



OmniStream™

by Atlona

Version Information

Version	Release Date	Notes
1	04/17	Initial release

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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-121> and <http://www.atlona.com/product/AT-OMNI-122> for the latest firmware updates and User Manual.

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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.

This Limited Product Warranty extends to the original end-user purchaser of Atlona products and is non-transferrable to any subsequent purchaser(s) or owner(s) of these products.

Coverage Periods

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.

Limitation on Liability

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.

Exclusive Remedy

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 REDUCT 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.

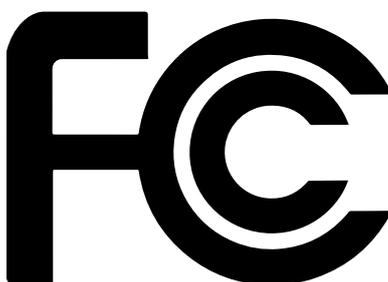


The information bubble is intended to alert the user to helpful or optional operational instructions in the literature accompanying the product.

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™ 121 (AT-OMNI-121) is a networked AV decoder for one HDMI source up to 4K/UHD, plus embedded audio and RS-232 control. The Atlona OmniStream™ 122 (AT-OMNI-122) adds a second channel of encoding for two HDMI sources up to 4K/UHD and RS-232 control and can deliver duplicate AV streams to two networks for full system redundancy in mission-critical applications. OmniStream features SMPTE VC-2 compression for critical-quality video applications, with extremely low, sub-frame latency from encode to decode. It also includes selectable AES-128 encryption and SMPTE 2022-5 Forward Error Correction (FEC) for robust AV distribution spanning multiple networks. Both OmniStream decoders are housed in compact enclosures that easily fit into a half RU space. They can be powered over the network through Power over Ethernet (PoE) or optionally from local AC power.

OmniStream was engineered from the ground up at Atlona to deliver the performance and dependability of traditional AV distribution, with the virtually unlimited scalability and cost efficiency of integrating over data networks. It addresses the many challenges AV and IT integrators encounter with implementing networked AV systems, while delivering immediate and long-term ROI to end users in enterprises and other organizations

Features

OmniStream Single-Channel Decoder

- Single-channel AV decoder for HDMI up to 4K/UHD
- Redundancy capabilities for mission critical applications
- SMPTE VC-2 compression
- RS-232 control
- Selectable AES-128 encryption
- SMPTE 2022-5 FEC
- Powered using PoE or optional external 48V DC power supply

OmniStream Dual-Channel Decoder

- Dual-channel AV decoder for HDMI up to 4K/UHD
- Redundancy capabilities for mission critical applications
- SMPTE VC-2 compression
- RS-232 control
- Audio embedding / de-embedding
- Selectable AES-128 encryption
- SMPTE 2022-5 (FEC)
- Powered using PoE or optional external 48V DC power supply

Package Contents

OmniStream Single-Channel Decoder

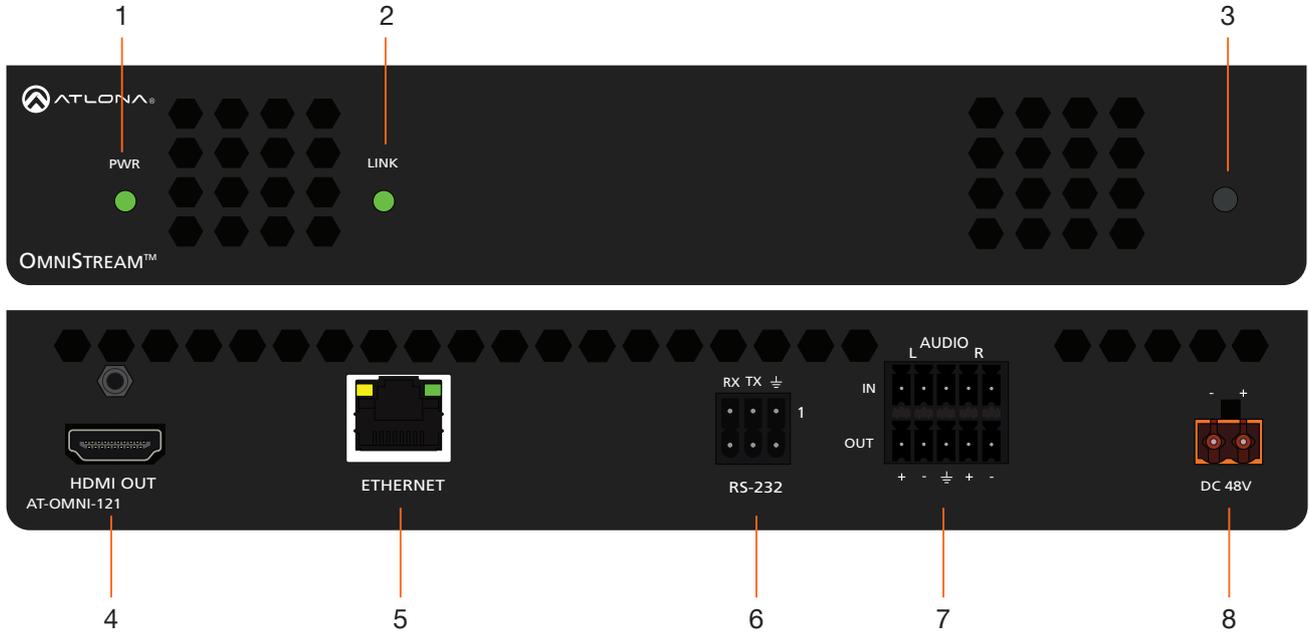
- 1 x AT-OMNI-121
- 1 x Phoenix terminal block, 6-pin (push spring)
- 1 x Wall/table mounting brackets
- 4 x Rubber feet
- 1 x Installation Guide

OmniStream Dual-Channel Decoder

- 1 x AT-OMNI-122
- 1 x Phoenix terminal block, 6-pin (push spring)
- 1 x Wall/table mounting brackets
- 4 x Rubber feet
- 1 x Installation Guide

Panel Description

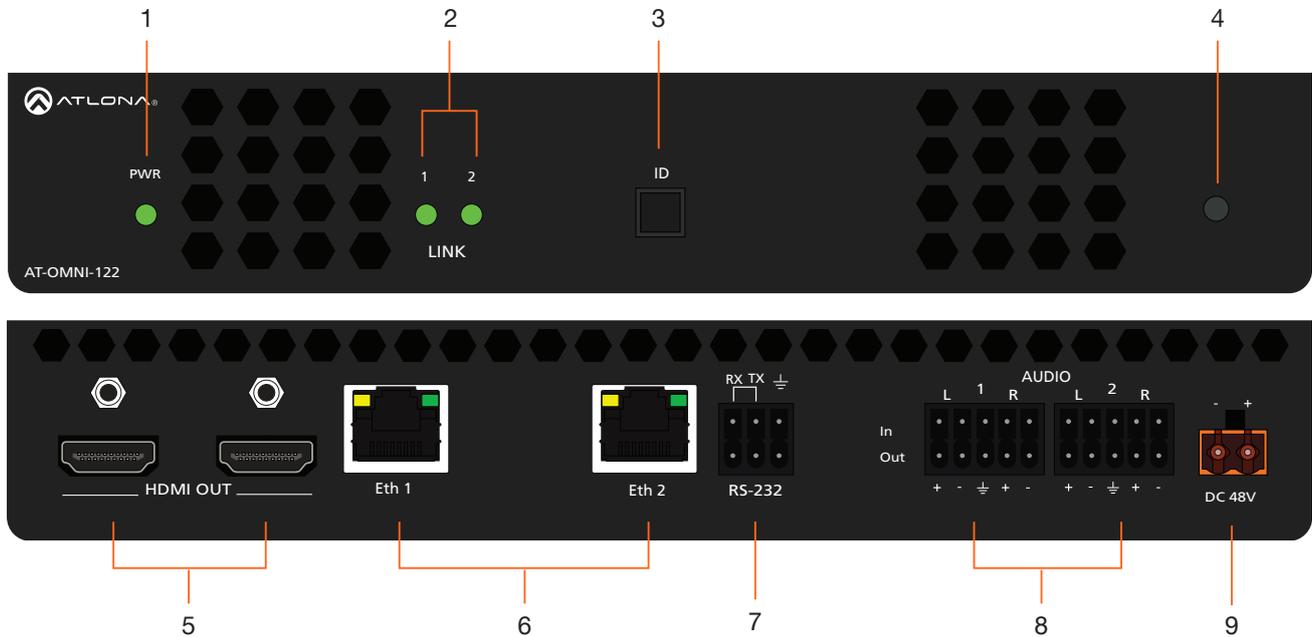
AT-OMNI-121



- 1 PWR**
This LED indicator is green when the unit is powered.
- 2 LINK**
These LED indicators show the active input status.
- 3 REBOOT**
Use a pointed object to press this recessed button and reboot the unit.
- 4 HDMI OUT**
Connect an HDMI cable from this port to an HD display.
- 5 ETHERNET**
Connect an Ethernet cable from this port to the Local Area Network (LAN).

- 6 RS-232**
Use the included Phoenix terminal block to connect an RS-232 device to this port.
- 7 AUDIO**
Connect the included Phoenix terminal blocks to embed audio on the output stream and/or connect to an audio output device.
- 8 DC 48V**
Connect the optional 48V DC power supply to this power receptacle. This power supply is available, separately.

AT-OMNI-122



- | | |
|--|---|
| <p>1 PWR
This LED indicator is green when the unit is powered.</p> <p>2 LINK 1 / LINK 2
These LED indicators show the active input status.</p> <p>3 ID
Press this button to identify the unit within the AMS software.</p> <p>4 REBOOT
Use a pointed object to press this recessed button and reboot the unit.</p> <p>5 HDMI OUT
Connect HDMI cables from these ports to an HD display.</p> | <p>6 Eth 1 / Eth 2
Connect Ethernet cables from these ports to the Local Area Network (LAN).</p> <p>7 RS-232
Use the included Phoenix terminal block to connect up to two RS-232 devices to this port.</p> <p>8 AUDIO 1 / AUDIO 2
Connect the included Phoenix terminal blocks to embed audio on the output stream and/or connect to an audio output device.</p> <p>9 DC 48V
Connect the optional 48V DC power supply to this power receptacle. This power supply is available, separately.</p> |
|--|---|

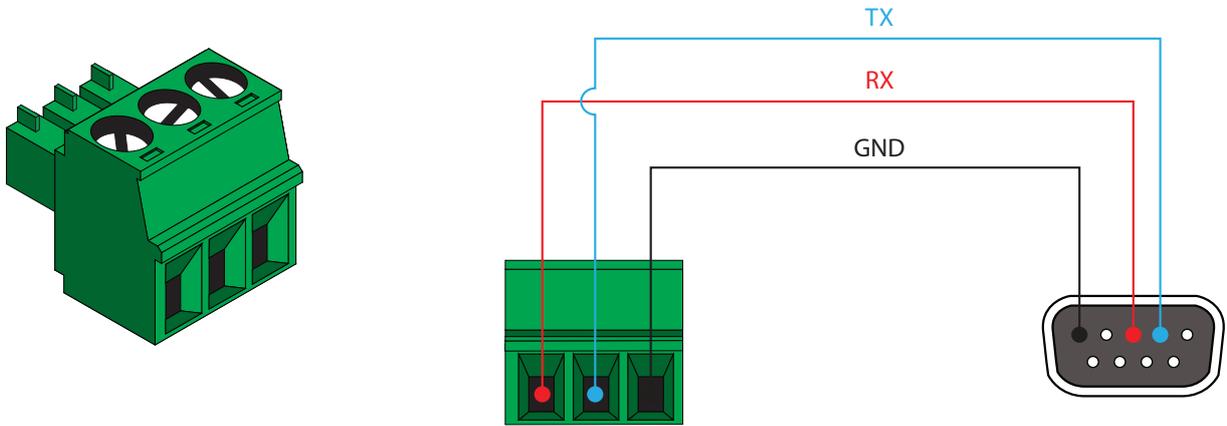
Installation

RS-232

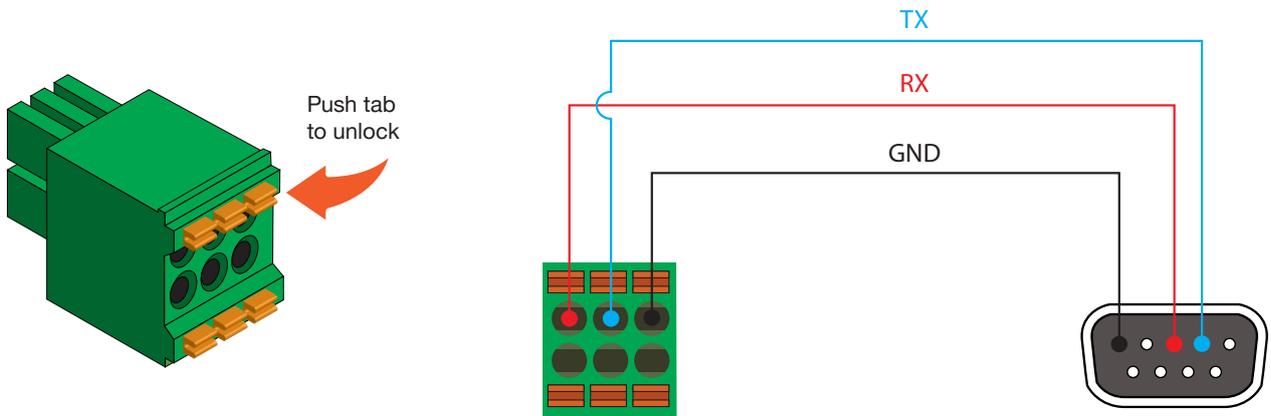
Both the AT-OMNI-121 and AT-OMNI-122 both provide RS-232 over IP, allowing communication between an automation system and an RS-232 device. This step is optional. Note that different Phoenix connectors are provided with each product.

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.

AT-OMNI-121



AT-OMNI-122



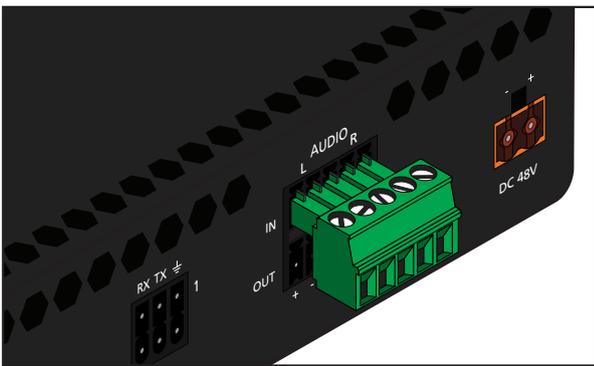
NOTE: Typical DB9 connectors use pin 2 for TX, pin 3 for RX, and pin 5 for ground. On some devices, pins 2 and 3 are reversed.

Audio

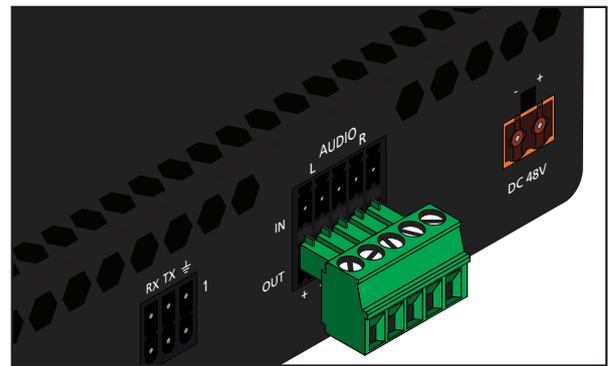
Both the AT-OMNI-121 and AT-OMNI-122 provide the ability to embed analog audio on the output stream and output downmixed 2-channel PCM, using the included dual five-pin Phoenix block. Note that each product comes with different Phoenix connectors. This step is optional.

AT-OMNI-121

- If only **AUDIO IN** or **AUDIO OUT** will be used, then connect the included 5-pin “captive screw” Phoenix blocks, as shown below.

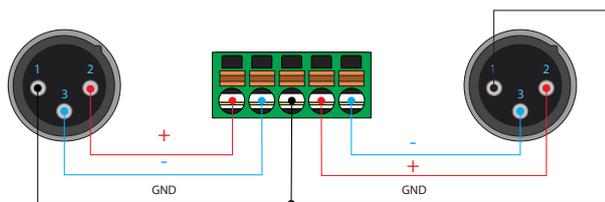
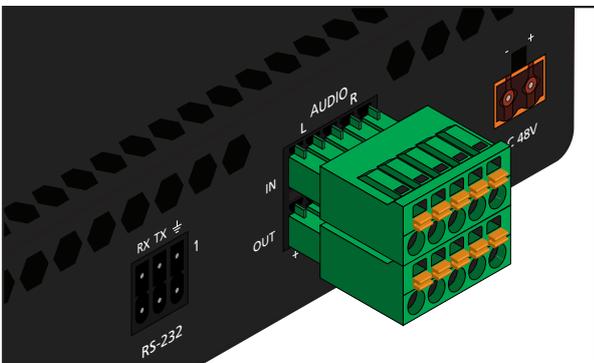


2-channel analog audio input (top)

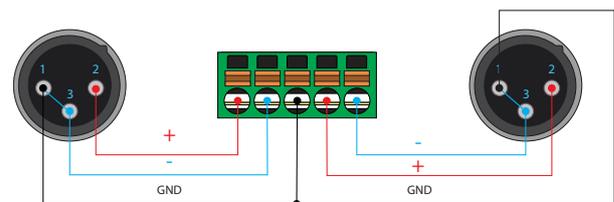


2-channel analog audio output (bottom)

- If *both* **AUDIO IN** and **AUDIO OUT** terminals will be used, then connect the included 5-pin “push spring” Phoenix blocks, as shown below.



Balanced XLR audio



Unbalanced XLR audio

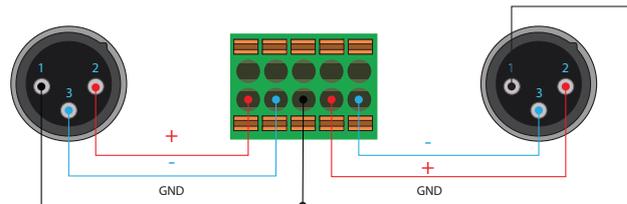
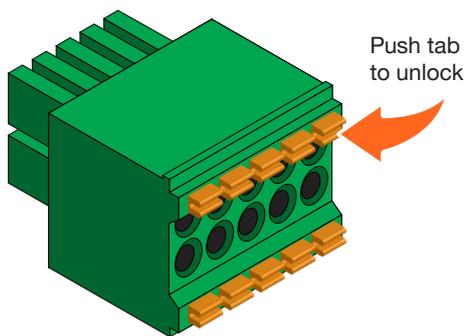


NOTE: Unbalanced XLR audio connectors require Pin 1 and Pin 3 to be connected.

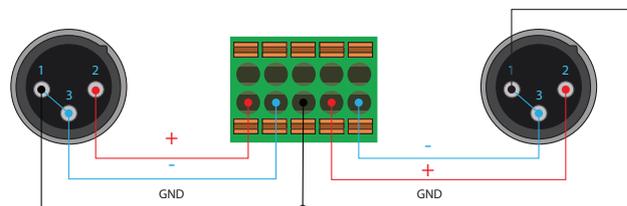
AT-OMNI-122

Use the top 5 pins to connect audio input sources. Use the bottom five pins to connect to audio output devices.

1. Use wire strippers to remove a portion of the cable jacket.
2. Locate the included Phoenix block connectors. Press the orange tab, above the terminal, while inserting the exposed wire. Release the orange tab to lock the wire in place. Balanced or unbalanced audio can be used.



Balanced XLR audio



Unbalanced XLR audio



NOTE: Unbalanced XLR audio connectors require Pin 1 and Pin 3 to be connected.

Connection Instructions

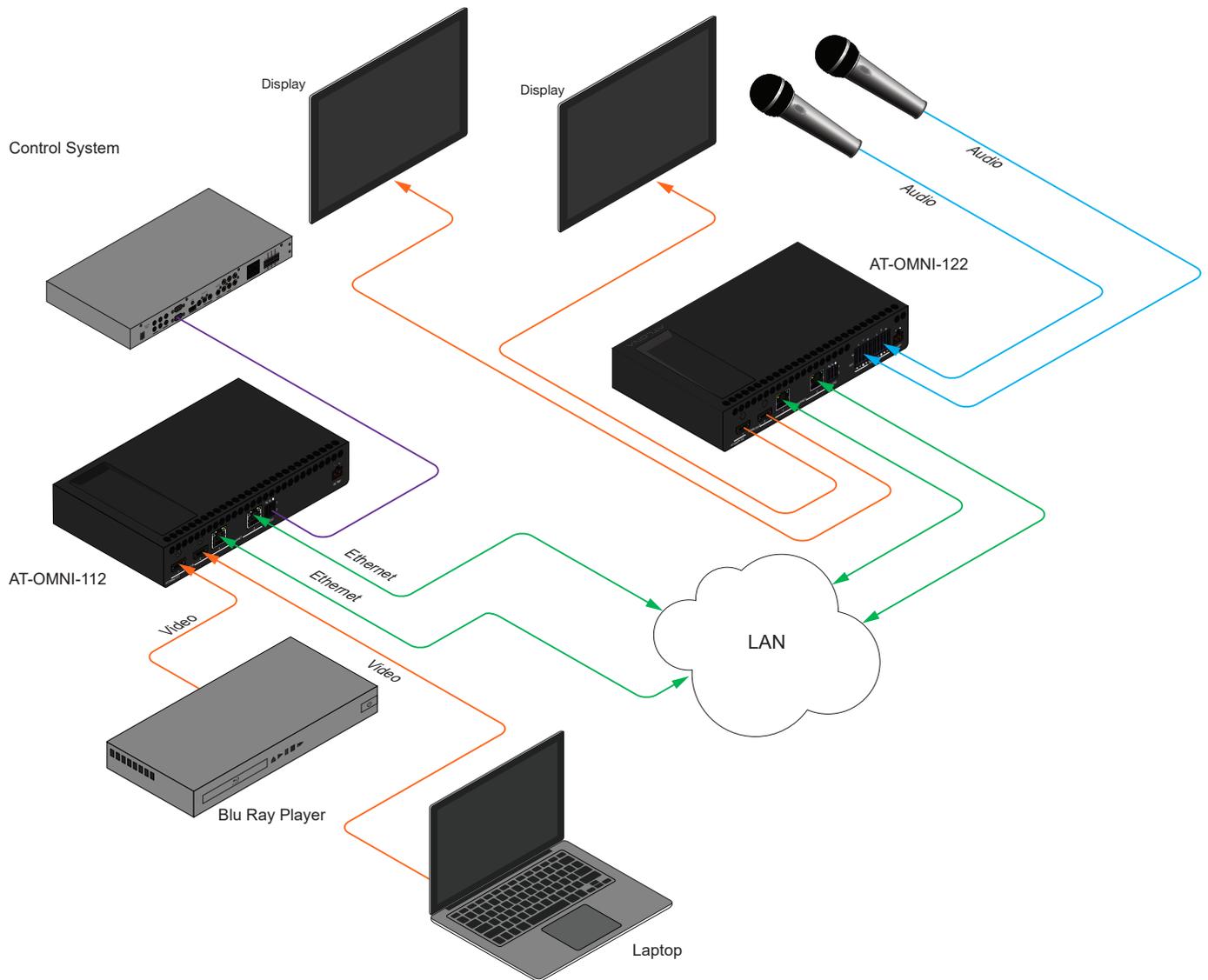
1. Connect an Ethernet cable from the **Eth** port on the decoder to a PoE-capable switch on the Local Area Network (LAN). If using the dual-channel decoder, connect a separate Ethernet cables to **Eth 1** and **Eth 2** ports.



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

2. Connect an HDMI cable from the **HDMI OUT** port on the decoder to a display. If using the dual-channel decoder, connect an HDMI cable from each **HDMI OUT** port to a display.
3. RS-232 (optional)
 - Connect the the RS-232 controller/automation system to the **RS-232** port on the decoder.
 - Connect the RS-232 device to the **RS-232** port on the decoder.
4. External Audio (option)
 - Connect the audio inputs to the decoder, as required.
 - Connect the audio outputs to the decoder, as required.
5. Connect the audio source and/or audio outputs as required.
6. Once power is applied, the **PWR** indicator, on the front panel, will turn red, then amber.

Connection Diagram



Configuration

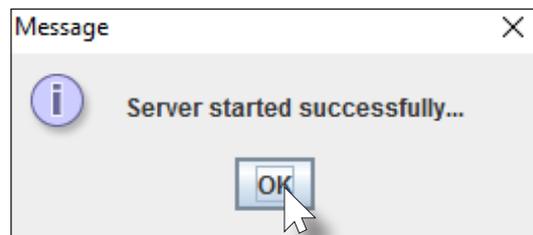
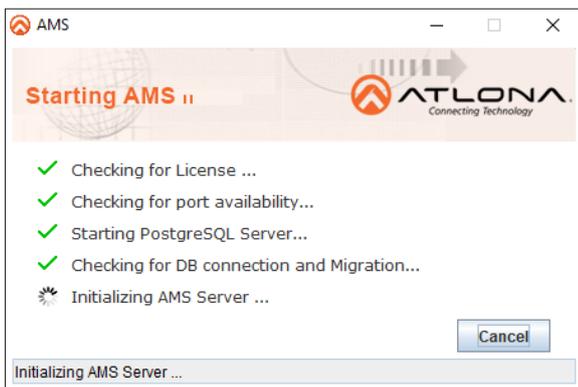
Discovery using AMS

To determine the IP address of the decoder, use AMS. AMS is available only for the Windows® Operating System. If necessary, mDNS/Bonjour can also be used to discover the IP address of the decoder.

By default, OmniStream products are set to DHCP mode, allowing a DHCP server (if present) to assign each encoder/decoder 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. AMS will only be able to discover decoders if they are on the same VLAN.

If a DHCP server is not found within 60 seconds, the decoder 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 \(page 17\)](#) for more information on configuring an decoder in Auto IP mode.

1. Launch the Atlona Management System from the Windows Desktop or from the Start Menu.
2. After the AMS server starts, click the **OK** button to dismiss the dialog.

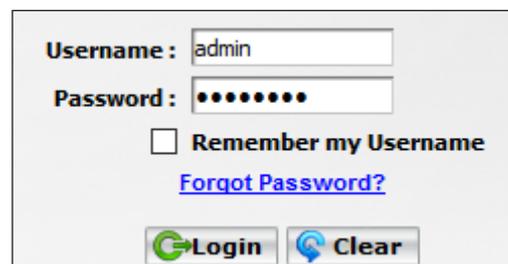
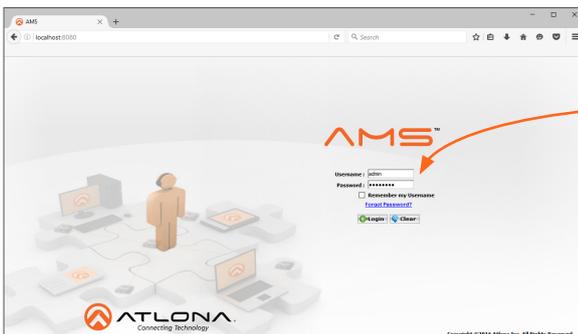


3. Launch a web browser and type localhost:8080 in the address bar, as shown below.

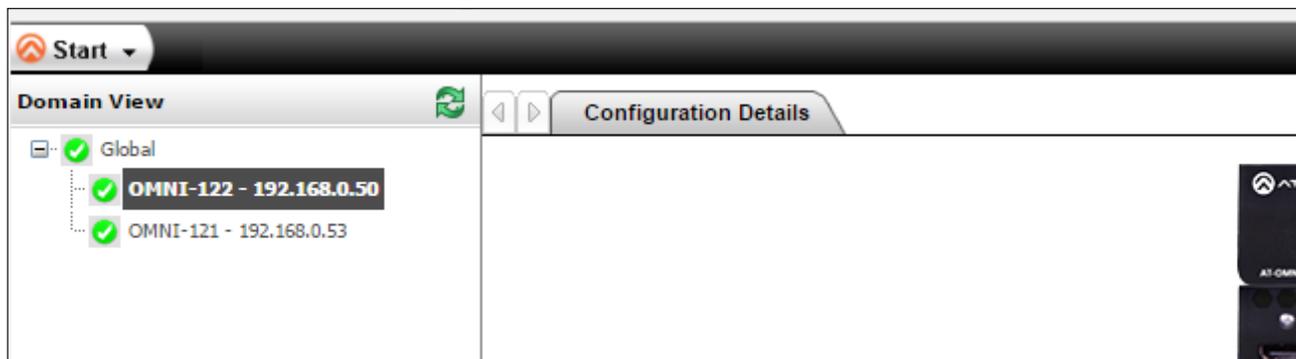


4. Enter the login information on the AMS web page, then click the **Login** button. Note that the password is masked when typed.

Login: admin
Password: admin123



5. Under the **Domain View**, locate the IP address for the decoder. Single-channel decoders will be labeled as **OMNI-121**. Dual-channel decoders will be labeled as **OMNI-122**.

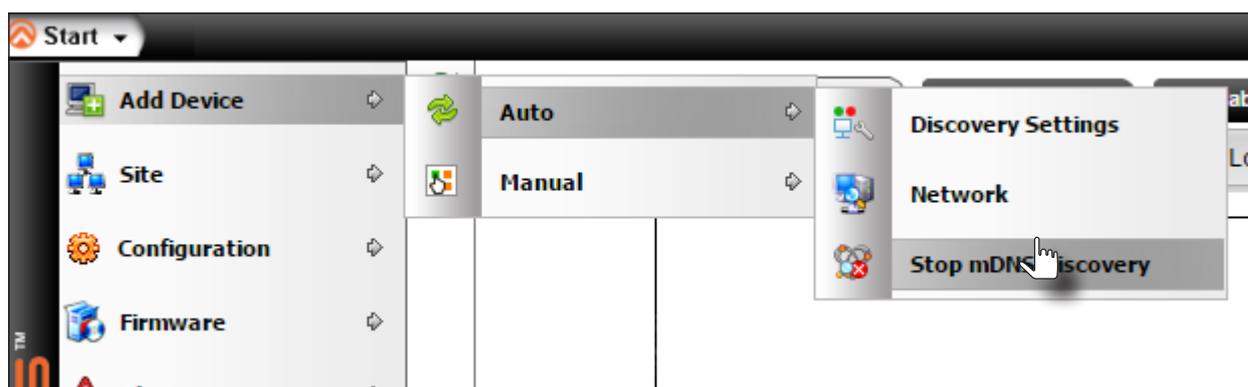


If no OmniStream devices are found, then make sure that both the decoder and the computer that is running AMS are on the same subnet.

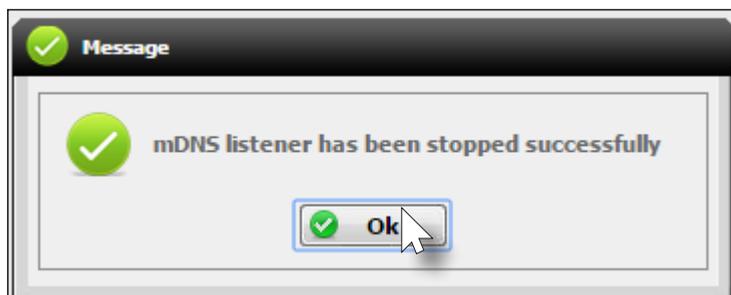


IMPORTANT: OmniStream uses mDNS as the discovery mechanism. In order for mDNS to function properly, there must not be restrictions applied to the network. VPN can be used to connect to a computer that is running AMS, on the same network. However, VPN cannot be used when AMS is running on the local machine.

6. If, after verifying the above restrictions, no OmniStream devices are listed under the **Domain View**, then follow the procedure below.
 - a. Make sure that both the decoder and the computer that is running AMS are on the same subnet.
 - b. Remove any network restrictions that may be in place.
 - c. In AMS, click **Start > Add Device > Auto > Stop mDNS Discovery**. This feature is enabled, by default.



- d. After a few moments, the following message box will be displayed. Click the **OK** button to dismiss the message box.



- e. Restart the mDNS listener by clicking **Start > Add Device > Auto > Start mDNS Discovery**.
- f. After the mDNS listener is enabled, click the OK button to dismiss the message box.
- g. The list of OmniStream devices should now be listed under the **Domain View** pane.

Configuring a Static IP Address

The following section is only required to set an decoder, 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 decoder is powered. Power will need to be supplied either by the external 48V power supply (not included) or by connecting an Ethernet cable from the encoder to a PoE-capable switch. If using the AT-OMNI-122, the Ethernet cable can be connected to either **Eth 1** or **Eth 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. Click **Start > Settings > Control Panel > Network and Sharing Center**.
4. Click **Change adapter settings**.
5. Right-click on the adapter that is used to establish a wired connection to the network, and select **Properties** from the context menu.
6. Under the **Ethernet Properties** dialog box, select **Internet Protocol Version 4** and then click the **Properties** button.
7. Click the **Use the following IP address** radio button.

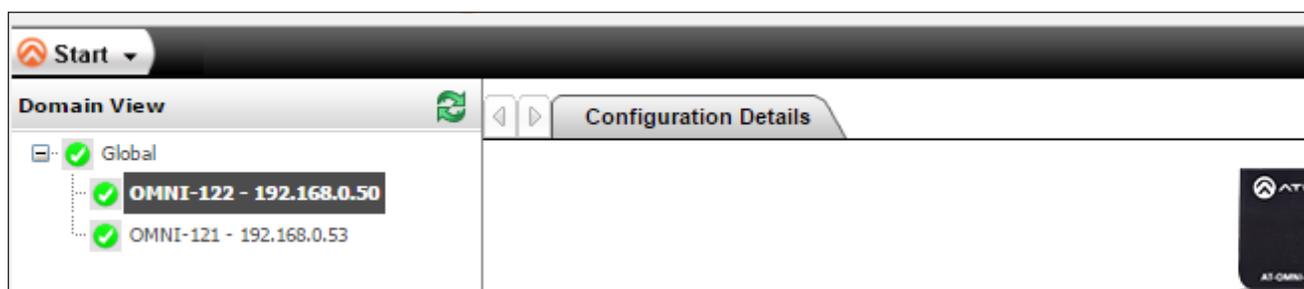


IMPORTANT: Before continuing, write down the current IP settings in order to restore them, later. If *Obtain an IP address automatically* and *Obtain DNS server automatically* are selected, then this step is not required.

8. Enter the desired static IP address or the IP address provided by the network administrator.

If the PC does not require Internet access or if a statically-assigned IP address is being used, then an IP address of 169.254.xxx.xxx can be entered.

9. Set the subnet mask to 255.255.0.0.
10. Click the **OK** button then close all **Control Panel** windows.
11. Launch AMS.
12. Locate the encoder under the **Domain View** of AMS. Single-channel decoders will be labeled as **OMNI-121**. Dual-channel decoders will be labeled as **OMNI-122**.



13. Under the **Configuration Details** tab, locate the Network info

System Information	
SAP	
IP Input	
Serial	
HDMI Output	
Logo	
Alarms	
Network	
Users	
License	

Network 1	
Name	eth1
Enabled	true
Carrier	true
DHCP	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
IP Address	<input type="text" value="192.168.11.233"/>
Subnet	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text"/>
Link Speed	1000
MAC Address	B8:98:B0:01:88:CB

Network 2	
Name	eth2
Enabled	true
Carrier	true
DHCP	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
IP Address	<input type="text" value="192.168.11.22"/>
Subnet	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text"/>
Link Speed	1000
MAC Address	B8:98:B0:01:88:CC

14. Enter the required network information for the encoder in the **IP Address**, **Subnet**, and **Gateway** fields.

15. Click the **Save** button in the bottom-right corner, to apply the changes.

16. Disconnect the encoder from the PC and connect it to the network.

17. The encoder is now ready for use.

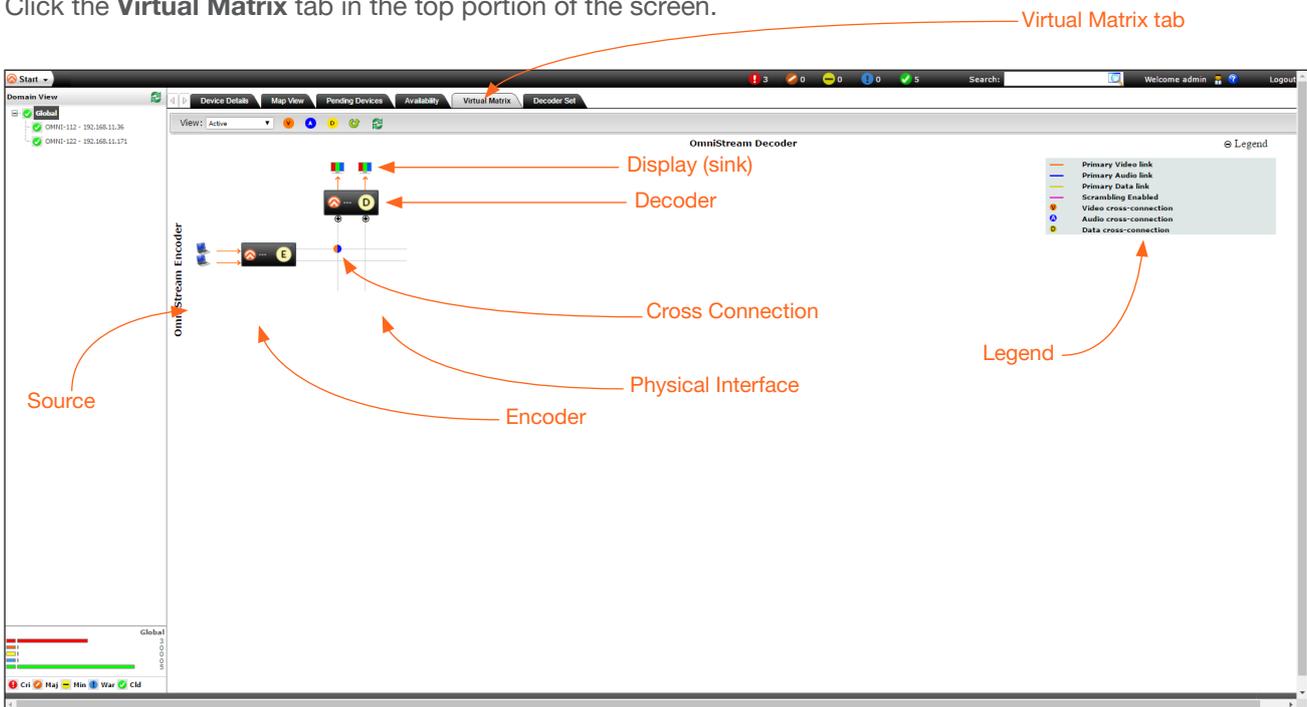
The Virtual Matrix

Accessing the Virtual Matrix

1. Click the **Global** node, under the **Domain View** pane, within AMS.



2. Click the **Virtual Matrix** tab in the top portion of the screen.



Layout

The illustration, above, shows a single encoder and decoder. Note that the number of OmniStream devices under the **Virtual Matrix** tab and the **Domain View** pane are the same.

- Encoders are identified with an **E** and are displayed as rows.
- Decoders are identified with a **D** and are displayed as columns.
- Each source device is identified by the .
- Display (sink) devices are represented by the .
- *Physical interfaces* are represented by light-gray lines. These lines represent the Ethernet cables which carry video/audio data from an encoder to a decoder.
- *Cross connections* are a logical connection between two *physical interfaces* and are represented by a circular symbol.
- Click the + sign, next to Legend, to view a list of icons and line types used to represent items in the Virtual Matrix.
- Inputs and outputs for both encoders and decoders are read from top to bottom and left to right, as shown on the next page.

The Virtual Matrix

The virtual matrix provides a visual diagram of each encoder and decoder that has been detected by AMS. Each physical interface, source input, and display (sink) output, are arranged as follows, within the virtual matrix.

For the following, refer to *Figure 1*.

- On the *encoder*, HDMI inputs and Ethernet outputs are read from top-to-bottom: **HDMI 1** and **Eth 1** are in the top row. **HDMI 2** and **Eth 2** are in the bottom row.
- On the *decoder*, HDMI outputs and Ethernet inputs are read left-to-right: **HDMI 1** and **HDMI 2** are in the top row. **Eth 1** and **Eth 2** are in the bottom row.

Figure 1

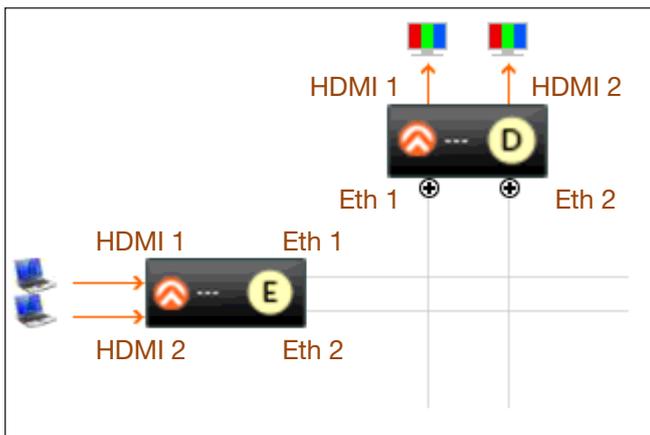
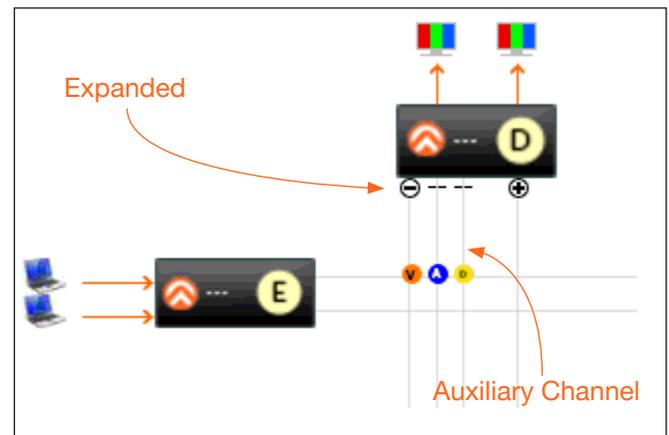


Figure 2



For the following, refer to *Figure 2*.

- Click the + icon, to expand the *physical interface*. When expanded, the icon will change to a minus ("-") symbol, and the signal types will be displayed. *Cross connections* are color-coded to provide information on what type of data is being passed between two *physical interfaces*.

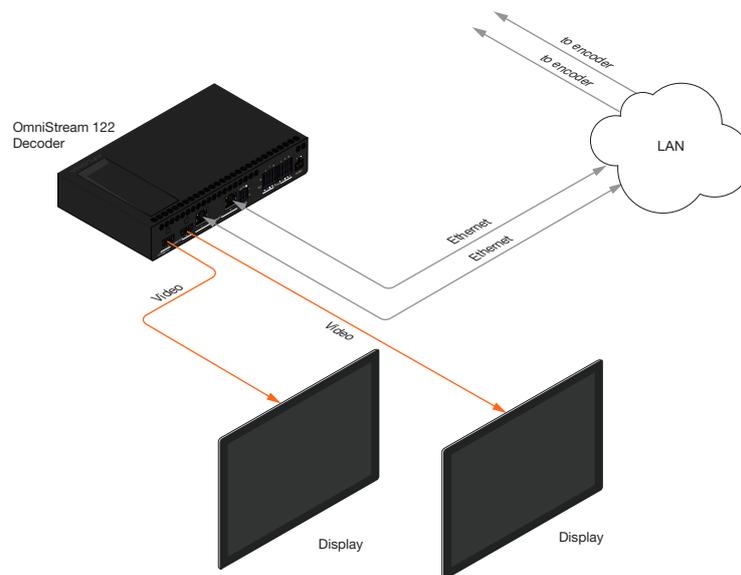
Symbol	Description
	Video and audio
	Video only
	Audio only
	Auxiliary
	Video + Audio + Auxiliary

Physical Interfaces & Cross Connections

The following example provides a better understanding of how *physical interfaces* and *cross connections* work together.

Figure 3 shows a very simple setup: two displays are connected to a dual-channel decoder. Both Ethernet cables are connected from the decoder to the Local Area Network (LAN). Another set of Ethernet cables connects to a dual-channel encoder, somewhere on the same network. The Ethernet cables are the *physical interfaces* - that is, they provide a physical link - that allows the AV stream to be transported, over the network, from an encoder to a decoder endpoint.

Figure 3



In Figure 3, the gray lines indicate that no signal is being received from the encoder, over the Ethernet cables. Before a stream can be sent across the network, a *cross connection* must exist between two *physical interfaces*. *Cross connections* are created under the **Virtual Matrix** tab, in AMS. Figure 4a shows a *cross connection* that joins **Ethernet 1** on the decoder to **Ethernet 1** on the encoder. Figure 4b shows the result of the *cross connection* (green line) in the setup. Note that the second Ethernet line is still gray, indicating that the *cross connection* for this physical interface has not yet been created. Once a *cross connection* is created, the decoding process starts automatically.

Figure 4a

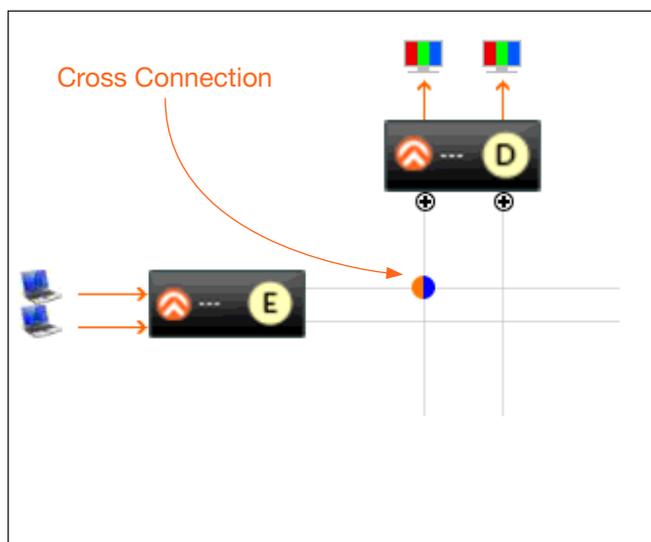
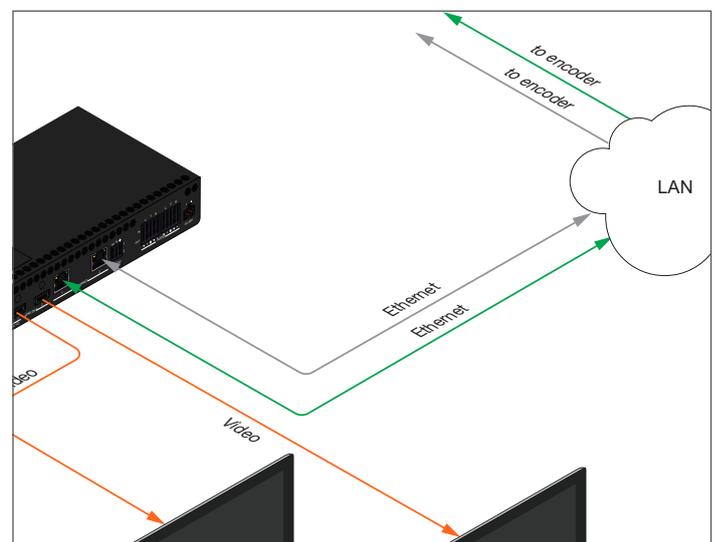


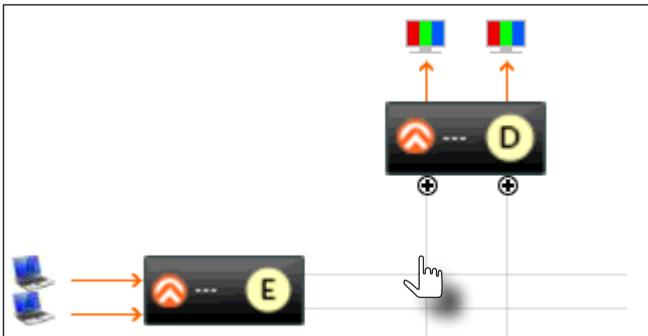
Figure 4b



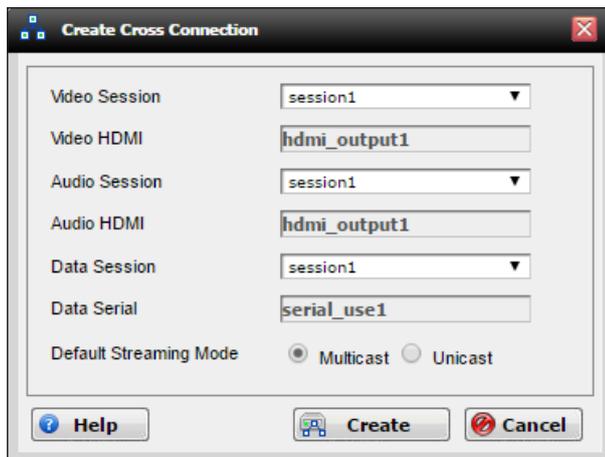
Creating Cross Connections

The term *physical interface*, refers to the Ethernet cable that is connected to each encoder/decoder. Once a *cross connection* is created, decoding process will automatically begin. To stop the decoding process, refer to [Removing Cross Connections \(page 24\)](#) for more information.

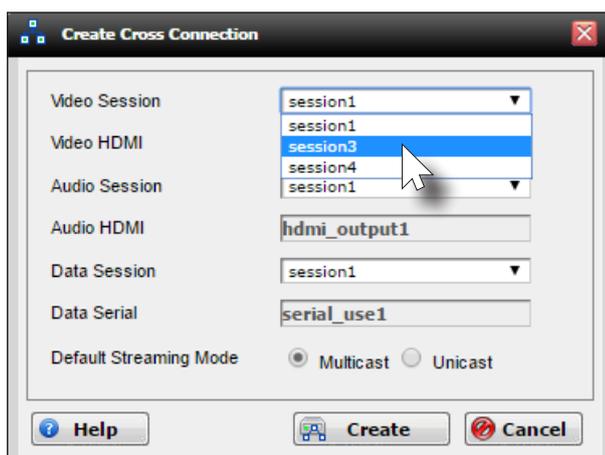
1. Move the mouse cursor over any two *physical interfaces*. When a valid selection is made, the cursor will turn from an arrow to a hand.



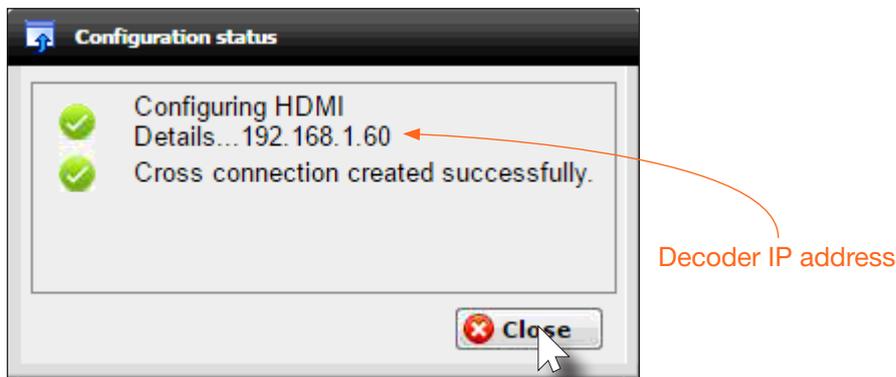
2. Left-click to display the **Create cross Connection** dialog. The current sources, as well as the assigned sessions, will be displayed. The default streaming mode is set to *multicast*. Note that only *sessions* assigned to the *physical interface* will appear in the drop-down lists.



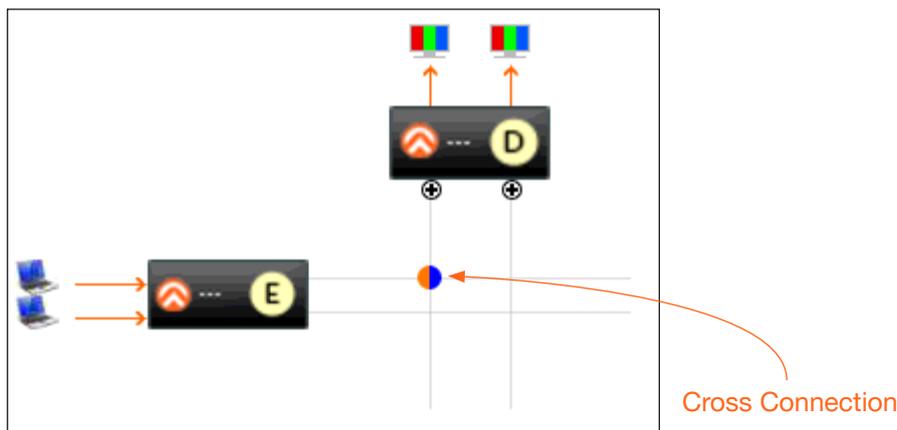
To select a different video session, click the **Video Session** drop-down list and select a different session. The same operation can be performed for the **Audio Session** and **Data Session**, using the drop-down lists. The default streaming mode is set to *multicast*.



3. Click the **Create** button to create the cross connection.
4. The following message box will be displayed. If the operation is successful, the dialog will state that a cross connections has been successfully created. The IP address in the message box is the decoder IP address.



5. Click the **Close** button to dismiss the message box.
6. Once the *cross connection* is created, a circular symbol will appear at the point where the *physical interfaces* are connected.



NOTE: The *cross connection* represents a “node” in which two *physical interfaces* are connected. However, the a *cross connection* does not necessarily indicate the presence of a video/audio/data stream passing from the encoder to the decoder; it merely represents a logical connection between two *physical interfaces*.

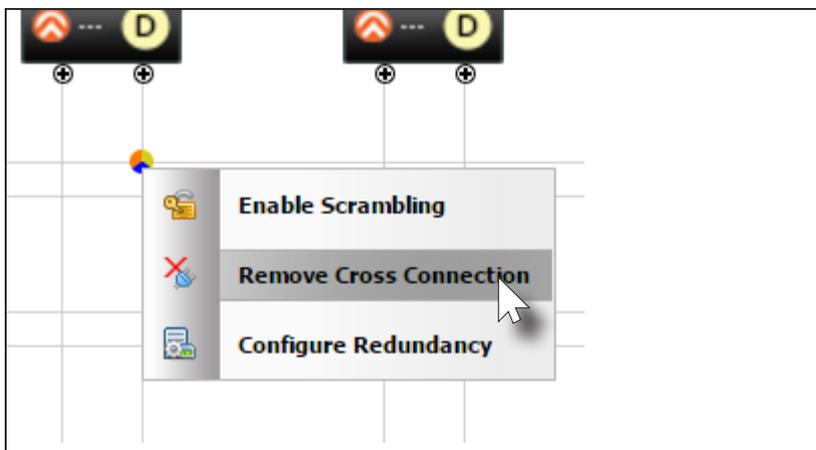
Removing Cross Connections

Deleting a *cross connection* terminates the connection between two physical interfaces. Once deleted, the currently assigned video/audio stream will no longer be able to pass between the encoder and decoder.

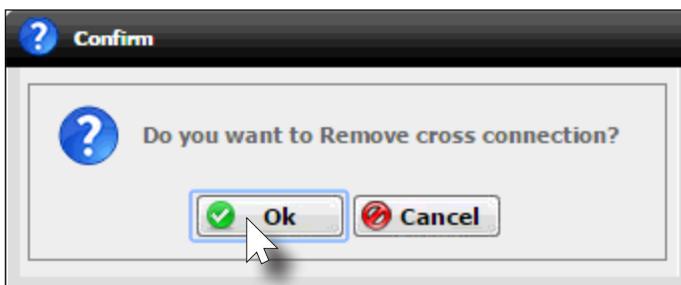
1. Right-click on the desired *cross connection*.

Unless the desired cross connection is known, it will be necessary to right-click on the cross connection to display the available options. If **Start Decoding** is an option, then another cross connection must be selected.

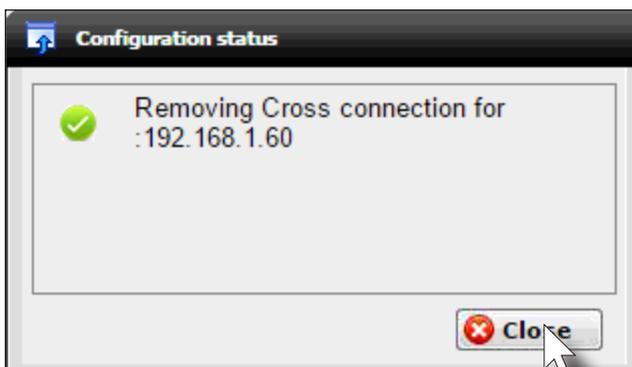
2. Click **Remove Cross Connection** to delete the *cross connection*.



3. AMS will display a prompt message to confirm the operation. Click the **OK** button to delete the cross connection. Click the **Cancel** button to return to the **Virtual Matrix** tab without deleting the cross connection.



4. If the **OK** button is clicked, the following message box will be displayed. Click the **Close** button to dismiss the message box.



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 individual applied video, audio, or both, and can be enabled either before or after the decoding process is started.

When scrambling is enabled, the scrambling key can be found under the **HDMI Output** tab on the decoder.

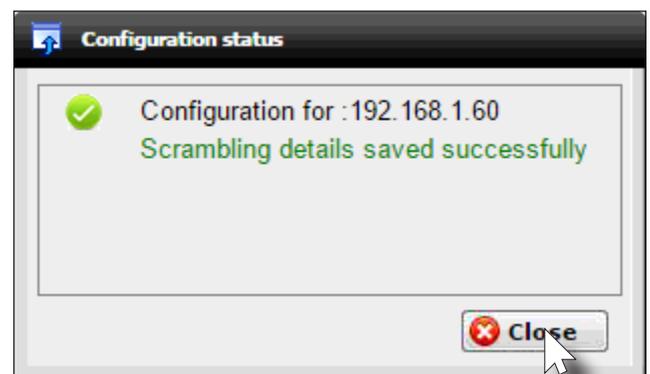
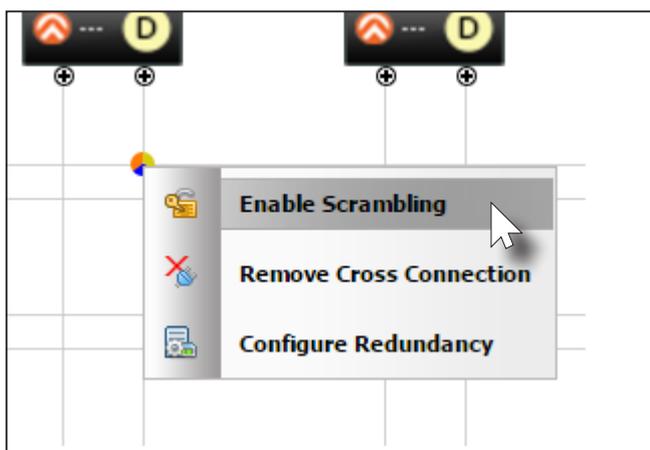
Descrambling	
Enable	<input checked="" type="checkbox"/>
Key	<input type="text" value="scrambling"/>
Video	
Input	<input type="text" value="ip_input1"/>
Backup Mode	<input type="text" value="Off"/>
Backup Input	<input type="text" value="Not Used"/>
Active Input	ip_input1
Status	No Active video

Scrambling key (decoder)

When scrambling is enabled through the virtual matrix, the key is automatically generated and the **Enable** box is checked. A user-defined key can also be created (as shown) and placed in the **Key** field.

NOTE: If a user-defined key is specified, then it must be a minimum of 8 alphanumeric characters. Special characters and spaces are not permitted.

1. Right-click on the desired *cross connection*. If a *cross connection* does not exist, refer to [Creating Cross Connections \(page 22\)](#) for more information.
2. Select **Enable Scrambling** to begin the scrambling process.

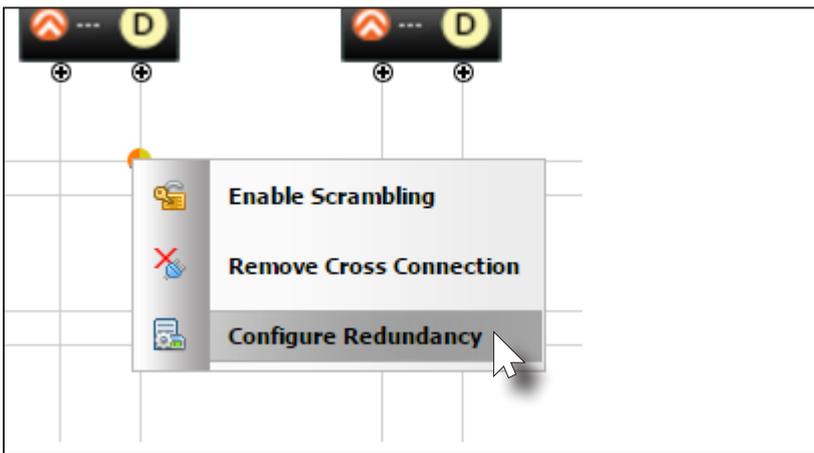


3. AMS will display a prompt message to confirm the operation. Click the **Close** button to dismiss the message box.

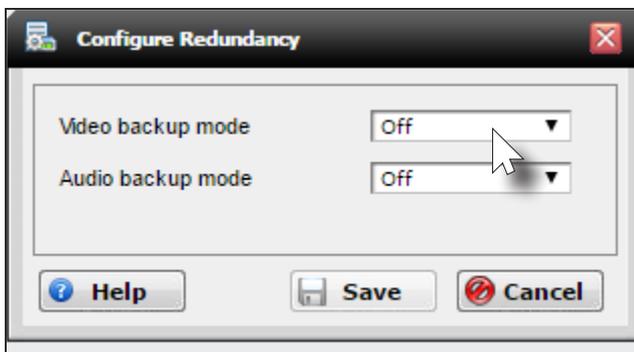
Configuring Redundant Streams

OmniStream decoders have the ability to identify damaged or missing streams and will recover the image almost instantaneously. The decoder can access the same stream from two separate multicast addresses and switch between them, when necessary.

1. Right-click on the desired *cross connection*.
2. Select **Configure Redundancy**.



3. The **Configure Redundancy** dialog will be displayed.



4. Select the backup mode for both video and audio from the **Video backup mode** and **Audio backup mode** drop-down lists.

Mode	Description
Off	Backup source is disabled; join request not sent.
Join Active	The decoder sends a join request only when the decoder decides to switch between sources. Switch time will not exceed 5 seconds.
Join Always	The decoder always joins to the backup source. Switch time will not exceed 0.5 seconds.

5. Click the **Save** button to save the changes.

The AMS Interface

System Info tab

The **System Info** tab provides general information about the decoder. The decoder has an identical interface. None of the fields under the **System Info** tab can be edited.

System Information	
SAP	
IP Input	
Serial	
HDMI Output	
Logo	
Alarms	
Network	
Users	
License	

System Information	
Firmware Version	0.28.0
Model	at-omni-122
Description	Default sdfasdfsdfasd
Location	a234r23ew4
Date/Time	02-25-2017 15:15:40
Uptime	7 days 6 hours 10 minutes
Temperature	36.00°C 96.8°F
Hostname	AT-OMNI-1221
NTP Server	Default
SET DATE/TIME	SET DATE/TIME
FACTORY RESET	<input type="button" value="Factory Reset"/> <input type="checkbox"/> Reset User <input type="checkbox"/> Reset Network <input type="checkbox"/> Reset Defaults
REBOOT	<input type="button" value="Reboot"/>
DEBUG	<input type="button" value="Debug"/>
IDENTIFY	<input type="button" value="Identify"/>

Firmware Version

Displays the current version of firmware.

Model

The model of the unit.

Model	Description
AT-OMNI-121	Single-channel decoder
AT-OMNI-122	Dual-channel decoder

Description

Enter a description for the decoder in this field. This field is optional.

Location

Enter the text, describing the location of the decoder, in this field. This field is optional.

Date / Time

The current date and time, measured using Coordinated Universal Time (UTC). UTC does not observe Daylight Savings Time (DST).

Uptime

Time elapsed since the last reboot operation.

Temperature

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

Host Name

Enter the host name in this field. By default, the host name uses the product SKU and the last 5 digits of the serial number.

NTP Server

Enter the NTP server in this field. This field is optional.

SET DATE/TIME

Click this button to display **Set Date/Time** dialog box.

FACTORY RESET

Click the **Factory Reset** button to reset the decoder. If no options are checked, then the unit is reset to factory-default settings. User and network information are preserved.

Option	Description
Reset User	Resets the decoder to factory-default settings and resets custom user information.
Reset Network	Resets the decoder to factory-default settings and resets network information.
Reset Defaults	Resets the decoder to factory-default settings. In addition, static multicast addresses are configured. This option can be used to configure a single encoder to transmit to any number of decoders without using the Virtual Matrix within AMS.  NOTE: This will not work for multiple decoder on the same network.

REBOOT

Click the **Reboot** button to perform a soft reboot of the decoder.

DEBUG

The **Debug** button places the decoder in *debug* mode.



WARNING: The **Debug** button is specifically designed for providing system-level troubleshooting information. Do not use this feature unless directed by an experience field technician or an Atlona Technical Support Engineer.

IDENTIFY

Click the **Identify** button to identify the physical unit on a network. When this button is clicked, all the LED indicators on the front panel will flash for approximately 10 seconds.

SAP tab

The SAP tab enables or disables the Session Announcement Protocol protocol. Enabling SAP configures the decoder to look for SAP messages from encoders on the network that are configured to send SAP. Any messages that are discovered will be displayed here.

System Information					
SAP	<table border="1"><thead><tr><th colspan="2">SAP</th></tr></thead><tbody><tr><td>Enable</td><td><input checked="" type="checkbox"/></td></tr></tbody></table>	SAP		Enable	<input checked="" type="checkbox"/>
SAP					
Enable	<input checked="" type="checkbox"/>				
IP Input					
Serial					
HDMI Output					
Logo					
Alarms					
Network					
Users					
License					

Enabled

Click this box to enable SAP and tell the decoder to listen for SAP messages.

IP Input tab

The **IP Input** tab provides configuration of each input, the assigned multicast address(es), and ports.

System Information	Input 1	Input 2	Input 3	Input 4	Input 5	Input 6	Input 7	Input 8	Input 9	Input 10	Input 11	Input 12
SAP												
IP Input												
Serial												
HDMI Output												
Logo												
Alarms												
Network												
Users												
License												

Input 1	
Name	ip_input1
Enable	<input type="checkbox"/>
Interface	<input type="text" value=""/>
Multicast Address	<input type="text" value=""/>
Multicast filter	
Mode	<input type="text" value="exclude"/>
Addresses*	<input type="text" value=""/> <small>*Separate multiple IP addresses with a comma.</small>
Port	<input type="text" value="1024"/>

Name

The name used by AMS to identify the IP input.

Enable

Click this check box to enable the IP input.

Interface

Select the physical interface, that will be used to carry the multicast traffic, from this drop-down list. When using a single-channel decoder, only eth1 will be available.

Input	Description
eth1	Eth 1 port
eth2	Eth 2 port

Multicast Address

Enter the multicast address of the decoder stream.

Mode

Click this drop-down list to select the mode. Mode can be set to exclude or include and is specifically used when using Source Specific Multicast (SSM). SSM will only function if the network is properly set up to support it.

Mode	Description
exclude	Multicast content coming from the source mentioned in the Addresses section will be excluded (blocked).
include	Multicast content coming from the source mentioned in the Addresses section below will be streamed to the decoder.

Addresses

Enter the IPv4 address of the encoder(s) in this field and is used as the SSM include/exclude list. Use the comma delimiter to separate multiple IP addresses. When using non-SSM networks, this field is ignored.

Port

Enter the mulitcast UDP listening port in this field.

Serial tab

The **Serial Config** tab provides serial port configuration when using control signals.

System Information																																					
SAP																																					
IP Input																																					
Serial																																					
HDMI Output																																					
Logo																																					
Alarms																																					
Network																																					
Users																																					
License																																					
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="2">Serial Port Configuration</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Name</td> <td>eth1</td> </tr> <tr> <td>Baudrate</td> <td>115200 ▼</td> </tr> <tr> <td>Data</td> <td>8 ▼</td> </tr> <tr> <td>Parity</td> <td>none ▼</td> </tr> <tr> <td>Stop</td> <td>1 ▼</td> </tr> <tr> <td>Flow Control</td> <td>none ▼</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="2">Serial Port Configuration</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Name</td> <td>eth2</td> </tr> <tr> <td>Baudrate</td> <td>9600 ▼</td> </tr> <tr> <td>Data</td> <td>8 ▼</td> </tr> <tr> <td>Parity</td> <td>none ▼</td> </tr> <tr> <td>Stop</td> <td>1 ▼</td> </tr> <tr> <td>Flow Control</td> <td>none ▼</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="2">Serial configuration</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Name</td> <td>serial_use1</td> </tr> <tr> <td>Port</td> <td>Not used ▼</td> </tr> <tr> <td>Mode</td> <td>output ▼</td> </tr> </tbody> </table>	Serial Port Configuration		Name	eth1	Baudrate	115200 ▼	Data	8 ▼	Parity	none ▼	Stop	1 ▼	Flow Control	none ▼	Serial Port Configuration		Name	eth2	Baudrate	9600 ▼	Data	8 ▼	Parity	none ▼	Stop	1 ▼	Flow Control	none ▼	Serial configuration		Name	serial_use1	Port	Not used ▼	Mode	output ▼
Serial Port Configuration																																					
Name	eth1																																				
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Data	8 ▼																																				
Parity	none ▼																																				
Stop	1 ▼																																				
Flow Control	none ▼																																				
Serial Port Configuration																																					
Name	eth2																																				
Baudrate	9600 ▼																																				
Data	8 ▼																																				
Parity	none ▼																																				
Stop	1 ▼																																				
Flow Control	none ▼																																				
Serial configuration																																					
Name	serial_use1																																				
Port	Not used ▼																																				
Mode	output ▼																																				

Name

The name used by AMS to identify the physical interface receiving the serial data.

Baudrate

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 Control

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



NOTE: The single-channel decoder will only have one **Serial Port Configuration** section.

Serial configuration	
Name	serial_use2
Port	Not used ▼
Mode	output ▼
Input	ip_input12 ▼

Name

The name used by AMS to identify the serial port.

Port

Click this drop-down list to select the serial port to use. Select the **Not Used** option to leave the serial port unassigned.

Mode

Click this drop-down list to select the serial mode.

Mode	Description
cli	Displays the command-line interface of the decoder.
output	Serial port will send commands directly to the display device.

Input

Click this drop-down list to select the input to use. This input must match the multicast address defined in the AUX block, under the Serial tab, of the encoder. Refer to the User Manual for the Encoder for more information. Select the **Not Used** option to leave the input unassigned.

The following **Bidirectional** block must be completed if two-way communication, between the encoder and decoder is required. Bidirectional control is only supported for unicast control sources (not multicast).

Bidirectional	
Interface	▼
Destination IP address	
Destination UDP port	1032
Enable	<input type="checkbox"/>

Interface

Click this drop-down list to select the physical interface: eth1 or eth2.

Destination IP address

Enter the IPv4 address of the encoder in this field.

Destination UDP port

Enter the destination UDP listening port in this field.

Enable

Click this check box to enable bidirectional serial communication.

HDMI Output tab

The **HDMI Output** tab provides options to configure the output streams.

<ul style="list-style-type: none"> System Information SAP IP Input Serial <li style="background-color: #e67e22; color: white;">HDMI Output Logo Alarms Network Users License 	<p>Output 1 Output 2</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #e67e22; color: white;"> <th colspan="2">Output 1</th> </tr> </thead> <tbody> <tr> <td style="background-color: #e67e22; color: white;">Name</td> <td>hdmi_output1</td> </tr> <tr> <td colspan="2" style="background-color: #e67e22; color: white;">Descrambling</td> </tr> <tr> <td>Enable</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Key</td> <td><input type="text" value="scrambling"/></td> </tr> <tr> <td colspan="2" style="background-color: #e67e22; color: white;">Video</td> </tr> <tr> <td>Input</td> <td><input type="text" value="ip_input1"/></td> </tr> <tr> <td>Backup Mode</td> <td><input type="text" value="Off"/></td> </tr> <tr> <td>Backup Input</td> <td><input type="text" value="Not Used"/></td> </tr> <tr> <td>Active Input</td> <td>ip_input1</td> </tr> <tr> <td>Status</td> <td>No Active video</td> </tr> <tr> <td>Stretch/crop mode</td> <td><input type="text" value="keep aspect ratio"/></td> </tr> <tr> <td>Resolution</td> <td><input type="text" value="auto"/></td> </tr> <tr> <td><input type="button" value="To Primary"/></td> <td><input type="button" value="To Backup"/></td> </tr> <tr> <td colspan="2" style="background-color: #e67e22; color: white;">Audio</td> </tr> <tr> <td>Input</td> <td><input type="text" value="ip_input2"/></td> </tr> <tr> <td>Backup Mode</td> <td><input type="text" value="Off"/></td> </tr> <tr> <td>Backup Input</td> <td><input type="text" value="Not Used"/></td> </tr> <tr> <td>Active Input</td> <td>ip_input2</td> </tr> <tr> <td>Status</td> <td>No Active audio</td> </tr> </tbody> </table>	Output 1		Name	hdmi_output1	Descrambling		Enable	<input checked="" type="checkbox"/>	Key	<input type="text" value="scrambling"/>	Video		Input	<input type="text" value="ip_input1"/>	Backup Mode	<input type="text" value="Off"/>	Backup Input	<input type="text" value="Not Used"/>	Active Input	ip_input1	Status	No Active video	Stretch/crop mode	<input type="text" value="keep aspect ratio"/>	Resolution	<input type="text" value="auto"/>	<input type="button" value="To Primary"/>	<input type="button" value="To Backup"/>	Audio		Input	<input type="text" value="ip_input2"/>	Backup Mode	<input type="text" value="Off"/>	Backup Input	<input type="text" value="Not Used"/>	Active Input	ip_input2	Status	No Active audio
Output 1																																										
Name	hdmi_output1																																									
Descrambling																																										
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Stretch/crop mode	<input type="text" value="keep aspect ratio"/>																																									
Resolution	<input type="text" value="auto"/>																																									
<input type="button" value="To Primary"/>	<input type="button" value="To Backup"/>																																									
Audio																																										
Input	<input type="text" value="ip_input2"/>																																									
Backup Mode	<input type="text" value="Off"/>																																									
Backup Input	<input type="text" value="Not Used"/>																																									
Active Input	ip_input2																																									
Status	No Active audio																																									

Name

The name used by AMS to identify the HDMI output.

Enable

Click this checkbox to enable descrambling.

Key

Enter the scrambling key in this field. The scrambling key must be ASCII and must contain a minimum of eight characters. Special characters and spaces are not permitted.

Input

Click this drop-down list to select the desired primary video input. Select **generator** to use the internal signal generator. Select the **Not Used** option to leave the video input unassigned.

Backup Mode

Select the backup mode from this drop-down list.

Mode	Description
Off	Backup source is disabled; join request not sent.
Join Active	The decoder sends a join request only when the decoder decides to switch between sources. Switch time will not exceed 5 seconds.
Join Always	The decoder always joins to the backup source. Switch time will not exceed 0.5 seconds.

Backup Input

Select the secondary video backup IP input from this drop-down list. If the primary IP input is down, then the decoder will automatically switch to this input. Refer to the Backup Mode option, on the previous page, for setting the conditions for switching inputs.

Active Input

Displays the currently active IP Input.

Status

This field will display the output resolution. If no video is present, then this field will display **No Active Video**.

Stretch / crop mode

Click this drop-down list to select the aspect ratio.

Mode	Description
keep aspect ratio	Aspect ratio is preserved; the output on the decoder will be the same as the input on the encoder.
fullscreen	Stretches the image to fill the screen. In some cases this can distort (“stretch”) the image.

Resolution

Click this drop-down list to select the desired output resolution. This is a scaler feature which can either upscale or downscale the output on the decoder. If **input** is selected, then no scaling will be applied to the output. Select **auto** to use the EDID of the sink device to determine the output resolution.

Resolutions	
input	1440 x 1050
auto	1440 x 900
4096 x 2160	1280 x 1024
3840 x 2160	1280 x 800
1920 x 1200	1280 x 768
1920 x 1080	1280 x 720
1680 x 1050	1024 x 768
1600 x 900	

To Primary

Click this button to make the video use the Primary IP Input.

To Backup

Click this button to force the video stream to fall over to the Backup IP Input (if redundancy is configured).

Audio	
Input	<input type="text" value="ip_input2"/>
Backup Mode	<input type="text" value="Off"/>
Backup Input	<input type="text" value="Not Used"/>
Active Input	ip_input2
Status	No Active audio
Mute	<input type="checkbox"/>
Volume	<input type="text" value="15"/>
Analog power	<input type="checkbox"/>
Analog input	<input type="checkbox"/>
Analog power	<input type="checkbox"/>
Analog output	<input type="checkbox"/>
<input type="button" value="To Primary"/>	<input type="button" value="To Backup"/>

Input

Click this drop-down list to select the primary audio IP input. Select the **Not Used** option to leave the audio input unassigned.

Backup Mode

Click this drop-down list to select the backup mode.

Mode	Description
Off	Backup source is disabled; join request not sent.
Join Active	The decoder sends a join request only when the decoder decides to switch between audio sources. Switch time will not exceed 5 seconds.
Join Always	The decoder always joins to the backup audio source. Switch time will not exceed 0.5 seconds.

Backup Input

Select the secondary audio backup IP input from this drop-down list. If the primary IP input is down, then the decoder will automatically switch to this input. Refer to the Backup Mode option, above, for setting the conditions for switching inputs.

Active Input

Displays the currently active audio IP input.

Status

This field will display the audio output properties.

Mute

Click this check box to mute the audio output.

Volume

Enter the audio output volume in this field. Range: 0 to 15.

Analog Power

When the decoder is connected to the optional external 48V DC power supply, clicking this check box will turn the Analog Power to green. By default, Analog Input is disabled and the power status is Red.

Analog Input

If Analog Input is connected, then click this check box to enable this option.

Analog Power

When the decoder is connected to the optional external 48V DC power supply, clicking this check box will turn the Analog Power to green. By default, Analog Output is disabled and the power status is red.

Analog Output

If Analog Output is connected, then click this check box to enable this option.

To Primary

Click this button to make the audio use the Primary IP Input.

To Backup

Click this button to force the audio stream to fall over to the Backup IP Input (if redundancy is configured).

AUX (CEC)	
Input	ip_input3 ▼
Standby	
Auto on	<input type="checkbox"/>
Projector cooldown (s)	0
Timeout (s)	0
Type	Always On ▼

Input

Click this drop-down list to select the input used for CEC display control. Select the **Not Used** option to leave the input unassigned.

Auto on

Click this check box to enable auto power-on. When enabled, the power-on command is sent to the display when an A/V signal is detected.

Projector cooldown (s)

Enter the time interval, in seconds, before the projector can be powered-off. This time interval prevents the decoder from sending additional commands until the projector has had time to complete its cool-down process.

Timeout (s)

Enter the time interval, in seconds, before the next command can be accepted by the display.

Type

Click this drop-down list to select the display mode.

Type	Description
DispSW AVon	Display switches on/off, source audio/video signal always on.
DispSW AVSW	Display switches on/off, source audio/video signal switches on/off.
AV SW	Display is always on, source audio/video signal switches on/off
Always on	Display is always on, source audio/video signal always on.

Logo tab

The **Logo** tab provides the ability to upload a custom logo. This logo will be displayed when no video signal is detected. When using dual-channel decoders, separate logos can be uploaded: one for each channel.

System Information	
SAP	
IP Input	
Serial	
HDMI Output	
Logo	
Alarms	
Network	
Users	
License	

New Logo	
<input type="button" value="Upload Logo"/>	
logo_insertion1	
Target	hdmi_output1
Enable	<input type="checkbox"/>
Logo	Not Used ▼
Aspect ratio	stretch ▼
Location	
Horizontal	0
Vertical	0
Size	
Height	0
Width	0
logo_insertion2	
Target	hdmi_output2
Enable	<input type="checkbox"/>
Logo	Not Used ▼
Aspect ratio	stretch ▼
Location	
Horizontal	0
Vertical	0

Upload Logo

Click this button to upload the logo file. 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.

Target

The name used by AMS to identify the decoder.

Enable

Click this checkbox to display the logo. If this box is unchecked, then the logo will not be displayed.

Logo

Click this drop-down list to select the desired logo.

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.

Alarms tab

The **Alarms** tab provides a list of all alarms and warnings that have been detected. If no alarms or warnings are active, then the page will display `No alarms.` A list of alarms, warnings, and their descriptions are in the table, below.

System Information	<div style="border: 1px solid black; padding: 5px; display: inline-block;">No alarms.</div>
SAP	
IP Input	
Serial	
HDMI Output	
Logo	
Alarms	
Network	
Users	
License	

Platform

Message	Description
Over temperature	Unit temperature is exceeding operational specifications.

Video Interface

Message	Description
HDMI1 video absent	Hot plug detected but no TMDS
HDMI2 video absent	Hot plug detected but no TMDS
Unsupported Resolution	Resolution is not supported
Unsupported Frame rate	Frame rate is not supported
Auto switched to HDMI 1	Unit has been automatically switched to HDMI 1
Auto switched to HDMI 2	Unit has been automatically switched to HDMI 2

Audio I/F

Message	Description
HDMI1 no audio	No audio signal is present
HDMI2 no audio	No audio signal is present
No volume control unit is on mute	Displayed when volume is increased while unit is in Mute mode

IP Protocol

Message	Description
IP address not supported	Invalid IP address has been assigned

Network Info tab

The **Network Info** 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. If using the dual-channel version, then the information on both **Network 1** and **Network 2** are provided. This screen is identical to the **Network Info** tab for the encoder.

System Information	
SAP	
IP Input	
Serial	
HDMI Output	
Logo	
Alarms	
Network	
Users	
License	

Network 1	
Name	eth1
Enabled	true
Carrier	true
DHCP	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
IP Address	<input type="text" value="192.168.11.233"/>
Subnet	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text"/>
Link Speed	1000
MAC Address	B8:98:B0:01:88:CB

Network 2	
Name	eth2
Enabled	true
Carrier	true
DHCP	<input type="radio"/> DHCP <input checked="" type="radio"/> Static
IP Address	<input type="text" value="192.168.11.22"/>
Subnet	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text"/>
Link Speed	1000
MAC Address	B8:98:B0:01:88:CC

Name

The name / Ethernet cable ID, used by AMS, to identify the channel.

Enabled

This field indicates that the video stream, for this channel, is active.

Carrier

If this field is true, then an active link exists. Otherwise, this field is set to false.

DHCP

Select the desired network mode in the **DHCP** field. Click the **On** radio button to enable DHCP. Click the **Off** radio button to disable DHCP. When DHCP is set to **Off**, enter the network settings by using the **IP Address**, **Subnet**, and **Gateway** fields.

IP Address

The IP address used by the channel.

Subnet

The subnet mask for the channel.

Gateway

The gateway (router) address for the channel.

Link Speed

Displays the port speed in Mbps.

MAC Address

The MAC address of the channel.

Users tab

The **Users** tab provides the ability to manage user access rights. Two access levels are available: admin and operator. Creating users requires Administrator access.

System Information	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="2">User 1</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Username</td> <td><input type="text" value="admin"/></td> </tr> <tr> <td>Role</td> <td><input type="text" value="administrator"/></td> </tr> <tr> <td>New Password</td> <td><input type="text" value="N/A"/></td> </tr> <tr> <td>Repeat Password</td> <td><input type="text" value="N/A"/></td> </tr> <tr> <td style="text-align: center;"><input type="button" value="Delete"/></td> <td style="text-align: center;"><input type="button" value="Save"/></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="2">User 2</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Username</td> <td><input type="text" value="operator"/></td> </tr> <tr> <td>Role</td> <td><input type="text" value="operator"/></td> </tr> <tr> <td>New Password</td> <td><input type="text" value="N/A"/></td> </tr> <tr> <td>Repeat Password</td> <td><input type="text" value="N/A"/></td> </tr> <tr> <td style="text-align: center;"><input type="button" value="Delete"/></td> <td style="text-align: center;"><input type="button" value="Save"/></td> </tr> </tbody> </table> <p style="text-align: center;"><input type="button" value="Add User"/></p>	User 1		Username	<input type="text" value="admin"/>	Role	<input type="text" value="administrator"/>	New Password	<input type="text" value="N/A"/>	Repeat Password	<input type="text" value="N/A"/>	<input type="button" value="Delete"/>	<input type="button" value="Save"/>	User 2		Username	<input type="text" value="operator"/>	Role	<input type="text" value="operator"/>	New Password	<input type="text" value="N/A"/>	Repeat Password	<input type="text" value="N/A"/>	<input type="button" value="Delete"/>	<input type="button" value="Save"/>
User 1																									
Username		<input type="text" value="admin"/>																							
Role		<input type="text" value="administrator"/>																							
New Password		<input type="text" value="N/A"/>																							
Repeat Password		<input type="text" value="N/A"/>																							
<input type="button" value="Delete"/>		<input type="button" value="Save"/>																							
User 2																									
Username		<input type="text" value="operator"/>																							
Role		<input type="text" value="operator"/>																							
New Password		<input type="text" value="N/A"/>																							
Repeat Password		<input type="text" value="N/A"/>																							
<input type="button" value="Delete"/>		<input type="button" value="Save"/>																							
SAP																									
IP Input																									
Serial																									
HDMI Output																									
Logo																									
Alarms																									
Network																									
Users																									
License																									

Username

The name of the assigned user.

Role

Select one of the following options from this drop-down list.

User	Description
Administrator	Ability to create, delete, and manage all users, in addition to “routing” operations within the Virtual Matrix.
Operator	Restricted to “routing” encoders to decoders within the Virtual Matrix.

Password

Enter the password for the username.

Repeat Password

Verify the password by retyping the password in this field.

Delete

Deletes the user.

Save

Saves all changes to the user.

Add User

Click this button to create a new user.

License tab

The **License** tab is used to install licenses on OmniStream products. For OmniStream v1.0.0, all available licenses are pre-installed on units at the factory.

System Information	
SAP	4k
	Installed true
IP Input	Key 4K:5580c2fbaf9be1eca19f7158f75deb87868c7c89b94f3623a7fc17cbf4a24aab024c5c0fa0ea48e9a51951b3de010902e7f01eb7a8103078137ad899b1e05
Serial	Request 4K:b898b00188cb
HDMI Output	redundancy
	Installed true
Logo	Key REDUNDANCY:086635f0268a8c419d06cbf4ba044c325c341f48ad333e63481e7b9c5aad0f446f18de623fdfaeece258fe65e8d1d7319bc77111233d55cae3c3
Alarms	Request REDUNDANCY:b898b00188cb
Network	scrambling
	Installed true
Users	Key SCRAMBLING:94c55b65387faedf8fbae0069f22d6a40a728685bd9a6a3f097b636b86ebb54a26d773c393fa287f301b3ea35387b0aec3bd8ff8a7b301447b6
License	Request SCRAMBLING:b898b00188cb

Keys can be obtained through Atlona by using one of the requests.

Install License

License Key

License Key

Enter the license number in this field.

Install License

Click this button to install the license, once the license key has been entered.

Appendix

FEC Details

Matrix Size, Overhead, and Latency

- FEC can only work if a single packets from each row/column are missing. Multiple packets missing from each row/column will cause FEC to fail.
- Due to the above, a smaller matrix is more robust, as there is a better chance of errors not occurring in the same row/column.
- FEC has a bitrate overhead that is inversely proportional to the matrix size: the bigger the matrix, the less bitrate overhead is generated.
- FEC has a latency overhead that is directly proportional to the matrix size: the bigger the matrix, the more latency is introduced.
 - » As of v1.0.0, OmniStream does not explicitly synchronize audio and video. Therefore, FEC configuration can have a noticeable impact on lip sync. The tables below should be used to keep the audio/video lip sync as tight as possible.
- FEC latency overhead is also inversely proportional to bitrate: the higher the bitrate, the less FEC latency is introduced.
 - » For applications where lip sync is very critical, using a higher audio sampling rate, and thus a higher audio bitrate, can result in more accurate lip sync.

FEC and Video Bitrate

- The bitrate configured on the video encoder includes FEC overhead and will automatically adjust itself depending on the bitrate needed for FEC.
- FEC overhead can be calculated using the following formulas:

$$Video\ rate = \frac{Configured\ bit\ rate}{1 + \left(\frac{Rows + Columns}{Rows \times Columns} \right)} \qquad FEC\ rate = Configured\ bit\ rate - Video\ rate$$

- The following table provides a few examples of how this works.

FEC / matrix usage	Configured bit rate	Used for video	Used for FEC
FEC disabled	900 Mbps	900 Mbps	0 Mbps
FEC enabled, 4x4	900 Mbps	600 Mbps	300 Mbps
FEC enabled, 10x10	900 Mbps	750 Mbps	150 Mbps
FEC enabled, 20x20	900 Mbps	818 Mbps	82 Mbps
FEC enabled, 4x4	450 Mbps	300 Mbps	150 Mbps
FEC enabled, 10x10	450 Mbps	375 Mbps	75 Mbps
FEC enabled, 20x20	450 Mbps	409 Mbps	41 Mbps

FEC, Latency, and Lip Sync

- In order for FEC to work, the matrix must be filled in order to calculate the FEC packets. This introduces some additional latency. Due to high bitrates, this is not noticeable for video, but can be very significant for audio. Therefore, Atлона recommends either leaving FEC disabled for audio or using a very small matrix.
- Latency calculations are complex. The tables below provide some common working benchmarks. In order to minimize lip sync issues, try to match the additional latencies for video and audio as closely as possible.
 - » Video - additional video latency for enabling FEC using various matrix sizes.

Configured bit rate	4x4	10x10	20x20
900 Mbps	0.64 ms	3.20 ms	11.74 ms
450 Mbps	1.28 ms	6.40 ms	23.47 ms

- » Audio - additional audio latency for enabling FEC using various matrix sizes.

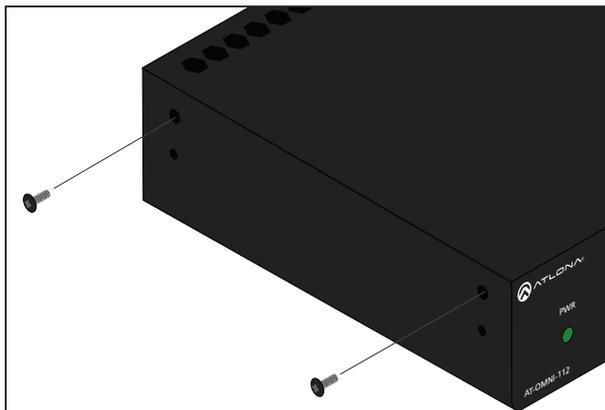
Format	1x4	2x4	4x4	10x10
2 channel PCM, 44.1 kHz	34.01 ms	68.03 ms	136.10 ms	850.30 ms
2 channel PCM, 48 kHz	31.25 ms	62.50 ms	125.00 ms	781.30 ms
2 channel PCM, 96 kHz	15.63 ms	31.25 ms	62.50 ms	390.60 ms
2 channel PCM, 192 kHz	7.81 ms	15.63 ms	31.25 ms	195.30 ms

- It is recommended to keep lip sync within ± 1 frame of video to prevent any noticeable syncing issues.
- Examples of good choices to minimize lip sync issues are:
 - » Video configured for 450 Mbps, FEC 10x10; Audio is 2 channel PCM, 192 kHz, FEC 1x4: 6.40 ms – 7.81 ms = -1.41 ms
 - » Video configured for 900 Mbps, FEC 10x10; Audio is 2 channel PCM, 48 kHz, FEC disabled: 6.40 ms – 0 ms = 6.40 ms

Mounting Instructions

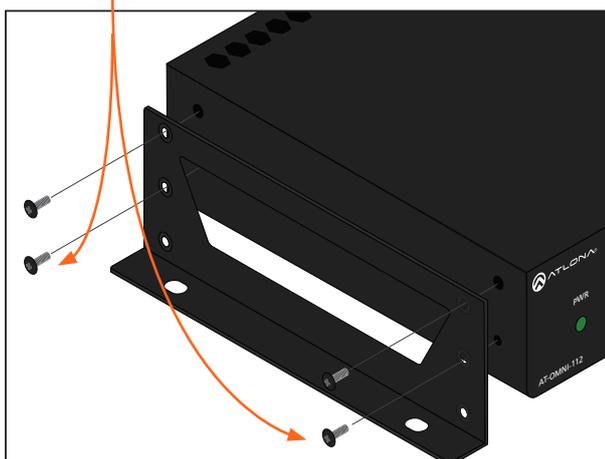
OmniStream decoders includes two mounting brackets and four mounting screws, which can be used to attach the unit to any flat surface.

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



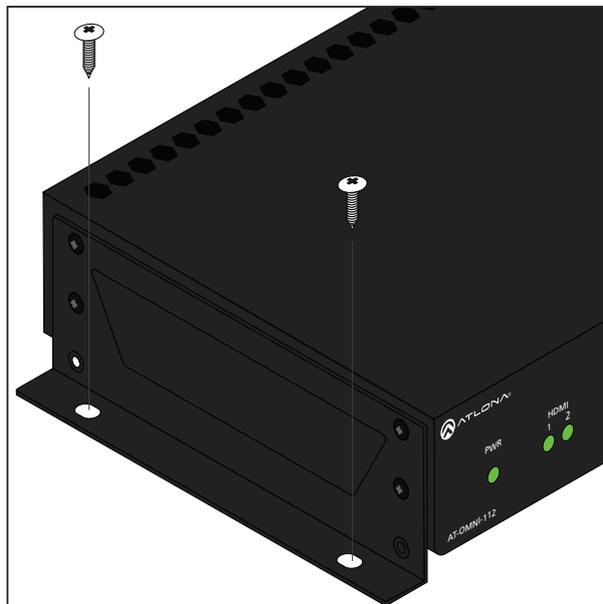
- Position one of the rack ears, as shown below, aligning the holes on the side of the enclosure with one set of holes on the rack ear.
- Use the enclosure screws to secure the rack ear to the enclosure.

Included screws

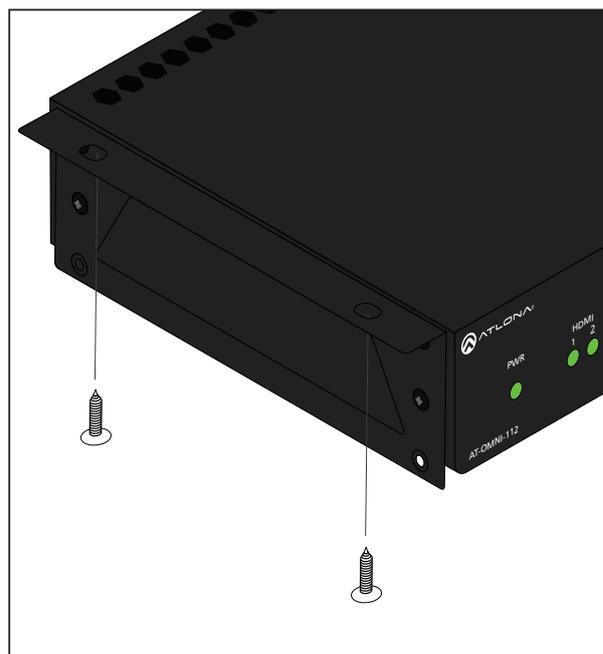


- To provide added stability to the rack ear, use two of the included screws and attach them to the two holes, directly below the enclosure screws, as shown above.
- Repeat steps 1 through 4 to attach the second rack ear to the opposite side of the unit.

- 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, as shown below.



Rack Tray for OmniStream

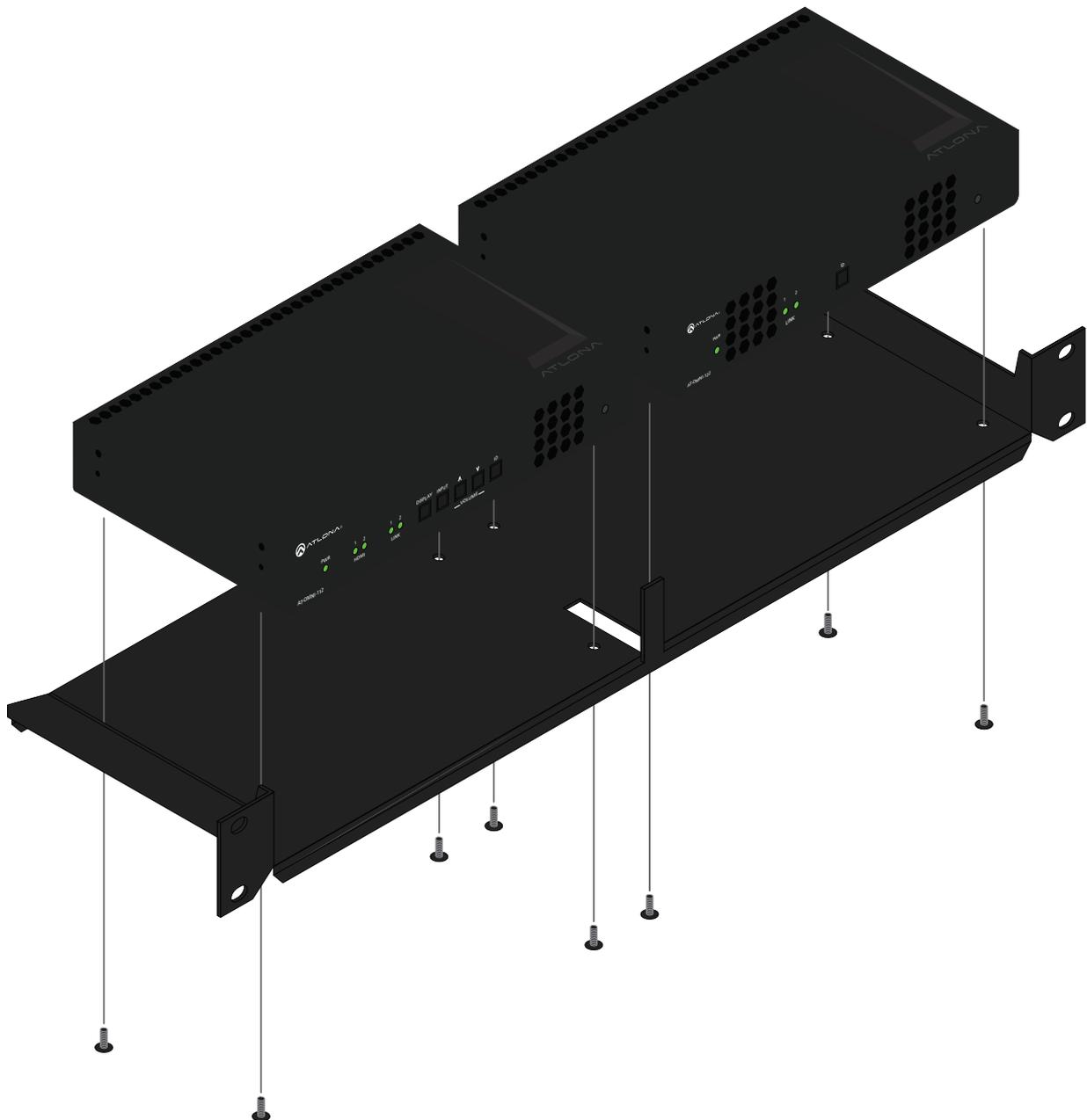
OmniStream decoders can also be mounted in the OmniStream rack tray (AT-OMNI-1XX-RACK-1RU). The rack tray is sold separately and provides easy mounting and organization of up to two OmniStream encoders/decoders in a convenient 1U rack tray. The OmniStream rack tray can be purchased directly from Atlona.

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	
HD/SD	4096x2160@24Hz, 3840x2160@24/25/30Hz (UHD), 1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@25/29.97/30Hz, 720p@30/50/59.94/60Hz
VESA*	1920x1200, 1680x1050, 1600x1200, 1600x900, 1440x900, 1400x1050, 1366x768, 1360x768, 1280x1024, 1280x800, 1280x768, 1152x768, 1024x768
Color Space	YUV, RGB
Codec	VC-2
Chroma Subsampling	4:4:4, 4:2:2
Color Depth	8-bit, 10-bit, 12-bit
Scaling	Yes

Audio	
HDMI	LPCM 2.0, LPCM 5.1, LPCM 7.1, Dolby® Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos®, DTS® 5.1, DTS-HD Master Audio™
Analog	2-channel balanced input / output
Sample Rate	32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
Bit Rate	24-bit (max.)

Distance	
100 meters (300 feet) per hop of Gigabit Ethernet cable	

Signal	
CEC	Yes; display, volume, power, input
HDCP	1.4 switchable, hardware capable 2.2
Scrambling	AES 128

IP	
Protocol	RTP
Ethernet Speed	10/100/1000 Mbps
Addressing	DHCP, static
QoS tagging	RFC 2475
FEC	SMPTE 2022-5:2013; Columns: 1 to 20; Rows: 4 to 20

RS-232	
Baud Rate	2400 to 115200 bp/s
Connector	Molex, 3-pin x 2

Temperature	Fahrenheit	Celsius
Operating	32 to 122	0 to 50
Storage	-4 to 140	-20 to 60
Humidity (RH)	20% to 90% (non-condensing)	

Power	
Consumption	~13 W (w/o analog audio), TBD (w/ analog audio)
Supply (optional)	Input: 85 V ~ 264 V AC 50/60 Hz Output: 48 V DC, 0.83 A
SKU	AT-PS-48083-C

Dimensions	Millimeters	Inches
H x W x D	34 x 208 x 112	1.34 x 8.19 x 4.41

Weight	Kilograms	Pounds
Single channel	TBD	TBD
Dual-channel	0.7	1.54

Certification	
Power Supply	CE, FCC, cULus, RoHS, RCM
Product	CE, FCC, RoHS

* All VESA resolutions are 60p.

