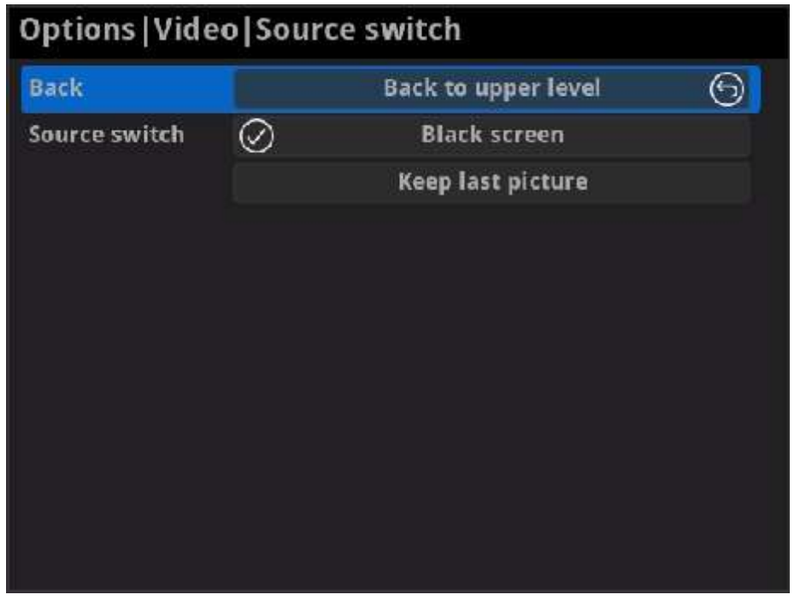
- **Source stream**

  Check the box to enable decoding at reduced resolution when the network bandwidth is too low for smooth video. Generally, if the resolution is higher than 2048 x 1080, the height and width will be reduced to a quarter of the original, that is one-sixteenth of the original resolution; otherwise the height and width will be reduced to half of the original value, that is one-quarter of the original resolution. Meanwhile, the frame rate will drop to about 15 FPS. By default, it is off.



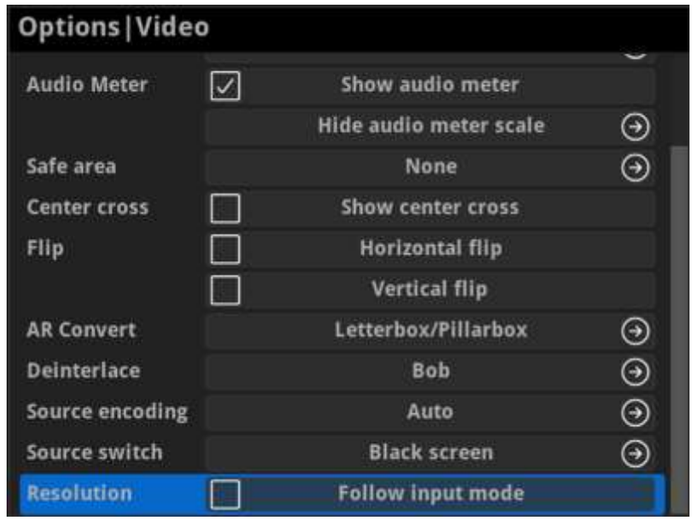
- **Source encoding**

  Set the color space to **BT.601** or **BT.709**. When it is set to **Auto**, the color space will be BT.601 for SD and BT.709 for HD according to the source.



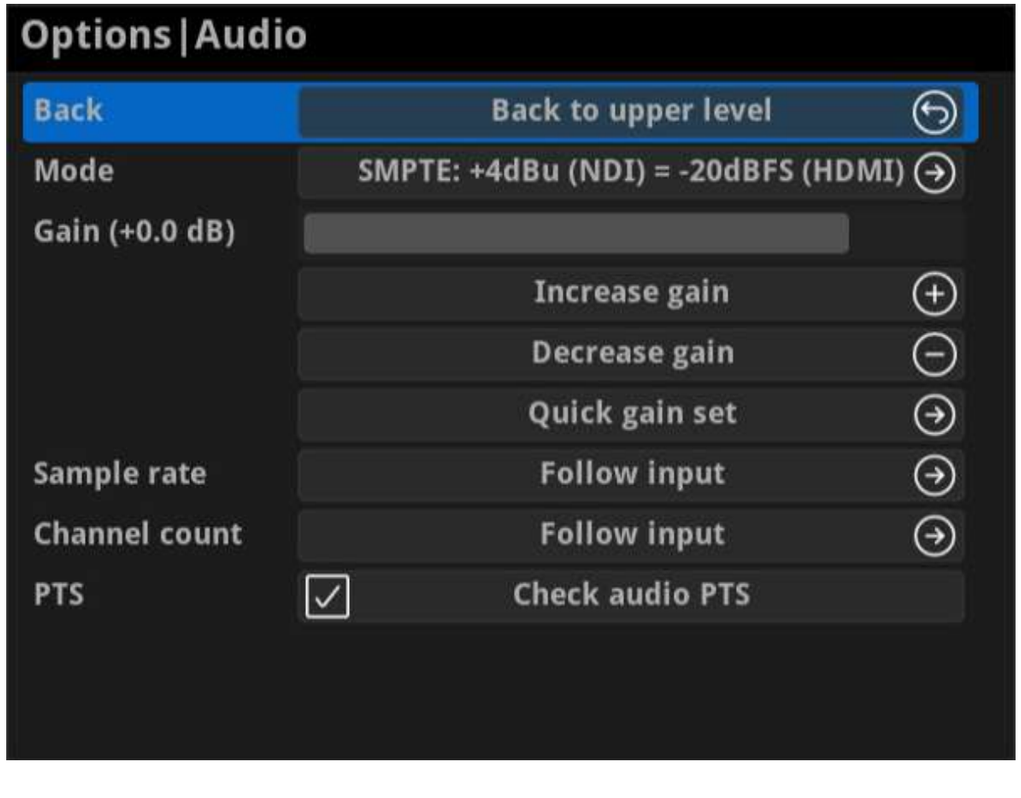
- **Source switch**

  Set the image to either **Black screen** or **Keep last picture** of the previous video when the source is changed.



- **Resolution**

  Setting the parameter to Follow input mode is available for 2K decoders, meaning the decoded output resolution will match the input resolution. The default mode is used when the resolution is beyond the capability of the presentation device.

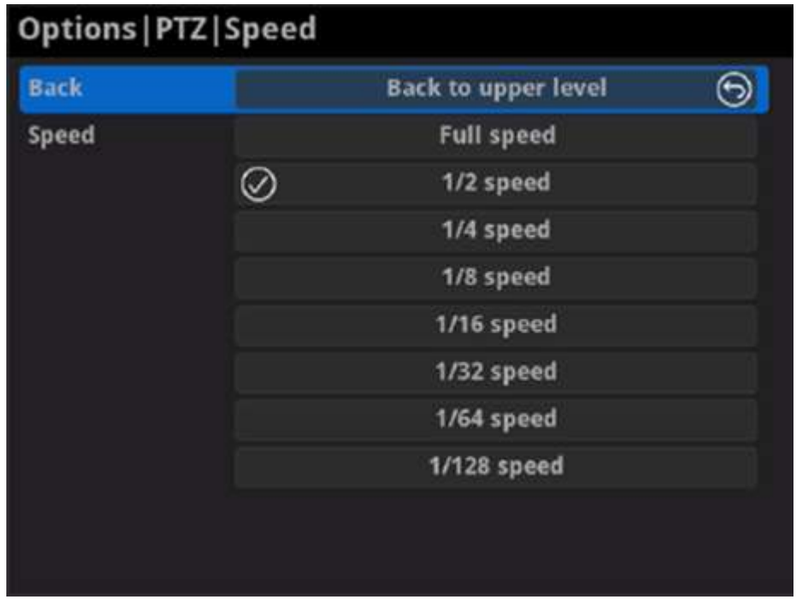


Audio

- **Back**
  Choose to go back to Options interface.
- **Mode**
  Two ways are provided for audio values conversion between source and output signal: **EBU**, **SMPTE**. By default, it is SMPTE.
- **Gain**
  Adjust the gain from -100.00dB to 20.00dB as needed. Or you can select **+20 dB**, **+10 dB**, **+0 dB**, **-20 dB**, **-40 dB** or **Mute (-inf dB)** from the **Quick gain set**. By default, it is 0.
- **Sample rate**
  Choose the proper sample rate for your work, including **Follow input**, **32000Hz**, **44100Hz**, **48000Hz**, **88200Hz**, **96000Hz**. By default, it is **Follow input**.
- **Channel count**
  Choose the proper audio channels for your work, including **Follow input**, **2 Channels**, **4 Channels**, **8 Channels**. Then you can set the mapping relationship between the output and source channels. By default, it is **Follow input**.
- When the **CHANNEL COUNT** is set to **2 Channels**, select audio channels mapping for Channel 1/2.
  When the **CHANNEL COUNT** is set to **4 Channels**, select audio channels mapping for Channel 1/2 & 3/4.
  When the **CHANNEL COUNT** is set to **8 Channels**, select audio channels mapping for Channel 1/2, 3/4, 5/6, 7/8.
- **PTS**

By default, check audio PTS (Presentation Time Stamp) is enabled. We recommend that you keep it on unless the source audio clock is unreliable.





PTZ

Note: This function is ONLY supported by the NDI ® decoder. The PTZ control function should be supported by the decoded source which connecting the PTZ camera.

- **Back**

  Choose to go back to Options interface.

- **Speed**

  Choose the camera moving speed from options including **Full speed**, **1/2 speed**, **1/4 speed**, **1/8 speed**, **1/16 speed**, **1/32 speed**, **1/64 speed**, **1/128 speed**.

- **Pan**

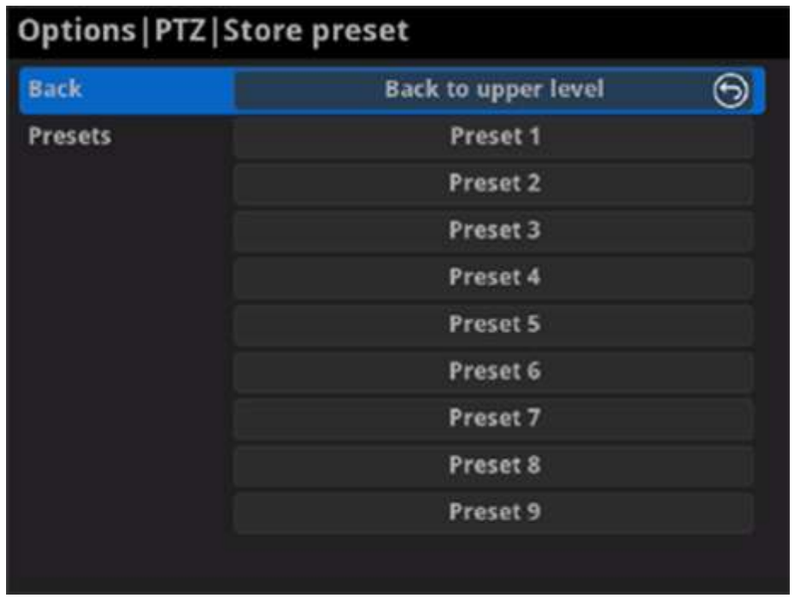
  Choose to move the camera left or right until your desired position.

- **Tilt**

  Choose to move the camera up or down until your desired position.

- **Zoom**

  Choose to zoom in/out the camera to see your desired view.



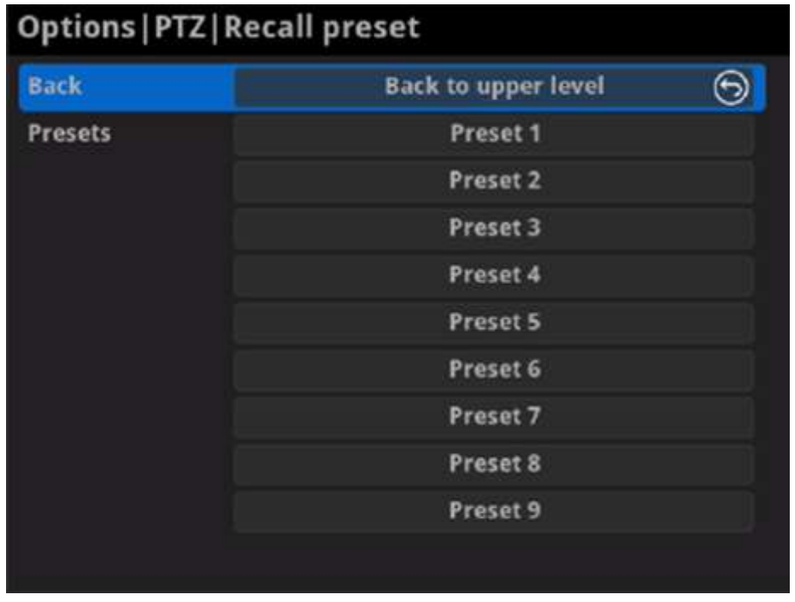
- **Preset**

  A preset is a predefined image position which contains information of pan, tilt, etc. After the preset is configured, you can call the preset. The camera will move to the programmed image position.

  Note: The function should be supported by the PTZ camera.

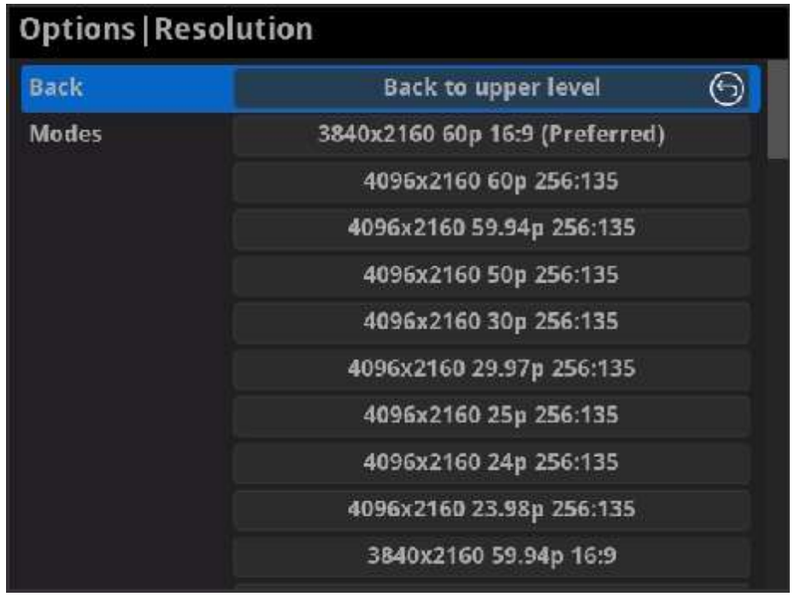
- **Store preset**

  After moving the camera to your desired position, tap **Store preset** and choose the number up or down in the panel to save current position configurations. 9 presets can be saved.



- **Recall preset**

  If there are presets stored in camera, you can choose your desired preset number to quickly set up your camera.



Resolution

The decoder will list all supported selections of resolution, frame rate and aspect ratio in the RESOLUTION section. Options varies according to the presentation appliances.

Specify the resolution to meet your needs, or else the default mode is recommended.



System

- **Back**

  Choose to go back to Options interface.

- **HW revision**

  Shows hardware revision of your device.

- **FW version**

  Shows firmware version of your device.

- **Serial No.**

  Shows the serial number of your unit, which is also marked on your device.

- **MAC address**

  Shows the MAC address of your device.

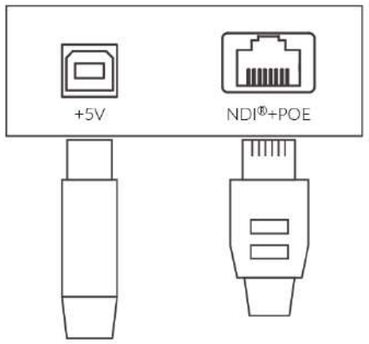
- **WebGUI QR**

  Scan the QR code to go to the Web UI.

- **WebGUI URL**

  Shows Ethernet IP Address. Type the URL into your web browser to display the Web UI. Then you can control the converter remotely.

FAQ



How to supply power to the Pro Convert

Power your decoder as shown in the left figure in 2 ways.

1. Via USB: Plug in the supplied 5V power adapter via the USB cable to supply power.
2. Via PoE: Plug in an Ethernet cable connected to a PoE switch or a PoE adapter for power and Ethernet connection.

Note:

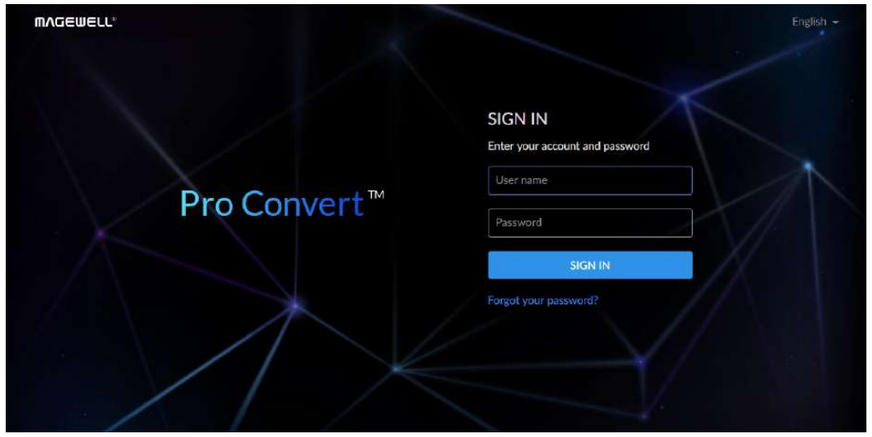
- Pro Convert devices require a 5V DC source with a current rating of no less than 2.1A.
- We recommend that you use only the included Magewell accessories.
- If any included accessory is lost or broken, please contact your Magewell authorized local resellers for help.

Which version of NDI® SDK is compatible with Pro Convert?

Pro Convert is compatible with NewTek NDI® SDK 4.1 and above.

How long it takes for one frame to be received until it is displayed?

After testing, in a Gigabit Ethernet network, if using Philips 328M monitor as the presentation device, the minimum delay of converting 1080P60 signal is about 50 ms when the buffer duration is 20 ms.



How to configure Pro Convert via Web UI

Pro Convert allows you to set up and control via a web-based user interface as either an administrator or a general user.

You can get access to the Web UI using Windows File Explorer, through your web browser over a USB connection, or with menu Options.

Make sure that at least one of the following web browsers is installed in your system.

- Google Chrome version 49 and above
- Microsoft Internet Explorer 11
- Microsoft Edge
- Mozilla Firefox version 61 and above
- Apple Safari 11.1 and above
- Opera 55.0.2994.44 and above

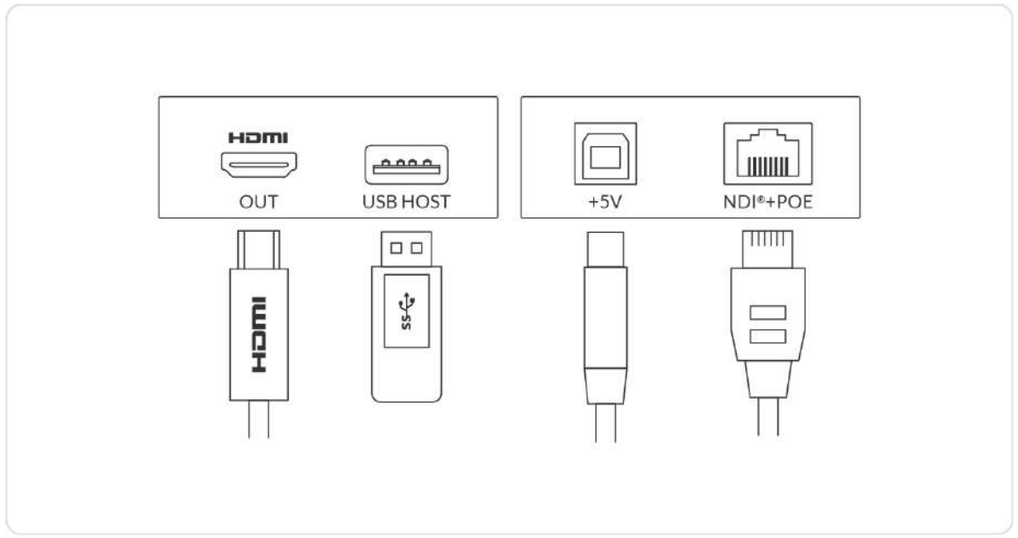


Figure1. Connections

1. Using Windows File Explorer

This method is available for Windows7/8/8.1/10 users.

1 Connect your decoder via Ethernet and power it up. Connect a presentation device.

2 Open a File Explorer window in one of the following ways.

- Click on the Start button and find File Explorer in the Start menu.
- Press the Windows logo key + E.
- Select the folder icon on the taskbar.

3 Select the **Network** view at the bottom of the list of items on the

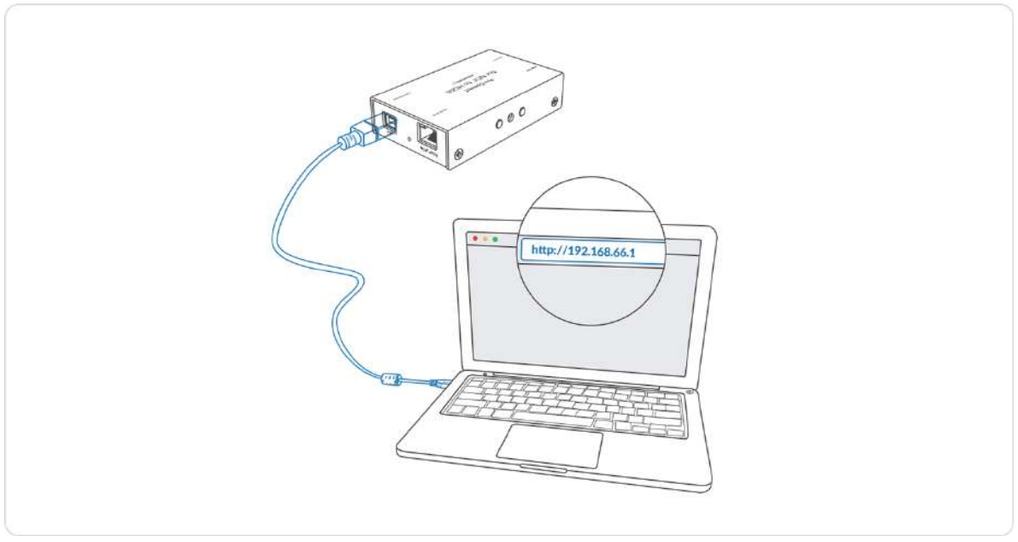
left side of the File Explorer.

4 Turn on the network discovery function if prompted.

5 Find your Pro Convert device in the **Other Devices** section, where it will be shown as "**Pro Convert + #board index + (serial number)**".

- The **serial number** (marked on your device) will be in a form like "B410180706006".
- The **board index** (the rotary switch number on your device) is shown like "04" or "#04".

6 Double click the decoder icon to open the Web UI of the device in your web browser.



2. Using Ethernet over USB

1 Connect the Pro Convert device to your computer using the USB cable.

2 Launch your web browser, and type in USB RNDIS address to access the Web UI. The default address is 192.168.66.1.

3 Enter your account and password in the **SIGN IN** page, and configure the device after you login successfully.

The default admin account (case-sensitive) is Admin, Admin. It is recommended to change the admin password after log-in.

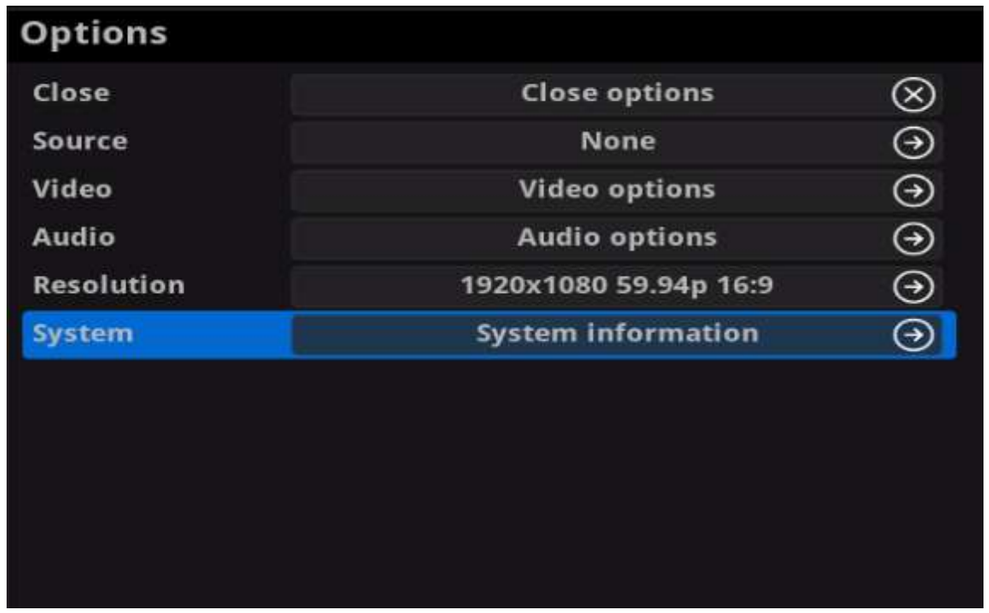


Figure1. Select System in Options menu



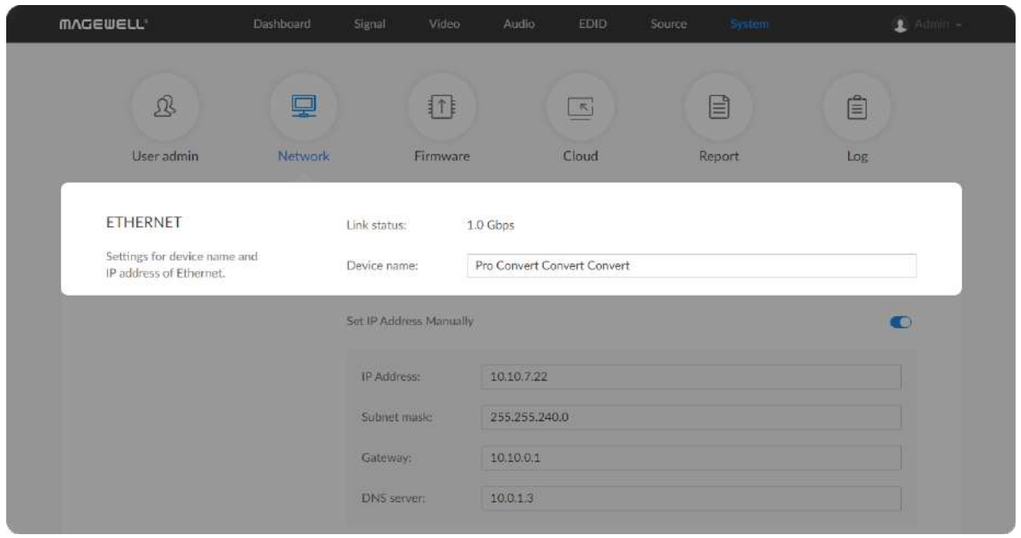
Figure2. Check the WebGUI

Solution 3: using the on-screen menu Options

1 Connect your decoder via Ethernet, power it up and connect a presentation device as shown in the Figure1. Connections.

2 Press the on-device MENU button, click the mouse or the keyboard(if connected), to display the Options overlaid on the output.

3 Go to the **System** option and check for the device WebGUI URL or scan the WebGUI QR to open the web UI in your web browser within the same LAN with your decoder.



How to change device name

Pro Convert allows you to set up and control via a web-based user interface as either an administrator or a general user. Changing the device name requires administrator rights.

1 Access the Web UI, and sign in as administrator.

2 Click and enter the **System > Network** tab.

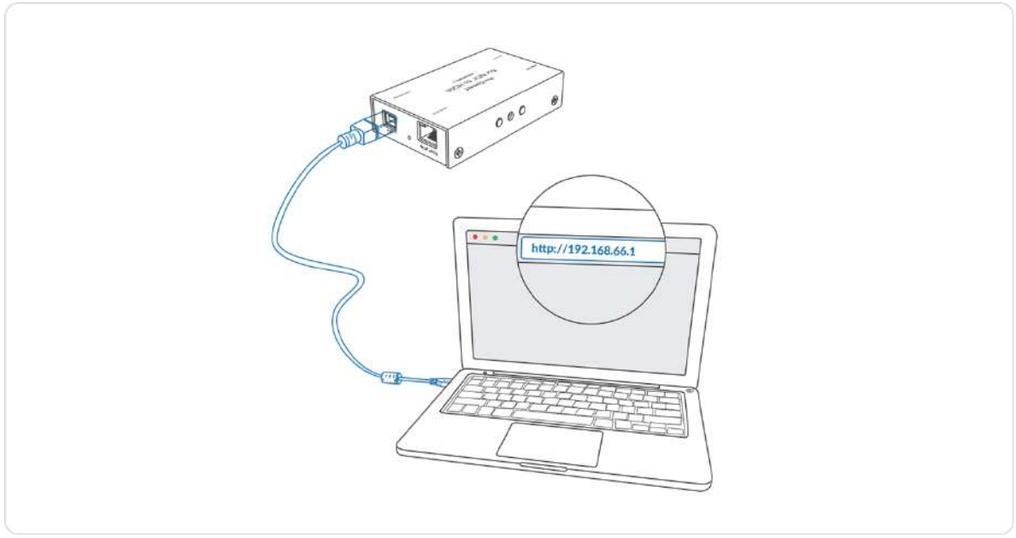
3 Change the **Device name**.

The device name is a string of 1 to 30 non-case sensitive characters, containing letters a to z, A to Z, 0-9, spaces and special characters like _-+.

4 Click **Apply** to save your changes, and then click **Yes** when prompted.

It may take a few minutes for your settings to take effect.

5 Click and enter the **Dashboard** tab in the Web UI to check the **Device name**. The values should be the same as your settings.



How to reset a Pro Convert device

> ⚠ Warning: Resetting your device will lose all your configuration data. Please proceed with caution.

1. Connect your decoder to your computer.
2. Launch your web browser, and type in the USB RNDIS address to access the Web UI **SIGN IN** page.

   The default address is 192.168.66.1. Please do not change it unless there is a conflict on your network.
3. Click **Reset all settings** at the top right corner of the **SIGN IN** page.

   The reset process may take a few minutes.



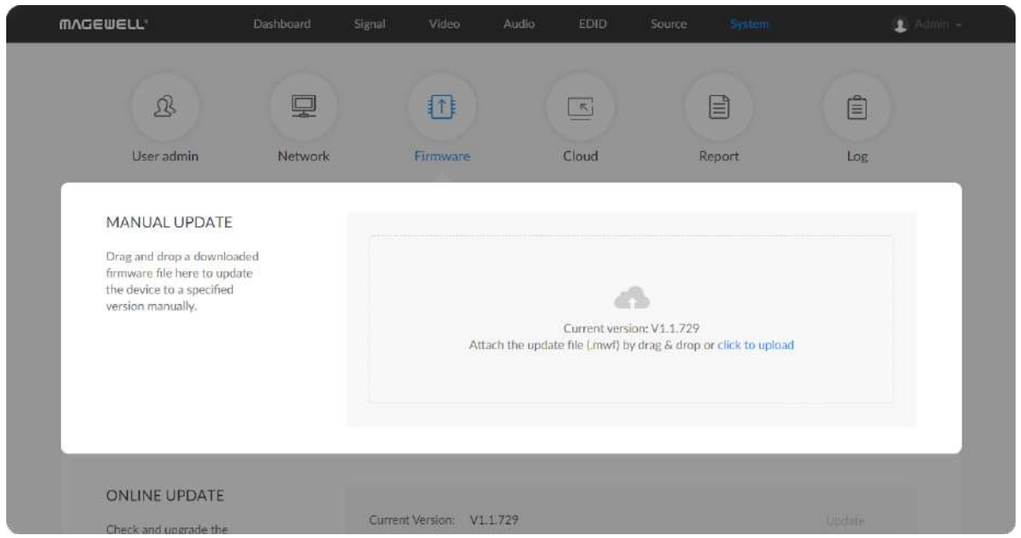


Figure1. Click to update



Figure2. Click Reboot

How to manually update the firmware for Pro Convert

You can update firmware via the Web UI with administrative rights.

1 Access the Web UI and sign in as administrator.

2 Click and enter the **System** tab, then select **Firmware**.

3 Click on **click to update**.

4 Select the **.mwf** firmware update file from your local storage.

You can download the Pro Convert firmware package from the Downloads section of the Magewell website: www.magewell.com/downloads/pro-convert.

5 Click **Open** to upload the updates package.

The device will automatically verify the update file.
The unit will upload the file after the file verification is passed.

6 In the **Manual Update** window, click **Update**.

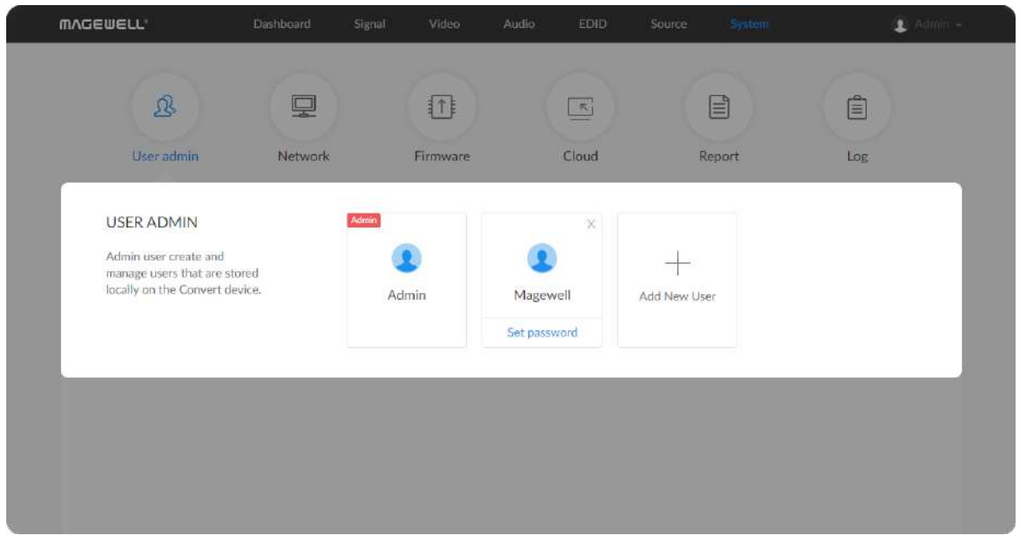
The device will verify the update file and automatically upload it if the verification is successful.

7 After loading successfully, click **Reboot** to complete the update.

The reboot process may take a few minutes.

8 Login to the Web UI again and check the current **Firmware version** number in the **Dashboard** tab.

The **Firmware version** should now show the number of the new update.



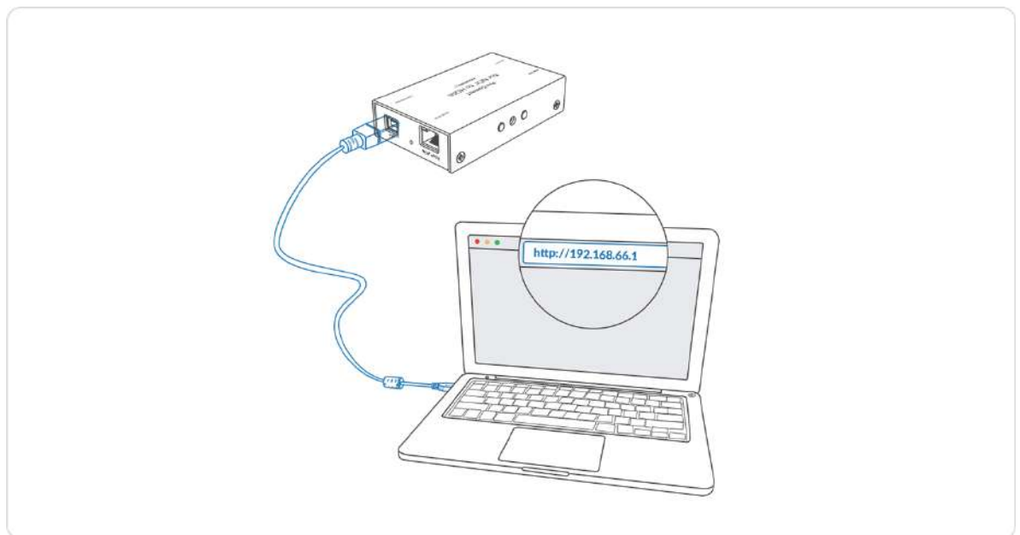


Figure1. Connections

What to do if you forgot the password

If you are a general user, ask your administrator to set a new password for you. If you are the administrator, you need to reset all settings back to default values, then set a new admin password.

1. To reset a general user's password.

1 Access the Web UI, and sign in as administrator.

2 Click and enter the **System** tab.

3 Click the **Set password** link which appears when your mouse hovers over the user name.

4 Type in new password and confirm the new password as prompted in the window.

The password is a string of 1 to 32 case-sensitive characters, which contains A-Z, a-z, 0-9 and special characters _-~!@#$%^&*-+=.

5 Click **OK**.

2. To set a new admin password.

1 Connect the device to a computer with the USB cable.

2 Type in the USB RNDIS address to your web browser.

The default IP address of USB RNDIS is 192.168.66.1. Please do not modify it unless there is a conflict on your network.

3 Click **Reset all settings** at the top-right corner of the **SIGN IN** page.

The reset process may take a few minutes, and all configuration data will be lost - not just the passwords.

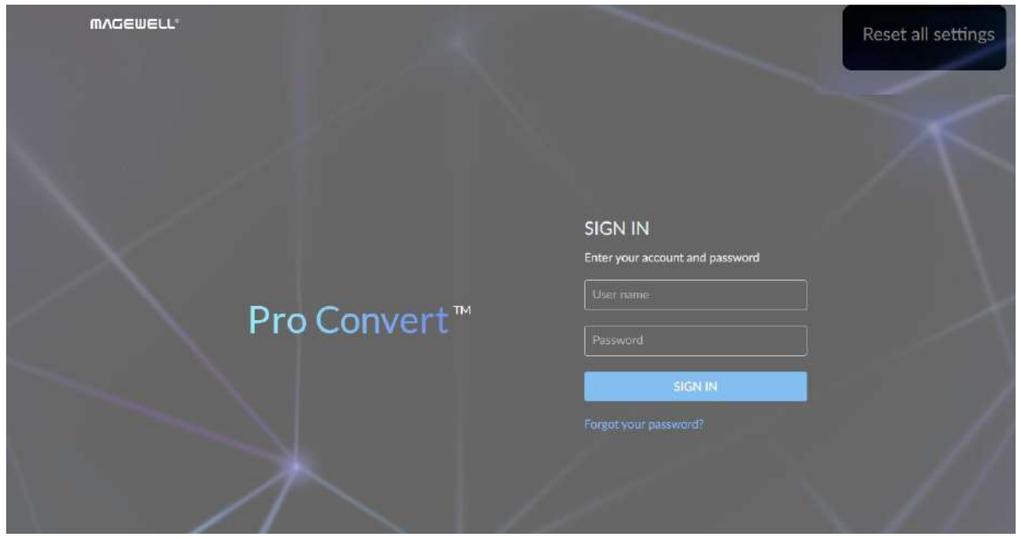


Figure2. Reset all settings

4 Sign in to the Web UI via the default admin account (case-sensitive): Admin, Admin.

5 Click and enter the **System** tab.

6 Click the **Set password** link which appears when your mouse hovers over the user name.

7 Type in new password, and confirm the new password as prompted in the window.

The password is a string of 1 to 32 case-sensitive characters, which contains letters A-Z, a-z, numbers 0-9 and special characters _-~!@#$%^&*-+=.

8 Click **OK**.

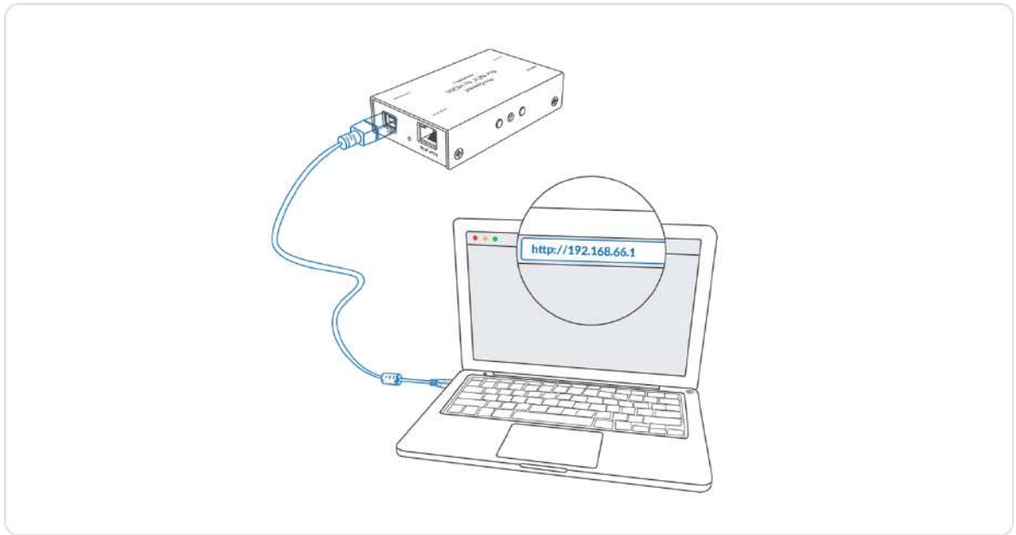


Figure1. Connections

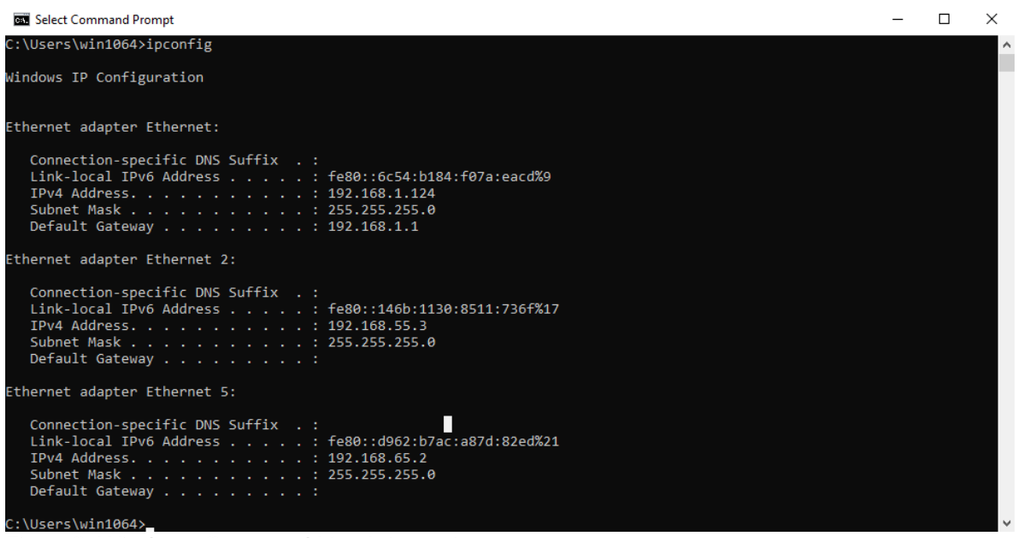


Figure2. Windows Command Line Interpreter

How to retrieve your USB RNDIS IP Address

1 Connect the device and your computer with a USB cable as shown in Figure1. Connections.

2 Take the following steps according to your operating system.

- For Windows users
  1. Type **cmd** in the search bar to start the command interpreter.
  2. Type in **ipconfig**, and find an IPv4 address of the form 192.168.xxx.2, as shown in Figure2. Windows Command Line Interpreter.
- For Linux users
  1. Launch the **terminal.**
  2. Type in **ifconfig -a**, and find an IPv4 address of the form 192.168.xxx.2, as shown in Figure3. Linux Terminal.
- For Mac users
  1. Click the System Preferences icon in the Dock or choose **Apple menu > System Preferences.**
  2. Choose **Network > Pro Convert**, and check the **IP Address**, as shown in Figure4. Mac Network.

> ⚠ If 192.168.xxx.2 is taken, the IP address would automatically change to another value within the ranges of 192.168.xxx.2 to 192.168.xxx.254.

3 Type in **192.168.xxx.1** in your web browser to access the Web UI.

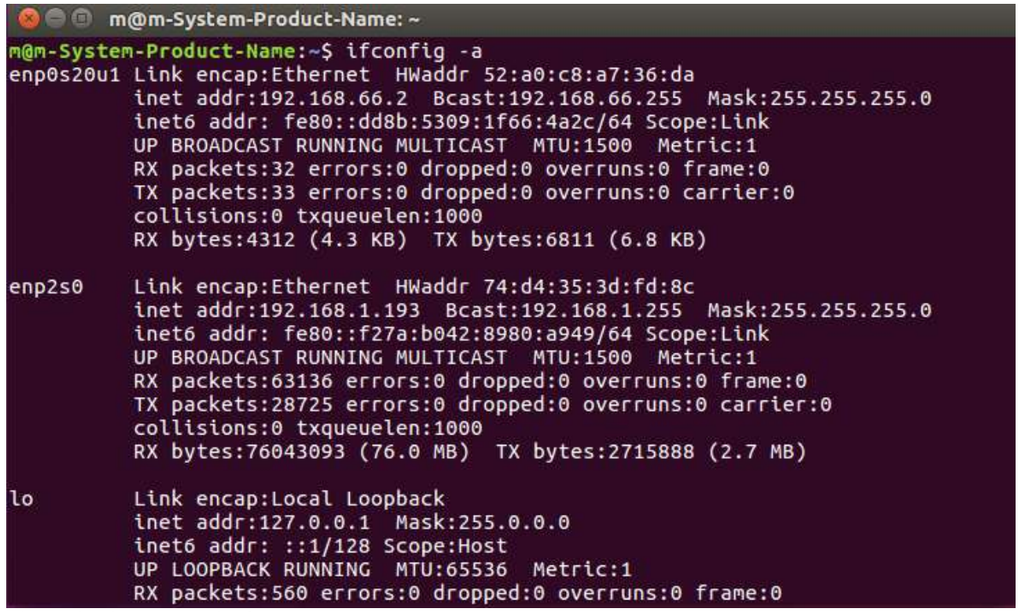


Figure3. Linux Terminal

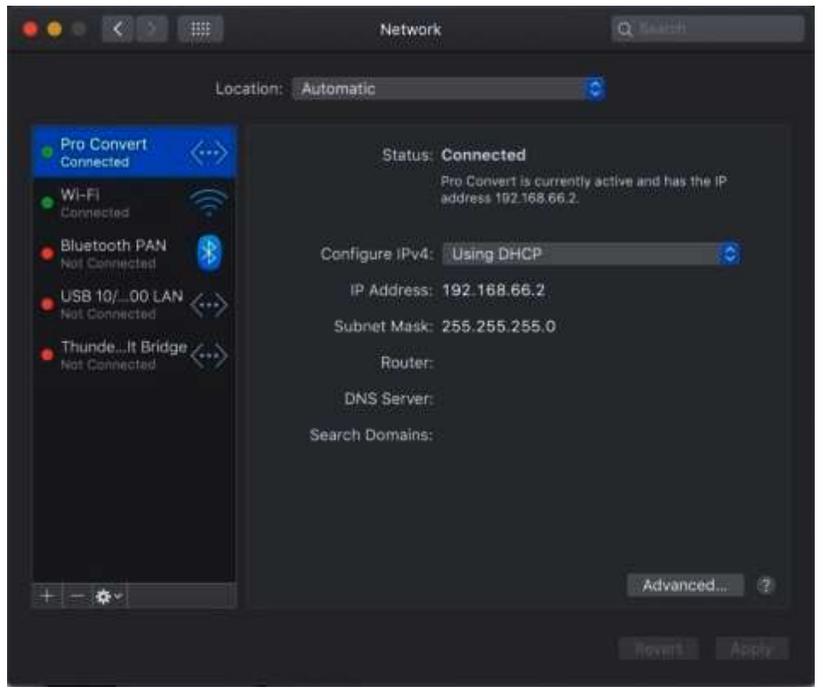


Figure4. Mac Network

Support

Get the Latest Information

If you have any problems using Magewell products or need more technical information, please visit the following channels.

- Tutorial video: www.magewell.com/tv
- YouTube channel: Magewell Video Capture Device
- Knowledge base: www.magewell.com/kb/pro-convert
- Official website: www.magewell.com/pro-convert
- Linkedin: Magewell
- Facebook: Magewellcn
- Twitter: Magewellcn

Technical Support

- Submit your questions in the online Ticket System: tickets.magewell.com
- Contact the Magewell Technical Support Team at support@magewell.net

Warranty

Limited Warranty

Except otherwise set between you and Magewell in advance in a written form, the free limited warranty service starts from the date on your proof of purchase. The proof can be: sales contract, formal sales receipt, invoice or delivery note. The earliest date of these proofs is the starting date of the free limited warranty.

The period of free limited warranty goes as below:

- Pro Convert Family: two (2) years;
- The USB cable and power adapter provided as accessories: one (1) year.

How to get the limited warranty

1. Please contact the Magewell support team by email (support@magewell.net) first, to determine whether your problem can only be solved by returning it to Magewell for repair. Magewell might ask you to take photos of the front and back of the defective products.
2. Magewell will issue an RMA letter to you if it is confirmed that you need to return the faulty product for further examination or repair. Please fill in the RMA with necessary information as required.
   If it is regular repair, you will be responsible for the shipping cost, duties and insurance cost (if applicable); if the product is DOA, Magewell will be responsible for the shipping cost.
3. If some components need to be replaced, Magewell will decide to repair, renovate or replace the components by itself. Magewell may use new or repaired component to repair the product. The repaired product can be expected to work normally and the performance to remain the same. Repaired products can work in a good working condition and at least function the same as the original unit. The original replaced component will become the property of Magewell and components which are replaced for the client will become his/her property.
4. If the product is within warranty, Magewell will repair or replace the faulty units at its own discretion. In circumstances where the faulty unit is replaced by another one, Magewell may use new, repaired or renovated units. The faulty unit will then become the property of Magewell while the replacement unit will become the property of the purchaser.

5. If the warranty expires, Magewell will inform the purchaser whether the products can be repaired and the maintenance costs they need to pay. If purchasers decide to repair, Magewell will repair, renovate, or replace the components after receiving the maintenance costs. If purchasers give up repairing, Magewell will dispose of the faulty unit if the purchaser chooses that option.
6. The repaired or replaced product assumes 1) the remaining term of the Warranty of the replaced unit or faulty unit; 2) ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. The extended warranty is only valid for repaired/replaced components.
7. The period of service depends on the client's location (country and area) and the product.

To view the complete warranty policy, please visit www.magewell.com/quality-assurance.

Notice

Copyright © 2026 Nanjing Magewell Electronics Co., Ltd.
All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Trademarks

"Magewell" is registered trademark by Magewell. All other trademarks are the property of their respective holders.

About this Document

- This document is for reference only. Please refer to the actual product for more details.
- The user shall undertake any losses resulting from violation of guidance in the document.
- In case that PDF document cannot be opened, please upgrade the reading tool to the latest version or use other mainstream reading tools.
- This company reserves rights to revise any information in the document anytime; and the revised contents will be added to the new version without prior announcement. Some functions of the products may be slightly different before and after revision.
- The document may include technically inaccurate contents, inconsistencies with product functions and operations, or misprint. Final explanations of the company shall prevail.
- The only warranties for Magewell products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Magewell shall not be liable for technical or editorial errors or omissions contained herein.

Glossary and Abbreviations

Board Index

Board Index indicates the rotary switch number located in the Pro Convert. It helps users to mark and identify multiple devices

ECM

Ethernet Control Model (ECM) provides a virtual Ethernet link for mac users used on top of USB.

EDID

Extended Display Identification Data (EDID) is a metadata format for display devices to describe their capabilities to a video source.

PoE

Power over Ethernet (PoE) is a networking feature defined by the IEEE 802.3af and 802.3at standards. PoE allows a single cable to provide both
data connection and electric power to attached devices.

QoS

Quality of service (QoS) is the description or measurement of the overall performance of a service. To quantitatively measure quality of service, several related aspects of the network service are often considered, such as packet loss, etc.

RNDIS

Remote Network Driver Interface Specification (RNDIS) is a Microsoft proprietary protocol used on top of USB. It provides a virtual Ethernet link to operating systems.

Tally

Tally lights comprise one or more signal-lamps on a professional video camera or monitor, to show when the device is on-air. A preview tally signal is typically green, while a program one is usually shown using the colour red.