

Pro Convert for NDI® to HDMI

User Manual, Reference and FAQ



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Getting Started



Overview

Pro Convert™ family of NDI® decoders are built on NewTek's extremely popular NDI media-over-IP technology, converting live NDI 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 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 FPGA-based up/down/cross-conversion. Two 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

- Support for NDI.
- Support for decoding embedded audio.
- Support for PoE (Power over Ethernet).
- Support for plug-and-play.
- Support for Ethernet over USB.
- Support for web-based UI remote control.
- Support for on-device control buttons.

System Requirements

Network

- Gigabit Ethernet

Supported Web Browser 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

Supported Product

- Pro Convert encoder
- Magewell Bridge for NDI®
- Livestream Studio
- mimoLive
- Resolume
- OBS Studio
- Streamstar
- vMix
- VLC
- NewTek Connect
- VidBlasterX
- Any other NewTek NDI® based software and hardware producing full-bandwidth streams

For best work performance, we recommend the Pro Convert encoder including Pro Convert TX family and Pro Convert Plus family which producing HD/UHD 4K NDI streams. For details, refer to www.magewell.com/pro-convert

For users those who prefer a software-based conversion solution, the Magewell Bridge software transforms video and audio from any Magewell ingest device into high-quality NDI streams. For details, refer to www.magewell.com/magewell-bridge-for-ndi

Installation

Safety Information

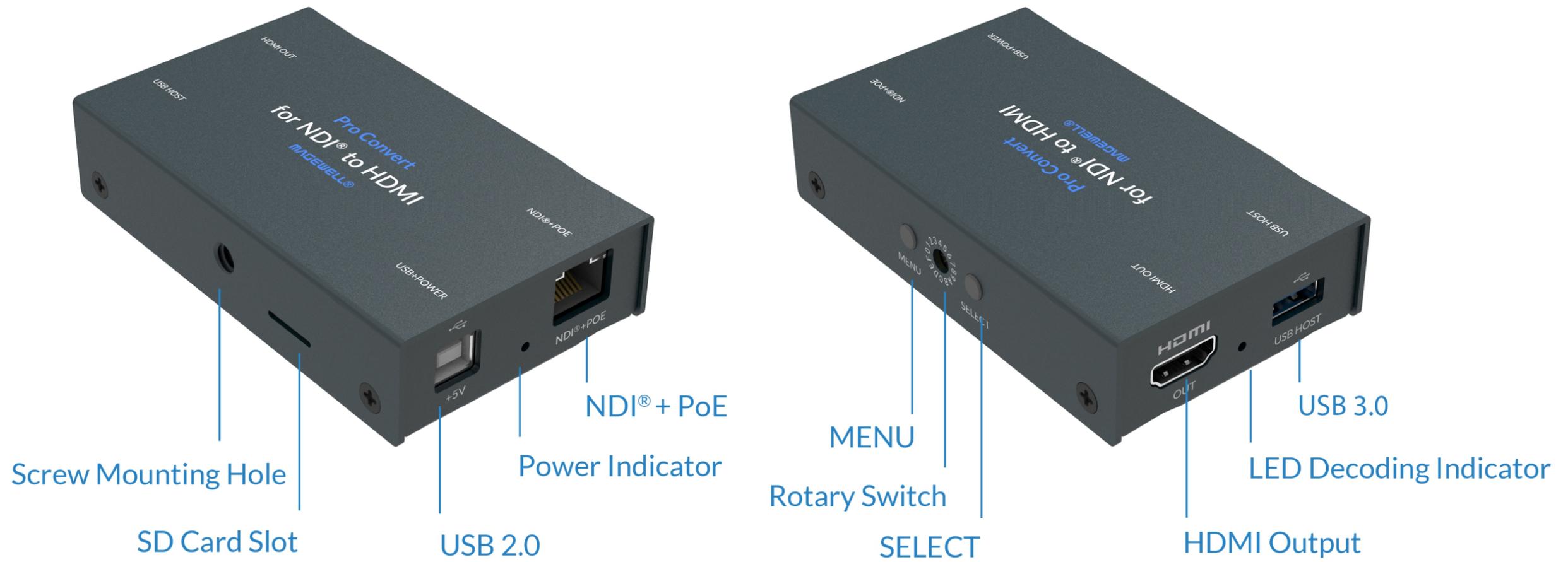
Electrical Safety

- 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

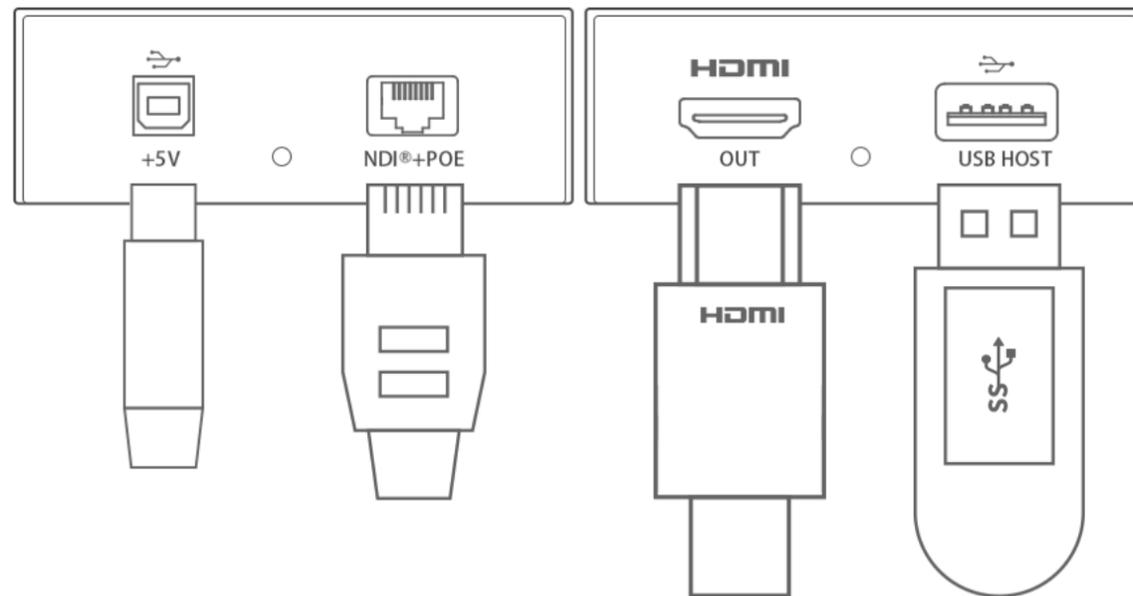
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you notice any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, 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



Note: The SD card function is not available currently.

Connections



1. Plug in the USB cable.
 - 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.
2. Plug in the Ethernet cable.
 - For PoE: connect the other end of the Ethernet cable to a PoE switch or a PoE adapter for power and Ethernet connection.
 - To ensure high speed transmission, it is recommended to connect the Pro Convert unit to a gigabit network.
3. Plug in the HDMI cable to connect presentation and delivery applications to the OUT port, such as a monitor, a video switcher or a projector.
 - An android TV is not recommended if low tendency matters.
4. Connect a wired or wireless keyboard or mouse to the USB HOST to make it more convenient to control advanced settings without requiring a computer.

Web UI Configuration

Pro Convert allows you to control your devices via a web-based user interface. With the Web UI, you can monitor the device's working status, output signal status, and configure settings for your sessions.

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. (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. (2) Using the Ethernet over USB function. (3) Using the on-screen menu Options.

Solution 1: using Windows File Explorer

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

- Step 1** Connect your decoder via Ethernet and power it up as shown on the left figure.
- Step 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.
- Step 3** Select the **Network** at the bottom of the list of items on the left side of the File Explorer.
- Step 4** Turn on the network discovery function if prompted.

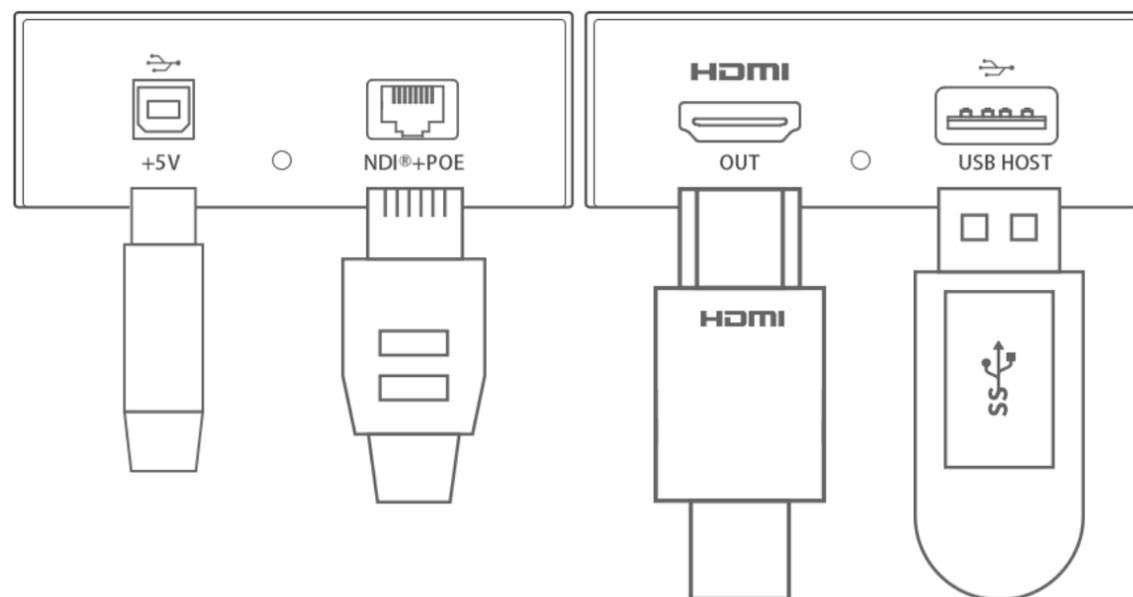


Figure1. Connections

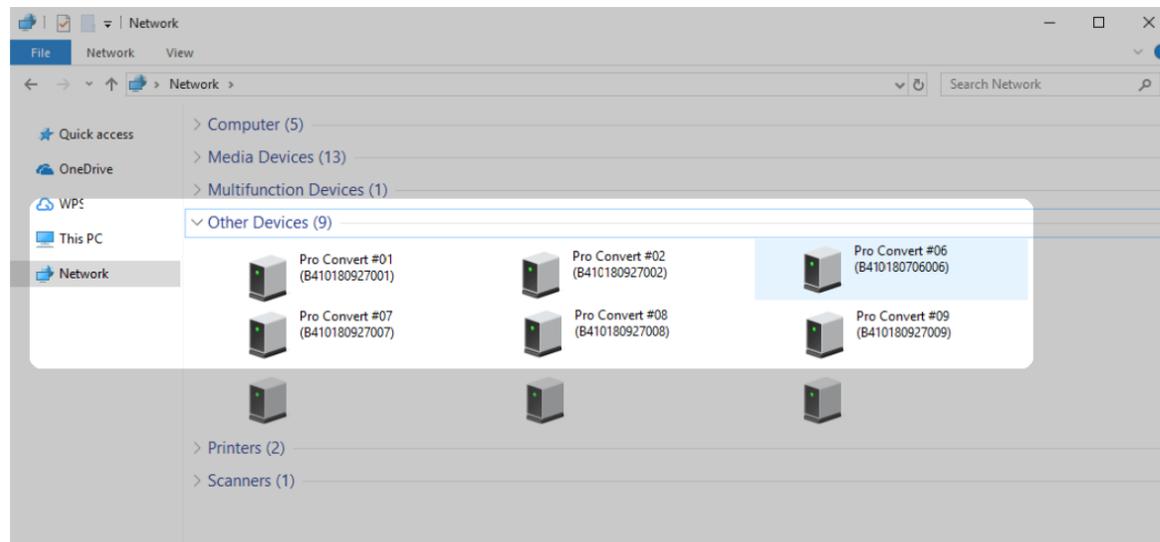
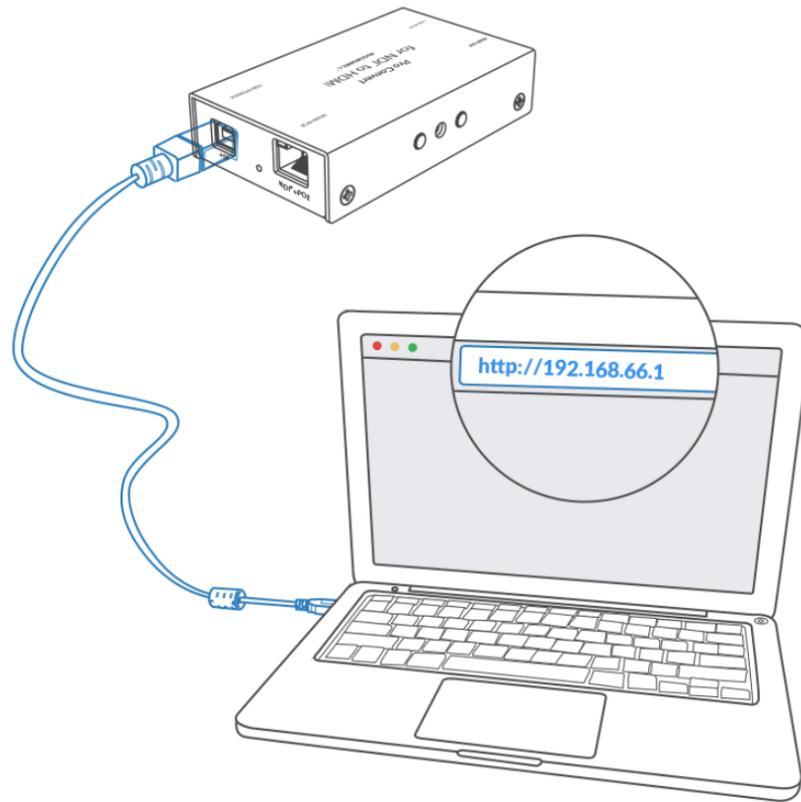


Figure2. Find your Pro Convert device in the Network > Other Device section

Step 5 Find your Pro Convert device in the **Other Device** 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".

Step 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.

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

Step 2 Type the Ethernet over USB IP address in your web browser. The default address is <http://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.

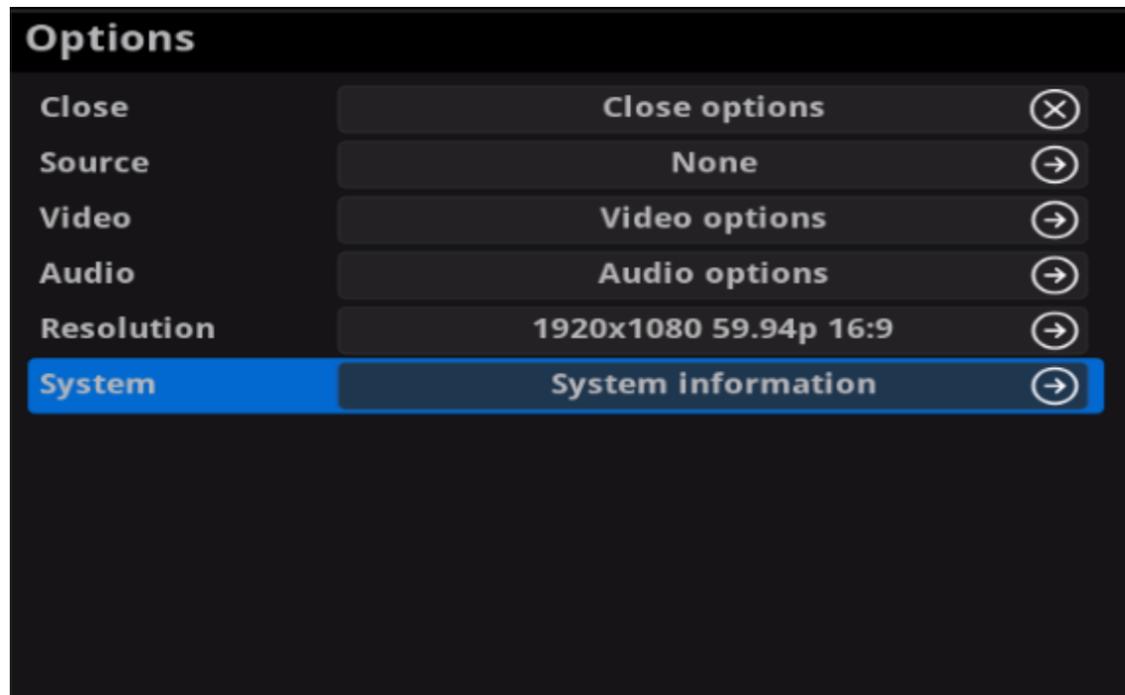


Figure1. Select System in Options menu

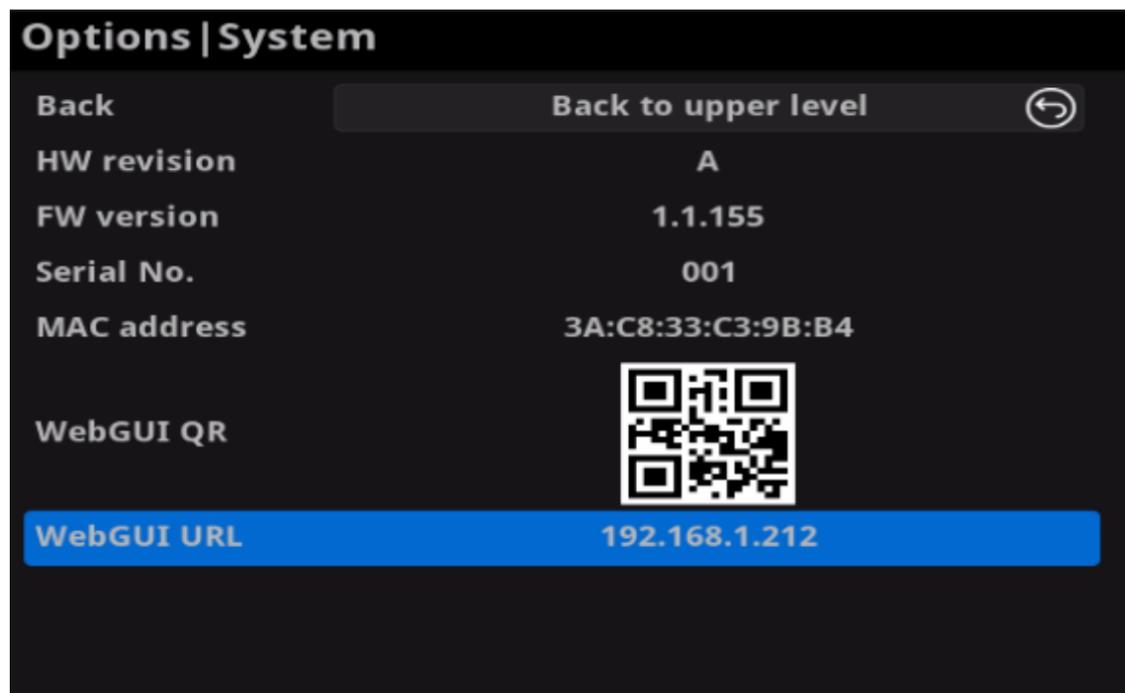


Figure2. Check the WebGUI

Solution 3: using the on-screen menu Options

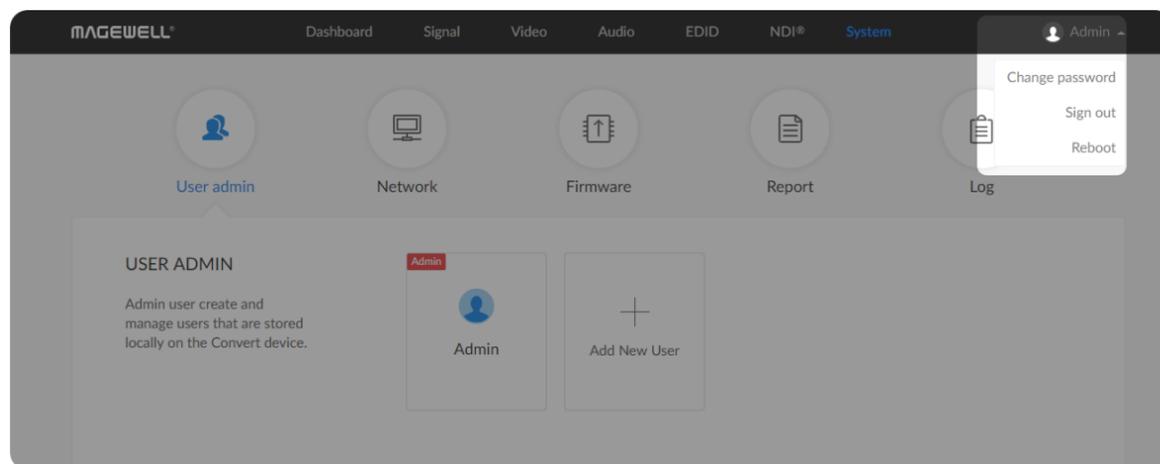
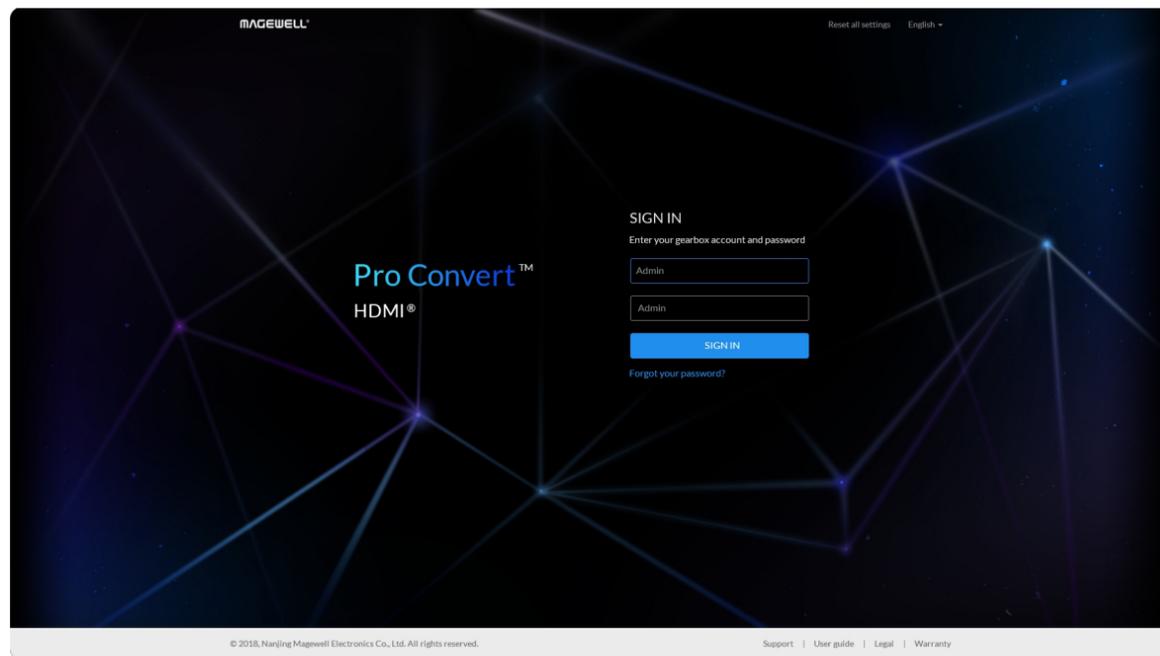
- Step 1** Connect your decoder via Ethernet, power it up and connect a presentation device as shown in the [Figure1. Connections](#).
- Step 2** Press the on-device MENU button, click the mouse or the keyboard(if connected), to display the Options overlaid on the output.
- Step 3** Go to the **System** 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 login. However, to avoid configuration conflicts, we do not recommend you to operate one device simultaneously.

Step 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.

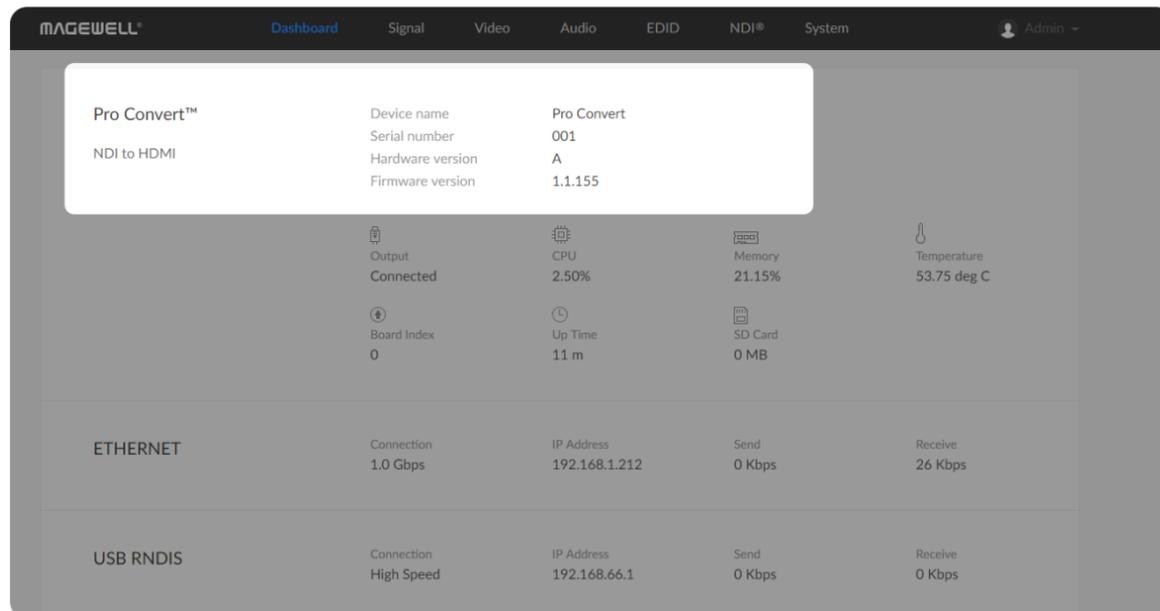


Step 2 Signing Out: click the drop-list icon  behind your username at the top-right of the Web UI, and select **Sign out**.

Note that the **Reboot** function requires administrative rights.

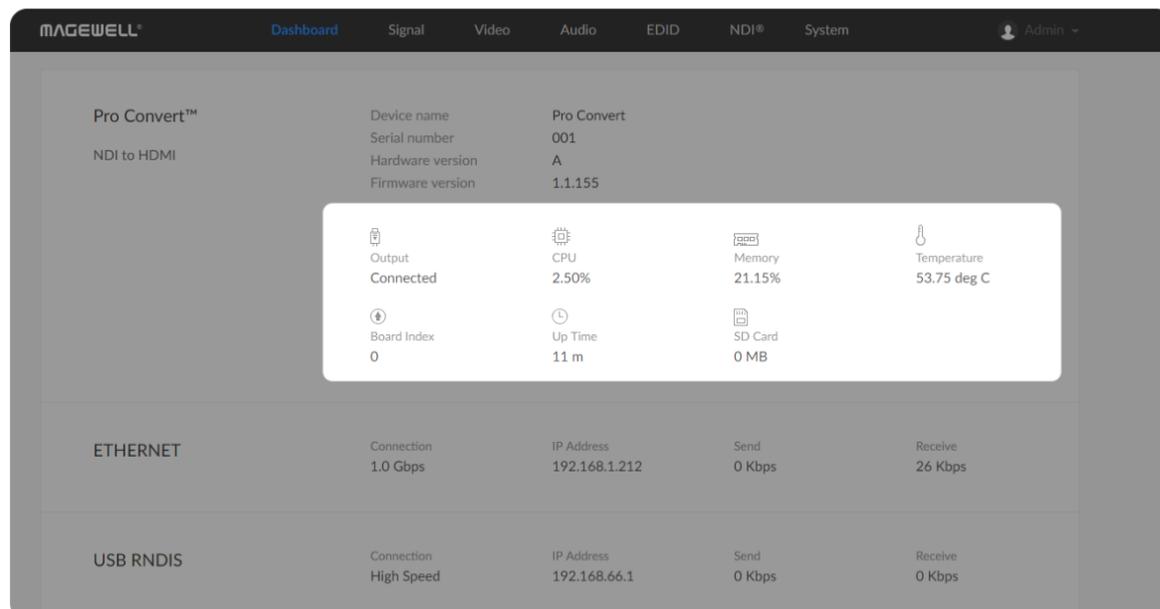
Dashboard

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 the 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 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.
- **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°C, 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.

The screenshot displays the MAGEWELL web interface. The top navigation bar includes 'Dashboard', 'Signal', 'Video', 'Audio', 'EDID', 'NDI®', 'System', and 'Admin'. The main content area shows device information for 'Pro Convert™ NDI to HDMI'. Below this, there are several status indicators: Output (Connected), CPU (64.10%), Memory (32.79%), Temperature (60.42 deg C), Board Index (0), and Up Time (5 h 1 m). At the bottom, there are two tables for network status.

ETHERNET	Connection	IP Address	Send	Receive
	1.0 Gbps	192.168.1.212	205 Kbps	88.51 Mbps

USB RNDIS	Connection	IP Address	Send	Receive
	High Speed	192.168.66.1	0 Kbps	0 Kbps

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.

NDI to HDMI	Serial number 001	Hardware version A	Firmware version 1.1.155	
	Output Connected	CPU 0.00%	Memory 21.39%	Temperature 52.08 deg C
	Board Index 0	Up Time 4 h 59 m	SD Card 0 MB	
ETHERNET	Connection 1.0 Gbps	IP Address 192.168.1.212	Send 0 Kbps	Receive 238 Kbps
USB RNDIS	Connection High Speed	IP Address 192.168.66.1	Send 0 Kbps	Receive 0 Kbps
NDI®	General Name None	Tally Preview <input type="radio"/> Off	QoS Video drop frames 0	Decoding Video 0 Kbps

	Board Index 0	Up Time 5 h 12 m	SD Card 0 MB	
ETHERNET	Connection 1.0 Gbps	IP Address 192.168.1.212	Send 227 Kbps	Receive 97.31 Mbps
USB RNDIS	Connection High Speed	IP Address 192.168.66.1	Send 0 Kbps	Receive 0 Kbps
NDI®	General Name PRO CONVERT (#00 (A406190109002)) Connection Connected	Tally Preview <input type="radio"/> Off Program <input type="radio"/> Off	QoS Video drop frames 0 Audio drop frames 0	Decoding Video 84.52 Mbps Audio 11.89 Mbps
	Video Resolution 2048×1080p Field rate 60.00 Hz	Audio Sampling 48000, 16 bits Channels 8		

Checking Ethernet over USB Status

- **Connection** shows Ethernet over USB connection status.
- **IP Address** shows Ethernet over USB IP Address.
By default, it is <http://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 NDI® Status

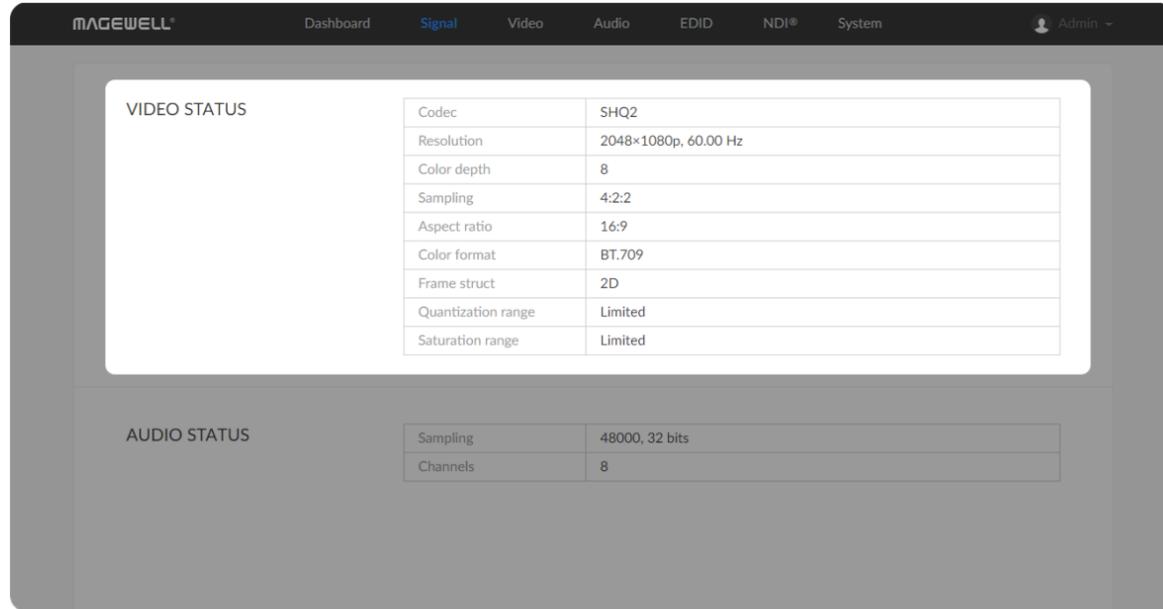
Setting NDI parameters refers to [NDI](#).

- **General** shows NDI source information.
 - **Name** shows NDI source selected in the **NDI®** tab.
 - **Connection** shows whether an NDI® stream is received by your decoder.
- **Tally** shows the decoded NDI source "on-air" status.
 - **Preview** shows whether the decoded NDI source stream is being previewed. If yes, it shows **On** and is green, otherwise, it is **Off** and grey.
 - **Program** shows whether the decoded NDI 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 frames** shows dropped video frames in the previous second.
 - **Audio drop frames** shows dropped audio frames 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 NDI video information.
 - **Resolution** shows the decoded NDI video resolution.
 - **Field rate** shows the decoded NDI video field rate.
- **Audio** Shows NDI audio information.
 - **Sampling** shows the sampling rate and bit depth of the audio source.
 - **Channels** shows the total number of NDI audio channels.

Signal

Click and enter the **Signal** tab to check the input signal information detected by the device.



The screenshot shows the MAGEWELL Signal tab interface. The top navigation bar includes Dashboard, Signal (selected), Video, Audio, EDID, NDI®, and System. The main content area is divided into two sections: VIDEO STATUS and AUDIO STATUS.

VIDEO STATUS

Codec	SHQ2
Resolution	2048×1080p, 60.00 Hz
Color depth	8
Sampling	4:2:2
Aspect ratio	16:9
Color format	BT.709
Frame struct	2D
Quantization range	Limited
Saturation range	Limited

AUDIO STATUS

Sampling	48000, 32 bits
Channels	8

Checking VIDEO STATUS

- **Codec** shows the NDI network codec utilized to process the videos.
- **Resolution** shows the chosen NDI stream pixel resolution & frame rate.
- **Color depth** shows the chosen NDI stream color depth, in bits.
- **Sampling** shows the chosen NDI stream color sampling format.
- **Aspect ratio** shows the chosen NDI stream aspect ratio.
- **Color format** shows the chosen NDI stream color encoding format.
- **Frame struct** shows the chosen NDI 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.

The screenshot displays the MAGEWELL web interface with a navigation menu at the top including Dashboard, Signal, Video, Audio, EDID, NDI®, and System. The main content area is divided into two sections: VIDEO STATUS and AUDIO STATUS.

VIDEO STATUS

Codec	SHQ2
Resolution	2048×1080p, 60.00 Hz
Color depth	8
Sampling	4:2:2
Aspect ratio	16:9
Color format	BT.709
Frame struct	2D
Quantization range	Limited
Saturation range	Limited

AUDIO STATUS

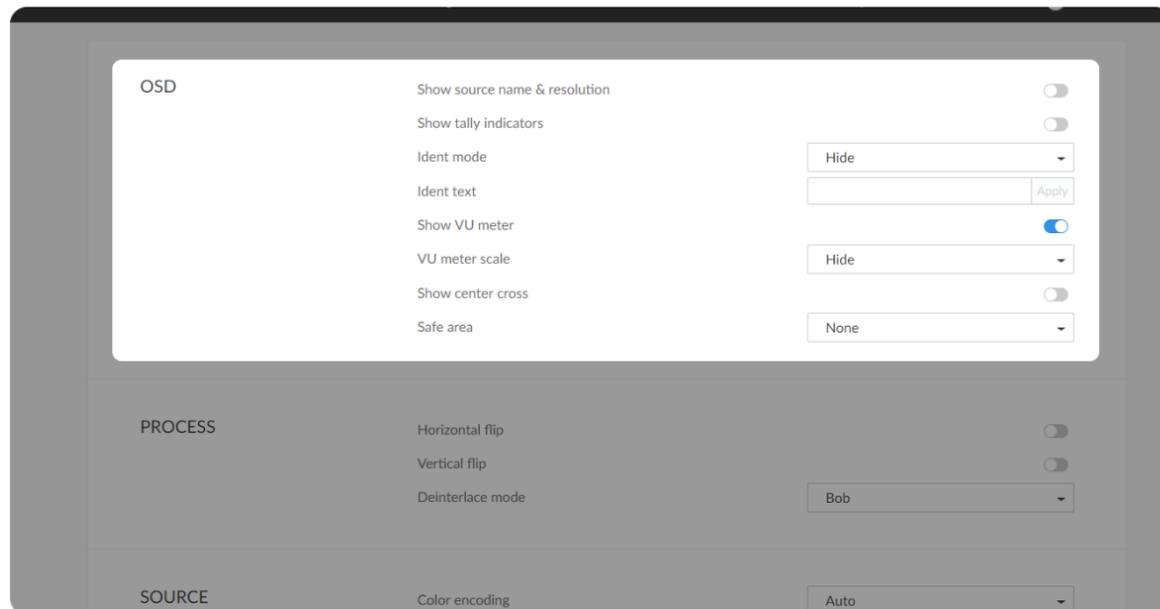
Sampling	48000, 32 bits
Channels	8

Checking AUDIO STATUS

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

Video

Click and enter **Video** tab to modify the video format according to your needs. By clicking **Reset to Default** in the bottom right corner of the page, you can cancel your modified settings.



Setting OSD Format

Choose the overlay layers on the output.

- Show source name & resolution**
 Turn on the switch to show current decoded NDI stream name at the top of the output display. By default, it is off.
- Show tally indicator**
 Turn on the switch to show the "on-air" status of selected NDI 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 UV meter**

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

- **VU meter scale**

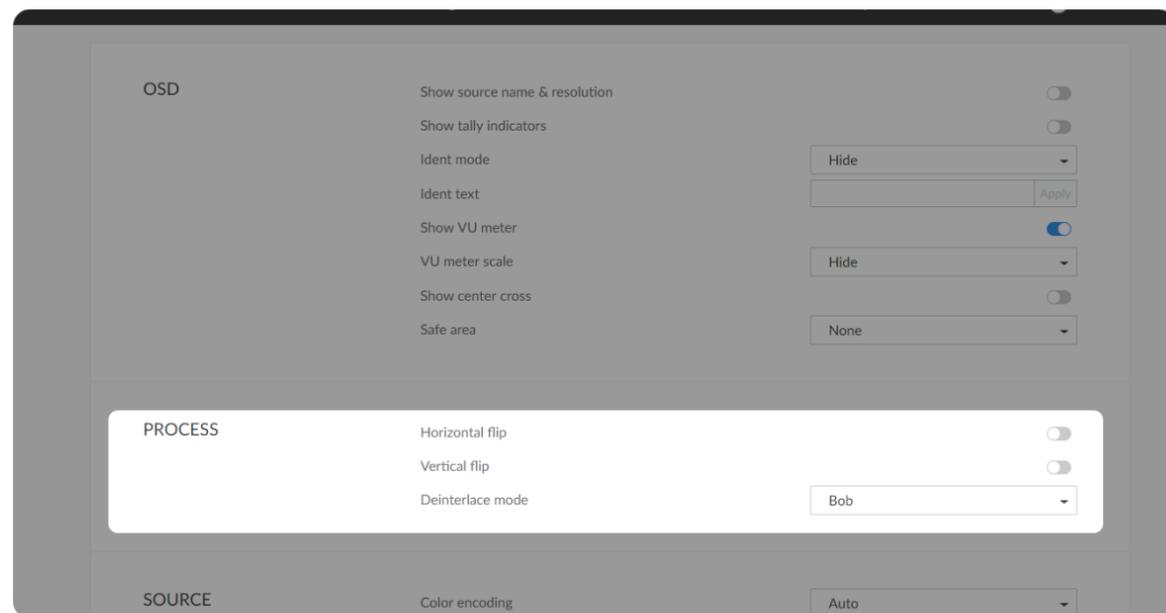
Choose the scale for the measurement of the volume, including **Hide**, **Show dBu scale**, and **Show dBVU scale**. If audio gain is set, the **Show post gain dBu scale**, and **Show post gain dBVU scale** will show the gain effect. By default, it is **Hide**.

- **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**

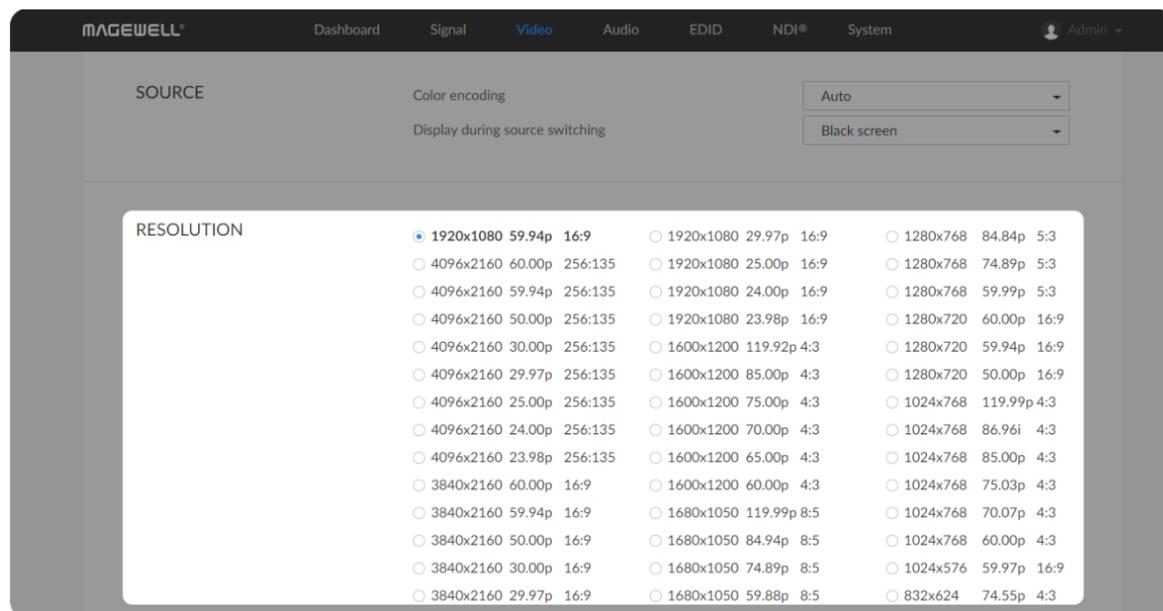
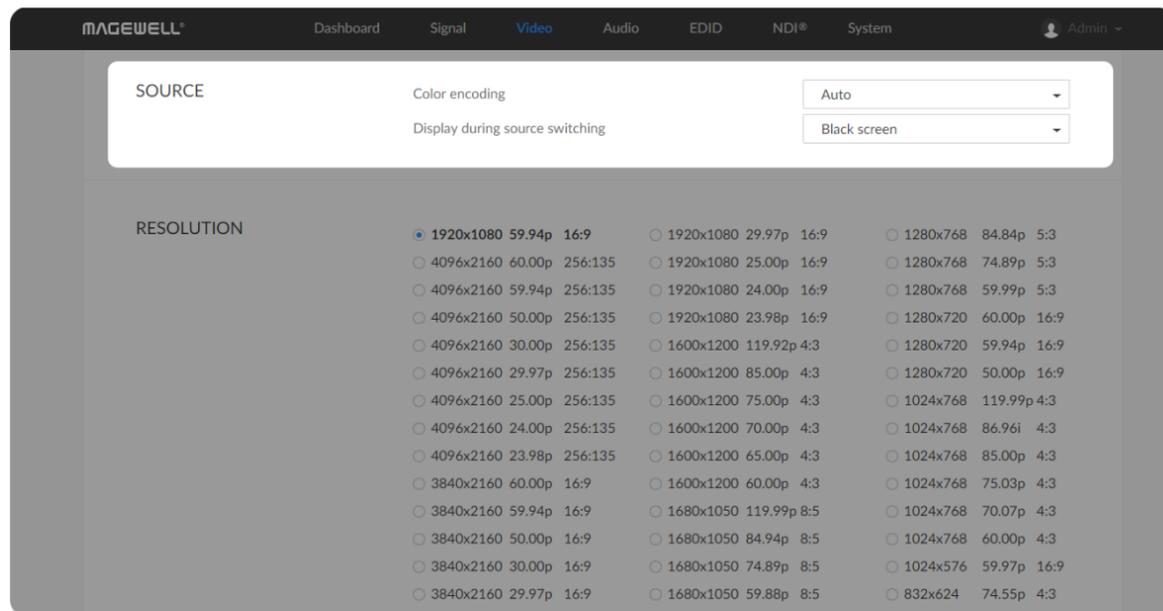
Turn on the switch to reverse the active image vertically, making sure the viewer see the image in the right direction. By default, it is off.

- **Deinterlace mode**

Convert interlaced video into a progressive form with the frame number reduced by half after processing.

For example, the input signal is a 60 field/s interlace signal, the device delivers a 30 frame/s progressive signal after processing.

- **Weave** takes pairs of fields and puts them together (every other line) to one frame. The result is the same as no deinterlacing. This mode is used when users want to capture the original video.
- **Bob** blends the top and bottom & field together. By default, this is used.



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

Setting RESOLUTION

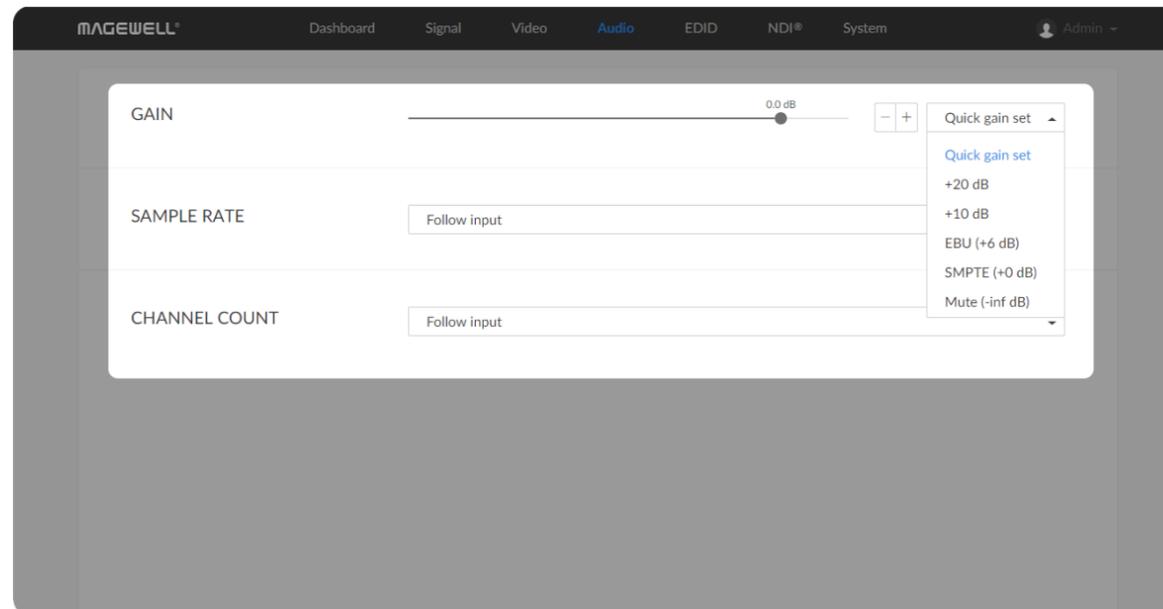
The decoder will list all resolutions according to the capability of the connected presentation device. It varies according to the presentation applications.

We recommend that you use the preferred resolution when a monitor is connected.

A higher bitrate ratio is better for the image quality and requires higher bandwidth, while a lower one might lead to less satisfactory image quality but require lower bandwidth.

Audio

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



- **GAIN**

GAIN is used to adjust the SNR. Signal-to-noise ratio numbers are all about the strength of the desired signal compared to the unwanted noise. The larger the number, the more the desired signal “stands out” in comparison to the noise, which means a clearer transmission of better technical quality. As a rule, each 3 dB of gain doubles the input power of the audio signal. Adjust the gain from -100.00dB to 20.00dB as needed. Or you can select **+20 dB**, **+10 dB**, **EBU (+6 dB)**, **SMPTE (+0dB)** 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.

- **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.

- **CHANNEL MAP**

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

Checking OUTPUT EDID

OUTPUT EDID shows the EDID of the connected presentation device.

The screenshot shows the MAGEWELL EDID configuration interface. The top navigation bar includes Dashboard, Signal, Video, Audio, EDID (selected), NDI®, and System. The user is logged in as Admin. The main content area is titled "OUTPUT PORT" and contains the following text: "Settings for the EDID obtained from the device which output port is connected to." Below this text is a table displaying the EDID data in hexadecimal format.

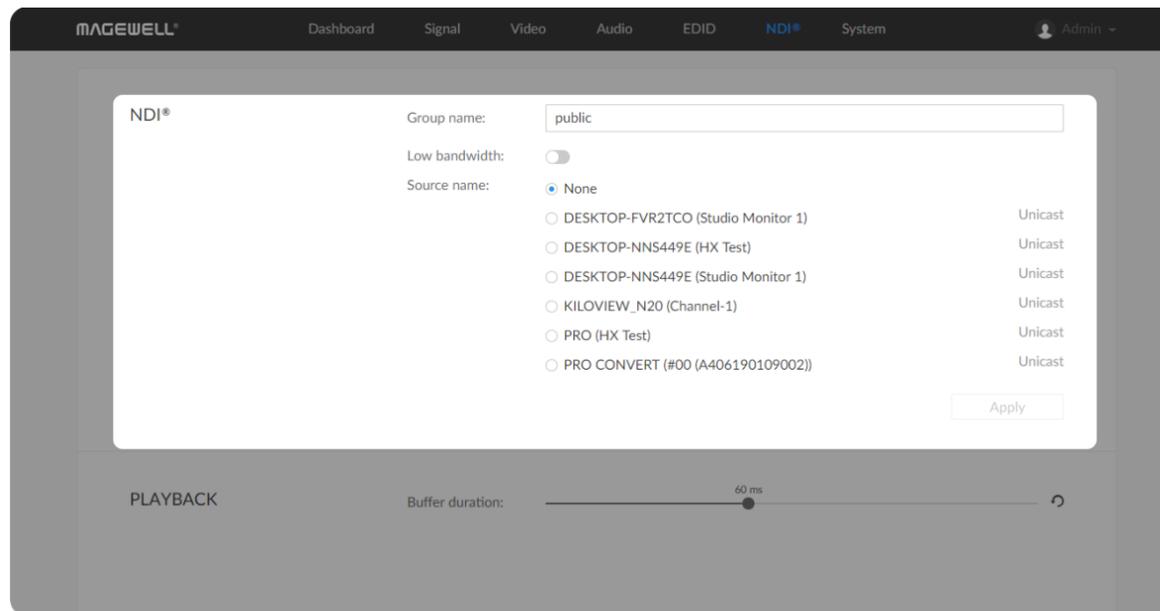
Offset	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	FF	00	34	F7	04	32	15	CD	5B	07
10	30	1A	01	03	80	30	1B	78	0F	EE	95	A3	54	4C	99	26
20	0F	50	54	FF	FF	80	81	00	81	40	81	80	95	00	A9	40
30	B3	00	D1	00	D1	40	F3	39	80	18	71	38	2D	40	58	2C
40	45	00	C4	8E	21	00	00	1A	28	3C	80	A0	70	B0	23	40
50	30	20	36	00	C4	8E	21	00	00	1A	00	00	00	FC	00	55
60	53	42	20	43	61	70	74	75	72	65	0A	20	00	00	00	FD
70	00	19	78	0C	FF	22	00	0A	20	20	20	20	20	20	01	E1
80	02	03	4F	F1	5E	06	15	02	11	13	04	14	05	20	21	22
90	1F	10	40	3F	5D	5E	5F	60	61	62	63	64	65	66	67	68
A0	69	6A	6B	26	0F	7F	07	09	7F	07	83	2F	00	00	6E	03
B0	0C	00	20	00	B8	40	20	00	80	01	02	03	04	E3	05	03
C0	00	E7	0E	60	61	65	66	6A	68	E5	0F	00	00	8C	31	04

An "Export..." button is located at the bottom right of the table.

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

NDI®

NDI® is a standard developed by NewTek to transport IP video over a LAN with high-quality and low latency. Click and enter the **NDI®** tab to do the NDI® settings.



Setting NDI® stream

- **Group name**

Group name shows the group which sends NDI streams received by your decoder.

Note that you need to click **Apply** at the bottom-right corner of the NDI® section to save any changes.

- The group name 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, NDI® stream is from **public** group.

- **Low bandwidth**

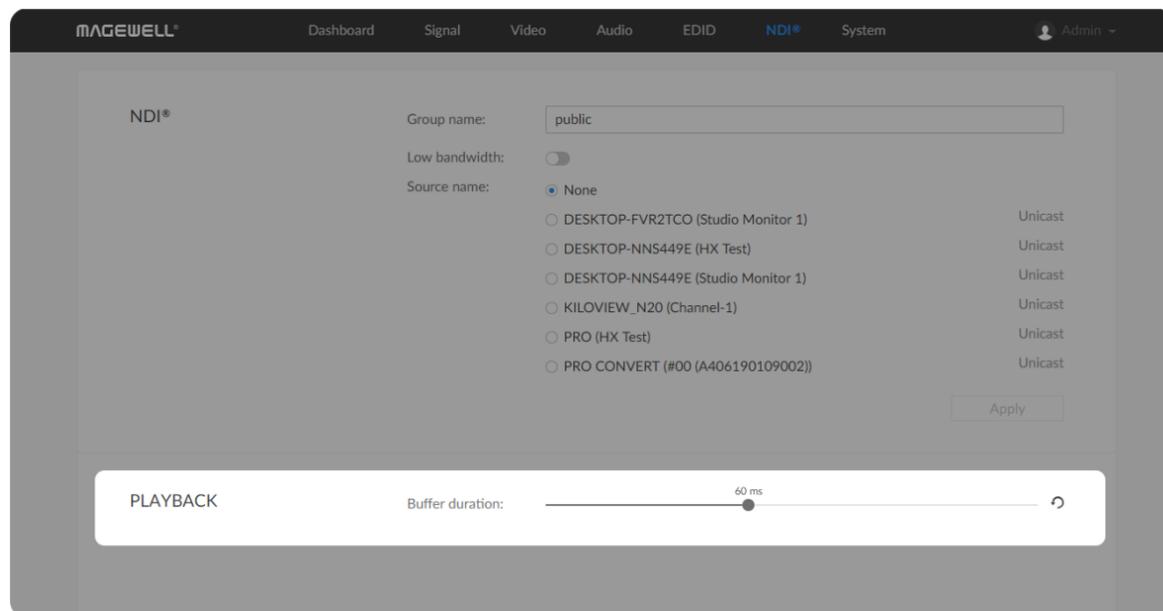
Turn on the switch when the network bandwidth is too low to have a smooth video. Generally, if the resolution is higher than 1920 x 1080, it will be reduced to a quarter of the original resolution; otherwise it will reduce to half of the original value. Meanwhile, the frame rate will drop to about 15 FPS.

Note that you need to click **Apply** at the bottom-right corner of the NDI® section to save any changes. By default, it is off.

- **Source name**

List the source name within the NDI group detected by your decoder. By default, it is None.

Note that you need to click **Apply** at the bottom-right corner of the NDI® section to save any changes.



Setting PLAYBACK

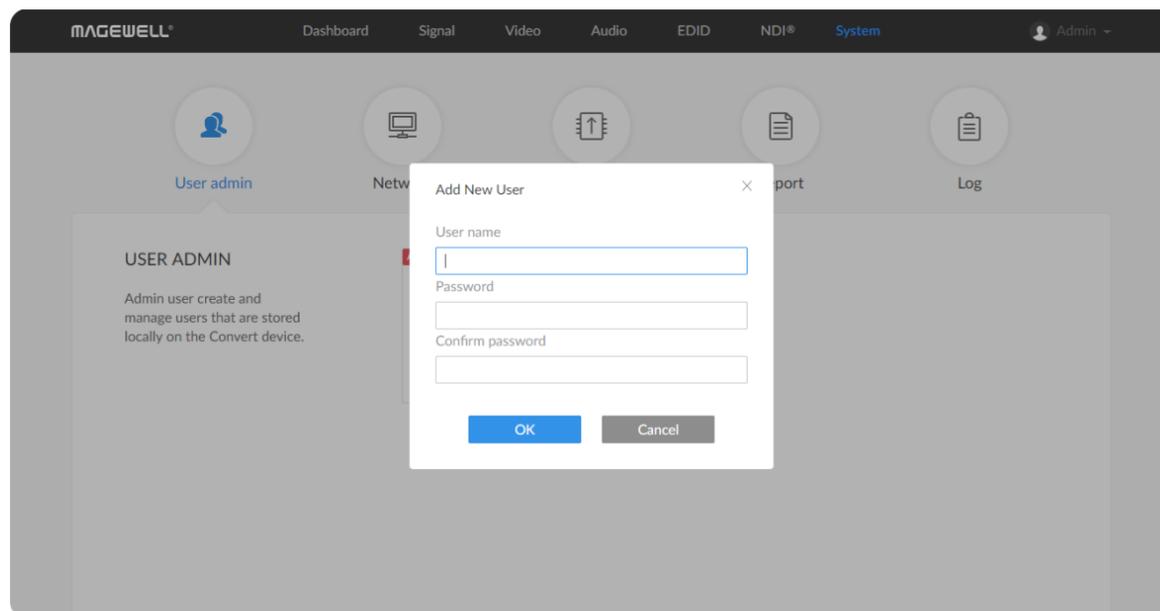
If low latency is required, you can reduce the **Buffer duration**. Otherwise, the default value 60ms is recommended. Note that you can click the icon  to reset to default value.

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
- 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.

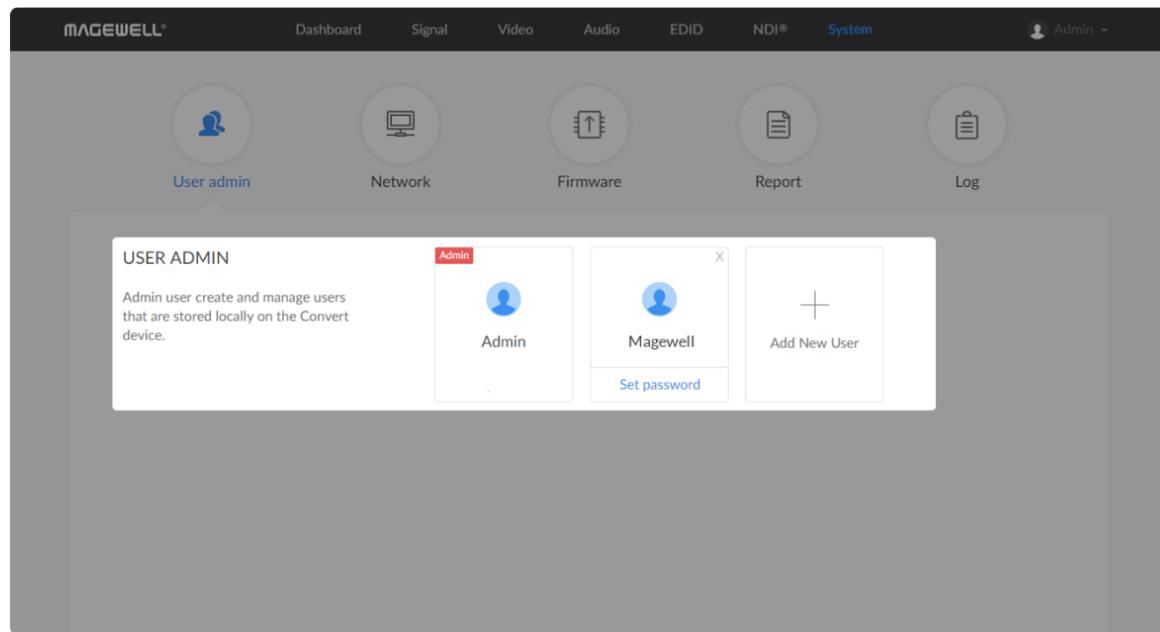
Step 1 Access the Web UI, and sign in as administrator.

Step 2 Click and enter the **System > User Management** tab.

Step 3 Click **Add New User**.

Step 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 _-



~!@#\$\$%^&*-=.

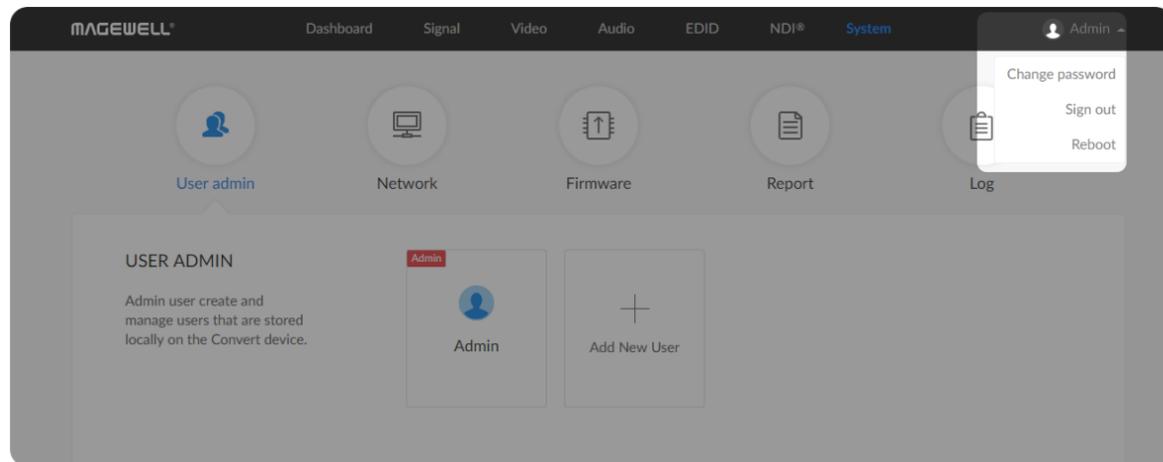
Step 5 Click **OK**.

Step 6 Repeat Step 3 to 5 to add multiple users.

decoders support the addition of up to 15 general users.

Step 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.

Step 8 Confirm the deletion when prompted.



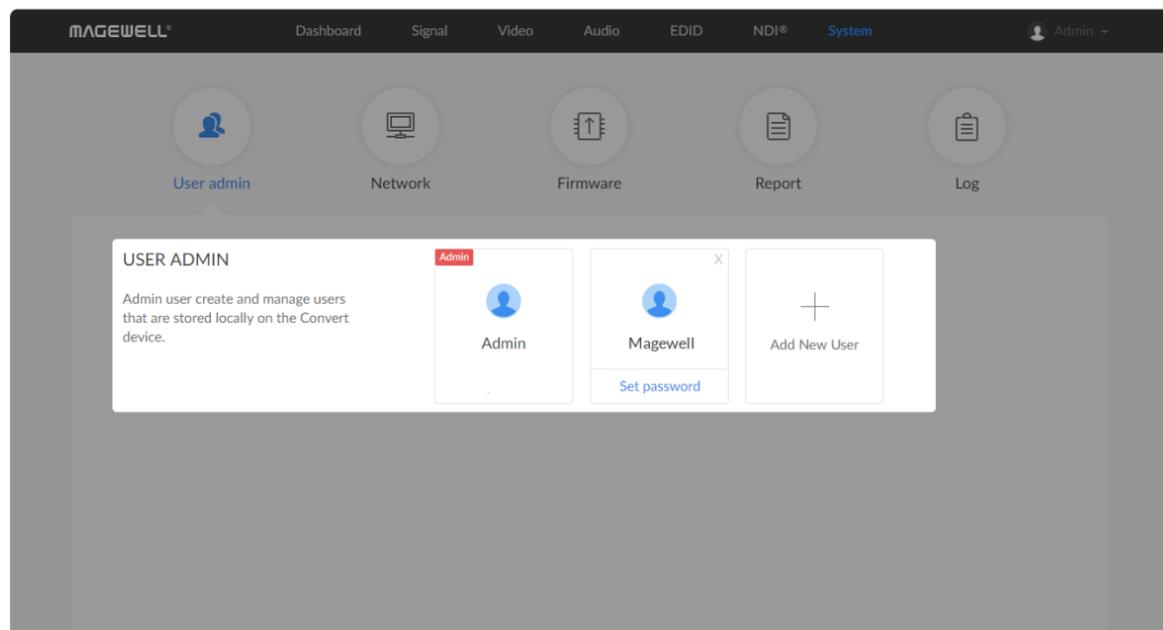
Setting Password

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 in via the user account drop-list

- Step 1** Access the Web UI, and sign in with your username and password.
- Step 2** Click the drop-list icon  beside the logged-in username, and click **Change password**.
- Step 3** In the prompt window, type in your old password, the new password, and confirm your new password.

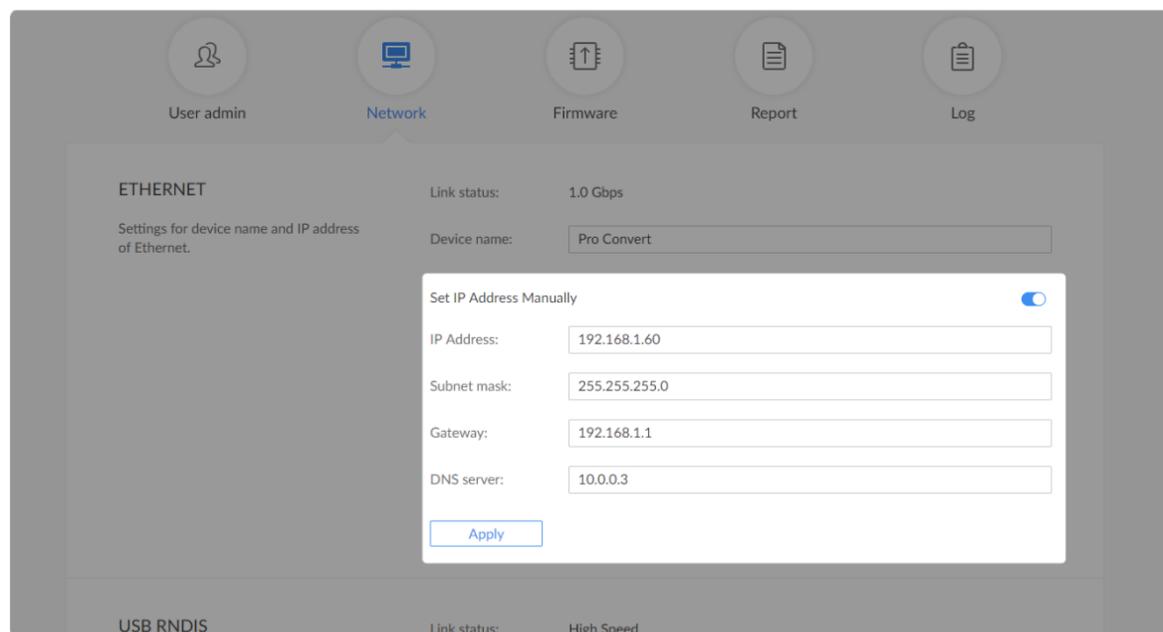
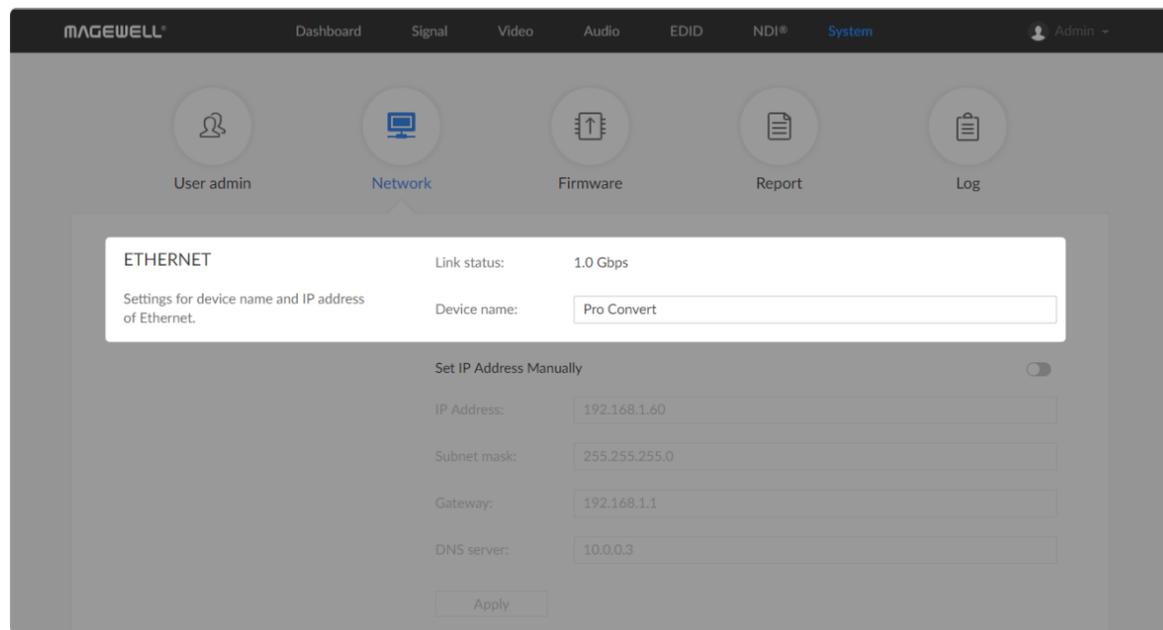
The password is a string of 1 to 32 characters, which contains letters A-Z, a-z, numbers 0-9 and special characters `_~!@#$$%^&*~+=.`
- Step 4** Click **OK**.



Solution 2: Setting in the System tab

- Step 1** Access the Web UI and sign in from the administrator account, then you can change any user's password.
- Step 2** Click and enter the **System** tab.
- Step 3** Move the cursor to the specific user name, then click **Set password**.
- Step 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 `_~!@#$$%^&*~+=.`
- Step 5** Click **OK**.



Setting Device Name

To change device name in the **System** tab requires administrative rights. By default, the device name is the same as the product model name.

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

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

Step 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 _-+.

Step 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

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

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

Step 3 Turn on **Set IP Address Manually**, then enter a new **IP address**, **Subnet mask**, **Gateway**, and **DNS server**.

Step 4 Click **Apply** to save changes.

Step 5 When the prompt appears, click **Yes**.

The screenshot displays two network configuration panels. The top panel, titled 'ETHERNET', shows a link status of '1.0 Gbps' and a device name of 'Pro Convert'. The 'Set IP Address Manually' toggle is turned on. The IP address is set to '192.168.1.60', the subnet mask to '255.255.255.0', the gateway to '192.168.1.1', and the DNS server to '10.0.0.3'. An 'Apply' button is visible below these fields. The bottom panel, titled 'USB RNDIS', shows a link status of 'High Speed' and an IP address of '192.168.66.1'. An 'Apply' button is also present at the bottom of this panel.

Step 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.

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

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

Step 3 Enter a new **IP address** for Ethernet over USB.

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

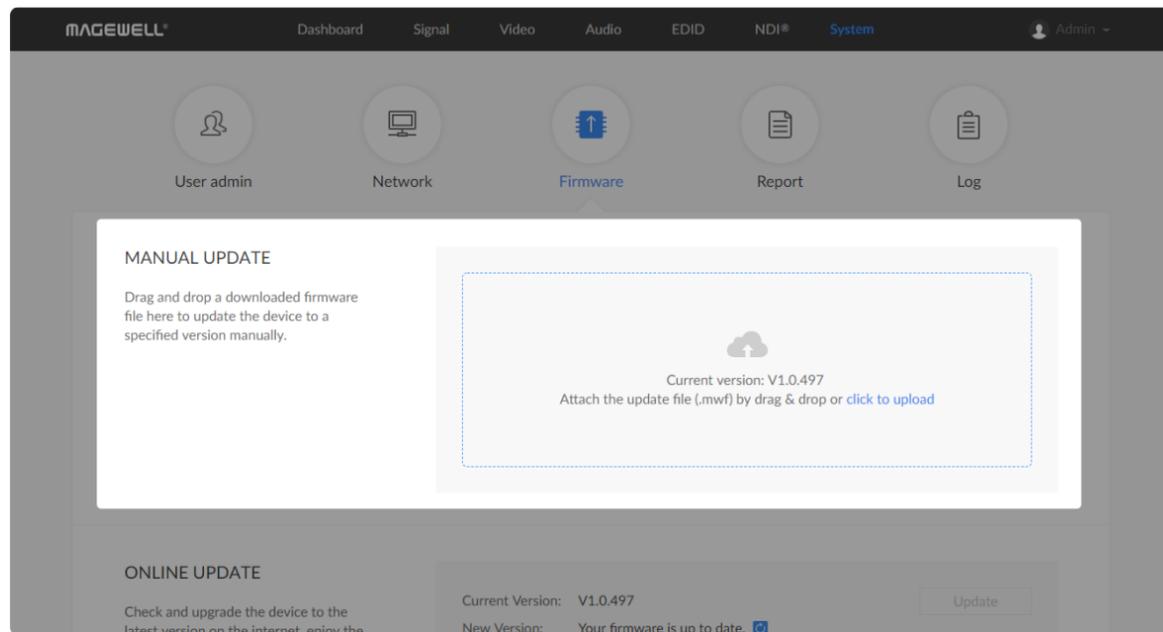


Figure1. Click to update

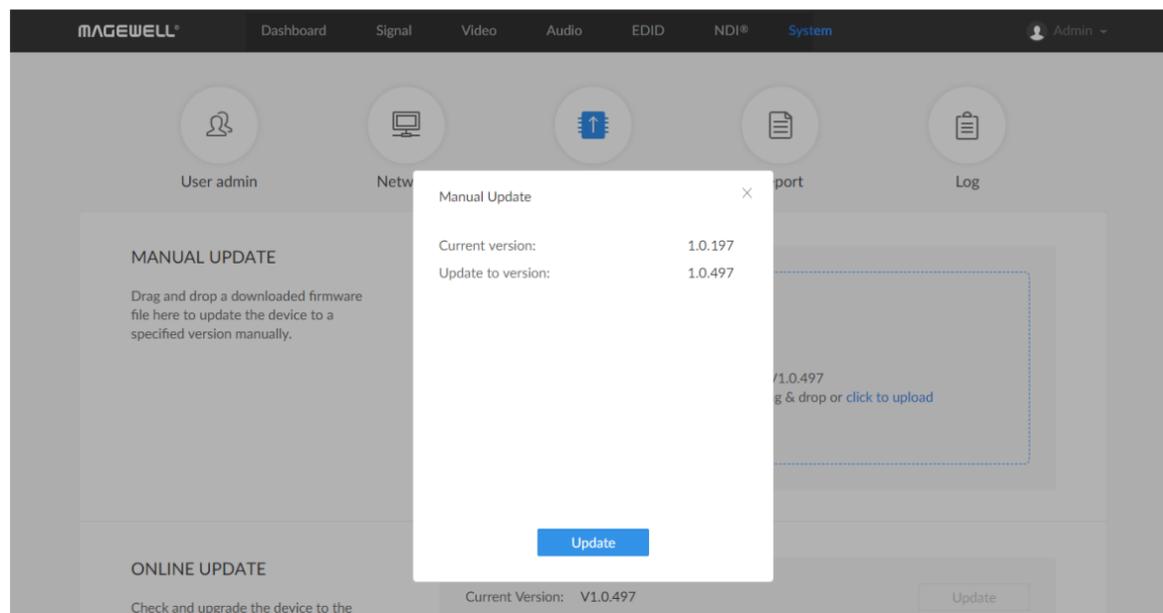


Figure2. Click update

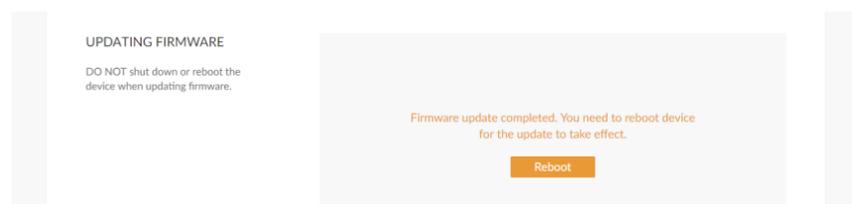


Figure3. Click Reboot

Updating the Firmware

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

Note: Currently online update is not supported.

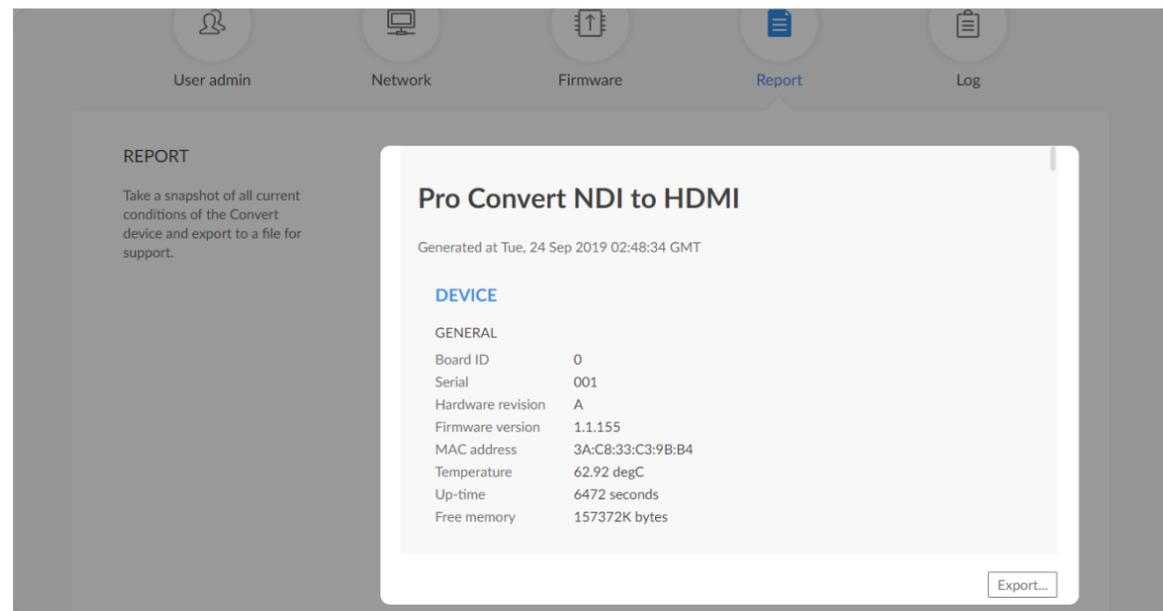
- Step 1** Access the Web UI, and sign in as administrator.
- Step 2** Click and enter the **System** tab, then select **Firmware**.
- Step 3** Click on **click to update** to select the **.mwf** firmware update file from your local storage, or just drag and drop the file from your computer into the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

You can download the Pro Convert firmware package from the Downloads section of the Magewell website:

<http://www.magewell.com/downloads/pro-convert>.

- Step 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.
- Step 5** In the **Manual Update** window, click **Update**.
DO NOT shut down or reboot the device when updating firmware.
- Step 6** Click **Reboot** to complete the update.
The changes take effect after you reboot the device.
- Step 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.

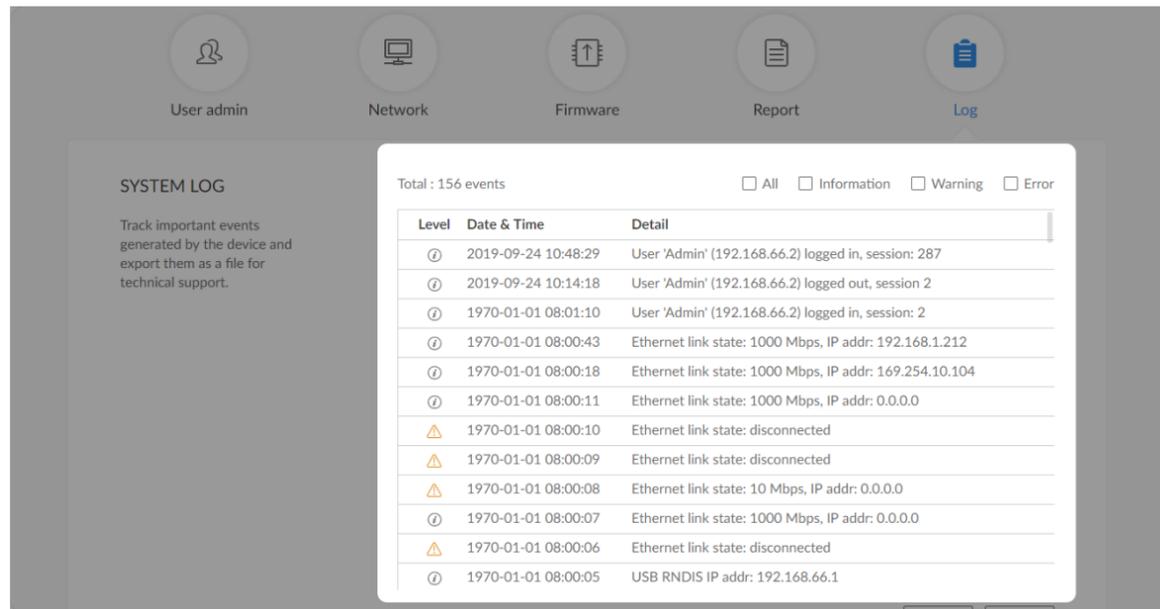


Exporting Reports and Logs

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

- Step 1** Access the Web UI and sign in as administrator.
- Step 2** Click and enter the **System** tab, then select **Report**.
- Step 3** Click **Export...** to generate a .html file.
- Step 4** When the prompt appears, click **Export**.



Clearing/Exporting All Logs

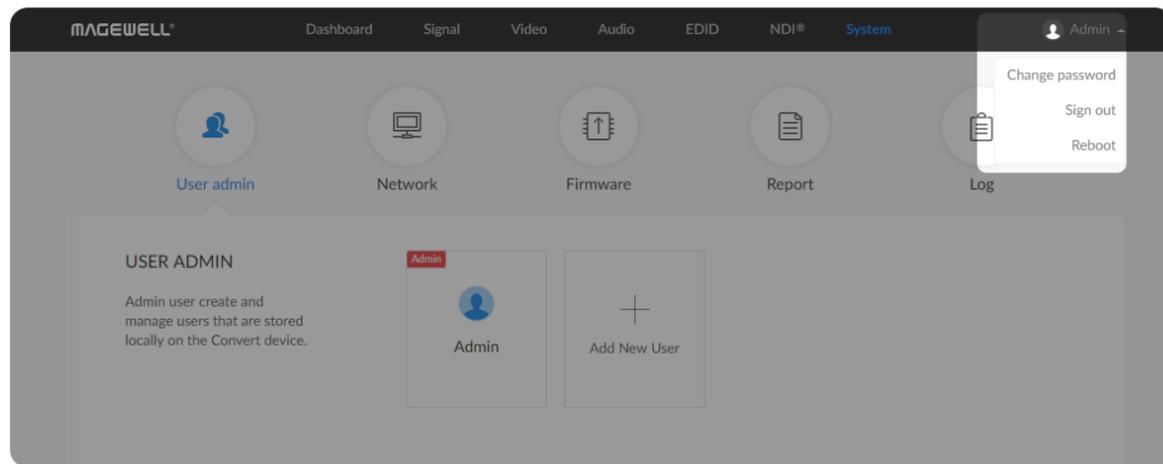
- Step 1** Access the Web UI and sign in as administrator.
- Step 2** Click and enter the **System** tab, then select **Log**.
- Step 3** (Optional) Filter current logs.

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.

- Step 4** (Optional) Click **Export...** to get a .html file of all logs.
When prompted in the window, click **Export**.

- Step 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.

- Step 1** Access the Web UI and sign in as administrator.
- Step 2** Click the drop-list icon  behind your username at the top-right of the Web UI and select **Reboot**.
- Step 3** When prompted in the window, click **Reboot**.

Resetting All Settings

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

- Step 1** Connect the device and your computer with the USB cable.
- Step 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 <http://192.168.66.1>. Please do not change it unless there is a conflict in your network.
- Step 3** Click **Reset all settings** at the top right corner of the **SIGN IN** page.
The reset process may take a few minutes.

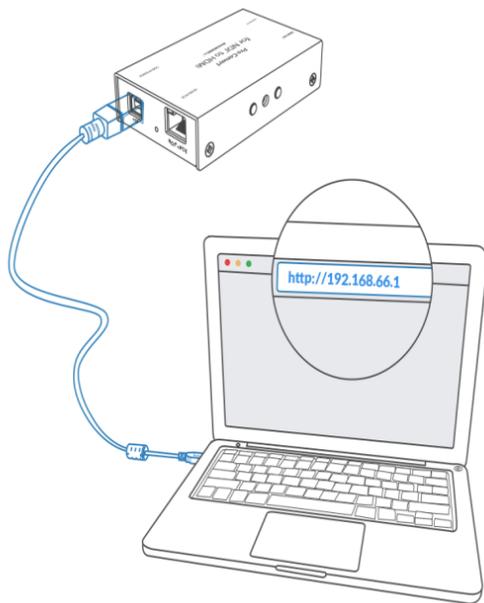


Figure1. Connections

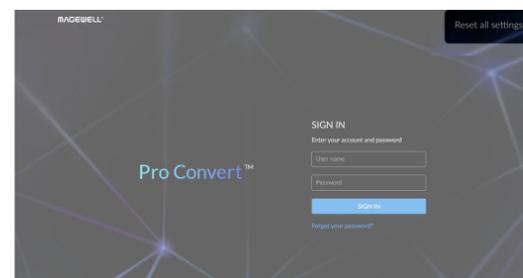
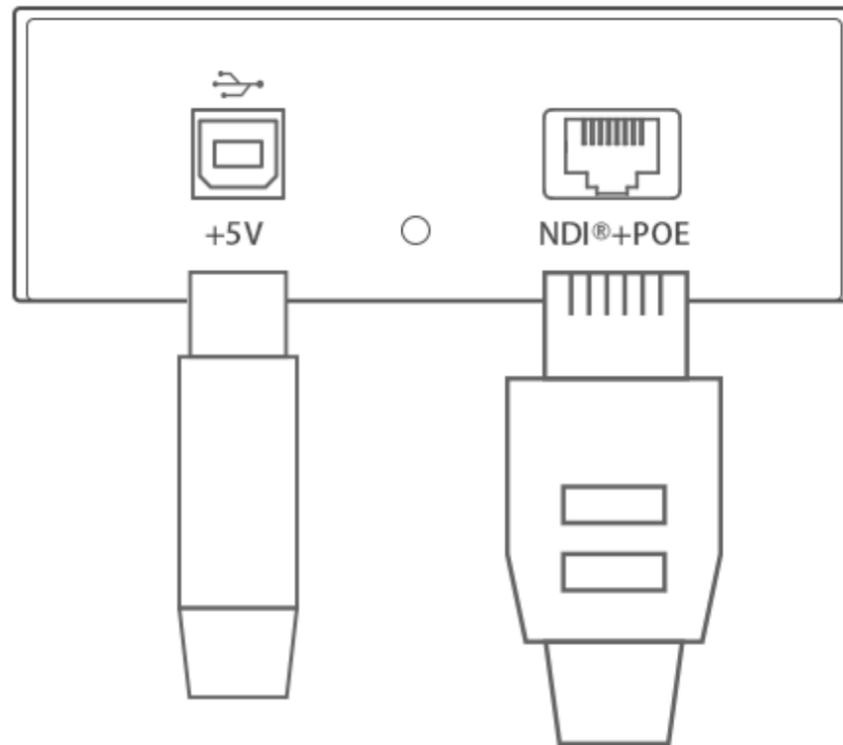


Figure2. Reset all settings

FAQ



How to supply power to the Pro Convert

There are 2 ways to power your decoder as shown in the left figure:

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:

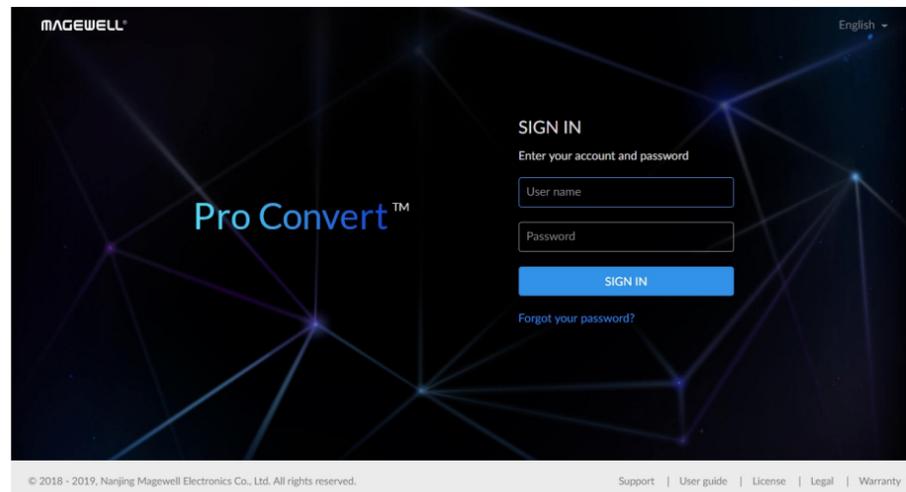
- Pro Convert devices require a 5V DC source with a current rating of no less than 2.1A.
- We recommend that you use only the included Magewell accessories.
- If any included accessory is lost or broken, please contact your Magewell authorized local resellers for help.

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

Pro Convert is compatible with NewTek NDI® SDK from 3.5 to 4.0 version for now.

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

After testing, if using Philips 328M monitor as the presentation device, the minimum delay of converting 1080P60 signal is about 67ms in a Gigabit Ethernet network.



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

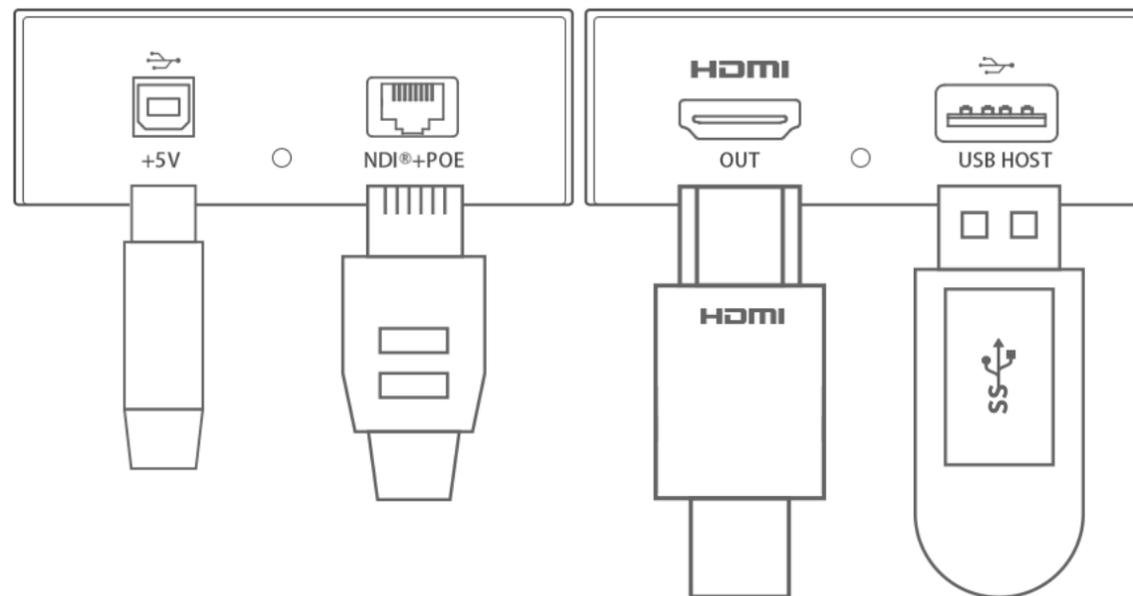


Figure1. Connections

1. Using Windows File Explorer

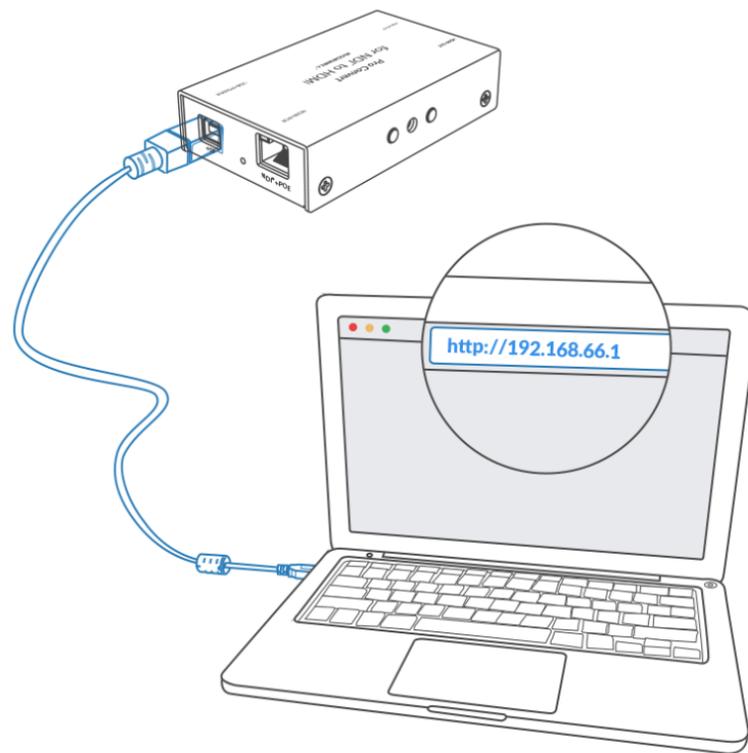
This method is available for Windows 7/8/8.1/10 users.

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

Step 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.

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



side of the File Explorer.

Step 4 Turn on the network discovery function if prompted.

Step 5 Find your Pro Convert device in the **Other Device** 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".

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

2. Using Ethernet over USB

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

Step 2 Launch your web browser, and type in USB RNDIS address to access the Web UI. The default address is <http://192.168.66.1>.

Step 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.

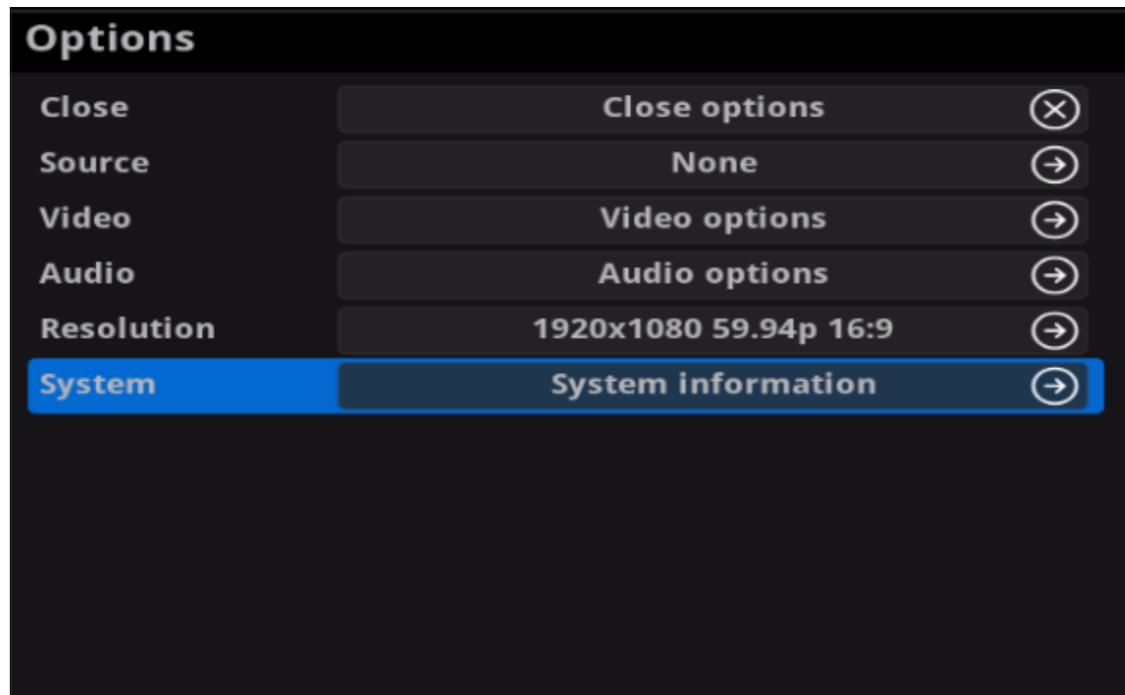


Figure1. Select System in Options menu

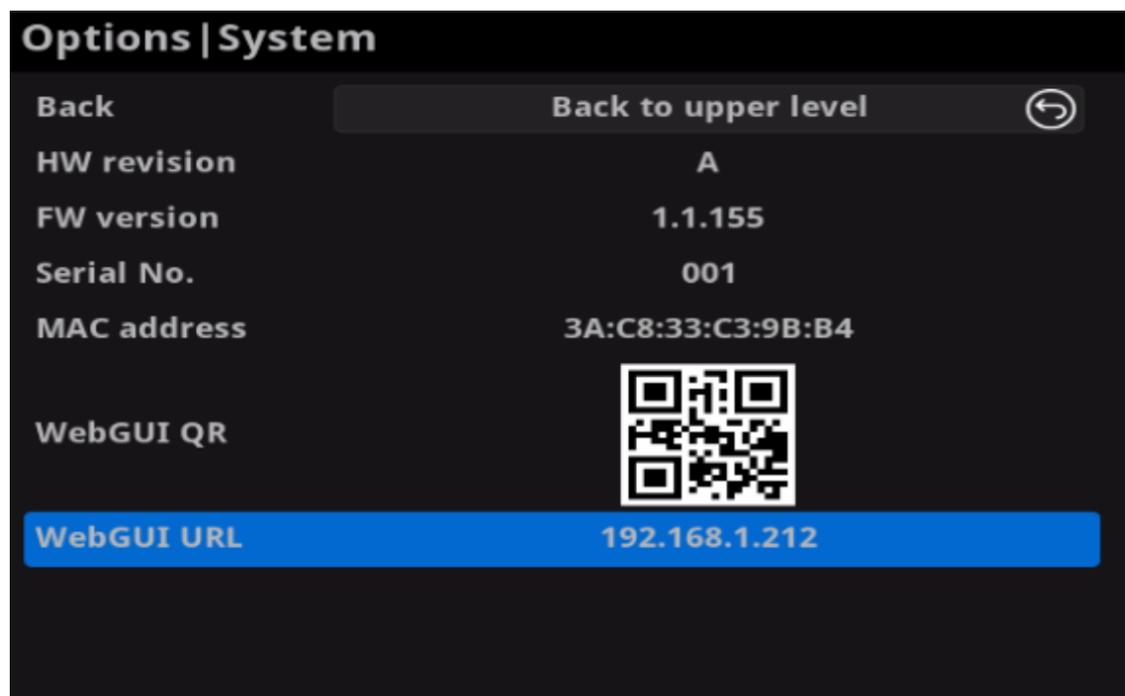
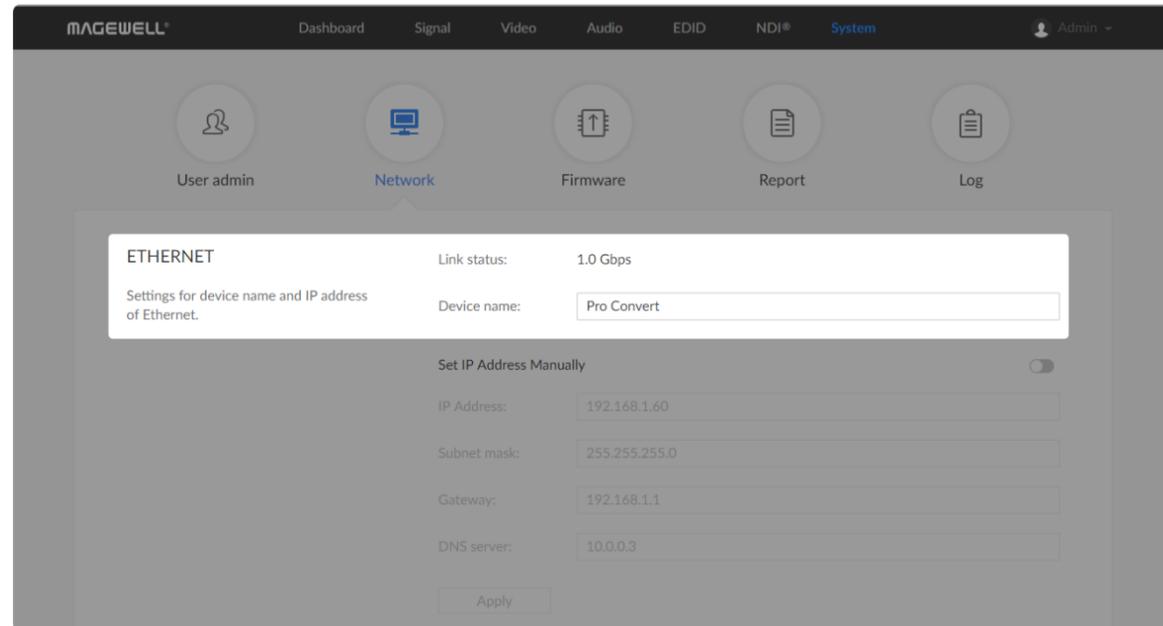


Figure2. Check the WebGUI

Solution 3: using the on-screen menu Options

- Step 1** Connect your decoder via Ethernet, power it up and connect a presentation device as shown in the [Figure1. Connections](#).
- Step 2** Press the on-device MENU button, click the mouse or the keyboard(if connected), to display the Options overlaid on the output.
- Step 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.

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

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

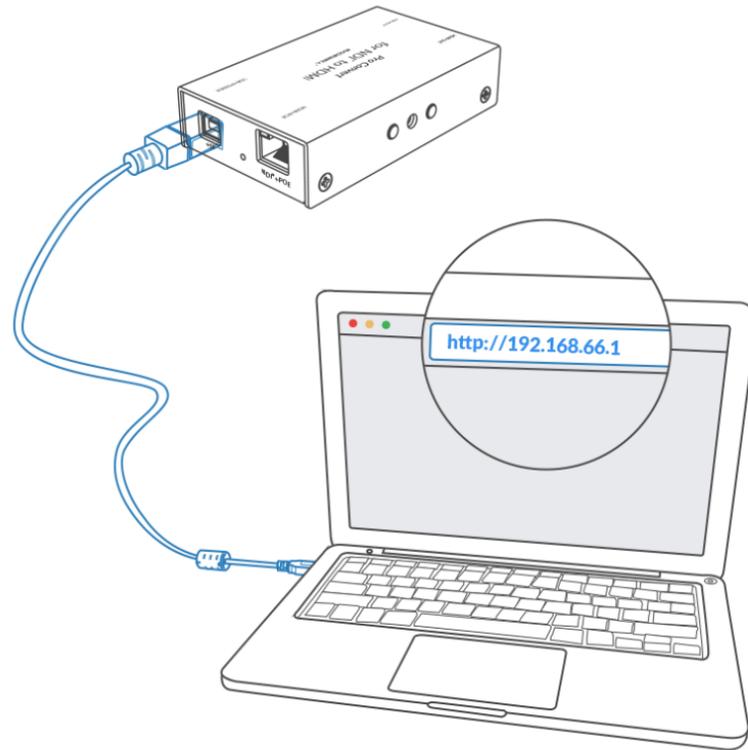
Step 3 Change the **Device name**.

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 _-+.

Step 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.

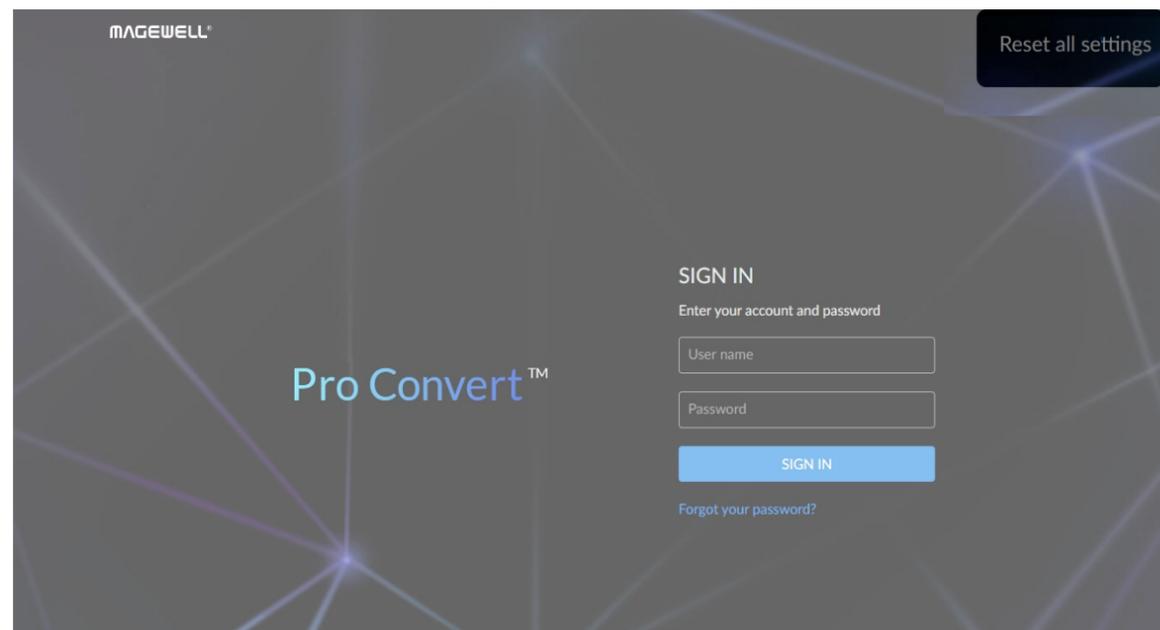
Step 5 Click and enter the **Dashboard** tab in the Web UI to check the **Device name**. The values should be the same as your settings.



How to reset a Pro Convert device

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

- Step 1** Connect your decoder to your computer.
- Step 2** Launch your web browser, and type in the USB RNDIS address to access the Web UI **SIGN IN** page.
The default address is <http://192.168.66.1>. Please do not change it unless there is a conflict on your network.
- Step 3** Click **Reset all settings** at the top right corner of the **SIGN IN** page.
The reset process may take a few minutes.



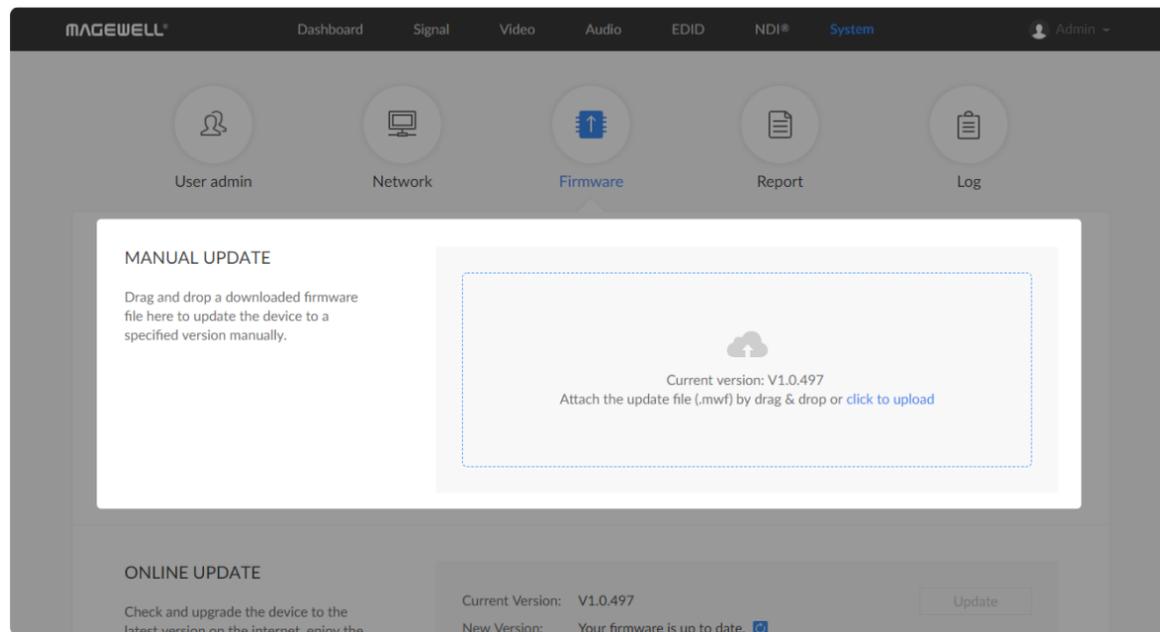


Figure1. Click to update

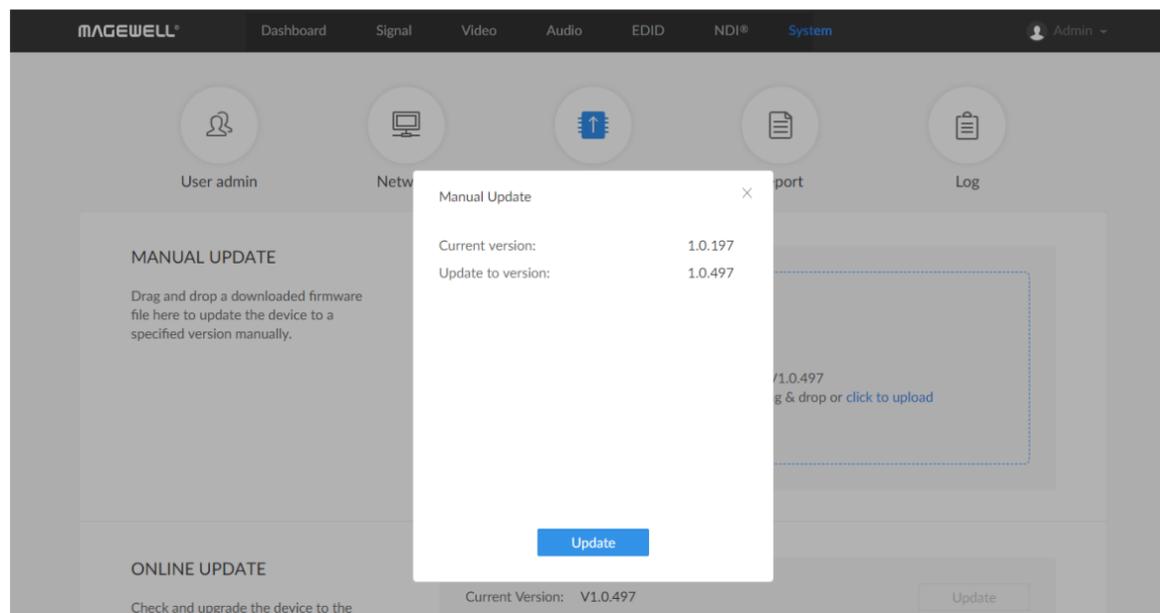


Figure2. Click update



Figure3. Click Reboot

How to manually update the firmware for Pro Convert

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

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

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

Step 3 Click on **click to update**.

Step 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:

<http://www.magewell.com/downloads/pro-convert>.

Step 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.

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

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

Step 7 In the **Manual Update** window, click **Update**.

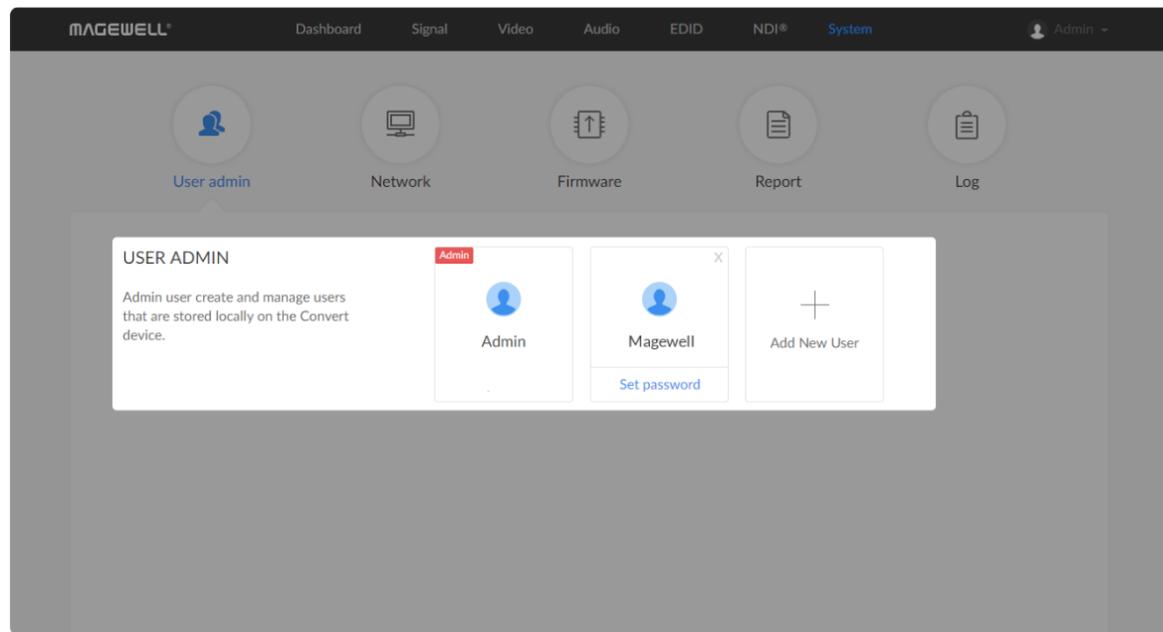
⚠ DO NOT shut down or reboot the device during updating procedure.

Step 8 After loading successfully, click **Reboot** to complete the update.

The reboot process may take a few minutes.

Step 9 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.



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.

- Step 1** Access the Web UI, and sign in as administrator.
- Step 2** Click and enter the **System** tab.
- Step 3** Click the **Set password** link which appears when your mouse hovers over the user name.
- Step 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 `_~!@#$$%^&*~+=.`
- Step 5** Click **OK**.

2. To set a new admin password.

- Step 1** Connect the device to a computer with the USB cable.
- Step 2** Type in the USB RNDIS address to your web browser.
The default IP address of USB RNDIS is <http://192.168.66.1>. Please do not modify it unless there is a conflict on your network.
- Step 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.
- Step 4** Sign in to the Web UI via the default admin account (case-sensitive): Admin, Admin.

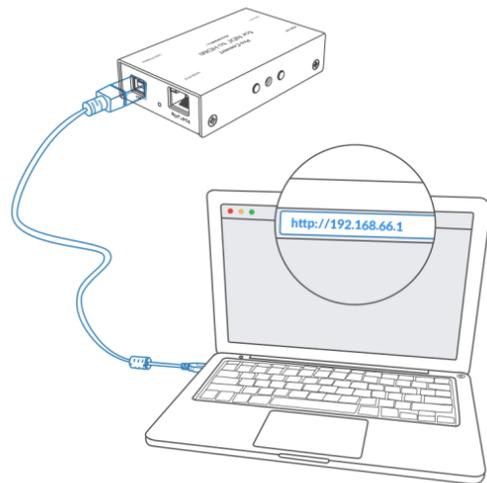


Figure1. connections

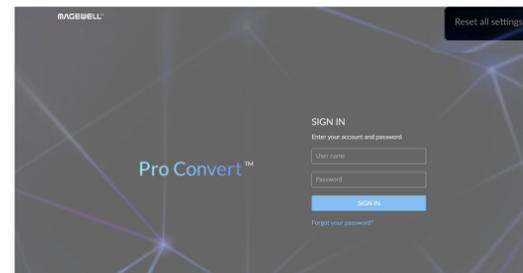


Figure2. Reset all settings

- Step 5** Click and enter the **System** tab.
- Step 6** Click the **Set password** link which appears when your mouse hovers over the user name.
- Step 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 _-~!@#\$%^&*~+=.
- Step 8** Click **OK**.

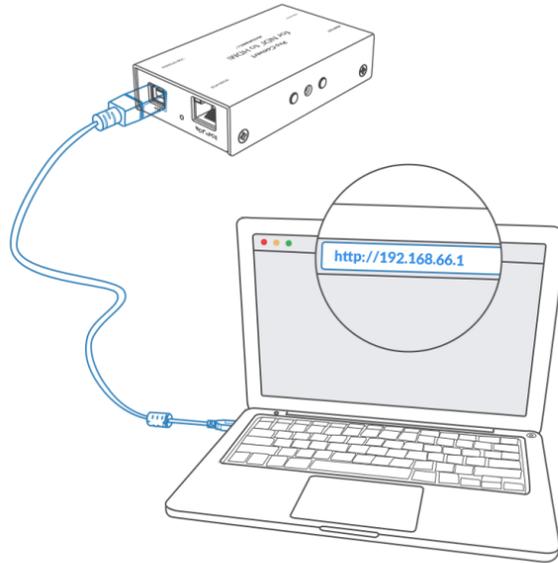


Figure1. USB RNDIS connections

```

Select Command Prompt
C:\Users\win1064>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::6c54:b184:f07a:eacd%9
    IPv4 Address. . . . . : 192.168.1.124
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Ethernet 2:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::146b:1130:8511:736f%17
    IPv4 Address. . . . . : 192.168.55.3
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Ethernet adapter Ethernet 5:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::d962:b7ac:a87d:82ed%21
    IPv4 Address. . . . . : 192.168.65.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

C:\Users\win1064>
  
```

Figure2. Windows

How to retrieve your USB RNDIS IP Address

Step 1 Connect the device and your computer with a USB cable as shown in [Solution 2: using USB RNDIS](#) .

Step 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 [Figure1. Windows](#).
- 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 [Figure2. Linux](#).
- 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 [Figure3. Mac](#).

⚠ 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.

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

```
m@m-System-Product-Name: ~  
m@m-System-Product-Name:~$ ifconfig -a  
enp0s20u1 Link encap:Ethernet HWaddr 52:a0:c8:a7:36:da  
inet addr:192.168.66.2 Bcast:192.168.66.255 Mask:255.255.255.0  
inet6 addr: fe80::dd8b:5309:1f66:4a2c/64 Scope:Link  
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1  
RX packets:32 errors:0 dropped:0 overruns:0 frame:0  
TX packets:33 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:1000  
RX bytes:4312 (4.3 KB) TX bytes:6811 (6.8 KB)  
  
enp2s0 Link encap:Ethernet HWaddr 74:d4:35:3d:fd:8c  
inet addr:192.168.1.193 Bcast:192.168.1.255 Mask:255.255.255.0  
inet6 addr: fe80::f27a:b042:8980:a949/64 Scope:Link  
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1  
RX packets:63136 errors:0 dropped:0 overruns:0 frame:0  
TX packets:28725 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:1000  
RX bytes:76043093 (76.0 MB) TX bytes:2715888 (2.7 MB)  
  
lo Link encap:Local Loopback  
inet addr:127.0.0.1 Mask:255.0.0.0  
inet6 addr: ::1/128 Scope:Host  
UP LOOPBACK RUNNING MTU:65536 Metric:1  
RX packets:560 errors:0 dropped:0 overruns:0 frame:0
```

Figure3. Linux

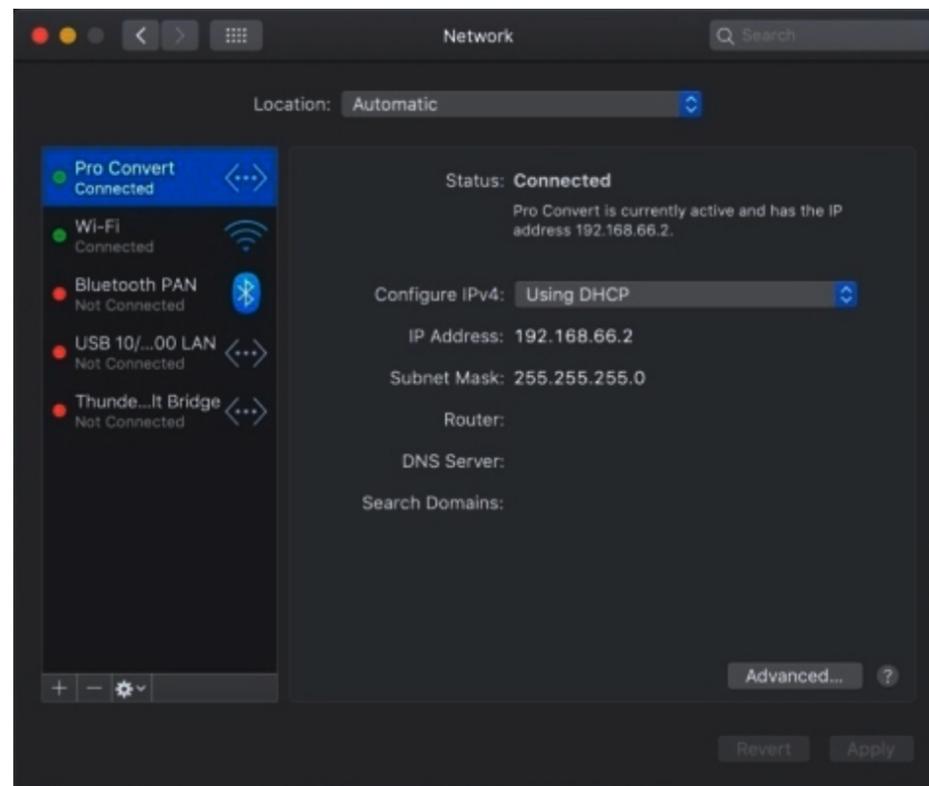


Figure4. Mac

Support

Get the Latest Information

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

- Tutorial video: <http://www.magewell.com/tv>
- YouTube channel: [Magewell Video Capture Device](#)
- Knowledge base: <http://www.magewell.com/kb/pro-convert>
- Official website: <http://www.magewell.com/pro-convert>

Technical Support

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.

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.

NDI[®]

NDI (Network Device Interface) is a standard developed by NewTek to transport video, audio & metadata over a local Ethernet network. Visit <https://www.newtek.com/ndi/> for more information.

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.