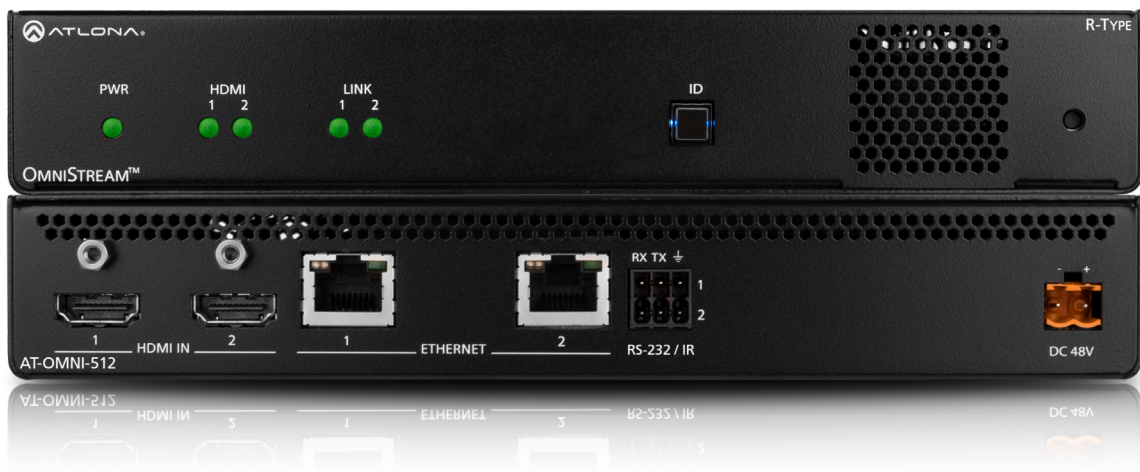


OmniStream™ R-Type Dual-Channel Networked AV Encoder



Version Information

Version	Release Date	Notes
1	4/17	Initial release
2	7/18	Includes updates to 1.2.1 firmware

Welcome to Atlona!

Thank you for purchasing this Atlona product. We hope you enjoy it and will take a extra few moments to register your new purchase.

Registration only takes a few minutes and protects this product against theft or loss. In addition, you will receive notifications of product updates and firmware. Atlona product registration is voluntary and failure to register will not affect the product warranty.

To register your product, go to <http://www.atlona.com/registration>

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Operating Notes

- The Atlona Management System (AMS) is a free downloadable application from Atlona that provides network configuration assistance for this product. This application is available only for the Windows® Operating System and can be downloaded from the Atlona web site.



IMPORTANT: Visit <http://www.atlona.com/product/AT-OMNI-512> for the latest firmware updates and User Manual.



NOTE: Scaling and deinterlacing is not supported at 1080i.

Atlona, Inc. (“Atlona”) Limited Product Warranty

Coverage

Atlona warrants its products will substantially perform to their published specifications and will be free from defects in materials and workmanship under normal use, conditions and service.

Under its Limited Product Warranty, Atlona, at its sole discretion, will either:

- repair or facilitate the repair of defective products within a reasonable period of time, restore products to their proper operating condition and return defective products free of any charge for necessary parts, labor and shipping.

OR

- replace and return, free of charge, any defective products with direct replacement or with similar products deemed by Atlona to perform substantially the same function as the original products.

OR

- refund the pro-rated value based on the remaining term of the warranty period, not to exceed MSRP, in cases where products are beyond repair and/or no direct or substantially similar replacement products exist.

Repair, replacement or refund of Atlona products is the purchaser's exclusive remedy and Atlona liability does not extend to any other damages, incidental, consequential or otherwise.

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Atlona Limited Product Warranty Period begins on the date of purchase by the end-purchaser. The date contained on the end-purchaser's sales or delivery receipt is the proof purchase date.

Limited Product Warranty Terms – New Products

- 10 years from proof of purchase date for hardware/electronics products purchased on or after June 1, 2013.
- 3 years from proof of purchase date for hardware/electronics products purchased before June 1, 2013.
- Lifetime Limited Product Warranty for all cable products.

Limited Product Warranty Terms – Refurbished (B-Stock) Products

- 3 years from proof of purchase date for all Refurbished (B-Stock) hardware and electronic products purchased on or after June 1, 2013.

Remedy

Atlona recommends that end-purchasers contact their authorized Atlona dealer or reseller from whom they purchased their products. Atlona can also be contacted directly. Visit www.atlona.com for Atlona's contact information and hours of operation. Atlona requires that a dated sales or delivery receipt from an authorized dealer, reseller or end-purchaser is provided before Atlona extends its warranty services. Additionally, a return merchandise authorization (RMA) and/or case number, is required to be obtained from Atlona in advance of returns.

Atlona requires that products returned are properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization or case number will be refused. Atlona, at its sole discretion, reserves the right to reject any products received without advanced authorization. Authorizations can be requested by calling 1-877-536-3976 (US toll free) or 1-408-962-0515 (US/international) or via Atlona's website at www.atlona.com.

Exclusions

This Limited Product Warranty excludes:

- Damage, deterioration or malfunction caused by any alteration, modification, improper use, neglect, improper packaging or shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature.

Atlona, Inc. (“Atlona”) Limited Product Warranty

- Damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Atlona to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.
- Equipment enclosures, cables, power supplies, batteries, LCD displays, and any accessories used in conjunction with the product(s).
- Products purchased from unauthorized distributors, dealers, resellers, auction websites and similar unauthorized channels of distribution.

Disclaimers

This Limited Product Warranty does not imply that the electronic components contained within Atlona’s products will not become obsolete nor does it imply Atlona products or their electronic components will remain compatible with any other current product, technology or any future products or technologies in which Atlona’s products may be used in conjunction with. Atlona, at its sole discretion, reserves the right not to extend its warranty offering in instances arising outside its normal course of business including, but not limited to, damage inflicted to its products from acts of god.

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The maximum liability of Atlona under this limited product warranty shall not exceed the original Atlona MSRP for its products. To the maximum extent permitted by law, Atlona is not responsible for the direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

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To the maximum extent permitted by law, this limited product warranty and the remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied. To the maximum extent permitted by law, Atlona specifically disclaims all implied warranties, including, without limitation, warranties of merchantability and fitness for a particular purpose. If Atlona cannot lawfully disclaim or exclude implied warranties under applicable law, then all implied warranties covering its products including warranties of merchantability and fitness for a particular purpose, shall provide to its products under applicable law. If any product to which this limited warranty applies is a “Consumer Product” under the Magnuson-Moss Warranty Act (15 U.S.C.A. §2301, ET SEQ.) or other applicable law, the foregoing disclaimer of implied warranties shall not apply, and all implied warranties on its products, including warranties of merchantability and fitness for the particular purpose, shall apply as provided under applicable law.

Other Conditions

Atlona’s Limited Product Warranty offering gives legal rights, and other rights may apply and vary from country to country or state to state. This limited warranty is void if (i) the label bearing the serial number of products have been removed or defaced, (ii) products are not purchased from an authorized Atlona dealer or reseller. A comprehensive list of Atlona’s authorized distributors, dealers and resellers can be found at www.atlona.com.

Important Safety Information



CAUTION: TO REDUCE THE RISK OF
ELECTRIC SHOCK
DO NOT OPEN ENCLOSURE OR EXPOSE
TO RAIN OR MOISTURE.
NO USER-SERVICEABLE PARTS
INSIDE REFER SERVICING TO
QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.

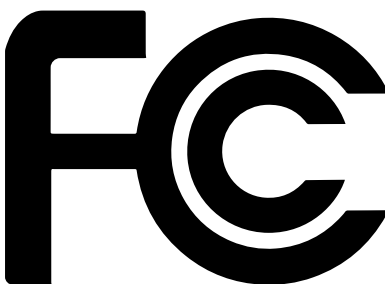


The information bubble is intended to alert the user to helpful or optional operational instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this product near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
11. Only use attachments/accessories specified by Atlona.
12. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
13. Unplug this product during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.



FCC Statement



FCC Compliance and Advisory Statement: This hardware device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) reorient or relocate the receiving antenna; 2) increase the separation between the equipment and the receiver; 3) connect the equipment to an outlet on a circuit different from that to which the receiver is connected; 4) consult the dealer or an experienced radio/TV technician for help. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

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Introduction

The Atlona OmniStream™ R-Type (AT-OMNI-512) is a networked AV encoder with two independent channels of encoding for two HDMI sources up to UHD @ 60 Hz and HDR, plus embedded audio and RS-232 or IR control pass-through. It is part of the OmniStream R-Type Series, designed for high performance, flexible distribution of AV over Gigabit Ethernet in residential and light commercial applications. The OmniStream 512 is HDCP 2.2 compliant and ideal for the latest as well as emerging UHD and HDR sources. It features visually lossless compression with pristine-quality video and graphics performance, plus extremely low, subframe latency from encode to decode – critical for demanding applications such as gaming. This dual-channel encoder is housed in a half-width rack enclosure and is ideal for high-density, compact installation in a centralized equipment location.

Features

- AV encoder for HDMI up to 4K/UHD, plus embedded audio and RS-232 or IR control pass-through
- Dual-channel AV encoding
- Supports UHD @ 60 Hz plus HDR formats
- HDCP 2.2
- Simplify integration with plug-and-play network switch compatibility
- Local or PoE (Power over Ethernet) powering
- AES67-compatible audio over IP streaming

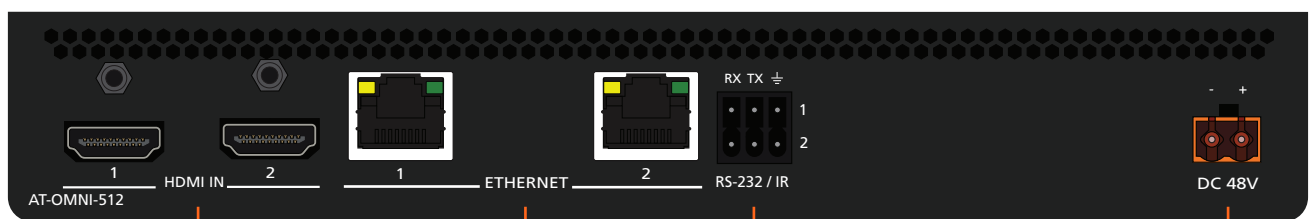
Package Contents

1 x AT-OMNI-512
1 x 6-pin push spring connector
1 x Wall/table mounting brackets
4 x Rubber feet
1 x Installation Guide

Panel Description



Front



Rear

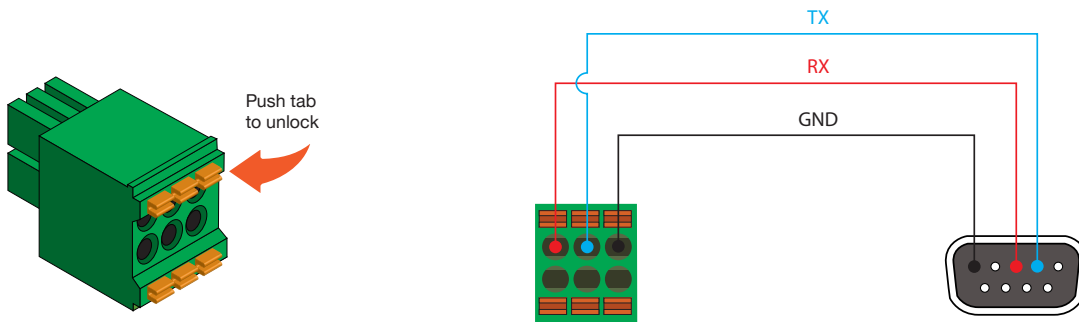
- 1 PWR**
This LED indicator glows bright green when the unit is powered.
- 2 HDMI 1 / HDMI 2**
These LED indicators show the active input status.
- 3 LINK 1 / LINK 2**
These LED indicators show the link status of the encoder.
- 4 ID**
Press this button to send a broadcast message to any network devices that are listening. This button is also used to set the encoder to factory-default settings. Refer to [ID Button \(page 24\)](#) for more information.
- 5 Reboot button**
Press this button, using a small, pointed object to reboot the unit.
- 6 HDMI IN 1 / HDMI IN 2**
Connect HDMI cables from these ports to an HD source.
- 7 ETHERNET 1 / ETHERNET 2**
Connect Ethernet cables from these ports to the Local Area Network (LAN).
- 8 RS-232 / IR**
Connect the included 6-pin push spring block to connect an automation system and an IR emitter or extender. [RS-232 Connections \(page 11\)](#) and [IR Connections \(page 12\)](#) for more information.
- 9 DC 48V**
Connect the optional 48V DC power supply to this receptacle. This power supply is available, separately, and can be purchased through Atlona.

Installation

RS-232 Connections

The AT-OMNI-512 provides RS-232 over IP which allows communication between an automation system and an RS-232 device. This step is optional. Either the top three or bottom three set of terminals can be used for RS-232.

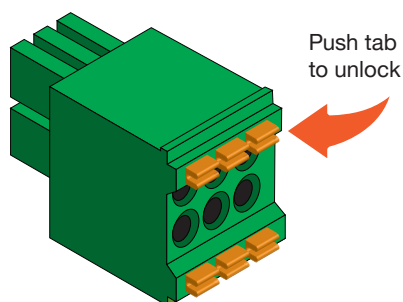
1. Use wire strippers to remove a portion of the cable jacket.
2. Remove at least 3/16" (5 mm) from the insulation of the RX, TX, and GND wires.
3. Insert the TX, RX, and GND wires into correct terminal on the included Phoenix block. If using non-tinned stranded wire, press the orange tab, above the terminal, while inserting the exposed wire. Repeat this step for the TX, RX, and GND connections.



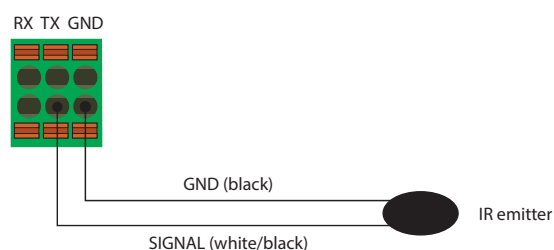
NOTE: Typical DB9 connectors use pin 2 for TX, pin 3 for RX, and pin 5 for ground. On some devices, pins 2 and 3 are reversed.

IR Connections

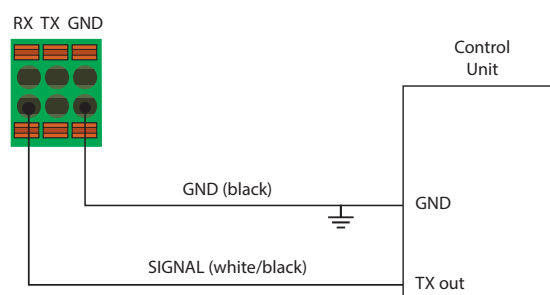
The same port that provides RS-232 connections also supports bidirectional IR pass-through, allowing a device to be controlled from either the headend or the decoder endpoint. This step is optional. Either the top three or bottom three set of terminals can be used for IR. Only the **RS-232 2** port (bottom set of connectors) supports both RS-232 and IR. Therefore, this port must be used for IR connections.



IR emitter configuration



IR extender configuration



The following components are required. Note that other components may also be used. However, Atlona has tested and verified the following components for this application:

- Xantech CB12 1 Zone Connecting Block
- Xantech 12 V PSU
- Atlona AT-IR-CS-RX
- Atlona AT-OMNI-IR-TX

Decoder

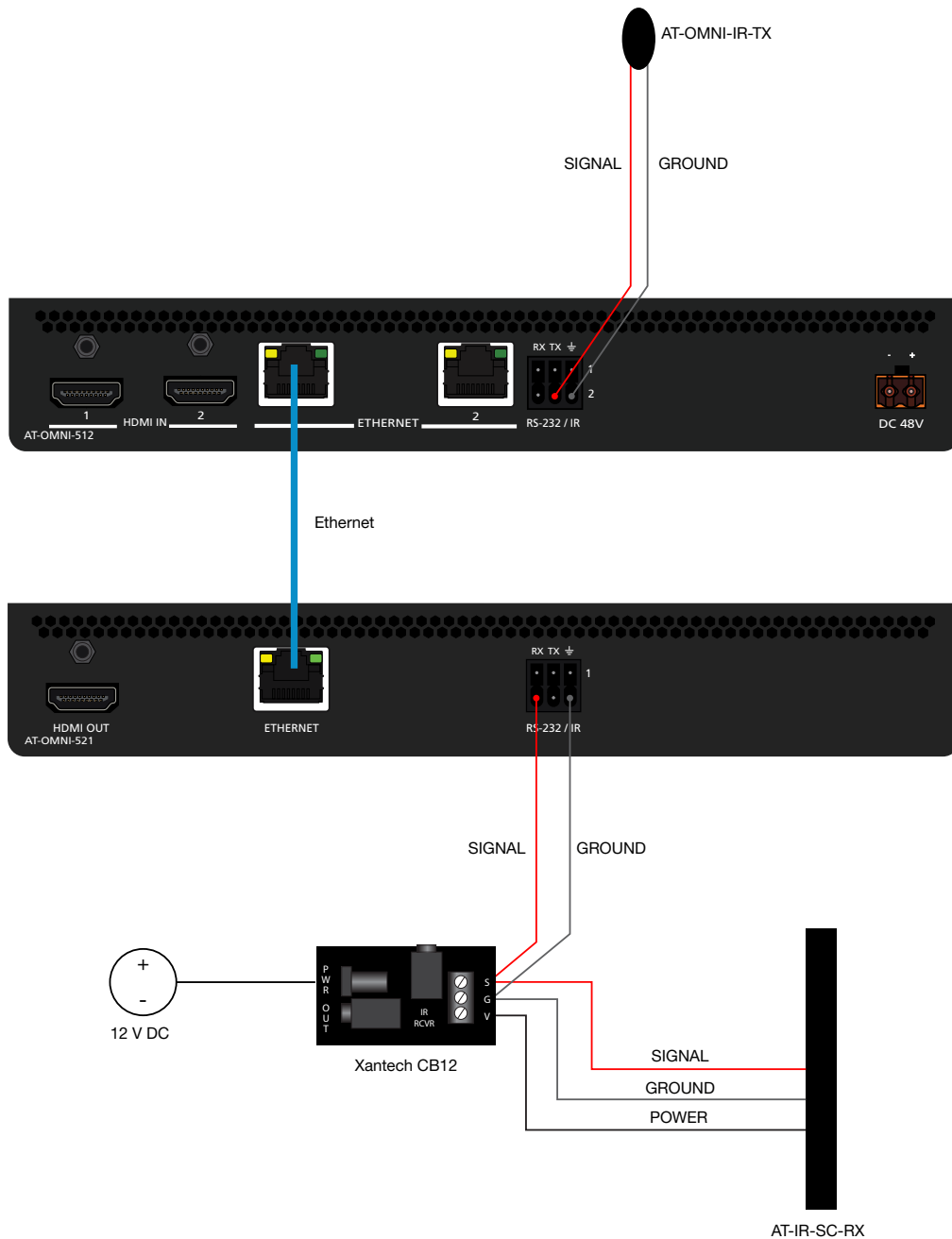
1. Connect the SIGNAL, GROUND, and POWER leads from the Xantech CB12 to the AT-IR-SC-RX.
2. On the Xantech CB12, connect the SIGNAL and GROUND leads to the **RX** and \perp pins, respectively, of the **RS-232 2** port.
3. Connect the Xantech 12 V power supply (or other compatible 12 V DC power supply) to the Xantech CB12.

Encoder

4. Connect the SIGNAL and GROUND pins, from the AT-OMNI-IR-TX, to the **TX** and \perp pins, respectively, of the RS-232 2 port.
5. Refer to the illustration on the next page to verify that the correct connections have been made.

Installation

For downstream IR control, either multicast or unicast mode can be used. However, when controlling a source from the decoder (viewing location), unicast mode should be used. Refer to [Unicast Mode \(page 25\)](#) and [Multicast Mode \(page 27\)](#) for more information.



IMPORTANT: The IR emitter must be placed no more than 1" from the IR sensor on the device, in order to function properly.

Connection Instructions

1. Connect an Ethernet cable from the **ETHERNET 1** and **ETHERNET 2** ports on the encoder to a PoE-capable switch on the Local Area Network (LAN). Note that if a PoE-capable switch is not available, the 48V DC power supply (sold separately) must be connected to the encoder.



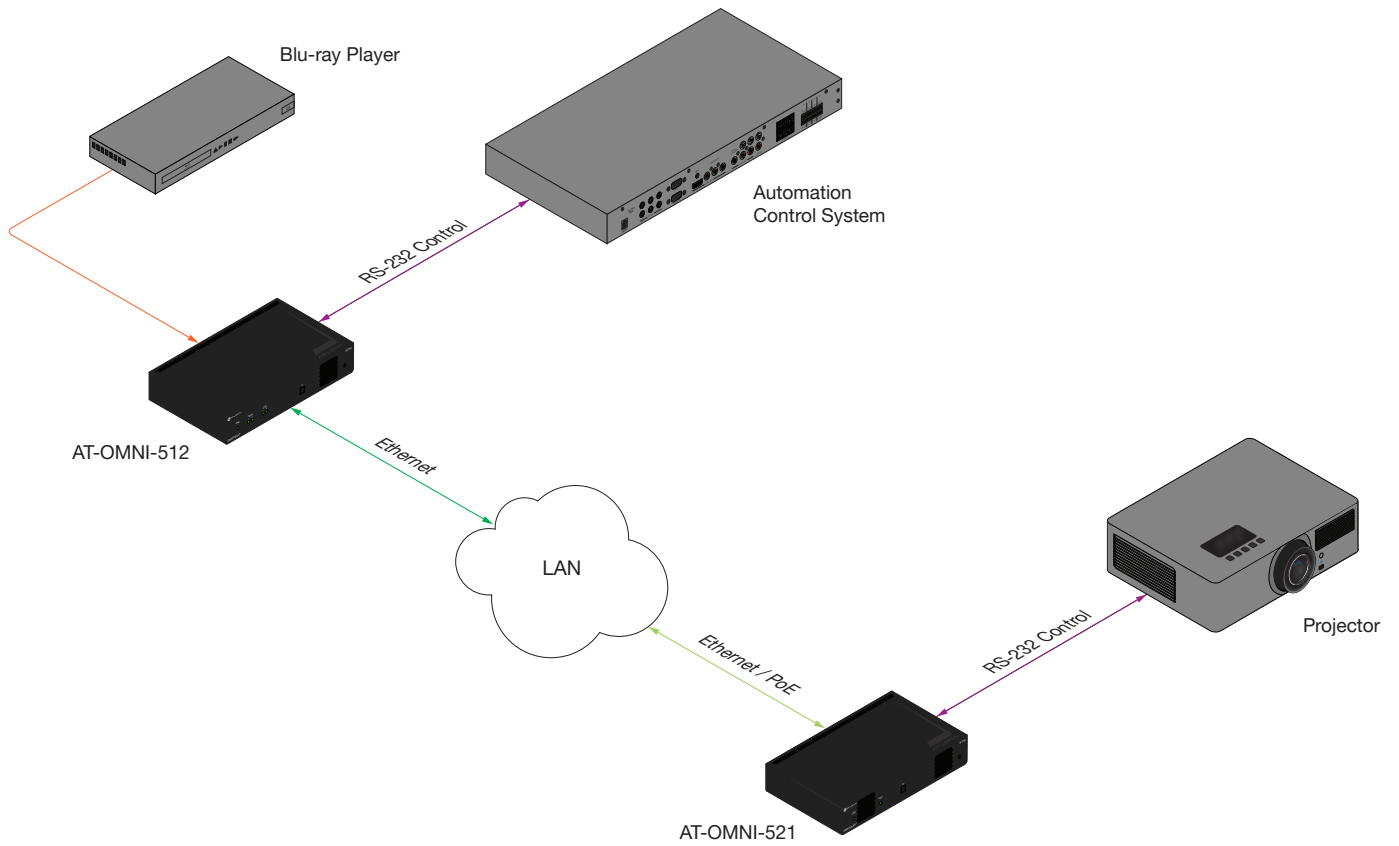
IMPORTANT: If a PoE-capable switch is not available, then the 48V DC power supply (sold separately) must be connected to the encoder.

2. Connect an HDMI cable from each source to the **HDMI** ports on the encoder.
3. RS-232 (optional)
Refer to [RS-232 Connections \(page 11\)](#) for wiring information.
 - Connect the RS-232 controller/automation system to the **RS-232** port on the encoder.
 - Connect the RS-232 device to the **RS-232** port on the decoder.
4. IR (optional)
Refer to [IR Connections \(page 12\)](#) for wiring information.
 - **IR emitter**
Connect the IR emitter to the **TX** and **GND** pins of the **RS-232 2** port. The IR emitter must be placed no more than 1" from the IR sensor on the device, in order to function properly.
 - **IR extender**
Connect the IR extender from the **RX** and **GND** pins of the **RS-232 2** port to the associated pins on the control system.
5. Once power is applied, the **PWR** indicator, on the front panel, will turn red, then amber, then green.



PWR indicator

Connection Diagram



Configuration

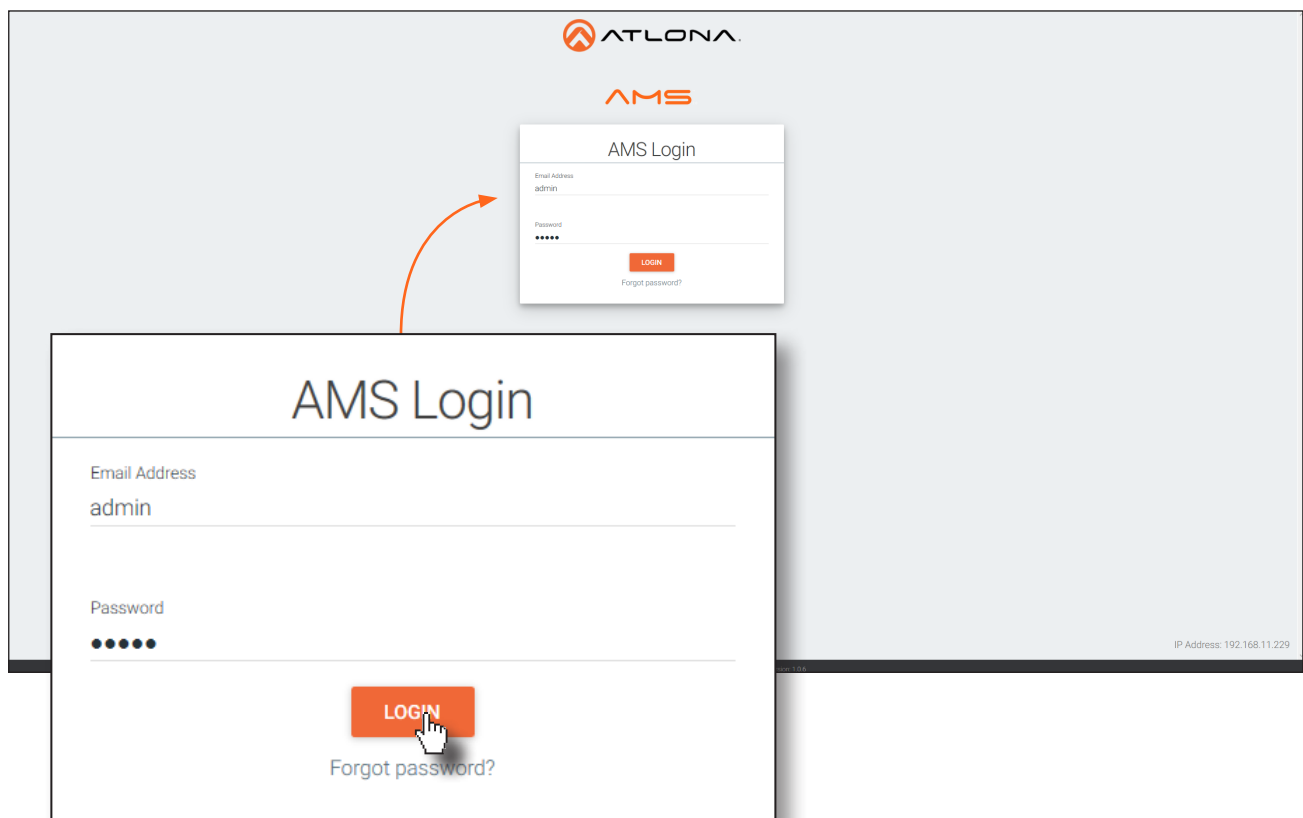
Discovery using AMS


It is recommended that the Atlona Management System (AMS) be used to configure and control OmniStream devices. AMS uses multicast Domain Name Server (mDNS) to automatically configure each AT-OMNI-512 on the network. AMS is free and can be downloaded from <https://www.atlona.com/ams>.

By default, the AT-OMNI-512 is set to DHCP mode, allowing a DHCP server (if present) to assign the encoder an IP address. Once an IP address has been assigned, the Atlona Management System (AMS) can be used to manage the product on the network. Note that AMS will only be able to discover encoders if they are on the same VLAN.

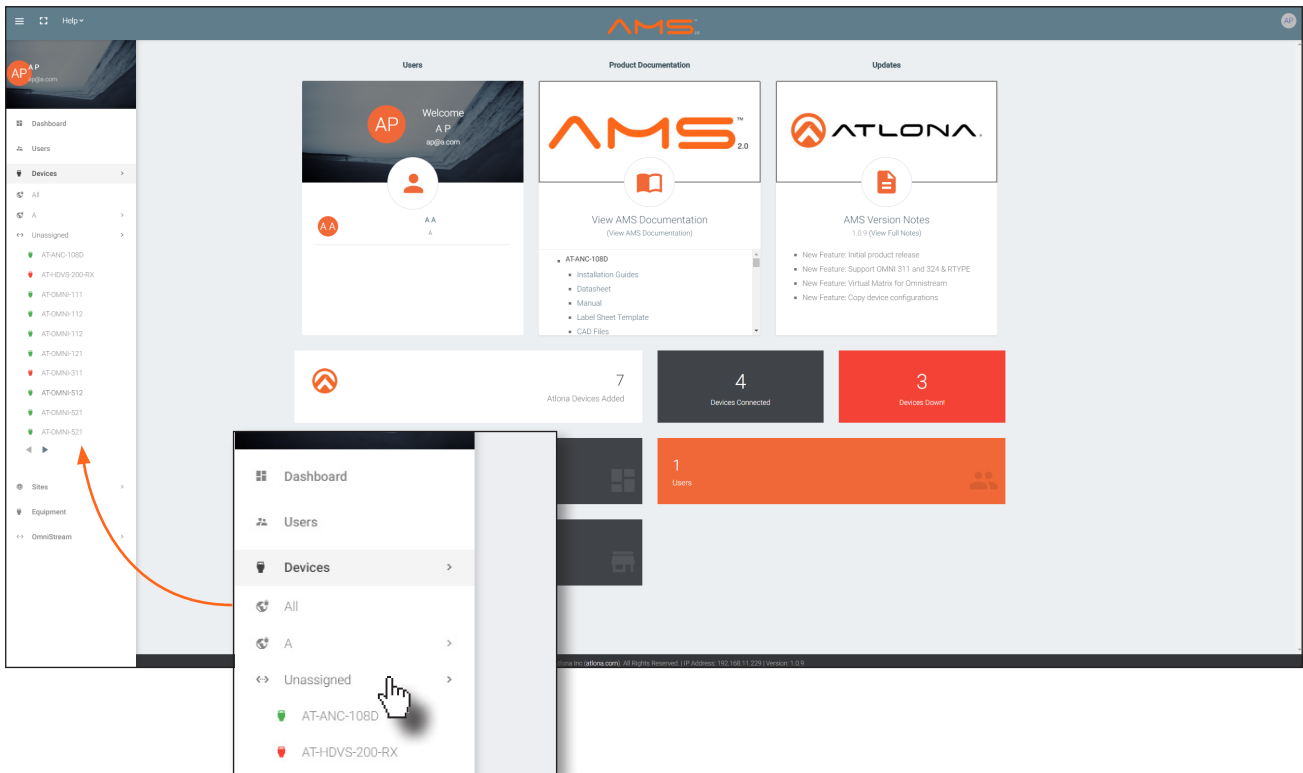
Accessing Encoders in AMS

1. Launch a web browser and enter the IP address of AMS, in the address bar.
2. Enter the required login credentials.



3. Click the **Login** button.
4. The AMS Dashboard will be displayed.
5. Click the  icon, in the upper-left corner of the AMS Dashboard.

6. Click **Devices** from the fly-out menu.
7. Click the **Unassigned** option.



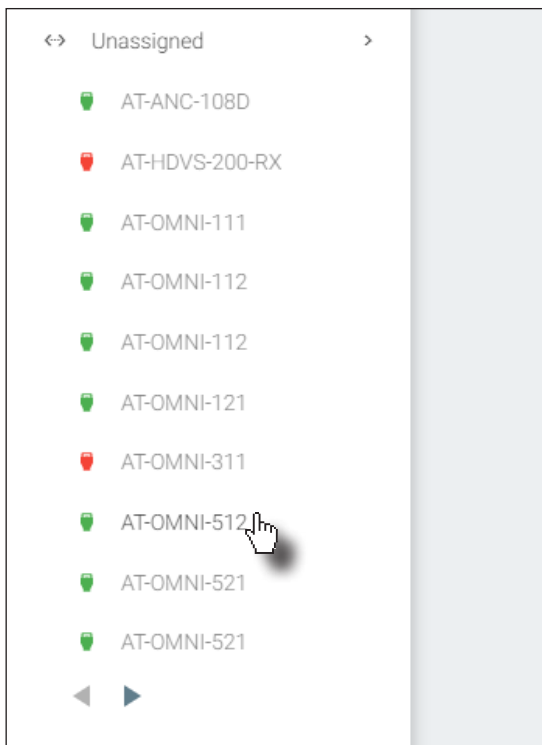
All available OmniStream encoders will be displayed under the **Unassigned** category. When a device is unassigned, it means that the device has not yet been assigned to a site, building, and/or room. Refer to the AMS User Manual for more information on these topics.

If a DHCP server is not found within 60 seconds, the encoder will be placed in Auto IP mode and assigned an IP address within the range of 169.254.xxx.xxx. If this occurs, configure the network interface of the computer that is running AMS, located on the same subnet (169.254.xxx.xxx, subnet mask 255.255.0.0). Refer to [Configuring a Static IP Address \(page 14\)](#) for more information on configuring an encoder in Auto IP mode.

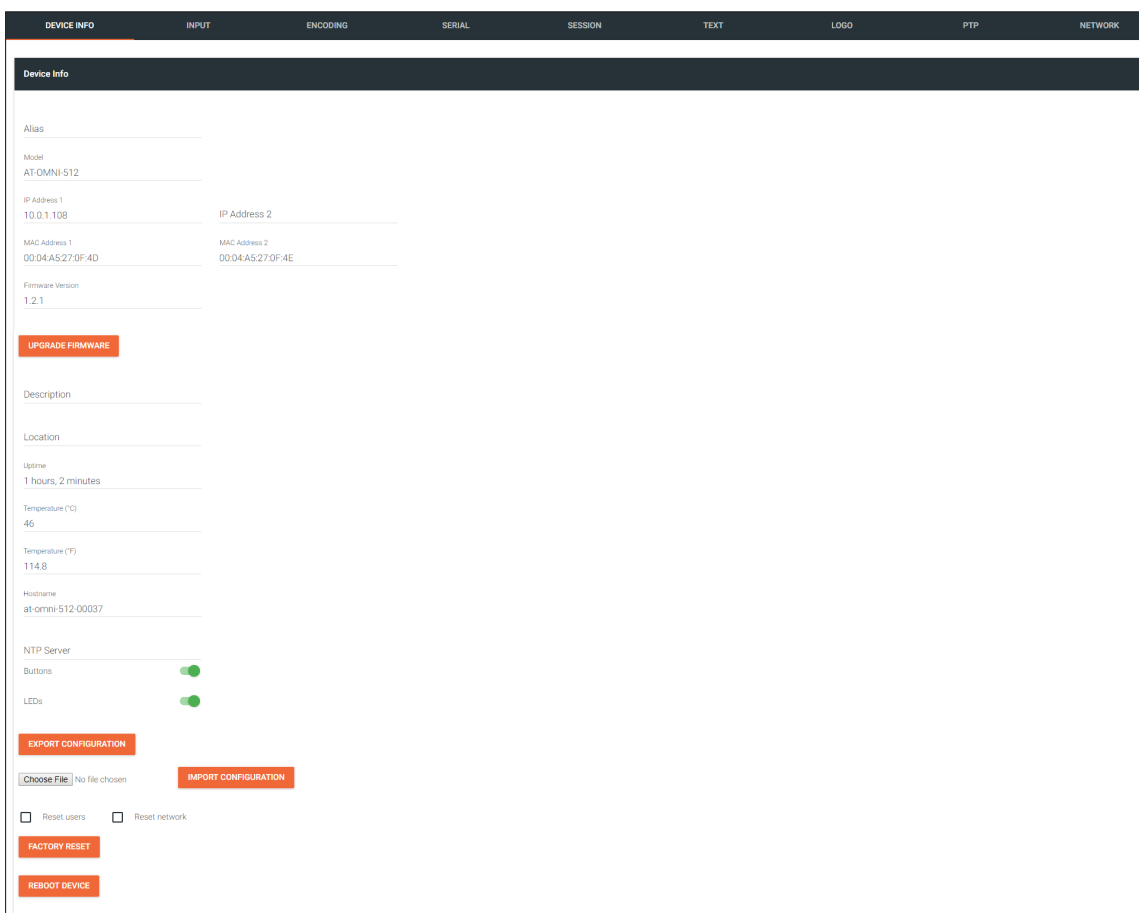
If no AT-OMNI-512 encoders are found, then verify the following:

- The computer that is running AMS must be on the same network as the AT-OMNI-512.
- Remove any network restrictions that may be in place. In order for mDNS to function properly, there must not be restrictions applied to the network.

- Click the desired AT-OMNI-521 from the **Unassigned** device list.



Once the unit is selected, the control interface for the AT-OMNI-512 will be displayed.



Configuring a Static IP Address

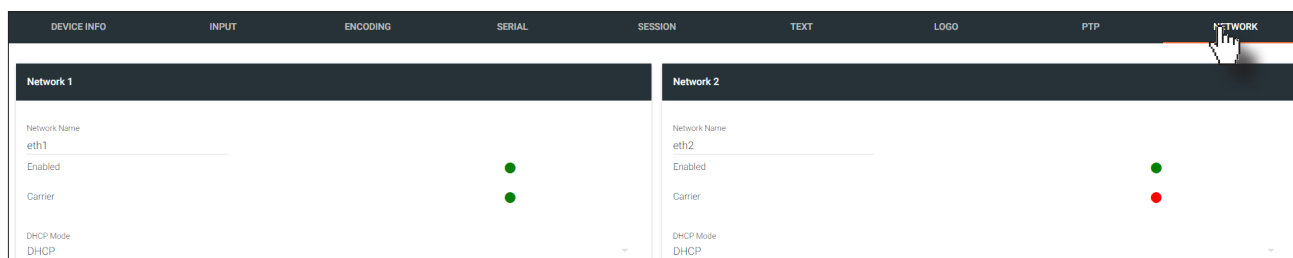
The following section is only required to set the AT-OMNI-512 encoder, currently in Auto IP mode, to a static IP address. If a DHCP server is not found within 60 seconds, encoders are automatically placed in Auto IP mode and will be assigned an IP address within the range 169.254.xxx.xxx. If this occurs, a static IP address can be assigned to the encoder in order for AMS to locate it on the network.

1. Make sure that the AT-OMNI-512 is powered. Power will need to be supplied either by the included external 48 V DC power supply or by connecting an Ethernet cable from the encoder to a PoE-capable switch. The Ethernet cable can be connected to either **ETHERNET 1** or **ETHERNET 2**.
2. Connect an Ethernet cable from the PC, directly to one of the Ethernet ports on the encoder. Make sure that the computer being used has AMS installed.
3. Configure the PC to a static IP address that is on the same subnet as the encoder.



IMPORTANT: Before continuing, write down the current IP settings in order to restore them, later. If *Obtain an IP address automatically* and *Obtain DNS server automatically* are selected, then this step is not required.

4. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#) for information on the login process.
5. Locate the AT-OMNI-512 encoder under the **Unassigned** section within AMS.
6. Click on the device.
7. Under AMS, click the **NETWORK** tab.



Network 1	Network 2
Network Name eth1	Network Name eth2
Enabled	Enabled
Carrier	Carrier
DHCP Mode DHCP	DHCP Mode DHCP

8. Click the **DHCP Mode** drop-down list and select **Static**.



DHCP
 Static
 Zero Conf

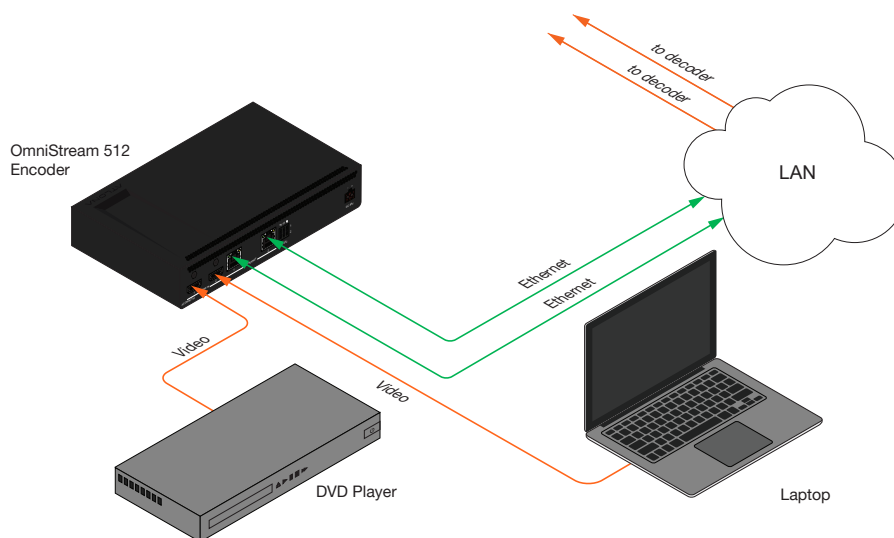
 Subnet

9. Enter the required network information for the encoder in the **IP Address**, **Subnet**, and **Gateway** fields.
10. Click the **Save** button in the bottom-right corner, to apply the changes.
11. Disconnect the encoder from the PC and connect it to the network.
12. The encoder is now ready for use.

Manual Setup

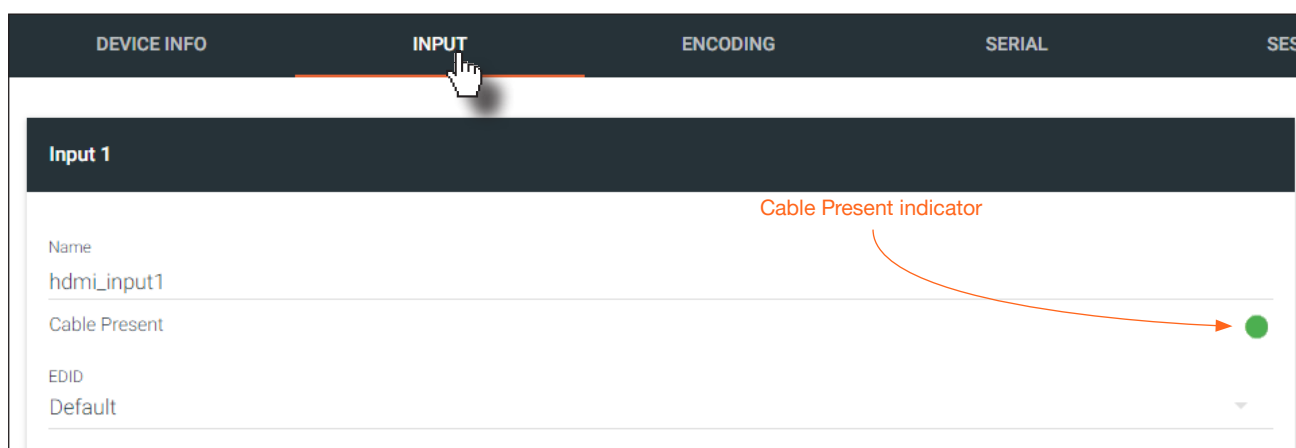


NOTE: The following section is *optional* and should *only* be performed if manual configuration of each encoder is desired. AMS automatically configures OmniStream products once they are connected to the network. Therefore, manual configuration is not required.



Checking the Input

1. Under AMS, click the **INPUT** tab.

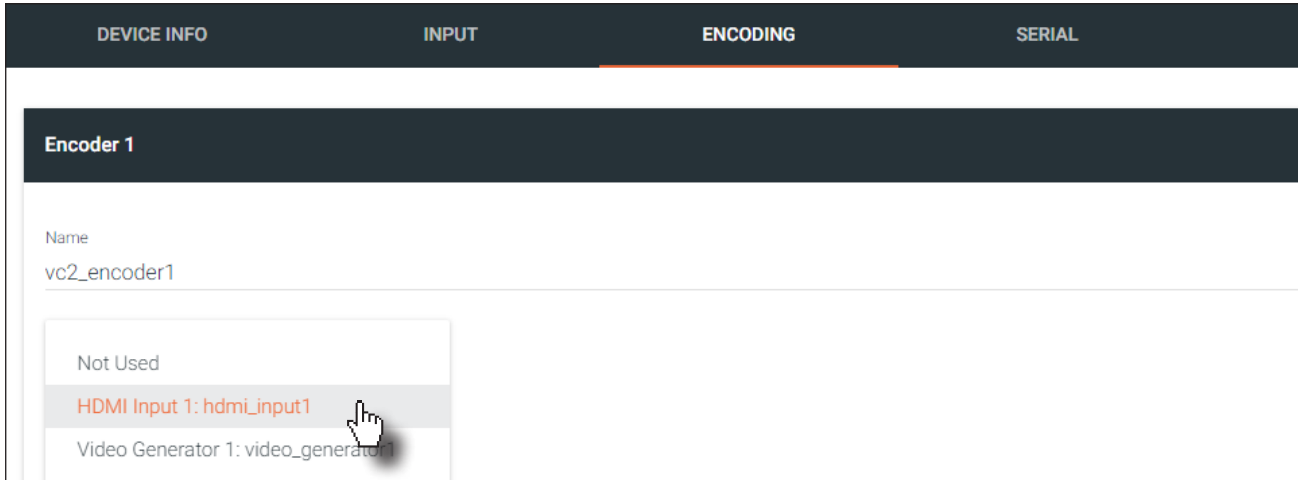


2. Check the **Cable Present** indicator. If a cable is connected from a source to an input on the encoder, then the indicator will be green. If no cable is connected, then the indicator will be red.

Note that this indicator may also reflect the integrity of the cable: if the cable is bad or does not maintain a secure connection, then the **Cable Present** indicator may also be displayed as red.

Input Selection

1. Under AMS, click the **ENCODING** tab.
2. Click the **Input** drop-down list and select the input for the desired source.



DEVICE INFO	INPUT	ENCODING	SERIAL
Encoder 1			
Name vc2_encoder1			
<div> Not Used HDMI Input 1: hdmi_input1 Video Generator 1: video_generator1 </div>			

3. Select the bit depth from the **Bit Depth** drop-down list.
4. Repeat the above steps for the **Encoder 2** section. If a secondary HDMI source is not connected, then these fields may be left at their current settings.
5. Click the **Save** button, near the bottom of the page, to save all changes.

Session Configuration

Once the inputs have been assigned to the desired source, the next step is to configure each session. A *session* is a multicast IP address that is assigned to an AV stream. The AT-OMNI-512 supports up to four sessions (two sessions per Ethernet cable). Session 1 and Session 3 are assigned to eth1 and Session 2 and Session 4 are assigned to eth2. Session 3 and Session 4 are for audio only.

1. Under AMS, click the **Session** tab.
2. Under the **Video** section, make sure that the **Enable Video** toggle switch is enabled (green). To disable video at any time, click the toggle switch so that it appears gray.
3. Enter the destination multicast IP address in the **Destination IP Address** field. By default, AMS will automatically populate this field.
4. Enter the port number in the **Destination UDP Port** field.
5. Scroll down to the **Audio** section and make sure that the **Enable Audio** toggle switch is enabled (green). To disable audio at any time, click the toggle switch so that it appears gray.
6. Enter a specific destination multicast IP address, if desired, in the **Destination IP Address** field. By default, AMS will automatically populate this field.
7. Enter the port number in the **Destination UDP Port** field.



IMPORTANT: AMS does not allow the same port numbers to be used on both video and audio. Always specify unique ports for both video and audio.

8. Under the **AUX** section, select the type of control from the **Source** drop-down list. This selection will be the method used for transmitting commands.

Source	Description
Commands	Commands are sent using CEC (over HDMI)
serial_port1	Commands are transmitted using Serial Port 1
serial_port2	Commands are transmitted using Serial Port 2

9. Make sure that the **Enable Aux** toggle switch is enabled (green). To disable aux at any time, click the toggle switch so that it appears gray.
10. Enter the destination multicast IP address in the **Destination IP Address** field. By default, AMS will automatically populate this field.
11. Enter the port number in the **Destination UDP Port** field.
12. Click the **Save** button, at the bottom of each section, to save all changes.
13. Repeat the above steps for each **Session**, as required.

Basic Operation

LED Indicators

The following table provides a listing of front-panel LED indicators and their status:

LED			Description
PWR	Off	○	<ul style="list-style-type: none"> If using a PoE switch, make sure that the port on the switch that is connected to the encoder, has PoE enabled. When the encoder is powered using PoE, the PWR indicator will be green. Check the Ethernet cable for possible damage or loose connections. Connect the optional 48V DC power supply (available from atlona.com) to the encoder. When using an external power supply, the PWR indicator will be red.
	Red	●	<ul style="list-style-type: none"> The encoder is booting.
	Green	●	<ul style="list-style-type: none"> The encoder is ready.
HDMI 1 / 2	Red	●	<ul style="list-style-type: none"> No source is connected to the input. Check the HDMI cable for possible damage or loose connections.
	Green	●	<ul style="list-style-type: none"> The link integrity between the source and the encoder is good.
LINK 1 / 2	Red	●	<ul style="list-style-type: none"> The optional 48V DC power supply is connected, but no Ethernet cables are connected between the switch and the ETHERNET port(s). Check the Ethernet cable for possible damage or loose connections.
	Green	●	<ul style="list-style-type: none"> Link integrity is good between the encoder and the network.

ID Button

The ID button serves two functions:

1. Sends a broadcast message, over the network, to any devices that may be listening.
2. Resets the encoder to factory-default settings.



Broadcast Messaging

Press and release the **ID** button to send a broadcast notification over the network to any devices that may be listening.

Reset to Factory-Default Settings.

1. Press and hold the **ID** button for approximately 30 seconds.
2. The LED indicators on the front panel will flash, then turn “off.”
3. The encoder is now reset and will need to be reconfigured.



WARNING: Performing a factory-default reset will erase all user-programmed settings from the encoder. IP settings are not preserved.

Rebooting OmniStream

To reboot the OmniStream encoder, press and release the recessed button, on the far-right side of the unit, using a small, pointed object. Rebooting the encoder does not reset the encoder to factory-default settings.



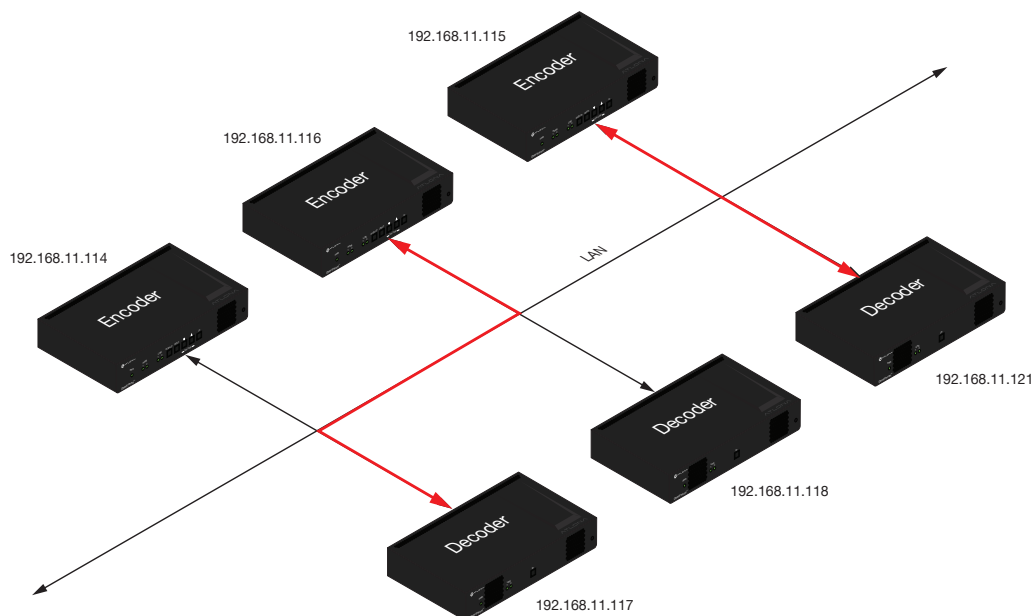
Unicast Mode

The term *unicast* is used to describe a configuration where information is sent from an encoder to a single decoder. Although it is common to have multiple encoder and decoder units within a system, it may also be desirable to restrict a single encoder to communicate with one decoder. In *unicast* mode, OmniStream encoders and decoders function similar to an n x 1 switcher. Changing the destination IP address at the encoder, will direct the stream to be received by a different decoder.

The illustration below shows three encoders and three decoders on a network, operating in *unicast* mode. The red lines indicate the data paths from each encoder to a separate (single) decoder.



NOTE: By default, both encoders and decoders are shipped in multicast mode.



1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Click **SESSION** in the menu bar and scroll down to the **Video** section.
3. Enter the IP address of the decoder in the **Destination IP Address** field. Repeat this process for each session.

<p>Video:</p> <p>Encoder vc2_encoder1</p> <p>Enable Video <input checked="" type="checkbox"/></p> <p>Destination IP Address 192.168.1.117</p>	<p>Video:</p> <p>Encoder vc2_encoder2</p> <p>Enable Video <input checked="" type="checkbox"/></p> <p>Destination IP Address 226.0.0.2</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------

An orange callout box labeled "IP address of decoder" points to the "192.168.1.117" field in the first encoder's configuration.

4. Scroll down to the bottom of the page and click the **SAVE** button to commit all changes.

Basic Operation

5. Go to the decoder AMS interface. Refer to the *OmniStream R-Type Dual-Channel A/V Decoder User Manual*, if necessary.
6. Click **IP INPUT** from the menu.
7. Remove the IP address from the **Multicast Address** field.
8. Click the **SAVE** button to commit changes.



Name
ip_input1

Enabled ☒

Interface
eth1

Multicast Address
Multicast Address

Port
1000

Field should be blank

9. Unicast setup is complete. The decoder unit will now receive streams exclusively from the encoder containing the IP address of this decoder.

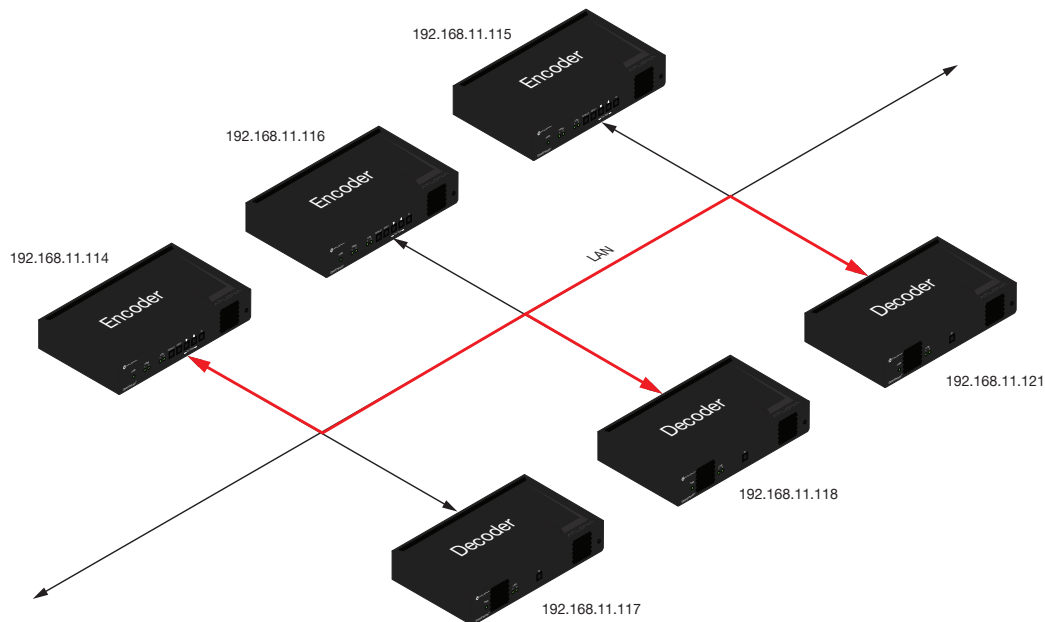
Multicast Mode


The term *multicast* is used to describe a configuration where information is sent from one or more points to a set of other points. For example, a single encoder can transmit data to multiple decoders. In addition, if multiple encoders are used, each encoder can stream data to any decoder that is not already receiving data from an encoder. In *multicast* mode, the OmniStream encoders and decoders function similar to a matrix switcher.

The illustration below shows three encoders and three decoders on a network, operating in *multicast* mode, where multiple decoders are subscribed to a single encoder. The red lines indicate the data paths from an encoder (192.168.11.117) to multiple decoders.



NOTE: By default, both encoders and decoders are shipped in multicast mode.



1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. The AMS Dashboard will be displayed.
3. Click the  icon, in the upper-left corner of the AMS Dashboard.
4. Click **Virtual Matrix** from the fly-out menu. Refer to [The Virtual Matrix \(page 60\)](#), if necessary.
5. Locate the desired encoder in the Virtual Matrix, as shown on the next page.
6. Create a cross-connection to the desired decoder. When a cross-connection is created, AMS will automatically assign a multicast IP address to both the encoder and decoder. By default, AMS automatically assigns a multicast IP address to each OmniStream encoder and decoder.


Refer to the illustration on the following page, if necessary.

OmniStream Virtual Matrix All Sites										
Encoders / Decoders	LEGEND	Andrew's AT-OMNI-122 192.168.11.181 at-omni-122-00548 Connected	AT-OMNI-121 192.168.11.34 at-omni-121-00461 Connected	AT-OMNI-122 192.168.11.86 192.168.11.87 at-omni-122-00242 Connected	AT-OMNI-521 192.168.11.39 at-omni-521-00064 Connected	AT-OMNI-122 192.168.11.160 192.168.11.161 at-omni-122-00381 Connected	Andrew's AT-OMNI-122 192.168.11.166 at-omni-122-00722 Disconnected	AT-OMNI-112 192.168.11.183 192.168.11.148 at-omni-112-00335 Disconnected	Andrew's AT-OMNI-111 192.168.11.167 at-omni-111-00355 Connected	AT-OMNI-512 192.168.11.31 at-omni-512-00037 Connected
Video View: Active	Audio All	HDMI 1	HDMI 2	HDMI 1	HDMI 2	HDMI 1	HDMI 2	HDMI 1	HDMI 2	HDMI 1
Data Flip Matrix										
AT-OMNI-112 192.168.11.89 192.168.11.88 at-omni-112-00349 Connected										
AT-OMNI-111 192.168.11.50 at-omni-111-00200 Connected										
AT-OMNI-512 192.168.11.51 at-omni-512-00003 Connected										
Andrew's AT-OMNI-112 192.168.11.116 at-omni-112-00722 Disconnected										
AT-OMNI-112 192.168.11.183 192.168.11.148 at-omni-112-00335 Disconnected										
Andrew's AT-OMNI-111 192.168.11.167 at-omni-111-00355 Connected										
AT-OMNI-512 192.168.11.31 at-omni-512-00037 Connected										

at-omni-111-00355 Connected	HDMI 1	✓	
AT-OMNI-512 192.168.11.31 at-omni-512-00037 Connected	HDMI 1	✓	
	HDMI 2		✓

AES67 Audio

AES67 audio is a standard for high-performance audio streaming over IP, providing several features such as synchronization, media clock identification, and connection management. AES67 does not support compressed audio formats, such as Dolby® Digital, and others. Source audio must be transmitted as LPCM 2.0 or 5.1.

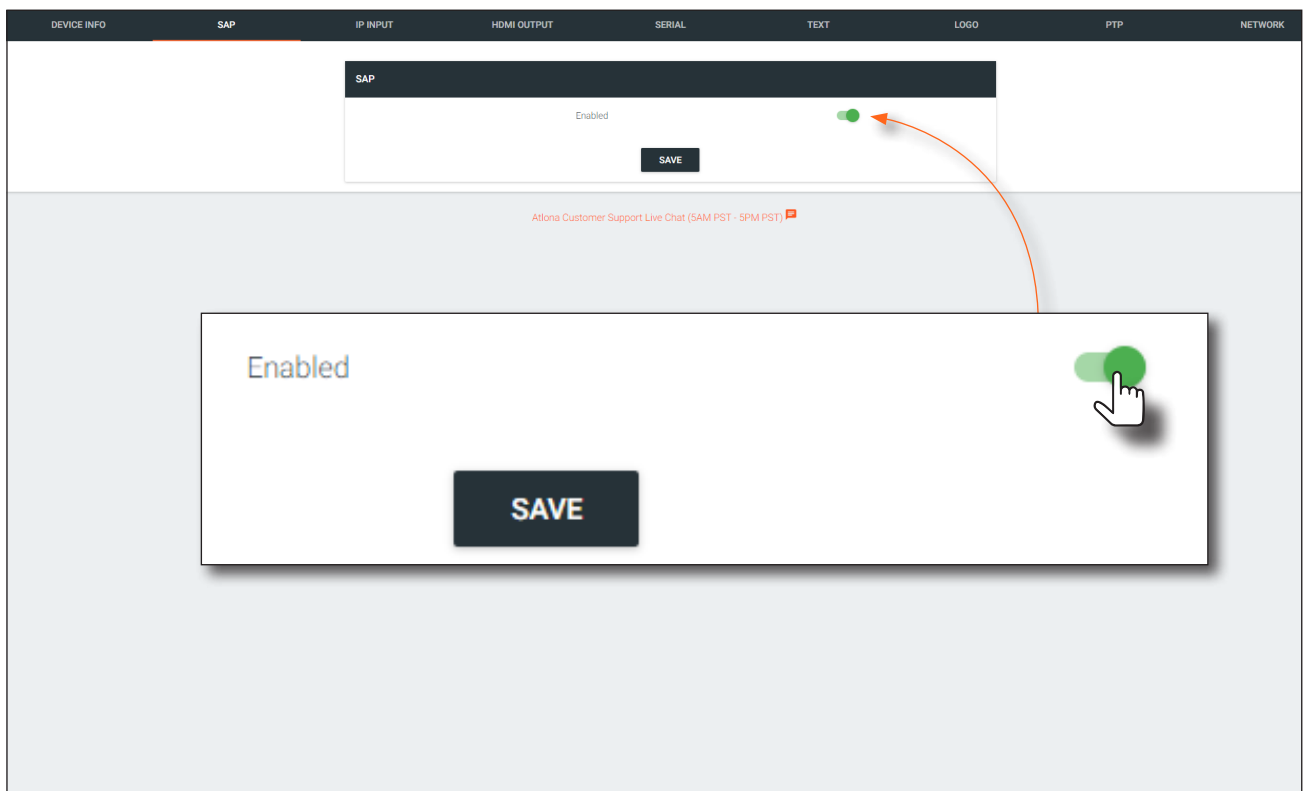
1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. The AMS Dashboard will be displayed.
3. Click the  icon, in the upper-left corner of the AMS Dashboard.
4. Click **Devices** > **All** and select the desired encoder from the **Device List**.
5. Click **SESSION** in the menu bar.
6. Scroll down to the **Audio** section and click the **Enable AES67** toggle switch to enable or disable this feature. When enabled, the toggle switch will be green.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	LOGO	TEXT	ALARMS	NETWORK	PTP
<div> <div> Session 1 </div> <div> Session 2 </div> <div> Session 3 </div> <div> Session 4 </div> </div>									
<div> <div> Name session1 </div> <div> Interface eth1 </div> <div> SAP Scrambling </div> <div> Video: Encoder vc2_encoder1 Enable Video </div> <div> Destination IP Address 225.0.0.5 </div> <div> Destination UDP Port 1000 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div> Audio: Source hdmi_input1 Enable AES67 </div> <div> Destination IP Address 225.0.0.6 </div> <div> Destination UDP Port 1100 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div> Aux: Source Not Used </div> <div>SAVE</div> </div> <div> <div> Name session2 </div> <div> Interface eth2 </div> <div> SAP Scrambling </div> <div> Video: Encoder vc2_encoder2 Enable Video </div> <div> Destination IP Address 225.0.0.7 </div> <div> Destination UDP Port 1000 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div> Audio: Source hdmi_input2 Enable AES67 </div> <div> Destination IP Address 225.0.0.8 </div> <div> Destination UDP Port 1100 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div> Aux: Source Not Used </div> <div>SAVE</div> </div> <div> <div> Name session3 </div> <div> Interface eth1 </div> <div> SAP Interval 10 </div> <div> Name session3 </div> <div> Description </div> <div> Originator - </div> <div> Audio: Source hdmi_input1 Enable AES67 </div> <div> Downmixing None </div> <div> Enable Audio </div> <div> Destination IP Address 239.69.0.3 </div> <div> Destination UDP Port 1100 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div>SAVE</div> </div> <div> <div> Name session4 </div> <div> Interface eth2 </div> <div> SAP Interval 10 </div> <div> Name session4 </div> <div> Description </div> <div> Originator - </div> <div> Audio: Source hdmi_input2 Enable AES67 </div> <div> Downmixing None </div> <div> Enable Audio </div> <div> Destination IP Address 239.69.0.4 </div> <div> Destination UDP Port 1100 </div> <div> TTL 255 </div> <div> FEC Enable </div> <div> FEC Rows 0 </div> <div> FEC Columns 0 </div> <div>SAVE</div> </div>									

Enable AES67 toggle switch (Session 1)

Basic Operation

7. Select the type of downmixing from the **Downmixing** drop-down list, if desired. Available options are: **None**, **Stereo**, or **Mono**.
8. Click the **SAVE** button within the **Session** section.
9. Go to the decoder interface and click **SAP** from the menu bar, at the top of the screen. Under the **SAP** section, click the **Enable** toggle switch and enable SAP. When enabled, the toggle switch will be green. Refer to the *OmniStream R-Type A/V Decoder User Manual*, if necessary. If the decoder is to receive AES67 audio, this step is *required*.
10. Click the **SAVE** button on the **SAP** page.




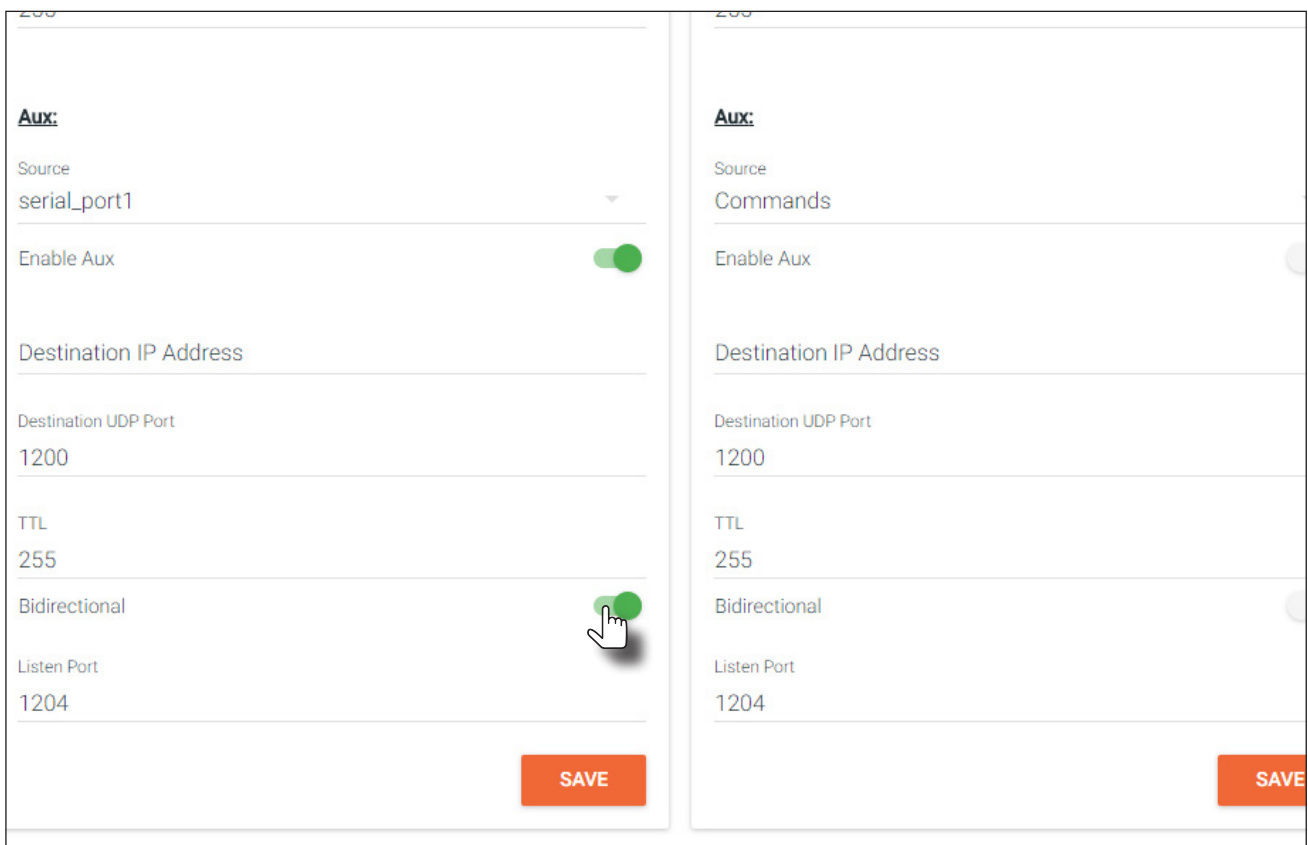
IR Control

OmniStream provides IR control from either the headend / source location to the displays (downstream) or from the viewing location to the headend (upstream). For downstream IR control, either multicast or unicast mode can be used. However, when controlling a source from the viewing location, unicast mode should be used. Refer to [Unicast Mode \(page 25\)](#) and [Multicast Mode \(page 27\)](#) for more information.



NOTE: Only the **RS-232 2** port supports both serial and IR. The IR emitter or IR receiver must be connected to this port. Refer to [RS-232 Connections \(page 11\)](#) and [IR Connections \(page 12\)](#) for wiring information.

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. The AMS Dashboard will be displayed.
3. Click the  icon, in the upper-left corner of the AMS Dashboard.
4. Locate the desired encoder from the AMS Device List, then click **SESSION** in the menu bar.
5. Scroll down and locate the **Aux** section.
6. Click the **Source** drop-down list and select the desired serial port.
7. Click the **Enable** toggle switch to enable the auxiliary (Aux) channel. When enabled, the toggle switch will be green.
8. Click the **Bidirectional** toggle switch to enable bidirectional control. Enabling this feature will provide the option of connecting the IR receiver to either the encoder or decoder. When enabled, the toggle switch will be green.
9. Click the **SAVE** button to commit changes.



Aux:

Source
serial_port1

Enable Aux ☒

Destination IP Address

Destination UDP Port
1200

TTL
255

Bidirectional ☒

Listen Port
1204

SAVE

Aux:

Source
Commands

Enable Aux ☐

Destination IP Address

Destination UDP Port
1200

TTL
255

Bidirectional ☐

Listen Port
1204

SAVE

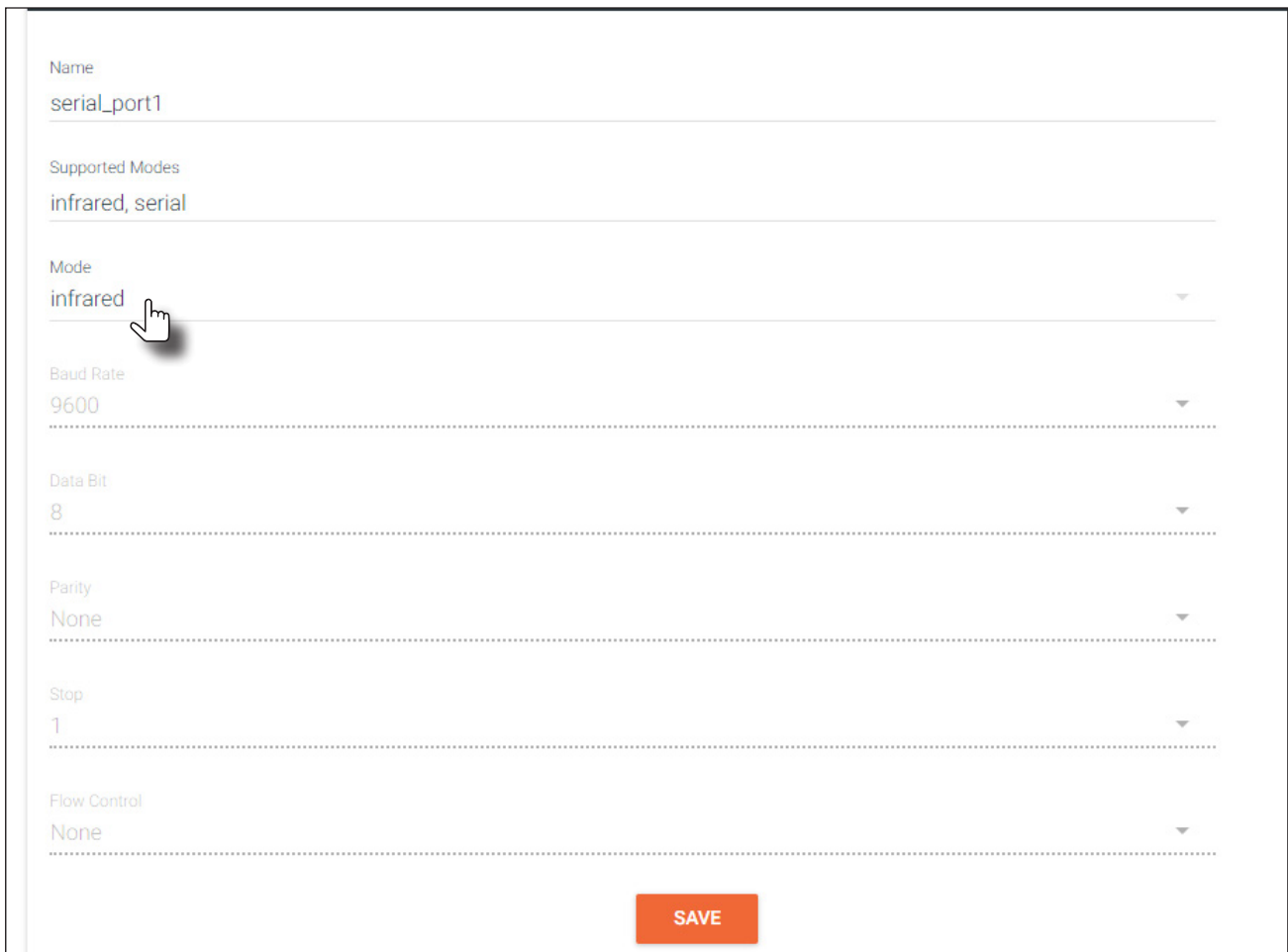
10. Scroll up to the menu bar and click **SERIAL**.

11. Under the **Serial Port 2** section, click the **Mode** drop-down list and select **Infrared**.



NOTE: Some hardware versions of OmniStream do not support IR. If **infrared** is not an option, then the version of OmniStream hardware being used, does not support IR. Contact Atlona for obtaining another unit.

12. Click the **SAVE** button to commit changes.



Name
serial_port1

Supported Modes
infrared, serial

Mode
infrared

Baud Rate
9600

Data Bit
8

Parity
None

Stop
1

Flow Control
None

SAVE

13. Go to the decoder. Refer to the *OmniStream R-Type A/V Decoder User Manual*, if necessary.

14. Under the **Serial Port 2** section, click the **Mode** drop-down list and select **Infrared**.

15. Click the **SAVE** button to commit changes.



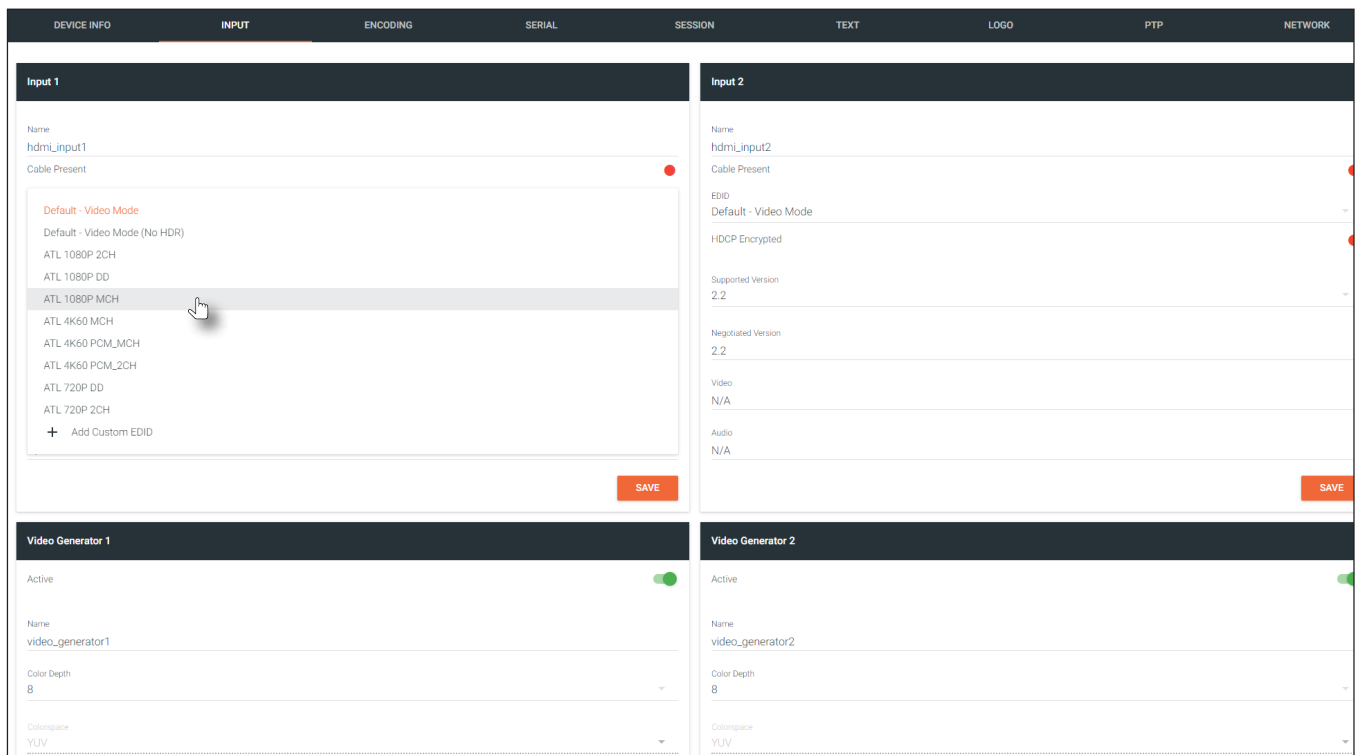
IMPORTANT: When connecting the IR emitter to the encoder, the IR lens of the emitter must be within 1" of the IR window on the source device.

EDID Management

OmniStream encoders provide EDID management for each input. The encoder can be assigned one of several included EDID presets or can be assigned a custom EDID. Raw EDID data can be copied from displays or other sink devices, that are connected to OmniStream decoders.

Selecting an EDID Preset

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Click **INPUT** in the menu bar.
3. Click the **EDID** drop-down list to select the desired EDID.



The screenshot displays the AMS web interface with the **INPUT** menu selected. The interface is divided into two main sections: **Input 1** and **Input 2**. Each section contains a list of EDID presets and a **SAVE** button. A mouse cursor is shown hovering over the **ATL 1080P MCH** option in the **Input 1** list.

Input 1	Input 2
Name: hdmi_input1	Name: hdmi_input2
Cable Present: ●	Cable Present: ●
EDID: Default - Video Mode	EDID: Default - Video Mode
HDCP Encrypted: ●	HDCP Encrypted: ●
Supported Version: 2.2	Supported Version: 2.2
Negotiated Version: 2.2	Negotiated Version: 2.2
Video: N/A	Video: N/A
Audio: N/A	Audio: N/A
SAVE	SAVE

Video Generator 1	Video Generator 2
Active: ●	Active: ●
Name: video_generator1	Name: video_generator2
Color Depth: 8	Color Depth: 8
Colorspace: YUV	Colorspace: YUV

4. Click the **SAVE** button to commit changes.

Using a Custom EDID

Encoders can be assigned a custom EDID. The raw EDID data must be in hexadecimal format. Commas or spaces can be included as delimiters to separate each hexadecimal value.

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Click **INPUT** in the menu bar.
3. Click the **EDID** drop-down list.
4. Scroll down to the bottom of the list and select **+ Add Custom EDID**.
5. Enter the name of the EDID in the **EDID Name field**. Spaces and special character are valid entries. Use a descriptive name for this field.

Add Custom EDID

EDID Name
 3840 x 2160 YUV 60 Hz

Raw EDID
 |

Raw EDID

CANCEL

SUBMIT

- Enter the EDID data in the **Raw EDID** field. EDID data can be copy and pasted from an EDID editor and must be in hexadecimal format. Commas or spaces can be included as delimiters to separate each hexadecimal value.
- Click the **SUBMIT** button to commit changes or click **CANCEL** to abort the addition of a custom EDID. Once a custom EDID is created, it will be added to the drop-down list and can be selected without re-entering the information.

The following tables provide a list of available EDID selections.

EDID	2CH LPCM	MCH LPCM	DTS	Dolby	Dolby Digital*	DTS-HD MA †	Dolby True HD*
Default -Video Mode	No	Yes	Yes	Yes	Yes	Yes	Yes
Default - Video Mode (No HDR)	No	Yes	Yes	Yes	Yes	Yes	Yes
1080P 2CH	Yes	No	No	No	No	No	No
1080P DD	No	No	Yes	Yes	No	No	No
1080P MCH	No	Yes	Yes	Yes	Yes	Yes	Yes
4K60 MCH	No	Yes	Yes	Yes	Yes	Yes	Yes
4K60 PCM MCH	No	Yes	No	No	No	No	No
460 LPCM 2CH	Yes	No	Yes	Yes	Yes	Yes	Yes
720P DD	No	No	Yes	Yes	No	No	No
720P 2CH	Yes	No	No	No	No	No	No

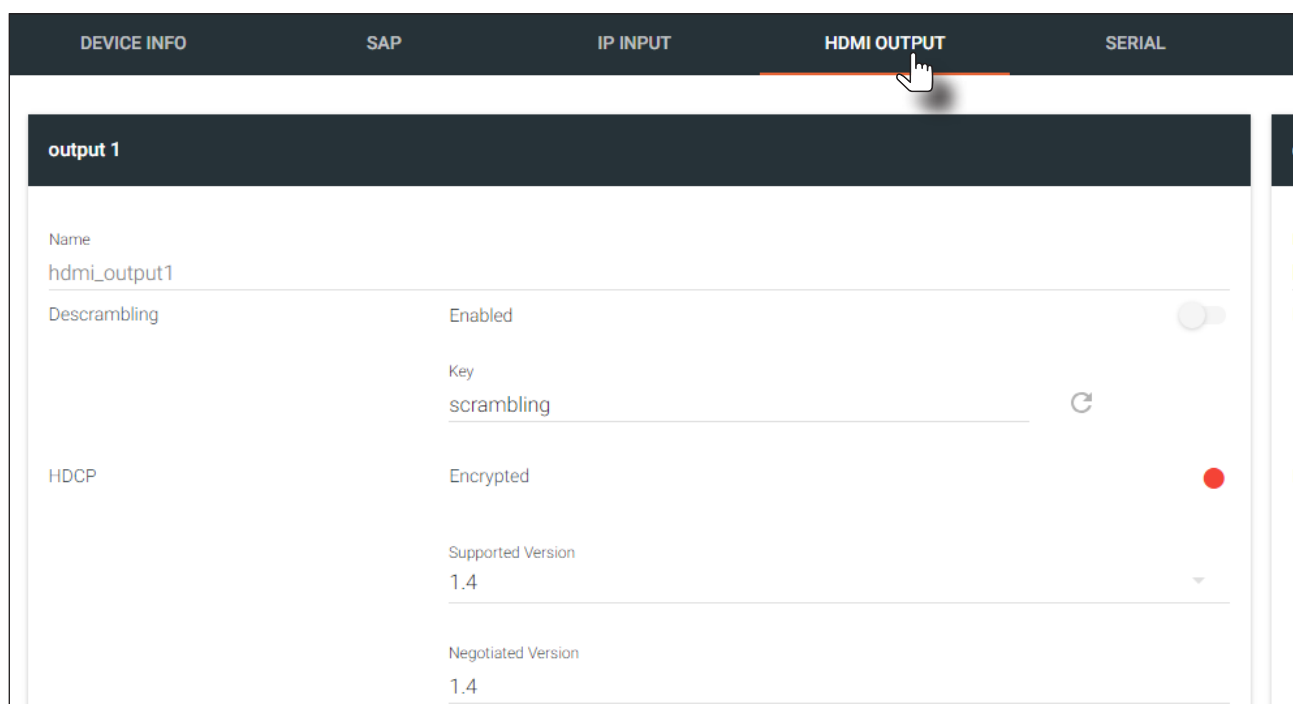
* Dolby Atmos® is carried with either Dolby Digital Plus or Dolby True HD audio streams.

† DTS:X is carried with DTS-HD MA audio streams.

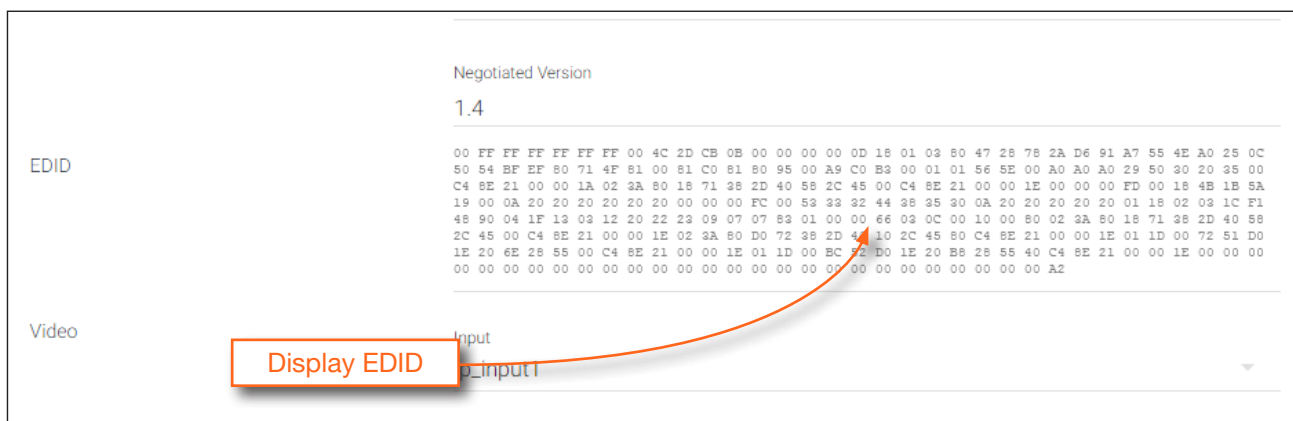
Copying an EDID from the Display

In order to allow the source device to send all AV formats that are supported by the display device, the EDID from the decoder must be copied to the encoder. Access to a decoder will be required.

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Make sure the display, where the EDID will be fetched, is connected to the decoder. Select the desired decoder from within AMS.
3. Click **HDMI OUTPUT** in the menu bar.



4. Locate the **EDID** section. This is the EDID of the display which is connected to the decoder. Click and select the data in this field, then press [CTRL]+[C] to copy the data.



5. Select the desired encoder, within AMS.
6. Click **INPUT** in the menu bar.
7. Click the **EDID** drop-down list.

8. Scroll down to the bottom of the list and select + **Add Custom EDID**.
9. Enter the name of the EDID in the **EDID Name field**. Spaces and special character are valid entries. Use a descriptive name for this field.

Add Custom EDID

EDID Name

Samsung 30"

Raw EDID

```

00 FF FF FF FF FF FF 00 4C 2D CB 0B 00 00 00 0D 18 01 03 80 47 28 78 2A D6 91 A7 55 4E A0
25 0C 50 54 BF EF 80 71 4F 81 00 81 C0 81 80 95 00 A9 C0 B3 00 01 01 56 5E 00 A0 A0 A0 29 50 30
20 35 00 C4 8E 21 00 00 1A 02 3A 80 18 71 38 2D 40 58 2C 45 00 C4 8E 21 00 00 1E 00 00 00 FD 00
18 4B 1B 5A 19 00 0A 20 20 20 20 20 20 00 00 00 FC 00 53 33 32 44 38 35 30 0A 20 20 20 20 01
18 02 03 1C F1 48 90 04 1F 13 03 12 20 22 23 09 07 07 83 01 00 00 66 03 0C 00 10 00 80 02 3A 80
18 71 38 2D 40 58 2C 45 00 C4 8E 21 00 00 1E 02 3A 80 D0 72 38 2D 40 10 2C 45 80 C4 8E 21 00
00 1E 01 1D 00 72 51 D0 1E 20 6E 28 55 00 C4 8E 21 00 00 1E 01 1D 00 BC 52 D0 1E 20 B8 28 55
40 C4 8E 21 00 00 1E 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 A2
  
```

CANCEL SUBMIT

10. Paste the EDID data into the **Raw EDID** field by pressing [CTRL]+[P].
11. Click the **SUBMIT** button to commit changes or click **CANCEL** to abort the addition of the custom EDID. Once a custom EDID is created, it will be added to the drop-down list and can be selected without re-entering the information.

Scrambling

OmniStream supports 128-bit Advanced Encryption Standard (AES) scrambling for both audio and video streams. Scrambling can be enabled or disabled through AMS, and can be individually applied to video, audio, or both. Scrambling can be enabled either before or after the decoding process is started. Data streams cannot be scrambled. By default, scrambling is disabled.

Standard Method

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Click **SESSION** in the menu bar.
3. Under the desired Session, click the **Scrambling** toggle switch to enable it. Once enabled, the toggle switch will be green and the **Key** field will be displayed:


DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION
<div> <div> Session 1 </div> <div> Session 2 </div> <div> Session 3 </div> </div>				
<div> <div> Name session1 </div> <div> Interface eth1 </div> <div> SAP </div> <div> Interval 10 </div> <div> Name session1 </div> <div> Description </div> <div> Originator - </div> <div> Scrambling </div> <div> Key scrambling </div> <div> Video: Encoder vc2_encoder1 Enable Video </div> </div> <div> <div> Name session2 </div> <div> Interface eth2 </div> <div> SAP </div> <div> Interval 10 </div> <div> Name session2 </div> <div> Description </div> <div> Originator - </div> <div> Scrambling </div> <div> Key scrambling </div> <div> Video: Encoder vc2_encoder2 Enable Video </div> </div> <div> <div> Name session3 </div> <div> Interface eth1 </div> <div> SAP </div> <div> Interval 10 </div> <div> Name session3 </div> <div> Description </div> <div> Originator - </div> <div> Scrambling </div> <div> Audio: Source hdmi Enable Downm None Enable </div> </div>				

Key field

- Enter the desired scrambling key in the **Key** field.



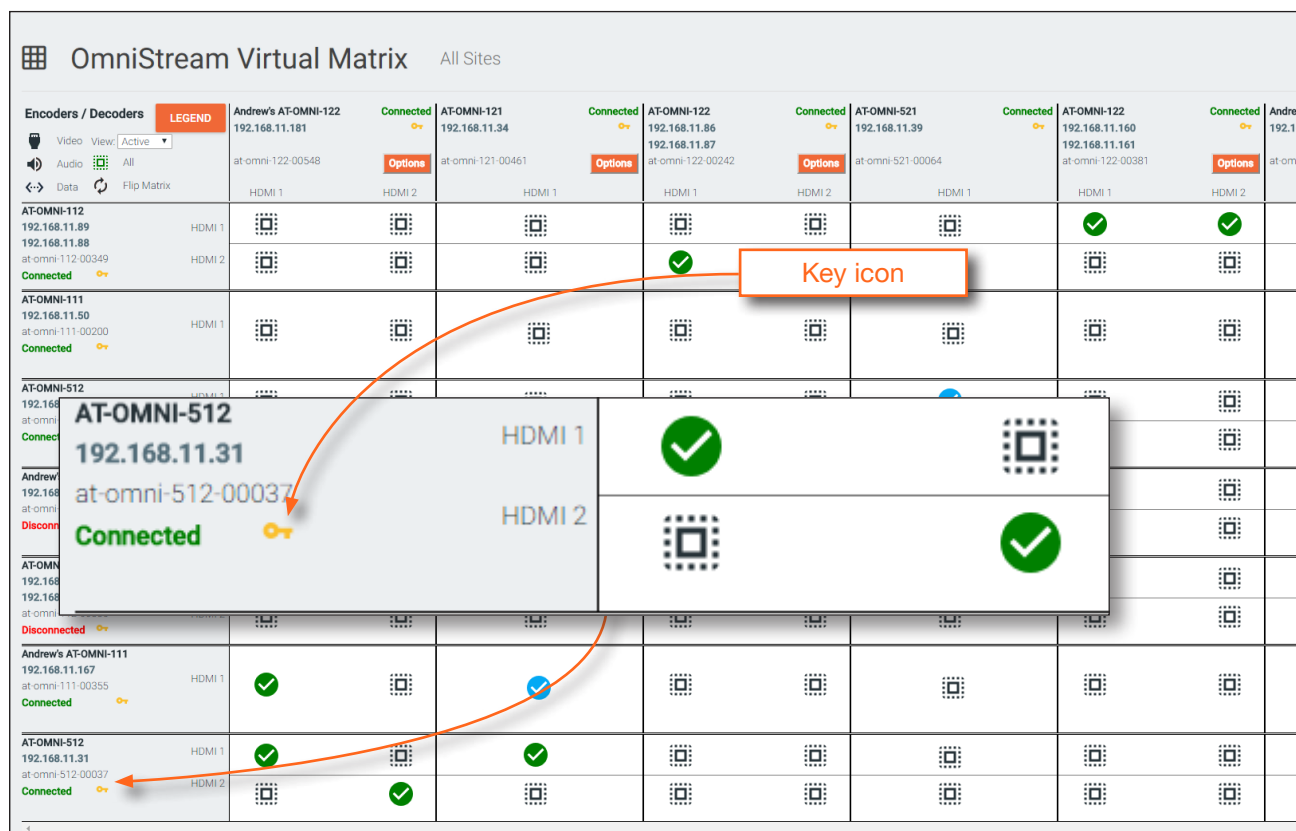
NOTE: If a user-defined key is specified, then it must be a minimum of eight alphanumeric characters. Special characters and spaces are not permitted.

- If a random key is desired, click the  icon to generate a random key using AMS. Each time this icon is clicked, a new scrambling key will be generated.

- Click the **Save** button at the bottom of the page to commit the changes.

Using the Virtual Matrix

- Access the Virtual Matrix. Refer to [The Virtual Matrix \(page 60\)](#) for more information.
- Locate the desired encoder or decoder. Scrambling is handled on the encoder; descrambling is handled on the decoder.
- Click the yellow key icon. The Scrambling dialog box will be displayed. If the key icon for a decoder is clicked, then the Descrambling dialog box will be displayed.



The screenshot displays the 'OmniStream Virtual Matrix' interface. It features a grid of encoders and decoders. A yellow key icon is highlighted on the 'AT-OMNI-512' decoder row, with a red arrow pointing to it from a label 'Key icon'. A modal dialog box is open over the 'AT-OMNI-512' decoder, showing its details and a 'Connected' status. The dialog box has a yellow key icon in the bottom right corner. The grid shows various devices with their IP addresses, names, and connection status (Connected or Disconnected). The interface includes a 'LEGEND' tab and a 'Video View: Active' dropdown.

- Click the **Enable** toggle switch to enable scrambling for the desired session.

Scrambling - AT-OMNI-512

Session 1

Enable ☒

Key
scrambling

↻

Session 2

Enable ☒

Key
scrambling

↻

CLOSE **SAVE**

- Enter the desired scrambling key using one of the following methods:

- Manual enter a user-defined key in the **Key** field.

Scrambling - AT-OMNI-512

Session 1

Enable ☒

Key
skrAmb1ingk3Y

↻


Session 2

Enable ☒

Key
scrambling

↻

CLOSE **SAVE**

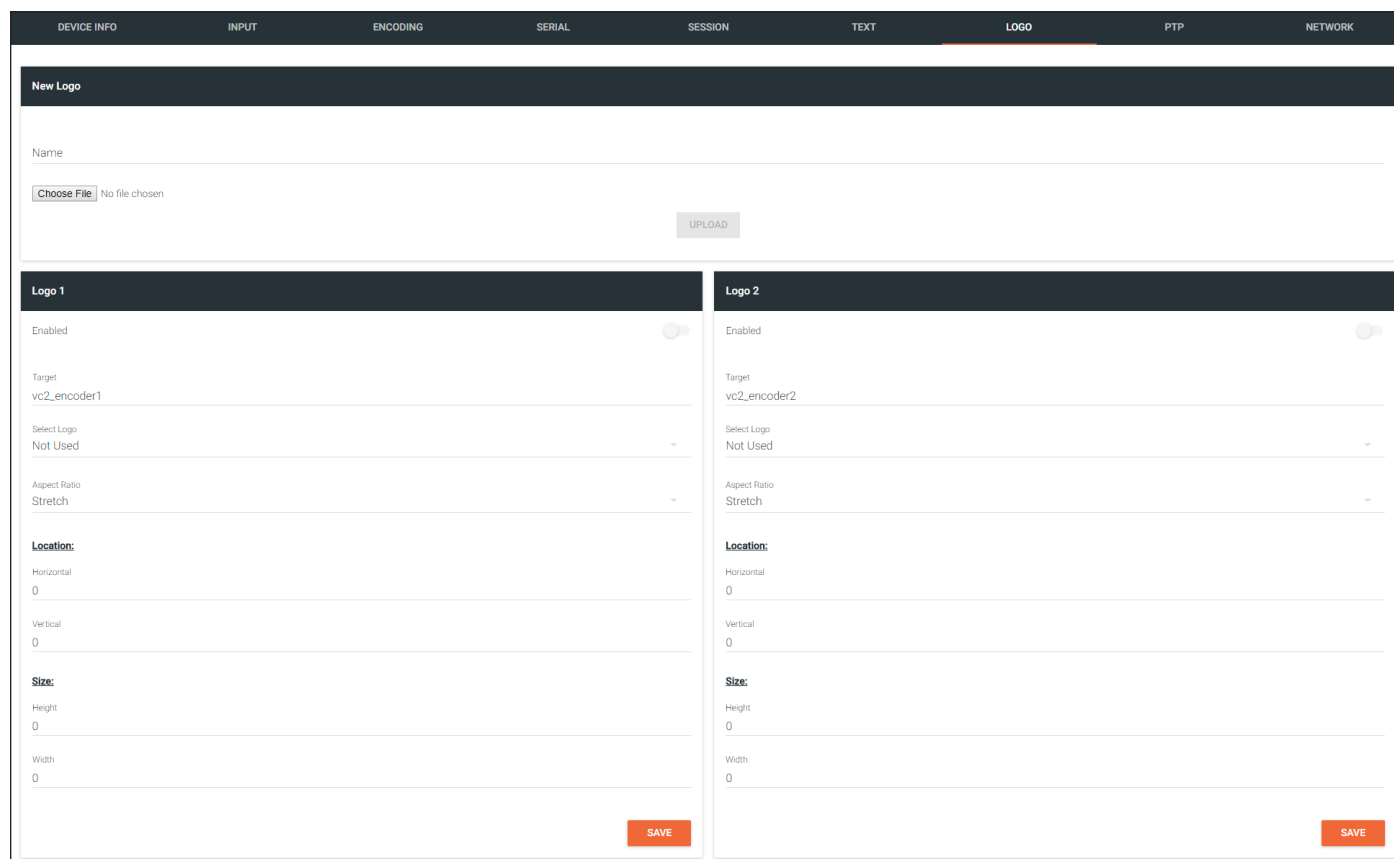
- Click the  icon to generate a random key using AMS. Each time this icon is clicked, a new scrambling key will be generated.
- Repeat the above process for each session.
 - Click the **Save** button to commit the changes.

Slate / Logo Insertion

Slate / logo insertion is managed from within AMS. The difference between a “slate” and “logo” is in the size of the image and how it is used: Logos are classified as smaller, low-resolution images that can be positioned at specified locations on the screen. Slates occupy the entire screen. Note that while logos may be used as slates, the image quality will be degraded, as the image will be scaled to fill the screen.

Slate / logo insertion can be performed on both the encoder and decoder. When slate / logo insertion is configured from the encoder, the image that is displayed on the output (decoder) is determined by the encoder IP addresses to which each decoder is subscribed. When configuring slate / logo insertion from the decoder, the presence of the image is specified on the (individual) HDMI output. Refer to the User Manual for the AT-OMNI-521 for information on managing slate / logo insertion on decoder units.

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#) if necessary.
2. Click the **LOGO** tab in the menu bar.



3. Under **New logo**, click the **Choose File** button and select the image to be used. Note that only .png files are valid selections.
4. Enter the name of the image in the **Name** field. If a name is not specified, then the **UPLOAD** button will be disabled.
5. Click the **UPLOAD** button to upload the file.
6. A new logo box will be added with the name of the logo that was provided in Step 4.



NOTE: If the selected image will be used as a *logo*, then proceed with Steps 7 through 9. If the image will be used as a *slate*, skip to Step 10.

7. Click the logo from the **Select Logo** drop-down list. To prevent the image from being displayed, select the Not used option.
8. Click the **Aspect Ratio** drop-down list to set the aspect ratio of the image. Selecting **Keep** will maintain the aspect ratio. Select **Stretch** to scale the image to fill the screen.
9. Enter the location of the image, by entering the desired values in the **Horizontal** and **Vertical** fields.
10. Click the **ENCODING** tab.
11. Click the **Slate mode** drop-down list, and select **Off**, **Manual**, or **Auto**.
 - **Off**
Disables the image from being displayed.
 - **Manual**
The image will always be displayed, superimposed on the source signal, and will remain even if the source signal is lost.
 - **Auto**
The image will only be displayed when the source signal is lost. For example, this mode is useful in conference room applications for displaying system instructions when no sources are connected.
12. Click the **Slate Logo** drop-down list and select the desired logo. Note that if **Slate Mode** is set to **Off**, then this field will not be visible.
13. Click the **SAVE** button to apply all changes.

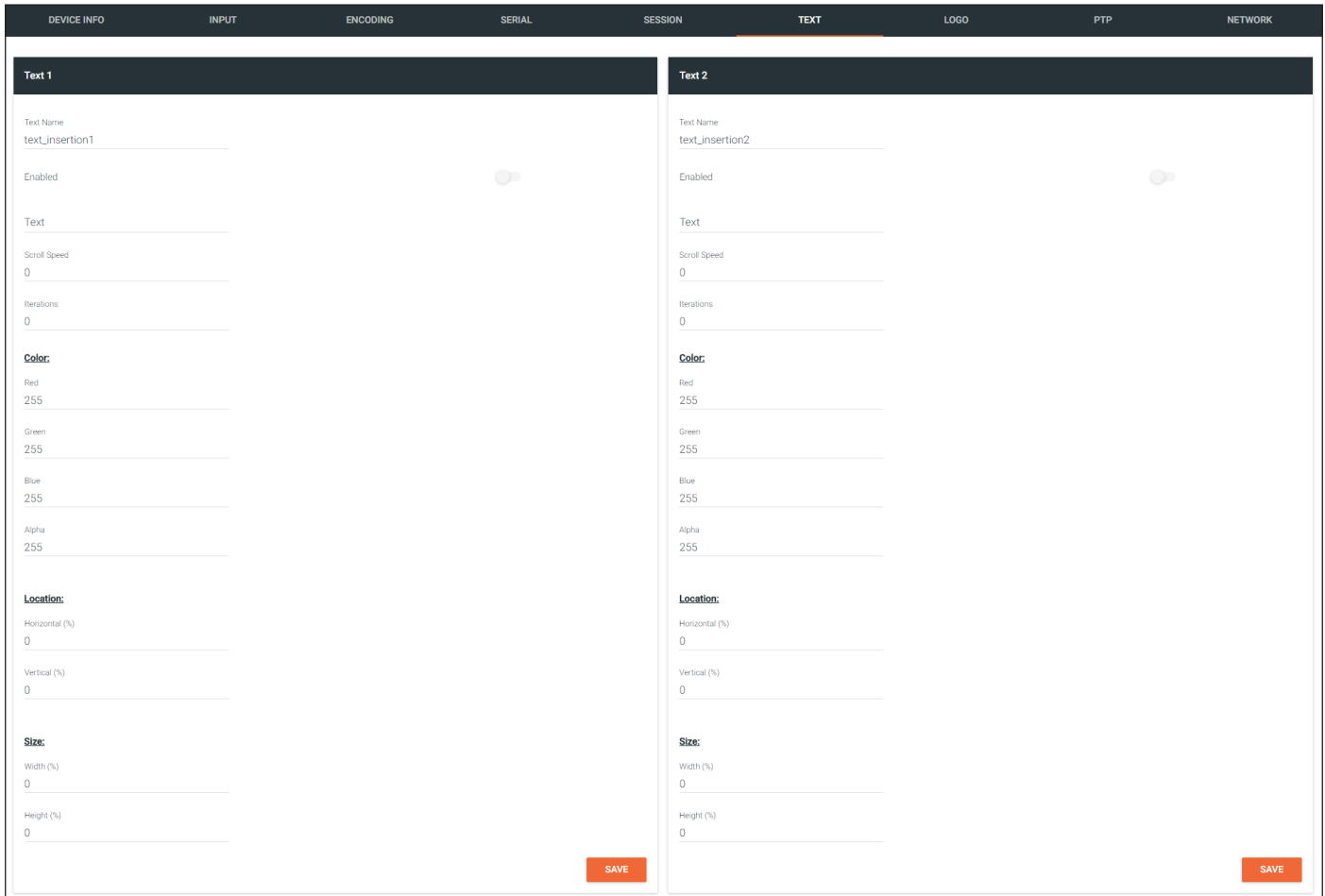
Deleting Slates / Logos

Follow the instructions below to remove a logo from the **Logo** tab.

1. Click the **LOGO** tab in the menu bar.
2. Click the **DELETE** button for the desired logo box. If the **DELETE** button is disabled, do the following:
 - a. Scroll down to the **Logo Insertion** boxes.
 - b. Click the **Select Logo** drop-down list and select **Not Used**.
 - c. Click the **SAVE** button.
 - d. Refresh the page.
 - e. Click the **DELETE** button to remove the logo.

Text Insertion

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#) if necessary.
2. Click the **TEXT** tab in the menu bar.



The screenshot displays the AMS interface with the **TEXT** tab selected in the top menu bar. The interface is divided into two main panels, **Text 1** and **Text 2**, each containing a form for configuring text insertion. Both panels have a **SAVE** button at the bottom right.

Text 1 Configuration:

- Text Name:** text_insertion1
- Enabled:** Toggle switch (ON)
- Text:** (Empty text input field)
- Scroll Speed:** 0
- Iterations:** 0
- Color:**
 - Red:** 255
 - Green:** 255
 - Blue:** 255
 - Alpha:** 255
- Location:**
 - Horizontal (%):** 0
 - Vertical (%):** 0
- Size:**
 - Width (%):** 0
 - Height (%):** 0

Text 2 Configuration:

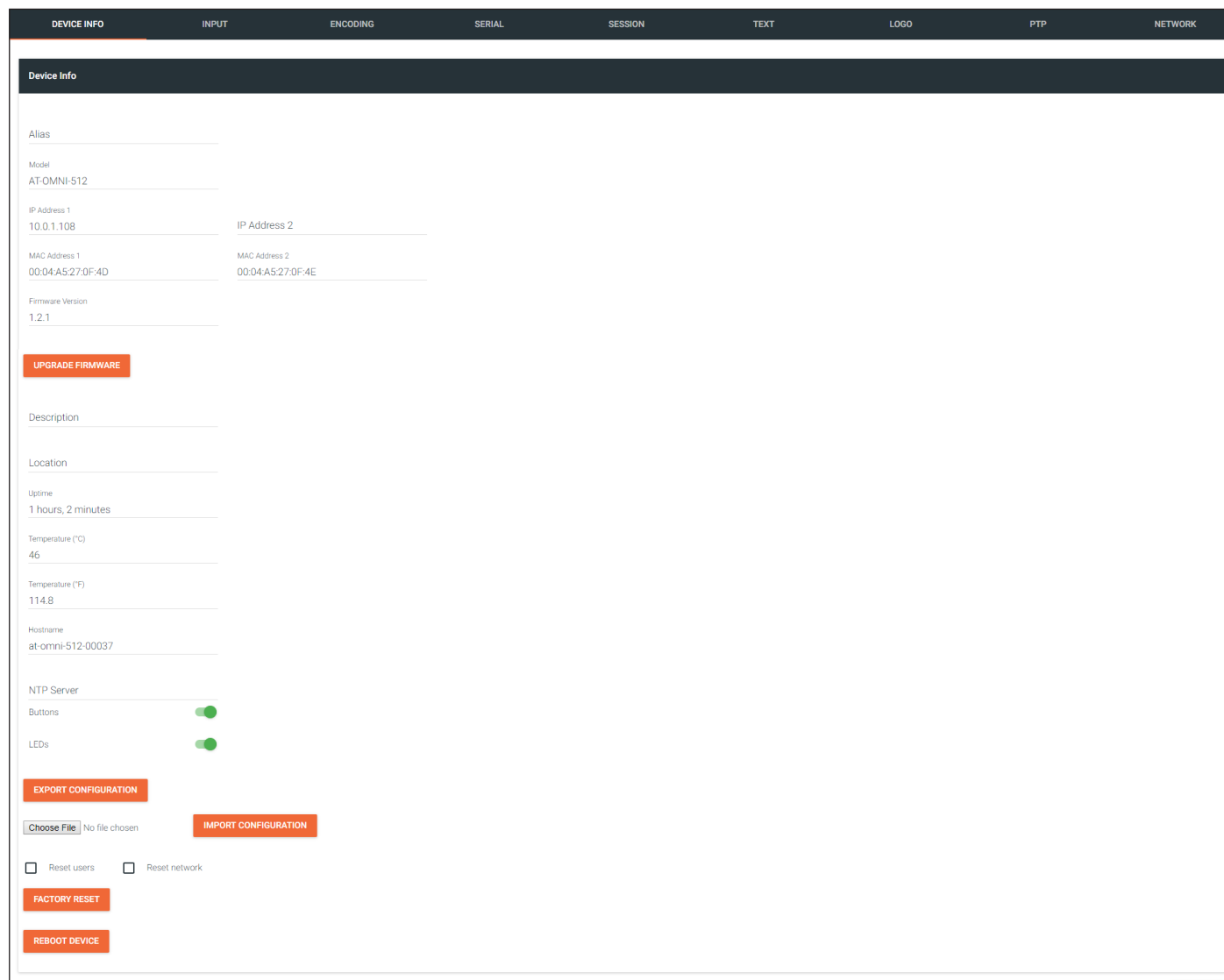
- Text Name:** text_insertion2
- Enabled:** Toggle switch (OFF)
- Text:** (Empty text input field)
- Scroll Speed:** 0
- Iterations:** 0
- Color:**
 - Red:** 255
 - Green:** 255
 - Blue:** 255
 - Alpha:** 255
- Location:**
 - Horizontal (%):** 0
 - Vertical (%):** 0
- Size:**
 - Width (%):** 0
 - Height (%):** 0

3. Click the **Enable** toggle switch, to allow the text to be displayed.
4. In the **Text** field, enter the desired text.
5. Specify the speed of the scrolling text in the **Scroll Speed** field. Values from -255 to 255 are valid. Negative numbers will scroll the text from left to right. Positive numbers will scroll text from right to left.
6. Enter the number of iterations in the **Iteration** field. Set this field to 0 (zero) to set the number of iterations to infinity.
7. Click the **Color** drop-down list to select the color of the text. The **Red**, **Green**, and **Blue** fields can be changed to further modify the color of the text. Adjust the **Alpha** field to control the transparency of the text. A value of 255 is opaque and a value of 0 is transparent. Numbers from 0 to 255 are valid for each of these fields.
8. Specify the location of the text in the **Horizontal (%)** and **Vertical (%)** fields. Each of these values is based on the horizontal and vertical resolution of the screen.
9. Specify the size of the text in the **Width (%)** and **Height (%)** fields. Each of these values is based on the horizontal and vertical resolution of the screen.
10. Click the **SAVE** button to apply all changes.

The AMS Interface

Device Info tab

The **Device Info** tab provides general information about the encoder. The decoder has an identical interface.



The screenshot shows the 'Device Info' tab in the AMS interface. The top navigation bar includes tabs for DEVICE INFO, INPUT, ENCODING, SERIAL, SESSION, TEXT, LOGO, PTP, and NETWORK. The 'Device Info' tab is active, displaying a form with the following fields and controls:

- Alias:** A text input field.
- Model:** A text input field containing 'AT-OMNI-512'.
- IP Address 1:** A text input field containing '10.0.1.108'.
- IP Address 2:** A text input field.
- MAC Address 1:** A text input field containing '00:04:A5:27:0F:4D'.
- MAC Address 2:** A text input field containing '00:04:A5:27:0F:4E'.
- Firmware Version:** A text input field containing '1.2.1'.
- UPGRADE FIRMWARE:** An orange button.
- Description:** A text input field.
- Location:** A text input field.
- Uptime:** A text input field containing '1 hours, 2 minutes'.
- Temperature (°C):** A text input field containing '46'.
- Temperature (°F):** A text input field containing '114.8'.
- Hostname:** A text input field containing 'at-omni-512-00037'.
- NTP Server:** A text input field.
- Buttons:** A toggle switch, currently turned on (green).
- LEDs:** A toggle switch, currently turned on (green).
- EXPORT CONFIGURATION:** An orange button.
- Choose File:** A button next to the text 'No file chosen'.
- IMPORT CONFIGURATION:** An orange button.
- Reset users:** A checkbox.
- Reset network:** A checkbox.
- FACTORY RESET:** An orange button.
- REBOOT DEVICE:** An orange button.

Alias

Enter a name for the unit in this field. This is optional.

Model

The mode number of the unit.

IP Address 1 / IP Address 2

Displays the IP address of the **ETHERNET 1** and **ETHERNET 2** ports, respectively.

MAC Address 1 / MAC Address 2

Displays the MAC address of the **ETHERNET 1** and **ETHERNET 2** ports, respectively.

Firmware version

The version of firmware that the unit is running. Always make sure the latest version of firmware is installed.

Upgrade Firmware

Click this button to display the firmware update dialog.

Description

Provides the option of assigning descriptive name to the unit.

Location

Provides the option of assigning descriptor for the location of the unit.

Uptime

Displays the operating time of the unit since the last reboot / reset.

Temperature (°C)

The current internal temperature of the unit, in degrees Celsius.

Temperature (°F)

The current internal temperature of the unit, in degrees Fahrenheit.

Hostname

The hostname of this unit. This can be changed if desired. By default, the host name is automatically created using the model of the unit (AT-OMNI-512) and adding the last five digits of the unit serial number.

NTP Server

Specify the desired NTP server in this field. This provides timestamps for any logs and alarms.

Buttons

Disabling this feature will lock the ID button on the front panel. This is enabled by default.

LEDs

Disabling this feature will turn off all LED indicators on the front panel. This is enabled by default.

Export Configuration

Click this button to export the current configuration settings of the AT-OMNI-512 to a local file on the computer. The configuration file will be saved in .json format. The default file name will be: AT-OMNI-512_settings_[dd-mm-yyyy]_12_7.json.

Choose File

Click this button to select the desired configuration file to be uploaded to the AT-OMNI-512. Once the file is selected, click the **IMPORT CONFIGURATION** button to upload the file.

IMPORT CONFIGURATION

Loads the currently selected configuration file to the AT-OMNI-512.

FACTORY RESET

Click this button to reset the AT-OMNI-512 to factory-default settings. When performing a factory reset, the following options can be selected, by clicking the check box. If no options are selected, then the encoder is reset with no factory-default settings.

Option	Description
None Checked	Resets the encoder with no factory-default settings.
Reset User	Resets the encoder to factory-default settings and resets custom user information.
Reset Network	Resets the encoder to factory-default settings and resets network information.

REBOOT DEVICE

Click this button to reboot the AT-OMNI-512. No settings are changed during a reboot.

Input tab

The **Input** tab provides signal information and available settings for each channel (input).

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div> <h3>Input 1</h3> <p>Name hdmi_input1</p> <p>Cable Present ●</p> <p>EDID Default</p> <p>HDCP Encrypted ●</p> <p>Supported Version 2.2</p> <p>Negotiated Version 2.2</p> <p>Video N/A</p> <p>Audio N/A</p> <p>SAVE</p> </div> <div> <h3>Input 2</h3> <p>Name hdmi_input2</p> <p>Cable Present ●</p> <p>EDID Default</p> <p>HDCP Encrypted ●</p> <p>Supported Version 2.2</p> <p>Negotiated Version 2.2</p> <p>Video N/A</p> <p>Audio N/A</p> <p>SAVE</p> </div> </div>								
<div> <div> <h3>Video Generator 1</h3> <p>Active ●</p> <p>Name video_generator1</p> <p>Color Depth 8</p> <p>Colorspace YUV</p> <p>Framerate 60</p> <p>Subsampling 4:4:4</p> <p>Resolution Width 1920</p> <p>Resolution Height 1080</p> <p>SAVE</p> </div> <div> <h3>Video Generator 2</h3> <p>Active ●</p> <p>Name video_generator2</p> <p>Color Depth 8</p> <p>Colorspace YUV</p> <p>Framerate 60</p> <p>Subsampling 4:4:4</p> <p>Resolution Width 1920</p> <p>Resolution Height 1080</p> <p>SAVE</p> </div> </div>								

Input

Name

The name used by AMS to identify the HDMI input.

Cable Present

Indicates whether or not a connection is detected. The indicator, to the left, indicates the current state. If the indicator is green, then a source signal is detected. If the indicator is red, then check the cable connection and make sure that the source is powered. Damaged cables may also display a red indicator.

EDID

Click the drop-down list to select the desired EDID. Refer to the table on the next page for a list of available EDID selections. Refer to [EDID Management \(page 33\)](#) for more information.

The AMS Interface

EDID	Description
Default - Video Mode	Default OmniStream EDID
Default - Video Mode (no HDR)	Default without HDR support
ATL 1080P 2CH	1920x1080p60 with two-channel PCM audio
ATL 1080P DD	1920x1080p60 with Dolby Digital audio
ATL 1080P MCH	1920x1080p60 with multichannel PCM audio
ATL 4K60 MCH	4096x2160p60 with multichannel audio
ATL 4K60 PCM_MCH	4096x2160p60 with multichannel audio (PCM only)
ATL 4K60 PCM_2CH	4096x2160p60 with two-channel audio (PCM only)
ATL 720P DD	1280x720p60 with Dolby Digital audio
ATL 720P 2CH	1280x720p60 with two-channel audio
+ Add Custom EDID	Adds a custom EDID

HDCP Encrypted

Indicates if the content is HDCP-encrypted is being transmitted from the source. If using HDCP-encrypted content is being used, then the indicator will be green.

Supported Version

Click this drop-down list to select the version of HDCP to be supported: 2.2, 1.4, or None. If None is selected, then HDCP-encrypted content cannot be passed-through.

Negotiated Version

The version of HDCP content that is being passed from the source.

Video

The sampling frequency for the input video signal.

Audio

The sampling frequency for the input audio signal.

Video Generator

Active

Click this toggle switch to enable or disable the built-in video generator. If the toggle switch is green, then the video generator is enabled.

Name

The internal name of the video generator. This field is read-only and cannot be changed.

Color Depth

Click the drop-down list to select the color depth of the video signal.

Colorspace

Click the drop-down list to select the color space of the video signal.

Framerate

Enter the frame rate of the video in this field.

Subsampling

Click the drop-down list to select the chroma subsampling value of the video signal.

Resolution Width

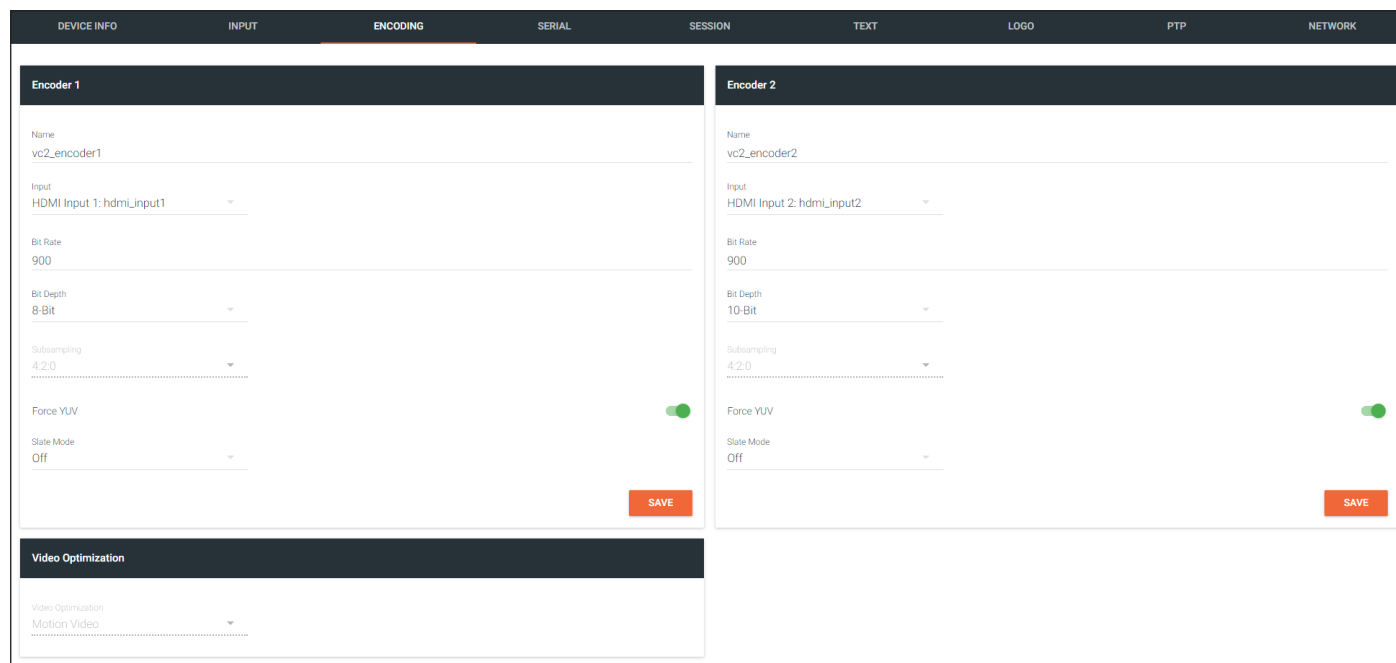
Enter the horizontal resolution of the video signal in this field.

Resolution Height

Enter the vertical resolution of the video signal in this field.

Encoding tab

The **Encoding** tab provides the ability to select the input for each encoder channel.



The screenshot shows the 'ENCODING' tab in the AMS interface. It features two side-by-side panels for 'Encoder 1' and 'Encoder 2'. Each panel contains the following settings:

- Name:** vc2_encoder1 (for Encoder 1) and vc2_encoder2 (for Encoder 2).
- Input:** HDMI Input 1: hdmi_input1 (for Encoder 1) and HDMI Input 2: hdmi_input2 (for Encoder 2).
- Bit Rate:** 900.
- Bit Depth:** 8-Bit (for Encoder 1) and 10-Bit (for Encoder 2).
- Subsampling:** 4:2:0.
- Force YUV:** Enabled (indicated by a green toggle switch).
- Slate Mode:** Off.

Each panel has a 'SAVE' button at the bottom right. Below the Encoder 1 panel, there is a 'Video Optimization' section with a dropdown menu set to 'Motion Video'.

Encoder

Name

The name used by AMS to identify the encoder channel

Input

Use the drop-down list to select the desired input.

Input	Description
HDMI Input 1:hdmi_input1	HDMI IN 1
HDMI Input 2:hdmi_input1	HDMI IN 2
Video Generator 1: video_generator1	Video Generator 1
Video Generator 2: video_generator2	Video Generator 2

Bit Rate

The video bit rate. This value is set to 900 Mbps and cannot be changed.

Bit Depth

Click this drop-down list to select the desired maximum bit depth. Any input with a higher bit depth will be reduced to the selected value. The following options are available: 8-Bit, 10-Bit, and 12-Bit.

Subsampling

This value is set to 4:2:0 and cannot be changed.

Force YUV

This feature is enabled and cannot be changed. The output of the decoder will always be set to YUV regardless of whether the input to the encoder is RGB or YUV.

Slate Mode

Click this drop-down list to enable slate mode or select the desired slate to be used. Refer to [Slate / Logo Insertion \(page 40\)](#) and more information.

Serial tab

The **Serial** tab provides the ability to select the input for each encoder channel.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div> <h3>Serial Port 1</h3> <p>Name serial_port1</p> <p>Supported Modes infrared, serial</p> <p>Mode serial</p> <p>Baud Rate 9600</p> <p>Data Bit 8</p> <p>Parity None</p> <p>Stop 1</p> <p>Flow Control None</p> <p>SAVE</p> </div> <div> <h3>Serial Port 2</h3> <p>Name serial_port2</p> <p>Supported Modes infrared, serial</p> <p>Mode serial</p> <p>Baud Rate 9600</p> <p>Data Bit 8</p> <p>Parity None</p> <p>Stop 1</p> <p>Flow Control None</p> <p>SAVE</p> </div> </div>								
<div> <div> <h3>Serial Configuration 1</h3> <p>Name serial_use1</p> <p>Port serial_port1</p> <p>Mode cli</p> <p>SAVE</p> </div> <div> <h3>Serial Configuration 2</h3> <p>Name serial_use2</p> <p>Port serial_port2</p> <p>Mode cli</p> <p>SAVE</p> </div> </div>								
<div> <div> <h3>Command: Display Off</h3> <p>Interpret on Decoder</p> <p>ASCII</p> <p>HEX</p> <p>SAVE</p> </div> <div> <h3>Command: Display On</h3> <p>Interpret on Decoder</p> <p>ASCII</p> <p>HEX</p> <p>SAVE</p> </div> </div>								
<div> <div> <h3>Command: Volume Down</h3> <p>Interpret on Decoder</p> <p>ASCII</p> <p>HEX</p> <p>SAVE</p> </div> <div> <h3>Command: Volume Up</h3> <p>Interpret on Decoder</p> <p>ASCII</p> <p>HEX</p> <p>SAVE</p> </div> </div>								

Serial Port

Name

The name used by AMS to identify the serial port.

Supported Modes

Lists the supported protocols.

The AMS Interface

Mode

Click this drop-down list to select the desired serial mode: Infrared or Serial.

Baud Rate

Click this drop-down list to select the desired baud rate.

Data

Click this drop-down list to select the number of data bits.

Parity

Click this drop-down list to select the parity bit.

Stop

Click this drop-down list to select the stop bit.

Flow

Click this drop-down list to select the type of flow control.

Serial Configuration

Name

The name used by AMS to identify the serial port.

Port

Click this drop-down list to select the port: serial_port1, serial_port2, or Not Used.

Mode

Click this drop-down list to select the desired control mode. Currently, only cli (command line interface) is supported.

Command

Command

Each of these The **Command** blocks are used to enter the command string for the desired operation: Display Off, Display On, Volume Down, and Volume Up.

Interpret on

Click this drop-down list to select where the command will be interpreted.

Interpret on	Description
decoder	Commands are interpreted at the decoder.
encoder	Commands are interpreted at the encoder.

ASCII

Enter the ASCII representation of the command string in this field.

HEX

Enter the hexadecimal representation of the command in this field.



NOTE: When entering the command string, it is not required to enter the string under both the ASCII and HEX fields. The encoder requires that one field be completed.

Session tab

The **Session** tab provides the ability to configure all session parameters. Up to four sessions are supported.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	LOGO	TEXT	ALARMS	NETWORK	PTP
<div> <div> <h3>Session 1</h3> <p>Name session1</p> <p>Interface eth1</p> <p>SAP Scrambling</p> <p>Video: Encoder vc2_encoder1 Enable Video Destination IP Address 225.0.0.5 Destination UDP Port 1000 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>Audio: Source hdmi_input1 Enable AES67 Enable Audio Destination IP Address 225.0.0.6 Destination UDP Port 1100 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>Aux: Source Not Used</p> <p>SAVE</p> </div> <div> <h3>Session 2</h3> <p>Name session2</p> <p>Interface eth2</p> <p>SAP Scrambling</p> <p>Video: Encoder vc2_encoder2 Enable Video Destination IP Address 225.0.0.7 Destination UDP Port 1000 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>Audio: Source hdmi_input2 Enable AES67 Enable Audio Destination IP Address 225.0.0.8 Destination UDP Port 1100 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>Aux: Source Not Used</p> <p>SAVE</p> </div> <div> <h3>Session 3</h3> <p>Name session3</p> <p>Interface eth1</p> <p>SAP Interval 10 Name session3 Description Originator -</p> <p>Audio: Source hdmi_input1 Enable AES67 Downmixing None Enable Audio Destination IP Address 239.69.0.3 Destination UDP Port 1100 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>SAVE</p> </div> <div> <h3>Session 4</h3> <p>Name session4</p> <p>Interface eth2</p> <p>SAP Interval 10 Name session4 Description Originator -</p> <p>Audio: Source hdmi_input2 Enable AES67 Downmixing None Enable Audio Destination IP Address 239.69.0.4 Destination UDP Port 1100 TTL 255 FEC Enable FEC Rows 0 FEC Columns 0</p> <p>SAVE</p> </div> </div>									

Name

The name used by AMS to identify the session.

Interface

This option is locked and cannot be changed.

SAP

Click this switch to enable to disable the Session Announcement Protocol. When enabled, the toggle switch will be green.

Scrambling

Check this box to enable scrambling. Scrambling can also be enabled/disabled using the Virtual Matrix.

Video

Encoder

This option is locked and cannot be changed.

Enable Video

Click the toggle switch to enable or disable the video stream. When enabled, the toggle switch will be green. By default, video streaming is *enabled*. Disabling the video stream can be used to “mask” the video on several decoder endpoints.

Destination IP Address

Enter the IP address that will be used by the decoder endpoint. By default, AMS will automatically populate multicast IP addresses for the encoder.

Destination UDP Port

Enter the UDP port in the **Destination UDP Port** field.

TTL

The TTL (Time-To-Live) duration is set to 255 seconds and cannot be changed.

Audio

Source

The HDMI audio source.

Enable Audio

Click the **Enabled** checkbox to enable the audio stream. To disable the audio stream, do not check this box. By default, audio streaming is *disabled*.

Destination IP Address

Enter the endpoint IP address in the **Destination IP Address** field.

Destination UDP Port

Enter the UDP port in the **Destination UDP Port** field.

TTL

The TTL (Time-To-Live) duration is set to 255 seconds and cannot be changed.

AUX

Source

Click this drop-down list to select the method of how commands are transmitted using the AUX data stream.

Source	Description
Commands	Commands are sent using CEC (over HDMI)
serial_port1	Commands are transmitted using Serial Port 1
serial_port2	Commands are transmitted using Serial Port 2

Enable Aux

Click the toggle switch to enable or disable the auxiliary data stream. When enabled, the toggle switch will be green. By default, this feature is *disabled*.

Destination IP Address

Enter the endpoint IP address in the **Destination IP Address** field.

Destination UDP Port

Enter the UDP port in the **Destination UDP Port** field.

TTL

The TTL (Time-To-Live) duration is set to 255 seconds and cannot be changed.

Bidirectional

Click this toggle switch to enable or disable bidirectional serial control. When enabled, the toggle switch will be green. This option only works when the auxiliary data stream is in unicast mode.

Listen Port

Enter the listening port for the data channel in this field, when using bidirectional serial control.

Text tab

The **Text** tab provides the ability to configure text scrolling. Refer to [Text Insertion \(page 42\)](#) for more information.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div> <h3>Text 1</h3> <p>Text Name text_insertion1</p> <p>Enabled <input type="checkbox"/></p> <p>Text</p> <p>Scroll Speed 0</p> <p>Iterations 0</p> <p>Color:</p> <p>Red 255</p> <p>Green 255</p> <p>Blue 255</p> <p>Alpha 255</p> <p>Location:</p> <p>Horizontal (%) 0</p> <p>Vertical (%) 0</p> <p>Size:</p> <p>Width (%) 0</p> <p>Height (%) 0</p> <p>SAVE</p> </div> <div> <h3>Text 2</h3> <p>Text Name text_insertion2</p> <p>Enabled <input type="checkbox"/></p> <p>Text</p> <p>Scroll Speed 0</p> <p>Iterations 0</p> <p>Color:</p> <p>Red 255</p> <p>Green 255</p> <p>Blue 255</p> <p>Alpha 255</p> <p>Location:</p> <p>Horizontal (%) 0</p> <p>Vertical (%) 0</p> <p>Size:</p> <p>Width (%) 0</p> <p>Height (%) 0</p> <p>SAVE</p> </div> </div>								

Text Name

The name used by AMS to identify the text.

Enabled

Click this toggle switch to enable or disable the text. When the toggle switch is green, the text will be enabled.

Text

Enter the desired text in this field.

Scroll Speed

Enter the scrolling speed in this field. Values from -255 to 255 are valid. Negative numbers will scroll the text from left to right. Positive numbers will scroll text from right to left.

Iterations

Enter the number of iterations in the **Iteration** field. Set this field to 0 (zero) to set the number of iterations to infinity.

Color

Red, Green, Blue, Alpha

Enter the RGBA values for each of the respective fields, to specify the color and transparency of the text. Enter the desired value in the **Alpha** field to control the transparency of the text. A value of 255 is opaque and a value of 0 is transparent. Numbers from 0 to 255 are valid for each of these fields.

Size

Horizontal (%), Vertical (%)

Specify the location of the text in the Horizontal (%) and Vertical (%) fields. Each of these values is based on the horizontal and vertical resolution of the screen.

Width (%), Height (%)

Specify the size of the text in the Width (%) and Height (%) fields. Each of these values is based on the horizontal and vertical resolution of the screen.

Logo tab

The **Logo** tab provides the ability to upload a custom logo. This logo will be displayed when no video signal is detected. Separate logos can be uploaded: one for each channel.

Refer to [Slate / Logo Insertion \(page 40\)](#) for more information on using logos

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div>New Logo</div> <div> <div>Name</div> <div> <div>Choose File</div> <div>No file chosen</div> </div> <div> <div>UPLOAD</div> </div> </div> </div>								
<div>Logo 1</div> <div> <div>Enabled</div> <div>Target</div> <div>vc2_encoder1</div> <div>Select Logo</div> <div>Not Used</div> <div>Aspect Ratio</div> <div>Stretch</div> <div>Location:</div> <div>Horizontal</div> <div>0</div> <div>Vertical</div> <div>0</div> <div>Size:</div> <div>Height</div> <div>0</div> <div>Width</div> <div>0</div> <div>SAVE</div> </div>					<div>Logo 2</div> <div> <div>Enabled</div> <div>Target</div> <div>vc2_encoder2</div> <div>Select Logo</div> <div>Not Used</div> <div>Aspect Ratio</div> <div>Stretch</div> <div>Location:</div> <div>Horizontal</div> <div>0</div> <div>Vertical</div> <div>0</div> <div>Size:</div> <div>Height</div> <div>0</div> <div>Width</div> <div>0</div> <div>SAVE</div> </div>			

New Logo

Name

Enter a name for the logo in this field.

Choose File

Click this button to select the logo file to be uploaded. Files must be in .png format and must not exceed 5 MB (5120000 bytes) in size. When an image file is uploaded, it will appear in the **Logo** drop-down list.

UPLOAD

Click this button to upload the logo file to the AT-OMNI-512.

Logo

Enabled

Click the toggle switch to enable or disable the logo. If the toggle switch is green, then the logo will be enabled.

Target

The name used by AMS to identify the encoder.

Select Logo

Click this drop-down list to select the desired logo. If no logo files are uploaded, then this will be set to Not Used.

Aspect Ratio

Click this drop-down list to select the type of aspect ratio to be applied to the logo.

Horizontal

Enter the horizontal position of the logo on the screen.

Vertical

Enter the vertical position of the logo on the screen.

Height

Enter the horizontal resolution of the logo, in pixels.

Width

Enter the vertical resolution of the logo, in pixels.



NOTE: Maximum logo resolution (both height and width) is 1/4 of the video resolution.

PTP tab

The **PTP** tab provides options for adjust Precision Time Protocol (PTP) for AES-67 audio streams. PTP is used by AES67 to keep all audio streams synchronized.

For a system utilizing PTP, all devices undergo an automatic self-election process to choose the interface to be used as the PTP grandmaster (GM) clock, based on the accuracy of the device's clock and the device's configured priority. A lower priority number means the unit is more likely to get selected as GM.



NOTE: If a new device is added to the network and the GM changes, a brief outage will be experienced while all connected devices synchronize with the new clock. Because of this, Atlona recommends that one unit gets manually defined as the GM and have both **Priority 1** and **Priority 2** fields be set to 1.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div> eth 1 </div> <div> <p>Interface eth1</p> <p>Domain Number 0</p> <p>Priority 1 128</p> <p>Priority 2 128</p> <p>Is GM Present ●</p> <p>GM Identity B8:98:B0:FF:FE:01:A5:DC</p> <p>Master Offset 2116</p> <p>SAVE</p> </div> </div> <div> <div> eth 2 </div> <div> <p>Interface eth2</p> <p>Domain Number 0</p> <p>Priority 1 128</p> <p>Priority 2 128</p> <p>Is GM Present ●</p> <p>GM Identity 00:04:A5:FF:FE:27:0F:4E</p> <p>Master Offset 0</p> <p>SAVE</p> </div> </div>								

Interface

The name used by AMS to identify the interface.

Domain Number

Enter the domain number in this field. Valid entries are 0 through 127.

Priority 1

Enter the priority number in this field.

Priority 2

Enter the priority number in this field.

Is GM Present

This indicator displays the existence of a grandmaster clock for the specified PTP domain number. If the indicator is green, then the grandmaster clock exists on this interface.

GM Identity

The grandmaster clock identity. If this field is blank, then it means that this interface is the grandmaster clock.

Master Offset

Displays the grandmaster clock offset.

Network tab

The **Network** tab provides the ability to enable or disable DHCP mode for each video channel. When DHCP mode is disabled, the IP address, subnet mask, and gateway must be provided. This screen is identical to the **Network** tab for the decoder.

DEVICE INFO	INPUT	ENCODING	SERIAL	SESSION	TEXT	LOGO	PTP	NETWORK
<div> <div> <h3>Network 1</h3> <p>Network Name eth1</p> <p>Enabled ●</p> <p>Carrier ●</p> <p>DHCP Mode DHCP</p> <p>IP Address 192.168.11.213</p> <p>Subnet 255.255.255.0</p> <p>Gateway 192.168.11.1</p> <p>Link Speed 1000</p> <p>MAC Address 00:04:A5:27:0F:4D</p> <p>Telnet Authentication ●</p> <p>SAVE</p> </div> <div> <h3>Network 2</h3> <p>Network Name eth2</p> <p>Enabled ●</p> <p>Carrier ●</p> <p>DHCP Mode DHCP</p> <p>IP Address</p> <p>Subnet</p> <p>Gateway</p> <p>Link Speed 10</p> <p>MAC Address 00:04:A5:27:0F:4E</p> <p>Telnet Authentication ●</p> <p>SAVE</p> </div> </div>								

Name

The name used by AMS to identify the interface.

Enabled

This indicator displays whether or not the video stream for this channel is active. If the indicator is green, then the video stream is active.

Carrier

If this indicator is green, then an active link exists. Otherwise, this indicator will be red if no link exists.

DHCP Mode

Click this drop-down list to select the desired network mode. Select DHCP to let the DHCP server (if present) assign the encoder the IP settings; **Subnet** and **Gateway** fields will automatically be populated. When **Static** mode is selected, the information for the **IP Address**, **Subnet**, and **Gateway** fields must be entered.

IP Address

Displays the IP address used by the channel. This field can only be changed if **Static** mode is selected.

Subnet

Displays the subnet mask for the channel. This field can only be changed if **Static** mode is selected.

Gateway

Displays the gateway (router) address for the channel. This field can only be changed if **Static** mode is selected.

Link Speed

Displays the port speed in Mbps.


MAC Address

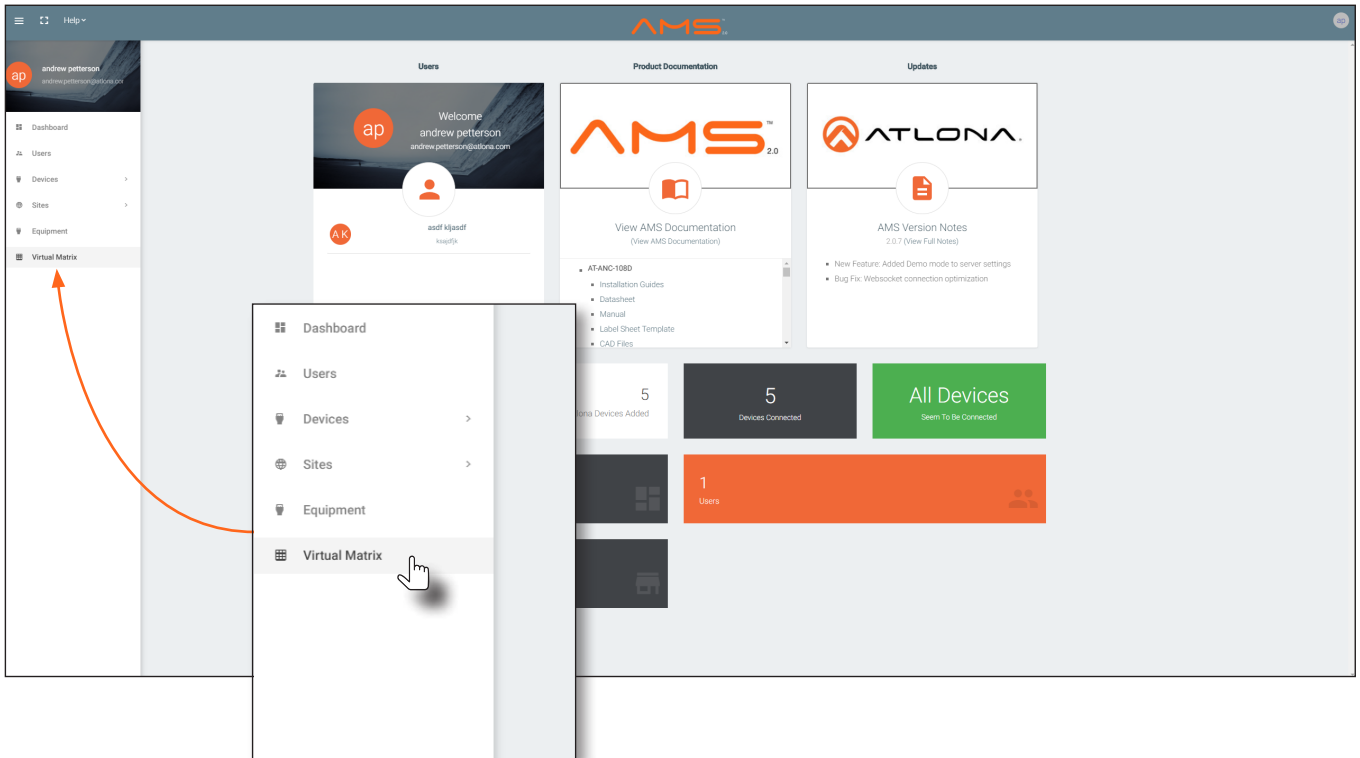
The MAC address of the Ethernet channel.

Telnet Authentication

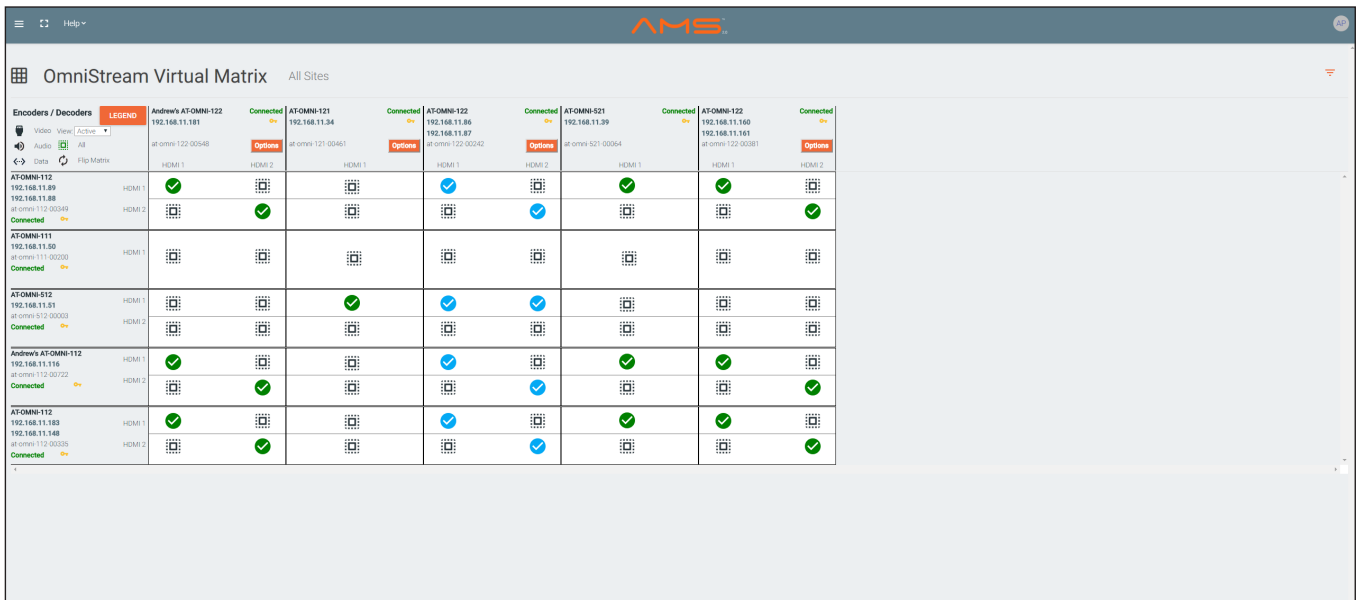
Click this toggle switch to enable or disable Telnet authentication. If the switch is green, then login credentials will be required at the start of a Telnet session.

The Virtual Matrix

1. Login to AMS. Refer to [Accessing Encoders in AMS \(page 16\)](#), if necessary.
2. Click the  icon, in the upper-left corner of the AMS Dashboard.
3. Click **Virtual Matrix**.



4. The **OmniStream Virtual Matrix** page will be displayed.



The screenshot shows the OmniStream Virtual Matrix page. It displays a table of encoders and decoders, organized by site. The table has columns for Encoders / Decoders, LEGEND, and a grid of status indicators (green checkmarks, blue checkmarks, and red X's) representing different HDMI ports (HDMI 1, HDMI 2) for various sites. The sites listed are Andrew's AT-OMNI-122, AT-OMNI-121, AT-OMNI-122, AT-OMNI-521, AT-OMNI-122, and Andrew's AT-OMNI-112. The table also includes a 'LEGEND' section with icons for Video, Audio, and Flip Matrix.

Encoders / Decoders	LEGEND	Andrew's AT-OMNI-122	AT-OMNI-121	AT-OMNI-122	AT-OMNI-521	AT-OMNI-122	Andrew's AT-OMNI-112
192.168.11.181 at-omni-122-00548 Connected	Options	192.168.11.34 at-omni-121-00461 Connected	Options	192.168.11.85 192.168.11.87 at-omni-122-00242 Connected	Options	192.168.11.29 at-omni-521-00064 Connected	Options
AT-OMNI-112 192.168.11.89 192.168.11.88 at-omni-112-00249 Connected	HDMI 1 HDMI 2	AT-OMNI-111 192.168.11.50 at-omni-111-00200 Connected	HDMI 1 HDMI 2	AT-OMNI-512 192.168.11.51 at-omni-512-00200 Connected	HDMI 1 HDMI 2	Andrew's AT-OMNI-112 192.168.11.116 at-omni-112-00222 Connected	HDMI 1 HDMI 2
AT-OMNI-112 192.168.11.183 192.168.11.148 at-omni-112-00033 Connected	HDMI 1 HDMI 2						

Layout and Operation

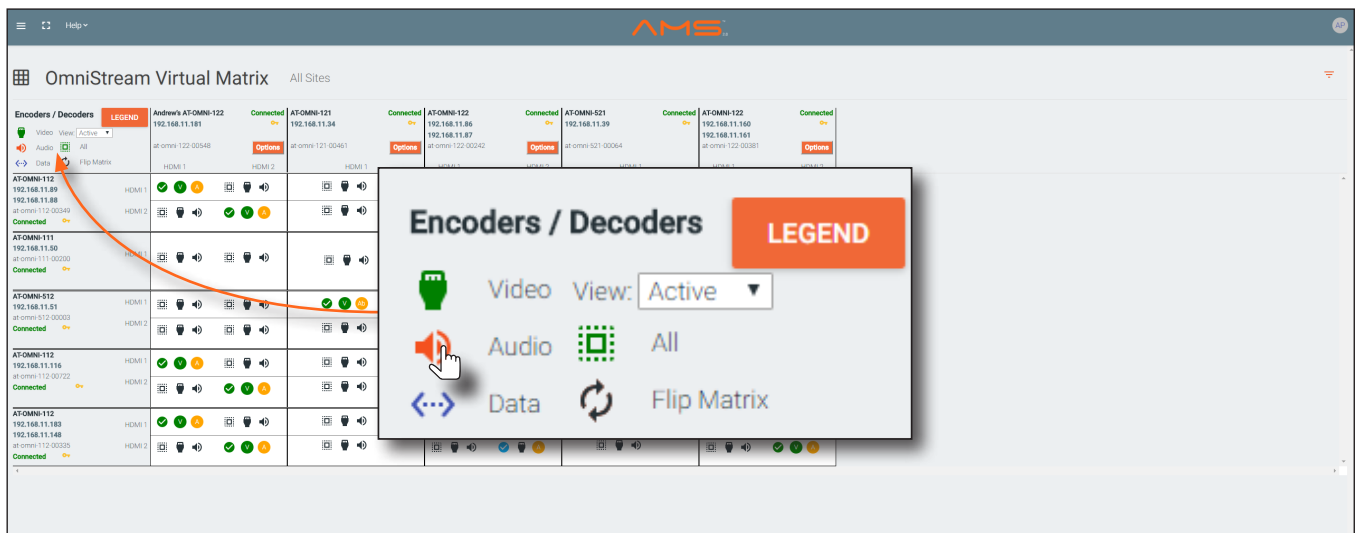
The illustration below, shows a multiple OmniStream units (encoders and decoders). The Virtual Matrix is organized into rows and columns.

The blue circle with the checkmark indicates that these two OmniStream units are connected to one another. The second column identifies a dual-channel decoder (AT-OMNI-122). The third row shows a dual-channel encoder (AT-OMNI-112). In this example, the source signal on **HDMI 1 IN** (encoder) is being sent out, over the network, and will be displayed on **HDMI 1** on the decoder. This will create a *cross-connection*, which connects both the encoder and decoder together.

- Creating a cross-connection**
 To route an input on an encoder to an output, locate the row and column where an input and output intersect, then click the square with the dots around it.
- Removing a cross-connection**
 To remove a *cross-connection*, click on the desired circle icon with the check mark symbol. The square with the dots around it will be displayed indicating that the *cross-connection* has been removed.








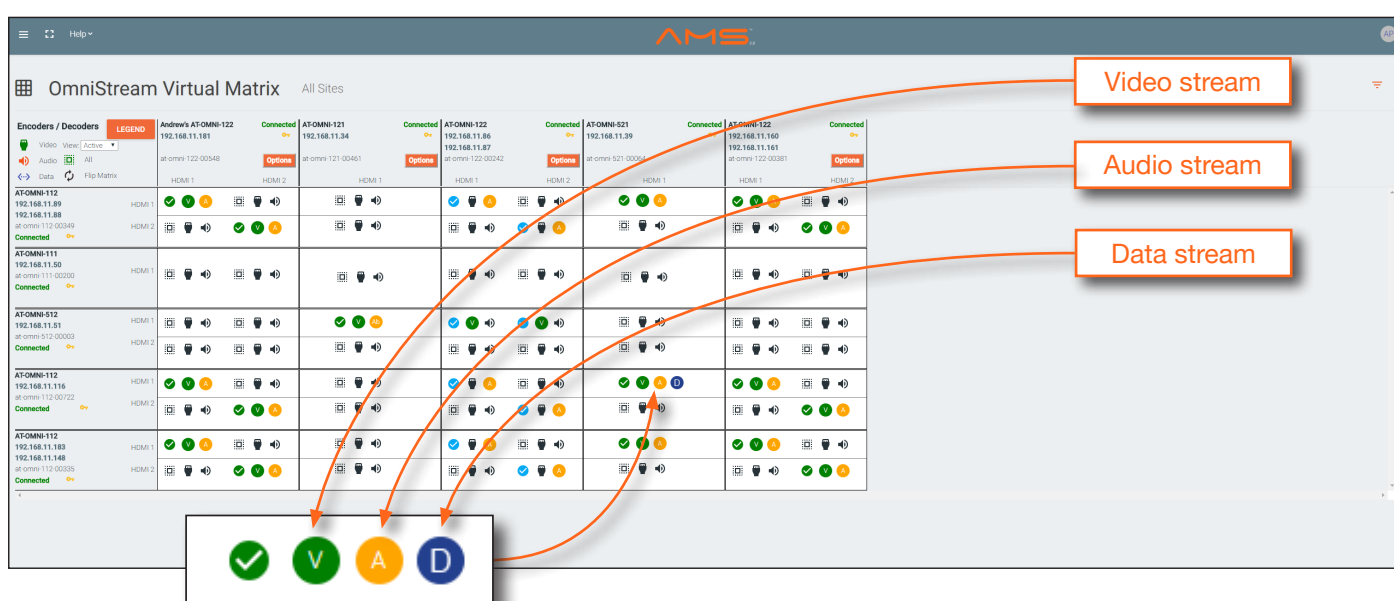
- To view the individual streams for video, audio, and data, click the icons on the upper-left corner of the screen.



The AMS Interface

When these icons are clicked, the associated icons will be displayed in the rows and columns of the Virtual Matrix.

Symbol	Description
	Video only
	Audio only
	Data only
	Connected; not all signals are active
	Connected; all streams are being used




IMPORTANT: R-Type and Pro compatibility: R-Type encoders (AT-OMNI-512) and decoders (AT-OMNI-521) operate in Video Mode, only. Pro encoders can be set to either Video Mode or PC Mode. Video Mode is incompatible with PC Mode. Therefore, in order for both R-Type and Pro encoders/decoders to work within a system, Pro encoders/decoders must be set to Video Mode.

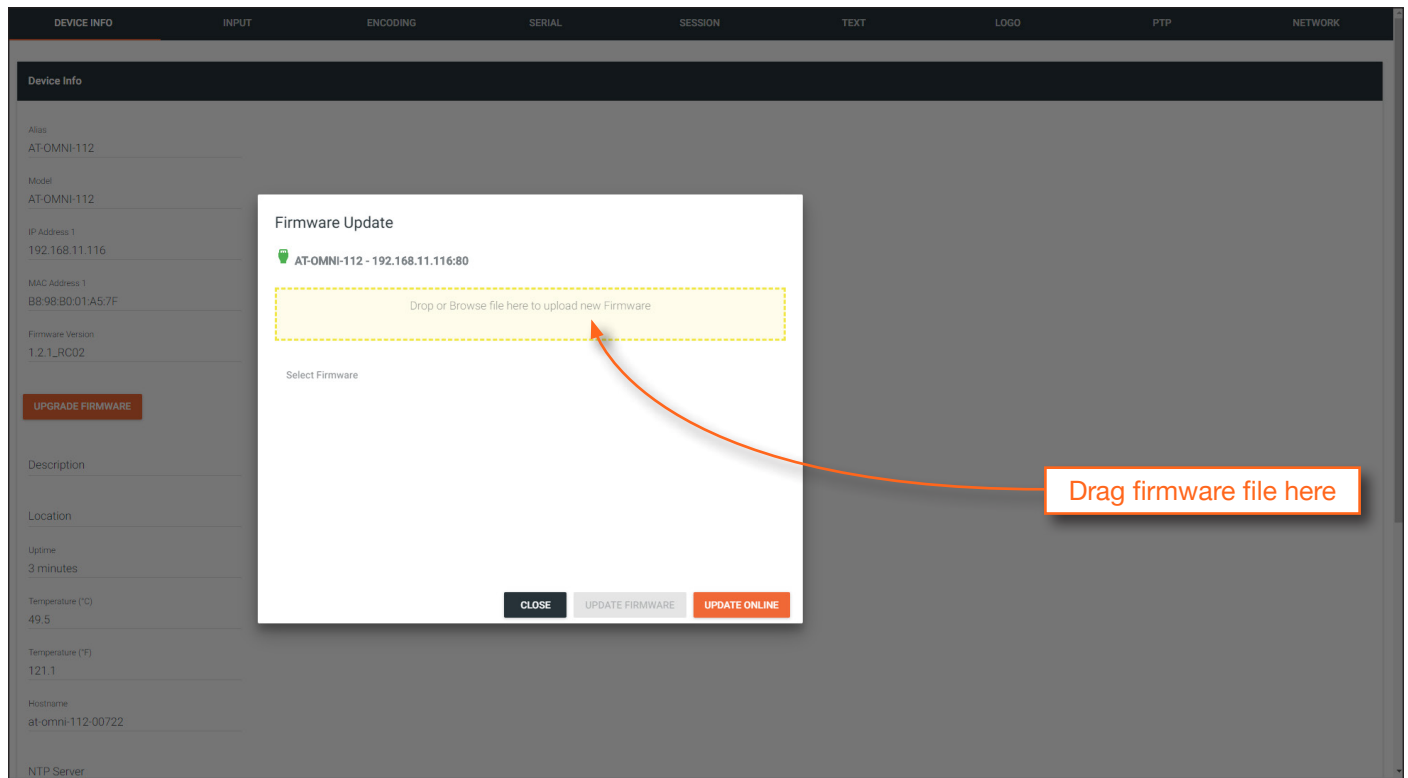
- Click the **Video**, **Audio**, and **Data** icons to return to the normal view.
- Since only HDMI (both audio and video) is being used, the V (video) and A (audio) icons are displayed. The blue circle with the checkmark indicates that the cross-section has been created. However, not all streams are being used. Refer to the chart below.
- This illustration also shows that the data stream (the icon with two arrows and three dots), which is used for control, is also being used and is displayed as a dark-blue circle with the letter “D”.
- The icons in the upper-left corner can also act as a filter. This allows for a clear breakdown of where signals are being routed and is useful when several encoders and decoders are used on a network.

Appendix

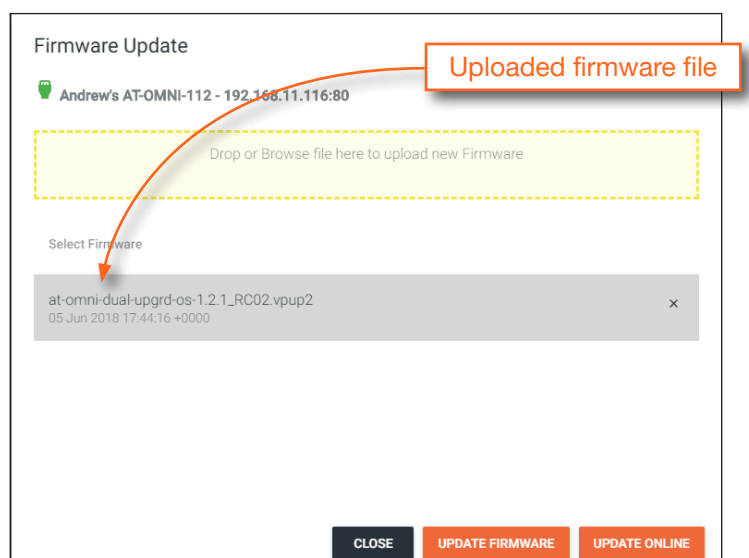
Updating the Firmware

Firmware updates are managed through the Atlona Management System (AMS) software.

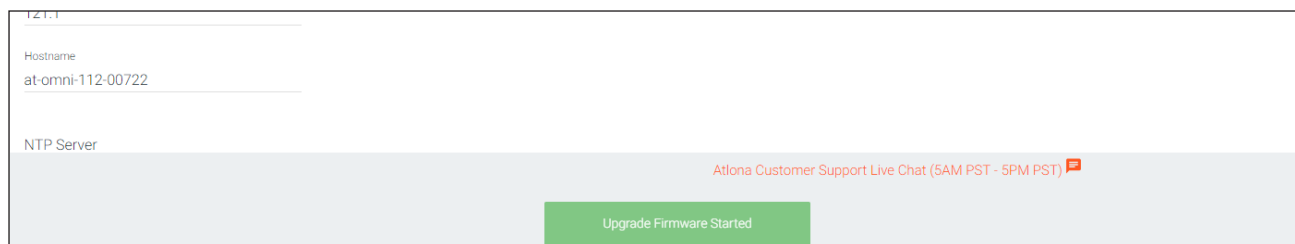
1. Click **DEVICE INFO** in the menu bar.
2. Click the **UPDATE FIRMWARE** button to display the **Firmware Update** dialog.



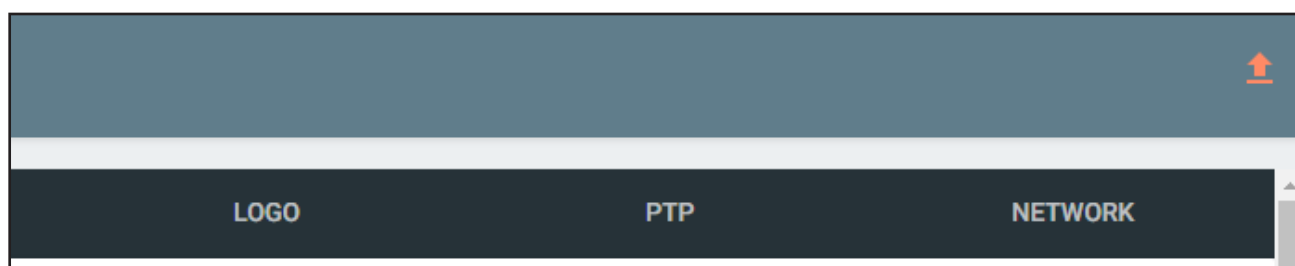
3. Click and drag the firmware file to yellow box, to upload the firmware to the device. OmniStream firmware files use the .v2pup file extension. Once the firmware file has been uploaded, it will appear under the **Select Firmware** section of the dialog box.
4. Click the **UPDATE FIRMWARE** button to begin the update process.
5. Click and drag the firmware file to yellow box, to upload the firmware to the device. OmniStream firmware files use the .v2pup file extension. Once the firmware file has been uploaded, it will appear under the **Select Firmware** section of the dialog box.
6. Click on the firmware file name to highlight it.
7. Click the **UPDATE FIRMWARE** button, at the bottom of the dialog box, to begin the update process.



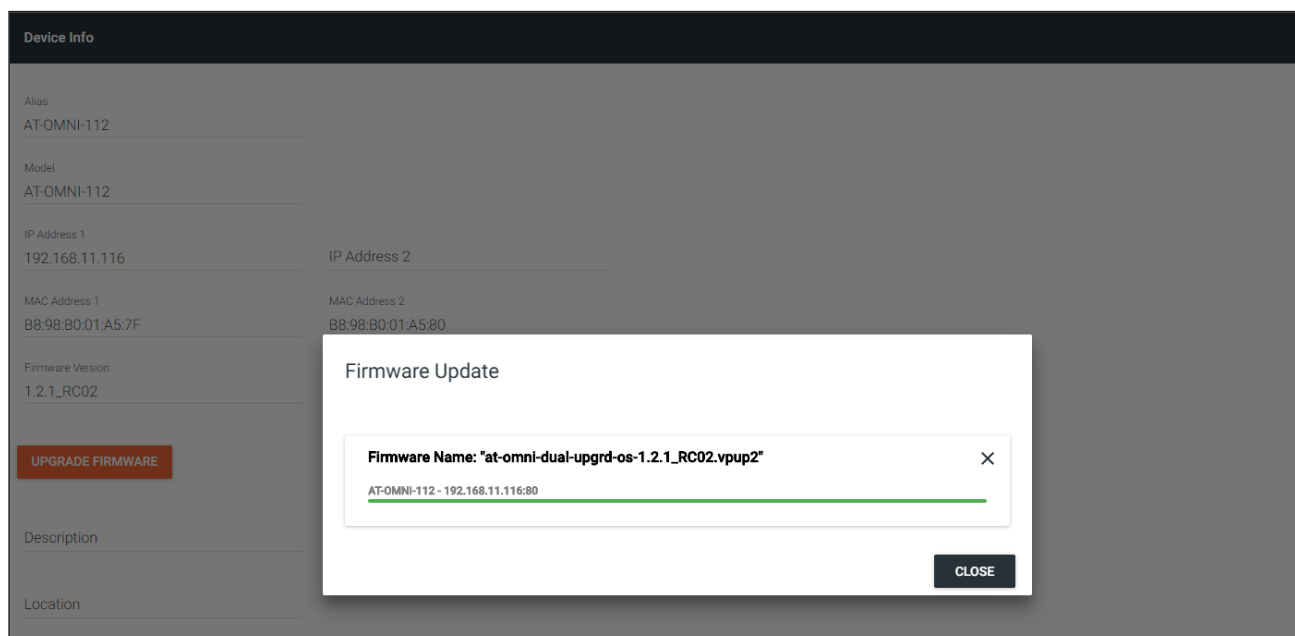
After the **UPDATE FIRMWARE** button is clicked, the Upgrade Firmware Started message box will be displayed.



8. Click the orange up-arrow icon, in the upper-right corner of the screen, as shown below. If this icon is orange, it indicates that a firmware update is in progress.



The progress bar for the update process will be displayed. Once the file is uploaded to the encoder, the update procedure is a rapid process.

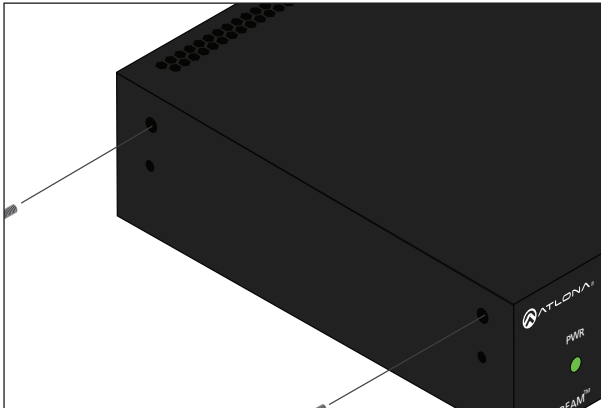


9. Click the "X" to close out the progress bar window, then click the **CLOSE** button to dismiss the **Firmware Update** message box.
10. The firmware update process is complete.
11. Clear the web browser cache and refresh the web page. The new firmware version will appear in the **Firmware Version** field, in the **DEVICE INFO** page.

Mounting Instructions

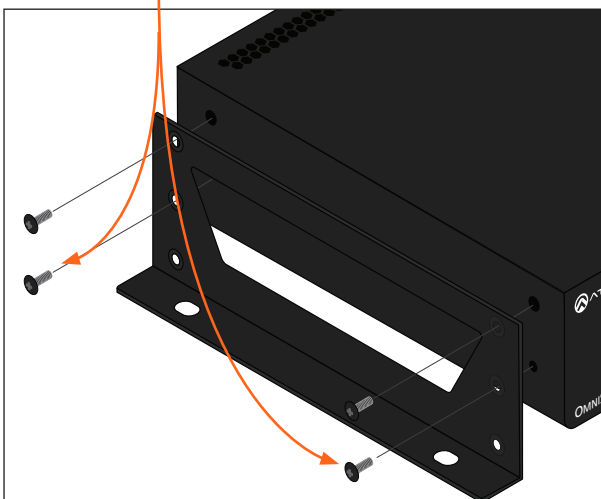
The AT-OMNI-512 encoder includes two mounting brackets and four mounting screws, which can be used to attach the unit to any flat surface.

1. Using a small Phillips screwdriver, remove the two screws from the left side of the enclosure.



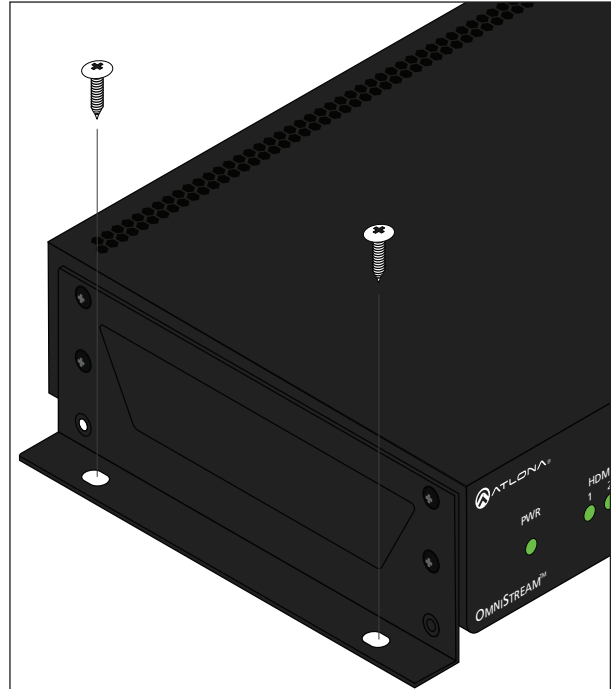
2. Position one of the rack ears, as shown below, aligning the holes on the side of the enclosure with one set of holes on the rack ear.
3. Use the enclosure screws to secure the rack ear to the enclosure.

Included screws



4. To provide added stability to the rack ear, use two of the included screws and attach them to the two holes, directly below the enclosure screws, as shown above.
5. Repeat steps 1 through 4 to attach the second rack ear to the opposite side of the unit.

6. Mount the unit using the oval-shaped holes, on each rack ear. If using a drywall surface, a #6 drywall screw is recommended.



NOTE: Rack ears can also be inverted to mount the unit under a table or other flat surface.

Rack Tray for OmniStream

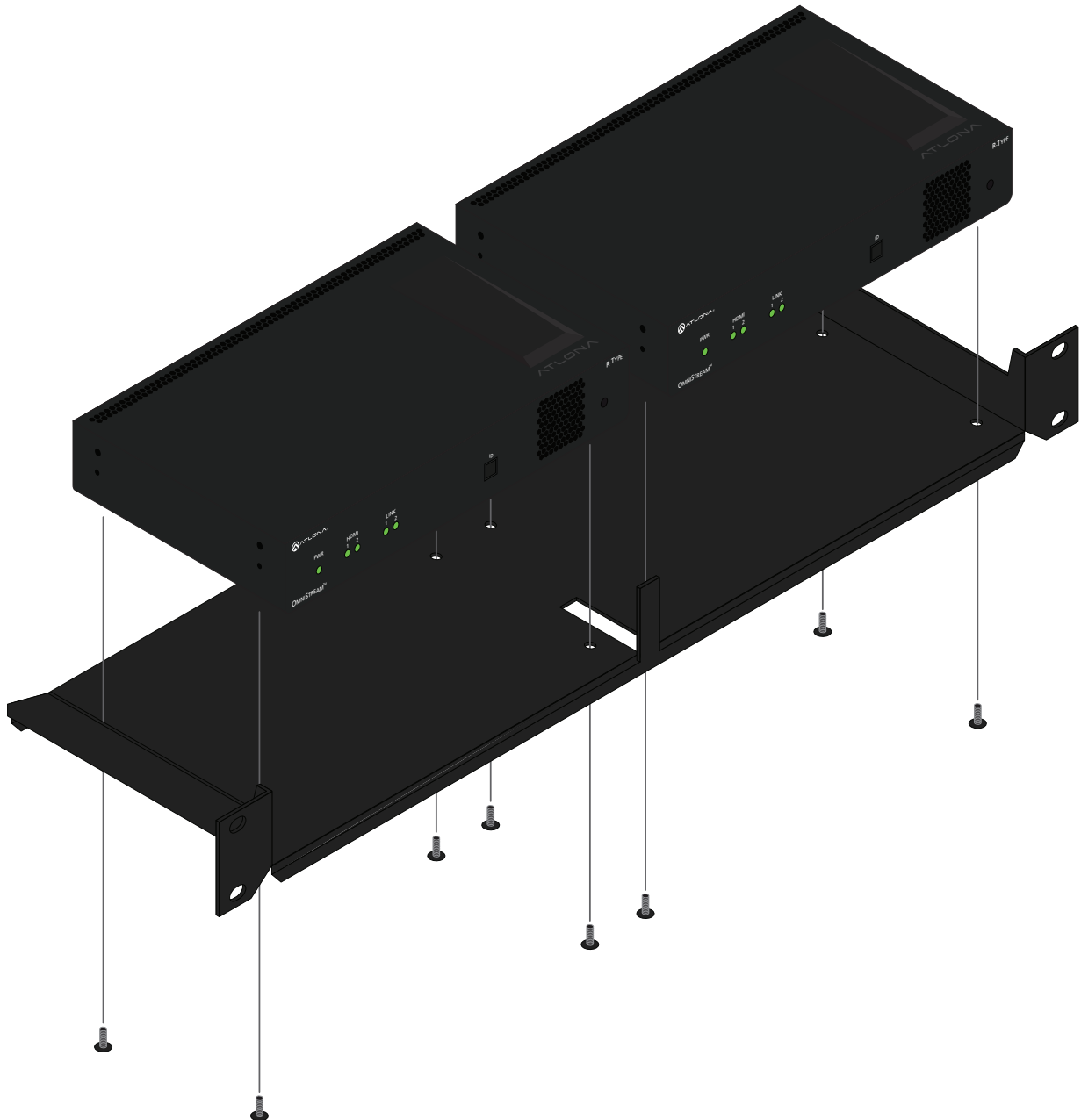
OmniStream encoders can also be mounted in the OmniStream rack tray (AT-OMNI-1XX-RACK-1RU). The rack tray is sold separately and provides easy mounting and organization of up to two OmniStream encoders/decoders in a convenient 1U rack tray. The OmniStream rack tray can be purchased directly from Atlona.

1. Position the OmniStream products, as shown in the illustration below.
2. Using the included screws, secure each unit to the rack with a Philips screwdriver.



NOTE: OmniStream units can be mounted forward-facing or back-facing, depending upon your requirements.

3. Install the entire assembly into an empty 1U slot in the rack.



Specifications

Video	
HDMI Specification	HDMI 2.0, HDCP 1.4 / 2.2
UHD/HD	4096×2160 (DCI) @60/30/24 Hz, 3840×2160(UHD)@60 ⁽¹⁾ /50/24/25/30 Hz, 1080p@23.98/24/25/29.97/30/50/59.94/60 Hz, 1080i ⁽²⁾ @25/29.97/30 Hz, 720p@30/50/59.94/60 Hz
Color Space	YUV, RGB

Encoding	
Density	Two encoding engines
Compression Format	VC-2 (SMPTE-2042)
Video Quality Optimization	Motion Video
Color Depth	8-bit, 10-bit, 12-bit
HDR	HDR10, HLG, Dolby Vision ⁽³⁾
Bit Rate	900 Mbps
Latency	0.5 frame (e.g. 1080p @ 60 Hz latency is < 8 ms between encoder and decoder) 1.5 frames in Fast Switching mode (e.g. 1080p @ 60 Hz latency is < 24 ms between encoder and decoder) Note: Unusual network configurations may increase overall latency

Audio	
Pass-through	LPCM 2.0, LPCM 5.1, LPCM 7.1, Dolby® Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos®, DTS®, DTS-HD Master Audio™
Down-mixing	Multichannel LPCM to two-channel LPCM
Sample Rate	32 kHz, 44.1k Hz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
Bit Depth	Up to 24-bit

Protocols	
Streaming	RTP
Addressing	DHCP, static
Encryption	AES-128
Management	HTTPS, SSH, SCP, and WebSockets with TLS

Graphics Features	
Text Insertion	Adjustable height/width, scrolling (speed, direction, or static), iterations (up to infinite), positioning, and adjustable color and alpha (transparency) channels.
Slate / Logo Insertion	PNG file format, adjustable aspect ratio (keep or stretch), horizontal/vertical size, screen position; slate mode can be set to off, manual (image always displayed, superimposed on the source signal, and will remain if source signal is lost), auto (image will only be displayed when source signal is lost).

Control	
RS-232	Device control and configuration; supports baud rates from 2400 to 115200 Bidirectional pass-through from control system to network
IR	Pass-through from control system to network Pass-through from network to control system

Connectors	
HDMI	2 - Type A, 19-pin, female, locking
ETHERNET ⁽⁴⁾	2 - RJ45, 10/100/1000 Mbps
RS-232 / IR	1 - Euroblock, 6-pin (2 ports); RS-232 or IR on ports 1 and 2
Power	1 - Euroblock, 2-pin

Indicators and controls	
PWR	1 - LED, tricolor (red, amber, green)
HDMI	2 - LED, bicolor (red, green)
LINK	2 - LED, bicolor (red, green)
ID	1 - momentary, tact-type, backlit (blue); sends an identification broadcast message over the network to any listening devices.
Reboot	1 - Momentary, tact-type

Power	
PoE	IEEE 802.3af
Consumption	Up to 12 W
External Power Supply (optional)	Input: 110 - 220 V AC, 50/60 Hz Output: 48 V DC, 0.83 A
Safety	CE, FCC, cULus, RoHS, RCM

Environmental	
Operating Temperature	+14 to +122 °F -10 to +50 °C
Storage Temperature	-14 to +140 °F -10 to +60 °C
Operating Humidity (RH)	20% to 95%, non-condensing

Chassis	
Dimensions (H x W x D)	1.34 in x 8.19 in x 4.41 in 34 mm x 208 mm x 112 mm
Weight	1.5 lbs / 0.7 kg
Safety	CE, RoHS, FCC

- (1) UHDp60 only supports 4:2:0
- (2) Scaling and deinterlacing is not supported at 1080i.
- (3) Dolby Vision requires a separate license.
- (4) Maximum distance per hop 300 ft (100 m), depending upon network configuration.

