MAGEWELL®

Pro Convert AES67

User Manual, Reference and FAQs



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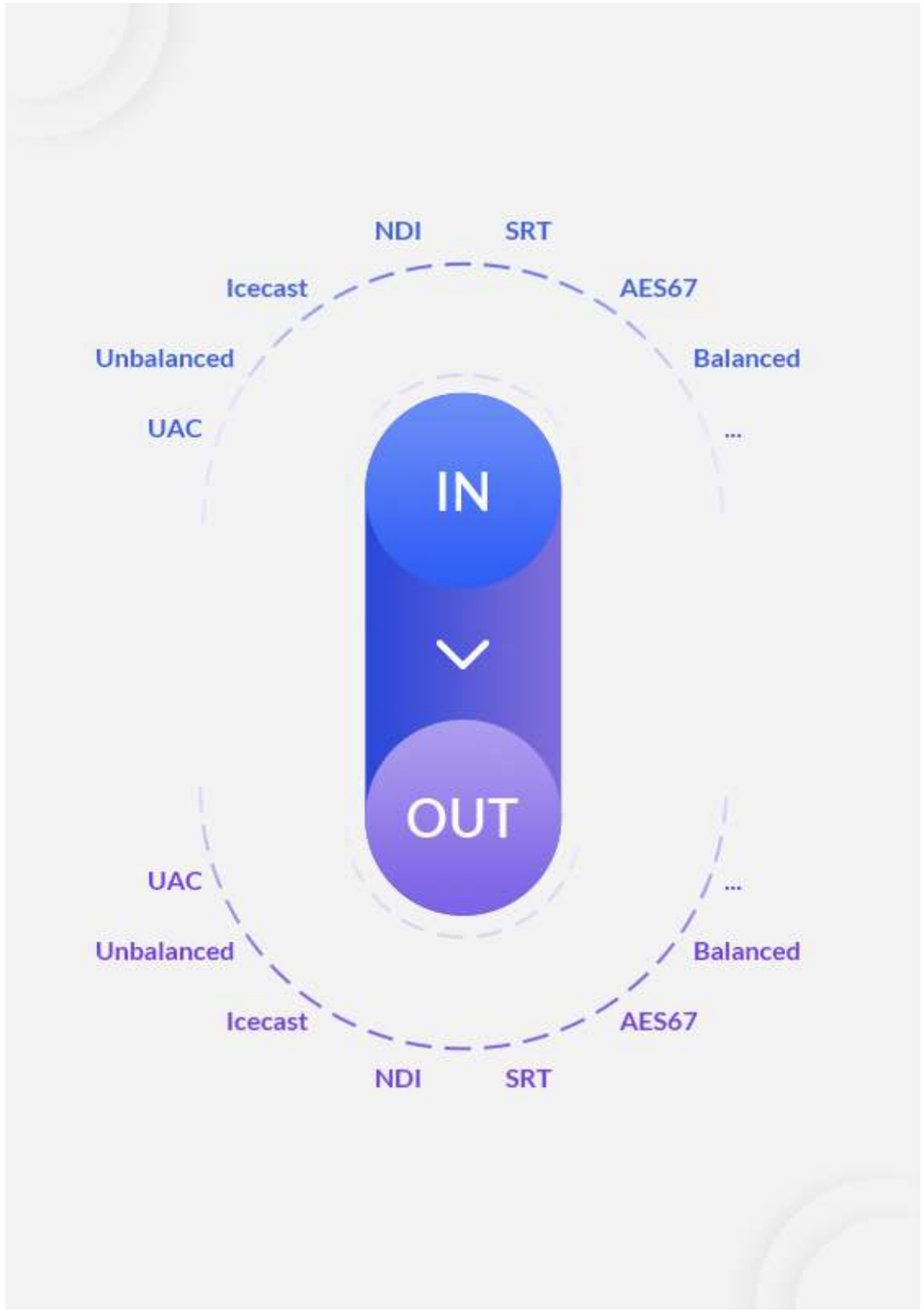
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Getting Started



Overview

Pro Convert™ AES67 allows you to use the audio gear you already own - your trusted compressors, equalizers or analog power amplifiers - adapt them to the world of audio networking with Magwell audio unit, processing receive and transmit analog and digital audio data.

The ultra-compact Pro Convert devices are ideal for both in-studio and portable field use. Value-added features for live production applications include WebUI for remote control, a ¼-20 thread for mounting accessories, effectively broadcast audio online - NDI/SRT/Icecast, and audio over IP - native AES67.

The units can be powered by either a DC adapter or via Power over Ethernet (PoE) for further deployment simplicity.

Key Features

- Be compatible with ST 2110-30
- Input and output 3.5mm unbalanced/4.4mm balanced/USB Audio Class/Icecast/AES67/NDI/SRT
- Nanosecond accuracy timing synchronization is provided using IEEE 1588-2008 Precision Time Protocol (PTP) Version 2 (PTPv2) (AES67)
- Integrated A/D and D/A audio converters
- Remotely manage via Magewell Cloud and Web UI
- Compatibility with a wide variety of TCP/IP devices, including PC and audio processing software
- Dual power input options, powered by Power over Ethernet (PoE) switch, a

PoE injector (802.3 af) or DC 5V via MicroUSB connector

System Requirements

Network

- Gigabit Ethernet

Supported Web Browser for the Web UI

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

Tutorial

The configuration roadmap is as follows:

1. Make a business plan.
2. Complete the converter configuration of each session based on your business plan, including cable connections, input and output sessions, routing scheme and other required parameters. After the configuration is completed, save the configuration.
   - To connect cables to your device and power it on, see Installation.
   - To connect UNBALANCE 3.5mm and BALANCE 4.4mm INs and OUTs, see Installation.
   - To configure IP RX sessions, see AES67 RX/Icecast RX/NDI RX/SRT RX.
   - To configure IP TX sessions, see AES67 TX/Icecast TX/NDI TX/SRT TX.
   - To configure audio routing table, see Matrix.
3. Check whether RX/TX sessions are working successfully.

Installation

Safety Information

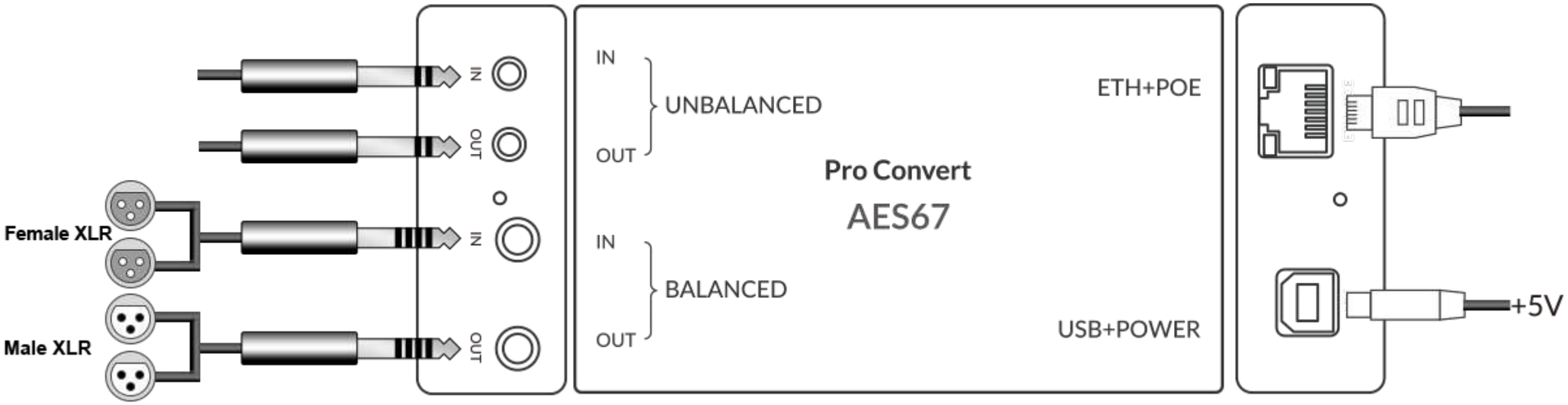
Electrical Safety

- 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.

Cable Connections



1. Plug in the USB cable to USB+POWER port.
   - For power supply: Connect the other end of the USB cable to the power adapter.
   - For USB Net: Connect the other end of the USB cable to your computer.
   - For UAC(USB audio class): Connect the other end of the USB cable to the USB audio source.
2. Plug in the Ethernet cable to ETH+POE port.
   - 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.
3. (Optional) Connect UNBALANCE 3.5mm/BALANCE 4.4mm IN/OUT (if needed) for analog audio.

Web UI Configuration

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



Figure1. Cable connections



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

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 Windows 7/8/8.1/10/11 users, you can find and access your Pro Convert device as a Network device in a File Explorer window.
2. Using the USB NET function.

Solution 1: using Windows File Explorer

This method is available for Windows(Win7 and above) users.

1. Connect your converter via Ethernet and power it up as shown on the left Figure1 Cable connections.
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** 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.

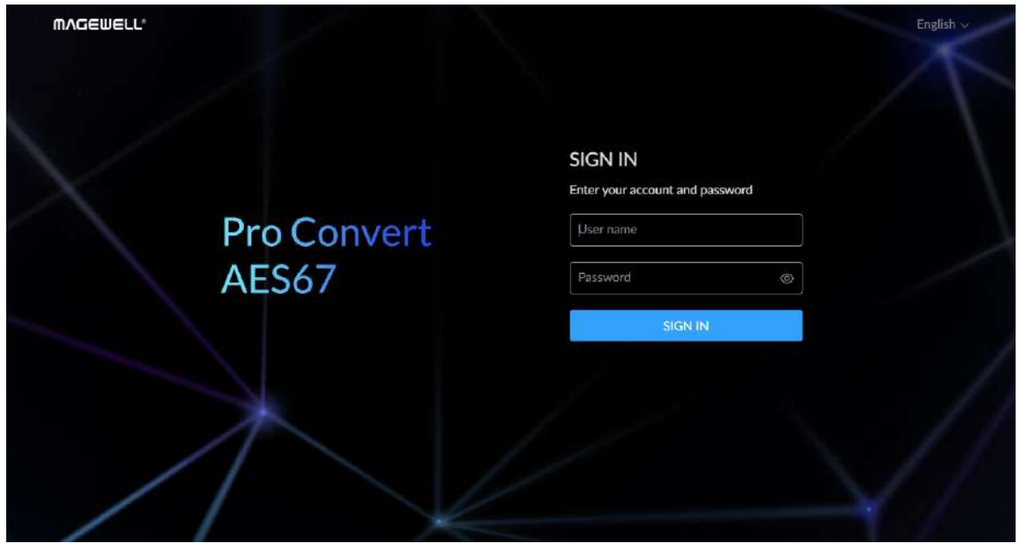


5. Find your Pro Convert device in the **Other Devices** section, where it will be shown as "**Pro Convert AES67 + (serial number)**".
   The **serial number** (marked on your device) will be in a form like "B401180706006".
6. Double click the converter icon to open the Web UI of the device in your web browser.

Solution 2: using USB NET

1. Connect the device and your computer using a USB cable as the left figure.
2. Type the USB NET 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 unit simultaneously to the same system via USB NET.

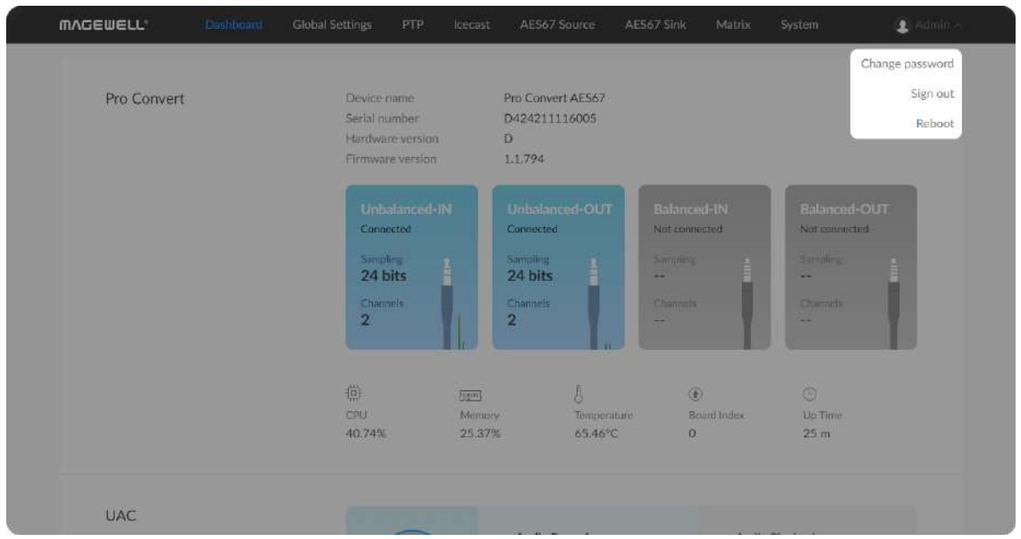


Signing In/Out

The Web UI allows multi-users to have read/write access to make configuration settings at the same time after login. However, operate on one device simultaneously by many people is not recommended for it may cause configuration conflicts.

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**
- We recommend you to change the admin password after logged-in.

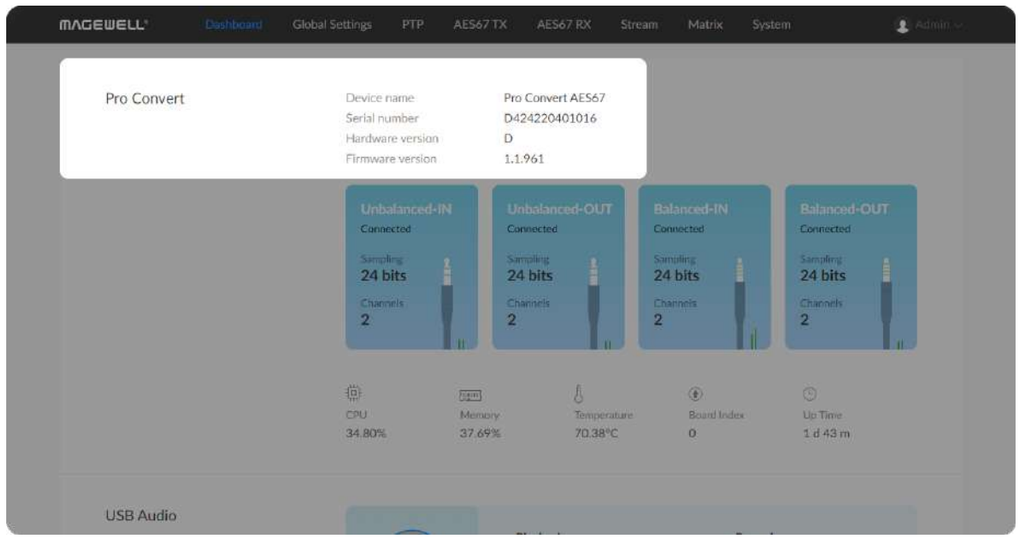


Signing Out: click the drop-list icon ▼ behind your username at the top-right of the Web UI, and select **Sign out**.

The **Reboot** function requires administrative rights.

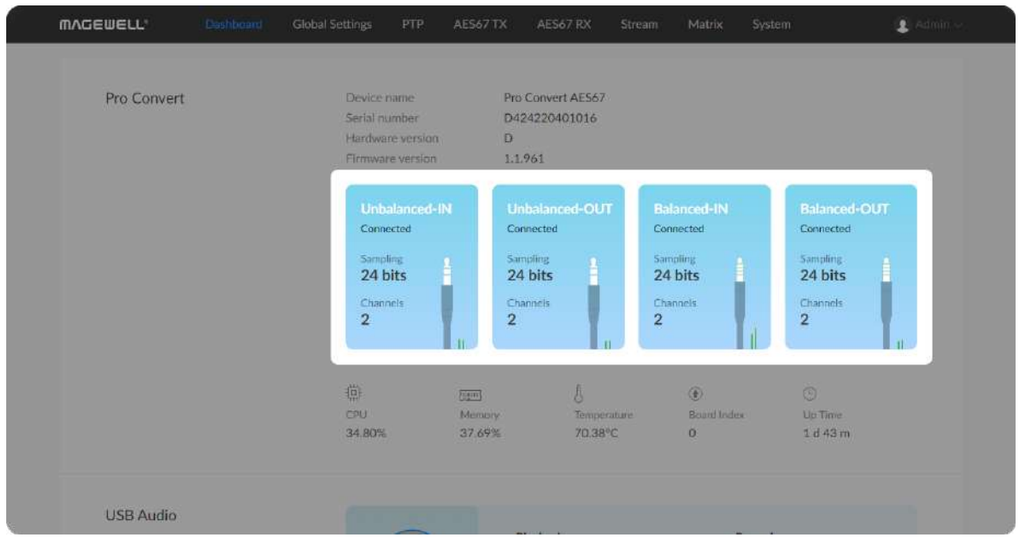
Dashboard

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

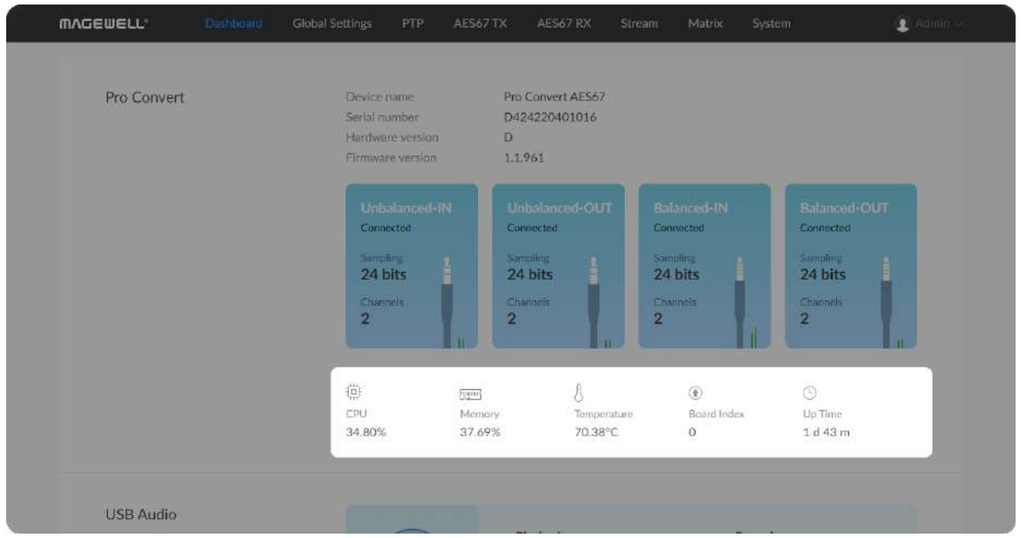
- **Device name** shows the name of your Pro Convert unit.
  Only the Administrator can Setting Device Name in **System > General > DEVICE > Device name** tab.
- **Serial number** shows the serial number of your unit marked on the back.
- **Hardware version** shows the hardware version of your unit.
- **Firmware version** shows the current firmware version that's installed in your unit. Administrator can update the firmware in the **System > Firmware** tab.



Checking the Status of Analog Audio Interfaces

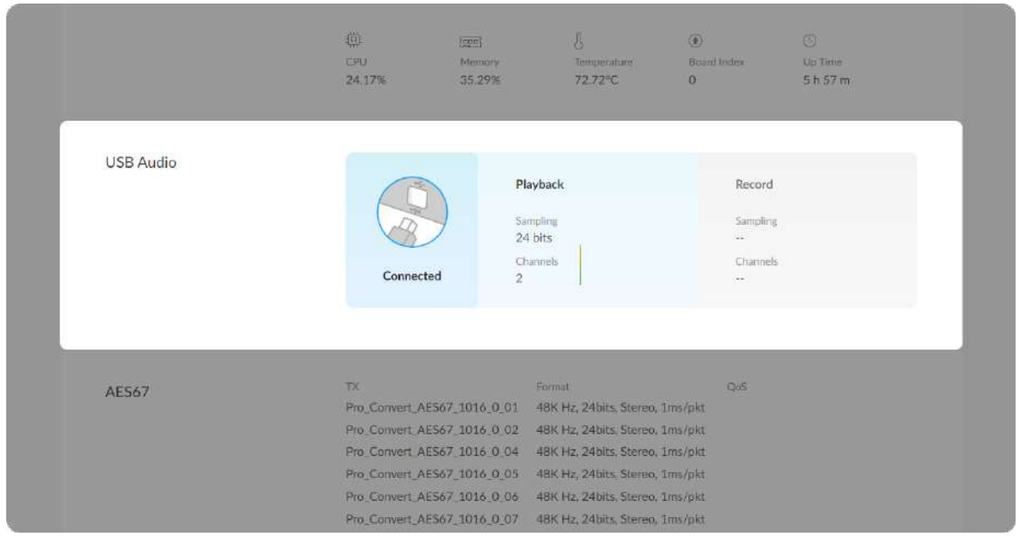
Both 3.5mm unbalanced and 4.4mm balanced inputs and outputs are supported. You can connect professional audio equipments with 4.4mm to XLR (also known as cannon) cables, including mixers, XLR microphone, and professional audio recorder.

- The interface card shows whether the audio interface is plugged in.
- If plugged, the card turns blue; otherwise, it is grey.
- Sampling shows the signal sampling rate. 24 bits sample rate is supported now.
- Channels shows the number of channels contained in the signal.



Checking the Working Status of the 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 audio processing tasks (e.g. encoding at higher resolutions and frame rates).
- **Memory** shows current memory usage.
- **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 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.



Checking USB Audio Status

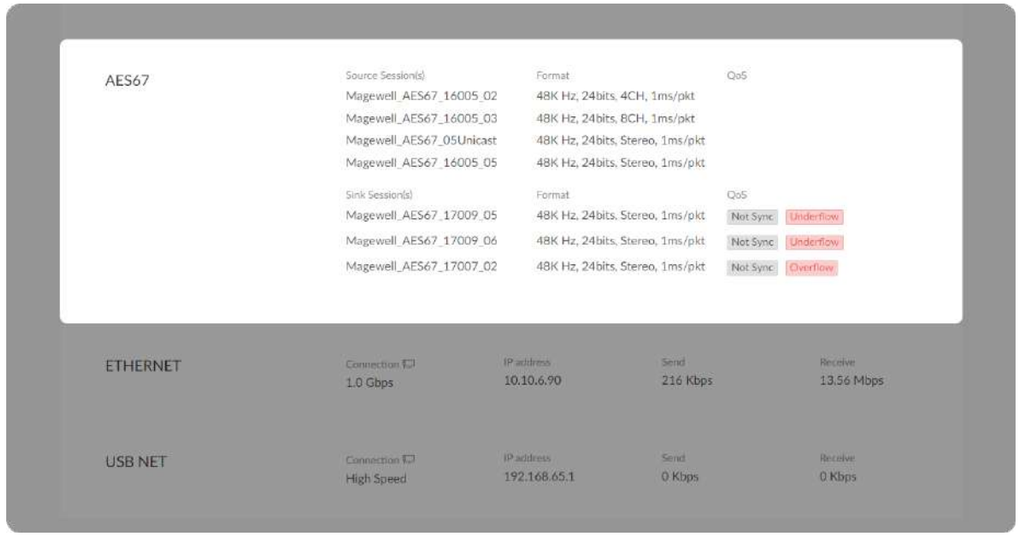
The USB component Audio 1.0 class (48kHz 24bit) supports the Format I type of audio data only.

- **Connection status** shows whether the interface is plugged-in. A sound card is embedded in the USB interface, which provides 1x2/4-channel USB digital audio I/O. You can set the USB audio channel in the Global Settings > UAC Channels.

  The card area will turn blue if plugged, otherwise, it is grey.

- **Playback** shows sampling depth and channels of the USB input signal.

- **Record** shows sampling depth and channels of the USB output signal.



Checking AES67 Streams Status

AES67 is capable of serving IP based formats such as Native AES67, SMPTE ST 2110-30 and Dante AES67.

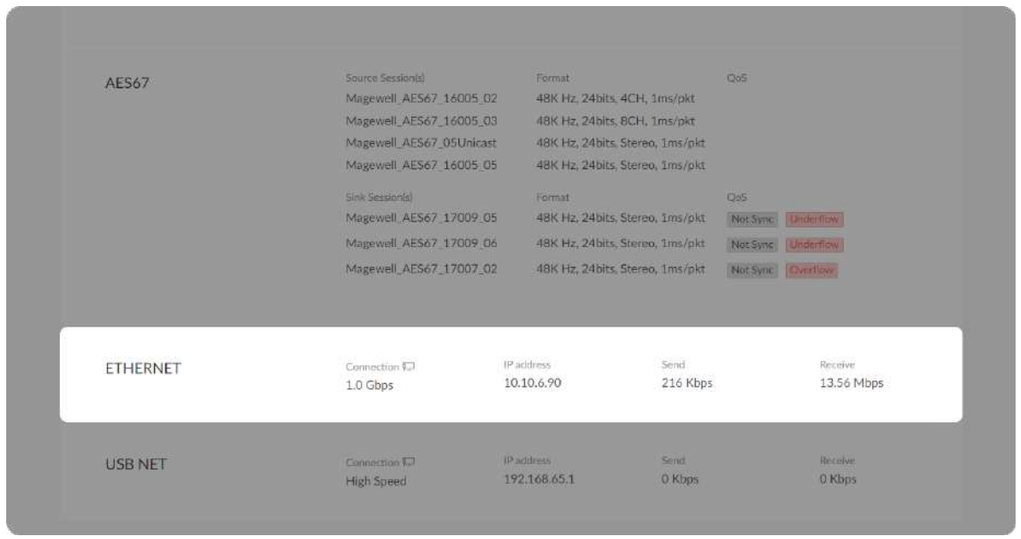
- **Source Session(s)** lists format and QoS of current transmitted AES67 streams. Format includes sample rate, sample depth, the number of channels per flow, and the packet time. You can set the parameters of the sessions at the AES67 TX tab.

- **Session** lists format and QoS data of current received and sent AES67 streams. Format includes sample rate, sample depth, the number of channels per flow, and the packet time. You can set the parameters of the sessions at the **AES67 RX** tab.

  QoS shows PTP (Precision Time Protocol) sync status, such as overflow, underflow, or timeout.

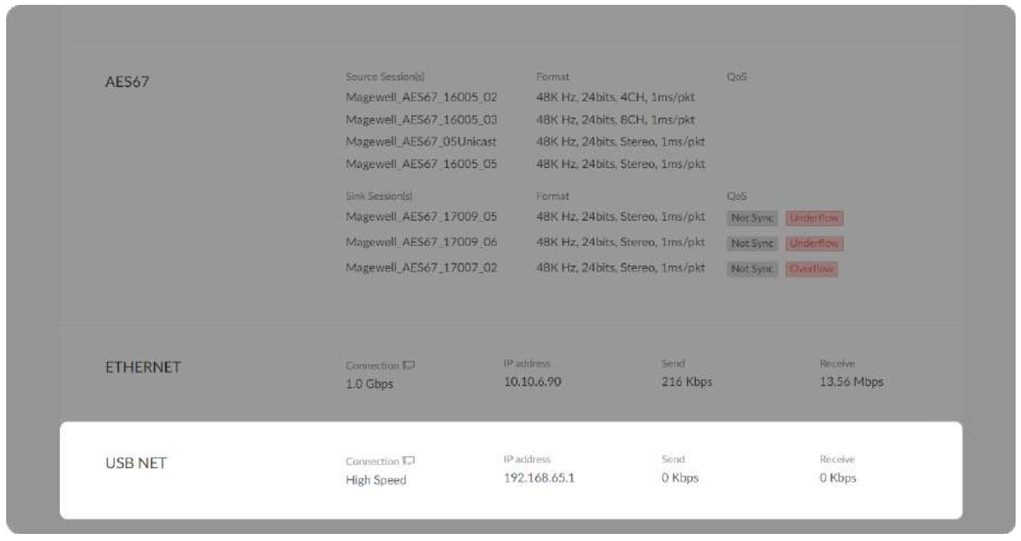
  When overflow or underflow is prompted, you can change the sample rate

to enhance and improve the signal in the **Globle Settings** tab or improve the network environment by removing the equipments using up a lot of bandwidth, etc.



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. AES67 can generate high bitrate, high quality audio flows. Observing this value will help to guide you in determining how many AoIP streams your LAN can handle.
- **Receive** shows the current Ethernet receive speed.

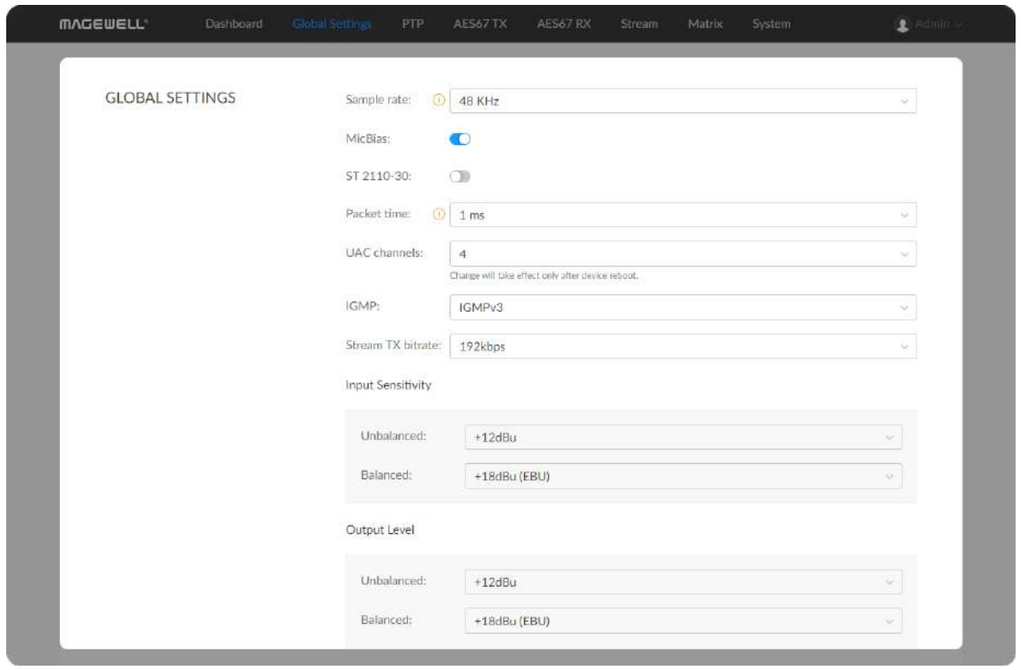


Checking USB NET Status

- **Connection** shows USB NET connection status.
- **IP Address** shows USB NET 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 send speed via USB NET.
- **Receive** shows current receive speed via USB NET.

Global Settings

Click and enter **Globle Settings** tab, then set the parameters that take effect globally.



- **Sample rate:** set sample rate for your device. Options are 44.1KHz, 48KHz, 96KHz. The default value is 48KHz. Changing it will affect the sample rate of 4.4mm balanced, 3.5mm unbalanced, AES67 TX/RX, NDI TX, SRT TX, and Icecast TX audio streams. USB audio uses fixed 48KHz sampling rate. AES67 device supports asynchronous resampling, so the change of global sample rate will not affect the USB audio.
- **MicBias:** Turn on to power the connected device with 3V. It is turned on by default. And we recommend that it remains on when connecting microphone.
- **ST 2110-30:** SMPTE Standard - Professional Media Over Managed IP Networks: Pulse Code Modulation Digital Audio. It is off by default. Multicast audio streams over IP networks using IGMP protocol. The length of the sampling data packet is 1ms. All equipments shall be sampled at 48KHz and the sampling depth can be 16 bits or 24 bits. The number of channels in the packet is limited by the payload size of RTP audio payload - 1440 bytes.
- **Packet time:** specify transmitted unit time for AES67 streams. Options are 0.125, 0.250, 0.333, 1, and 4ms. The default value is 1ms.
- **UAC channels:** options are 2 and 4 (default) channels. After configuration, the first and third channel will be exacted for the USB sending and receiving. And you need to restart the device to make it effective, and the windows OS users also need to re-add your AES67 converter in "Device Manager > Sound, audio and game controllers".

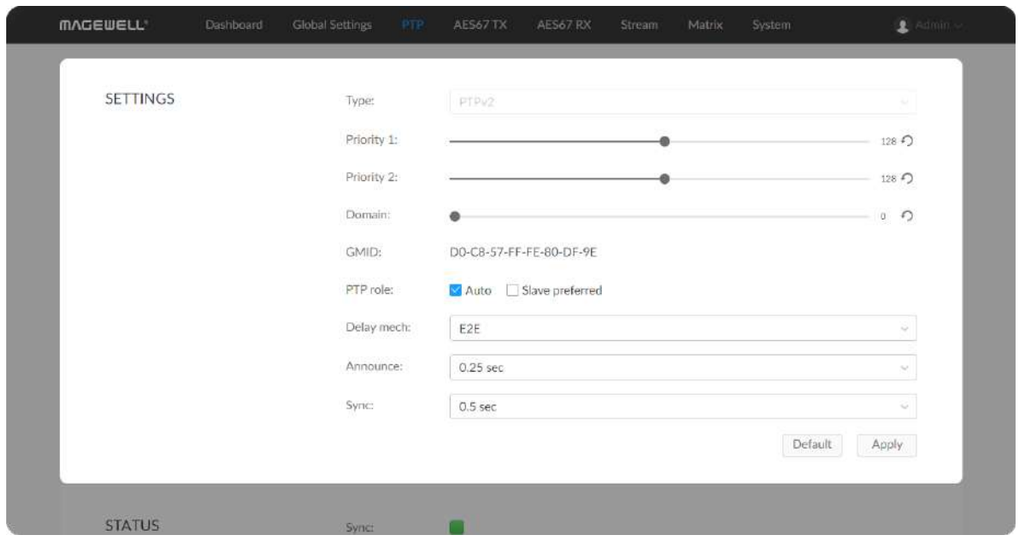
- **IGMP:** specify IGMPv2, IGMPv3 or auto (default).
- **Stream TX bitrate:** options are 128(default)/192/256kbps.
- **Test Tone:** The default setting is OFF. When activated (Analog In), the device generates test waveforms based on simulated inputs (balanced and unbalanced). During this process, the connected simulated input is disconnected, and the device automatically generates 4 channels of analog signals. The waveform frequencies vary depending on the sampling rate. For example, at a sampling rate of 48kHz, the test waveform for all four input channels is 1kHz. Activating (Analog Out) generates test waveforms from the simulated outputs (balanced and unbalanced). This causes the device's analog output to switch to test waveform output. For instance, when the sampling rate is 48kHz, the test waveform for all four output channels is 1kHz. It's important to note that this function exclusively affects analog signals and does not impact digital signals.
- **Input Sensitivity:** specify the parameter for both 4.4mm balanced and 3.5mm unbalanced input ports. Input sensitivity is the maximum voltage strength of an input signal that a converter can handle and still produce unclipped full output. This is important to understand because not all audio signals have the same voltage. And when a signal's voltage exceeds the input sensitivity of an amp clipping and distortion may occur. A smaller value brings a higher volume.
  - For **Unbalanced** input, options are +12dBu(default), +4dBu, +0dBu, -2dBu, 0dBV, and -10dBV.
  - For **balanced** input, options are +24dBu(SMPTE), +18dBu(EBU)(default), +4dBu, +0dBu, -2dBu, 0dBV, and -10dBV.
- **Output Level:** Specify the parameter for 4.4mm balanced and 3.5mm

unbalanced output ports. A greater value brings a higher volume.

- For **Unbalanced** output, options are +12dBu(default), +4dBu, 0dBu, -2dBu, 0dBV, and -10dBV.
- For **Balanced** output, options are +18dBu(EBU)(default), +4dBu, 0dBu, -2dBu, 0dBV, and -10dBV.

PTP

Click and enter the **PTP** tab. Then you can monitor and modify current PTP configuration.



Configuring PTP Profile

This chapter describes how to configure the precision time protocol (PTP) on AES67 devices.

PTP provides time synchronization accuracy to the sub-microsecond level and can achieve both time and frequency synchronization, with low deployment and maintenance costs, which can substantially reduced Capex and Opex.

- **Type** shows current PTP protocol version. PTPv2 is a time synchronization protocol defined in IEEE 1588 for nodes distributed across a network. With PTP, it is possible to synchronize distributed clocks with an accuracy of less than 1 microsecond via Ethernet networks.
- **Priority 1**: specify PTP priority 1 value when advertising the clock. The range is from 0 to 255. The default value is 255. This value works for best master clock selection. Lower values take precedence.
- **Priority 2** : specify the priority 2 value to use when advertising this clock. This value is used to decide between two devices that are otherwise equally matched in the default criteria. For example, you can use the priority2 value to give a specific unit priority over other identical devices. The range is from 0 to 255. The default value is 255.
- **Domain**: specify PTP domain (domain 0, by default) for your device. Value ranges from 0 to 127. Each domain is completely isolated from other domains and can therefore be seen as different PTP networks. can only be

one master in each domain; Devices in the same domain can synchronize their clocks.

- **GMID** shows currnet GMID of your device. The value is generated from Ethernet Mac address by spliting the MAC address into two parts and inserting FF-FE in the middle.
- **PTP role**: specify the device to be a Master or a Slave.
  - Auto: The best master clock algorithm (BMCA) assigns the role. This is the default setting for the default PTP profile.
  - Slave preferred: The device prefers to work as a slave clock but it is not promsing. It also depends on the deployment and configuraions of PTP devices within the same LAN.
- **Delay mech**: Options are E2E (end-to-end) and P2P (peer-to-peer). The default setting is E2E.

  End to End means the latency through the network is calculated directly between master and slave. The slaves sends delay requests upstream to the master, the master responds, and the network latency is calculated. The advantage of this method is that the network nodes do not need to be PTP compliant, which reduces the limitations on hardware that can be used in the network.

  Peer to Peer operates by calculating the delay between egress of the upstream node to the ingress of the downstream node (i.e. the delay down the wire) rather than the whole network at once. It is more efficient and is less affected by asymmetry within the network.
- **Announce**: Set the period for sending announce messages which are used to establish the synchronization hierarchy. The range is from 0.125 to 2 seconds. The default value is 0.25sec.



- **Sync**: Set the period for sending sync messages from master to slave. Options are 0.125/0.25/0.5sec. The default value is 0.5sec. This parameter will not be effective when it is a slave clock.

Checking PTP Status

- **Sync**: The icon lights green indicates this device has synchronized with its master. Red indicates it is not synced with its master. Master is always green.
- **Lock to**: shows GMID of current master clock.
- **Role**: shows the role of your device now is either master or slave.

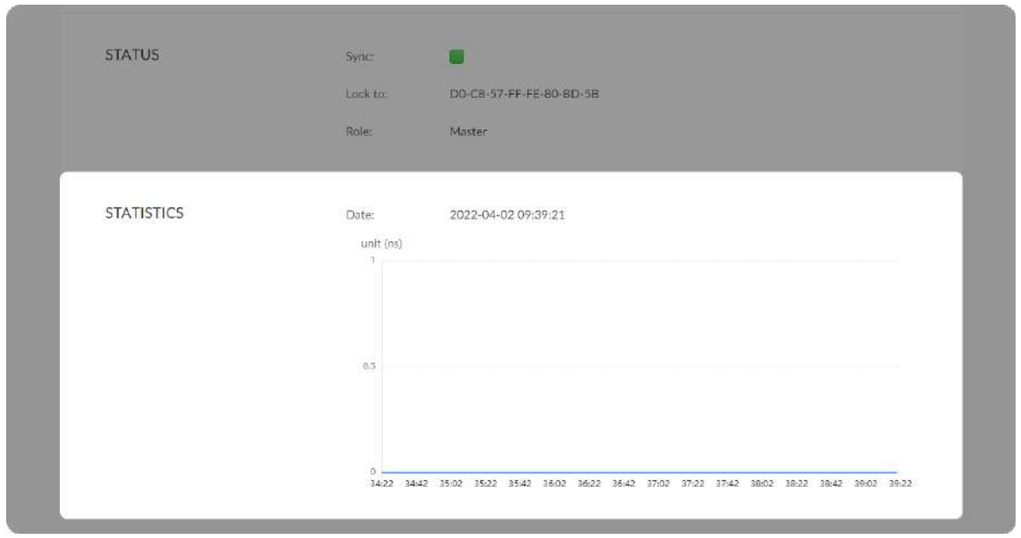


Fig1 PTP master statistics data

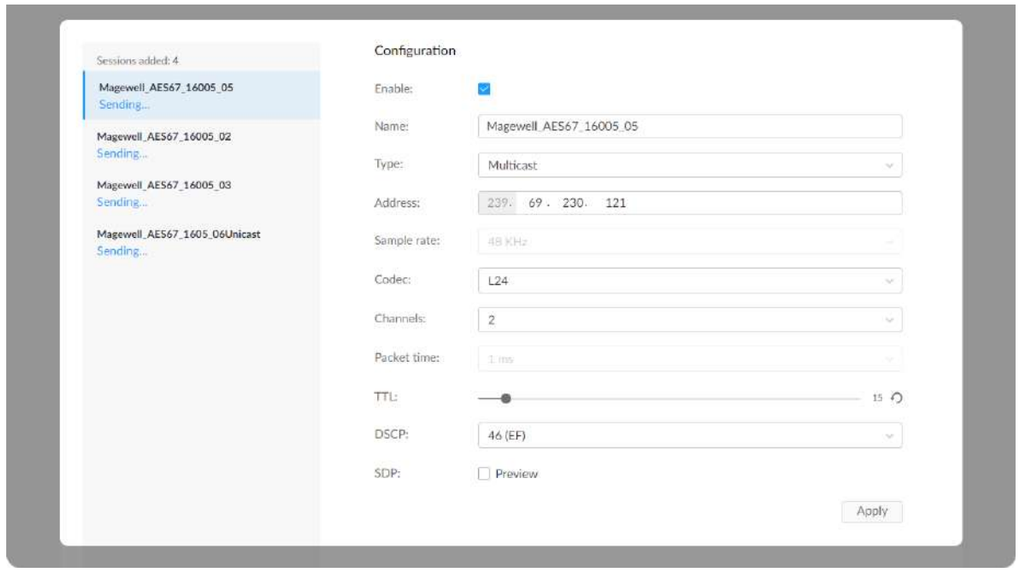


Fig2 PTP slave statistics data

Viewing PTP Statistics

- **Date**: shows current time of your device. Admistrator can modify the date at System > General > DATE & TIME.
- **Statistical chart** shows the latest 5min statistics. Fig 1 shows a typical chart when the device works as a Master clock. Fig 2 shows how it works as a slave clock.

  If the statistics exceed ±2000ns for many times, we suggest you improve the LAN to avoid network congestion.



AES67 TX

Adding an AES67 TX Session

Click **+ Add Session** and configure parameters for the newly added session.

Up to 8 AES67 TX sessions are supported.

- **Enable**: tick the box to start sending AES67.
- **Name**: specify a name for transmitted stream.
  The string may contain 1 to 32 characters including A-Z, a-z, 0-9 and _-.
- **Type**: options are multicast(default) and unicast.
- **Address**: specify IP address ranging from 239.0.0.0 to 239.255.255.255 when **Type** is Multicast. Fill in the target IP address when **Type** is unicast.
- **Sample rate**: the same as **Global Settings > Sample rate**.
- **Codec**: specify a L16/L24 (default) codec.
- **Channels**: AES67 flow can contain 1 to 8 channels.
- **Packet time**: the same as **Global Settings > Packet time**.
- **TTL**: time to live, often indicates the number of the routers which the packet passed through before it was dropped. It is also known as the hop limit. The default value is 15. The range is 1 to 255. We recommend you use the default value unless a complicate network is accessed, then a higher TTL is required. However, a high TTL might cause a network storm.
- **DSCP**: Differentiated Services Code Point, it is a means of classifying and managing network traffic and of providing quality of service (QoS) in modern Layer 3 IP networks. Options are 46(EF, Expedited Forwarding), 0(BE, Best Effort), 26(AF31, Assured Forwarding), 34(AF41). Drop probability: 46(EF) > 34(AF41) > 26(AF31) > 0(BE).

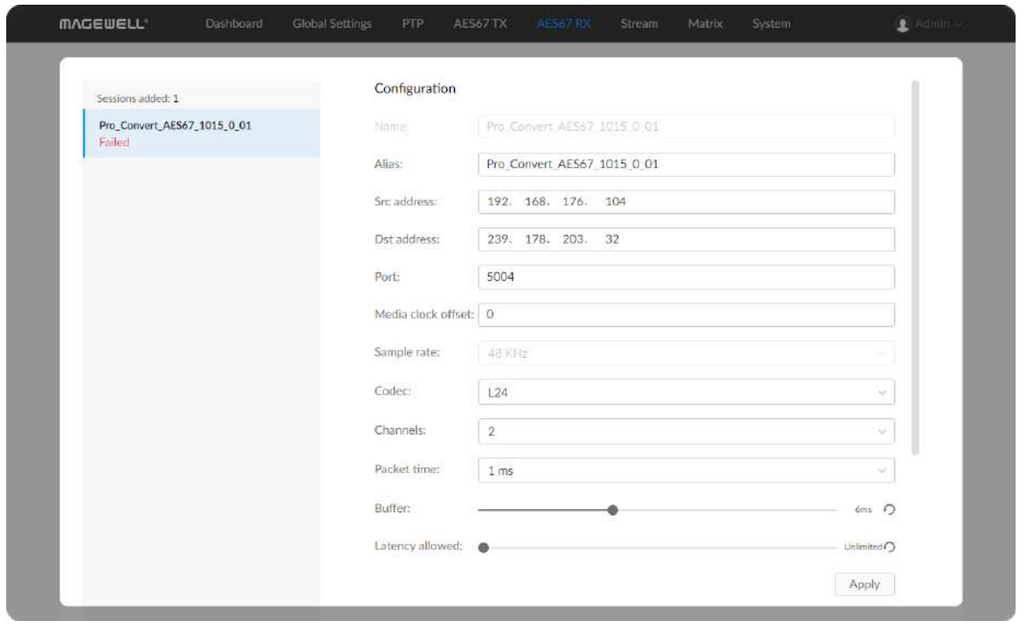
- **SDP**: the above parameters are stored as SDP (session description protocol) file. Tick to preview the parameters of the session stored as an SDP file.
- Click **Apply** to save configurations. Otherwise, the configuration will be lost if the page is refreshed.

Modifying a Session

- Click the chosen session from the left panel of the **AES67 TX** tab, modify specified parameters, and click **Apply** after modification.

Deleting a Session

- Hover your mouse over the session to be deleted, and click the icon appeared from the left panel of the **AES67 TX** tab, then confirm your delete in the prompt window.

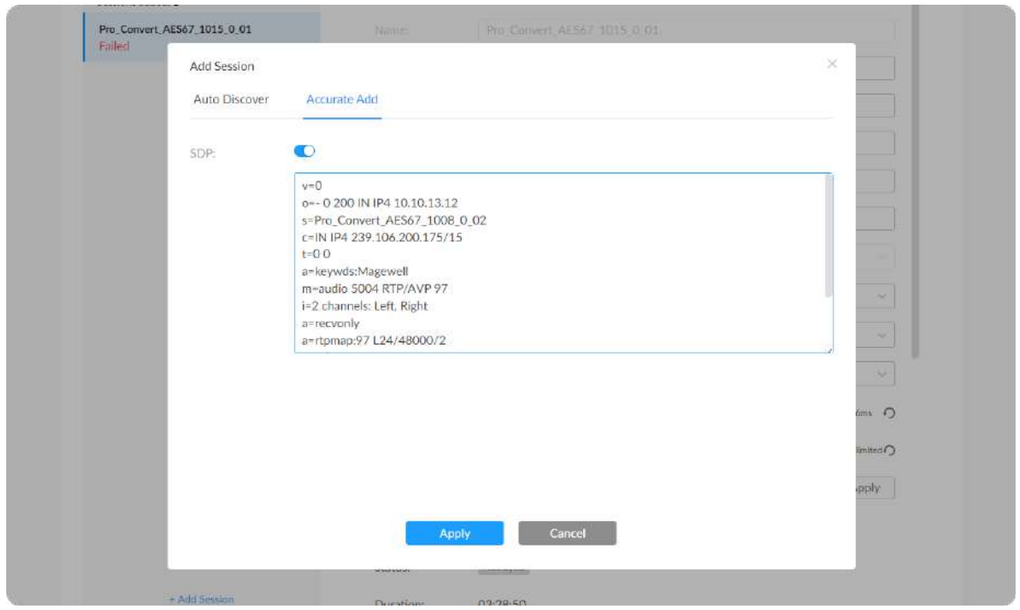


AES67 RX

Up to 4 AES67 RX sessions are supported.

- To add a source discovered by the converter automatically
  1. Click **+ Add Session**.
  2. Select a task in the **Auto Discover** tab listed and click **Apply**.
- To add a source via SDP
  1. Click **+ Add Session**.
  2. Set the following parameters in the **Accurate Add** tab.

     SDP: By default, it is off. You can turn it on, and enter an SDP file (RFC4566). SDP is intended for describing multimedia sessions for the purposes of session announcement, session invitation, and other forms



of multimedia session initiation.

An SDP session description may consist of the following information.

Session description

v= (protocol version)

o= (originator and session identifier)

s= (session name)

i= (session information)

u= (URI of description)

e= (email address)

p= (phone number)

c= (connection information -- not required if includ

ed in all media)

b= (zero or more bandwidth information lines)

One or more time descriptions ("t=" and "r=" lines; s

ee below)

z= (time zone adjustments)

k= (encryption key)

a= (zero or more session attribute lines)

Zero or more media descriptions

Time description

t= (time the session is active)

r= (zero or more repeat times)

Media description

m= (media name and transport address)

i= (media title)

c= (connection information)

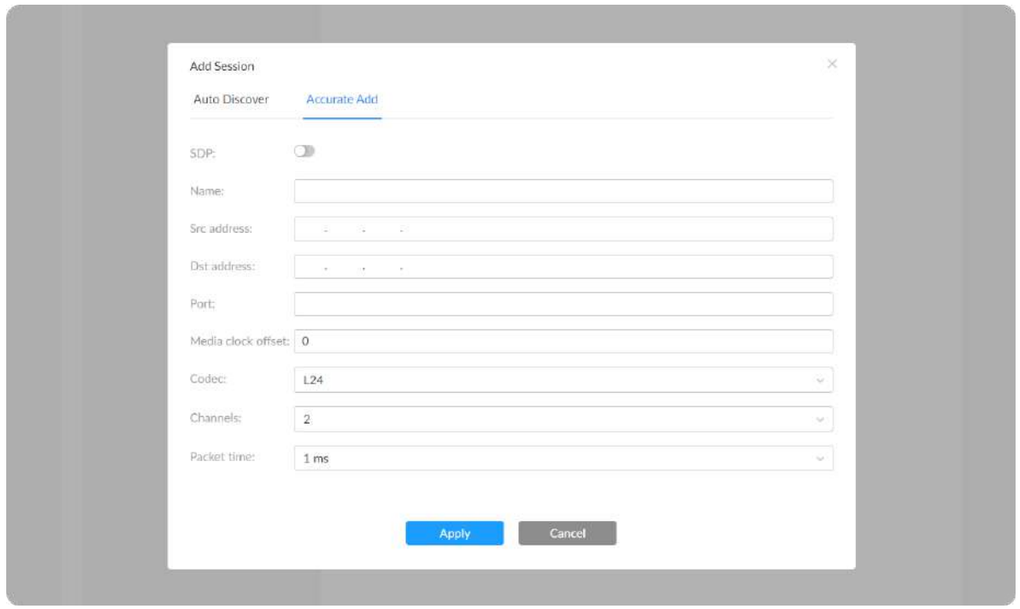
b= (zero or more bandwidth information lines)

k= (encryption key)

a= (zero or more media attribute lines)

The SDP file can be obtained from TX. An example SDP description is shown as below and the fields in red box are required.

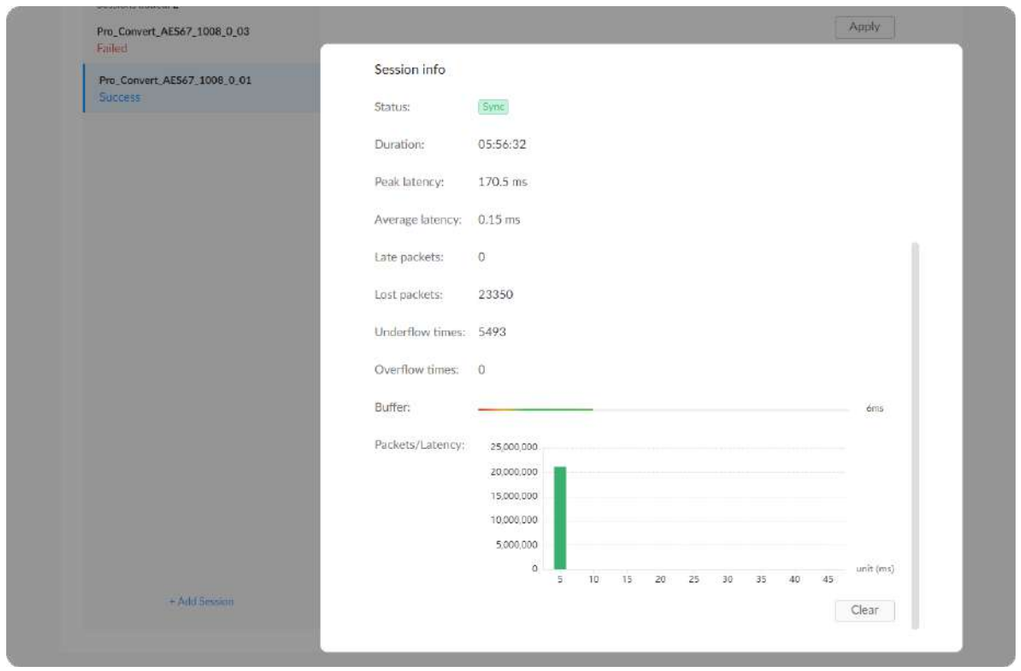
```
v=0
o=- 0 200 IN IP4 10.10.4.214
s=Pro_Convert_AES67_1012_unicast
c=IN IP4 10.10.5.55/15
t=0 0
a=keywds:Magewell
m=audio 5004 RTP/AVP 97
i=2 channels: Left, Right
a=recvonly
a=rtpmap:97 L24/48000/2
a=ptime:1
a=ts-refclk:ptp=IEEE1588-2008:D0-C8-57-FF-FE-80-DF-91:0
a=mediaclk:direct=0
a=ssrc:0
```



- To add a source manually

  1. Click **+ Add Session**.
  2. Set the following parameters in the **Accurate Add** tab.
     - **Name**: the name of your chosen source.
     - **Alias**: specify a sink name for the session.
       The range is from 1 to 32 characters including A-Z, a-z, 0-9 and _-.
     - **Src address**: specify the source address or leave it empty.
     - **Dst address**: specify a unicast receiver IP address, or multicast IP address.
     - **Port**: specify receive port number.
     - **Media clock offset:** The offset between the media clock and the RTP clock. You can find it in the mediaclk:direct field of TX SDP file.
     - **Codec**: codec of AES67 source.
     - **Channels**: the number of channels contained by the AES67 source.
     - **Packet time**: packet time of AES67 source.
     - **Buffer**: specify buffer time from 0 to 15ms for multicast, 0 to 12ms for unicast. The defaule value is 6ms for both multicast and unicast.
     - **Latency allowed**: specify allowed latency for AES67 RX from 1 to 50ms. The defaule value is unlimited. You can set the parameter based on the statistics diagram of **Session info**. For example, with unlimited latency, if the samples are mainly in the 5ms area, then you can set latency allowed to be 5 to 10ms.
     - **Sample rate**: The same as that of **Global Settigs**, you can set it at the **Global Settigs > Sample rate**.

- **TTL**: TTL of AES67 source.
- **Apply**: click **Apply** to save configurations.



Checking the Session info

- **Status:** shows current PTP status, and QoS.
- **Duration:** shows receiving duration since the last modification.
- **Peak latency:** max latency of the session.
- **Average latency:** average latency of the session
- **Late packets:** number of packets received after the stated time within duration.
- **Lost packets:** number of lost packets within duration.
- **Underflow times:** number of underflow times within duration.
- **Overflow times:** number of overflow times within duration.
- **Buffer:** buffer time in real time.
- **Packets/Latency:** total statistics of Packets/Latency within session duration. The statistics will be refreshed if the parameters of the session are modified.

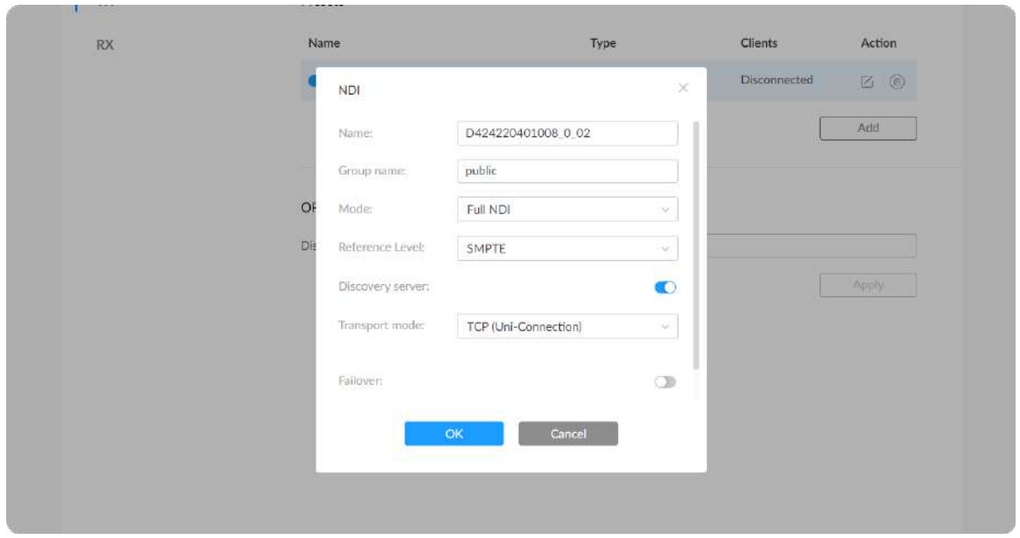
Modifying a Session

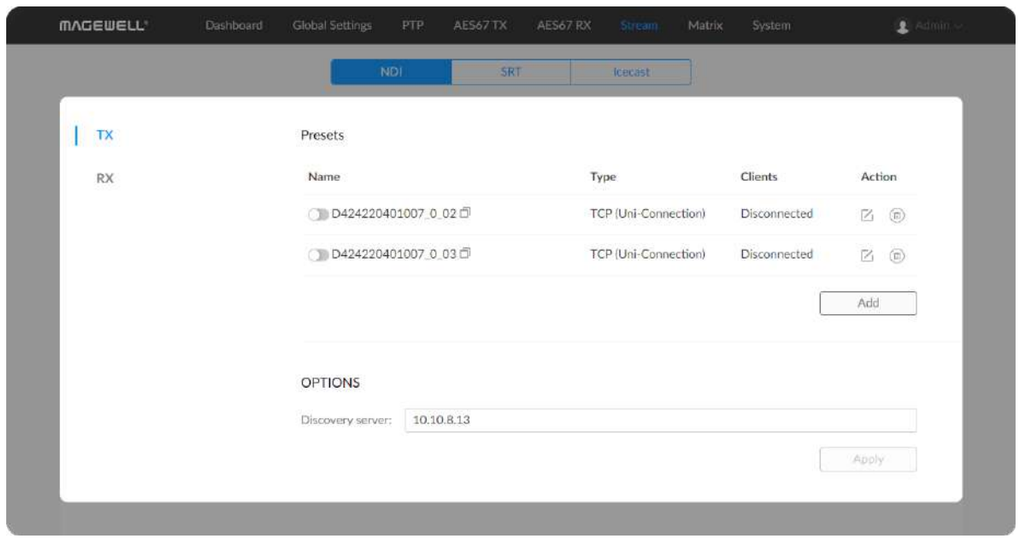
Click the chosen session from the left panel of the **AES67 RX** tab, modify specified parameters, and click **Apply** after modification.

Deleting a Session

Hover your mouse over the session to be deleted, and click the icon appeared, then confirm your delete in the prompt window.

Stream





Setting NDI® TX Sessions

Presets shows saved stream sources adding manually. Up to 4 sessions are supported.

Adding/Modifying a Session

Click **Add** or the edit icon, and set the parameters in the prompt window.

- **Name**: specify the TX session name, which should be 1 to 30 charactors and contain A to Z, a to z, 0 to 9 and special characters like _-#()% .
- **Group name**: specify the group that receives NDI streams sent by your converter.
  - 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 converter to send to all the groups listed here.
  - The default group is **public** group.
- **Mode:** choose Full NDI (default value) when you need high quality NDI streams with a gigabit LAN connection. HX NDI is kind of low bandwidth but high efficiency version of NDI full bandwidth. You can turn on the Logo video switch when mode is set to HX NDI, then the device will add a picture of the Magewell logo to the transmitted audio, generating a video with a resolution of 1920x1080@5fps.
- **Reference level:** Options are SMPTE(default) and EBU.
- **Discovery server**

  The receiver and sender can automatically discover each other when they are in the same network segment.

Turn on the **Discovery server**, and specify the same discovery service IP address for both sender(s) and receiver(s) which can be pinged by each other, then they can be discovered by each other automatically. By default, this function is on.

- **Transport mode:** UDP (Unicast), UDP (Multicast), TCP (Uni-Connection) and TCP (Multi-Connection). Choose a proper one based on your networking conditions. By default, TCP (Uni-Connection) is used.
  - **UDP (Unicast)** indicates that the converter sends a UDP stream directly to the receiver. It is used where lower latency matters. And multiple simultaneous streams will work independently for multiple receivers.
  - **UDP (Multicast)** indicates that the converter sends the UDP stream to a multicast group. It is used for one-to-many broadcast for lower CPU utilization. Parameters in a multicast configuration include:
    - **Multicast IP** ranges from 224.0.0.0 to 239.255.255.255.
    - **Subnet Mask** can be legitimate value ranging from 255.0.0.0 to 255.255.255.0.
    - **Time To Live** ranges from 1 to 255. The default value is 4.
  - **TCP (Uni-Connection)** indicates to establish single TCP connection between the converter and receiver, and transfer all A/V packets are transferred via one port.
  - **TCP (Multi-Connection)** indicates to establish multiple TCP connections between the converter and receivers, but transfer packets via different ports.
- **Failover** is a method of protecting your NDI transmission from failure. If the source audio fails, the backup device begins to provide a service. The initial

source will be restored after it recovers. This function is disabled by default.

- **Source name** shows the backup NDI channel name.
  Click **Change...** and select the failover (backup) audio device within the same NDI group as the initial source.
- **IP Address** shows the IP Address of the backup NDI channel.
  The failover IP Address is automatically obtained after you select the backup NDI source.

- **Receiver web control**This function is enabled by default. We recommend you keep it on, because you cannot open the Web UI by clicking the gear icon in the NDI Studio Monitor if this function is disabled.
- **Logo video**This function is disabled by default. You can turn on the switch when mode is set to HX NDI, then the device will add a picture of the Magewell logo to the audio, generating a video with a resolution of 1920x1080@5fps.
- **OK** click to save your modifications.

Modifying a Session

Click the chosen session from the left panel of the tab, modify specified parameters, and click **Apply** after modification.

Deleting a Session

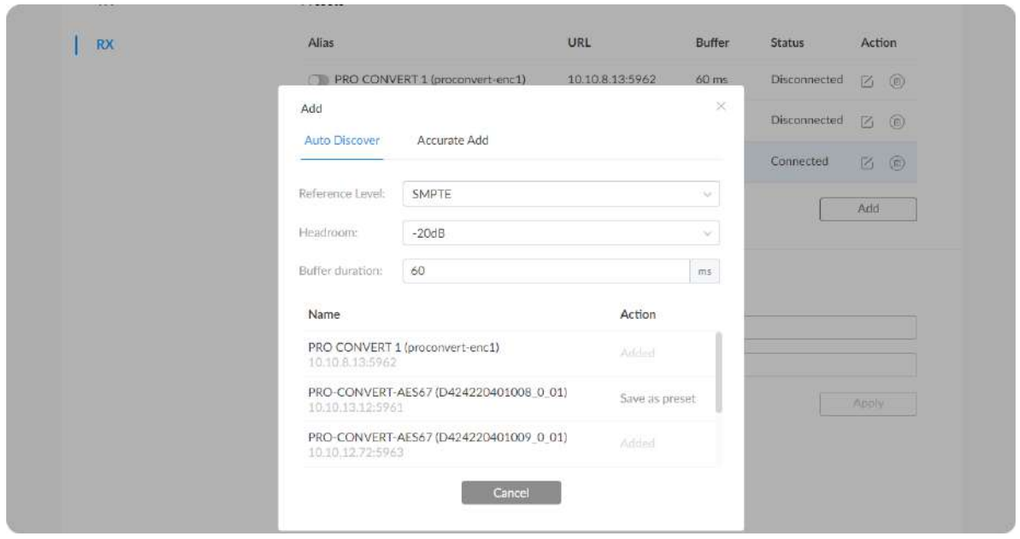
Hover your mouse over the session to be deleted, and click the icon appeared, then confirm your delete in the prompt window.

Starting a Session

Turn on the switch to start the streaming to Icecast. Make sure the Icecast server is up and running.

Checking Session Status

You can check the icecast connection status at the Presets list.



Copy NDI TX Stream Name

Click on the copy icon , then the current stream name is copied successfully.

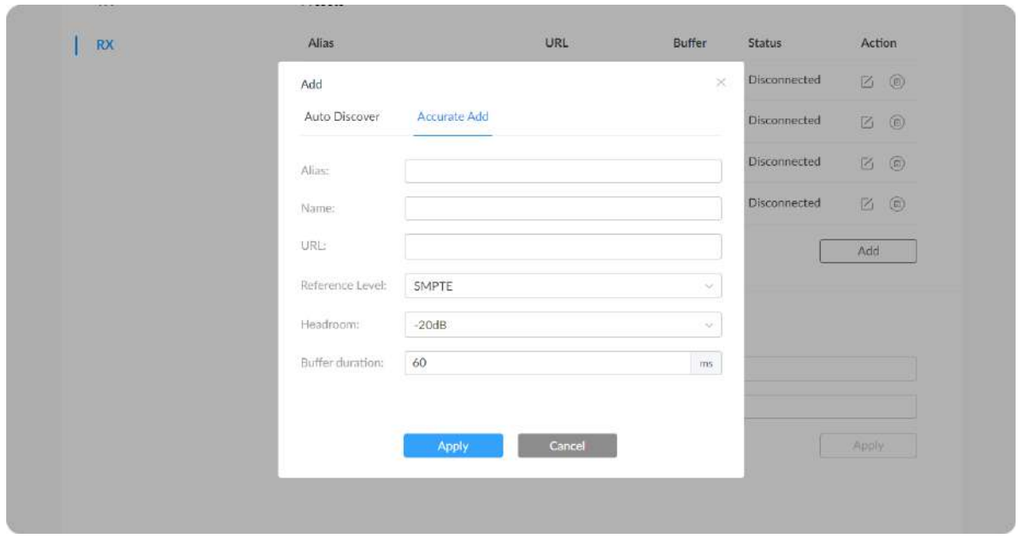
Setting OPTIONS

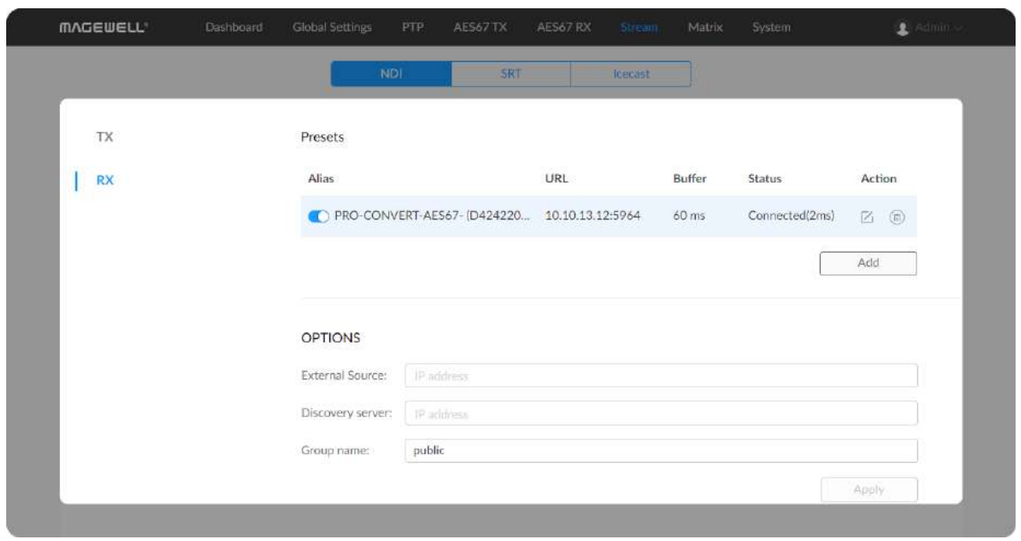
Discovery server specify the IP address of the receiver server running discovery service function when **Discovery server** is toggled on.

Setting NDI® RX Sessions

Presets shows saved stream sessions. Up to 4 sessions are supported.

- To add an NDI source discovered by the converter automatically
  1. Click **Add**.
  2. Set the following parameters in the **Auto Discover** tab.
     - **Reference level:** options are SMPTE (default) and EBU.
     - **Headroom:** Options are 0dB, -6dB, -14dB(EBU), and -20dB(SMPTE) (default).
     - **Buffer duration** ranges from 31 to 120 ms, and the default value is 60ms. We recommend that the buffer time should be longer than current network jitter. For example, current session **Status** shows Connected(30ms). The current network jitter is 30ms, then the buffer time should be greater than 30ms to get a smooth NDI flow. Lower buffer settings produce lower latency but will require more resources. Generally, the use of default value is recomended.
     - The auto-detected NDI sources are listed below **Buffer duration**. Select the target stream and click **Save as preset** to add it to the preset list.





- To add an NDI source manually

  1. Click **Add**.
  2. Set the following parameters in the **Accurate Add** tab.

     - **Alias:** Specify an alias name (1-64 characters, including A to Z, a to z, numbers and _-#()%) for current preset task for your convenience of the presets management, which will be displayed in the presets.
     - **Name:** Enter the steam name of ndi source, which is case insensitive.
     - **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.
- **Reference level:** options are SMPTE (default) and EBU.
- **Headroom:** Options are 0dB, -6dB, -14dB(EBU), and -20dB(SMPTE) (default).
- **Buffer duration:** Enter a number between 31 and 120ms, and the default value is 60ms. We recommend that the buffer time should be longer than current network jitter. For example, current session **Status** shows Connected(30ms). The current network jitter is 30ms, then the buffer time should be greater than 30ms to get a smooth NDI flow. Lower buffer settings produce lower latency but will

require more resources. Generally, the use of default value is recomended.

Modifying a Session

Click the edit icon , modify specified parameters, and click **OK** after modification.

Deleting a Preset Session

Click on the delete icon and confirm your delete in the prompt window.

Starting a Session

Turn on the switch to start the streaming to Icecast. Make sure the Icecast server is up and running.

Checking Session Status

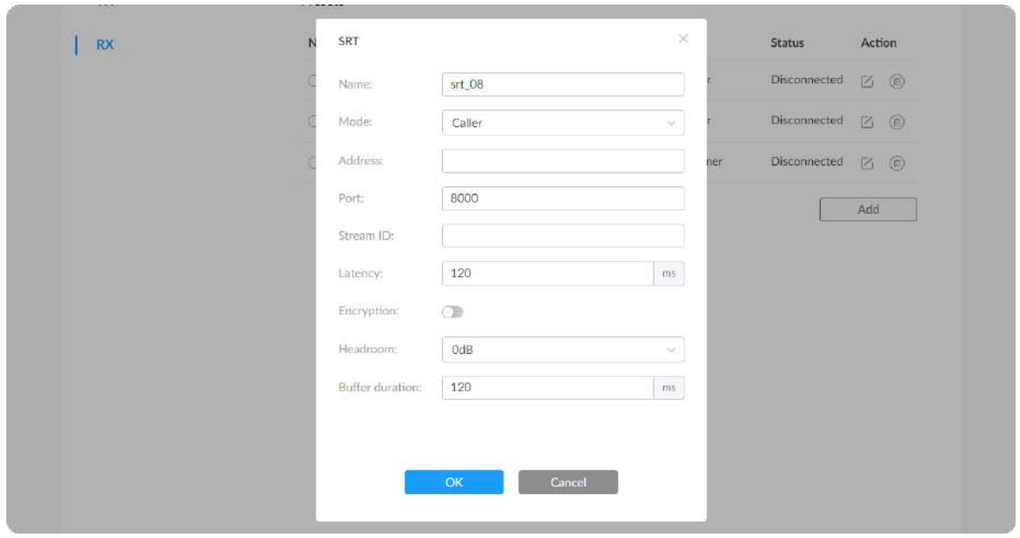
You can check the icecast connection status at the Presets list.

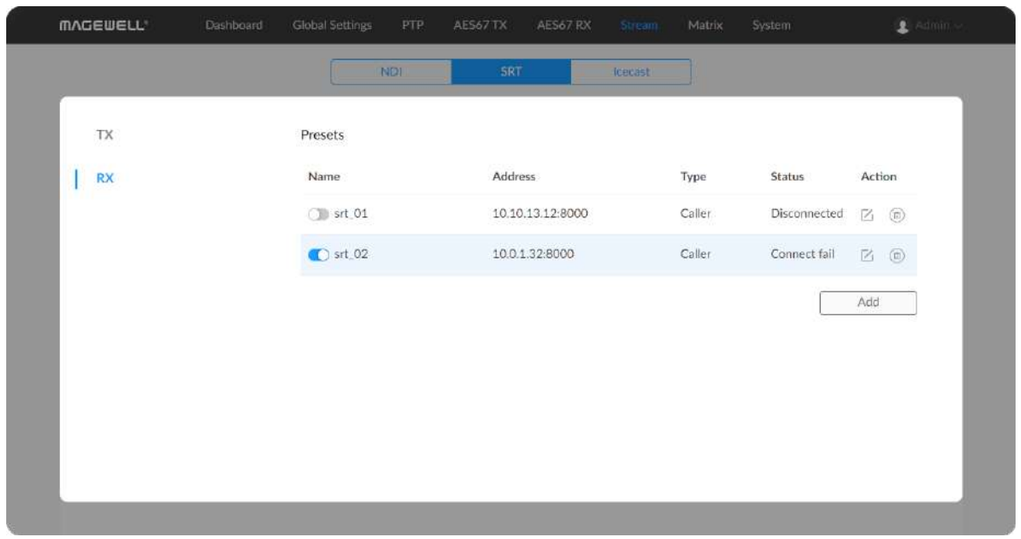
Setting OPTIONS

External Source : the IP address of the NDI stream to be received. This IP address should be pinged by your device. Both the IP and your device should be within the same group, that is, the **Group name** must be the same.

Discovery server : the IP address of the receiver server running discovery service function when **Discovery server** is toggled on.

Group name: 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 can contain multiple values with comma separators. The default group is **public**.





Configuring SRT TX/RX Streams

Set the parameters of TX/RX sessions based on your business planning.

Click and enter **Stream > SRT** tab to manage SRT TX/RX streams.

Presets shows saved stream sessions. Up to 4 sessions are supported.

Adding/Modifying a Session

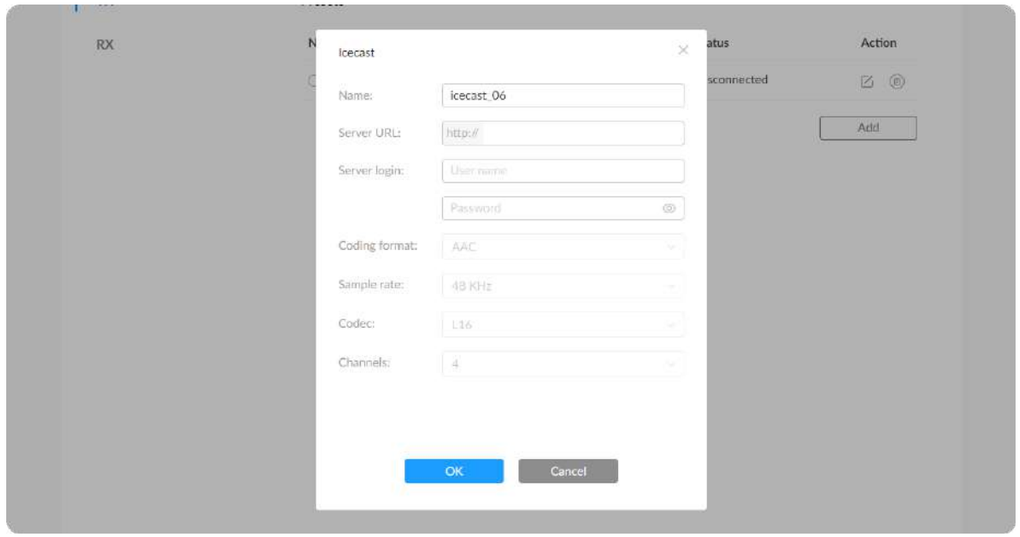
Click **Add** or the Edit icon . And modify the source parameters.

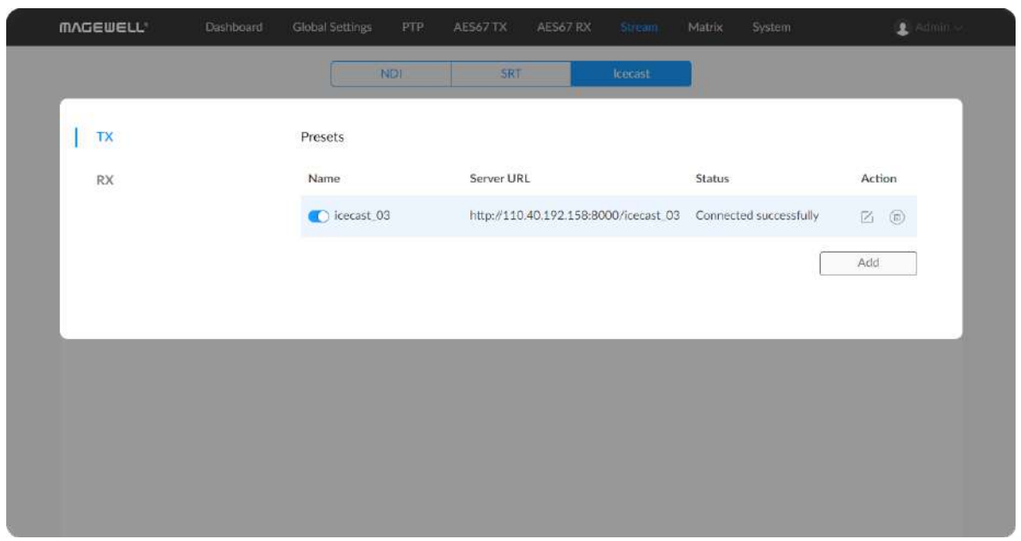
- **Name:** Specify an alias name for current preset task for your convenience of the presets management, which will be displayed in the presets.
- **Mode:** Select **Caller** or **Listener**. The converter can be worked as either a SRT Caller to call a listerner, or a SRT Listener to be called.
- **Address:** 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:** Specify Stream ID for a SRT Caller. 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.
- **Connect timeout:** Enter a number between 1000 and 30000ms. The default value is 3000ms and is recommended to use.
- **Retry duration:** Enter a number between 0 and 10000ms. The default value is 3000ms and is recommended to use.
- **Latency:** Enter a number between 30 and 8000ms. The default value is 120ms. We recommend that the latency here is configured the same as that of the sender.

- **Bandwidth:** indicate the portion of the total bandwidth of a stream required for the exchange of SRT control and recovered packets. Possible value range is 5-100%, and default as 25%. A worse network link condition requires more Bandwidth for overhead transmission.
- **MTU** Maximum Transmission Unit ranges from 0 to 1500. And the default value is 1500.
- **Encryption:** Choose an encryption algorithm from AES-128/192/256, or not used.
- **Passphrase:** Enter the password phrase for the chosen **Encryption**.
- **Headroom:** Options are 0dB(default), -6dB, -14dB(EBU), and -20dB(SMPTE).
- **Buffer duration:** Enter a number between 31 and 1000ms, and the default value is 120ms. The parameter is available for SRT TX sessions.
- Click **OK** after configuration.
- You can enable SRT Listener/Caller sessions simultaneously.

Deleting a Preset Session

Click the delete icon and confirm your delete in the prompt window.





Configuring Icecast TX Sessions

Click and enter **Stream > Icecast > TX** tab.

Presets shows saved stream sessions. Up to 4 sessions are supported.

Adding/Modifying a TX Session

Click **Add** or the edit icon , and set the parameters in the prompt window.

- **Name**: specify a session name.
  The range is from 1 to 32 characters including A-Z, a-z, 0-9 and _-.
- **Server URL**: input the icecast server domain or IP address. The server must be pinged.
- **Server login**: input server username and password.
- **Coding format**: current coding format as AAC.
- **Sample rate**: the same as **Global Settings > Sample rate**.
- **Codec**: L16 is supported.
- **Channels**: the deivce supports to transmit up tp 4-channel icecast.
- Click **OK** after configuration.

Deleting a Session

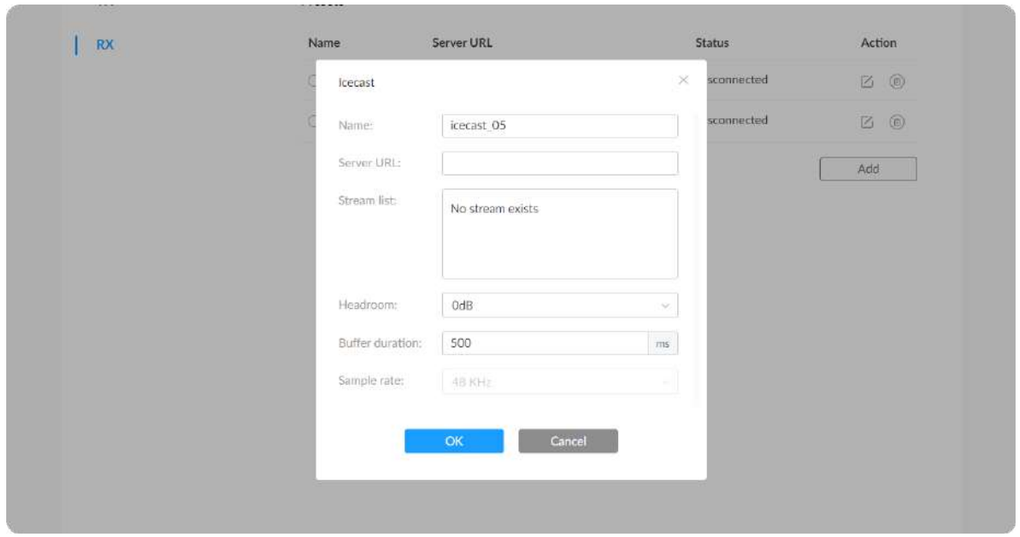
Click the delete icon at the end of the target session line and confim your delete in the prompt window.

Starting a Session

Turn on the switch to start the streaming to Icecast. Make sure the Icecast server is up and running.

Checking Session Status

You can check the icecast connection status at the Presets list.



Configuring Icecast RX Session

Click and enter **Stream** > **Icecast** > **RX** tab.

Presets shows saved stream sessions. Up to 4 sessions are supported.

Adding/Modifying a RX Session

Click **Add** or the edit icon , and set the parameters in the prompt window.

- **Name**: specify a session name.
  The range is from 1 to 32 characters including A-Z, a-z, 0-9 and _-.
- **Server URL**: specify a domain name or IP address of an icecast server to receive from.
- **Stream list** shows icecast flows that sent by your specified **Server URL**.
- **Headroom**: Options are 0dB(default), -6dB, -14dB(EBU), and -20dB(SMPTE).
- **Buffer duration** ranges from 31 to 1000ms and the default value is 500ms.
- **Sample rate**: 44.1, 48, and 96KHz are supported.
- **Codec**: L16 is supported.
- **Channels**: the deivce supports to receive up to 4-channel icecast streams.
- Click **OK** after configuration.

Deleting a Session

Click the delete icon at the end of the target session line and confim your delete in the prompt window.

Starting a Session

Turn on the switch to start the streaming to Icecast. Make sure the Icecast server is up and running.

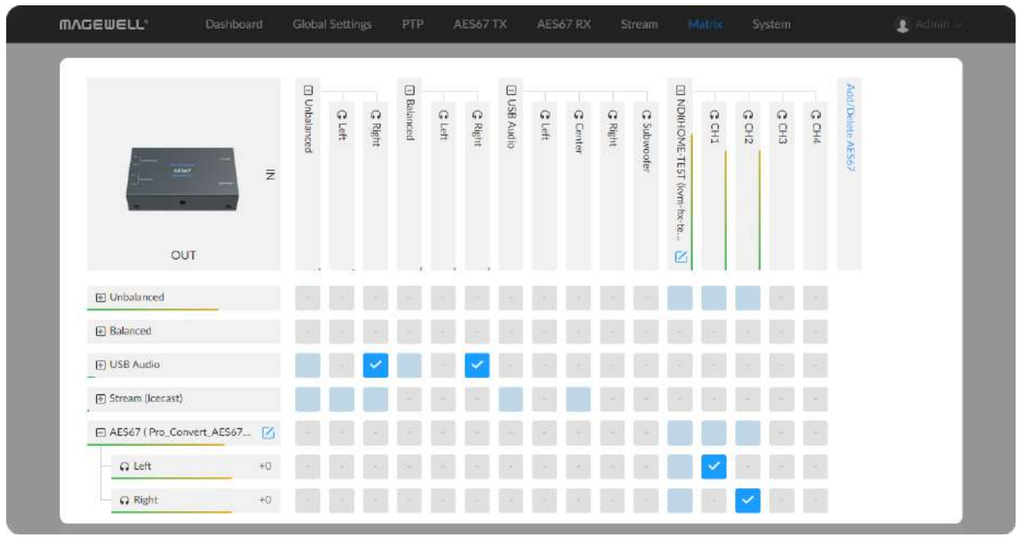
Checking Session Status

You can check the icecast connection status at the Presets list.

Matrix

In audio **Matrix** tab, you can find a switching matrix for selectively connecting incoming signals to desired output paths.

The advantage of the audio switch table result in a very simple and visual way for you to manage routing or mixing of any analog or IP-based input channel to any output.



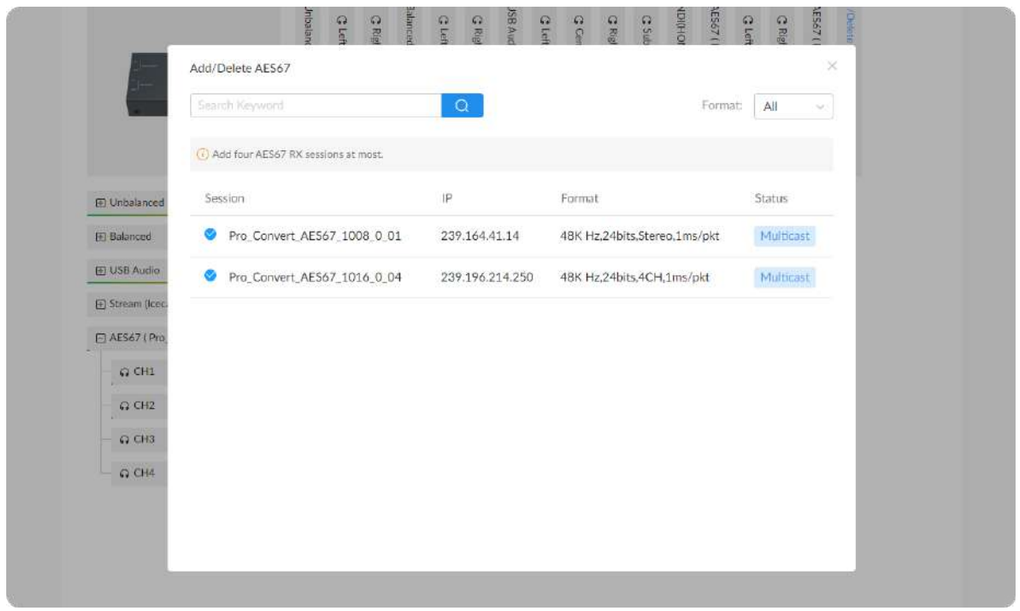
Description of the Matrix Table

The table supports two dimensions, with all kinds of inputs on the horizontal axis and all kinds of outputs to be delivered on the vertical axis. We must distinguish between an IN and an OUT. An input can be chosen by multiple outputs. And when you check the crosspoint, it means that the output channel will deliver the corresponding input audio stream.

- Click the ⊞ icon to expand all channels of the chosen stream.
- Click the ⊟ icon to hidden the channels.
- ▫ indicates the in and out channel are idle.
- ☑ indicates the input stream/channel will be delivered to the output channel directly.
- +20 indicates the inputs will be delivered to the output after audio gain adjustment.
- 🔇 indicates the input is muted, and it will not be part of its output.
- ▪ indicates part of the input is chosen, instead of all channels.
- ⧖ indicates the device is connecting the input stream.

Note

- Unbalanced, balanced and USB audio are fixed shown in the routing matrix table. AoIP streams needs to be configured respectively at AES67 TX, AES67 RX, Stream tabs, then the streams can be added to the matrix table.
- You can specify and mix the inputs for every output channel.
- You have to choose one of NDI, SRT, and Icecast flow to add to the matrix table as IN, they cannot co-exist together; when multiple of NDI, SRT, and Icecast streams being added as OUT, the audio data are the same. You can add up to 4 tasks for each output audio stream, and up to 12 tasks in total.
- **To add a specified "IN" flow to an "OUT" flow:** click the IN/OUT stream intersections in the charter, then all channels contained in the chosen "IN" flow will be all added to each of the "OUT" channle. For example, to route the "IN" USB audio flow to the Balanced "OUT", you can click and check their cross point.
- **To add a specified "IN" channel of a flow to a specific "OUT" channel:** click ⊞ before the flow name to expand channels of the "IN" and "OUT" flow you chosen to route, and click the intersection of your specified "IN" and "OUT" channel in the grid. For example, to route the "IN" USB audio Right channel to the Unbalanced "OUT", you can check the cross point of the specified IN/OUT channels.

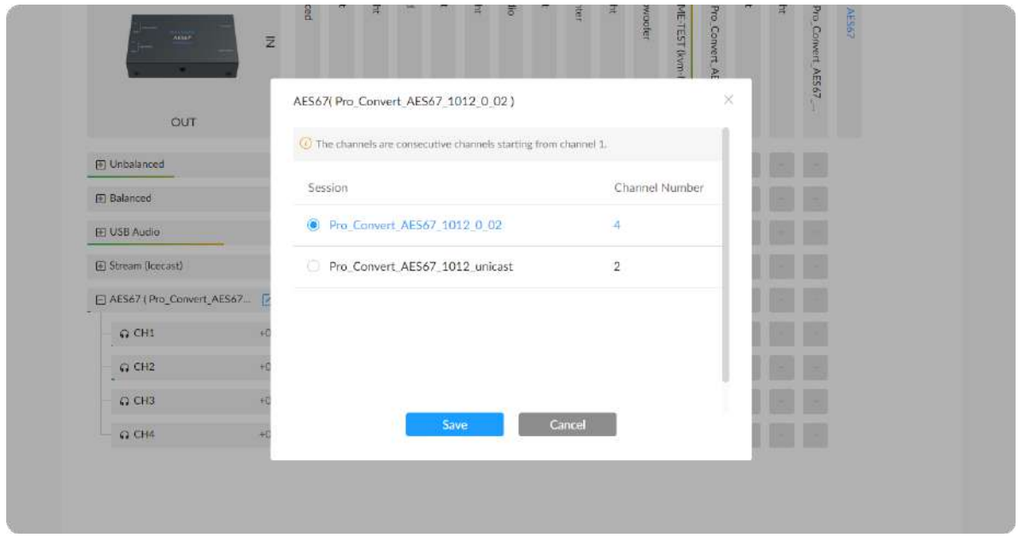


AES67 in

Adding/deleting an AES67 input session

Click **Add/Delete AES67** at the end of the **IN** on the horizontal axis, and add or delete AES67 sessions in the prompt window.

- Manage AES67 RX sessions at AES67 RX tab.
- Up to 4x8 AES67 channels are supported.

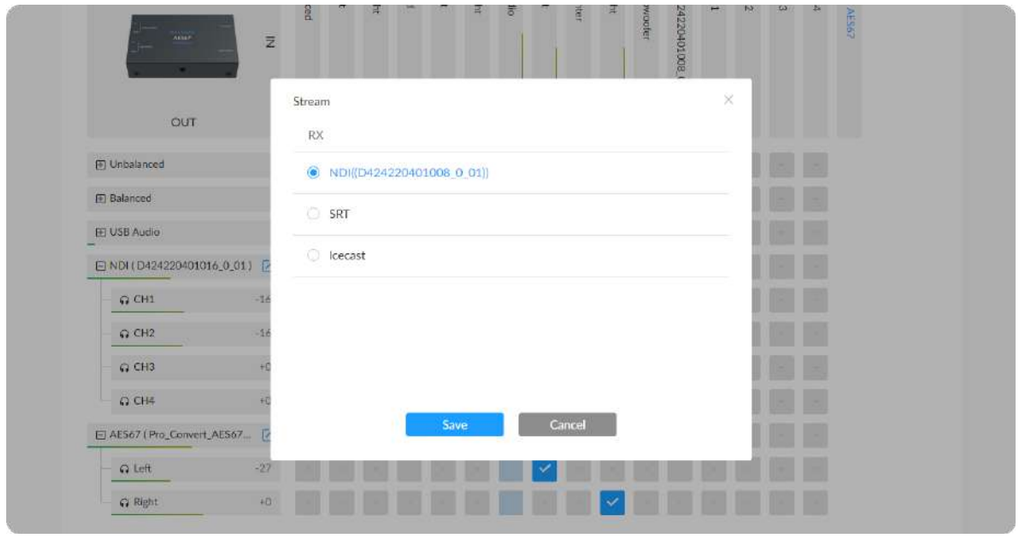


Manage AES67 out

Editing AES67 output channels

Click the icon on the "OUT" AES67 flow at the end of the "OUT" on the vertical axis, then choose a flow from the Source Session(s) list in the prompt window.

- Add TX sessions in the AES67 TX tab, then you can find them in the prompt window.



Configuring input stream(NDI/SRT/Icecast)

Click the icon behind current IP-based (NDI/SRT/Icecast) stream, and choose your target one to switch to in the prompt window.

- Add your desired NDI/SRT/Icecast RX sessions at Stream tab, then you can find them in the prompt window.

Configuring output stream(NDI/SRT/Icecast)

Go to Stream tab to configure each "OUT" stream session.

The NDI/SRT/Icecast TX sessions, added and enabled at Stream tab, will be displayed at **Matrix** > **OUT** automatically. And these sessions share the same 4-channel data.



Mixing Console

Mixing

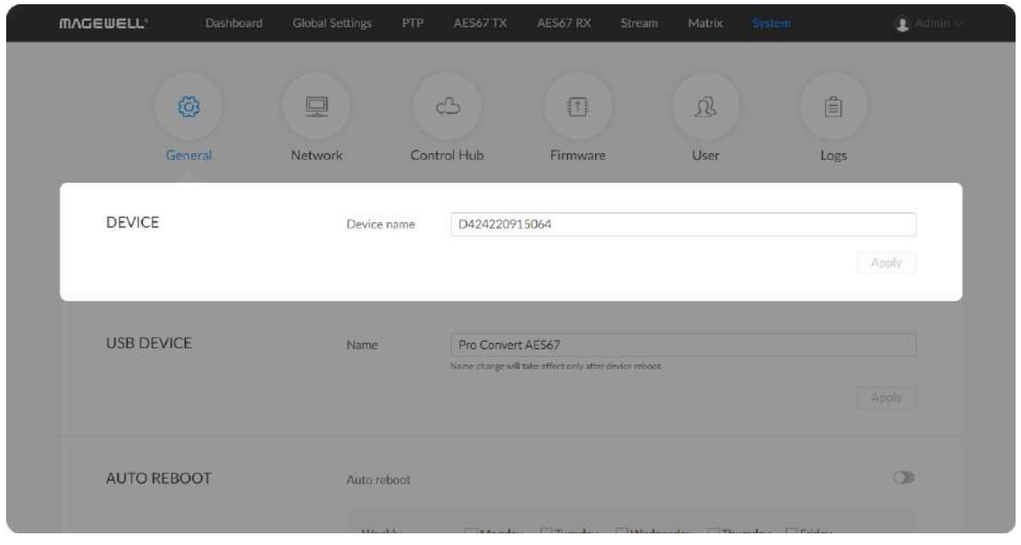
Audio mixing is the process of optimizing and combining multitrack channels into a mono, stereo, or other end product.

1. Expand an **OUT** flow and click on an channel to open **Mixing Console** window.
2. Choose a **Mixed Output** flow.
3. Choose a **Channel** from the contained channels of the chosen flow.
4. Adjust volume gain for each **INPUT** and **OUTPUT** channel or even mute it.

System

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

- Setting device name, Joining Magewell Control Hub, and modifying date time
- Network settings for joining a specific LAN
- Updating firmware for the latest features and improvements
- Creating or removing general user accounts for accessing the converter
- Changing passwords for all users
- Exporting logs to get technical support
- Rebooting or resetting the converter to fix problems

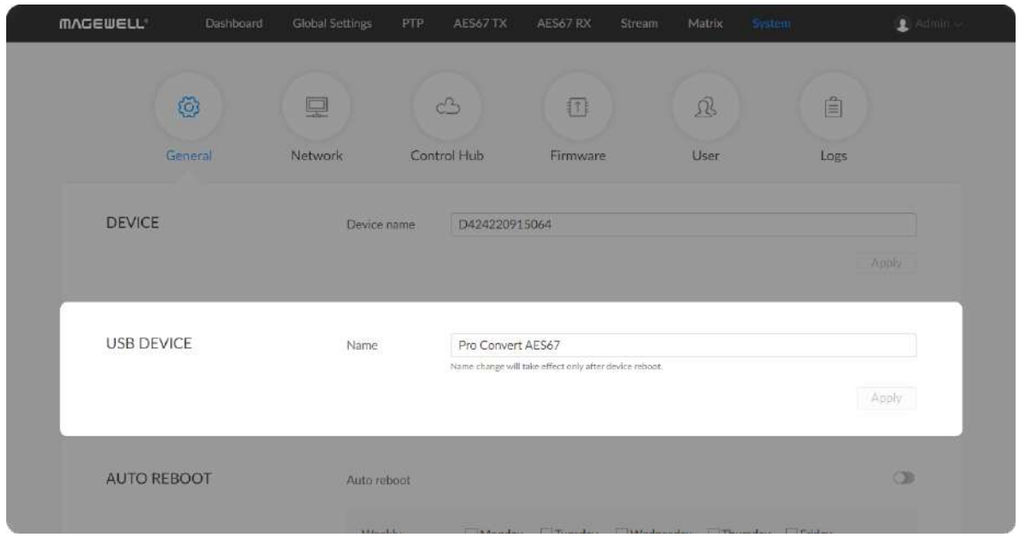


Setting Device Name

Changing device name in the **System** tab requires administrative rights.

By default, the device name is the same as the product model name.

1. Access the Web UI, and sign in as a administrator.
2. Click and enter the **System** > **General** tab.
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 your change.



Changing USB Audio Device name

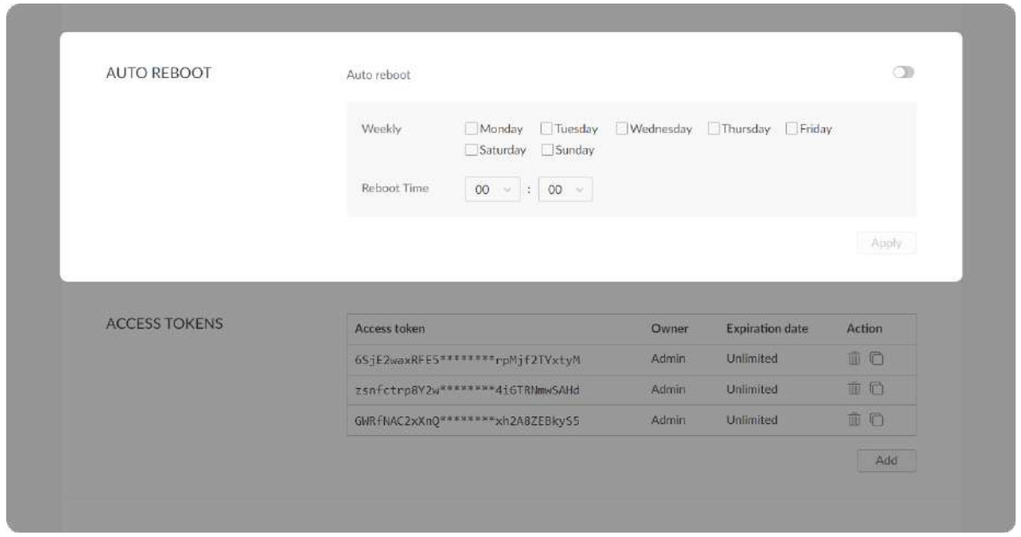
Changing USB audio device name requires administrative rights.

By default, the USB device name is the same as the product model name.

1. Access the Web UI, and sign in as a administrator.
2. Click and enter the **System** > **General** tab.
3. Enter a new **Name** in USB DEVICE section. 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 change.

   USB device name change will take effect after rebooting.

   Windows OS users need to re-add the AES67 converter in "Device Manager > Sound, audio and game controllers".

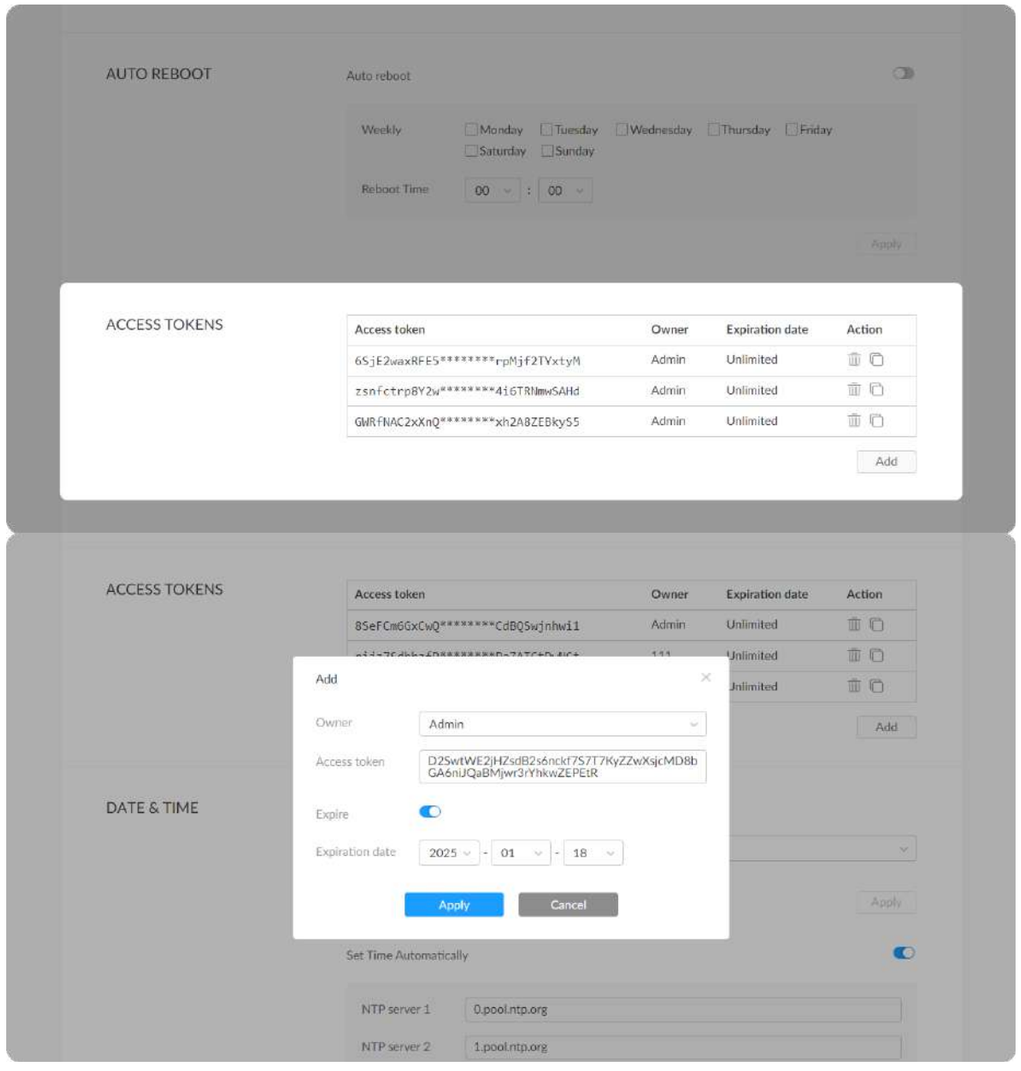


Scheduling Auto Reboot

Set up a restart schedule for your device.

By default, Auto Reboot is disabled.

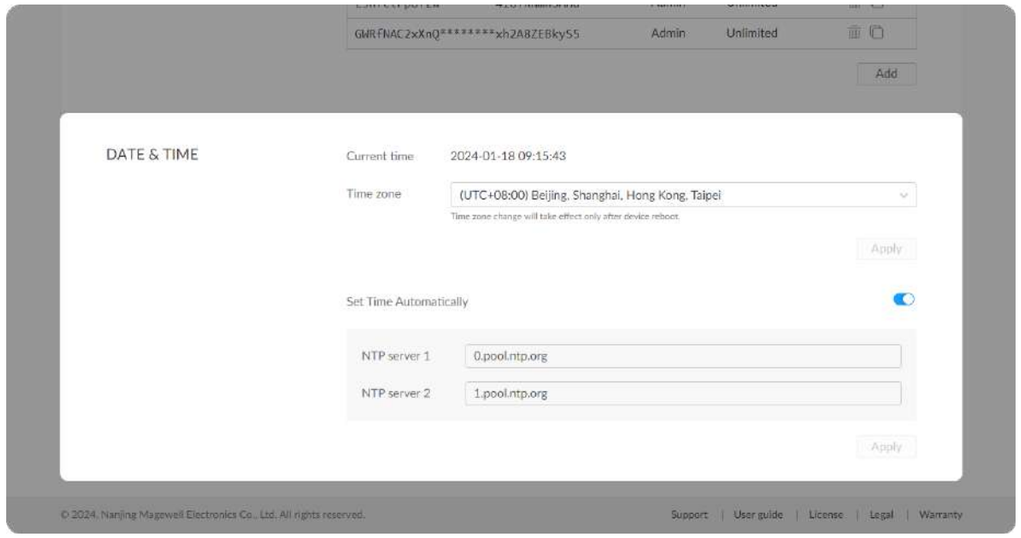
1. Access the Web UI, and sign in as a administrator.
2. Click and enter the **System** > **General** tab.
3. Turn on the **Auto reboot** switch in AUTO REBOOT section.
   Specify the weekday and time for your reboot schedule. Then your device will auto reboot weekly.
4. Click **Apply** to save your change.



Setting TOKENS

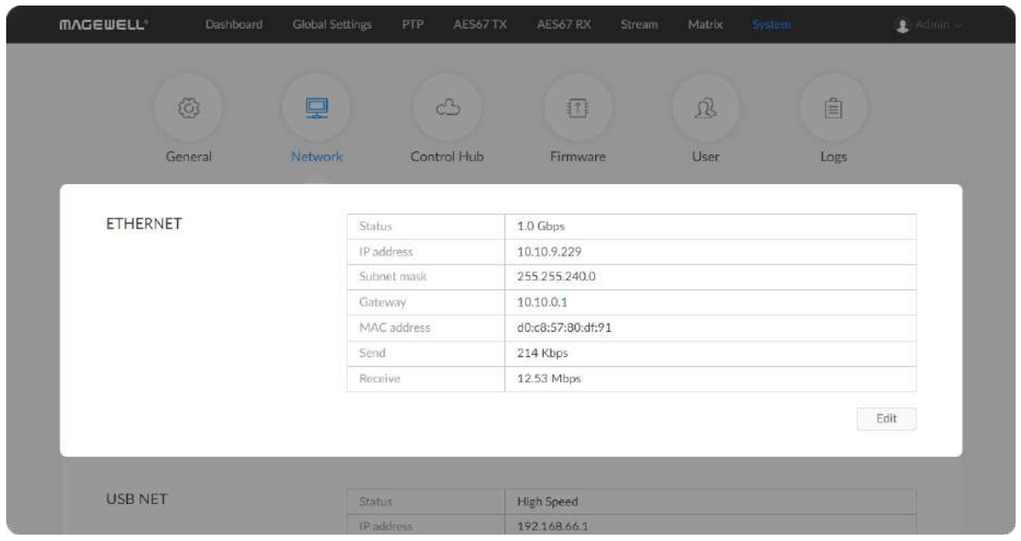
The equipment supports granting authorization to specified users through TOKEN, allowing them to access APIs without logged-in. General users are unable to access system setting APIs, while administrator users have access to all APIs.

1. Access the Web UI, and sign in as a administrator.
2. Click and enter the **System > General** tab.
3. Click **Add** in the ACCESS TOKENS section, and specify the Owner (Admin by default), Access token (64 characters containing A-Z, a-z, 0-9), and Expiration date.
4. (Optional) Click the icon to delete the Token. And click the icon to copy the Token.
5. Click **Apply** to save your change.



Setting Date & Time

1. **Time zone:** specify a time zone for your device and click **Apply** after configuraion.
2. **Set time automatically:** turn on **Set Time Automatically**. Then the device's time will synchronized to the world-time servers depending on the timezone you set. Otherwise, you can set time manually. Click **Apply** after configuraion.
   - **NTP server 1:** the default server is 0.pool.ntp.org.
   - **NTP server 2:** the default server is 1.pool.ntp.org.

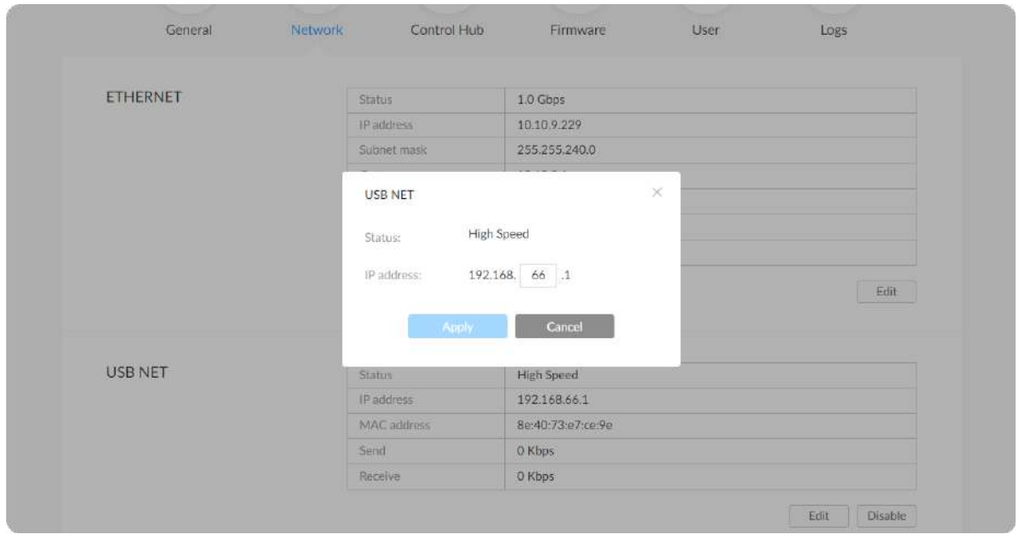


Network Settings

Changing network connections in the **System** tab requires administrative rights. 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 USB NET, change the IP address according to your own arrangement.

Setting Ethernet IP Address

1. Click and enter the **System > Network > ETHERNET** section.
2. Click **Edit**.
3. Turn on **Set IP Address Manually**, then enter a new **IP address**, **Subnet mask**, and **Gateway**.
4. Click **Apply** to save changes.
5. Verify: Type the IP address in your web browser and confirm the Web UI can be accessed.

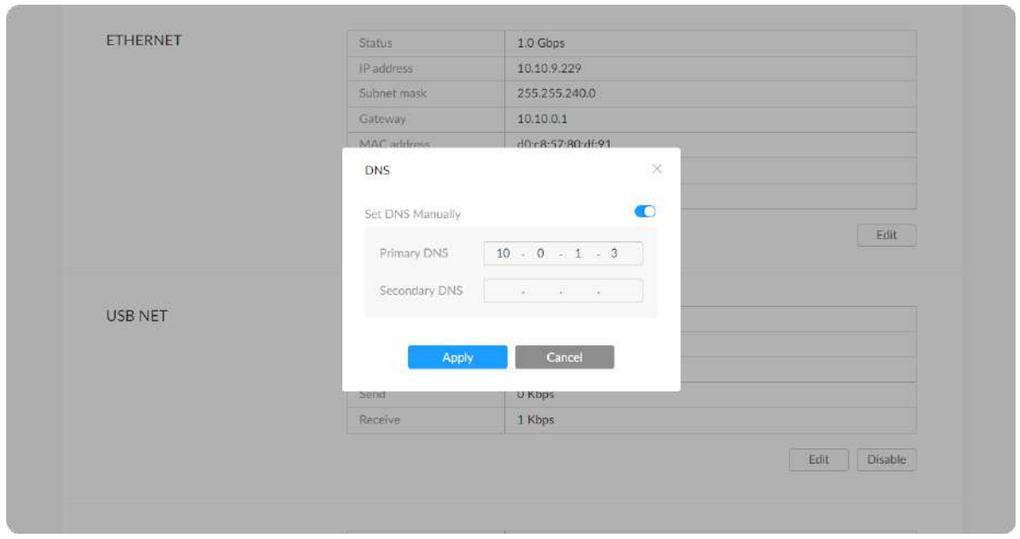


Setting USB NET

Note:

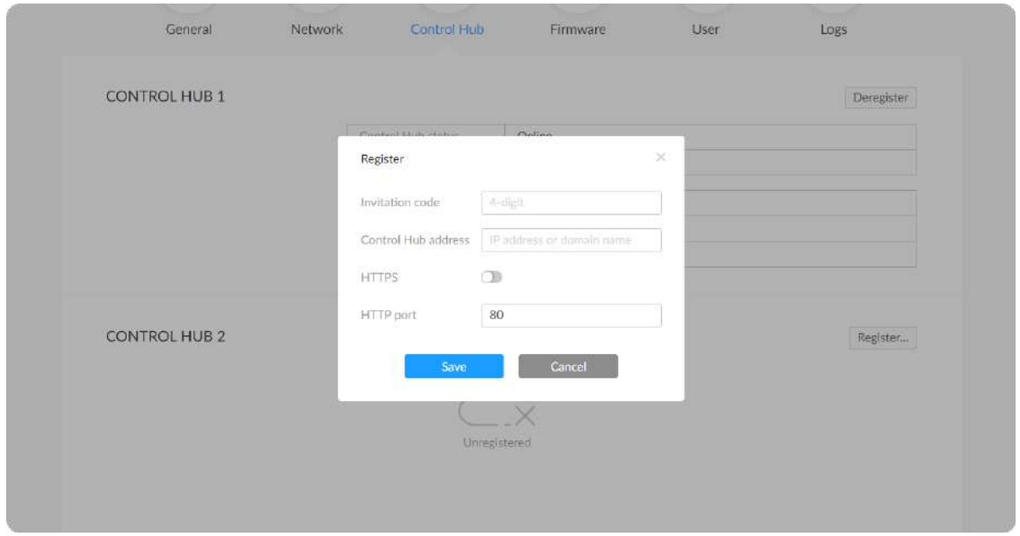
- Using of default USB NET IP address is recommended unless there is a conflict on your LAN.
- Do not connect more than one converter simultaneously to one system while using USB NET.

1. Click and enter the **System > Network > USB NET** section.
2. Click **Edit**.
3. Enter a new **IP address** for USB NET.
4. Click **Apply** to save changes.
5. Type the manually set IP address in your web browser to access the Web UI, verifying if the network settings work.
6. Click **Disable** to stop accessing device WebUI via USB NET (192.168.66.1 by default).



Setting DNS

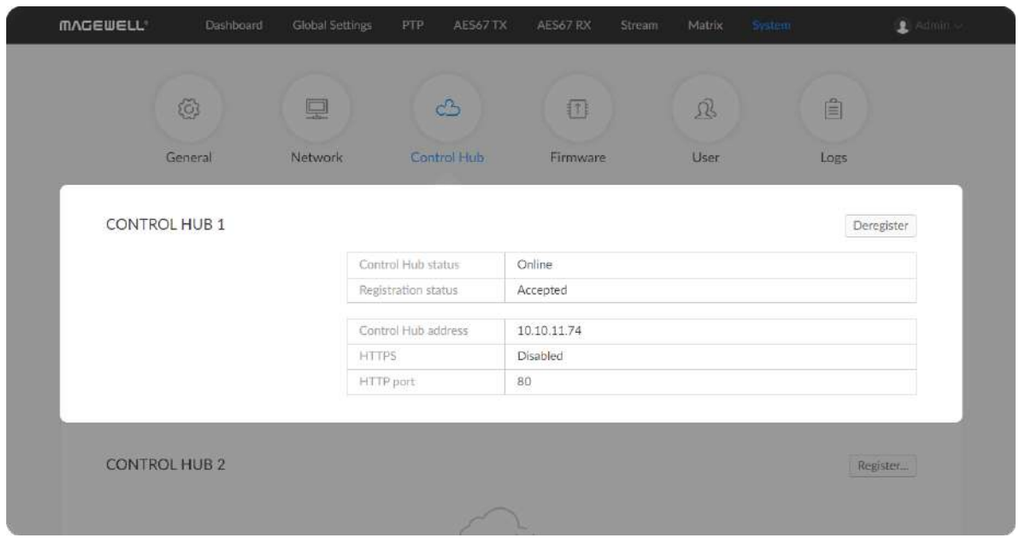
1. Click and enter the **System** > **Network** > **DNS** section.
2. Click **Edit**.
3. Turn on **Set DNS Manually**, then enter a new **Primary DNS**, and **Secondary DNS**.
4. Click **Apply** to save changes.



Control Hub

You can apply for remotely control using Magewell Control Hub. 2 platforms are supported simultanuously, Control Hub 1 and Control Hub 2. You can go to the official website to learn about Magewell Control Hub.

- Click **Register...:** and input parameters in the prompt window. And save after configuration.
  - **Invitation code:** a 4-digital numbers security code obtained from Magewell Control Hub. If not leave it empty.
  - **Control Hub address:** input IP address or domian name of Control Hub.
  - **HTTP port:** input HTTP port number, which should be consist with that of Control Hub.
- Click **Deregister** to log out from the Magewell Control Hub.

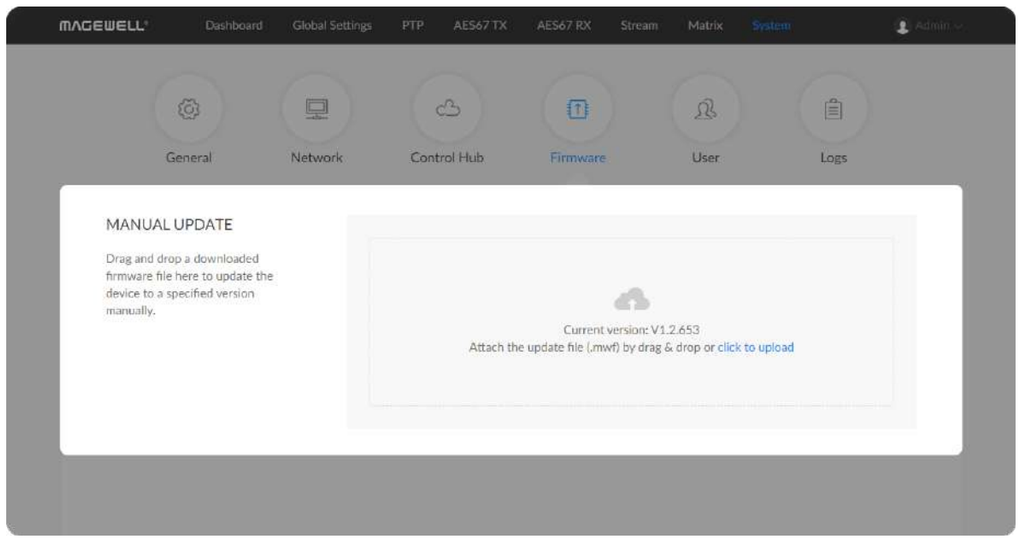


Check parameters related to Control Hub management.

- **Control Hub status: Online** or **Offline**. Online indicates that the communication between device and Control Hub 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 Control Hub plarform.
- 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 Control

Hub.

- **Control Hub address:** shows the IP address of Control Hub.
- **HTTP port:** shows the HTTP port of device used to communicate with Control Hub.



Updating the Firmware

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

Note: Currently online update is not supported.

1. Click and enter the **System** > **Firmware** tab.
2. 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.

   The device will automatically verify the update file.

   The unit will upload the file after the file verification is passed.

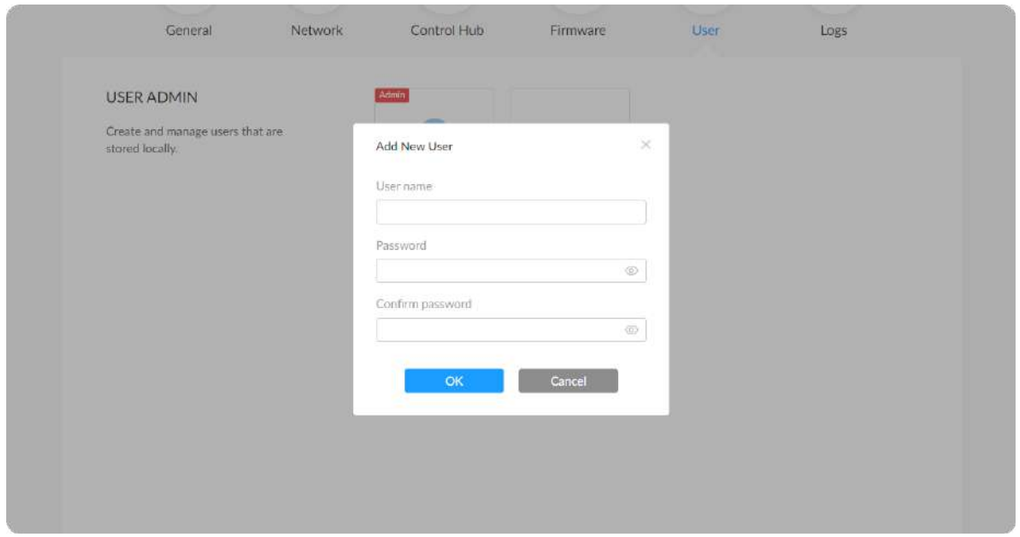
1. In the **Manual Update** window, click **Update**.

   DO NOT shut down or reboot the device when updating firmware.

   The changes will take effect after you reboot the device.

1. Check the current **Firmware version** in the **Dashboard** tab.

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



User Admin

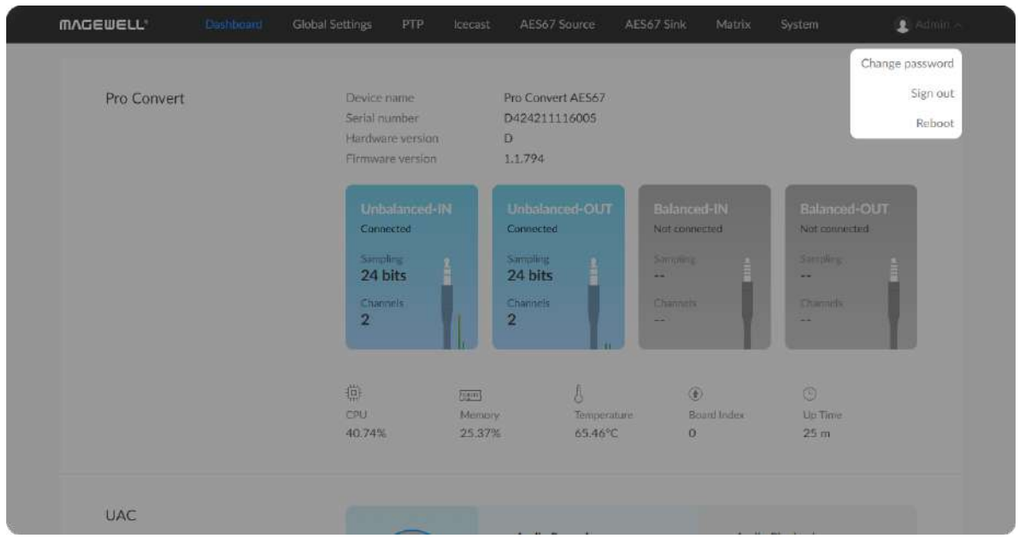
Administrator is allowed to perform the following tasks. The **User Admin** tab is invisible when you log in as a general user.

- Create/Remove General User Accounts
- Modify User Password

Creating/Removing General Users

After signing in with default admin account, you may need to add general users to give them permissions to monitor the device, or set parameters.

1. Click and enter the **System** > **User** tab.
2. Click **Add New User**.
3. 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 underline.
   - The password is a string of 1 to 32 characters, which contains the letters A-Z, a-z, numbers 0-9 and special characters _-~!@#$%^&*-+=.
4. Click **OK**.
5. Repeat Step 3 to 5 to add multiple users.
   - Converters support the addition of up to 15 general users.
6. 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. Confirm the deletion when prompted.

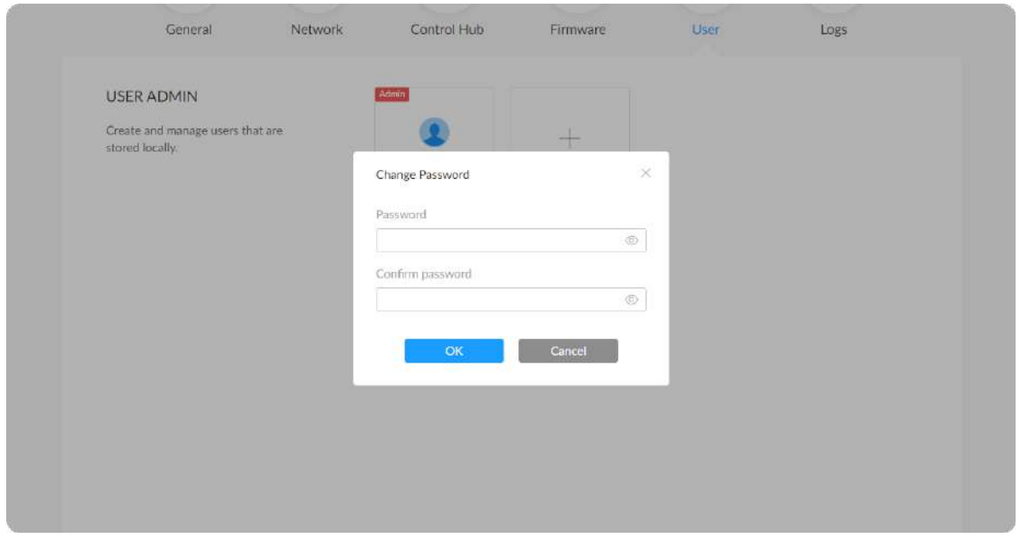


Setting Password

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

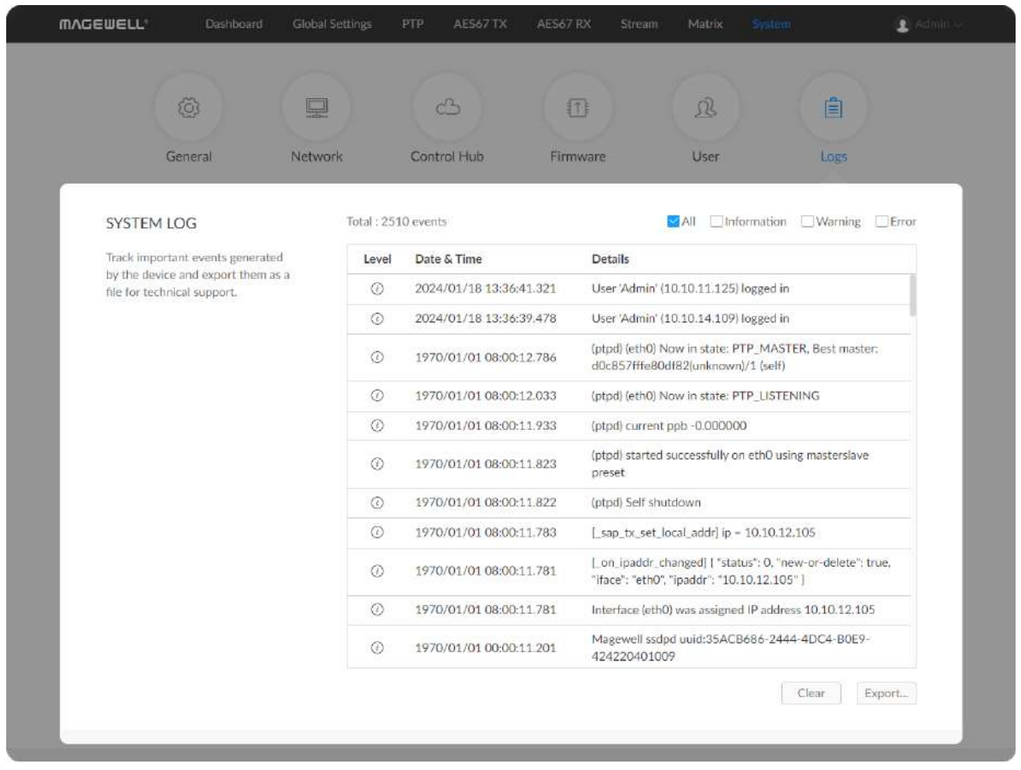
Solution 1: via the user account drop-list

1. Access the Web UI, and sign in with your username and password.
2. Click the down arrow icon beside the logged-in username, and click **Change password** in the drop list.
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**.



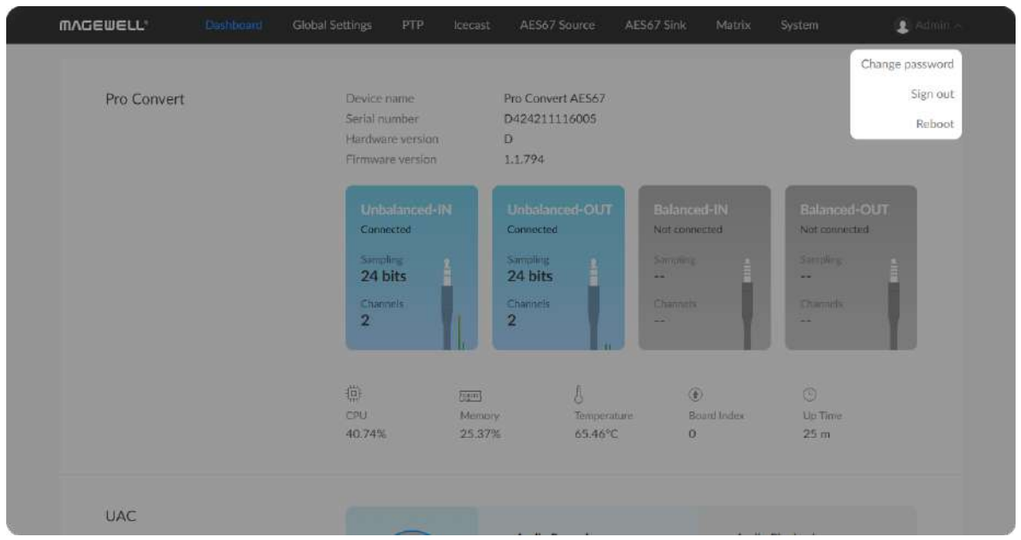
Solution 2: via System > User tab (with administrative rights)

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 > User** tab.
3. Hover the cursor over the specifed user name, then click the appeared **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**.



Exporting/Clearing System 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. Click **Yes** when prompted.
5. (Optional) Click **Clear** to delete all logs. Click **Yes** when prompted.



Rebooting/Resetting Pro Convert

Rebooting/resetting your Pro Convert when encountering unexpected problems.

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**.
3. When prompted in the window, click **Reboot**.



Fig1. Connections

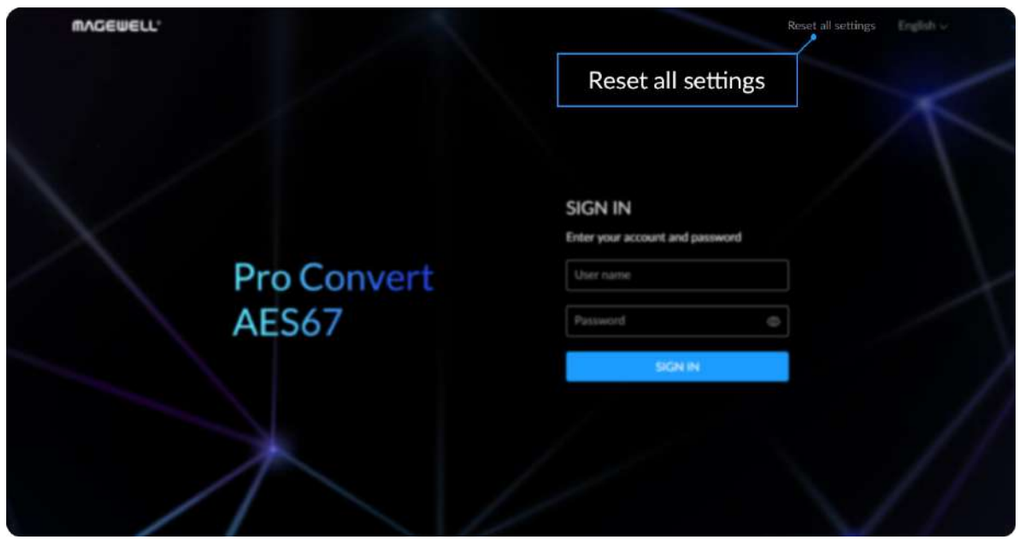


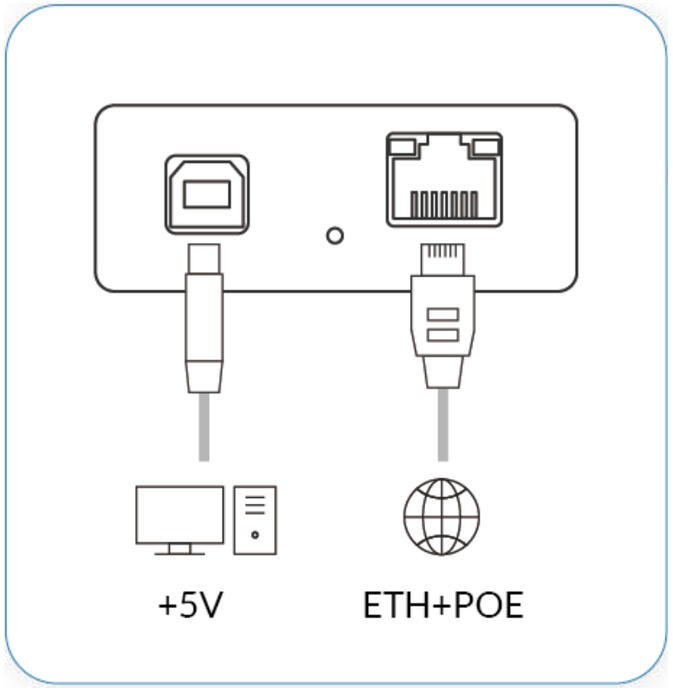
Fig2. Reset all settings

Resetting All Settings

⚠ Warning: Resetting your device will lose all your custom configurations.

1. Connect the device and your computer with the USB cable.
2. Launch your web browser and type in the USB NET 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.

FAQ



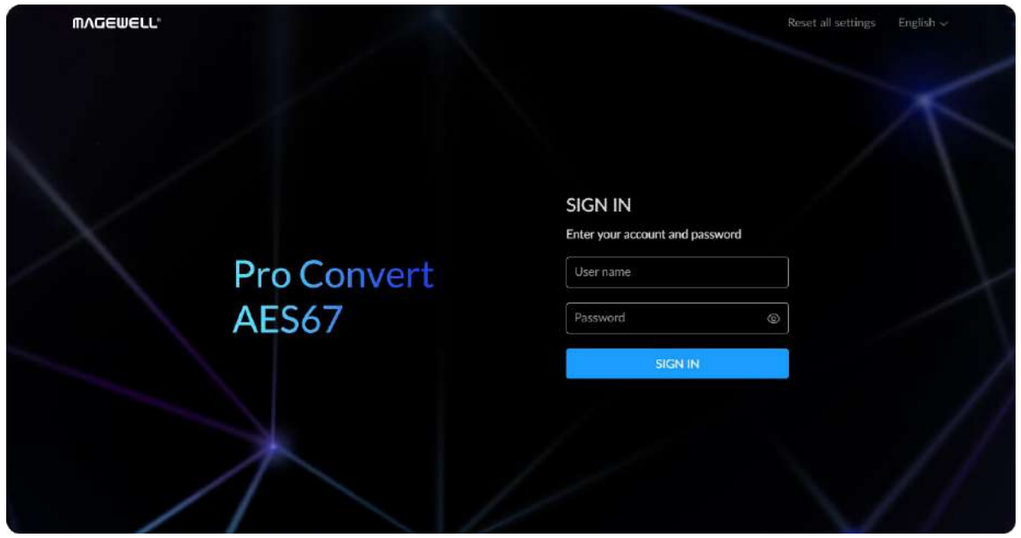
How to supply power to the Pro Convert

There are 2 ways to power your converter 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 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.



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 or via USB NET.

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

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



1. Using Windows File Explorer

This method is available for Windows 7/8/8.1/10/11 users.

Step 1 Connect your converter via Ethernet and power it up as shown on the left.

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 Devices** section, where it will be shown as "**Pro Convert AES67 + (serial number)**".

- The **serial number** (marked on your device) will be in a form like "D424000000000".

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

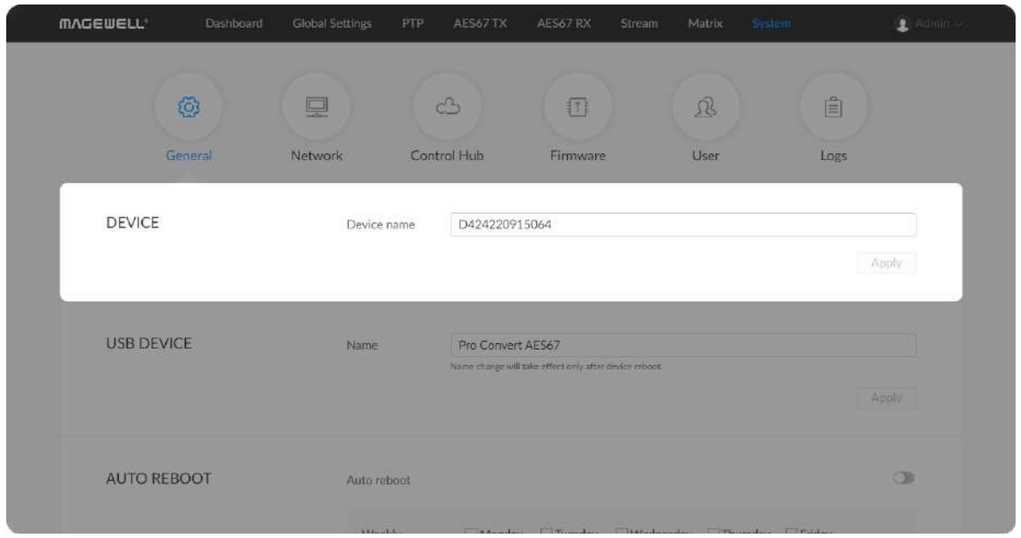
2. via USB NET

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

Step 2 Launch your web browser, and type in USB NET address to access the Web UI. The default address is **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. It is recommended to change the admin password after logged-in.



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, while changing the source name only requires general user rights.

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

Step 2 Click and enter the **System** > **General** 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.

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

Step 5 Verify your settings: click and enter the **Dashboard** tab. The value should be the same as your settings.



How to reset a Pro Convert device

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

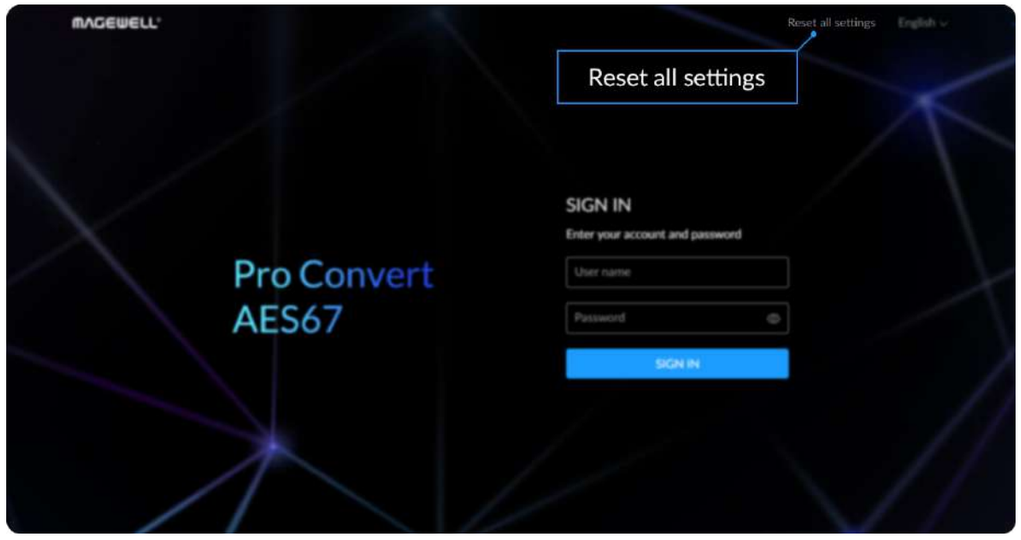
Step 1 Connect your converter to your computer.

Step 2 Launch your web browser, and type in the USB NET 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.

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

The reset process may take a few minutes.



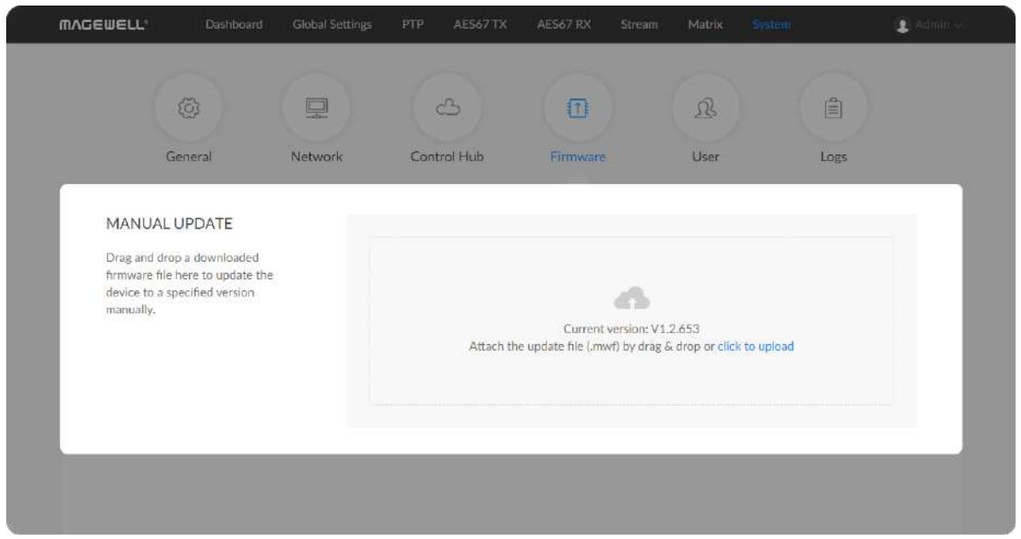


Figure1. Click Manual update



Figure2. 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** > **Firmware** tab.

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

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: 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**.

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

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

The reboot process may take a few minutes.

Step 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.

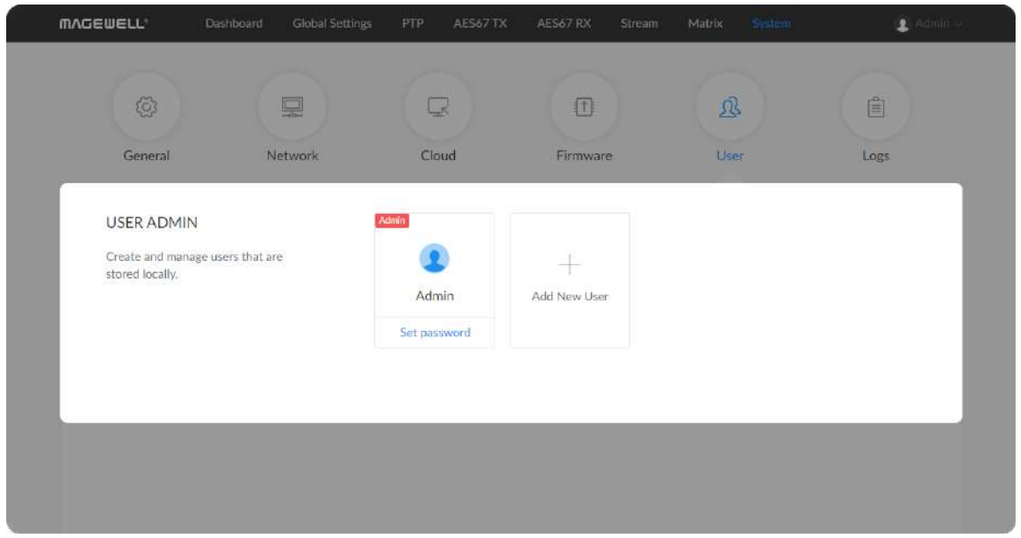




Figure1. Connections

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.

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 NET address to your web browser.

The default IP address of USB NET is 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.

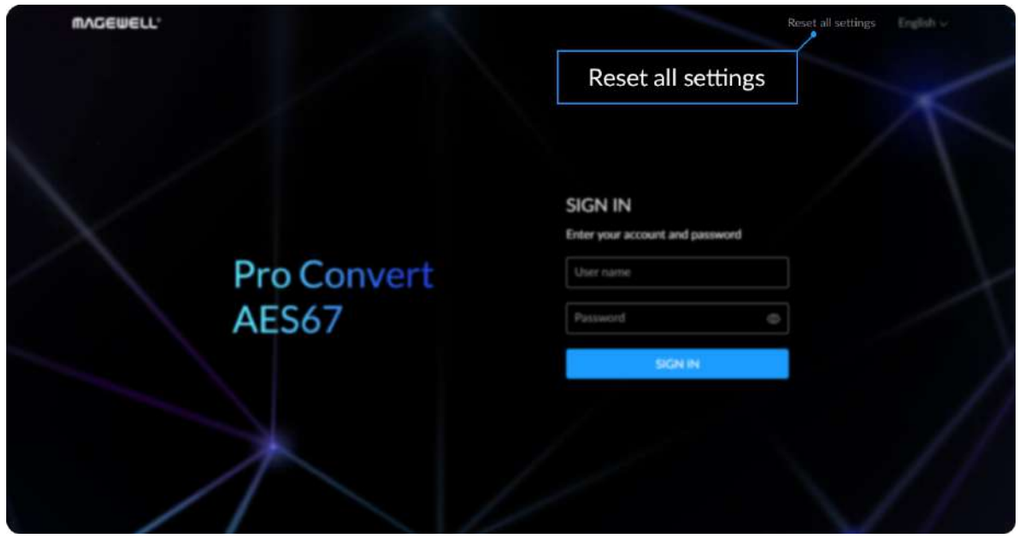


Figure2. Reset all settings

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

Step 6 Click the **Set password** link appeared 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. Connections

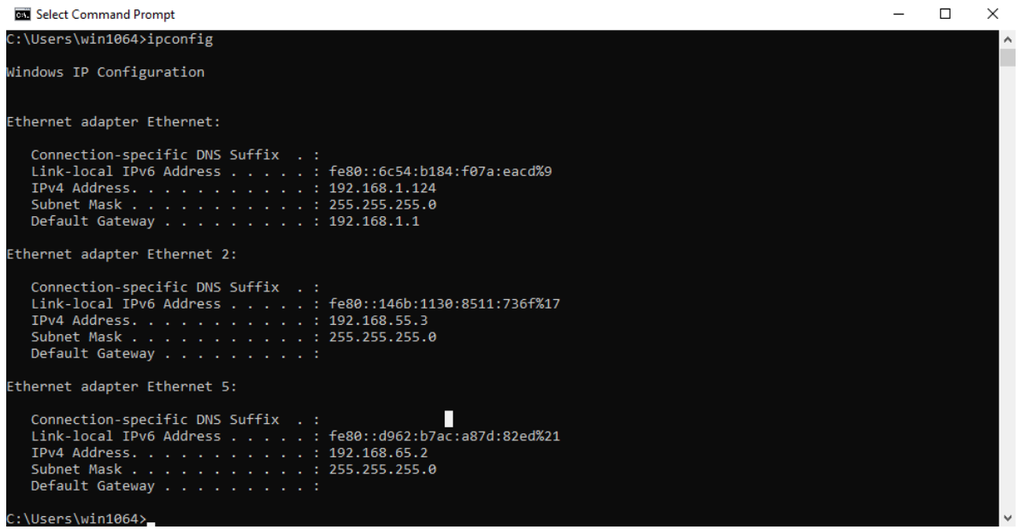


Figure2. Windows Command Line Interpreter

How to retrieve your USB NET IP Address

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

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 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.

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 Terminal

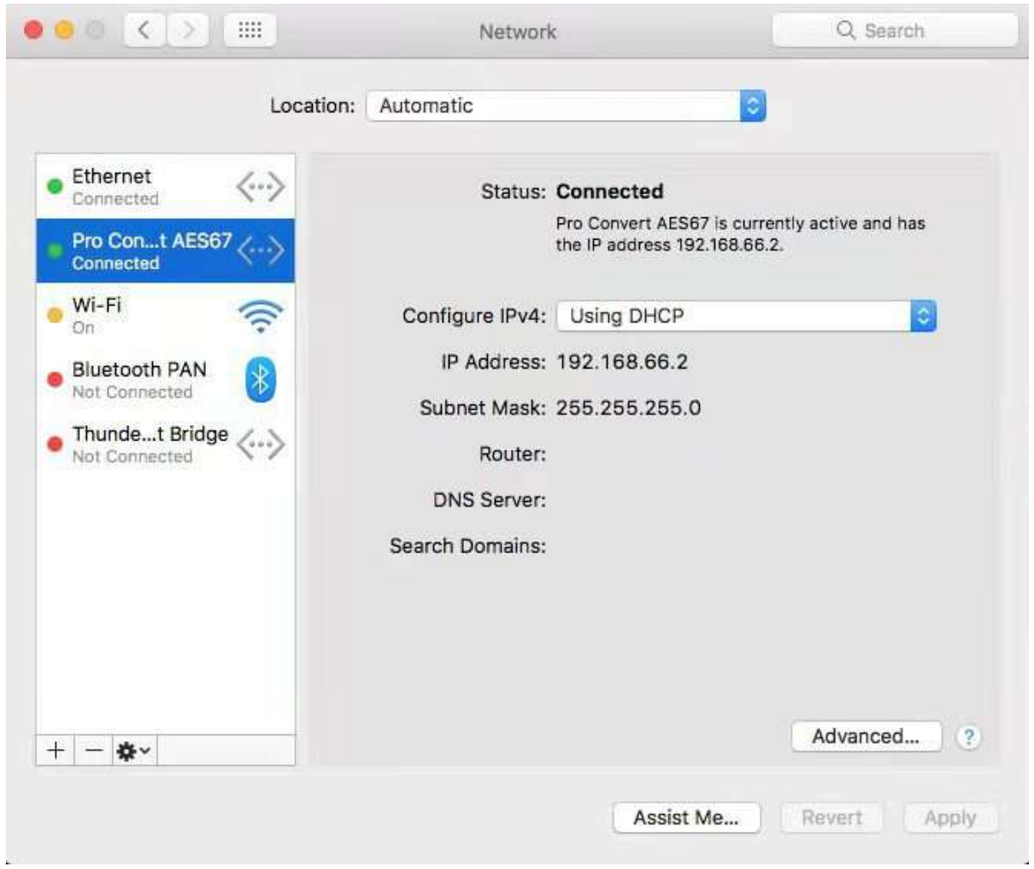


Figure4. Mac Network

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: Magewell
- Knowledge base: www.magewell.com/kb/pro-convert
- Official website: www.magewell.com/pro-convert

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.

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Glossary and Abbreviations

AES67

AES67 is a published standard which defines interoperability guidelines for high performance professional digital IP networking.

EBU

The European Broadcasting Union (EBU) is an alliance of public service media organization whose countries are within the European Broadcasting Area (EBA) or who are members of the Council of Europe.

Icecast

Icecast is a streaming media project released as free software maintained by the Xiph.Org Foundation.

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.

PTP

The Precision Time Protocol (PTP) is a protocol used to synchronize clocks throughout a computer network.

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.

SDP

Session Description Protocol

SMPTE

The Society of Motion Picture and Television Engineers (SMPTE), founded in 1916 as the Society of Motion Picture Engineers or SMPE, is a global professional association of engineers, technologists, and executives working in the media and entertainment industry.