HAIVISION

Haivision PRO460 3.5

User's Guide

HVS-ID-UG-PRO460-3.5

Edition Notice

About Haivision

Founded in 2004, Haivision is now a market leader in enterprise video and video streaming technologies. We help the world's top organizations communicate, collaborate and educate. Recognized as one of the most influential companies in video by Streaming Media and one of the fastest growing companies by Deloitte's Technology Fast 500, organizations big and small rely on Haivision solutions to deliver video. Headquartered in Montreal, Canada, and Chicago, USA, we support our global customers with regional offices located throughout the United States, Europe, Asia and South America.

Trademarks

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If you have comments or suggestions, please contact infodev@haivision.com.

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About This Document

Conventions

The following conventions are used to help clarify the content.

Typographic Conventions and Elements

Italics	Used for the introduction of new terminology, for words being used in a different context, and for placeholder or variable text.
bold	Used for strong emphasis and items that you click, such as buttons.
`Monospaced`	Used for code examples, command names, options, responses, error messages, and to indicate text that you enter.
>	In addition to a math symbol, it is used to indicate a submenu. For instance, **File** > **New** where you would select the New option from the File menu.
...	Indicates that text is being omitted for brevity.

Action Alerts

The following alerts are used to advise and counsel that special actions should be taken.

Tip

Indicates highlights, suggestions, or helpful hints.

Note

Indicates a note containing special instructions or information that may apply only in special cases.

Important

Indicates an emphasized note. It provides information that you should be particularly aware of in order to complete a task and that should not be disregarded. This alert is typically used to prevent loss of data.

Caution

Indicates a potentially hazardous situation which, if not avoided, may result in damage to data or equipment. It may also be used to alert against unsafe practices.

Warning

Indicates a potentially hazardous situation that may result in physical harm to the user.

Getting Service Support

For more information regarding service programs, training courses, or for assistance with your support requirements, contact Haivision Technical Support using our Support Portal at: https://support.haivision.com.

This guide describes how to use the Havision Pro400 series device.

Contents

Product Presentation

The Pro460 is our latest generation of mobile video encoder and transmitter designed for live video producers (sports, concert, etc.) and news gathering professionals looking for video delivery performance from any location around the world. Multi-camera production in HD or single pristine 4K UHD capabilities are combined with mission-critical transmission in this 5G compliant solution.

With its compact form factor, the Pro460 supports the latest generation of UHD H.265/HEVC hardware encoders by offering premium video quality with optimized data usage and low end-to-end latency (down to 0.2 sec). The widely adopted H.264/AVC format is still supported for compliancy with deployed infrastructures. Our innovative design enables multiple encoding and transmission workflows from single HD source for news, to multiple HD sources (up to 4) for sports, through single 4K UHD for premium events coverage.

With Pro460, all required features for Remote Production or At-Home Production workflows are fulfilled. It supports perfect video synchronization and lip sync across multiple cameras in a venue to guarantee seamless camera switching and efficient video editing in the remote production studio. Our solution also enables remote control of network-based devices such as PTZ cameras and tally lights.

Our solution is camera agnostic and runs simultaneously with live transmission. In addition, the Pro460 supports low delay and high-quality video delivery from the studio to field units. Also known as Video Return, this feature allows delivering teleprompting information or studio feed to the field. Bi-directional audio intercom is also available for communication between the field and the studio.

The Pro460 embeds 6 world-wide compliant 3G/4G/5G cellular modems with high efficiency custom patented antennas. The transmission can also operate on other networks such as WiFi, Ka or Ku band satellite, IP leased line or even over the Internet. It is made possible thanks to our Emmy® awarded SST Technology (Safe Stream Transport). This technology offers advanced techniques for network aggregation, Adaptive packet Retransmission (ARQ) and Forward Error Correction (FEC) to reach the upper network throughput and maximize the Quality of Service. It ensures the delivery of video even in the midst of unpredictable and unmanaged network conditions by:

- Aggregating simultaneously multiple network connections,
- Dynamically adapting the video bitrate according to network bandwidth fluctuations,
- Protecting stream content,
- Supporting retransmission of lost data.

Front Panel

A	Touchscreen	E	microSD card slot
B	Activity indicator	F	Auto-start switch
C	USB C port	G	Power button
D	Intercom mini-jack (headphone, micro)	H	Link indicator

Rear Panel

A	DC input (18-V nominal)	G	6x Micro-SIM card slots
B	Ethernet 1 & 2	H	3G-SDI input 4
C	USB 3.0 (Type A) 1 & 2	I	3G-SDI input 3
D	HDMI 1.4 output	J	3G-SDI input 2
E	12G-SDI output	K	12G-SDI input 1

F	Genlock input		

Left and Right Sides

A Camera Mounting Plate (Gold Mount, V-Mount)

B Battery Mounting Plate (Gold Mount, V-Mount)

Indicator Definition

The front of the unit contains LED indicators to provide you with status information.

A Activity Indicator

Status	Meaning
Fixed Green	The unit is starting.
Flashing Green	Live, Record or Forward in progress.

Off	No Live, Record or Forward in progress.

B Link Indicator

Status	Meaning
Fixed Green	The unit is starting. The unit is connected to a destination.
Off	The unit is not connected to a destination.

Installing the Unit

1. Install the external battery onto the unit side or connect the AC/DC adapter and the power cable.
2. Insert a microSD card (if not already installed). It is recommended to use FAT32 or exFAT formats and class 10 microSD card.
3. Remove the SIM card cover and insert a SIM card into a slot according to indications written on the cover.
4. For Ethernet transmission, connect the Ethernet cable to ETH1.
5. Connect video input cable.

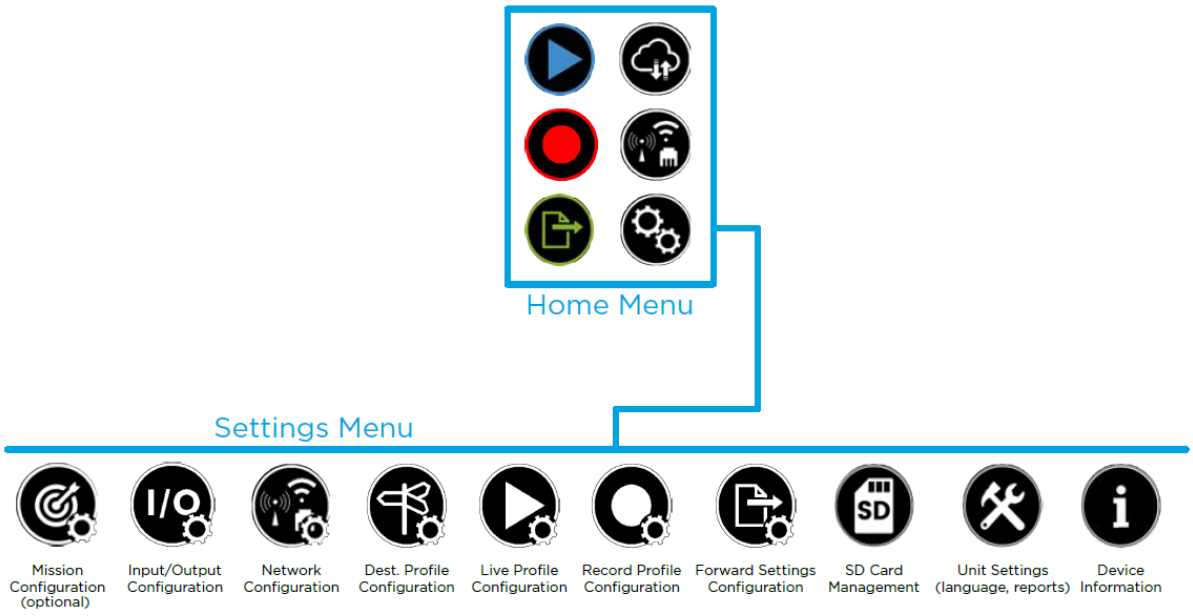
Unit Front Panel

The unit front panel allows you to:

- Configure the unit
- Start / stop live
- Start / stop record
- Forward stored files

Menus

The diagram below shows the different options accessible from the **Home** and **Settings** menus.



Icons

On the front panel screen, some icons indicate the unit state.

Video Return

- Video Return (if enabled)

Data Bridge

- Data Bridge enabled and connected
- Data Bridge enabled and not connected

Missions

- Missions Selected

Live at Startup

- Live at Startup (if enabled)

USB Keys

- 1 USB Key memory space
- 2 USB Key memory space

Unit Geolocation

- Unit located

Ethernet Connection

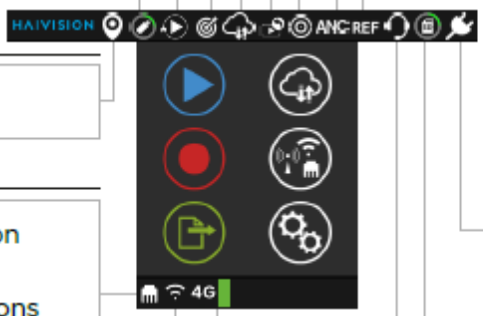
- 1 Ethernet Connection
- 2 Ethernet Connections

WiFi Connection

- WiFi Connection in Client Mode
- WiFi Access Point Configured
- At least 1 client connected to Wi-Fi Access Point

Cellular Connection Signal Level

- 2 Cellular Connections
- 6 Cellular Connections



Video Source

- SDI input selected receiving stream
- SDI input selected but no received stream
- Circles Pattern Selected
- Bars Pattern Selected
- Black Pattern Selected

Ancillary Data

- Ancillary Data Activated

Genlock Input

- Genlock signal detected and matches the source format
- Genlock detected and does not match the source format
- No Genlock detected

Power Supply / Battery Status

- Unit Connected to Power Supply
- Battery Unloading Level

Mass Storage Status (SD Card)

- SD Card Locked
- SD Card Memory Space
- Unit Connected to Power Supply

Intercom

- Communication with Master Room

Error Icons

 Error with Modem Connection

 Error with Ethernet connection

Launching the Web Interface

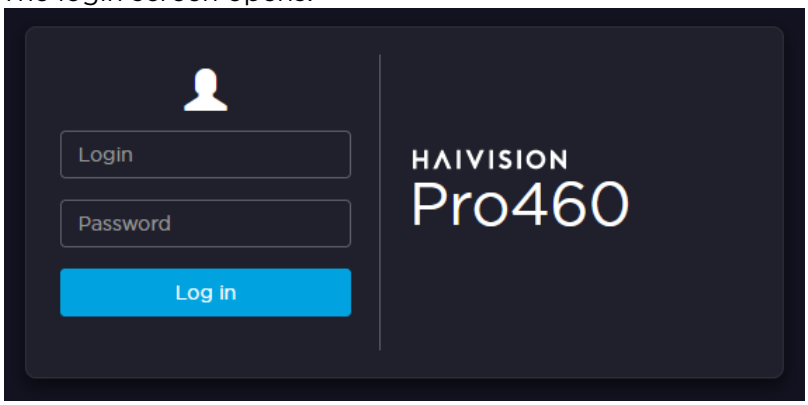
The web interface allows you to:

- Configure the unit
- Start / stop live
- Start / stop record
- Forward stored files

To access the Web interface, use an Ethernet connection or a Wi-Fi connection.

Ethernet Connection

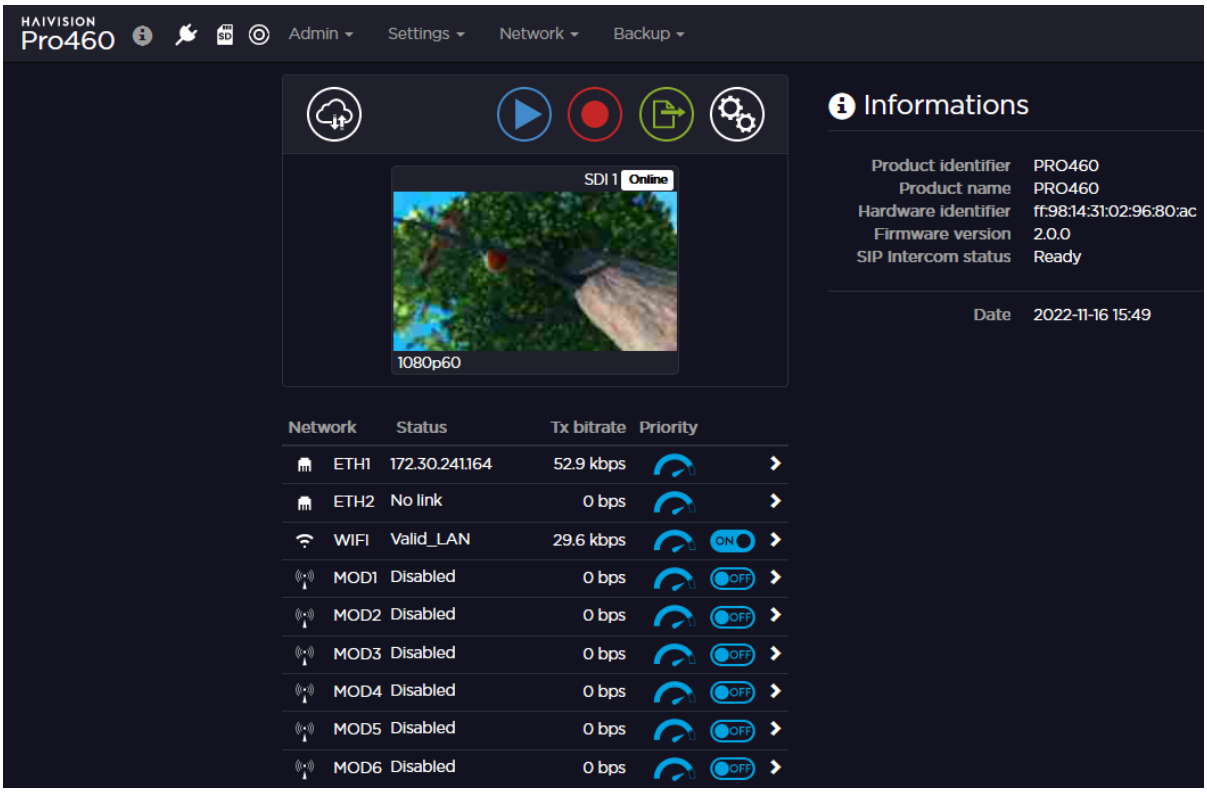
1. From the unit panel **Home** menu, select  . The screen displays the IP address assigned to the unit (by default in DHCP mode).
2. Launch a web browser on your computer and enter the unit IP address and append " `:8888` " to it. Example: `10.50.1.139:8888`
   The login screen opens:



3. Enter the login and password.

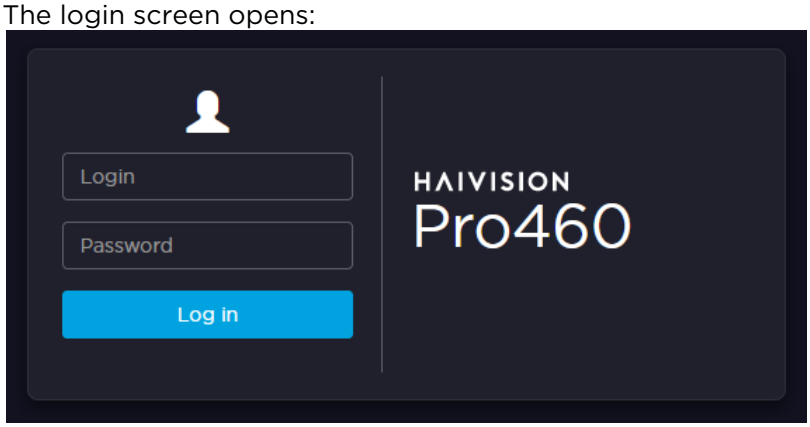
> **Important**
>
> It is highly recommended to modify the default password.

The web interface opens:



Wi-Fi Connection (Access Point Mode)

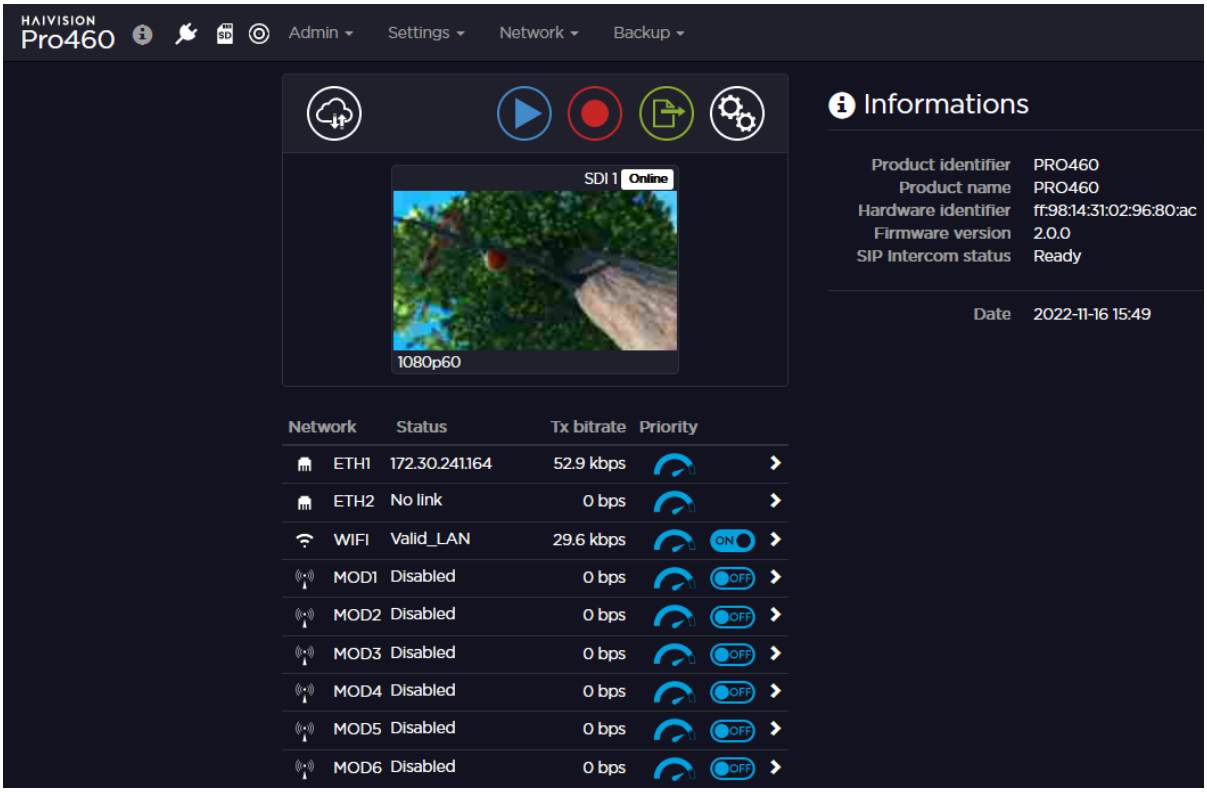
1. From the Unit Panel, configure the unit as a Wi-Fi Access Point (see Configuring a Wi-Fi Interface for details).
2. On your Wi-Fi client device (computer, notebook, smartphone), go to the Wi-Fi settings menu, and select the Wi-Fi access point that you configured.
3. Enter the password that you defined.
4. In a Web Browser, enter the unit URL: http://192.168.30.10:8888 (default IP address if it has not been changed).
   The login screen opens:



5. Enter the login and password.

> **Note**
>
> It is highly recommended to modify the password.

The unit's web interface opens.


HAIVISION
Pro460
Admin
Settings
Network
Backup
SDI 1
Online
1080p60
Informations
Product identifier PRO460
Product name PRO460
Hardware identifier ff:98:14:31:02:96:80:ac
Firmware version 2.0.0
SIP Intercom status Ready
Date 2022-11-16 15:49
Network Status Tx bitrate Priority
ETH1 172.30.241.164 52.9 kbps
ETH2 No link 0 bps
WIFI Valid_LAN 29.6 kbps ON
MOD1 Disabled 0 bps OFF
MOD2 Disabled 0 bps OFF
MOD3 Disabled 0 bps OFF
MOD4 Disabled 0 bps OFF
MOD5 Disabled 0 bps OFF
MOD6 Disabled 0 bps OFF

Configuring an Ethernet Interface

Devices connected to a local LAN transmitter are remotely controllable from the Media Control Room.

The unit can operate in different Ethernet modes:

- **DHCP** – Use the unit in a domain that has a DHCP server. The DHCP server assigns the IP address, subnet mask, and default gateway to the equipment. *DHCP is the default configuration mode for Ethernet.*
- **STATIC** – Connect the unit to a domain without using a DHCP server. In this mode, the network administrator must set the Ethernet interface's IP settings (IP address, netmask, and gateway).
- **GATEWAY** – Connect a host to the unit (for instance, a laptop). The unit acts as a DHCP server and assigns an IP address to the connected host. The unit automatically detects from the netmask the range of IP addresses that it can use for assigning an IP address to the host connected.

Factory Settings According to Selected Mode

Interface	MODE	IP Address	Netmask	Gateway
Ethernet 1	DHCP *	Assigned by DHCP server		
	STATIC	192.168.1.10	255.255.255.0	192.168.1.1
Ethernet 2	DHCP *	Assigned by DHCP server		
	STATIC	192.168.20.10	255.255.255.0	192.168.20.1
	GATEWAY	192.168.20.10	255.255.255.0	
	OFF	N/A	N/A	N/A

* Default configuration.

Note

When the OFF option is selected, Ethernet mode is disabled. Configuring an Ethernet interface may disconnect the unit.

See the sections below to configure the Ethernet Interface.

Unit Panel

1. From the **Home** menu, tap  **> ETH > Mode**.
2. Tap on a new mode.
3. The selected mode appears:
   - When selecting DHCP mode, settings are automatically retrieved.
   - When selecting STATIC mode, you need to enter network settings.
   - When selecting GATEWAY mode, you need to enter the IP Address, the netmask, and the DNS server address.

   a. Tap  .
   b. Tap on settings fields to be modified.

c. Use the keyboard to enter new settings and tap to confirm.

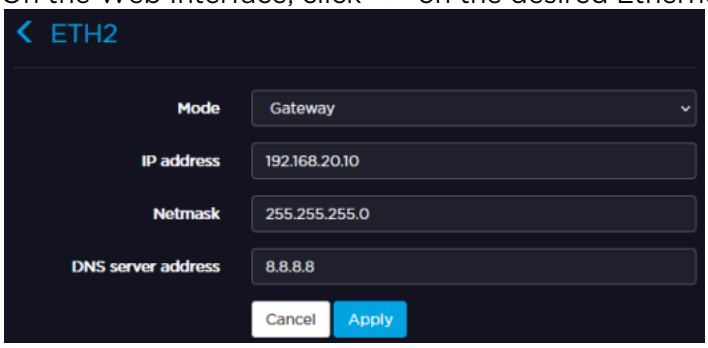
d. Tap to scroll down and tap to save new settings.

Note

Configuring Ethernet interface may disconnect the unit.

Web Interface

1. On the Web Interface, click on the desired Ethernet line.



2. In the **Mode** field, select the configuration mode according to the Ethernet connection used:
   - DHCP
   - STATIC
   - GATEWAY (only for Ethernet 2)
   - OFF (only for Ethernet 2)
3. According to the Ethernet connection, modify the settings if required:
   - If Static mode is selected, IP Address, Netmask and Gateway.
   - if Gateway mode is selected, IP Address and Netmask.
4. Click **Apply** to save these settings.

Note

Applying new Ethernet settings will disconnect the unit from the web interface.

Configuring a Wi-Fi Interface

The unit can operate either as a Wi-Fi Access Point, or a Wi-Fi Client.

Enabling/Disabling the Wi-Fi Interface

> **Note**
>
> By default, the Wi-Fi network is disabled.

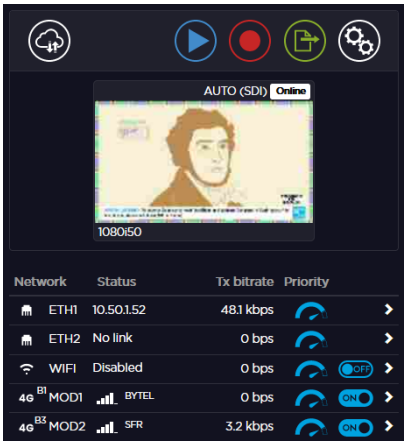
See the sections below to configure the Wi-Fi Interface.

Unit Panel

1. From the **Home** menu, tap > **WiFi**.
2. Tap the Wi-Fi line to access the settings menu.
3. Tap OFF to enable the Wi-Fi.
   The button turns into ON, and the Wi-Fi network is enabled.

Web Interface

- Click OFF or ON on the Wi-Fi line to enable or disable the Wi-Fi network.



> **Note**
>
> If you disable Wi-Fi you may lose the web interface connection.

Configuring a Wi-Fi Access Point

By default, the Wi-Fi network is disabled. Enable it first as described in Enabling/Disabling the Wi-Fi Interface.

When configured in Wi-Fi access point mode, the unit can be controlled remotely from a smartphone, tablet or laptop.

See the sections below to configure the Wi-Fi access point.

Unit Panel

1. From the **Home** menu, tap .
2. Tap the Wi-Fi line to access the Wi-Fi settings menu.
3. Tap the **Mode** field.
4. Select the **Access Point** mode.
5. Tap to scroll down.
6. Tap .
7. Define the Wi-Fi settings:
   - **Network Name**: (automatically formatted as follows: "ProductSeries_" followed by the unit hardware ID.)
   - **Frequency Band**: 2.4GHz or 5.0GHz.
   - **Channel**: Select the channel used (dynamic list according to the frequency band).
     - 2.4GHz: channel 1 to 11.
     - 5.0GHz: channel 36, 40, 44 and 48.

     > **Note**
     >
     > In Access Point mode, 5GHz band is not available for Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia.

   - **Password**: By default: Password.
8. Tap and select **ADVANCED+**.
9. Define IP settings (**IP Address**, **Netmask** and **DNS server address**).
10. Tap .

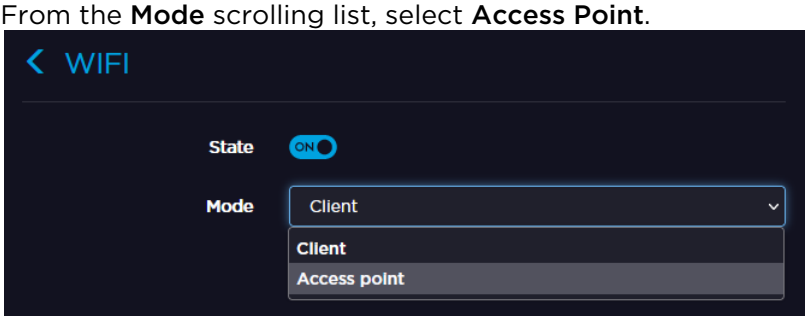
An icon indicates that the Wi-Fi Access Point is configured:

A Wi-Fi Access Point is configured.

At least one client is connected to the Access Point.

Web Interface

1. Click on the Wi-Fi line to open the Wi-Fi interface.
2. From the **Mode** scrolling list, select **Access Point**.



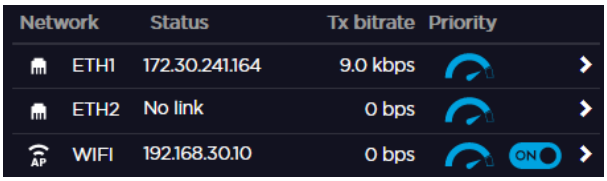
3. Define the Wi-Fi settings.
   - **Network name**: (automatically formatted as follows: "ProductSeries_" followed by the unit hardware ID.)
   - **Frequency Band**: 2.4GHz or 5.0GHz.
   - **Channel**: Select the channel used (dynamic list according to the frequency band).

- 2.4GHz: channel 1 to 11.
  5.0GHz: channel 36, 40, 44 and 48.

  > **Note**
  >
  > In Access Point mode, 5GHz band is not available for Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia.

- **Password**: By default: Password. Click on to reset it.
- Enter the **IP Address**, the **Netmask** and the **DNS Server Address**.

4. Click **Apply**.



Configuring a Wi-Fi Client Interface

By default, the Wi-Fi network is disabled. Enable it first as described in Enabling/Disabling the Wi-Fi Interface.

To configure a Wi-Fi Client interface, refer to the following:

- Scanning for a Wireless Network
- Manually Adding a Network

Scanning for a Wireless Network

To scan for a wireless network from the Unit Panel, or from the Web Interface, see the sections below.

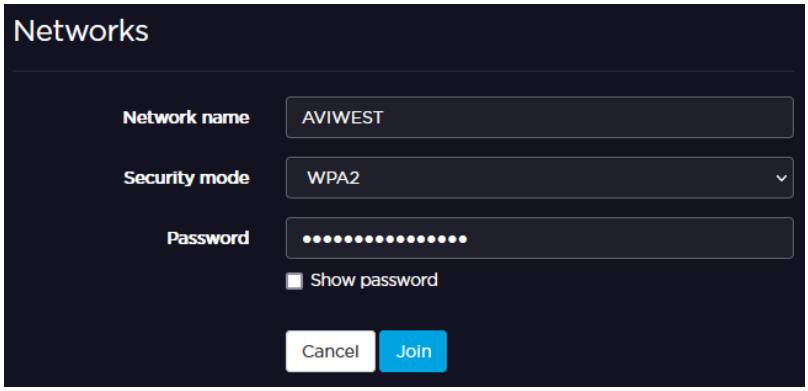
Unit Panel

1. From the **Home** menu, click on **> WiFi > Mode > Client**.
2. Click on to scroll down and click on to scan surrounding networks.
3. Click on or to select a network.
4. Click on the network name to select it.
5. Enter the password and click on to confirm.
6. Click on .

Web Interface

1. From the Web Interface, click on the Wi-Fi line.
2. From the **Mode** scrolling list, select **Client** mode.
3. Click on **Apply**.
   Surrounded networks are scanned and listed.
4. Select the network among the list.
5. Enter the **Password**.

6. Click on **Join**.



Manually Adding a Network

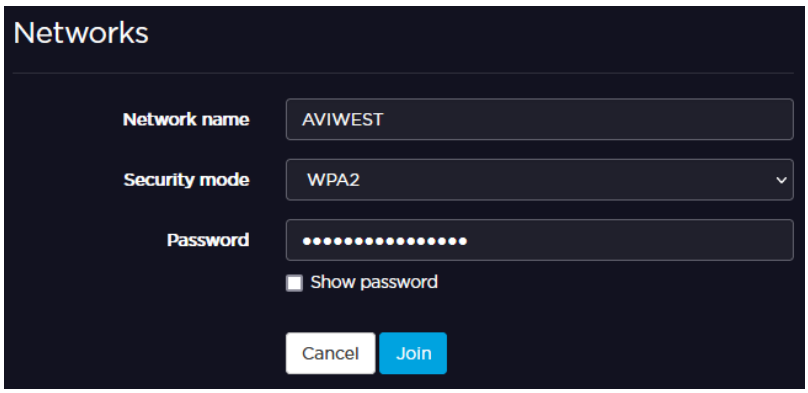
To manually add a network from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click on > **WiFi** > **Mode** > **Client** > .
2. Click on to add a new network.
3. Enter a **Network name**, select a **Security Mode** and enter a **Password**.
4. Enter the network password.
   - Click on to connect the network.
   - Click on to save the new network.

Web Interface

1. From the Web Interface, click on the Wi-Fi line.
2. From the **Mode** scrolling list, select **Client** mode.
3. Click on **Apply**.
4. Click on **Add**.
5. Enter the **Network name**, select a **Security Mode** and enter a **Password.**
6. Click on **Join**.



Configuring a Cellular Interface

Topics Include

Inserting a SIM Card

To insert a SIM card:

1. Ensure that your SIM card is unlocked.

   Note

   In some cases, you may need to identify the unit IMEI (International Mobile Equipment Identity). To access this information, please refer to Getting IMEI, IMSI, and ICCID Numbers.

2. Insert the SIM card into a slot in the unit rear panel.

Pro460

- A Pro460 unit is equipped with 6x 3G/4G/5G modems.
- Slots 1 to 6 can be used.

Connecting a Quad CellLink to the Unit

To connect a Quad CellLink to the unit:

1. On the Quad CellLink, remove the SIM card cover and insert the SIM cards into slots according to indications written on the cover.

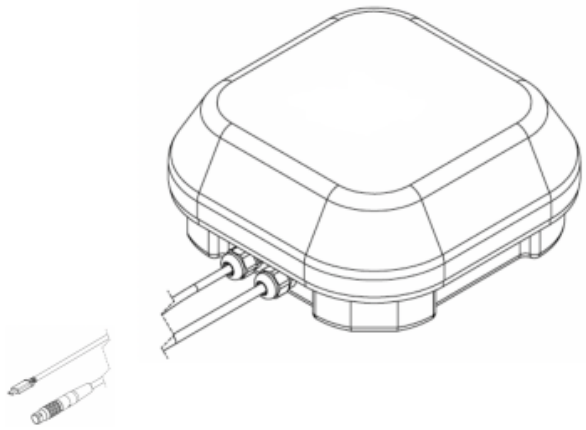
   Note

   Ensure the SIM cards are already unlocked.

2. Replace the SIM card cover.
3. Connect the AC/DC adapter and the power cable.
4. Connect the USB cable to the unit.

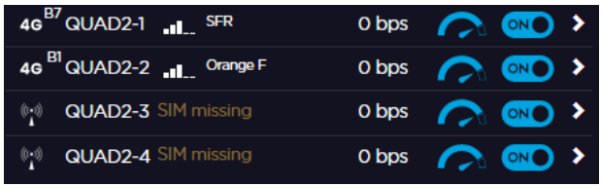
   Note

   Choose a weather-protected area for this connection to avoid any damage due to ambient humidity or rain.



5. Open the transmitter Web Interface.

> **Important**
>
> The Quad CellLink is automatically detected:
> - QUAD-1 means modem #1 from Quad CellLink.
> - QUAD-2 means modem #2 from Quad CellLink.
> - ...



> **Note**
>
> You can connect up to two Quad CellLinks to the transmitter.

Enabling / Disabling a Cellular Modem

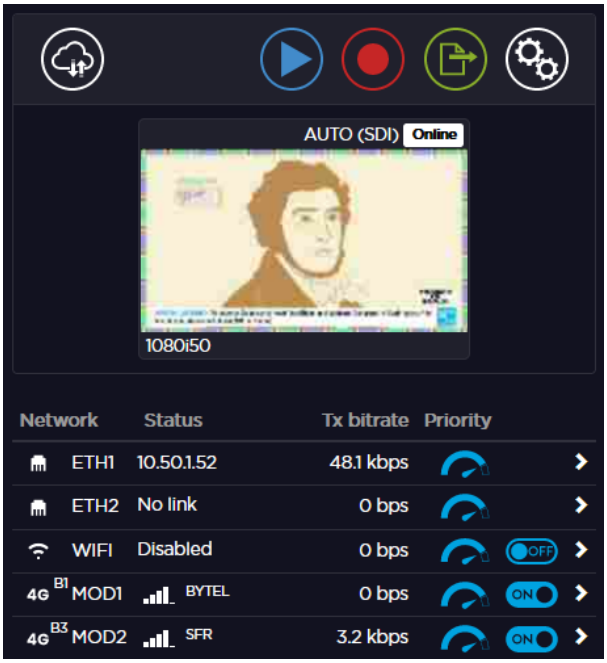
To enable or disable a cellular modem from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click on .
2. Click to select the modem that you want to enable or disable.
3. Click on the modem to be enabled or disabled.
4. Click OFF to enable the modem or on ON to disable it.

Web Interface

- From the web homescreen, click OFF or ON to enable or disable a modem.



Enabling / Disabling All Internal Cellular Modems

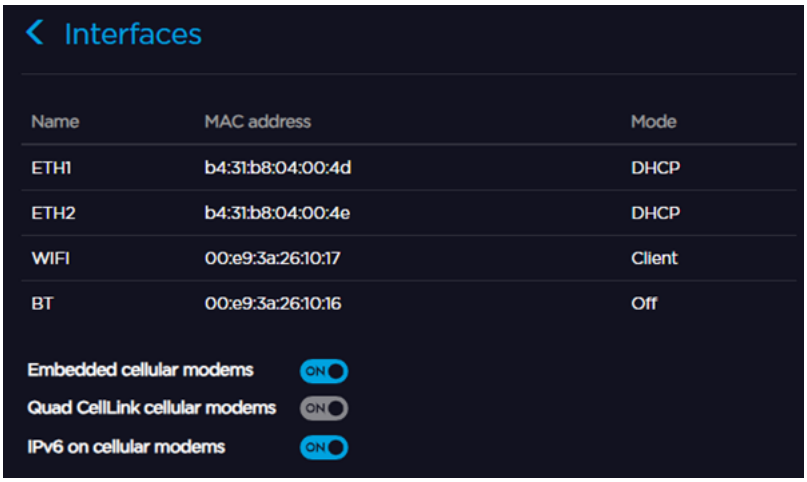
You can enable and disable all internal cellular modems either from the Unit Panel or from the Web Interface.

Unit Panel

1. From the **Home** menu, click on .
2. Click on and on .
3. In the **Embedded cellular modems** field, click on OFF an ON to enable or disable all internal modems.

Web Interface

1. From the Web Interface, click **Network** > **Interfaces**.
2. In the **Embedded cellular modems** field, click OFF or ON to enable or disable embedded modems.



Enabling / Disabling all Quad CellLink Cellular Modems

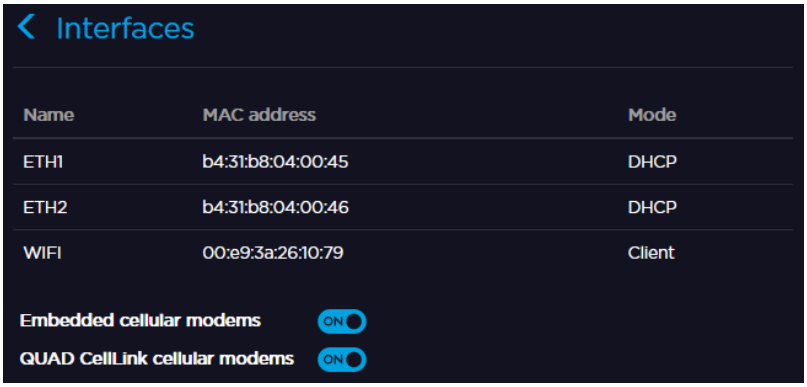
To disable all QUAD CellLink modems, see the sections below.

Unit Panel

1. From the **Home** menu, click on > .
2. In the **QUAD CellLink cellular modems** field, click on OFF or ON to enable or disable all Quad CellLink modems.

Web Interface

1. From the Web Interface, click **Network** > **Interfaces**.
2. In the **QUAD CellLink cellular modems** field, click OFF or ON to enable or disable embedded modems.



Enabling / Disabling Bluetooth

External audio inputs can be added via Bluetooth to be used with the intercom. For more information on the intercom, see Using the Intercom.

To enable or disable a cellular modem from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

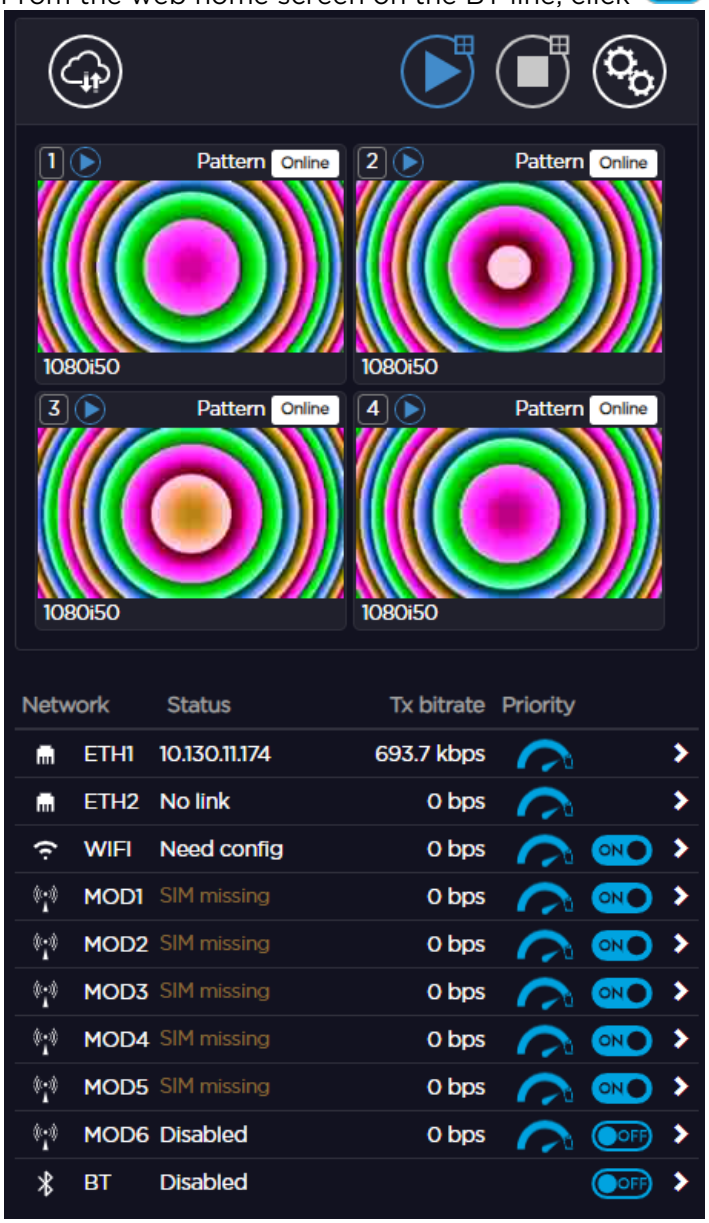
1. From the **Home** menu, tap  > BT.
2. Tap the BT line to access the setting menu.
3. Tap  to enable Bluetooth.

   Once Bluetooth is enabled, you can:

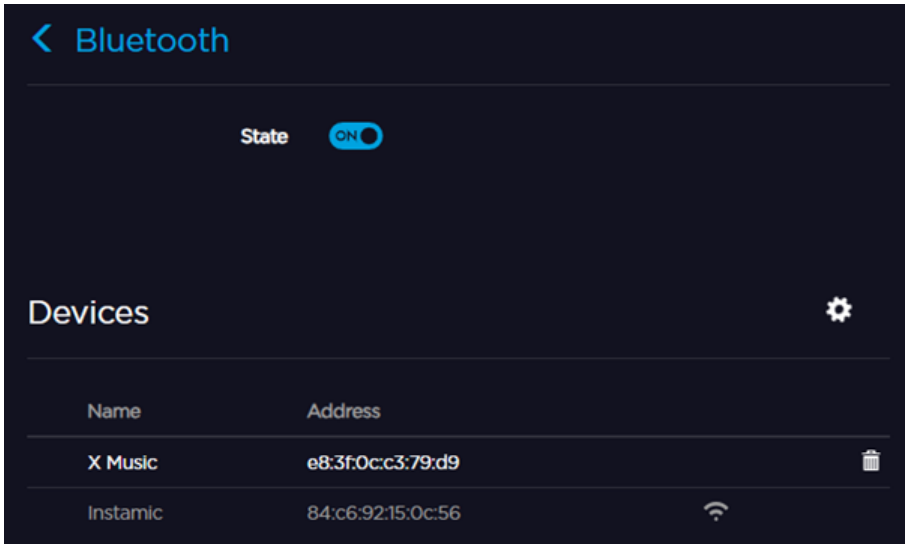
   - Tap  to display all nearby devices and tap on the device to be paired.
   - Tap  to display previously paired devices and tap on the device you wish to pair with.

Web Interface

1. From the web home screen on the BT line, click OFF to enable Bluetooth.



2. Click the BT line to view discovered Bluetooth devices.



3. Click a device to connect to it. Or, click the  icon to forget a device.

Managing the APN Database

The unit is delivered with a pre-defined Access Point Name (APN) database. You can modify the database from the Web Interface.

Topics include:

Adding an APN to the Database

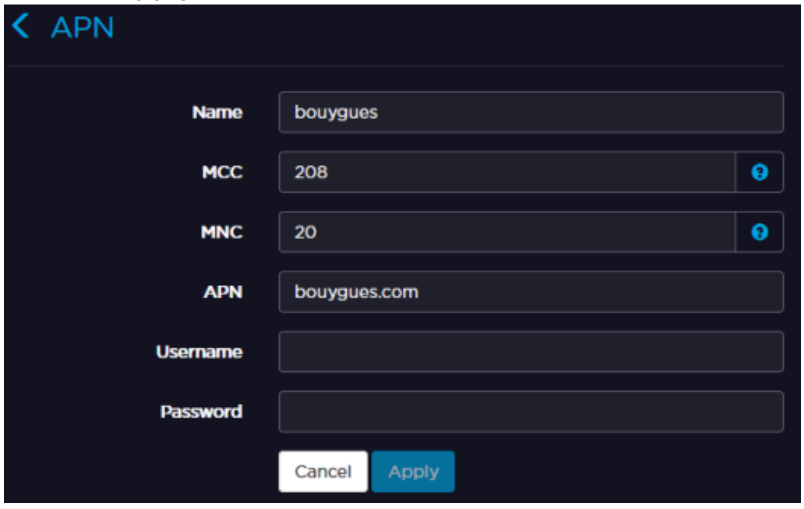
Add and configure new APN settings to suit your requirements, so that they can be easily selected from the list.

1. From the web interface, click **Network > APN**.
2. Click **Add**.
3. Enter a **Name**.
4. Fill in the parameters fields (**MCC, MNC,** and **APN**).

   Note

   Click on to get help if required.

5. Enter a **Username** and a **Password** if required.
6. Click on **Apply**.



The new APN appears in the APN database, and you can select it from the scrolling list when configuring a cellular interface operating within the same network.

Configuring a New APN

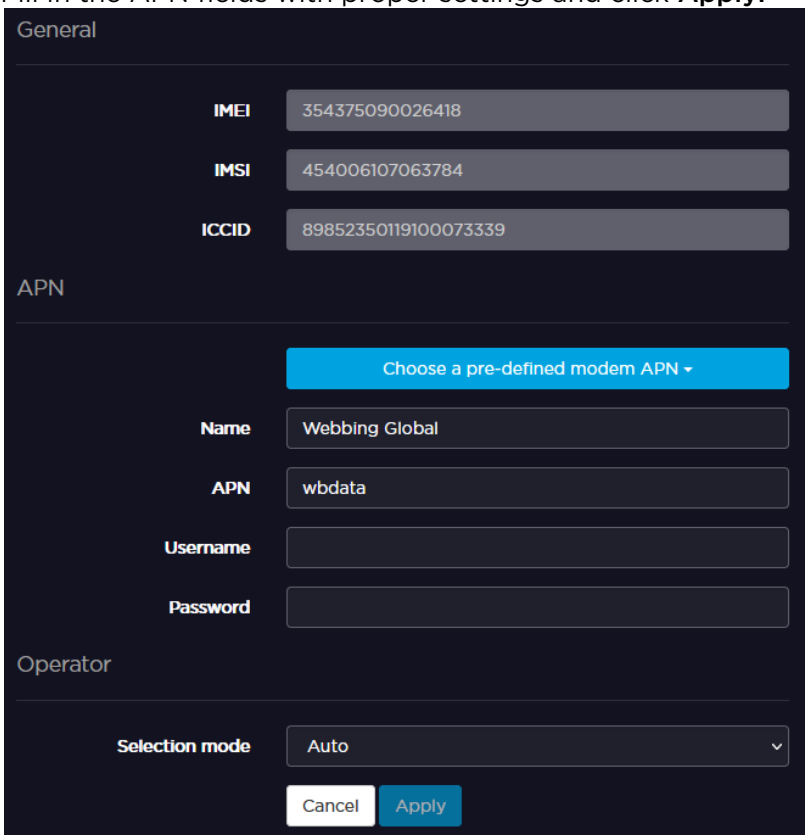
To configure a new APN from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click on > **MOD** > APN.
2. Enter a name for the new APN, a username and a password if required.
3. Click on to save.

Web Interface

1. From the Home menu, click on an active modem.
2. Fill in the APN fields with proper settings and click **Apply.**



Selecting a Predefined APN

If the SIM card operator is registered in the unit's database, the unit automatically assigns a name and an APN.

If the APN assigned is not relevant, you can select another one within a predefined list, or configure a new one.

See the sections below.

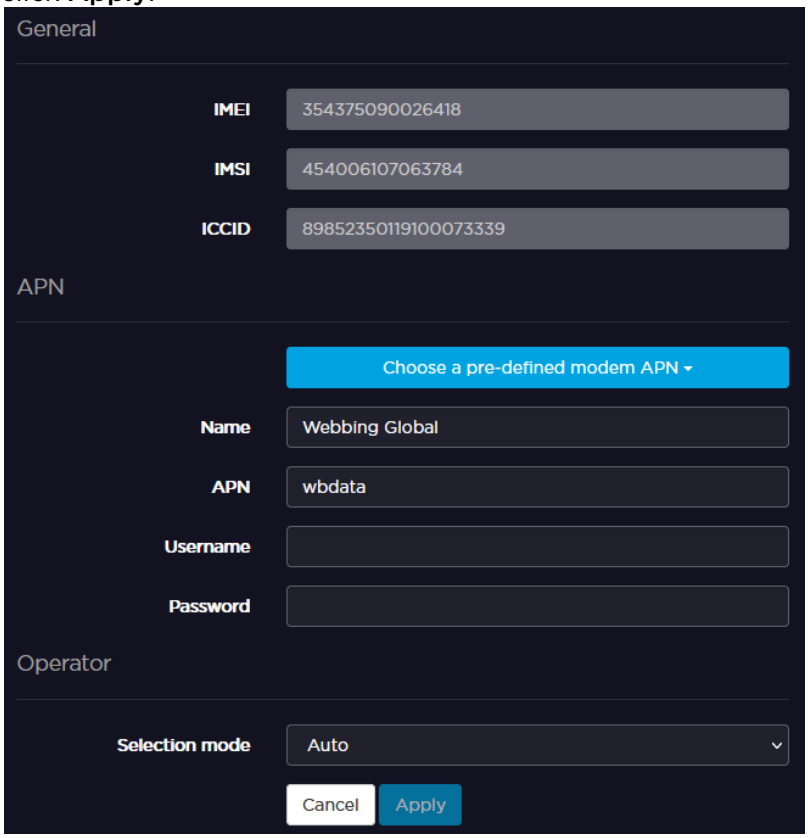
Unit Panel

1. From the **Home** menu, click on > **MOD** > APN > .
2. Use the arrows to browse APNs and press the screen to select one.
3. Enter the password and click on .

Web Interface

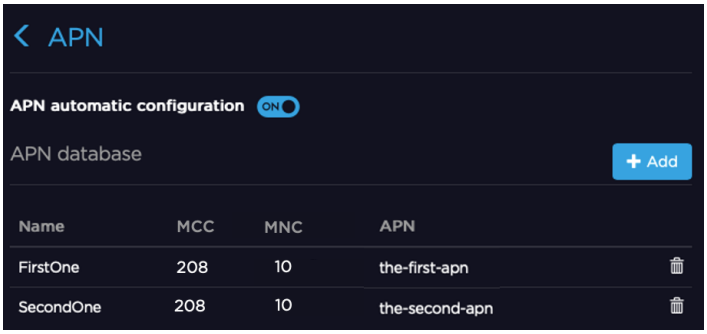
1. From the **Home** menu, click on an active modem.

2. Click on **Choose a pre-defined modem APN** and select the expected APN from the list, then click **Apply**.



Deleting an APN

1. In the web interface, click on **Network** > **APN**.
2. Double click on the trash button .



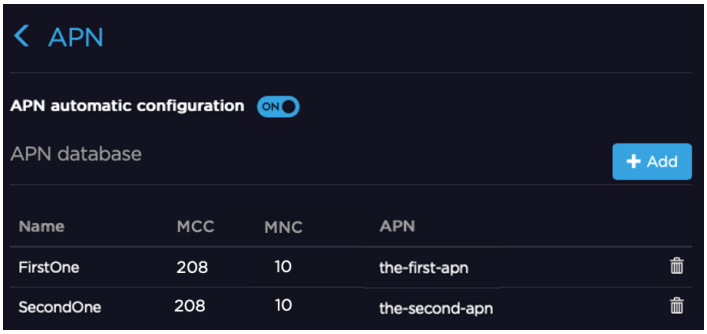
Enabling / Disabling the Automatic APN Configuration

When **APN Automatic Configuration** is enabled, an APN is automatically assigned when a new SIM card is inserted.

1. From the Web Interface, click on **Network > APN**.

> **Note**
>
> By default, the **APN Automatic Configuration** is enabled.

2. Click OFF / ON to toggle between enable/disable.


APN
APN automatic configuration
ON
APN database
+ Add
Name
MCC
MNC
APN
FirstOne
208
10
the-first-apn
SecondOne
208
10
the-second-apn

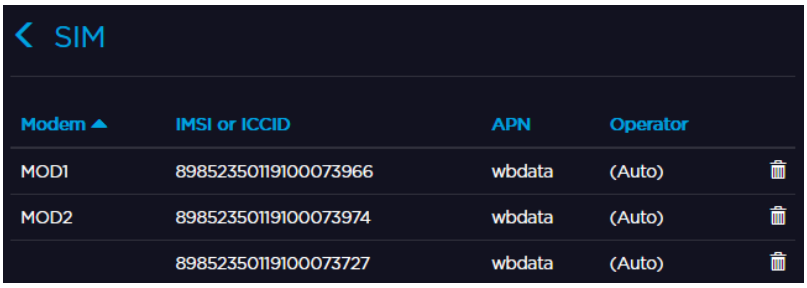
Managing Cellular Operators

For each SIM card, you can decide how to manage the selection of the cellular operator. You have three possibilities:

- **Automatic mode**: The unit selects the operator by itself.
- **Manual Selection**: This mode is selected from the Web Interface. It allows manually entering the MCC and the MNC of the operator that you want to use.
- **Scan and Select**: You select among a list of operators detected by scanning available networks.

Note

From the Web Interface, click on **Network > SIM** to have an overview of your SIM Cards. Sort the SIM Cards by clicking on the column heading.



Topics Include

Selecting Automatic Mode

Note

Automatic Mode is the default setting.

To select automatic mode from the Unit Panel, or from the Web Interface, see the sections below.

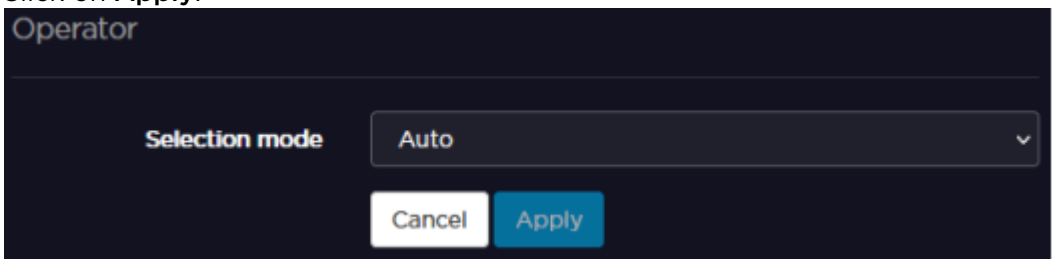
Unit Panel

1. From the **Home** menu, click .
2. Click to scroll down to the modem to be configured.
3. Click the modem line to enter the **MOD. CONFIG** menu.
4. Click .
5. Click the **Operator** field.

6. Click  to enable Automatic Mode.

Web Interface

1. From the **Home** screen, click on a modem line.
2. In the **Selection mode** scrolling list, select **Auto**.
3. Click on **Apply**.



Selecting a Cellular Operator

To select a cellular operator from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click on  **> MOD >**  **> Operator.**
2. Set the toggle button to  to disable Automatic mode. A scan for available operators starts. It may take a few minutes.
3. Click on the desired operator.

> **Note**
>
> Only white operators in the list can be selected.

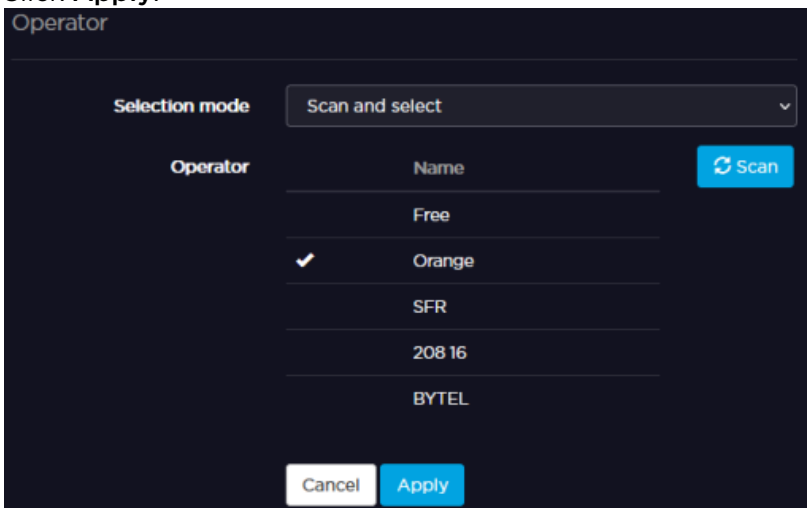
4. Click on  to save.

Web Interface

1. From the **Home** screen, click on a modem line.
2. In the **Selection mode** scrolling list, select **Scan and select**.
3. Select the desired operator from the list.

> **Note**
>
> Only white operators in the list can be selected.

4. Click **Apply**.



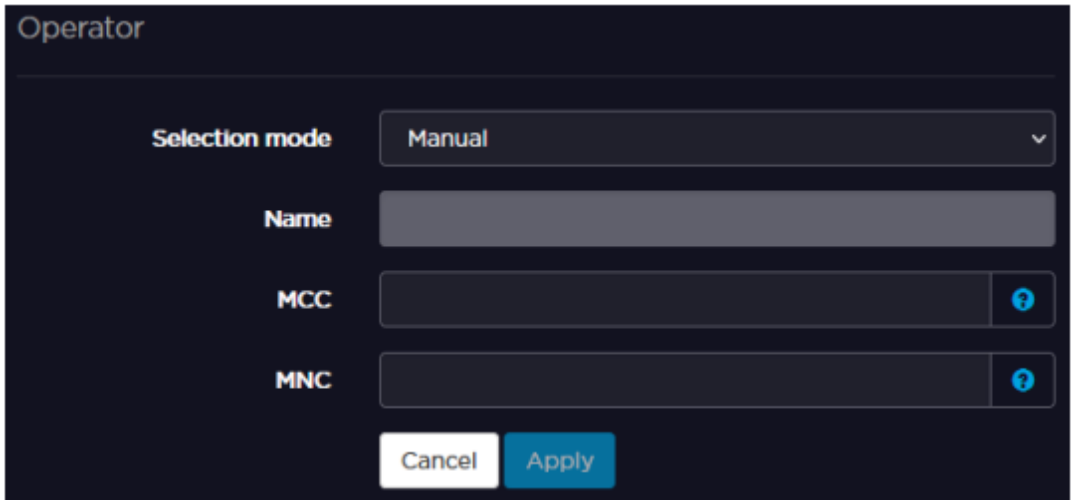
Manually Selecting a Cellular Operator

The option to set the MCC (Mobile Country Code) and MNC (Mobile Network Code) manually is only available on the Web Interface.

1. From the **Home** screen, click on the modem line.
2. Select **Manual** in the **Selection mode** scrolling list.
3. Fill the **MCC** and **MNC** fields.

> **Note**
>
> You can click on to access the lists of MCC and MNC.

4. Click on **Apply**.



Configuring Modem Bands

> **Important**
>
> If modem bands are not set in automatic mode or if they are not all selected, a star is displayed on the modem line.

You can configure modem bands using:

- **Standard Mode** – keeps it simple by limiting required fields to Network Mode and Preset.
- **Expert Mode** – gives you access to all bands.

Depending on whether you are working locally from the unit panel, or remotely from the web interface, choose from the following tabs.

Using Standard Mode

Unit Panel

1. From the **Home** menu, click on **> MOD > > Frequency Bands**.
2. Choose one of the following for the **Network Mode**:
   - Auto
   - 5G/4G
   - 5G Only
   - 4G Only

Using Expert Mode

Unit Panel

1. From the **Home** menu, click on **> MOD > > Frequency Bands**.
2. Click on to enable the **Expert Mode**. All bands are displayed on the screen.
3. Click on to unselect the different cellular bands. The green dots turn to grey.
4. Click on to save.

- 3G Only

> **Note**
>
> For 5G networks operating in Non-Standalone mode (NSA), select 5G/4G settings.

3. Click on the Preset field and choose either:
   - All Bands
   - Low Frequency

   > **Note**
   >
   > Low Frequency bands are useful for indoor operations.

4. Click on the **Carrier** field to select an image in the list.

   > **Note**
   >
   > Selecting the carrier-specific firmware may be mandatory to comply with some local regulations (e.g. Japan). In common cases, you should always keep the generic firmware selected. Should you have any doubt, please contact our support team.

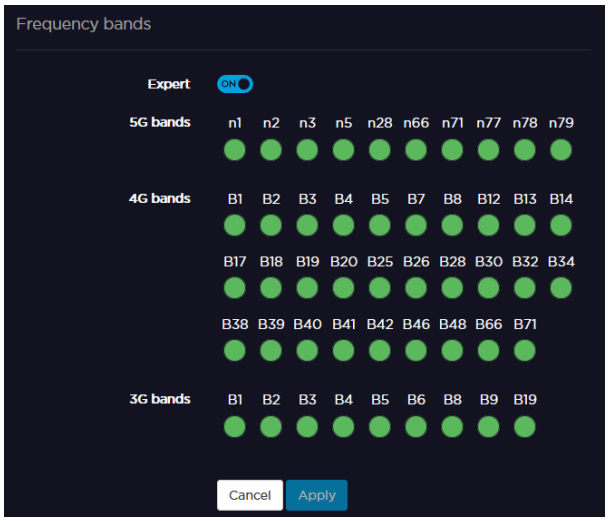
Web Interface

1. From the main screen, click on an active modem line.
2. Click on the **Modem** tab.
3. Choose one of the following from the **Network Mode** menu:
   - Auto
   - 4G Only
   - 3G Only
4. Click on the **Preset** field and choose either:
   - All Bands
   - Low Frequency

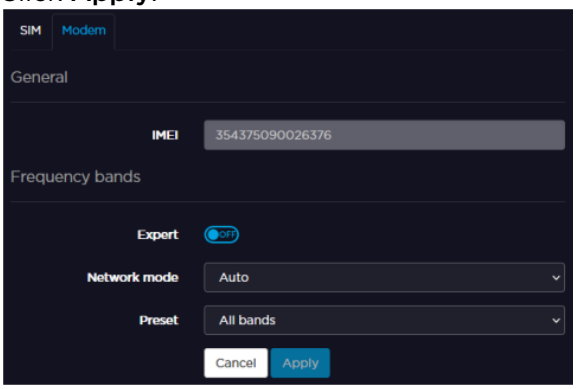
   > **Note**
   >
   > Low Frequency bands are useful for indoor operations.

Web Interface

1. From the main screen, click on an active modem line.
2. Click on the **Modem** tab.
3. Click OFF to enable **Expert Mode**. All the cellular bands appear on the screen.
4. Click ● to unselect the different cellular bands. The green dots turn to grey (●).
5. Click **Apply**.



5. Click **Apply**.

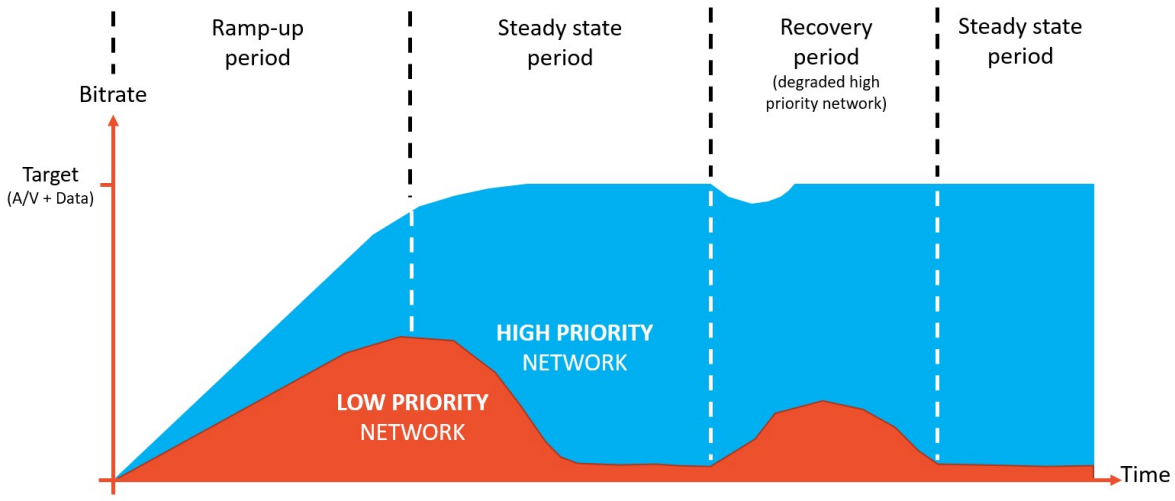


Please refer to the Notes in the **Unit Panel** section.

Managing Priorities of Network Links

You can choose a priority level (High or Low) for each network link used for Live or Forward operations.

These priorities are managed as shown in the diagram below:



For Live

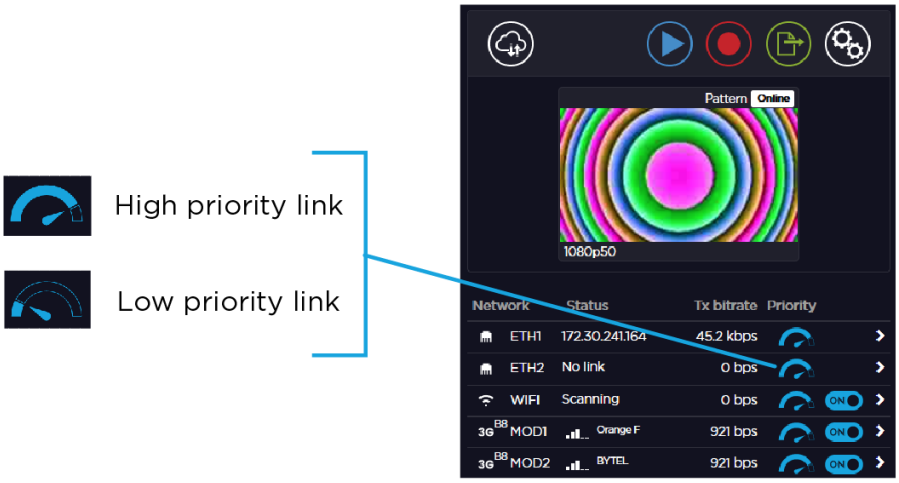
- Both high and low priority links are used as long as the bitrate target set in the Live profile has not been reached.
- When the bitrate target is reached, high priority links are mainly used.

For Forward

- Both high and low priority links are used as long as the bitrate target is lower than 1Mbps.
- When the bitrate target is lower than, low priority links are mainly used.

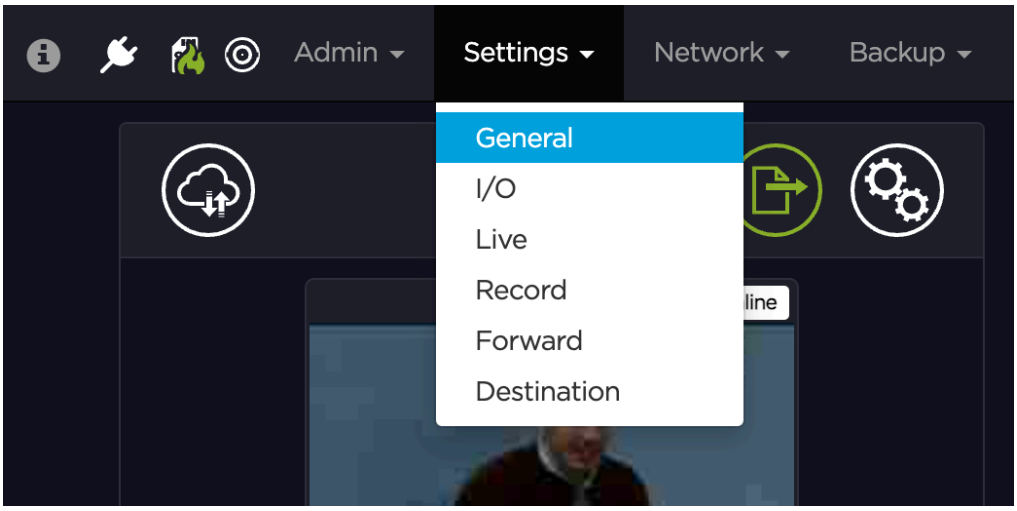
By default, each network link is set as a high priority link. This setting can be changed, either from the unit panel or from the Web Interface, before starting an operation or while the operation is in progress:

- **Unit panel:** Select the priority level when configuring network links (see Configuring an Ethernet Interface).
- **Web interface:** Click on the gauge icon to select High () or Low () priority.


High priority link
Low priority link
Pattern
Online
1080p50
Network
Status
Tx bitrate
Priority
ETH1
172.30.241.164
45.2 kbps
ETH2
No link
0 bps
WIFI
Scanning
0 bps
ON
3G B8 MOD1
Orange F
921 bps
ON
3G B8 MOD2
BYTEL
921 bps
ON

Configuration

The following topics are related to the various pages in the Settings menu.



Topics Include

Configuring the Unit Name

Giving a significant name to the unit allows you to identify it easily on a StreamHub interface.

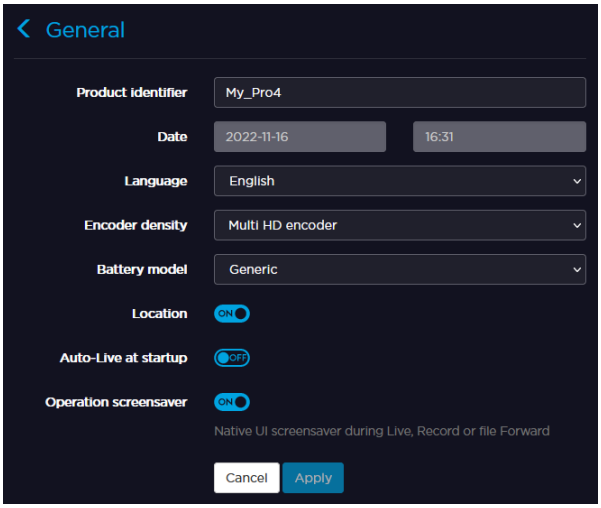
To configure the unit name from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > **General** > **Product Identifier**.
2. Use the keyboard to enter an ID and tap to confirm.

Web Interface

1. From the main screen, click **Settings** > **General**.
2. In the **Product Identifier** field, enter an ID (up to 15 characters).
3. Click **Apply**.



Configuring the Time and Date

To configure the time and date from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap  >  > **General** > **Date**.
2. (Optional) Enable the **Use NTP** toggle and enter an **NTP Server** address in the field below.

   Tip

   After entering the address of the NTP server you wish to use, click the **Test** button to ensure you can connect to it.

3. Set the date and time and tap  to confirm.

   Note

   The Date and Time format is set to: YYYY-MM-DD HH:MM,

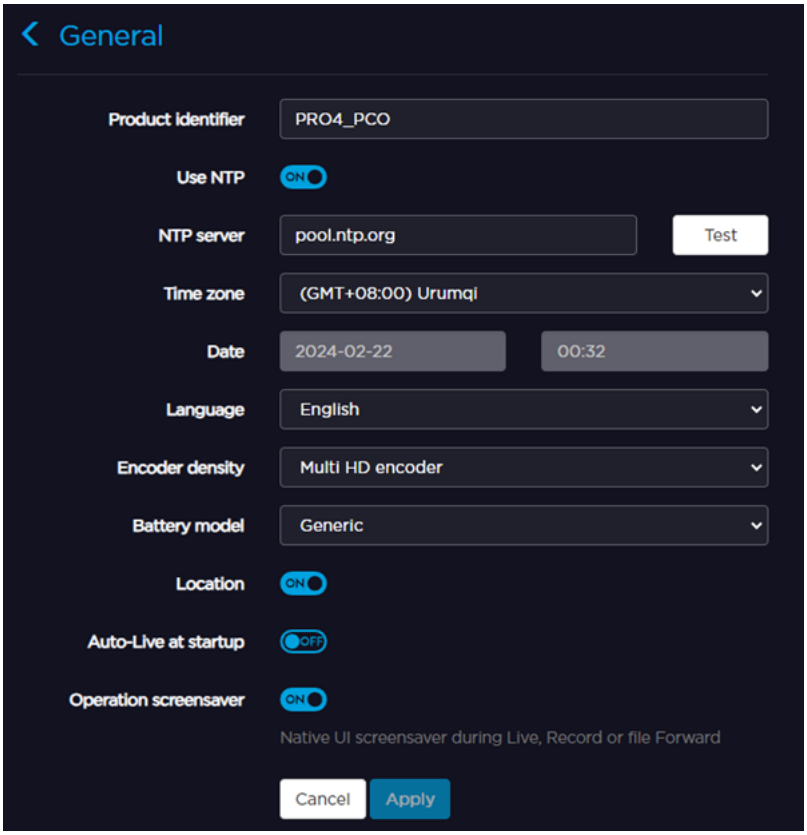
Web Interface

1. From the main screen, click **Settings** > **General**.
2. Click the **Date** and/or **Time** field to change it as required.
3. (Optional) Enable the **Use NTP** toggle and enter an **NTP Server** address in the field below.

   Tip

   After entering the address of the NTP server you wish to use, click the **Test** button to ensure you can connect to it.

4. Select the desired **Time Zone** from the drop-down list.
5. Click **Apply**.



Selecting the Language

Supported languages are English, French, Spanish, Portuguese, and Chinese.

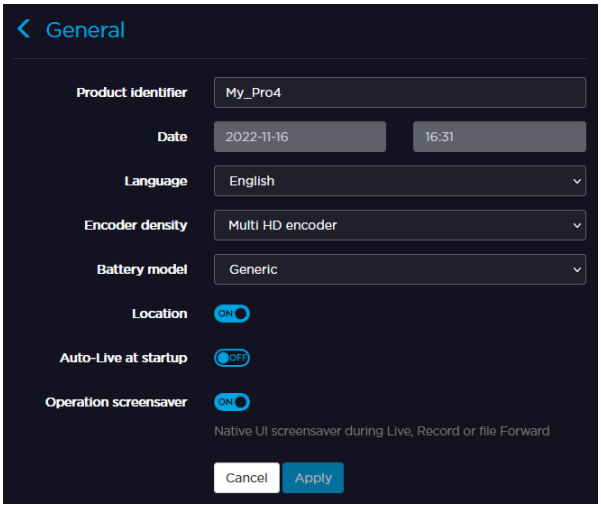
To select the language from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > **General** > **Language**.
2. Tap the desired language.

Web Interface

1. From the main screen, click **Settings** > **General**.
2. In the **Language** drop down list, select the desired language.
3. Click **Apply**.



Selecting the Battery Model

To select the battery model from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

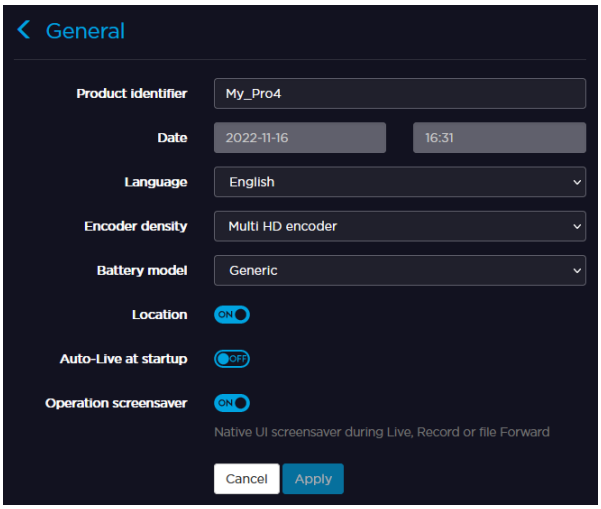
1. From the **Home** menu, tap  >  > **General** > **Battery model**.
2. Select your battery from the list.

> **Note**
>
> If the battery used is not listed, select **Generic**.

Web Interface

1. From the main screen, click **Settings** > **General**.
2. In the **Battery model** dropdown list, select your battery.

> **Note**
>
> If the battery used is not listed, select **Generic**.



Enabling / Disabling the Unit Location

You can enable or disable the unit location to allow, or prevent, the Manager application to locate the unit.

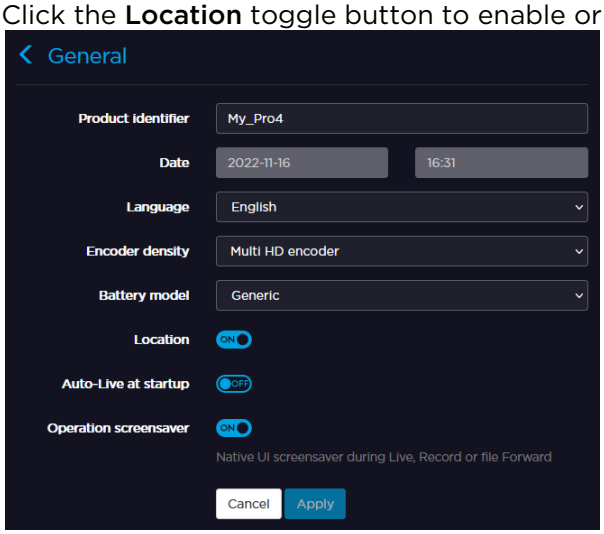
To enable or disable unit location from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > **General > Location**.
2. Tap or to enable or disable the unit location.

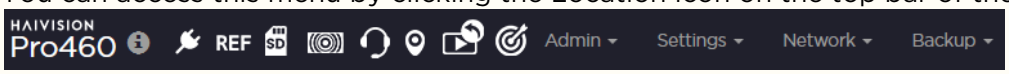
Web Interface

1. From the main screen, click **Settings > General**.
2. Click the **Location** toggle button to enable or disable the unit location.



Note

You can access this menu by clicking the Location icon on the top bar of the screen.



Enabling / Disabling Auto-Live at Startup

This option allows you to start a Live automatically once the unit is connected to a StreamHub or a Manager and once there is a video source.

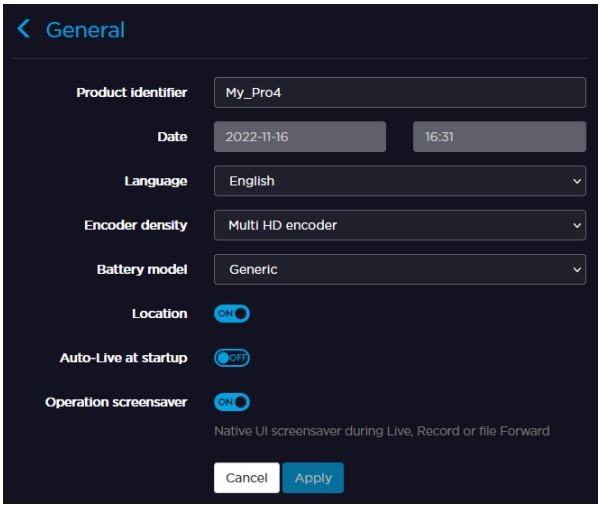
To enable or disable Auto-Live at startup from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click on > > **General > Auto-Live at Startup**.
2. Click on or to enable or disable Auto-Live at Startup.

Web Interface

1. From the main screen, click on **Settings** > **General**.
2. Click the **Auto-Live at Startup** toggle button to enable or disable Auto-Live at Startup.



Enabling / Disabling Screensaver

This option allows to display a screensaver during a Live, a Record or a Forward.

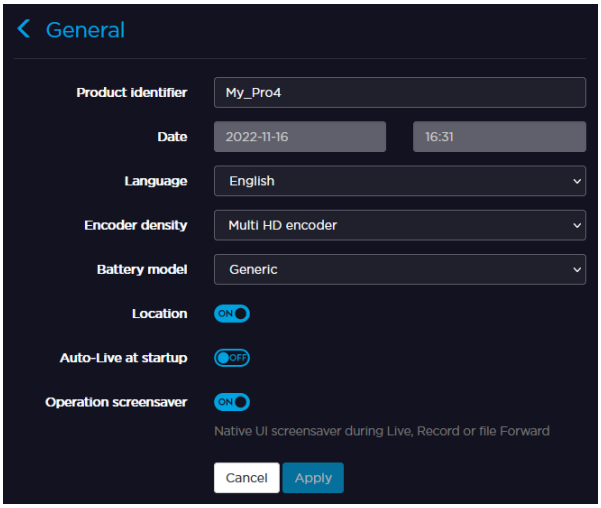
To enable or disable a screensaver from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > **General** > **Operation Screensaver**.
2. Tap OFF or ON to enable or disable the screensaver.

Web Interface

1. From the main screen, click **Settings** > **General**.
2. Click the **Operation Screensaver** toggle button to enable or disable the screensaver.



Configuring Live Profiles

A **Live Profile** is a set of audio and video settings configured to fit within specific broadcasting requirements. Live Profiles can be configured from either the Web Interface or on the Unit Front Panel.

The unit is delivered with three (3) default Live Profiles:

- DEFAULT
- LOW DELAY
- HQUALITY 10s

Recommendations when configuring a Live Profile:

End-to-End Latency (by Application type)	Broadcast over SST	For CBR, enter a value within 500ms - 10s range. For VBR, enter a value within 800ms - 10s range.	
	Broadcast over SRT		
	Video Return		
	Broadcast (low latency) mode	For CBR, enter a value within 80ms - 10s range. VBR mode is not available.	
Bitrate Control Mode	CBR mode for streaming over managed networks. VBR mode for streaming over unmanaged networks.		
Resolution	As source for encoding in the same resolution as source. Dynamic when the resolution is adapted to available bitrate.		
Live Bitrate (static resolution as source)	**Video Resolution**	**Bitrate Range**	
		H.265/HEVC	**H.264/AVC**
	2160p 50/59.94/60	3 Mbps - 80 Mbps	-
	2160p 23.98/24/25/29.97/30	2 Mbps - 80 Mbps	-
	1080p 50/59.94/60	800 kbps - 20 Mbps	3 Mbps - 20 Mbps
	1080p 23.98/24/25/29.97/30	800 kbps - 20 Mbps	1.8 Mbps- 20 Mbps
	1080i 50/59.94/60	500 kbps - 20 Mbps	1.8 Mbps - 20 Mbps
	720p 50/59.94/60	500 kbps - 20 Mbps	1.4 Mbps - 20 Mbps
Live Bitrate (dynamic resolution)	2160p 50/59.94/60	200 kbps - 80 Mbps	-
	2160p 23.98/24/25/29.97/30	200 kbps - 80 Mbps	-
	1080p 50/59.94/60	200 kbps - 20 Mbps	300 kbps - 20 Mbps
	1080p 23.98/24/25/29.97/30		
	1080i 50/59.94/60		
	720p 50/59.94/60		
Manual Resolution	1080p 50/59.94/60	0.8 Mbps - 20 Mbps	3 Mbps - 20 Mbps
	1080p 23.98/24/25/29.97/30	0.8 Mbps - 20 Mbps	1.8 Mbps - 20 Mbps
	1080i 50/59.94/60	0.8 Mbps - 20 Mbps	1.8 Mbps - 20 Mbps
	720p 23.98/24/50/59.94/60	0.5 Mbps - 20 Mbps	1.4 Mbps - 20 Mbps
	854 x 480p 23.98/24	0.2 Mbps - 20 Mbps	0.5 Mbps - 20 Mbps
	640 x 360p 23.98/24	0.2 Mbps - 20 Mbps	0.4 Mbps - 20 Mbps
Audio Settings	**Channel Layout**	**Bitrate Range**	
	1 x MONO	64 kbps - 256 kbps	
	1 x STEREO	64 kbps - 256 kbps	

	2 x MONO	128 kbps - 512 kbps
	2 x STEREO	128 kbps - 512 kbps
	4 x MONO	256 kbps - 1024 kbps
	4 x STEREO	256 kbps - 1024 kbps
	8 x MONO (single encoding only)	256 kbps - 1024 kbps

The following Transport Stream settings are available if the Application type is set to Broadcast SRT:

Bitrate Control	VBR CBR
TS ID	1 - 1023
Program Number	1 - 1023
PMT PID	32 - 8183
PCR PID	32 - 8183
Video PID	32 - 8183
Audio PID	32 - 8183

Note

When starting a live in multi-encoding mode, the minimum bitrate is 4Mbps over cellular network.

Configuring a Broadcast Live Profile

To configure a broadcast Live Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > .
2. Tap the **Profile Name** field and enter a new profile name.
3. Tap to confirm the new profile name.
4. Tap the **Application** field and and choose between **Bcast (SRT)** or **Bcast (SST)**.
5. Tap the **End-to-End Latency** field to adjust the latency.
6. Tap and tap the **BGAN profile** field to select a BGAN profile if required.
7. Tap the **Encoder Type** field and choose between H.264/AVC and H.265/HEVC.
8. (SST Live Profiles only) Tap the **Bitrate Control** field and choose between VBR and CBR.
9. Tap the **Capped Bitrate** field to enter a new bitrate.
10. In the Audio settings, tap the **Channel Layout** field and choose between: 1x Mono, 1x Stereo, 2x Mono, 2x Stereo, 4x Mono, 4x Stereo, 8x Mono, and No audio.
11. Tap the **Bitrate** field to adjust bitrate.
12. Tap and select **ADVANCED +**.
13. Tap to enable **I and P frames only**.
14. Tap to enable **Manual Resolution**.
15. Tap the **Resolution** field to display the resolution list.

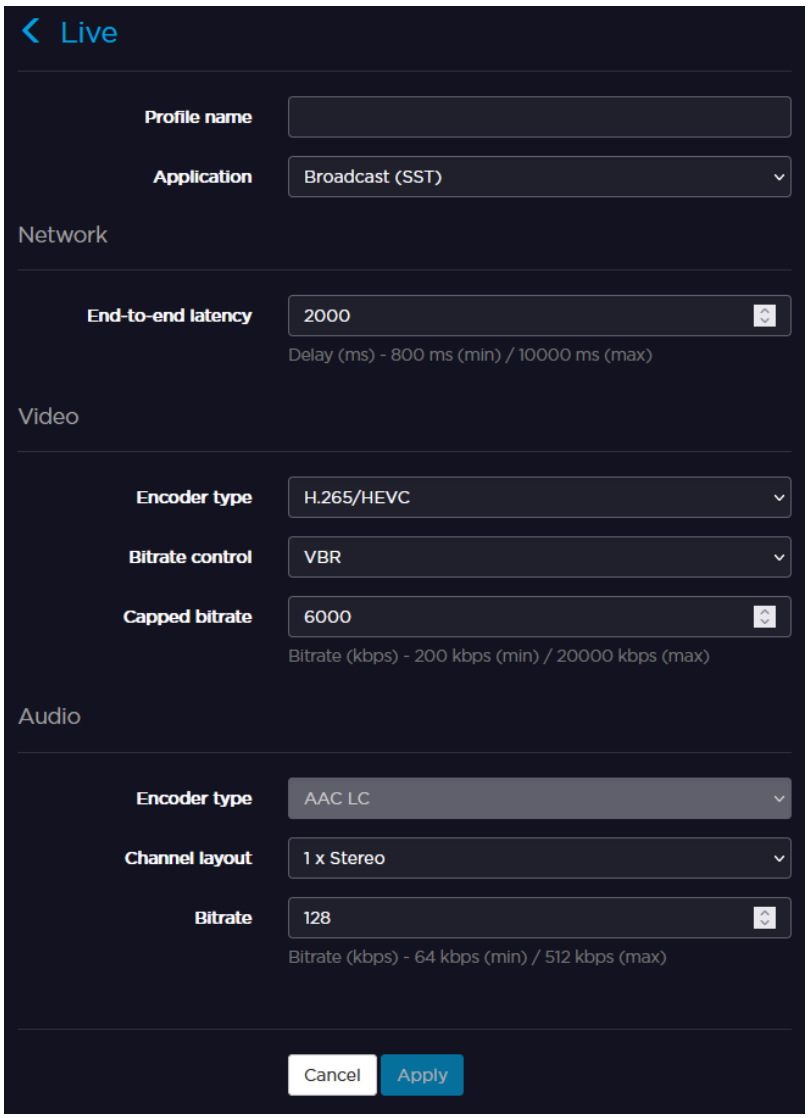
Note

Only downscaling or same resolution are supported.

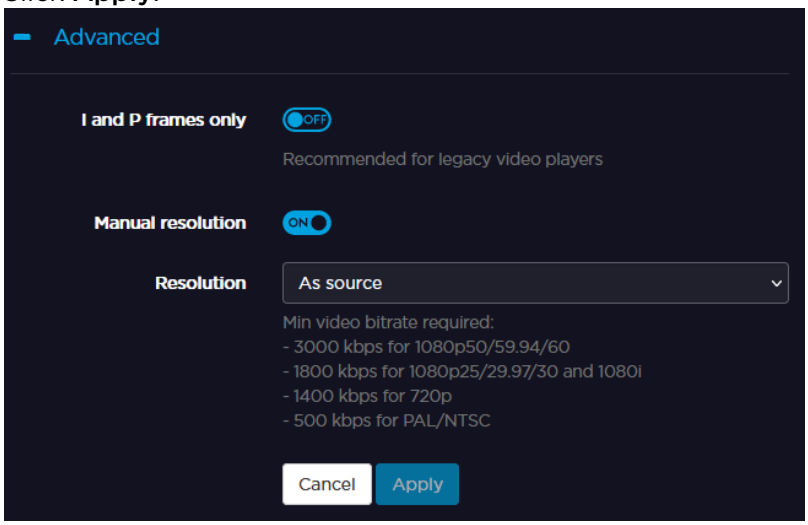
16. Select the resolution you want to apply.
17. Tap  to save the new Broadcast Live Profile settings.

Web Interface

1. Click **Settings > Live**.
2. Click the  button.
3. Enter a profile name in the **Profile Name** field.
4. Fill in all parameters. For details on Broadcast Live Profile parameters, see Configuring Live Profiles.



5. Click **Apply**.



Configuring a Video Return Live Profile

To configure a video return Live Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap > > .
2. Tap the **Profile Name** field and enter the new profile name.
3. Tap to confirm the new profile name.
4. Tap the **Application** field and choose **Video Return**.
5. Tap the **End-to-End Latency** field to adjust the latency.
6. Tap the **Bitrate** field to enter a new bitrate.
7. In the Audio settings, tap the **Channel Layout** field and choose between:
   - 1x Mono
   - 1x Stereo
8. Tap and select **ADVANCED +**.
9. Tap to enable **Optimization for LiveGuest**.
10. Tap to enable **Manual Resolution**.
11. Tap the **Resolution** field to display the resolution list.
12. Select the resolution you want to apply.
13. Tap to save the new Video Return Live Profile settings.

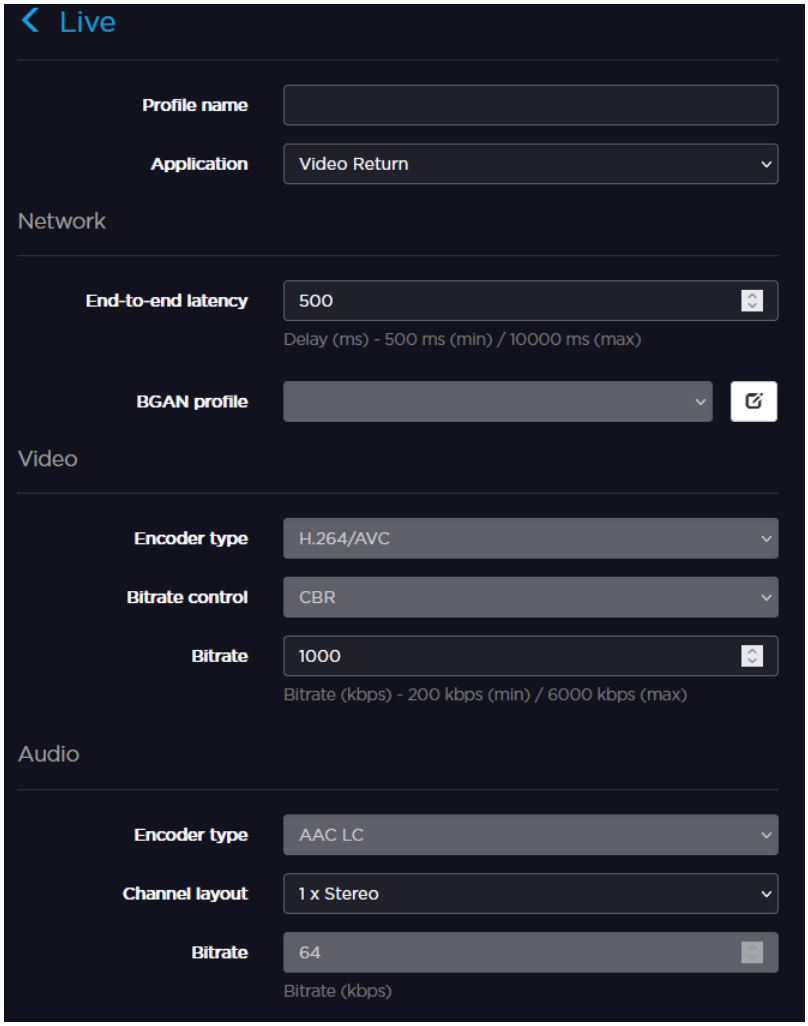
> **Note**
>
> When configured in multi-encoding mode, up to two interlaced video sources can be encoded.

Web Interface

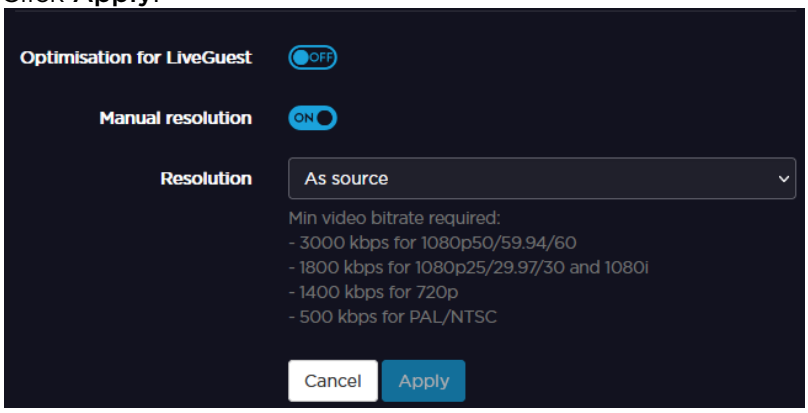
1. Click on **Settings > Live**.
2. Click on + Add.
3. Enter a profile name in the **Profile Name** field.
4. Set the **Application** to Video Return.
5. In the **Network** settings, enter an **End-to-End Latency**.
6. In the **Video** settings, set a bitrate.
7. In the **Audio** settings, select a **Channel Layout** between:
   - 1x Mono
   - 1x Stereo

8. Click on **Advanced**.
9. Click on  to enable **Optimization for LiveGuest**.
10. Click on  to enable **Manual Resolution**.
11. Click on the **Resolution** field to select the resolution to apply.

> **Note**
>
> When configured in multi-encoding mode, up to two interlaced video sources can be encoded.



12. Click **Apply**.



Deleting a Live Profile

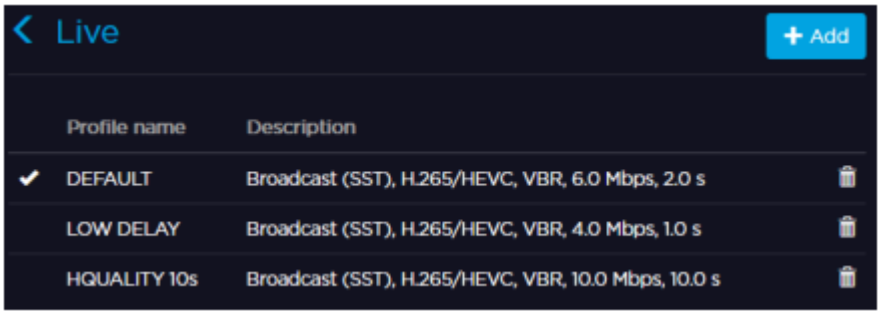
To delete a Live Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, click .
2. Click and select .
3. Click to display the profile to delete.
4. Click and hold the profile to delete.
5. Click **YES** to confirm the profile deletion.

Web Interface

1. Click **Settings > Live**.
2. Double click the trash button ( ).



Note

To reorder the profiles, drag and drop them.

Selecting a Live Profile

To select a Live Profile from the Unit Panel, or from the Web Interface, choose from the following tabs.

Unit Panel

You can select a Live Profile from the Unit Panel when you are starting a Live. For instructions, see Starting a Live.

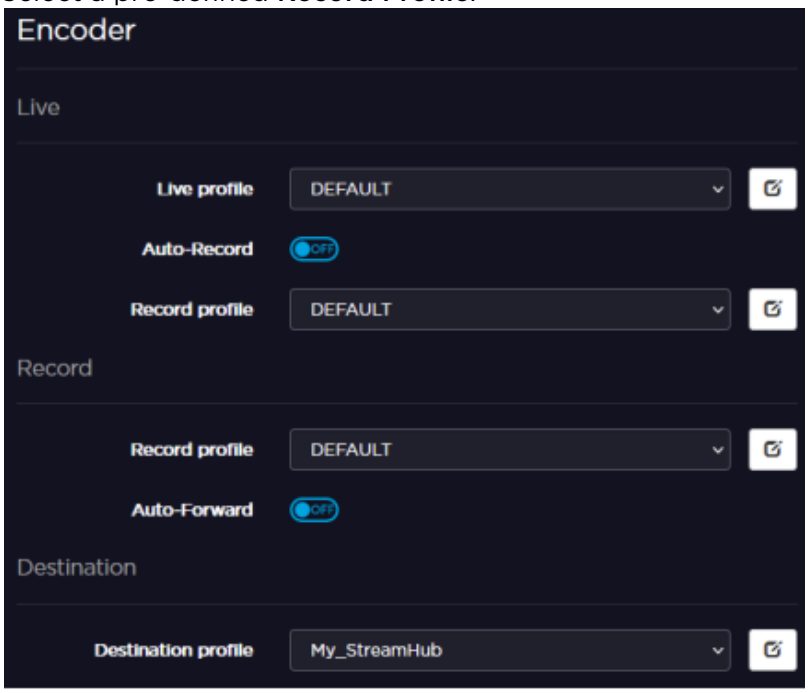
Web Interface

1. Click the icon. The encoder's current settings are displayed.
2. Select a pre-defined **Live Profile**.
3. Activate **Auto-record** if required.

Note

- The feature Live + Auto-record is available in Single Encoding mode for HD video source only.
- When this option is enabled, a Record starts automatically when a Live is started.
- The record profile used for the **Auto-record** can be different than the one used for a Record.

4. Select a pre-defined **Record Profile**.



Configuring Record Profiles

A **Record Profile** is a set of audio and video settings configured to fit within specific broadcasting requirements. The supported file formats are Transport Stream and MP4. Record Profiles can be configured from either the web interface or on the unit front panel.

The unit is delivered with a DEFAULT Record Profile.

> **Note**
>
> **This feature is available in single encoding only.**

Adding a Record Profile

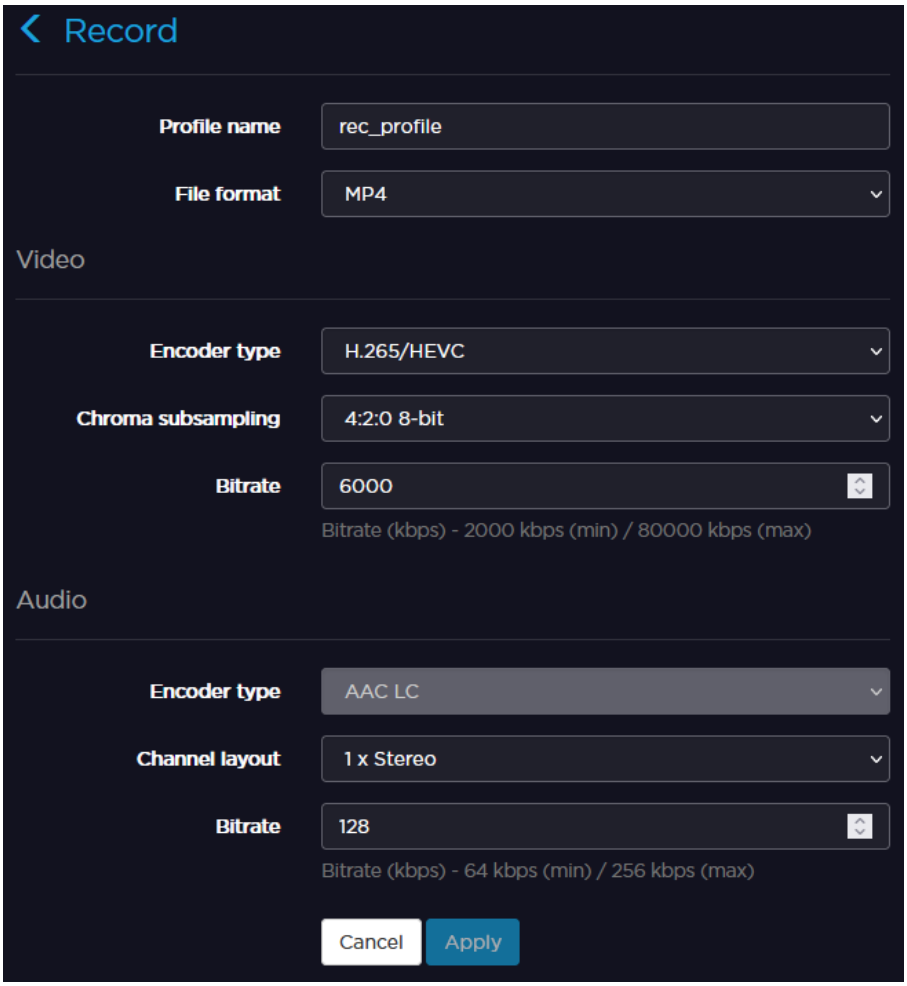
To add a Record Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap .
2. Tap and tap .
3. Tap .
4. Tap the **Profile Name** field.
5. Use the keyboard to enter the new profile name.
6. Tap to confirm.
7. Tap the **File Format** field and select Transport Stream or MP4 format.
8. Tap to configure the Record Profile settings:
   - Video Settings (**Encoder Type**, **Bitrate, Chroma Subsampling**). When recording, the video is encoded in CBR mode with a resolution as source.
   - Audio Settings (**Encoder Type**, **Channel Layout**, **Bitrate**)
9. Tap to save the new Record Profile settings.

Web Interface

1. Click **Settings > Record**.
2. Click + Add.
3. Enter a profile name in the **Profile Name** field.
4. Choose the **File Format** between Transport Stream and MP4.
5. Choose the video **Encoder Type**.
6. Select the **Chroma subsampling**.
7. Set the video **Bitrate**.
8. Select the audio **Channel Layout**.
9. Set the total audio **Bitrate**.
10. Click **Apply**.



Deleting a Record Profile

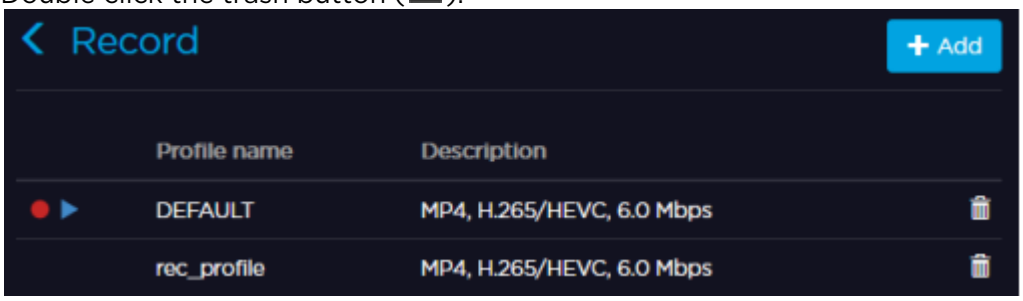
To delete a Record Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap .
2. Tap and select .
3. Tap to display the profile to delete.
4. Press and hold the profile to delete.
5. Tap **YES** to confirm the profile deletion.

Web Interface

1. Click **Settings > Record**.
2. Double click the trash button ( ).



> **Note**
>
> To reorder the profiles, drag and drop them.

Selecting a Record Profile

You can select different record profiles for:

- Live + Auto-record
- Record only

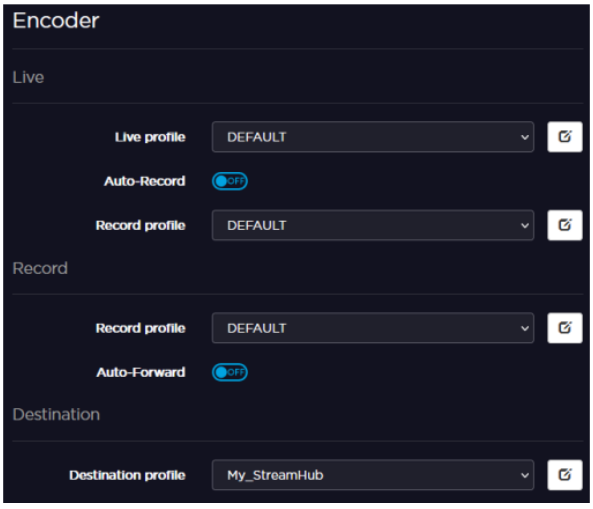
> **Note**
>
> **The feature Live + Auto-record is available in Single Encoding mode only.**

Unit Panel

You can select a Record Profile from the Unit Panel when you are starting a Live or a Record. See Starting a Record and Starting a Live.

Web Interface

1. Click the icon. The encoder's current settings are displayed.



2. Select a pre-defined **Record Profile**.
3. Activate **Auto-forward** if required.

Note

- When this option is enabled, a Forward starts automatically when a Live is started.
- The record profile used for the **Auto-record** can be different than the one used for a Record only.

Configuring Destination Profiles

A **Destination Profile** is a set of parameters allowing the unit to connect to a StreamHub, a Manager, or an SRT Receiver.

Note

- StreamHub is a web-based platform that receives, decodes, records and distributes video and audio feeds.
- Manager is a web-based platform that monitors and manages a contribution ecosystem. It is in charge of dynamically routing transmitters to the appropriate StreamHub(s).

Adding a Destination Profile

To add a destination Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the Home menu, tap > > .
2. Tap to configure the new destination profile settings (see Destination Profile Settings for details on each destination type).
3. Tap to save the new destination profile settings.

Web Interface

1. Click on **Settings > Destination**.
2. Click the + Add button.
3. Enter a **Name** for the Profile.
4. Select the type of Destination Profile (StreamHub, Manager, or SRT Receiver).
5. Configure the settings as shown in the table below in Destination Profile Settings.
6. Click on **Apply**.

To select the newly created Destination Profile, see Selecting a Destination Profile.

Destination Profile Settings

Note

- These settings may have been changed by the system administrator.
- **Auto-connect** option is selected to connect automatically to a receiver when the unit is powered.

StreamHub	Manager	SRT Receiver
• StreamHub IP address or Hostname • Input assignment on the StreamHub (Automatic Assignment possible) • Auto-connect function (Enabling/Disabling) • Port used. Default: 7900 • Username. Default: aviwest • Password. Default: safestreams • AES key if required	• Manager IP address or Hostname • Auto-connect function (Enabling/Disabling) • Port used. Default: 9000 • Username. Default: username • Password (if required). Default: password	• SRT mode (Caller or Listener) • Host • SRT port • Ethernet port • Latency • SRT Encryption (and passphrase if enabled) • Stream ID (in Caller mode only)

Deleting a Destination Profile

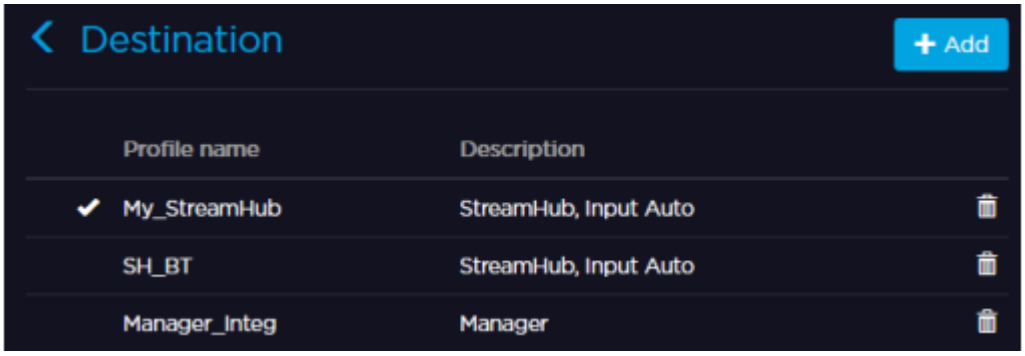
To delete a destination Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the Home menu, click on .
2. Click on and click on .
   A green dot ( ) indicates the currently selected profile.
3. Click on to display the profile to delete.
4. Long press the profile to delete.
5. Click on **YES** to confirm the profile deletion.

Web Interface

1. Click **Settings > Destination**.
2. Double click the **Trash** button.



Note

To reorder the profiles, drag and drop them.

Selecting a Destination Profile

To select a destination Profile from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

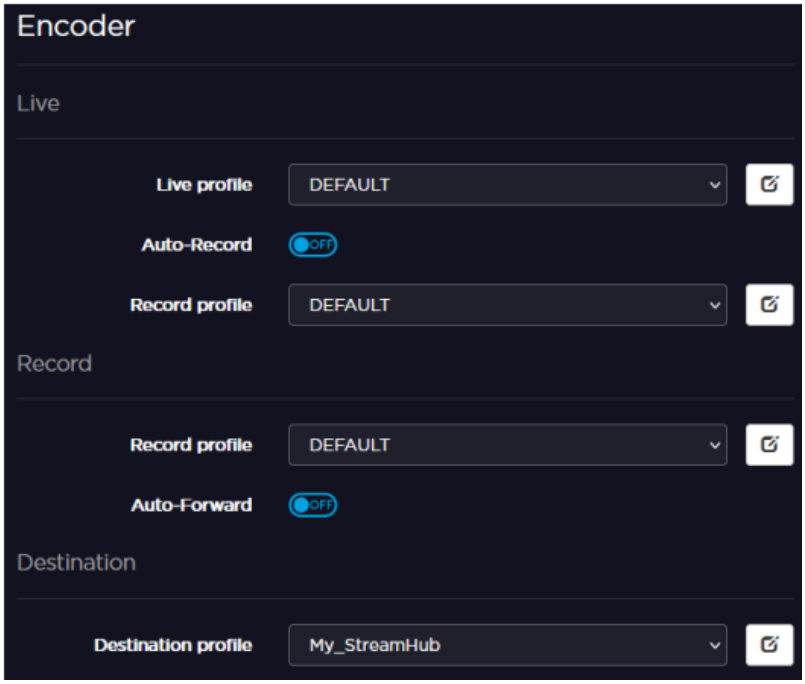
1. From the **Home** menu, tap .
2. Tap and select .
3. Tap until the profile required is displayed. A green dot ( ) indicates the currently selected profile.

4. Tap to select the destination profile. A green dot ( ) indicates the currently selected profile.

> **Note**
>
> For single-encoding mode only. To select a Destination Profile in multi-encoding mode, see Starting / Stopping a Live (MultiMode) .

Web Interface

1. Click the icon. The encoder's current settings are displayed.
2. Select a pre-defined **Destination Profile**. See Adding a Destination Profile.



Enabling / Disabling AES encryption

You can decide to encrypt a video during a Live operation, provided the destination server's license includes this option.

You can enable and disable the video AES encryption from the Unit Panel or the Web Interface.

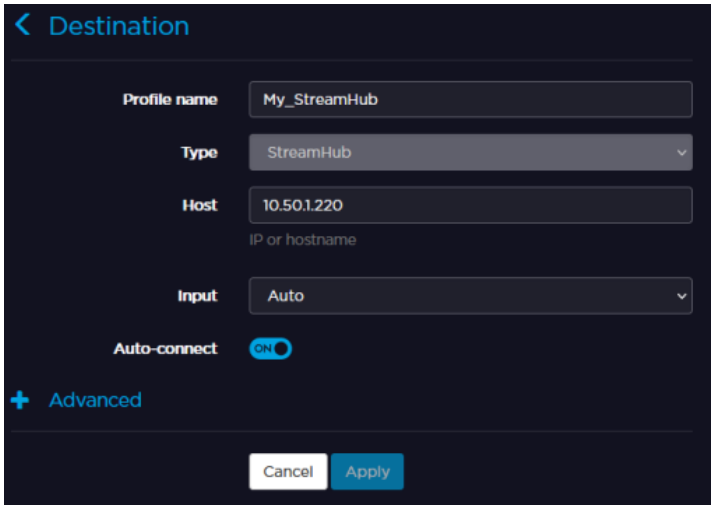
Unit Panel

1. From the **Home** menu, tap .
2. Tap and select .
3. Tap until the profile concerned is displayed.
4. Tap the destination profile.
5. Tap and select **ADVANCED +**.
6. Tap to display the **AES Encryption** option.
7. Tap OFF to enable it, or ON to disable it. If enabled, enter the AES key as defined in the destination server interface (please refer to the *Server User Guide*).

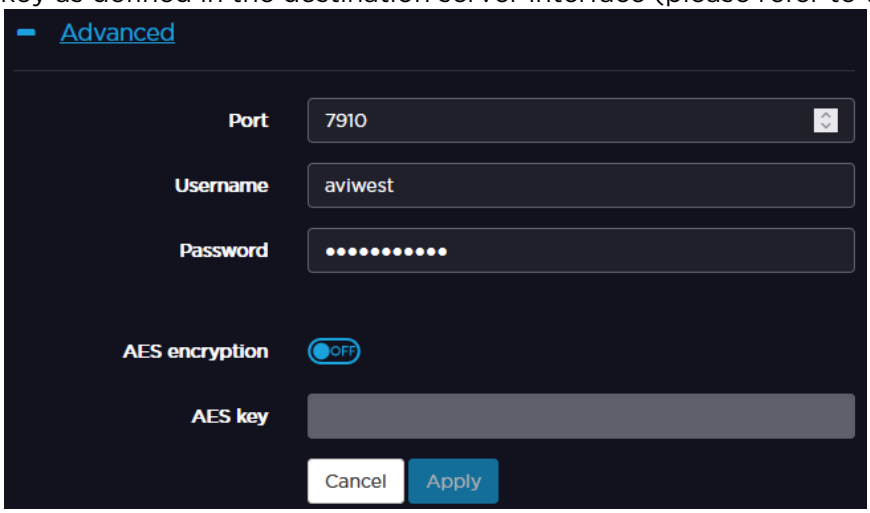
Web Interface

1. Click **Settings > Destination**.
2. Click the Destination Profile where the video is sent to.

3. Click **Advanced**.



4. Click OFF or ON to enable or disable the **AES Encryption** function. If enabled, enter the AES key as defined in the destination server interface (please refer to the *Server User Guide*).



Configuring Forward Settings

> **Important**
>
> **This feature is allowed in single-encoding mode only.**

The Forward function offers three possibilities:

- Forwarding one or several files saved on a mass-storage device.
- Forwarding all files saved on a mass-storage device.
- Forwarding the latest recorded file.

> **Note**
>
> Mass storage can be microSD cards and USB storage devices.

Unit Panel

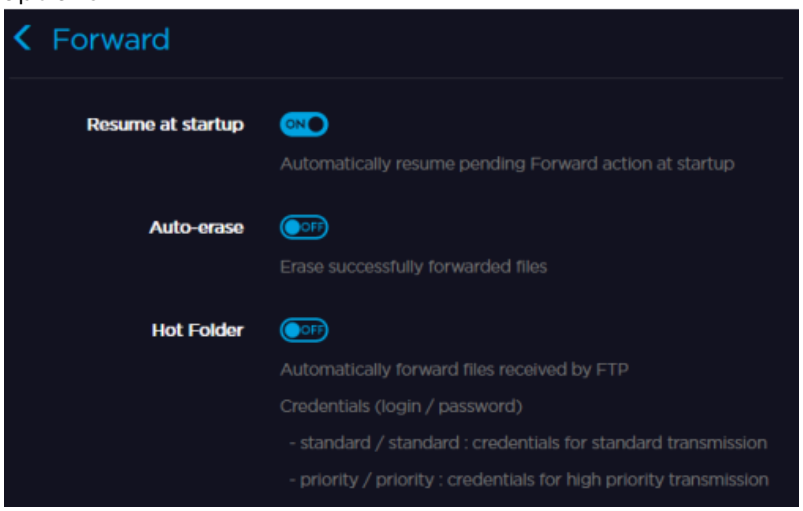
1. From the **Home** menu, tap .
2. Tap and select .
3. Tap OFF to enable or ON to disable the **Resume at Startup**, **Auto-erase**, or/and **Hot Folder** options.

Note

- **Resume at Startup**: If any forward is still in progress when the unit is turned off, it is resumed when the unit is started up.
- **Auto-erase**: All successfully forwarded filed are automatically deleted when the forward is complete.
- **Hot Folder**: Files coming from a camera are automatically transmitted via an FTP server.

Web Interface

1. Click **Settings > Forward**.
2. Click ON or OFF to enable/disable the **Resume at Startup**, **Auto-erase** and/or **Hot Folder** options.



Configuring the Camera's REC Button

A Live or a Record can be started from the REC button of a camera.

Unit Panel

1. From the **Home** menu, tap .
2. Tap .
3. Tap the **Triggered Operation** field and select Live or Record.

   Note

   Record operation is not available in multi-encoding mode.

4. Tap the **Manufacturer** field to choose a camera manufacturer.

Web Interface

1. From the Web Interface, click **Settings > I/O**.
2. In the **Triggered Operation** field, select Live or Record if required.

   Note

   Record operation is not available in multi-encoding mode.

3. Click the **Manufacturer** field to select a camera manufacturer.

Managing Ancillary Data

Topics Include

Activating Ancillary Data

Unit Panel

1. From the Home menu, click on  .
2. Click  .
3. In the Ancillary Data section:
   - Select SDI input in the Time Code and/or HDR fields or
   - Select SDI input in the SMPTE-2038.

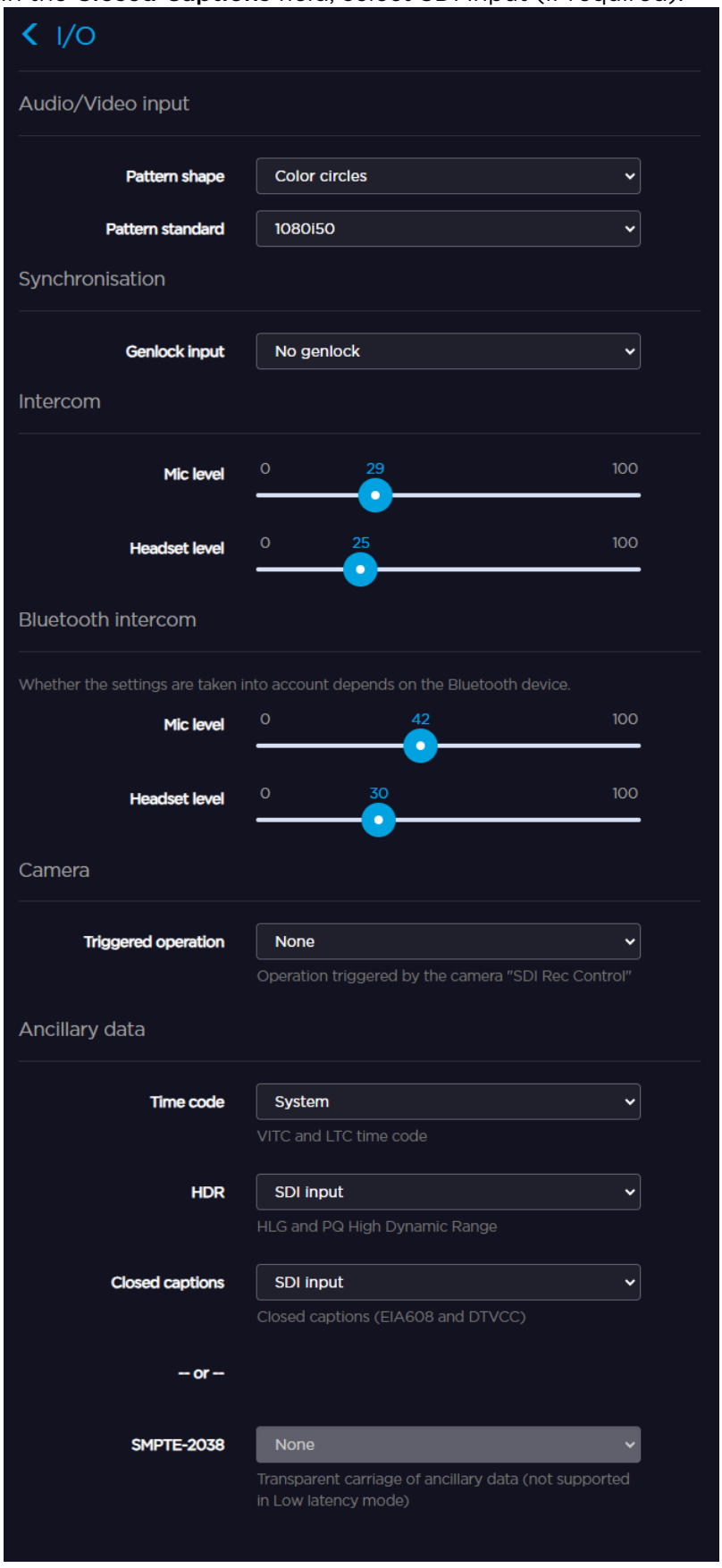
   Note

   - If the **SMPTE-2038** field is set to SDI, the **Time Code** and **HDR** fields are no longer configurable.
   - SMPTE-2038 is a standard establishing a data pipe through which all incoming ANC data packets (Closed Captions, time code, SCTE104 cue tones, etc.) may be conveyed transparently over SST or SRT. Ancillary data is agnostic. All ANC data is transmitted without filtering or selection.

Web Interface

1. From the Web Interface, click on **Settings > I/O**.
2. In the Ancillary Data section, in the **Time Code** field, select SDI input or System (if required).
3. In the **HDR** field, select SDI input (if required).

4. In the **Closed Captions** field, select SDI input (if required).



Monitoring Ancillary Data

If Ancillary Data is enabled, the ANC icon appears on the top bar of the Web Interface and the Unit Panel.

Unit Panel

1. From the **Home** menu, tap .
2. Tap to display Ancillary Data.

> **Note**
>
> In multi-encoding mode, tap the screen to display other sources.

Web Interface

From the Home menu, click **Monitoring** > **Ancillary Data**.

1 Ancillary Data on Pro4

Selecting a Mission

To receive missions, the selected destination profile must be a Manager supporting the Story Centric Workflow. See Selecting a Destination Profile.

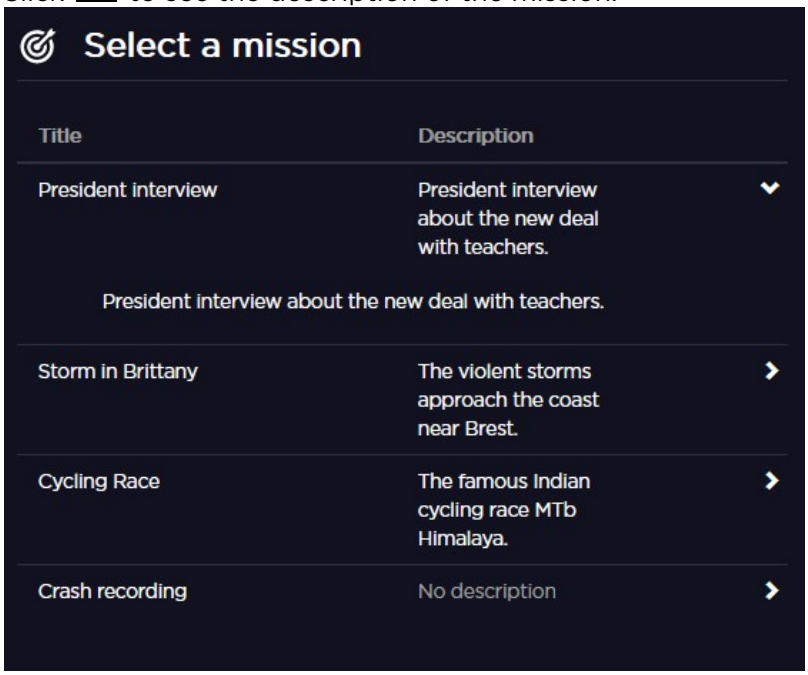
Unit Panel

1. Tap or to see the different missions.
2. Tap to see more information on the mission.
3. Tap to go back to the previous screen.
4. Tap the mission to select it. It turns to orange while loading.

When the home screen appears with the icon on the top bar, tap on this icon for more information.

Web Interface

1. A list of missions appears on screen. Loading of the missions may take a few seconds.
2. Click to see the description of the mission.



3. Click a mission title to select it.

Changing the Mission

To change a mission from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

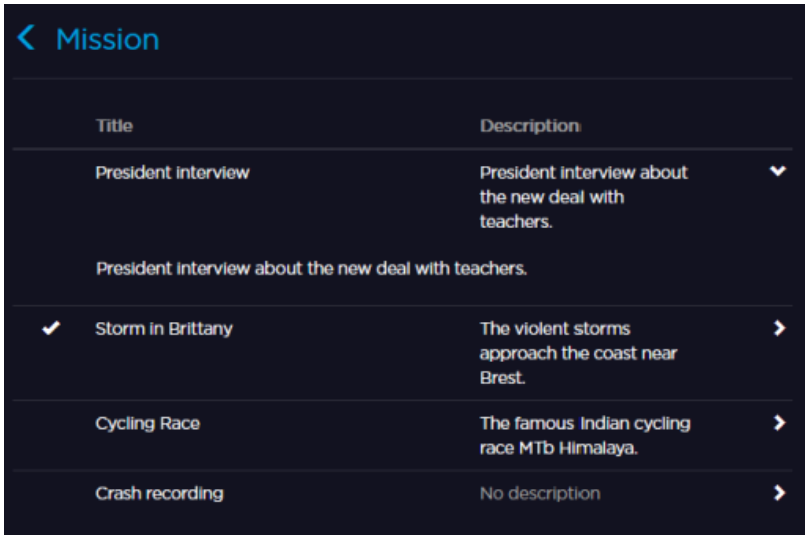
1. Click on .
2. Click on .

3. Click on a mission title to display information.
4. Click on  to go back to the previous screen.
5. Click on  to change the mission.

A green dot ( ) indicates the newly selected mission.

Web Interface

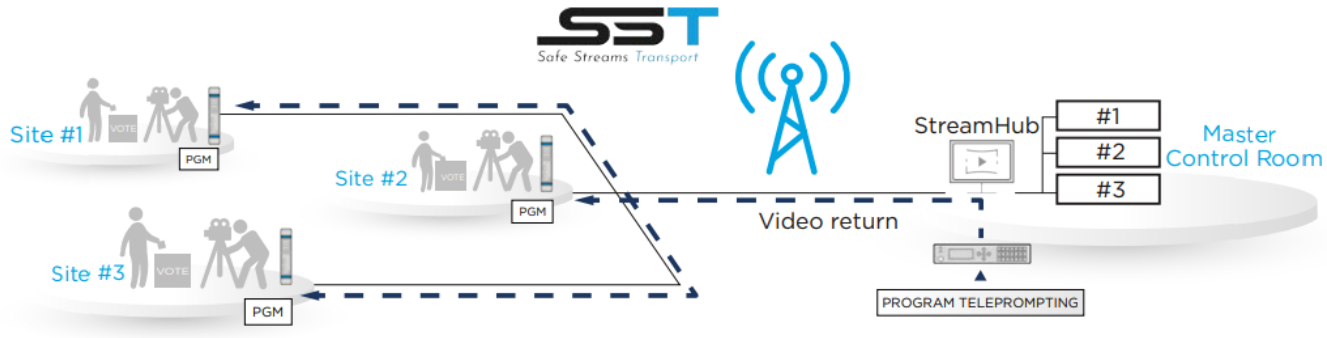
1. Click on **Settings > Missions**, or on the  icon on the top bar.
2. Click on another mission to select it.



Setting a Video Return

The **Video Return** feature allows Field Units operating on sites to receive live feeds, such as a program currently on air or a teleprompting from the Media Control Room even if a Live is running or not.

The unit must be connected to a StreamHub to allow the Video Return feature. Please refer to the *StreamHub User's Guide* for detailed information.



Receiving a Video Return

To receive a video return from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

Check that the video return icon appears on the top bar of the screen. If it appears, the unit is receiving a video stream.

- Connect a monitor to the HDMI port (A) of the unit.

Web Interface

The Video Return icon ( ) on the top bar indicates that the unit is receiving a Video Return.

Single-Encoding Mode

Topics Include

Selecting a Video Source

You can select amongst:

- SDI input
- Pattern (Internal Pattern Generator)

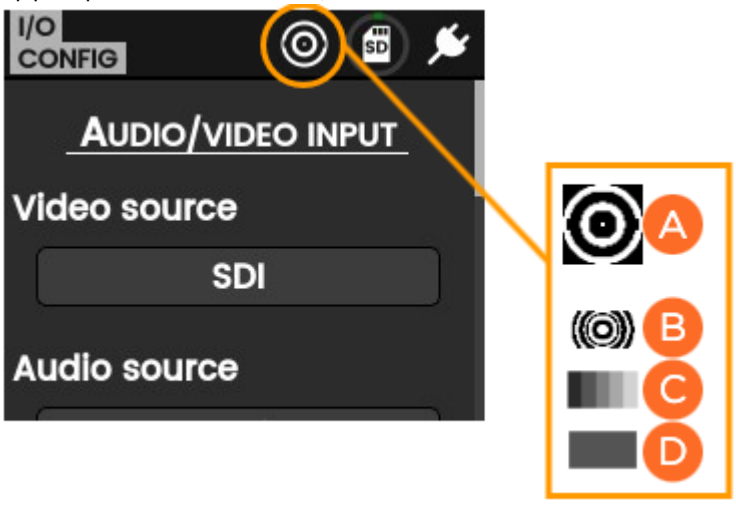
Note

- When selecting the Pattern generator as a source, you can select a specific pattern to be generated. The pattern options are: color circles, color bars, or a black pattern.
- You can also select amongst the following standards: 720p50, 720p59.84, 720p60, 1080p25, 1080p29.97, 1080i59.94, 1080i60, 1080p50, 1080p59.94, 1080p60 UHDp25, UHDp29.97, UHDp30, UHDp50, UHDp59.94, and UHDp60.

Unit Panel

1. From the **Home** menu, tap .
2. Tap . The current source is displayed.
3. Tap the **Video Source** field to select another source.
4. Select the expected source.

   When selecting **Pattern**>, the **Pattern Shape** and the **Pattern Standard** fields appear. On the upper part of the screen, an icon indicates the selected source:



A SDI
B Color circles
C Color bars pattern
D Black pattern

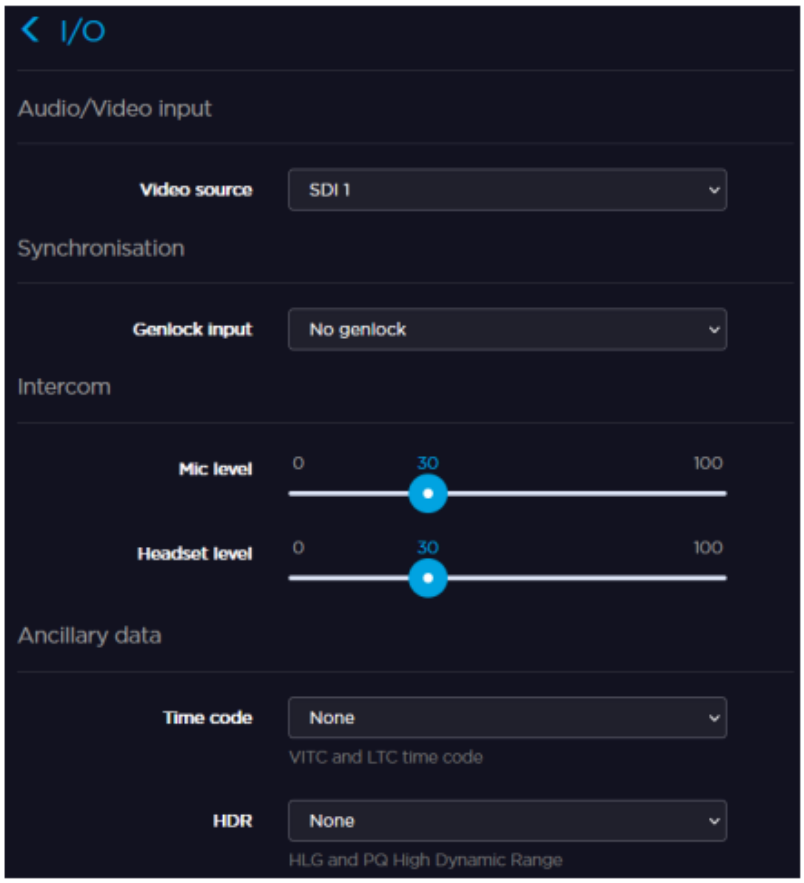
5. Tap and select to preview the video.
6. Tap the **Genlock Input** field to select SYNC or any SDI input if required.

> ⚠ The SYNC input supports SD Black Burst and HD Tri level signals in the following formats: PAL, NTSC, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, and 1080p60.

Web Interface

You can access to the video source configuration by clicking on the icon in the top bar of the Web Interface.

1. From the Web Interface, click on **Settings > I/O**.
2. From the scrolling list, select the source:
   - SDI 1
   - Pattern



3. In the **Genlock Input** field, select the input used for synchronizing the encoders (if required).

> **Note**
>
> - The SYNC input supports SD Black Burst and HD Tri-level signals in the following formats:
> - PAL, NTSC, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60.

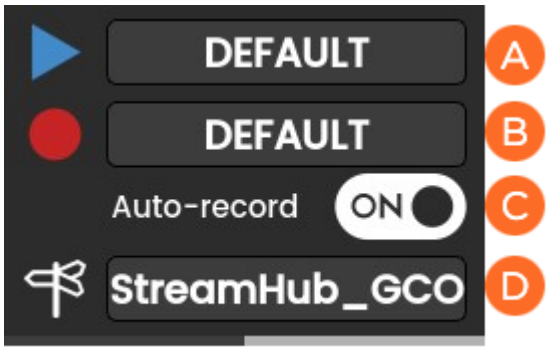
Starting a Live

You can start a live manually or you can enable the **Auto-live at startup**. See Enabling / Disabling Auto-Live at Startup.

Unit Panel

To start the Live:

1. From the **Home** menu, click on . The video preview appears on screen and the live profile selected is reminded. When clicking on or , the Live menu provides some additional information.

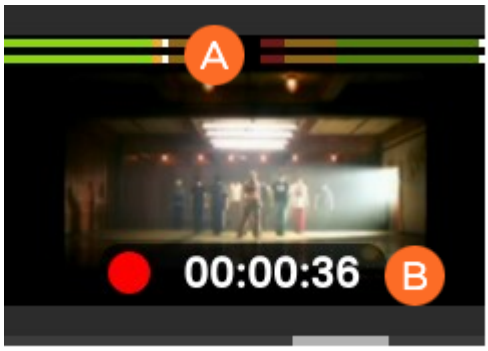


A Selected Live Profile
B Selected Record Profile
C Auto-record is enabled or not (OFF/ON)
D The Selected Destination Profile

You can modify these settings before starting the Live action.

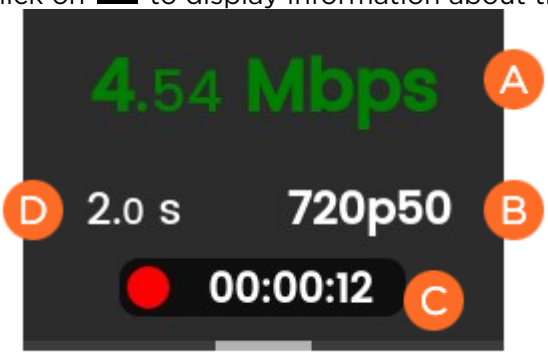
- To select another **Live** profile:
  i. Click on the field.
  ii. Click on another Live profile.
- To select another **Record** profile:
  i. Click on the field.
  ii. Click on another Record profile.
- To modify the **Auto-Record** mode:
  i. Click on the or button option to toggle the setting.
- To select another **Destination profile**:
  i. Click on the field.
  ii. Click on a different Destination profile.

2. Click on to start the Live. The video preview appears on screen.



A Audio Bars indicating Audio Levels
B Live Duration

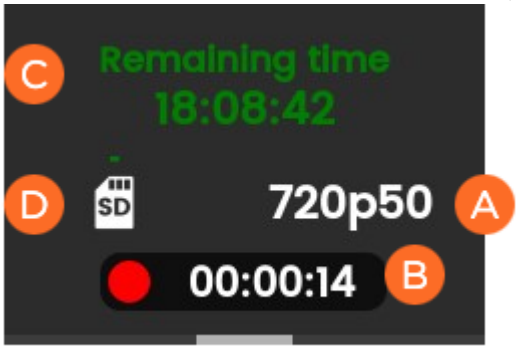
3. Click on  to display information about the Live action.



A Network Bitrate
B Source Standard
C Live Duration
D End-to-End Latency configured in the Live Profile or modified remotely from StreamHub interface.

> **Note**
>
> Refer to the *StreamHub User Guide* to set another delay during Live operation.

In case of a live and simultaneous Record, a different screen appears:



A Source Standard
B Record Duration

C Remaining recording time possible on SD card.
D Space used on SD card.

To stop the Live:

1. Click on .
2. Click on .
3. Click on to confirm.

To stop the Record:

1. Click on .
2. Click on .
3. Click on to confirm.

Web Interface

To start the Live:

1. Click to check that the unit settings are configured and selected as required:
   - Live profile
   - Auto-record mode (OFF / ON)
   - Record profile
   - Auto-forward option (OFF / ON)
   - Destination profile

   Note

   If you enable the **Auto-record** option, the video file is automatically recorded during the live.
2. Click to start the Live.

To stop the Live:

1. Click . A Confirm popup appears.
2. Click Confirm or the icon to stop the video transmission.

Camera

Note

Before starting a live, make sure that the REC button, the Live profile, and the Destination profile have been configured. Please see Configuring the Camera's REC Button and Configuring Live Profiles.

- Press the camera's REC button.

The Live is in progress.

Starting a Record

Note

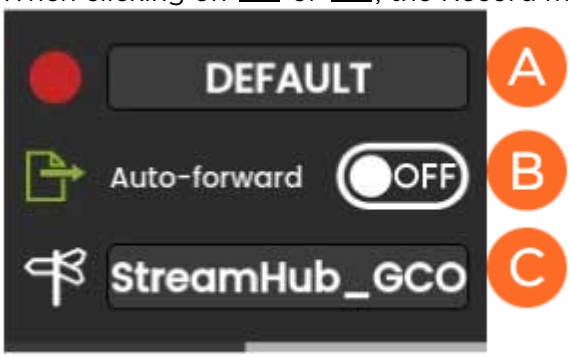
Make sure that a microSD card is inserted before starting a record. This microSD card must not be in read only (or locked) mode.

You may start a record via the unit panel, the web interface, or the camera's REC button.

Unit Panel

To start a record:

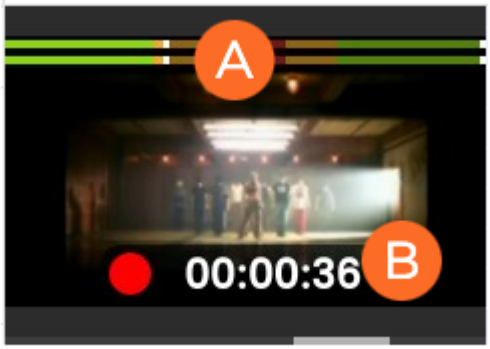
1. From the **Home** menu, click on . The video preview appears on screen and the selected record profile is displayed.
   When clicking on or , the Record menu displays additional information.



   A Selected Record Profile
   B Auto-record (OFF/ON) Toggle Switch
   C Selected Destination Profile

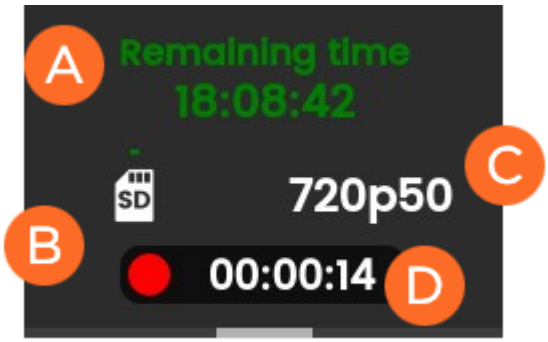
   - To select another Record profile:
     i. Click on the field.
     ii. Click on another Record profile.
   - To modify the Auto-forward mode:
     i. Click on the OFF or ON button option.
   - To select another Destination profile:
     i. Click on the field.
     ii. Click on another Destination profile.

2. Click on to start the Record. The video preview appears on the screen:



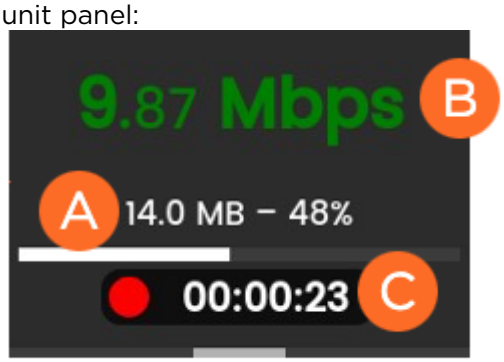
   A Audio bars indicating audio levels
   B Record duration

3. Click on to display more information about the record action.



A Remaining recording time possible on SD card
B Space used on SD
C Source Standard
D Record Duration

In case of a Record and simultaneous Forward, another screen appears when you click on the unit panel:



A Network Bitrate
B Record Duration
C Amount and percentage of data already forwarded (if option enabled)

To stop the Record:

1. Click on .
2. Click on .
3. Click on to confirm.

To stop the Forward:

1. Click on .
2. Click on .
3. Click on to confirm.

Web Interface

To start the Record:

1. Click to check that the unit settings are configured and selected as required:
   - Record profile
   - Auto-forward option (OFF / ON)

- Destination profile

> **Note**
>
> If you enable the **Auto-forward** option, the video file is automatically forwarded during the record.

2. Click  to start the Record.

To stop the Record:

1. Click  . A  popup appears.
2. Click  or the  icon to stop the video recording.

To stop the Forward:

1. Click  .
2. When prompted, click the  icon to stop the video transmission.

Camera

> **Note**
>
> Before starting a live, make sure that the REC button, the Record profile, and the Destination profile have been configured. Please see Configuring the Camera's REC Button and Adding a Record Profile.

- Press the camera's REC button.

The Record is in progress.

Starting a Forward

Ensure a mass storage device, such as an SD card or a USB memory stick, is connected to the unit. You can choose to forward:

- The last record
- A selection of records
- All files

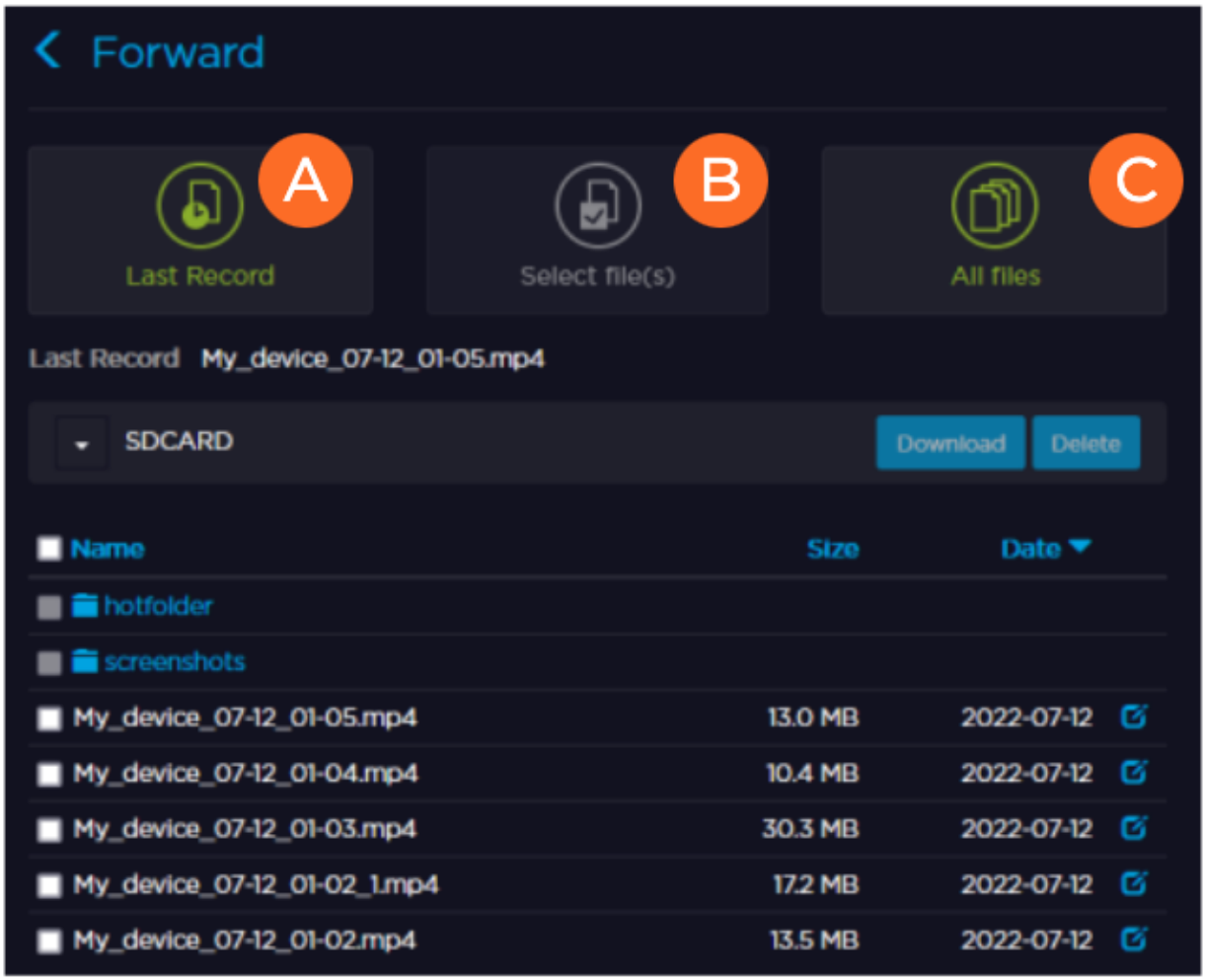
Unit Panel

From the **Home** menu, click on  . The forward interface appears:

- To forward the last record:
  a. Click on  . The forward starts.
- To forward some specific files:
  a. Click on  and on  .
  b. Click on  to open the SD card content.
  c. Click on the files that you want to forward. Use  to scroll down if required.
  d. Click on  to start the forward. The forward starts.
- To forward all files:
  a. Click on  to scroll.
  b. Click on  . The forward starts.

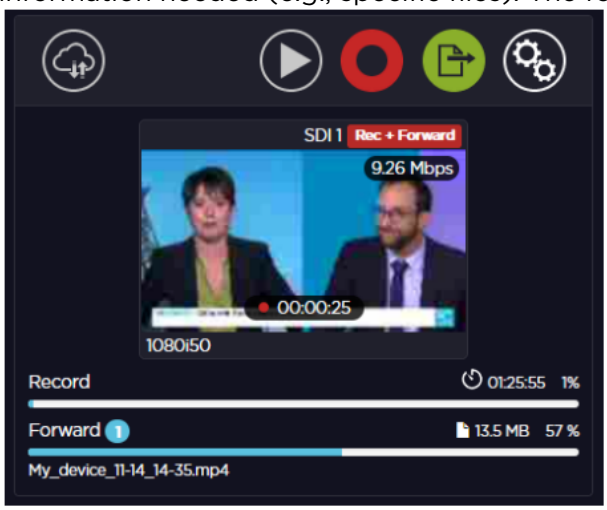
Web Interface

1. Click on .The forward interface appears.



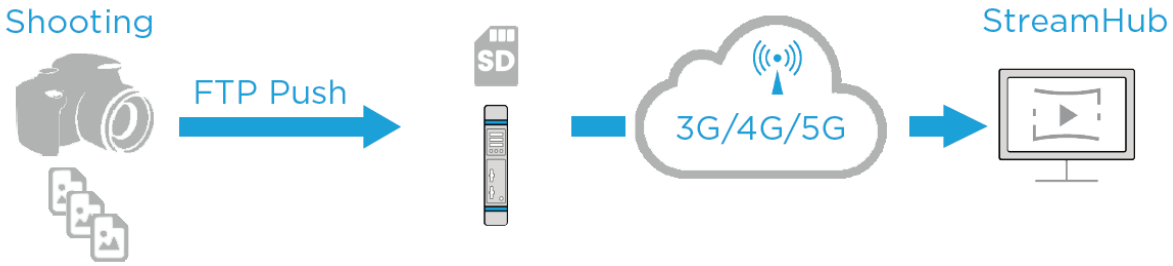
A Forwards the last record (recorded file).
B Forwards specific files (those selected).
C Forwards all files.

2. Click the type of forward you want to perform (, , or) and provide any additional information needed (e.g., specific files). The forward in progress is indicated on the screen.



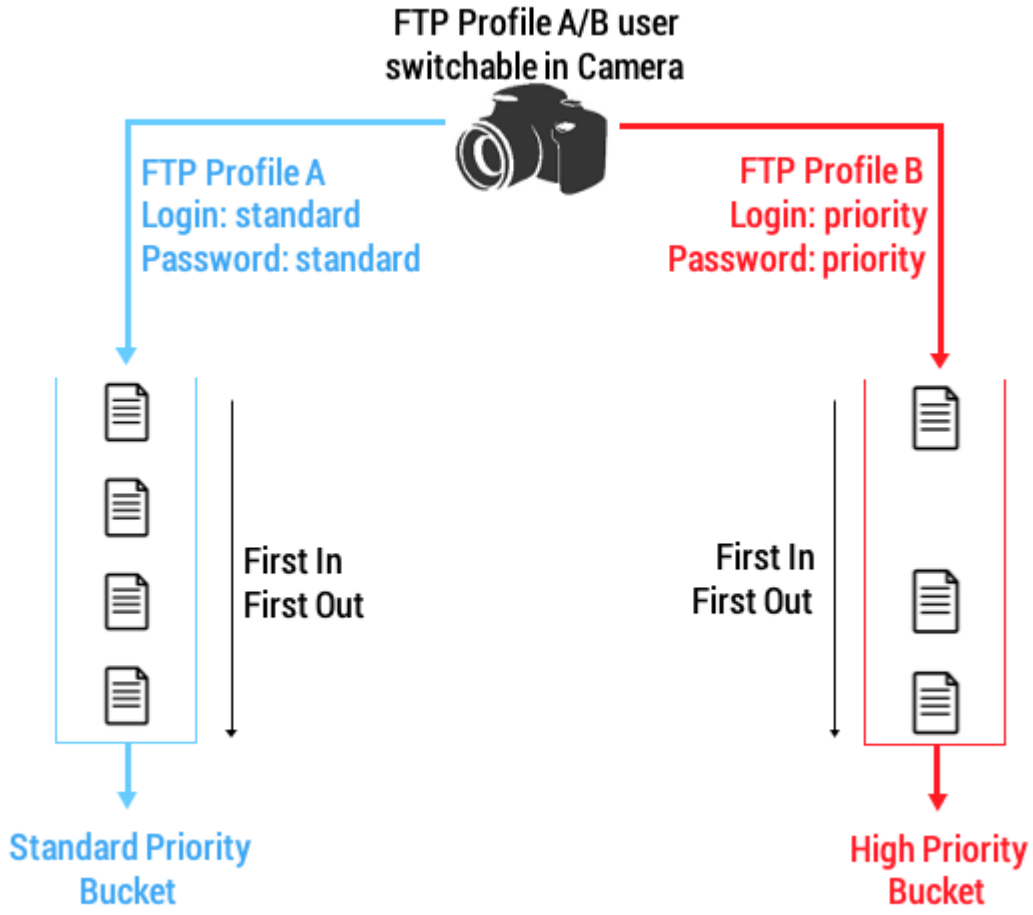
Transmitting Files via the Hot Folder

The Hot Folder function enables you to transmit files (e.g., photos) automatically over unmanaged networks wherever the action is taking place. This function uses an FTP push to transmit files following the FIFO method (First In, First Out). You can enable or disable the function as required.



Note

- You can manage the hot folder content on the SD card as you wish.
- Please refer to the procedure about deleting files in Deleting Files from the SD Card.
- Files can be transmitted according to 2 priority levels (standard or priority), as defined on the device that transmits files.



To enable / disable the hot folder function:

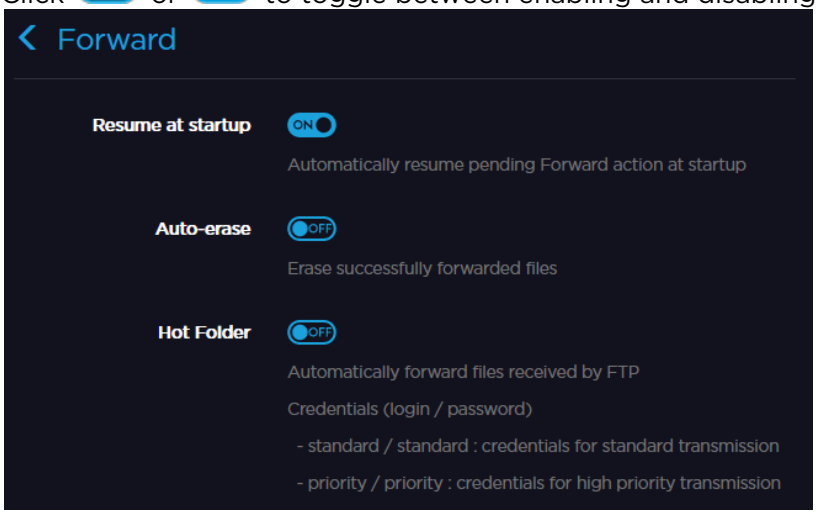
Unit Panel

1. From the **Home** menu, tap .
2. Tap › and select .
3. Tap OFF to enable or ON to disable the Hot Folder option.

Web Interface

1. Click **Settings > Forward**.

2. Click  or  to toggle between enabling and disabling the **Hot Folder** function.



After enabling the Hot Folder function, the  icon appears in the upper bar. Files are automatically forwarded following the priority levels defined on the camera (standard or high priority). When the file transmission starts, the forward action can be seen on screen.

Multi-Encoding Mode

With its 4 SDI inputs, the unit can stream up to 4 full HD streams simultaneously.

> **Note**
>
> Please note that this feature allows Live only and that video sources must be all SDI or all Pattern.

Topics Include

Set the Multi-Encoding Mode

To set the multi-encoding mode from the Unit Panel, or from the Web Interface, see the sections below.

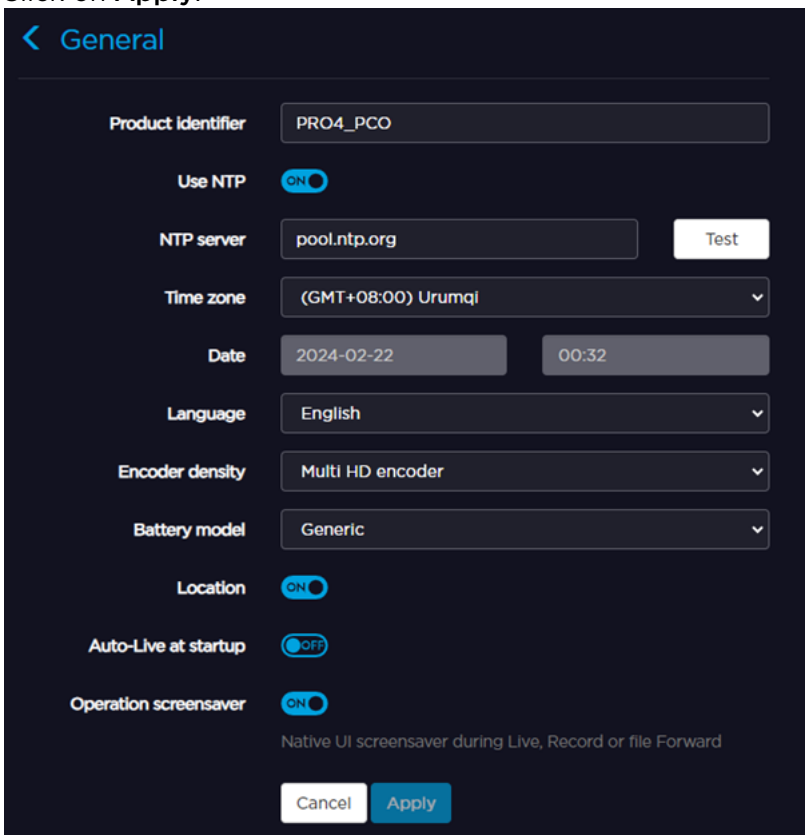
Unit Panel

1. From the **Home** menu, click .
2. Click on and click .
3. Click **General**.
4. Click **Encoder density**.
5. Select **Multi HD encoder**.

Web Interface

1. From the Web Interface, click on **Settings > General**.
2. In the **Encoder density** field, choose **Multi HD encoder**.

3. Click on **Apply**.



Using a Genlock Input

Note

- When no Genlock Input is selected and SDI 1 is selected for encoder 1, the Video Source for encoders 2, 3, and 4 is forced respectively to SDI2, SDI3, and SDI4 with no possibility to change.
- The SYNC input supports SD Black Burst and HD Tri-level signals in the following formats: PAL, NTSC, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60.

Unit Panel

1. From the **Home** menu, tap .
2. Tap .
3. Tap on the **Genlock Input** field to select SYNC or any SDI input (if required).

Web Interface

1. From the Web Interface, click **Settings > I/O**.
2. In the **Genlock Input** field, select the input used for synchronizing the encoders (if required).

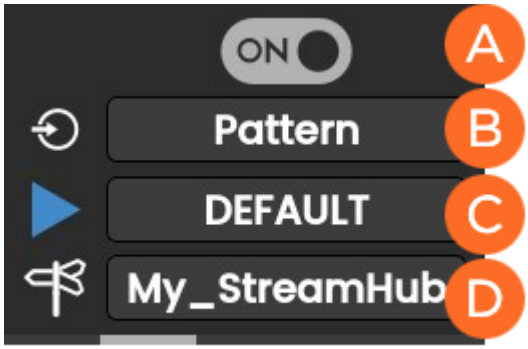
Starting / Stopping a Live (MultiMode)

You can start a live manually via the unit panel, web interface, or camera or you can enable the **Auto-live at startup**. See Enabling / Disabling Auto-Live at Startup.

Unit Panel

To start a live:

1. From the **Home** menu, tap . The video preview appears on screen and the live profile selected is displayed. When tapping or , the Live menu displays additional information for each encoder.



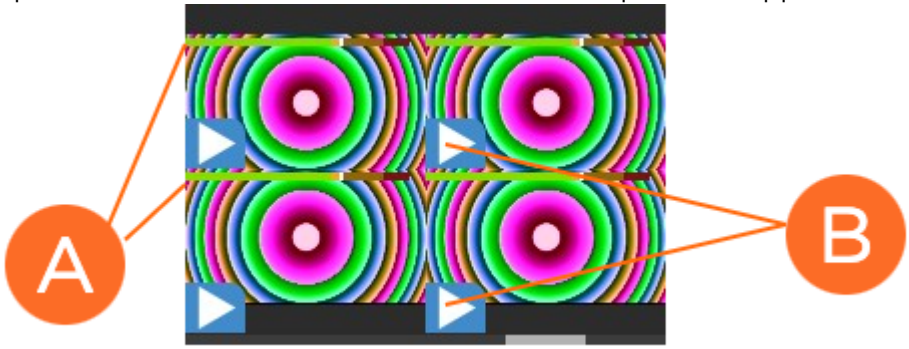
A Enable Encoder
B Selected Source
C Selected Live Profile
D Selected Destination Profile

> **Note**
> - Video source must be all SDI or all Pattern.
> - All inputs must have the same resolution and the same frame rate.

You can modify settings before starting the Live action:

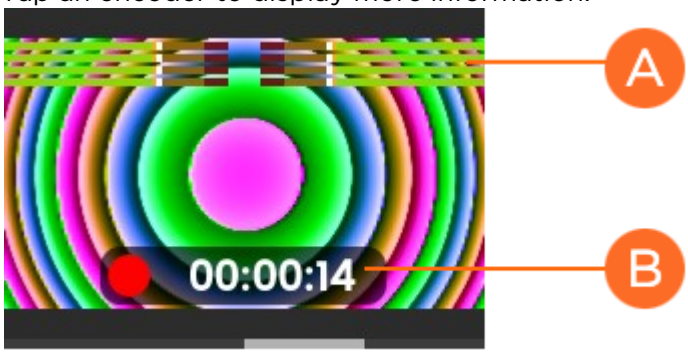
- To select another Source:
  i. Tap the field.
  ii. Tap another source.
- To select another Live profile:
  i. Tap the field.
  ii. Tap another Live profile.
- To select another Destination profile:
  i. Tap the field.
  ii. Tap another Destination profile.

2. Tap to start the Live for all encoders. Video previews appear on screen.



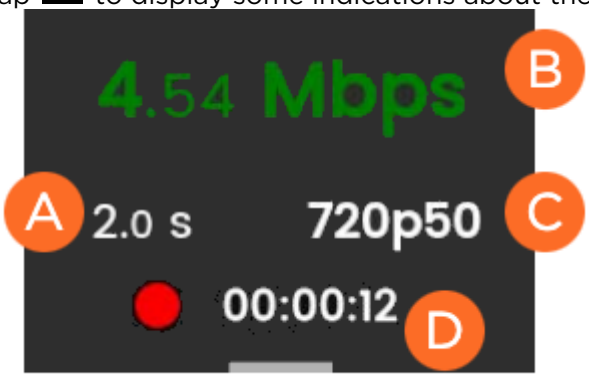
A Audio bars indicating audio levels
B Live icon blinking means that a live is running

3. Tap an encoder to display more information.



A Audio bars indicating audio levels
B Live duration

4. Tap < to display some indications about the Live action:



A End-to-end Latency configured in the Live Profile or modified remotely from StreamHub interface
B Network bitrate
C Source standard
D Live duration

> **Note**
>
> See the *StreamHub User Guide* to set another delay during Live operation.

To stop the Live for all encoders:

1. Tap >.
2. Tap .
3. Tap to confirm.

To stop the Live for a single encoder:

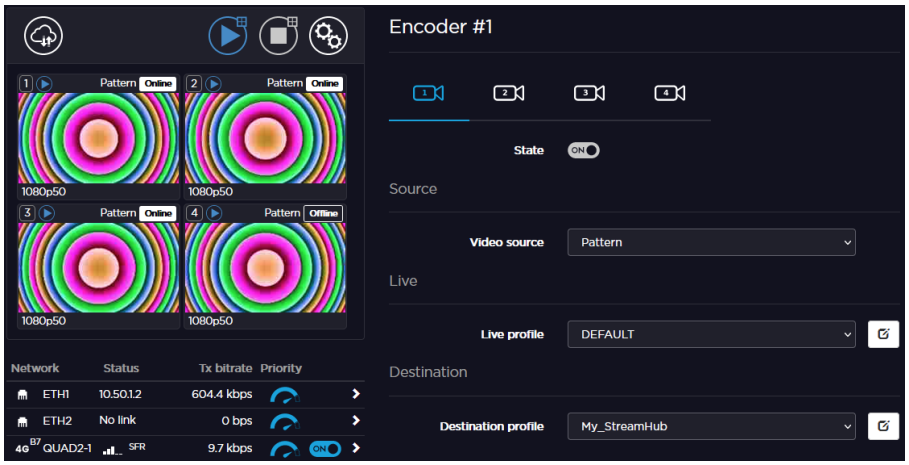
1. Tap the preview of the encoder that you want to stop.
2. Tap >.
3. Tap .

4. Tap  to confirm.

Web Interface

To start a live:

1. Click  .
2. For each encoder, check that the settings are configured and selected as required:
   - Video Source
   - Live Profile
   - Destination Profile



> **Note**
>
> i. Video Source must be all SDI or all Pattern.
> ii. All inputs must have the same resolution and the same frame rate.

3. Click  to start the Live for all encoders.

To stop the Live:

1. Click  . A  popup appears.
2. Click  or the  icon to stop the video transmission.

Camera

> **Note**
>
> Before starting a live, make sure that the REC button, the Live profile, and the Destination profile have been configured. Please see Configuring the Camera's REC Button and Configuring Live Profiles.

To start a live:

- Press the camera's **REC** button.

The Live is in progress.

Using the Intercom

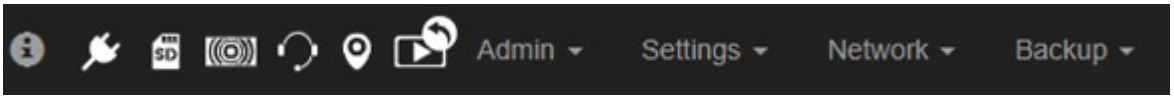
The Intercom function enables you to communicate with the Master Control Room, using a microphone or a headset connected to the unit. You can manage the Intercom function from the StreamHub interface.

1. Connect the headset or microphone to the unit.
2. From the StreamHub interface, start the Intercom session (please refer to the StreamHub User Guide).

The intercom session is indicated by the icon on the front panel or web interface:

Front Panel

Web Interface



To adjust your microphone/headset volume levels:

Front Panel

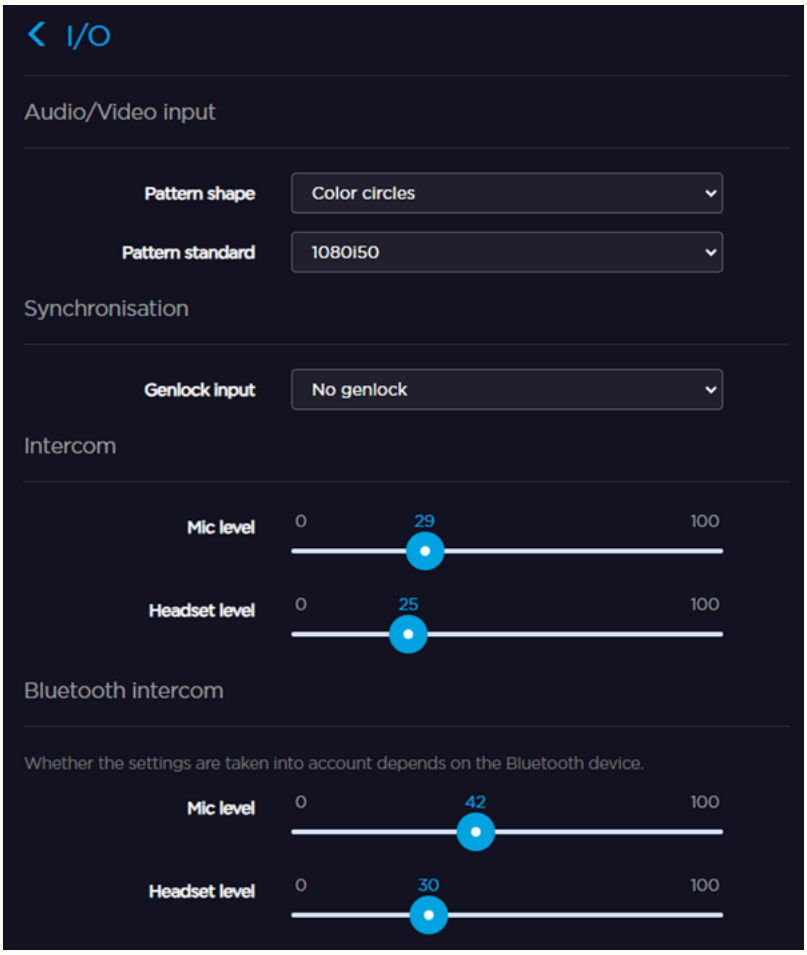
1. From the **Home** menu, tap .
2. Tap .
3. Tap to move to settings Micro and/or Headset levels.
4. Tap or to move the cursor.

Web Interface

1. Click **Settings > I/O**.
2. Click and drag the **Mic level** and **Headset level** sliders to adjust the microphone and headset volumes.

Note

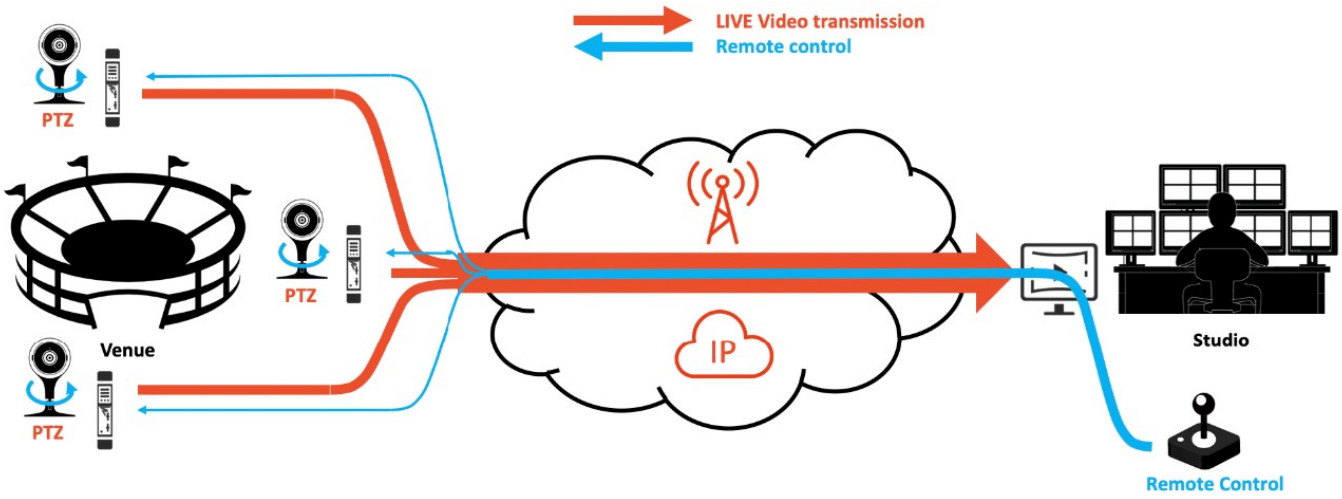
For units with Bluetooth enabled, a new section, Bluetooth intercom, appears under **Settings** > **I/O**. As noted in the web interface, whether or not these settings are applied to the active intercom depends on the type of Bluetooth device connected. See Enabling / Disabling Bluetooth for more information.



Click and drag the **Mic level** and **Headset level** sliders to the desired values.

Configuring a Data Bridge

When configured in Data Bridge mode, the unit can be used as a Data Bridge that provides access to the Internet from the field, or access to devices connected to the transmitter LAN from the studio (e.g., remote control of the camera).



In this configuration, Live operation is still allowed, but Record and Forward operations are no longer available. Up to 10 client devices can connect simultaneously to the unit's local network. The Ethernet interface shall be configured in Gateway mode, see Configuring an Ethernet Interface.

To configure a unit as a Data Bridge, you must select the server that should be used (Destination Profile), and then enable Data Bridge mode. The selected server automatically allocates a license token to each Data Bridge that you enable.

Unit Panel

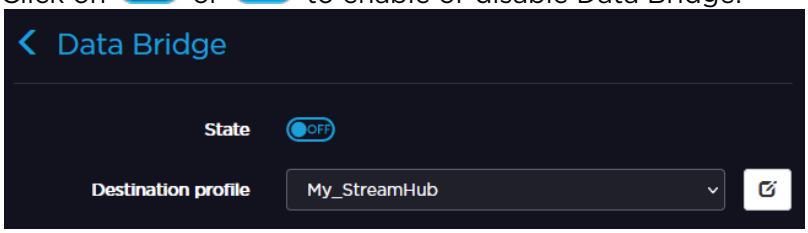
1. From the **Home** menu, tap .
2. Tap the Destination field. A green dot ( ) indicates the currently selected profile.
3. Tap to scroll down the list of Destination Profiles.
4. Select a Destination Profile.
5. Tap ON to enable or OFF to disable the option.

After the Data Bridge is configured, the icon appears in the upper bar. If the connection is not possible, the icon appears in the upper bar.

Web Interface

1. From the Web Interface, click on .
2. Select the **Destination Profile** from the scrolling list.

3. Click on  or  to enable or disable Data Bridge.



After the Data Bridge is configured, the button turns into  and an icon  appears in the upper bar. If the connection is not possible, the icon  appears in the upper bar.

Locking a Field Unit from Manager Interface

You can lock / unlock a field unit from the Manager interface. Please refer to the Manager User Guide to get the procedure to follow.

After the field unit is locked, you cannot:

- Add/delete/modify Destination profiles
- Add/delete/modify Live profiles
- Add/delete/modify Record profiles
- Change/select a new Destination profile
- Import/export a configuration in the unit
- Restore the factory settings
- Upgrade the Firmware

Note

The unit remains locked if:

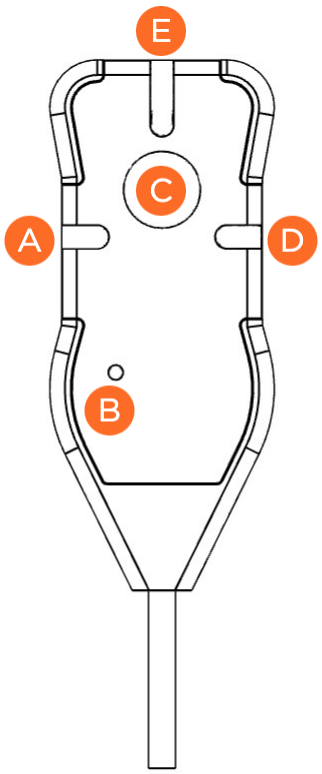
- The connection to the Manager is lost
- The unit is rebooted
- The unit is powered off/on

Using the Remote Control

Connect the remote control to the unit via the USB cable.

Note

When the remote control is connected, the Power indicator switches on and the other indicators blink for 3 seconds.



A Live indicator
B Power indicator
C Activity button
D Record indicator
E Tally light

Available Tasks

When no action is running	
To start a Live	Short press the activity button.
To start a Record	Long press the activity button.
When an action is running	
To stop all actions	Long press the activity button.

Indicators and Their Meanings

Power Indicator	
Fixed Green	The remote control is connected to the unit.
Off	The remote control is not connected to the unit.
Live Indicator	
Flashing Blue	The Live operation is starting.
Fixed Blue	The Live is in progress.
Off	No Live action is running.
Record Indicator	
Flashing Red	The Record operation is starting.
Fixed Red	The Record is in progress.
Off	No Record action is running.
Tally Light Indicator	
Fixed Red	The Unit is ON Air.
Off	The Unit is not ON Air.

Servicing

Topics Include

Getting the Unit Information

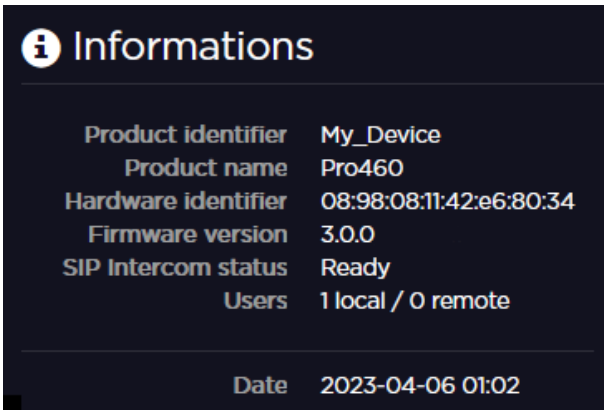
To get the unit information from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap .
2. Tap and select .
3. When the Device Info screen appears, use to scroll down to view the unit information.

Web Interface

Click the icon to display unit information:



You can access the following unit information:

- **Product Identifier**
- **Product Name**
- **Hardware ID**
- **Firmware Version**
- **SIP Intercom Status**
  - **Ready**: The product is registered to a Manager or connected to a StreamHub supporting SIP intercom.
  - **In call**: A call is in progress with Manager or a StreamHub.
- **Users**: Number of connected to the web interface
  - Local: Locally on the LAN (Ethernet or WiFi).
  - Remote: From a StreamHub (up to 4 users).
- **Date:** Current date and time at the location of the unit.

Locking / Unlocking the Unit Panel

To lock or unlock the unit panel, press and hold the screen for more than 2 seconds.

The unit panel can be locked from the following screens:

- Home screen
- Live screens
- Recording screens
- Forwarding view
- Screensaver screen

Locked screen when an operation is in progress	Locked screen when no operation is running
	

Getting IMEI, IMSI, and ICCID Numbers

To view the various ID numbers related to the SIM card and modems:

- **IMEI (International Mobile Equipment Identity) number** – A unique 15-digit number that identifies a cellular device within a mobile network. It identifies the modem embedded within the unit.
- **IMSI (International Mobile Subscriber Identity) number** – A unique 25-digit number that identifies a mobile subscriber. It identifies the SIM card inserted in the unit.
- **ICCID (Integrated Circuit Card Identifier) number** – A unique 19- to 22-digit number that identifies a SIM card. It identifies the chip of the SIM card inserted in the unit.

Note

For legal purposes, you may need to register the IMEI, IMSI and/or ICCID numbers of the modems used.

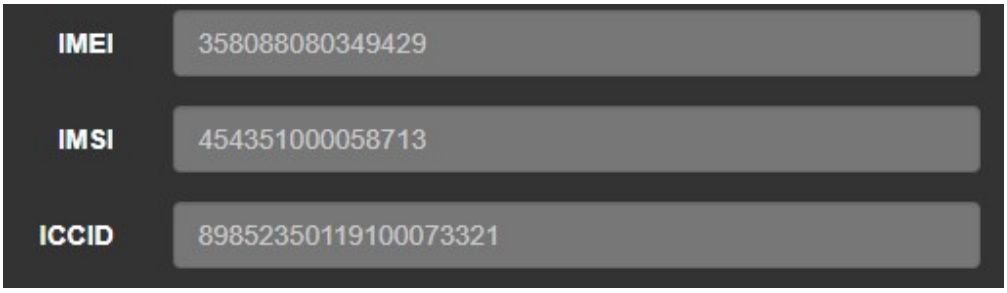
Unit Panel

1. From the **Home** menu, tap .
2. Tap to scroll the list of modems.
3. Press and hold on the modem for which you require the IMEI, the IMSI and/or the ICCID number.

The IMEI, IMSI and ICCID numbers are displayed.

Web Interface

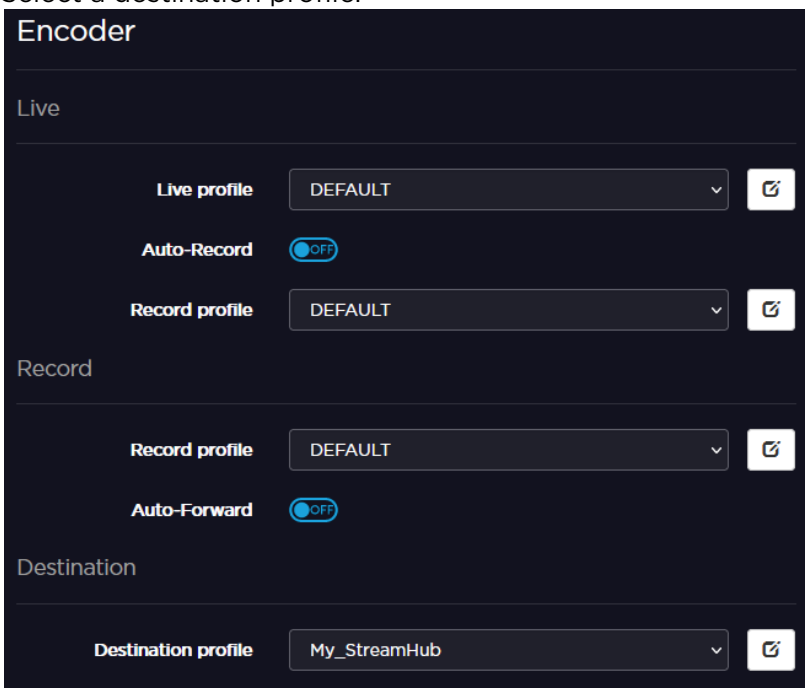
Click on a modem line to display the modem details. The modem IMEI, IMSI and ICCID numbers are shown:



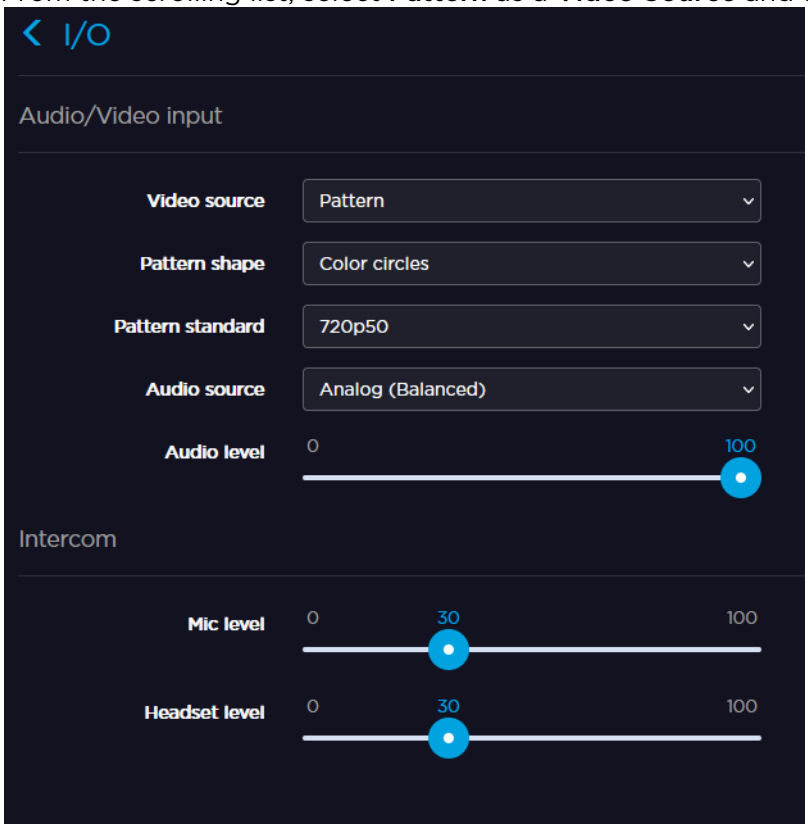
Testing a Live using the Pattern Mode

After setting a Destination Profile, you can configure a Live encoding using a Pattern and test communication between the unit and the destination StreamHub.

1. Tap to access the unit's settings.
2. Select a destination profile.



3. From the Web Interface, click on **Settings > I/O**.
4. From the scrolling list, select **Pattern** as a **Video Source** and the expected video standard.

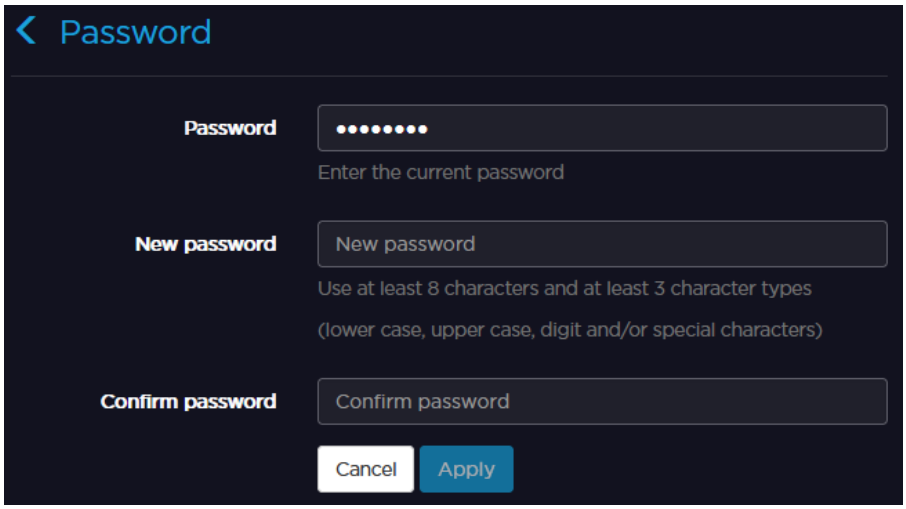


5. Select the **Pattern Shape** between:
   - Color circles pattern
   - Color bars pattern
   - Black pattern
6. Select the **Pattern Standard**.
7. Click  to start a Live. A graph appears on the unit's Web Interface.

Changing the Web Interface Password

To change the web interface password:

1. Click **Admin > Password**.



2. Enter the current password.
3. Enter the new password.
4. Confirm the new password.

5. Click **Apply**.

Updating the Firmware

> **Note**
>
> - Ensure that the battery is properly charged before starting to update.
> - The firmware can be updated from the Manager (v3.3.0 and higher).

Unit Panel

Ensure that you have uploaded the `.fw` firmware file from the customer portal to an SD card or USB key.

1. Connect the USB key or insert the SD card that contains the new firmware (`.fw` file).
2. From the **Home** menu, tap .
3. Tap and select .
4. Tap to scroll down and select **Firmware**.

Web Interface

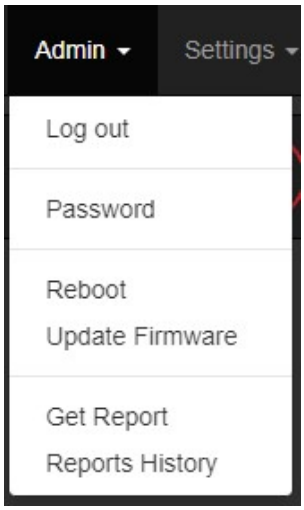
1. Click **Admin > Update Firmware**.
2. Click the **Browse** button to select the `.fw` software file that you saved.
3. Click the **Update** button.
4. Follow the instructions on the screen.

> **Note**
>
> **The update may take several minutes, depending on whether it is a major update or not. During the update, do not perform any actions on the system. At the end of the process, a message appears to reboot or switch off the unit, depending on the firmware version uploaded.**

Rebooting the Unit

You can reboot the unit from the Web Interface only.

1. Click **Admin > Reboot**.



2. Click **Yes** to confirm.

Restoring Factory Settings

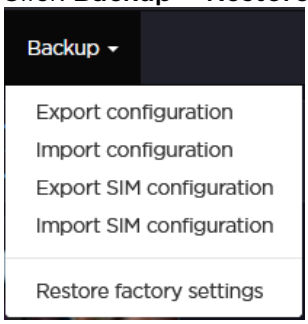
To restore the factory settings from the Unit Panel, or from the Web Interface, see the sections below.

Unit Panel

1. From the **Home** menu, tap  .
2. Tap  and select  .
3. Tap **Configuration**.
4. Tap **Factory settings**.
5. Tap **Yes**.

Web Interface

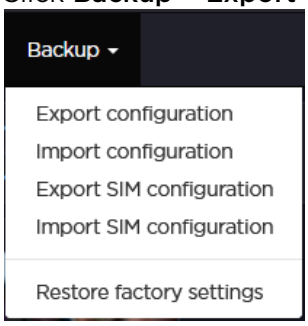
1. Click **Backup > Restore factory settings**.



2. Click **Yes** to confirm restoration.

Exporting the Unit Configuration

- Click **Backup > Export Configuration**.



An `.awj` file is exported in the download space. This file can be easily imported later after the factory settings have been restored.

Importing the Unit Configuration

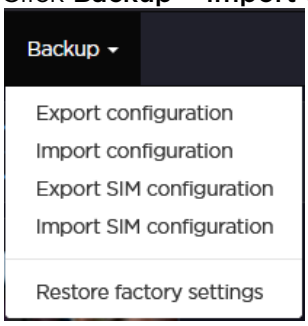
You can import the unit configuration via the unit panel, web interface, or a USB key.

Unit Panel

1. From the **Home** menu, tap  .
2. Tap  and select  .
3. Tap **Configuration**.
4. Tap **Import from file**.
5. Select the `.awj` file to be imported from the microSD card or the USB memory key.

Web Interface

1. Click **Backup > Import configuration**.



2. Click **Browse**, and select the `.awj` file to be imported.
3. Click **Import**.

USB Key

The product supports its automatic reconfiguration at startup or upon detection of the insertion USB key containing specific configuration files in its root directory.

- **For an overall configuration:** the specific file must be named `autoconfig.awj`.
- **For a configuration related to network only:** the specific file must be named `networkconfig.awj` or `networkconfig.conf`. If both are present, only `networkconfig.conf` will be taken into account.
- **For a Destination Profile auto-configuration:** the specific file must be named `destinationconfig.awj`.

> **Note**
>
> If `autoconfig.awj`, `networkconfig.xxx`, and `destinationconfig.awj` are present, only `autoconfig.awj` will be used.

The reconfiguration is rejected when:

- the file format is not valid.
- the file is not applicable for the product (e.g., Air configuration file applied on Pro3).
- the product is in operation (Live, Forward, Record).

> **Note**
>
> When the unit is reconfigured, the Activity LED blinks blue 3 times. When reconfiguration is rejected, the Activity LED blinks red 3 times.

Unlocking a SIM Card

You can unlock a SIM card from the Unit Panel only.

1. From the **Home** menu, tap .
2. Tap or to select the concerned Modem.
3. Tap the modem line indicating "Need PIN".
4. Tap . The screen displays the number of attempts left to enter the PIN code to unlock the SIM card.
5. Tap **OK** to activate the keyboard.
6. Enter the PIN code and Tap to confirm.

Note

If you exceed the number of attempts allowed, a message is displayed. The SIM card needs to be unlocked by entering the PUK code using another device such as a phone or a tablet.

Downloading Files from the SD Card

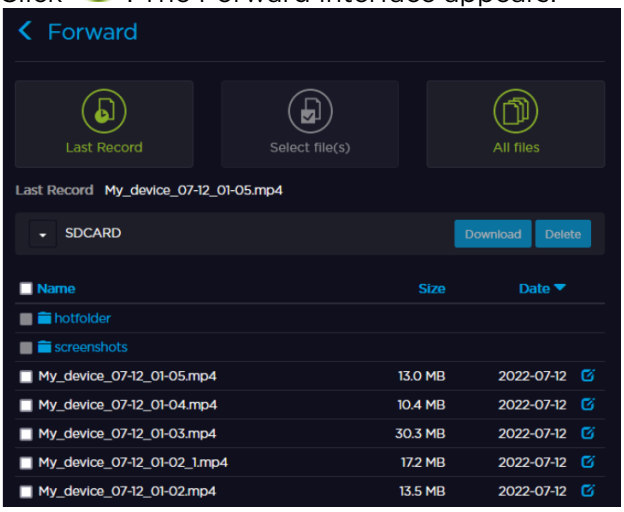
Important

Ensure that the SD card is not locked.

You can download files from the SD card via either the web interface or an FTP client.

Web Interface

1. Click . The Forward interface appears:



2. Select the files to be downloaded.
3. Click Download.

FTP Client

SD card files can be downloaded from an FTP client with the following credentials:

- Login : `sdcard`
- Password : `sdcard`

Note

You may also upload files to the SD card via an FTP client.

Deleting Files from the SD Card

Important

Ensure that the SD card is not locked.

Unit Panel

1. From the **Home** menu, tap
2. Tap and select .

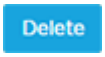
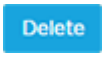
3. Tap **Delete**.
4. Tap you want to delete and tap  .
5. Tap **Yes** to confirm.

Web Interface

1. On the menu bar, click the  icon.

   Note

   If the Hot Folder function is enabled, the icon looks like  .

2. You can:
   Select one or several files to delete:
   a. Click the files to be deleted
   b. Click  .
   Select all files:
   a. Click the **Name** box. All files are selected.
   b. Click  .
   Select files stored in the Hot Folder:
   a. Click **Hot Folder**.
   b. Enter priority or standard folder to select files to be deleted.

Formatting the SD Card

This operation can only be performed from the Unit Panel.

1. From the **Home** menu, tap  .
2. Tap  and select  .
3. Tap **Format**.
4. Select **FAT32** or **exFAT**.

   Note

   FAT32 format is older and limits the size of files to 4GB.

5. Tap **Yes** to confirm.
6. Tap **OK** to complete the operation.

Troubleshooting

Topics Include

Getting a Report File

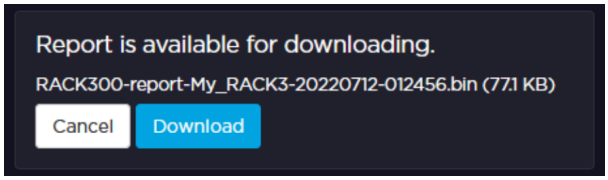
The Haivision support team may ask that you email a Report File to help them in investigating any unexpected behaviors.

Unit Panel

1. From the **Home** menu, click on .
2. Click on and click on .
3. Click on **Report.** A report is generated. It is accessible from the Web Interface or from the SD card (if present).
4. From the Web Interface, click on **Admin > Reports History**.
5. Click on the report that you want to download. A report file (. `bin`) is generated.
6. Attach the `.bin` file to an email in which you explain the issue you are facing, and send it to our support team via the Haivision Support Portal.

Web Interface

1. Click on **Admin > Get Report**.
2. After the report is generated, click on **Download**. The report file (. `bin`) is downloaded by your browser.



3. Attach the `.bin` file to an email in which you explain the issue you are facing and send it to our support team via the Haivision Support Portal.

Exporting a Report File from the History Folder

1. Click on **Admin > Reports History**.

> **Note**
>
> The last 5 reports are listed.

2. Click on the report that you want to download. A report file (. `bin`) is generated.
3. Attach the .bin file to an email in which you explain the issue you are facing and send it to our support team via the Haivision Support Portal.

Alarm Messages

Message	Solutions
Read-only SD card	Unlock the SD card inserted into the unit.
Receiver not defined	Please see Adding a Destination Profile.
Bad video synchronization	• Check that the video cable(s) are properly connected to the camera and to the unit. • On the Web Interface, check that the video input standard is properly identified.
Connection to receiver failed	Edit the profile to connect to the receiver in the settings of the unit: select another channel or select the Auto-connect option (see Adding a Destination Profile.
Receiver not available	Call the MCR. Make sure that the StreamHub is turned on and reachable.
No interface connected	• Check that the network interfaces of the unit are enabled. • Check that the SIM card is identified and that the modem is properly connected to network. • Check the Ethernet cable.
Failed to connect to the server	• The bandwidth is not sufficient to connect to the server. • Wrong IP address or port set for the StreamHub. Check that destination profile settings are properly configured.
Authentication failed	• Check username and password entered for the Destination profile used. • Ensure you use a StreamHub for which AES is not activated.
Connection to server failed (max devices reached)	There are no more available channels on the server to connect a unit. Select another receiver (see Adding a Destination Profile).
Connection to server failed (Invalid license / expired license / no license found)	• The license applied on the server is invalid, expired or there is no license applied on the server. • You cannot connect the unit to this server until a valid license is applied on the server.
Connection to input closed by server	The unit has been disconnected from the server by the user of the StreamHub.
Connection lost	The unit has been disconnected from the Internet Network. Check your internet connection.
Connection to input not authorized for this product	The unit tries to connect to a receiver's channel not available for this type of product. Edit the profile to connect to the receiver in the settings of the unit: select another channel (see Adding a Destination Profile).
Error: check server profile	The server profile is not configured properly (see Adding a Destination Profile).

Specifications

Topics Include

Video

		H.265/HEVC	H.264/AVC
Standards	UHD (H.265/HEVC only)	3840x2160p 25/29.97/30/50/59.94/60 fps	
	HD (H.265/HEVC and H.264/AVC)	1920x1080p 25/29.97/30/50/59.94/60 fps 1920x1080i 50/59.94/60 fps 1280x720p 50/59.94/60 fps	
Compression	Codec	H.265/HEVC	H.264/AVC
	Profile	Main	High
	Level	Up to 5.1	Up to 4.2
	Chroma format	4:2:2 and 4:2:0	4:2:0
	Bit depth	8- and 10-bit	8-bit
Bitrate mode		VBR (Live) CBR (Live, Record)	
Live Bitrate (static resolution as source)	2160p 50/59.94/60	3Mbps - 80Mbps	Not applicable
	2160p 23.98/24/25/29.97/30	2Mbps - 80Mbps	
	1080p 50/59.94/60	800kbps – 20Mbps	3Mbps – 20Mbps
	1080p 23.98/24/25/29.97/30	800kbps – 20Mbps	1.8Mbps – 20Mbps
	1080i 50/59.94/60	500kbps – 20Mbps	1.8Mbps – 20Mbps
	720p 50/59.94/60	500kbps – 20Mbps	1.4Mbps – 20Mbps
Live Bitrate (dynamic resolution)	2160p 50/59.94/60	200kbps - 80Mbps	Not applicable
	2160p 23.98/24/25/29.97/30	200kbps - 80Mbps	
	1080p 50/59.94/60	200kbps - 20Mbps	300kbps - 20Mbps
	1080p 23.98/24/25/29.97/30		
	1080i 50/59.94/60		
	720p 50/59.94/60		

		H.265/HEVC	H.264/AVC
Manual Resolution	1080p 50/59.94/60	0.8Mbps - 20Mbps	3Mbps – 20Mbps
	1080p 23.98/24/25/29.97/30	0.8Mbps - 20Mbps	1.8Mbps – 20Mbps
	1080i 50/59.94/60	0.8Mbps - 20Mbps	1.8Mbps – 20Mbps
	720p 23.98/24/50/59.94/60	0.5Mbps - 20Mbps	1.4Mbps – 20Mbps
	854 x 480p 23.98/24	0.2Mbps - 20Mbps	0.5Mbps - 20Mbps
	640 x 360p 23.98/24	0.2Mbps - 20Mbps	0.4Mbps - 20Mbps
Sync Input	Black Burst or Tri Level Signal PAL, NTSC, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94 and 1080p60		
Record File Format	MP4 Transport Stream		
Record Bitrate	2Mbps - 20Mbps (for HD) 2Mbps - 80Mbps (for UHD)		
Input/Output	1x 12G-SDI input (SDI1) 3x 3G- SDI inputs (SDI2, SDI3, SDI4) 1x 12G-SDI output: video source loop through (available in near future) 1x HDMI 1.4 output: Video Return 1x Genlock input		

Audio

Channels	Up to 8 channels (SDI input) for the device.
Codec	AAC-LC
Bitrate	1 x Mono: 64 kbps - 256 kbps 1 x Stereo: 64 kbps - 256 kbps 2 x Mono: 128 kbps - 512 kbps 2 x Stereo: 128 kbps - 512kbps 4 x Mono: 256 kbps - 1024 kbps 4 x Stereo: 256 kbps - 1024 kbps 8 x Mono: 256 kbps - 1024 kbps
Mode	Stereo pair (up to 4 per encoder) Mono (up to 8 per encoder)
Input	Audio embedded in the SDI input

Video Return

Video	**Codec**	H.264/AVC 4:2:0 8 bit
	Resolution	720p 50/60 1080p 25/30 1080p 50/60
	Bitrate Mode	CBR
	Bitrate	200kbps to 6Mbps
Audio	**Codec**	AAC-LC
	Mode	Mono and Stereo

	Bitrate	32Kbps (for Mono) 64Kbps (for Stereo)

Ancillary Data

Time Code	SMPTE 12M-1 and SMPTE 12M-2
High Dynamic Range	HLG or PQ
Closed Captions	EIA608 and DTVCC
Any	Transparent transport with SMPTE-2038

Networks

3G, 4G, and 5G	6 modems with embedded high-gain custom antennas Worldwide compliant 5G SA and NSA modes supported 5G sub 6GHz supported Supported bands: • 5G: n1,n2,n3,n5,n7,n8,n12,n20,n25,n28,n38,n40,n48,n66,n71,n77,n78, n79 • 4G: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B30, B32, B34, B38, B39, B40, B41, B42, B46, B48, B66, B71 • 3G: B1, B2, B3, B4, B5, B6, B8, B9, B19
Ethernet	2x Links
Wi-Fi	Configurable in Access Point Mode or Client Mode Maximum simultaneous connections to Access Point: 10 Frequency Band: 2.4 GHz or 5 GHz Dynamic list of channels (Access Point Mode): • 1 to 11 for 2.4 GHz • 36, 40, 44 and 48 for 5 GHz

Latency (end-to-end)	User configurable:
	• Broadcast over SST mode
	  • CBR: 500ms to 10s
	  • VBR: 800ms to 10s
	• Broadcast low-latency mode
	  • CBR: 80ms to 500ms
	  • VBR: not available
	• Broadcast over SRT mode (Ethernet only)

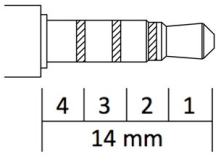
Interfaces

Audio/Video

12G-SDI Input	Connector type: BNC connector Impedance: 75Ω Complies with SMPTE 292M, SMPTE424M, SMPTE2081, and SMPTE2082 level A and level B-DS (limited to one SDI stream for level B-DS) Supported Embedded Audio at 48kHz
3G-SDI Input **3G-SDI Output** **(reserved for future use)**	Connector type: BNC connector Impedance: 75Ω Complies with SMPTE 292M and SMPTE 424M level A and level B-DS (limited to one SDI stream for level B-DS) Supported Embedded Audio at 48kHz
HDMI Output	Connector type: Type A Complies with HDMI 1.4 Fully shielded HDMI cable is mandatory

SYNC Input	Connector type: BNC connector Impedance: 75Ω Complies with Black Burst and Tri-level-sync analog signals Complies with SMPTE 240M, SMPTE 274M, SMPTE 296M, SMPTE RP211

Return IFB Channels

Intercom Headset	Connector type: 4pins (TRRS) 3.5 mm Audio Jack *(Signal complies with Apple and Samsung headsets)* Pins (Mating plugs) 1. Tip (Left HP) 2. Ring1 (Right HP) 3. Ring2 (Ground) 4. Sleeve (Microphone)	
	Headphone Dynamic Range (20-kHz Filter): 100 dB Headphone THD+N: -70 dB max Headphone Load Impedance: 16Ω or higher Headphone Output Power: 2 x 55mW max (16Ω) Headphone Full Scale output voltage: 0.65V_{RMS} Microphone Bias : 2.5V Microphone Maximum Level : 0.5V_{RMS}	

LAN/WAN

Ethernet	Two Ethernet ports 10/100/1000 Base-T RJ45 connector Green LED indicates link Orange LED indicated speed (on: 1000BT, off: 10/100BT)
Wi-Fi	Dual-band 2.4GHz and 5GHz 802.11 b/g/n/ac

Storage

SD Card	Micro SD slot, class10 recommended (FAT32, exFAT)
USB	Two USB 3.0 Type A connectors One USB 3.0 Type C connector

Power

Dual DC Input	Input type: Lock Jack 5.5mm ⌀ Automatic under-voltage protection at 12.5 Volts Automatic over-voltage protection at 22 Volts
AC/DC Adapter	Manufacturer: EDAC POWER ELEC. Model: EA10951E-180 DC Output: 18V / 5A max AC Input: 100-240V-2.5A,50-60Hz

Hardware Specifications

Note

External battery must be PS2 (<100W) following to IEC 62368-1:2014 standard and the certification.

Power Supply	DC input 18V nominal, 5A Max External battery with V mount or Gold mount plates
Power Consumption	70W max From 25 to 35W typical
Weight	1.5kg 3.3lbs
Dimensions (LxWxD)	26.6 x 8.4 x 12.5cm 10.5" x 3.3" x 4.9"
Operating temperature	0°C to 45°C (0°C to 35°C when unit in backpack) 32°F to 113°F (32°F to 95°F when unit in backpack) 0°C to 40°C for the DC adapter 32°F to 104°F for the DC adapter
Storage temperature	-20°C to 80°C -4°F to 176°F

GNSS Receiver

Frequency Range	1575.42 +/- 1.023 MHz

Radiated Output Power

	Frequency Range	**Maximal Radiated Power**
WiFi 2.4GHz	2400 - 2483.5MHz	23.44 mW
WiFi 5GHz[1]	5150 - 5250MHz	138.04 mW
UMTS	1920 - 1980MHz 880 - 915MHz	162.2 mW 85.11 mW
LTE	1920 - 1980MHz 1710 - 1785MHz 2500 - 2570MHz 880 - 915MHz 832 - 862MHz 703 - 748MHz	154.88 mW 128.83 mW 100 mW 173.78 mW 128.83 mW 199.53 mW
5G	3400 - 3800MHz	93.3 mW
Bluetooth EDR	2400 - 2483.5MHz	0.72mW
Bluetooth Low Energy	2400 - 2483.5MHz	3.16 mW

1. Not available in Client Mode for Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia

Warranties

1-Year Limited Hardware Warranty

Haivision warrants its hardware products against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the date of equipment shipment ("Warranty Period"). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, Havision will either (1) repair the hardware defect at no charge, or (2) exchange the product with a product that is new or equivalent to new in performance and reliability and is at least functionally equivalent to the original product. A replacement product or part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever is longer. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Haivision's property.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for Haivision that can be identified by the "Haivision" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-Haivision hardware products or any software, even if packaged or sold with Haivision hardware. Manufacturers, suppliers, or publishers, other than Haivision, may provide their own warranties to the end user purchaser, but Haivision, in so far as permitted by law, provides their products "as is".

Haivision does not warrant that the operation of the product will be uninterrupted or error-free. Haivision does not guarantee that any error or other non-conformance can or will be corrected or that the product will operate in all environments and with all systems and equipment. Haivision is not responsible for damage arising from failure to follow instructions relating to the product's use.

This warranty does not apply:

(a) to cosmetic damage, including but not limited to scratches, dents and broken plastic on ports;

(b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes;

(c) to damage caused by operating the product outside the permitted or intended uses described by Haivision;

(d) to a product or part that has been modified to alter functionality or capability without the written permission of Haivision; or

(e) if any Haivision serial number has been removed or defaced.

TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY AND REMEDIES PROVIDED ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, STATUTORY, EXPRESS OR IMPLIED. AS PERMITTED BY APPLICABLE LAW, HAIVISION SPECIFICALLY DISCLAIMS ANY AND ALL STATUTORY OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS. IF HAIVISION CANNOT LAWFULLY DISCLAIM STATUTORY OR IMPLIED WARRANTIES THEN TO THE EXTENT PERMITTED BY LAW, ALL SUCH WARRANTIES SHALL BE LIMITED IN DURATION TO THE DURATION

OF THIS EXPRESS WARRANTY AND TO REPAIR OR REPLACEMENT SERVICE AS DETERMINED BY HAIVISION IN ITS SOLE DISCRETION. No Haivision reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty. If any term is held to be illegal or unenforceable, the legality or enforceability of the remaining terms shall not be affected or impaired.

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE EXTENT PERMITTED BY LAW, HAIVISION IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE; LOSS OF REVENUE; LOSS OF ACTUAL OR ANTICIPATED PROFITS (INCLUDING LOSS OF PROFITS ON CONTRACTS); LOSS OF THE USE OF MONEY; LOSS OF ANTICIPATED SAVINGS; LOSS OF BUSINESS; LOSS OF OPPORTUNITY; LOSS OF GOODWILL; LOSS OF REPUTATION; LOSS OF, DAMAGE TO OR CORRUPTION OF DATA; OR ANY INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE HOWSOEVER CAUSED INCLUDING THE REPLACEMENT OF EQUIPMENT AND PROPERTY, ANY COSTS OF RECOVERING, PROGRAMMING, OR REPRODUCING ANY PROGRAM OR DATA STORED OR USED WITH HAIVISION PRODUCTS AND ANY FAILURE TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT. THE FOREGOING LIMITATION SHALL NOT APPLY TO DEATH OR PERSONAL INJURY CLAIMS, OR ANY STATUTORY LIABILITY FOR INTENTIONAL AND GROSS NEGLIGENT ACTS AND/OR OMISSIONS.

OBTAINING WARRANTY SERVICE

Before requesting warranty service, please refer to the documentation accompanying this hardware product and the Haivision Support Portal https://support.haivision.com. If the product is still not functioning properly after making use of these resources, please contact Haivision or Authorized Reseller using the information provided in the documentation. When calling, Haivision or Authorized Reseller will help determine whether your product requires service and, if it does, will inform you how Haivision will provide it. You must assist in diagnosing issues with your product and follow Haivision's warranty processes.

Haivision may provide warranty service by providing a return material authorization ("RMA") to allow you to return the product in accordance with instructions provided by Haivision or Authorized Reseller. You are fully responsible for delivering the product to Haivision as instructed, and Haivision is responsible for returning the product if it is found to be defective. Your product or a replacement product will be returned to you configured as your product was when originally purchased, subject to applicable updates. Returned products which are found by Haivision to be not defective, out-of-warranty or otherwise ineligible for warranty service will be shipped back to you at your expense. All replaced products and parts, whether under warranty or not, become the property of Haivision. Haivision may require a completed pre-authorized form as security for the retail price of the replacement product. If you fail to return the replaced product as instructed, Haivision will invoice for the pre-authorized amount.

APPLICABLE LAW

This Limited Warranty is governed by and construed under the laws of the Province of Quebec, Canada.

This Limited Hardware Warranty may be subject to Haivision's change at any time without prior notice.

EULA - End User License Agreement

READ BEFORE USING

THE LICENSED SOFTWARE IS PROTECTED BY COPYRIGHT LAWS AND TREATIES. READ THE TERMS OF THE FOLLOWING END USER (SOFTWARE) LICENSE AGREEMENT ("AGREEMENT") CAREFULLY BEFORE ACCESSING THE LICENSED SOFTWARE. BY SCANNING THE QR CODE TO REVIEW THIS AGREEMENT AND/OR ACCESSING THE LICENSED SOFTWARE, YOU CONFIRM YOUR

ACCEPTANCE OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THESE TERMS, HAIVISION IS UNWILLING TO LICENSE THE LICENSED SOFTWARE TO YOU AND YOU ARE NOT AUTHORIZED TO ACCESS THE LICENSED SOFTWARE.

Click the following link to view the Software End-User License Agreement: Haivision EULA.pdf

If you have questions, please contact legal@haivision.com

SLA - Service Level Agreement

1. Introduction

This Service Level and Support supplement forms a part of and is incorporated into the Service Agreement (the “Agreement”) between You and Haivision Network Video Inc. (“Haivision”). Capitalized terms used but not otherwise defined in this supplement shall have the meaning ascribed to them in the Agreement. Haivision may, upon prior written notice to You, amend this supplement to incorporate improvements to the service levels and support commitments at no additional cost to You. This supplement applies only to those products and services set forth below.

2. Definitions

- "Audience Member" means an individual or entity that accesses Your Published Media Objects through a public URL.
- "Access Service" means the service provided by Haivision VCMS that verifies an Audience Member’s credentials.
- "Digital Media File" means a computer file containing text, audio, video, or other content.
- "Outage" is a 12-minute period of consecutive failed attempts by all six agents to PING the domain on the Haivision Streaming Media network.
- "Published Media Object" means a Digital Media File with a public URL.
- "Transaction" means the creation of a right for an Audience Member to access a Media Object and the completion of an order logged in the order history service.

3. Service Levels for the Video Content Management System

The service levels in this Section 3 apply only to the hosted version of Haivision VCMS and the Haivision VCMS development kit (collectively, the “Standard Hosted Components” of Haivision Video Cloud Services). Subject to the exceptions noted in Section 4 below, the aforementioned components of Haivision Video Cloud Services will be available for use over the course of each calendar month as follows:

Type of Access	**Definition**	**Availability Level**
Write Functions	• Access to all functions through the administrative user interface. • Ability to add or modify objects and metadata through the application programming interface (“API”) • Ability of ingest service to check for new or updated files or feeds	99.999%
Read-Only Functions	• Ability to retrieve data through the API • Ability for Audience Members to authenticate through the Access Service • Ability for Audience Members to play Published Media Objects • Ability for Audience Members to play Haivision VCMS-authenticated or entitled Published Media Objects • Ability to complete Transactions	99.999%

4. Exceptions to Availability for the VCMS

The Standard Hosted Components may not be available for use under the following circumstances, and in such case such periods of unavailability shall not be counted against Haivision Video Cloud for purposes of calculating availability:

a. Normal Maintenance, Urgent Maintenance and Upgrades as defined in the table below;
b. Breach of the Agreement by You as defined in the Agreement;
c. The failure, malfunction, or modification of equipment, applications, or systems not controlled by Haivision Video Cloud;
d. Any third party, public network, or systems unavailability;
e. Acts of Force Majeure as defined in the Agreement;
f. Modification of software made available to You as part of Haivision Video Cloud Services by You or a third party acting on Your behalf; and
g. Any third party product or service not incorporated into Haivision Video Cloud Services or any third party plug-in.

Haivision Video Cloud shall make commercially reasonable efforts to notify, or work with, applicable third parties to repair or restore Haivision VCMS functionality affected by such exceptions.

Type of Maintenance	Purpose	Write Functions Available	Read Functions Available	Maximum Time Per Month	Continuous Time in Mode (Max)	Window (Central Time)	Min Notice
Normal	• Preventive maintenance on the software/ hardware components of Haivision VCMS • Addition of new features/functions • Repair errors that are not immediately affecting Your use of Haivision VCMS	No	Yes	10 Hours	6 Hours	10:00pm - 5:00am	48 Hours
Urgent	• Repair errors that are immediately affecting Your use of Haivision VCMS	No	Yes	30 Minutes	15 Minutes	Any Time	3 Hours
Upgrades	• Perform upgrades on software or hardware elements necessary to the long term health or performance of Haivision VCMS, but which, due to their nature, require that certain components of Haivision VCMS to be shut down such that no access is possible	No	No	1 Hour	1 Hour	12:00am - 4:00am M-F	5 Days

5. Credits for Downtime for the VCMS

Haivision Video Cloud will grant a credit allowance to You if You experience Downtime in any calendar month and you notify Haivision Video Cloud thereof within ten (10) business days after the end of such calendar month. In the case of any discrepancy between the Downtime as experienced by You and the Downtime as measured by Haivision Video Cloud, the Downtime as measured by Haivision Video Cloud shall be used to calculate any credit allowance set forth in this section. Such credit allowance shall be equal to the pro-rated charges of one-half day of Fees for each hour of Downtime or fraction thereof. The term “Downtime” shall mean the number of minutes that Standard Hosted Components are unavailable to You during a given calendar month below the availability levels thresholds in Section 3, but shall not include any unavailability resulting from any of the exceptions noted in Section 4. Within thirty (30) days after the end of any calendar month in which Downtime occurred below the availability levels thresholds in Section 3, Haivision Video Cloud shall provide You with a written report detailing all instances of Downtime during the previous month. Any

credit allowances accrued by You may be offset against any and all Fees owed to Haivision Video Cloud pursuant to the Agreement, provided that a maximum of one month of credit may be accrued per month.

6. Support Services for the VCMS

Support for Haivision Video Cloud Services as well as the Application Software (defined as the VCMS application software components that Haivision licenses for use in conjunction with the Video Cloud Services) can be reached at hvc-techsupport@haivision.com and shall be available for all Your support requests. Haivision Video Cloud will provide 24x7 monitoring of the Standard Hosted Components.

Cases will be opened upon receipt of request or identification of issue, and incidents will be routed and addressed according to the following:

Severity Level	Error State Description	Status Response Within	Incident Resolution within
1 – Critical Priority	Renders Haivision VCMS inoperative or causes Haivision VCMS to fail catastrophically.	15 minutes	4 hours
2 – High Priority	Affects the operation of Haivision VCMS and materially degrades Your use of Haivision VCMS.	30 minutes	6 hours
3 – Medium Priority	Affects the operation of Haivision VCMS, but does not materially degrade Your use of Haivision VCMS.	2 hours	12 hours
4 – Low Priority	Causes only a minor impact on the operation of Haivision VCMS.	1 business day	3 business days

7. Service Levels for Haivision Streaming Media Service

Haivision agrees to provide a level of service demonstrating 99.9% Uptime. The Haivision Streaming Media Service will have no network Outages.

The following methodology will be employed to measure Streaming Media Service availability:

Agents and Polling Frequency

a. From six (6) geographically and network-diverse locations in major metropolitan areas, Haivision's Streaming Media will simultaneously poll the domain identified on the Haivision Streaming Media network.
b. The polling mechanism will perform a PING operation, sending a packet of data and waiting for a reply. Success of the PING operation is defined as a reply being received.
c. Polling will occur at approximately 6-minute intervals.
d. Based on the PING operation described in (b) above, the response will be assessed for the purpose of measuring Outages.

If an Outage is identified by this method, the customer will receive (as its sole remedy) a credit equivalent to the fees for the day in which the failure occurred.

Haivision reserves the right to limit Your use of the Haivision Streaming Media network in excess of Your committed usage in the event that Force Majeure events, defined in the Agreement, such as war, natural disaster or terrorist attack, result in extraordinary levels of traffic on the Haivision Streaming Media network.

8. Credits for Outages of Haivision Streaming Media Service

If the Haivision Streaming Media network fails to meet the above service level, You will receive (as your sole remedy) a credit equal to Your or such domain's committed monthly service fee for the day in which the failure occurs, not to exceed 30 days of fees.

9. No Secondary End User Support

UNDER NO CIRCUMSTANCES MAY YOU PROVIDE CONTACT INFORMATION FOR HAIVISION SERVICES TO CUSTOMERS OR AUDIENCE MEMBERS OR OTHER THIRD PARTIES WITHOUT HAIVISION'S EXPRESS PRIOR WRITTEN CONSENT.

Getting Help

General Support	North America (Toll-Free) **1 (877) 224-5445** International **1 (514) 334-5445** *and choose from the following:* Sales - 1, Cloud Services - 3, Support - 4
Managed Services	U.S. and International 1 (512) 220-3463
Fax	1 (514) 334-0088
Support Portal	https://support.haivision.com
Product Information	info@haivision.com

info@haivision.com
www.haivision.com

North America: 1.877.224.5445
International: +1.514.334.5445

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