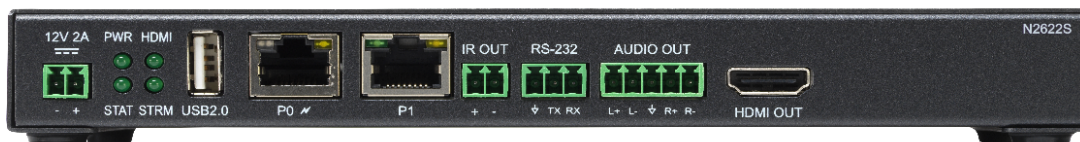
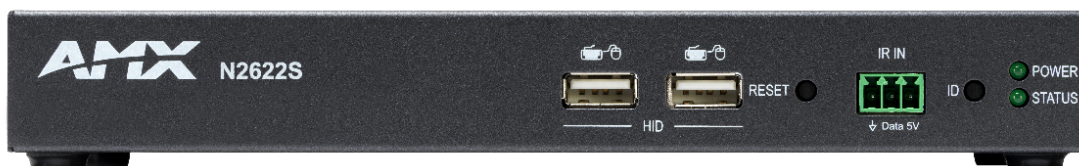




INSTRUCTION MANUAL

N2600S SERIES NMX-ENC-N2612S ENCODER / NMX-DEC-N2622S DECODER

NMX-ENC-N2612S, NMX-ENC-N2612S-C
NMX-DEC-N2622S



IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. DO NOT install 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 the 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 wider 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 apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
13. REFER all servicing to qualified service personnel. Servicing is required when the apparatus 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 apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. DO NOT expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
15. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle or disconnect the PoE+ injector.
16. Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
17. DO NOT overload wall outlets or extension cords beyond their rated capacity as this can cause electric shock or fire.
18. Power is supplied via Power Over Ethernet (PoE+), utilizing an AMX certified PoE injector such as the PS-POE-AF-TC PoE Injector (FG423-83) or compatible network switch which is classified as ES1 and PS2 output in accordance with IEC/EN/UL 62368-1.
19. The product is to be connected only to PoE+ networks without routing to the outside plant.



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



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

Caution: risk of fire or explosion if the battery is replaced with an incorrect type.



ESD Warning: The icon to the left indicates text regarding potential danger associated with the discharge of static electricity from an outside source (such as human hands) into an integrated circuit, often resulting in damage to the circuit.

WARNING: To reduce the risk of fire or electrical shock, do not expose this apparatus to rain or moisture.

WARNING: No naked flame sources - such as candles - should be placed on the product.

CAUTION: This product contains batteries that are covered under the 2006/66/EC European Directive, which cannot be disposed of with normal household waste. Please dispose of any used batteries properly, following any local regulations. Do not incinerate.

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ESD WARNING

	<p>To avoid ESD (Electrostatic Discharge) damage to sensitive components, make sure you are properly grounded before touching any internal materials.</p> <p><i>When working with any equipment manufactured with electronic devices proper ESD grounding procedures must be followed to make sure people, products, and tools are as free of static charges as possible. Grounding straps, conductive smocks, and conductive work mats are specifically designed for this purpose.</i></p> <p>Anyone performing field maintenance on AMX equipment should use an appropriate ESD field service kit complete with at least a dissipative work mat with a ground cord and a UL listed adjustable wrist strap with another ground cord.</p>
---	---

	<p>WARNING: Do Not Open! Risk of Electrical Shock. Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel.</p> <p>Place the equipment near a main power supply outlet and make sure that you can easily access the power breaker switch.</p>
---	---

WARNING: This product is intended to be operated ONLY from the voltages listed on the back panel or the recommended, or included, power supply of the product. Operation from other voltages other than those indicated may cause irreversible damage to the product and void the products warranty. The use of AC Plug Adapters is cautioned because it can allow the product to be plugged into voltages in which the product was not designed to operate. If the product is equipped with a detachable power cord, use only the type provided with your product or by your local distributor and/or retailer. If you are unsure of the correct operational voltage, please contact your local distributor and/or retailer.

FCC AND CANADA EMC COMPLIANCE INFORMATION:

This 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.

CAN ICE-3 (B)/NMB-3(B)

FCC SDOC SUPPLIER'S DECLARATION OF CONFORMITY:

HARMAN Professional, Inc. hereby declares that this equipment is in compliance with the FCC part 15 Subpart B.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Approved under the verification provision of FCC Part 15 as a Class B Digital Device.


Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.

EU COMPLIANCE INFORMATION:

Hereby, Harman Professional, Inc. declares that the equipment is in compliance with the following: European Union Low Voltage Directive 2014/35/EU; European Union EMC Directive 2014/30/EU; European Union Restriction of Hazardous Substances Recast (RoHS2) Directive 2011/65/EU and as amended by 2015/863.

You may obtain a free copy of the Declaration of Conformity by visiting <http://www.amx.com/techcenter/certifications.asp>.

WEEE NOTICE:

	<p>This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE) <i>This label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.</i></p>
--	--



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This logo applies to electronic information products sold in the People's Republic of China. The number in the middle of the logo is the number of years of environmental utility.

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Introducing Your New N2600S Series Devices

Product Overview

The N2600 AV over IP Series belongs to the N-Series product family from AMX and consists of N2612S Encoders, N2622S Decoders, N2615 Wallplate Encoders and N2625 Wallplate Decoders. This series provides a flexible, feature-rich, and simple-to-deploy digital media distribution and switching solution that can be used in 4K applications with resolutions up to 4096x2160, with support for HDCP 2.2. This motion-based wavelet codec solution delivers video with nearly imperceptible latency over standard gigabit Ethernet networks.

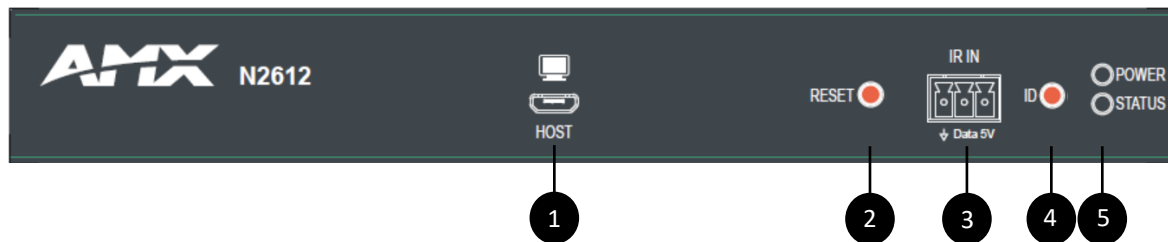
Any source can be sent to one or more displays by routing through layer-2/layer-3 switches using standard Cat5e cable. Standard features include H264 Stream, output scaling, bi-directional serial, IR, embedded 7.1 audio, USB 2.0 and KVM-over-IP extension. Card versions compatible with the N-Series N9206 card cage are available for high-density applications.

Features include:

- Simultaneously stream an H264 or H265 Stream from the N2612S Encoder allowing for maximum flexibility
- USB 2.0 routable.
- Dante AV-A
- Output scaling performed at the Decoder for maximum flexibility.
- Power over Ethernet (PoE+) eliminates the need for a local power supply and speeds installation. Units can still be powered locally by 12VDC. This allows easy rack-mountable, high-density installations.
- Infrared (IR) emitter connection allows control of low-cost, IR-only display devices.
- Fast install with Phoenix connectors for power, IR, RS232 serial, and analog audio interfaces.
- Pass-through HDMI interface allows easy installation with local display, such as desktop PC applications.
- USB-A and USB-C connections for KVM applications.
- UL 2043 Plenum Space Certified

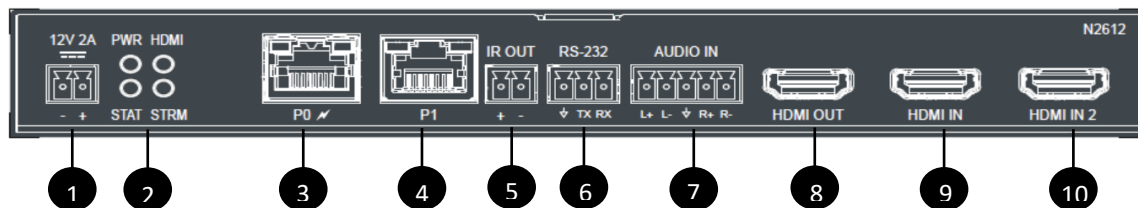
Hardware Overview

Refer to the following figures (front and rear panel drawings of these devices) and the [Front and Rear Panel Descriptions table](#) on page 8 for hardware details.



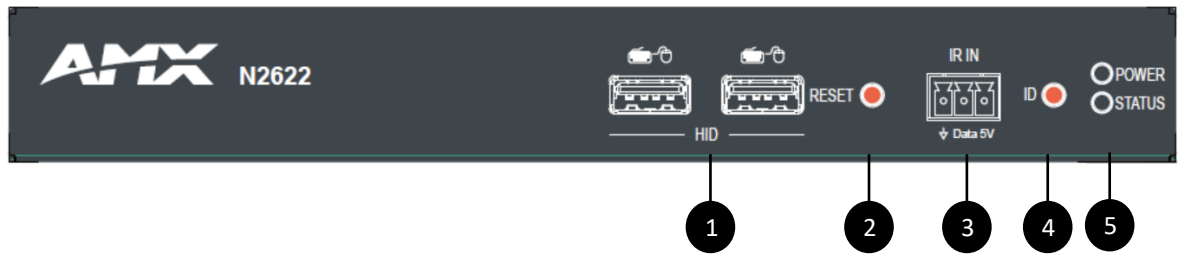
- 1) USB Micro-B Port
- 2) Device Reset Button
- 3) IR Emitter Input Connection
- 4) Device ID Discovery Button
- 5) Power/Status Indicators

FIG. 1 N2612S Encoder Front Panel



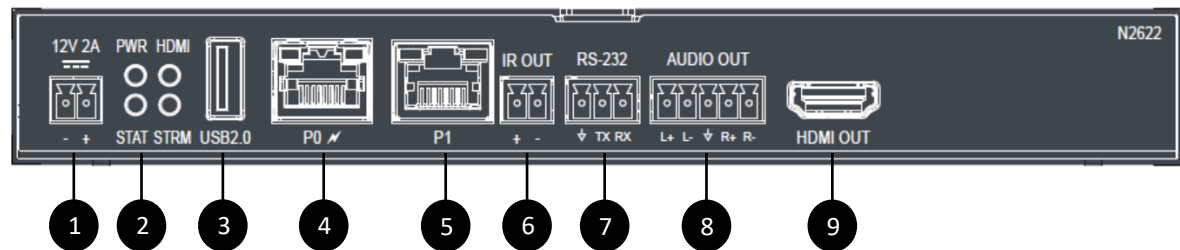
- 1) 12VDC Input (not needed with PoE+)
- 2) Status Indicators
- 3) RJ45 Auto-Sensing Gigabit Ethernet Switch Port — PoE+
- 4) RJ45 Auto-Sensing Gigabit Ethernet Switch Port
- 5) IR Emitter Output Connection
- 6) RS232 Connection
- 7) Analog Audio Input
- 8) Passthrough HDMI Video Out
- 9) HDMI 1 Video Input
- 10) HDMI 2 Video Input

FIG. 2 N2612 Encoder Rear Panel



- 1) USB Standard-A Ports
- 2) Device Reset Button
- 3) IR Emitter Input Connection
- 4) Device ID Discovery Button
- 5) Power/Status Indicators

FIG. 3 N2622S Decoder Front Panel



- 1) 12VDC Input (not needed with PoE+)
- 2) Status Indicators
- 3) USB 2.0 Standard-A Port
- 4) RJ45 Auto-Sensing Gigabit Ethernet Switch Port — PoE+
- 5) RJ45 Auto-Sensing Gigabit Ethernet Switch Port
- 6) IR Emitter Output Connection
- 7) RS232 Connection
- 8) Analog Audio Output
- 9) HDMI Video Output

FIG. 4 N2622S Decoder Rear Panel

Front and Rear Panel Descriptions	
Front Panel	
USB Micro-B port	For KVM/USB 2.0 support. Connects the Encoder to the computer to be controlled.
USB Standard-A port (x2)	For KVM support. Connects the Decoder to keyboard and/or mouse.
RESET button	Recessed pushbutton. Press to initiate a "warm restart" which causes the processor to reset, but not lose power. A reset does NOT affect the current settings.
ID button	Recessed pushbutton. Press to send notification out on the network to identify the unit (the notification causes a pop-up dialog in N-Able and N-Command). Press and hold for 30 seconds to initiate a factory restore.
IR In port	3-pin terminal Phoenix connector. Provides infrared (IR) input only and passes signal back to the connected Encoder/Decoder (33-60 kHz; typically, 39 kHz). IR receiver required (not included).
POWER LED	On solid (green) when operating power is supplied (via PoE+ or local power supply). This activity is also shown by the PWR LED on the rear panel.
STATUS LED	On flashing (green) when there is software activity. This activity is also shown by the STAT LED on the rear panel.
Rear Panel	
+12V 2A	12 Volt DC power input.
PWR LED	Same as POWER LED described above.
HDMI LED	On (green) when an HDMI connection exists.
STAT LED	Same as STATUS LED described above.
STRM LED	On (green) when the unit is streaming video.
USB 2.0 Standard- A port	For USB 2.0 support. Connect the Decoder to the USB 2.0 compatible device
P0 POE+	8-wire RJ45 port. 10/100/1000 Mbps 10/100/1000Base-T auto-sensing gigabit Ethernet switch port. Provides both the network connection and the power to the Encoders and Decoders.
P1	8-wire RJ45 port. 10/100/1000 Mbps 10/100/1000Base-T auto-sensing gigabit Ethernet switch port.
IR OUT	2-pin terminal Phoenix connector. Provides IR output only (33 to 60 kHz; typically 39 kHz). An IR emitter is necessary (not included).
RS232	3-pin terminal Phoenix connector which provides a serial control interface. Full duplex communication. Available terminal speed settings: 1200 to 115200 baud rate.
AUDIO	5-pin terminal Phoenix connector which provides user-selectable balanced/unbalanced, dedicated audio input (for Encoders) and output (for Decoders).
HDMI 1 IN	HDMI 1 video input (Encoders).
HDMI 2 IN	HDMI 2 video input (Encoders).
HDMI OUT	HDMI video output (Decoders). Pass thru HDMI video (Encoders).

Installing and Configuring Your AV Equipment

This chapter provides an installation overview as well as a detailed step-by-step process for installation. If you encounter any problems, refer to the [Troubleshooting section](#) on page 116 for help.

Installation Overview

The N2600 Encoders and Decoders have multiple configuration and installation options. For basic installation guidelines, see the table below. For more detailed instructions, refer to [Step-by-Step Installation Instructions](#) on page 14.

Basic Installation Guidelines	
Connections	Options
Power	Power over Ethernet (PoE+): Connect the unit's P0 port to an active, PoE+-enabled network switch.
	External power supply: If not using PoE+ for power, connect a 12V regulated power supply (part number N9312) to the unit's two-pin terminal block plug connector labeled +12V 2A.
Network	PoE+ units: Using PoE+ to power the unit, you should already have a network connection.
	Externally powered units: If not using PoE+, connect either the P0 or P1 port to the network using the appropriate cable.
	Daisy-chain configuration: Once network connection is established to one unit, you can daisy-chain additional units by connecting Ethernet cables between devices using their P0 and/or P1 ports. Keep in mind that the number of units supported in this configuration is limited by bandwidth (total aggregate streams must be less than 1Gb/s). NOTE: PoE+ power is only supplied to the unit connected <u>directly to the network</u> . All other units in the daisy-chain must have an external power supply.
Video	N2612S Encoders <ul style="list-style-type: none"> For video encoding of a <i>digital</i> source, connect the source to the Encoder's HDMI 1 IN or HDMI 2 IN port using a video cable with an HDMI connector (or adapter). For local viewing of pass thru video, connect a digital display to the Encoder's HDMI OUT port using a video cable with an HDMI connector (or adapter).
	N2622S Decoders <ul style="list-style-type: none"> For video decoding, connect a digital display to the Decoder's HDMI OUT port using a video cable with an HDMI connector (or adapter).
Audio	N2612S Encoders <ul style="list-style-type: none"> For audio encoding, connect a line level analog audio source to the Audio input terminal block plug connector, or Use the HDMI audio embedded with the source connection. NOTE: Unit will not pass audio from the analog AUDIO input through the pass thru (HDMI OUT) port.
	N2622S Decoders <ul style="list-style-type: none"> For audio decoding, connect a line level analog audio device to the Audio output terminal block plug connector, or Send the HDMI embedded audio to a connected display's speakers.

Acceptable Input/Output Types	
N2612S Encoder - Input	
Digital	HDMI - Native connection. No adapter necessary. DVI - Appropriate passive adapter required. DisplayPort- Appropriate passive adapter required.
N2622S Decoder - Output	
Digital	HDMI - Native connection. No adapter necessary. DVI- Appropriate passive adapter required. DisplayPort - Appropriate ACTIVE adapter required. The N2625 will not output DisplayPort through a passive adapter.
NOTE: For all other Input/Output types, an active adapter is required.	

Mounting Options

The N2600 units are available in stand-alone and card versions. The stand-alone version can be free standing, surface mounted, wall mounted, or rack mounted. All cards *must be rack mounted* using the N9206 Card Cage (sold separately).

Surface and Wall Mounting

To mount your N2600 stand-alone unit to a flat surface or wall, follow these steps:

1. Remove the four screws from the bottom of the unit and use them to attach the mounting wings (not included in shipment - part number N9101). See Figure 5.
2. Place the unit against the solid surface to which you want it mounted.
3. Using standard hardware, attach the unit through each of the slots of the newly-attached mounting wings.
4. Connect the appropriate cables necessary for your application. Refer to the sections : [Connecting Decoders to the Network](#) on page 16 and : [Connecting Encoders to the Network and Configuring Stream](#) Settings on page 17 for more information on these connections.

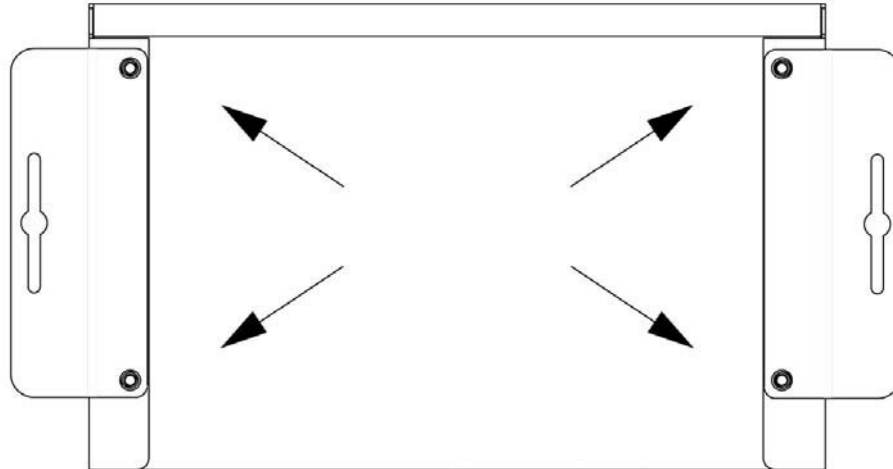


FIG. 5 Installing Mounting Wings

Rack Mounting

N2600 Series Stand-Alone Units

A Rack Shelf (part number N9102) accommodates up to two stand-alone N-Series Encoders or Decoders, side by side (mix and match).

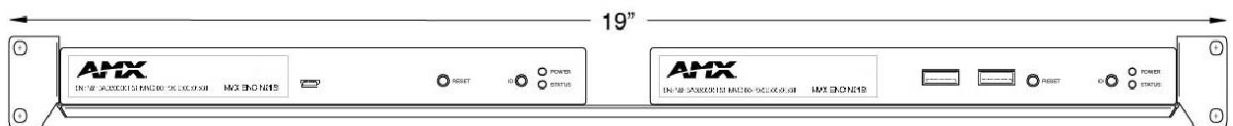


FIG. 6 Rack Mounting Stand-Alone Units

N2600 Series Cards

A Card Cage (part number N9206) accommodates up to six N-Series Encoder/Decoder cards (mix and match). The 12V power supply of the N9206 is the primary power source for the installed cards. If the 12V power supply fails or is unplugged, the cards will power down, detect PoE+ (if provided by switch) and restart normally using PoE+. This usually results in a loss of video for about one to two minutes while the device boots.

To rack mount N2600 Series cards into the N9206 Card Cage, follow these steps:

1. Gently slide the card into cage slot. Make sure the card is properly aligned with guides. The card's front LED indicators should align with holes in the cage's faceplate. See Figure 7.

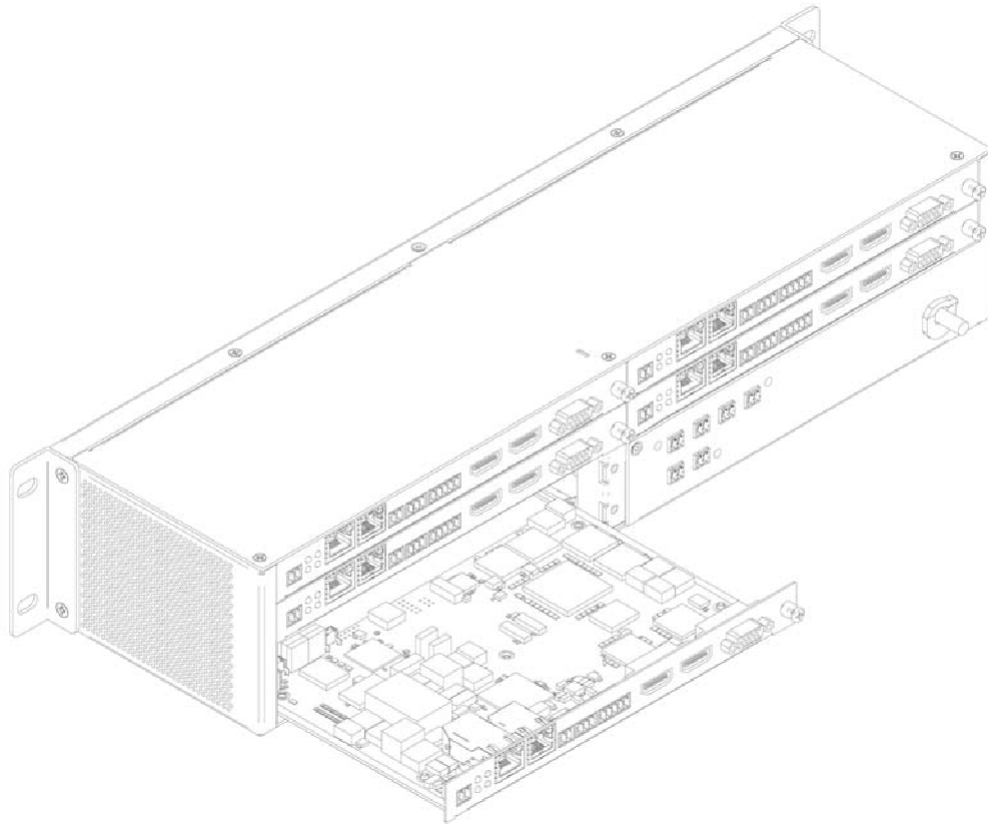


FIG. 7 Rack Mounting Cards

2. Align the thumb screw on back plate before seating card into cage.
3. Firmly seat the card and tighten the thumb screw by hand to secure card placement.
4. Use one of the six Phoenix connector cables (included in shipment with the Encoder/Decoder Card) to connect the card's 12VDC input Phoenix connector to one of the cage's six 12VDC outputs.
5. Repeat these steps until all cards are properly installed. See Figure 8.

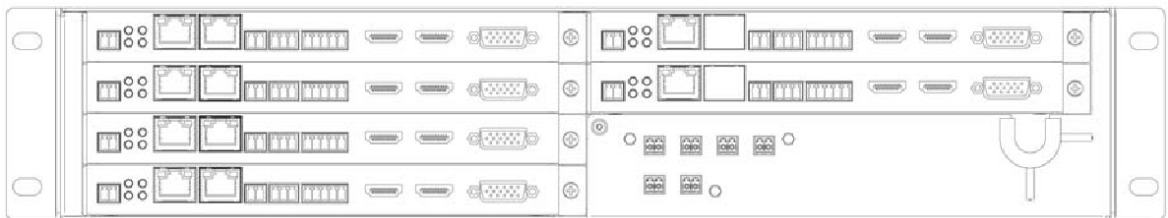


FIG. 8 Fully Populated Card Cage

6. For proper airflow, cover any unused card slots with faceplate blanks. Blanks are sold separately (part number N9210).
7. Make sure the Card Cage's power cord is plugged in for proper cooling.

CAUTION: Keep the Card Cage's power cord plugged in at all times so that the internal fans are always running. Not doing so could void the warranty of the cage and all installed cards. Fans are not powered while in backup PoE+ power mode. Please remedy power losses immediately to avoid potential overheating hazards.

NOTE: Mounting accessories are sold separately and are compatible with most N-Series devices. Contact a sales representative or visit our website for details.

Step-by-Step Installation Instructions

This section provides step-by-step guidance for installing and configuring equipment from the N-Series product family on your network. The steps provided here assume the following to be true:

1. *There are switches operational on the network.*

N-Series equipment can operate on many different brands of networking equipment. The network itself needs to meet certain requirements to be able to support deployment. These instructions assume that you have purchased and installed a pre-configured switch or that your existing equipment meets the following physical and protocol requirements:

- Layer 2 (with IGMP Multicast Protocol), OR Layer 3 (also known as “multi-layer”)
- Gigabit Ethernet
- IGMP Snooping
- IGMP Snooping Querier (which only needs to be enabled on a single switch within the network)
- Capable of Jumbo Frames (due to frame density)

NOTE: *To proceed with this installation, the switches must already be successfully connected to your network. If needed, refer to your product’s documentation for installation instructions.*

2. *Deployment considerations have been made for the addition of high-speed video.*

Our Networked AV solutions provide unsurpassed video and audio quality at bandwidths appropriate to any network segment or link. Matrix switches as large as 1200x800 have been constructed on a house network using N-Series equipment. Alternatively, many customers choose to deploy on physically separate networks in order to use low-cost network appliances but keep video traffic separate from data and voice.

3. *N-Able software has been loaded on the computer you are using to configure the equipment.*

From your host computer, download N-Able (our free setup utility software):

PC-Version - <https://www.amx.com/en-US/products/n-able-pc>

Mac-Version - <https://www.amx.com/en-US/products/n-able-mac>

This software is designed to set up and control the equipment during initial deployment, however, it is not always the best solution for production-type or primary user control. Refer to [Control Options](#) on page 23 for details on the available control options.

NOTE: *For a more detailed requirements list, refer to [Appendix B: Minimum Network Requirements](#) on page 121.*

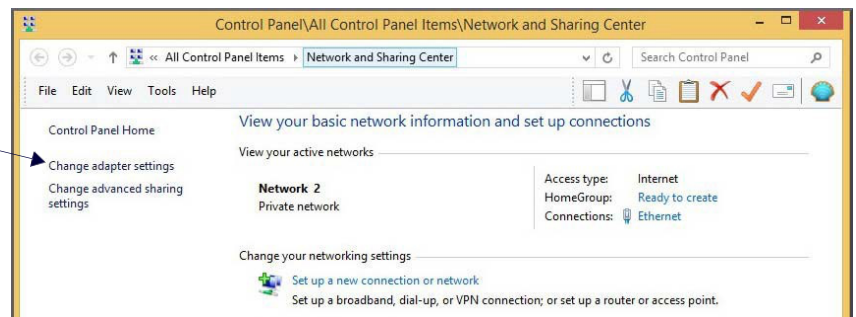
Step 1: Setting Up Your Host Computer

In order to communicate with N-Series products, your devices must be on the same subnet as the host computer. N2600 units are shipped in **DHCP** mode and the IP address will be assigned automatically based on the network DHCP server. If no DHCP server is found, the unit will use **Auto IP** mode with a default IP address of 169.254.xxx.xxx.

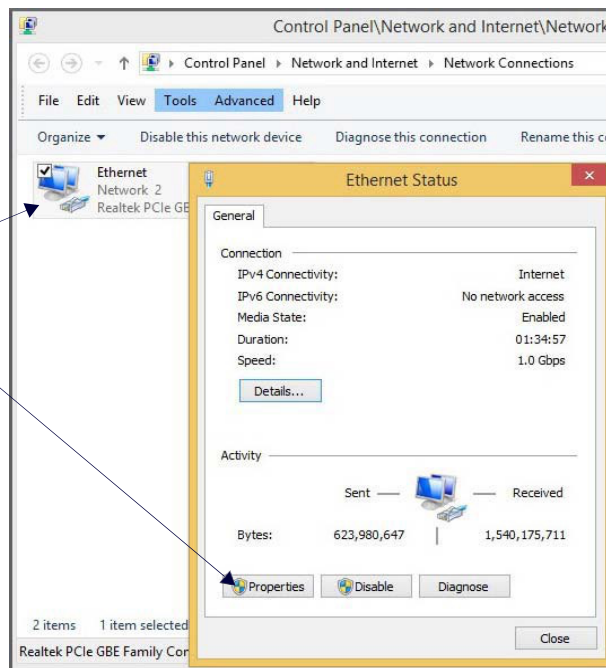
Before beginning installation, you may need to make some changes to the computer running N-Able. These steps show how this can be accomplished in a Microsoft Windows environment.

1. From the **Start** menu, select **Control Panel > Network and Sharing Center**.

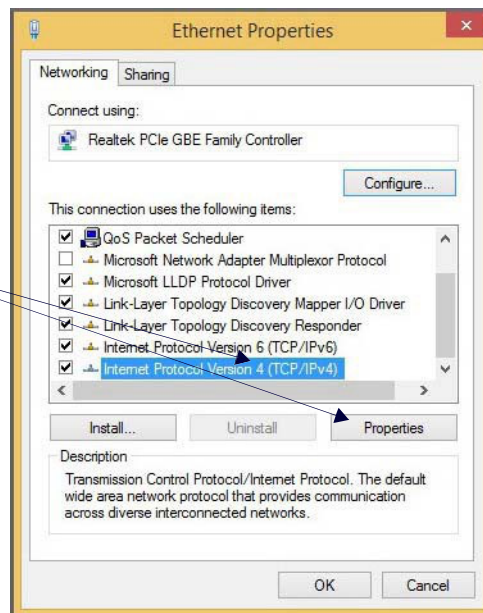
2. Select **Change adapter settings**.



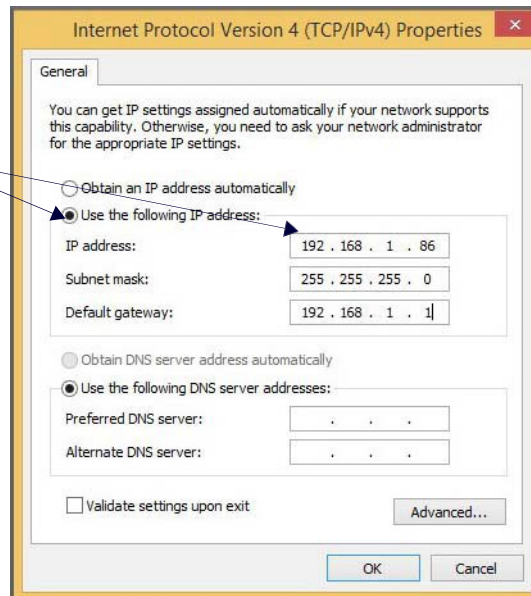
3. Double-click the wired interface to your AV network, and then click the **Properties** button.



4. Scroll down in the list to the **Internet Protocol Version 4 (TCP/IPv4)** option. Highlight it and click the **Properties** button.



5. Enable the **Use the following IP address** option and enter the static IP address provided to you by your network administrator.



NOTE: If the computer does not need Internet access, you can simply enter a unique 169.254.xxx.xxx IP address with a 255.255.0.0 subnet mask. Contact your network administrator if you are unsure of how to configure the existing network. N-Series units will not self-assign in the 169.254.0.xxx range.

NOTE: If the computer has a statically-assigned IP address, click the **Advanced** button. Then click **Add** to enter a unique 169.254.xxx.xxx address with a Subnet Mask of 255.255.0.0 and a Default Gateway of 169.254.1.1.

Step 2: Connecting Decoders to the Network

The digital connection from a Decoder **HDMI OUT** port to a display is accomplished using either a HDMI cable or DVI-D (through adapter). N2600 units support embedded audio input and output on the HDMI ports; however, some display devices (e.g., many monitors) *do not* support embedded audio. When using such a display, use the **AUDIO** port for separate transmission of sound and turn **HDMI Audio** off (on the **Settings** page) to avoid video display issues.

Power is supplied via a PoE+-enabled switch. Refer to the following steps and Figure 9 for guidance.

1. Using a minimum Cat-5e cable, connect your N-Series Decoder's **PO** port to a PoE+-enabled switch. This provides both network and power connection.
2. Connect the display you would like to use for that Decoder (monitor, projector, etc.) to the Decoder's **HDMI OUT** port using an HDMI cable (or DVI through adapter). This must be a digital video connection.

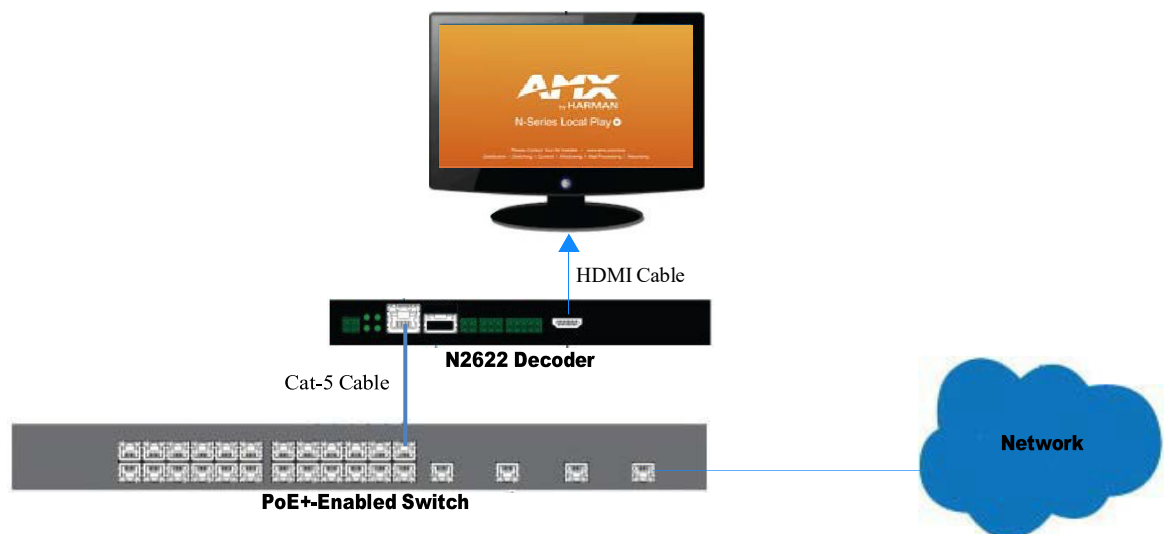


FIG. 9 Decoder Connections

3. Repeat Steps 1 and 2 until all Decoders are installed on the network.

4. Once the Decoders and displays are connected and powered up, the LocalPlay screen appears on the displays.

NOTE: If the LocalPlay screen does not appear, refer to the chapter [Troubleshooting](#) on page 116 for more guidance.

NOTE: In order for the unit to receive PoE+, it must be connected to a switch or other equipment that has a PoE+ PSE (Power Sourcing Equipment) port.

CAUTION: Do not run wiring that is connected to a PoE+ PSE port outside of the building where the PSE resides. It is for intra-building use only.

Step 3: Connecting Encoders to the Network and Configuring Stream Settings

1. Using a Cat-5e cable, connect your N-Series Encoder's **P0** port to a PoE+-enabled switch.

NOTE: In order for the unit to receive PoE+, it must be connected to a switch or other equipment that has a PoE+ PSE port.

2. In **N-Able**, select the **Unit Management** tab and click the **Auto Discover** button (if the table has not already populated itself with the installed units). See Figure 10.

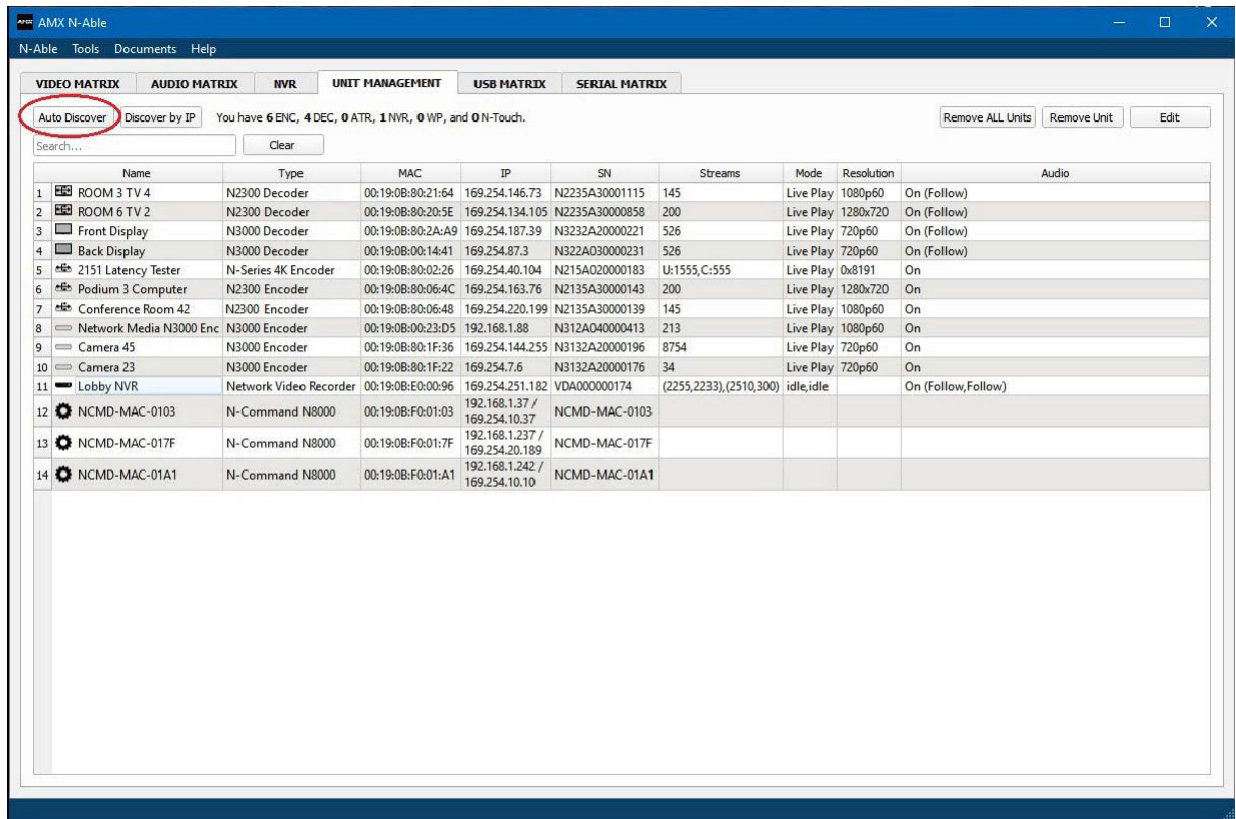
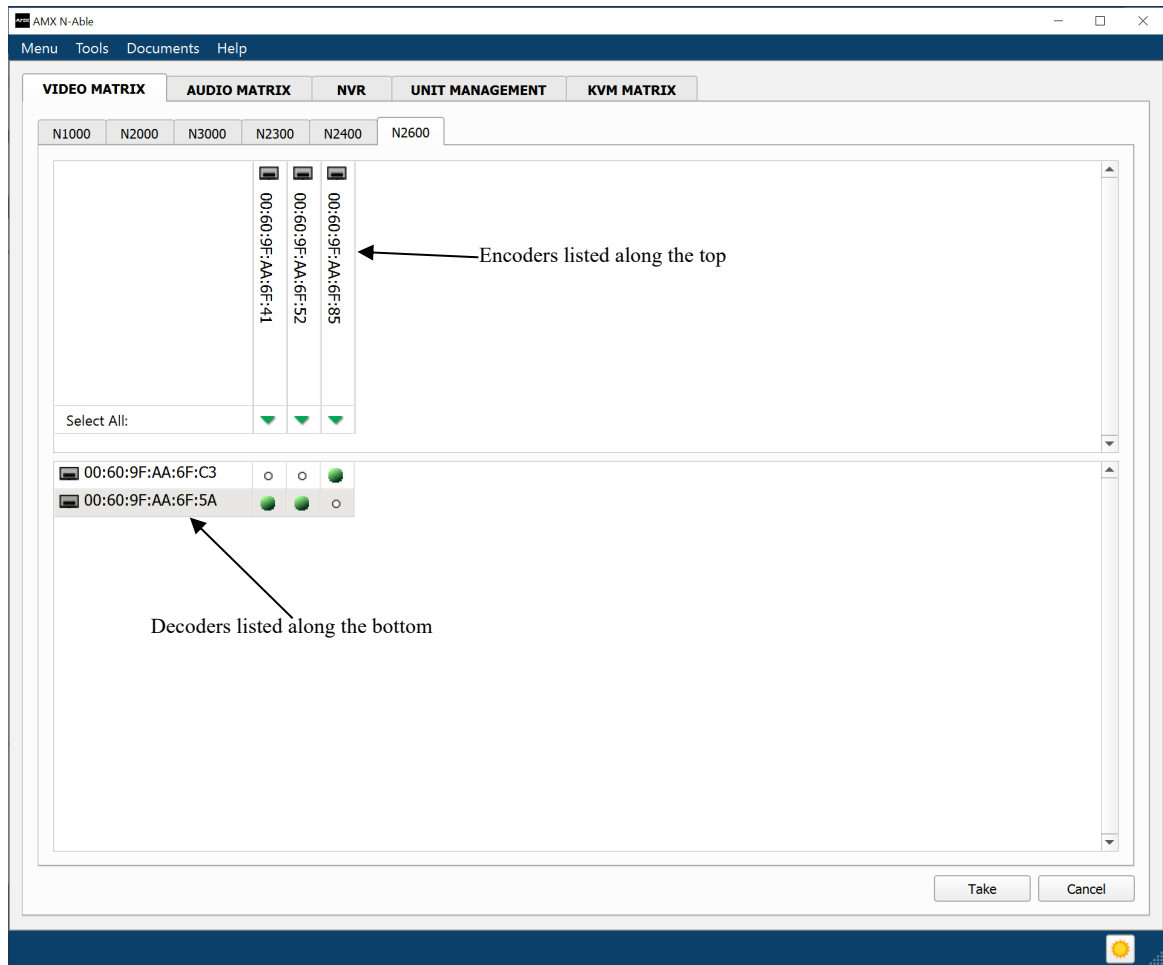


FIG. 10 Unit Management Page

3. Find your Encoder in the list. N2600 units are displayed on the following tabs:

- **Unit Management** tab — N2600 units have **N2600 Encoder/Decoder** listed in their **Type** fields.
- **Video Matrix** tab — N2600 units are found on the **N2600** sub-tab (as shown in Figure 11).

NOTE: If using multiple Encoders in your set up, it is important to plug in and configure one Encoder at a time. All Encoders come pre-configured to use stream 2600. As you add Encoders to the network, you will need to set them up to use different streams.



Red Text - No video source (Encoder) or nodisplay (Decoder).

Black Text – Unit is in live place mode.

Red Exclamation Point (!) – N-Able cannot communicate with device.

Blue Text – Unit is playing locally-stored content.

Gray Text – Video network transmit for the unit is disabled.

FIG. 11 Video Matrix Page

4. Double-click the Encoder's name in the list. The **Login** page is displayed (see Figure 12). If prompted, use the following default login credentials to log in for the first time. These can be changed later on the **Settings** page.
Default username: **admin**
Default password: **password**

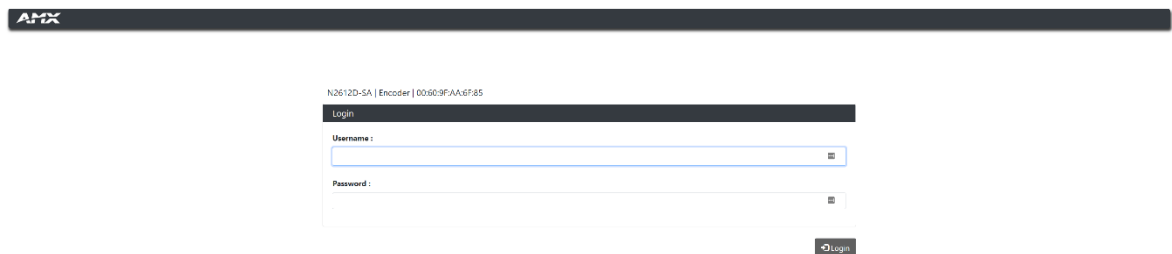


FIG. 12 Login Page

NOTE: The Login page is only displayed if N-Able's stored username/password does not match the unit's username/password. A default system will match.

5. The **Settings** page is displayed (see Figure 13).
6. Change the **Stream** setting. We recommend setting **Stream** to a number between 2 and 254 (it is *required* that the number be less than 32,512).

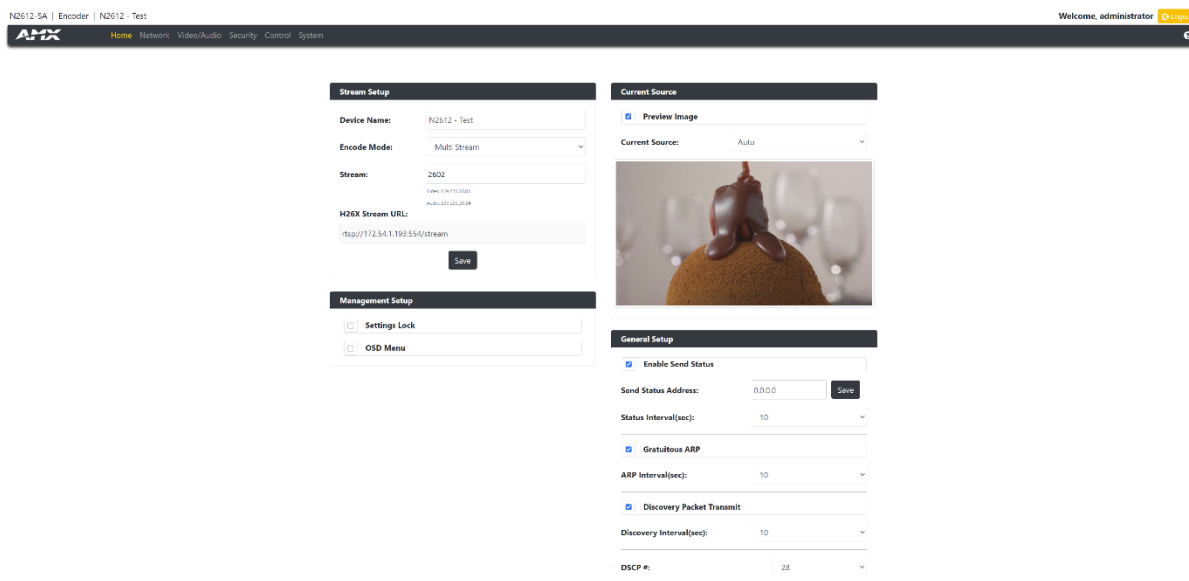


FIG. 13 Changing Stream Setting

7. Repeat these steps until all Encoders are connected to the network and configured with an appropriate **Stream** number.

NOTE: Each Encoder's Stream number must be unique to all other Encoders on the network.

NOTE: Screen-by-screen descriptions of the web interface options are provided for your reference in the [Encoder Configuration Options section](#) on page 24 and the [Decoder Configuration Options section](#) on page 70.

Step 4: Configuring Decoder and Encoder IP addresses (if needed)

By default, all Decoders and Encoders are preset to **DHCP** mode. When first connected to the network, an IP address is assigned automatically based on the network DHCP server. If no DHCP server is found, the unit will use **Auto IP** mode (with an IP address pre-configured to 169.254.xxx.xxx with a subnet mask of 255.255.0.0).

How IP Address Changes Affect Unit Control

As discussed previously, N-Able control is dependent upon the host computer being in the same IP address range as the N-Series devices. Therefore, before making any N2600 IP address changes, we recommend having **two statically assigned IP addresses on your computer**.

- Configure the first IP address to be in the range of the default N-Series IP settings (i.e., in the 169.254.xxx.xxx range), AND
- Configure a second IP address in the range of the IP address you are planning to assign to the units (or when using DHCP, an address within the defined range for your network).

Changing IP Addresses

There are two ways to assign new IP addresses to your N2600 units using N-Able:

- **Option 1:** Log in to each unit individually and make the changes on the **Settings** page.
- **Option 2:** Export a comma-separated value (CSV) file, make changes to all units in the resulting file, and import the CSV file into N-Able to apply the changes.

Option 1: Assigning IP Addresses Individually (using the Settings page)

1. Find the unit you wish to change in the control matrix (either on the **Unit Management** tab or the **Video Matrix > N2600** tab).
2. Double-click the unit and log in.
3. Go to the **Network** page and select **MWC IP Setup** page make IP address changes for that unit either by setting a **STATIC** address or by enabling **DHCP** (see Figure 14).

The screenshot shows the 'IP Setup' interface with the following sections:

- General:**
 - Domain: []
 - Manual DNS
 - DNS IP 1: 10.70.55.80
 - DNS IP 2: 8.8.4.4
 - DNS IP 3: []
 - IGMP v3 Support
- IPv4 Address:**
 - Dynamic IP Address: (highlighted)
 - Static IP Address:
 - IP Address: 10.35.82.117
 - Subnet Mask: 255.255.254.0
 - Gateway: 10.35.82.1
- IPv6 Address:**
 - Enable:
 - Disable:

Buttons: Cancel, Save

FIG. 14 MWC IP Setup of the Network settings

- Click the **Save** button.
- Return to the **Settings** page through the newly configured IP address.

NOTE: If you lose communication for any reason, unplug the N2600, wait one minute, and plug it back in. This restores the unit to the original IP address.

Option 2: Assigning IP Addresses to Multiple Units (using CSV files)

N-Able has the ability to export and import CSV files. Once units are auto-discovered in N-Able, the CSV file can be exported into Excel where parameters such as IP address, subnet mask, gateway, stream number, audio settings, etc. can be configured. Once configured, import the CSV file back into N-Able to assign those parameters to the appropriate devices. Reboot the devices to activate the new settings. This procedure can be used to configure multiple networked AV devices at the same time. It can also provide valuable diagnostics by allowing you to see the last known device configuration as well as scan the network for new devices (regardless of IP configuration).

To configure units using a CSV file, follow these steps:

- Make sure that you have performed an **Auto Discover** (on the **Unit Management** tab of N-Able) since connecting all of the new units to the network.
- From the N-Able main menu bar, select **Menu > Export CSV**.
- Select **Default** on the next screen that opens.
- Click **Ok** on the pop-up box informing you that a CSV file is about to be generated.
- Select the location to save the exported settings file.

NOTE: A CSV file editor (e.g., Microsoft Excel, Notepad etc.) is necessary to proceed.

- The folder containing your CSV file displays. Double-click the file to open it.
- You can use this file to edit the IP mode, IP address, subnet mask, gateway IP address, stream number, etc. Once all changes have been made, save the file.
- Go back into N-Able and select **Menu > Import CSV**.
- Browse to your saved CSV file and click **Import**.

Step 5: Connecting Encoders to an Input Source

Having already connected the Encoder(s) to the network and made the appropriate settings changes (as described in [Step 3](#) and [Step 4](#)), you can now connect to the appropriate AV source(s). This connection from an Encoder **HDMI IN** port to an input source is accomplished using either an HDMI cable or DVI-I (through adapter).

1. Connect the source you would like to use for the Encoder (camera, laptop, etc.) to the Encoder's **HDMI IN** port using an HDMI cable. This connection can be digital or analog.
2. Repeat until all Encoders are connected to their sources.

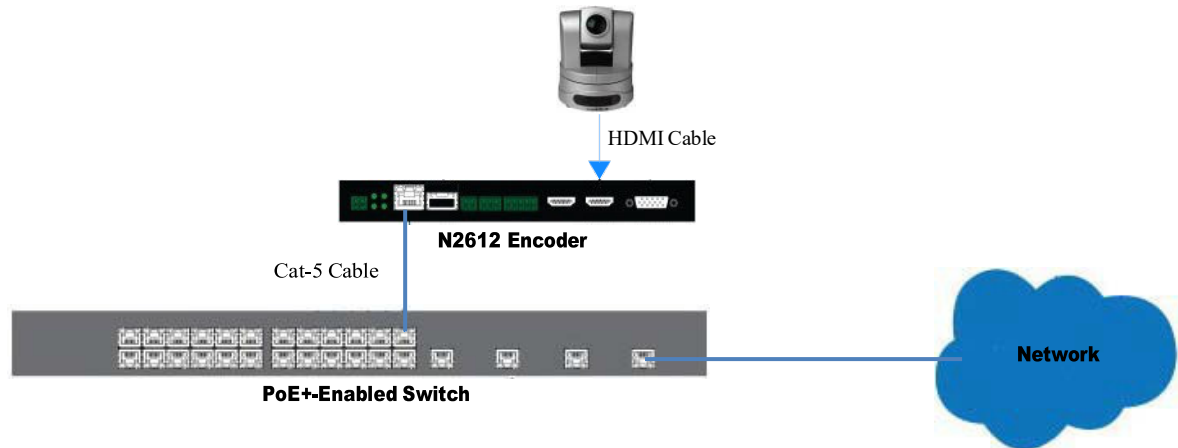


FIG. 15 Encoder Connection to Source

Switching and Scaling Options

N-Series Encoders and Decoders make up a true AV matrix solution. In other words, one input can go to any or all outputs.

Decoders have internal scaling capabilities. Keep the following in mind:

- The input of an Encoder is the video and/or audio signal going into the Encoder.
- The output of an Encoder is the network stream.
- The input of a Decoder is the network stream.
- The output of a Decoder is the digital video and/or audio being transmitted out to the display device.
- Upscaling is fully supported.
- Downscaling is supported only if the input is 3840x2160 and the Decoder scaler is set to 1080p50/60. Any other attempts at downscaling are not recommended/supported.

Seamless Switching

The N2600 Series supports seamless switching capability if the scalers in the Decoders are all set to the same resolution and refresh rate. If the scalers are off, all of the *sources* must have the same resolution and refresh rate.

To get streams onto a Decoder, use the **Video Matrix** tab to route video from an Encoder to a Decoder. This works seamlessly if the previously mentioned settings are true. All you have to do is click the common cell on the matrix and click the **Take** button. See Figure 16 for an example.

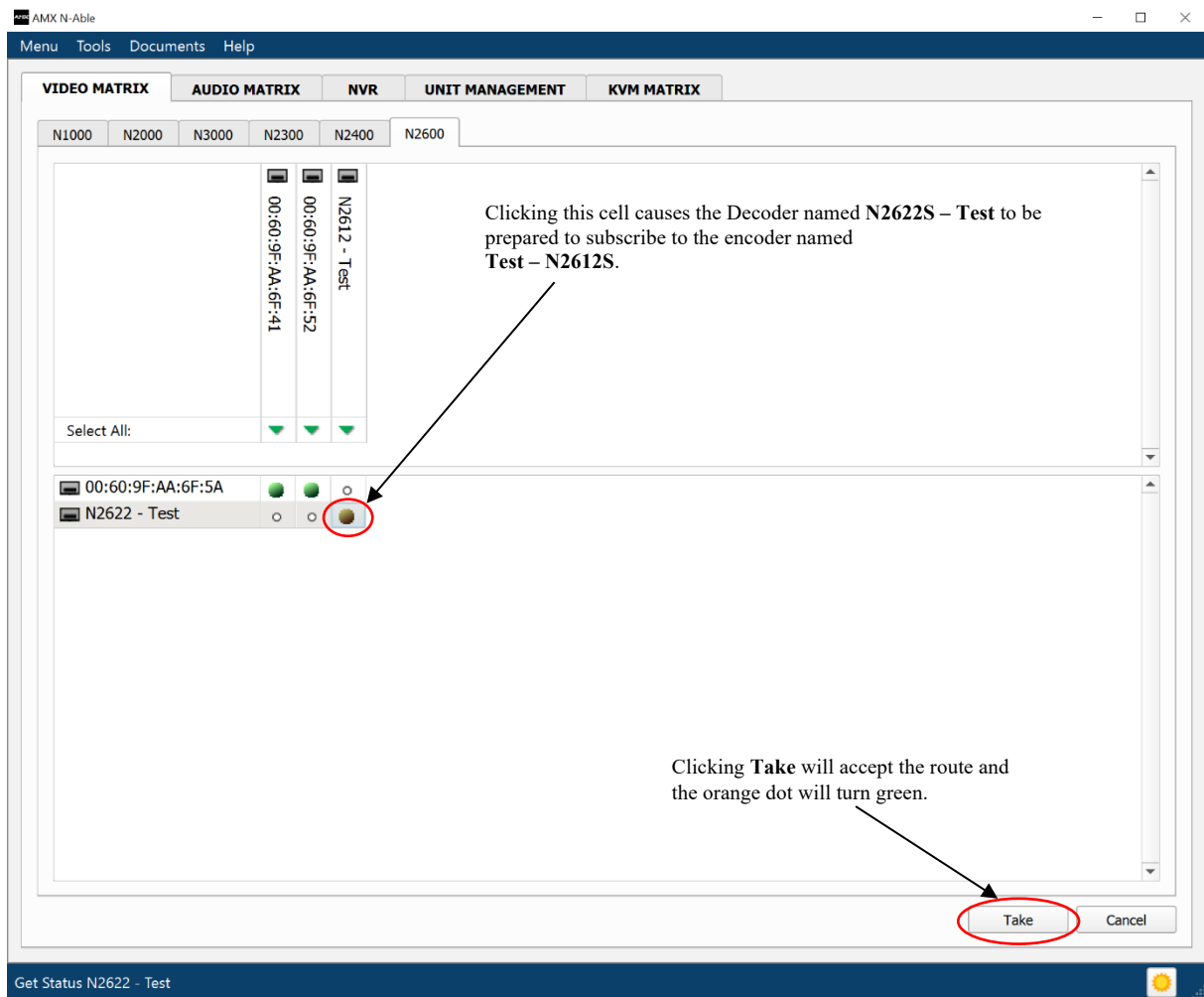


FIG. 16 Seamless Switching Using the Video Matrix

Control Options

For the most part, once the initial setup is complete, you will be primarily managing/configuring the Decoders. To better understand, think of Encoders as radio stations and Decoders as car radios. The Encoders are supplying the streams and, using the Decoders, you can “tune in” to the stream you want. N-Series, N-Control solutions (N-Command and N-Act) provide you with the most flexible management options available, insuring you are getting the most from your digital media system.

Primary Control Options

During initial configuration and setup, the free N-Able setup utility (version 2023.2.6 or higher) is sufficient. However, we do not recommend N-Able for production-level, primary-user control.

N-Command Controllers

These web-based hardware Controllers offer intuitive, powerful management of equipment, content, bandwidth utilization, and AV switching (using a web-based, point-and-click graphical matrix). The N-Command product line also offers:

- Simplified ASCII interface for third-party control via TCP/IP.
- N8002 controllers have leader / follower failover protection.
- Graphical presentation of video network connections.
- Full configuration control: assign fixed IP addresses for each N-Series component, adjust variable bitrate for each video stream, etc.
- Additional software bundles (free with N-Command) allow you to easily create attractive touch panels for N-Series and third-party equipment control, as well as build software design walls of any size. Visit our website for more details on the available N-Command Controllers.

Dante Controller

When the Dante AV mode is enabled, the encoder and decoder can be controlled via Dante controller, Dante Domain Manager (DDM), and Dante Director. These platforms can route the audio and video signals only at this time.

Note: When Dante AV mode is enabled, the devices cannot process the direct control API commands to switch audio or video streams. N-Able and N-Command can also not switch audio or video streams.

Third-Party Controllers

The N2600 Series is capable of interfacing with third-party control systems such as Crestron, Q-Sys, Extron, Etc.. For direct control of N2600 units from any Third-Party Control system, please use the Direct Control API (available on our website).

N-Act | On-Board, Built-In Control

All N-Series Encoders and Decoders have on-board, built-in control capability via events that can trigger any number of TCP/UDP commands to other IP controllable devices. Included free with all N-Series Encoders/Decoders. **Available later 2023 via firmware update.

KVM Configuration

The N2600 Encoders and Decoders are KVM-capable. By default, KVM connections are enabled.

Basic Setup

Follow these steps for basic KVM configuration:

1. On the N2612S Encoder, connect the USB Micro-B or on the N2615 Encoder, connect the USB C port to the computer to be controlled.
2. Connect the computer's video output to the N2612S Encoder's **HDMI 1 IN** or **HDMI 2 IN** or on the N2615 **HDMI IN** or **USB C** port.
3. On the N2600 Series Decoder, connect the **HDMI OUT** to the display.
4. Connect a USB keyboard and mouse to the Decoder's USB Standard-A ports (they can be plugged into either port).

NOTE: For wireless devices, simply plug the wireless signal receivers into these ports. For keyboard and mouse combos (with a single connection) use the keyboard port.

5. Using N-Able, click the **Unit Management** tab.
6. Click the **Auto Discover** button to discover your new devices (if you have not already done so).
7. Once discovery is complete (and you see the new units listed in N-Able), click the **Video Matrix** tab.
8. On the matrix, click the common cell for the desired Encoder/Decoder streaming combination.
9. Click the **Take** button to make the change to your matrix. The radio button turns green to indicate the connection was successful.
10. Check the **KVM Enable** box on the Encoders and Decoders being used (this setting is found on the **Control > KVM/USB > KVM Setting** page).
11. On the Decoder **Control > KVM/USB > KVM Setting** page, enter the KVM Encoder's IP address (in the **KVM IP** field).

NOTE: Multiaccess is enabled by default, you can have multiple Decoders attached to a single Encoder. Simply go to each Decoder's Settings page and enable KVM and input the Encoder's IP address (or create the connection in N-Able, as described in the steps above).

Encoder Configuration Options

This chapter defines N2612S Encoder configuration options. It is organized to reflect the graphical user interface (GUI) for ease of navigation.

From any main page in the GUI, you can access all other main pages by clicking the links in the top navigation bar. Figure 17 shows the navigation bar and provides hot links to the sections of this chapter that describe each main page.

*The Encoder Configuration section is based on firmware version 2.0.1

Note: When deploying the N2600 Series into a secure environment such as a Government, Military, or other secure network, refer to [Appendix G](#) for more guidance.

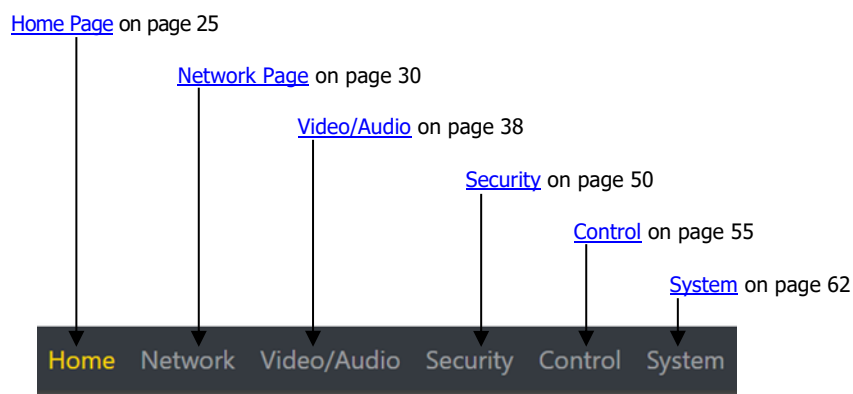


FIG. 17 Section Links

Home Page

Click the **Home** link at the top of any of the main web pages to access the page. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Stream Setup Settings Section](#) on page 26
- [Management Setup Settings](#) on page 27
- [Current Source Section](#) on page 28
- [General Setup Section](#) on page 29

The screenshot displays the settings page for an encoder, organized into four main sections:

- Stream Setup:** Includes options for Dante AV Mode Enabled, Device Name (VidLab2612), MWC TX Enable, Encode Mode (Multi Stream), Stream (1523), Play Mode (Live), and H.26x Stream URL (udp://@239.254.16.243:18888).
- Management Setup:** Includes options for Low Power Mode, Settings Lock, Multicast Address Override (239.255.20.79), Enable SNMP, OSD Menu, and Allow Multicast (PD, P1, Disable P1).
- Current Source:** Includes Preview Image (checked), Current Source (Auto), and a video preview window showing a woman's face.
- General Setup:** Includes Enable Send Status (checked), Send Status Address (10.35.116.18), Status Interval (10), Gratuitous ARP (checked), ARP Interval (10), Discovery Packet Transmit (checked), Discovery Interval (10), and DSCP # (34).

FIG. 18 Settings Page

Stream Setup Section

The **Stream Setup** section of the **Home** page.

FIG. 19 Device Settings Section

TABLE 1 Home Page: Stream Settings Section

Option	Description	Notes
Dante AV Mode Enabled	When enabled will allow the Dante Video and Audio channels to be discoverable in Dante Controller.	When Enabled/Disabled and after pressing save will reboot the unit for the settings to take effect. Dante audio will always be available despite the Dante AV Mode. Direct API commands to switch streams of audio and video will not function. Only Dante Controller, Dante Domain Manager and Dante Director
Device Name	Enter a user-friendly name for the unit.	More descriptive names in this field help you organize and manage the N-Series system efficiently. Names based on the unit's location and function are particularly useful. Some good examples are Lobby-Left-HDMI (for left side of lobby, HDMI input) or CR201-HDMI (for Conference Room 201, HDMI input). Keep in mind the matrices are organized alphanumerically.
TX Enable	When enabled allows the MWC stream to be generated	
Encode Mode	Used to select between Single Stream or Multi Stream Modes	Single Stream = MWC Only Multi Stream = MWC and H.26x
Stream	View/edit the current transmit stream number.	To better understand this setting, think of Encoders more like a channel on a cable box, rather than a traditional AV Matrix. Each Encoder must have a unique stream number, just like every channel must have a unique channel number (e.g., Food Network and HGTV cannot both be on channel 201).
Play Mode	Drop down menu to select between Live video encoding or a Play List	Options include Live and Host Play #1
H.26x Stream URL	Shows the URL of the H.26x stream	Only visible when Multi Stream is selected.
Save button	Click to save settings made in this section.	Only applies Device Name and Stream fields. The other fields are dynamically updated.

Management Setup Settings

The **Management Setup** section of the **Home** page.

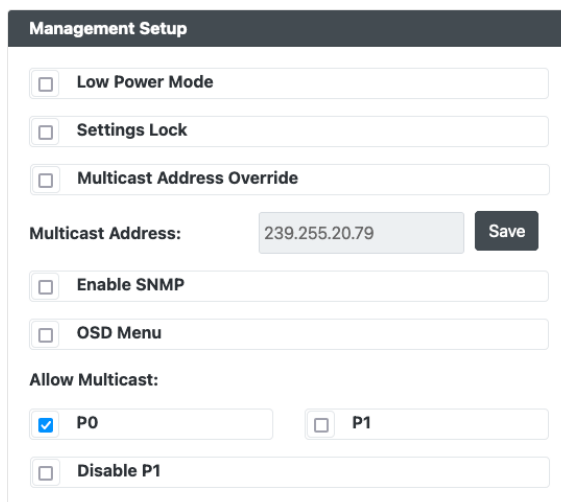


FIG. 20 Management Setup Settings

TABLE 2 Home Page: Management Setup Settings

Option	Description	Notes
Low Power Mode	Enabled will stop streaming and put the device into a standby state reducing the PoE request from the device.	Power reduction is roughly 50%. The device takes approximately 5 seconds to disable Low Power and begin streaming.
Settings Lock	Enable to lock the Encoder IP settings and stream number, preventing automated processes (from N-Able or N-Command) from occurring.	
Multicast Address Override	When enabled will allow for setting of a custom multicast address for the MWC stream	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet.
Multicast Address	Enter custom address and press save once done.	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet. All Decoders need to match the custom address to view video stream.
Enable SNMP	When enabled will allow the device to provide SNMP messages to an SNMP manager application.	
OSD Menu	Enables the On-Screen Display (OSD) for 10 seconds then turns off for 10 seconds. The process repeats until disabled.	With N-Able open a uick press and release will Press and hold the ID button for longer than 5 seconds and less than 20 seconds to display the OSD
P0	When enabled will allow multicast traffic in and out of the P0 network port	
P1	When enabled will allow multicast traffic in and out of the P1 network port	
Disable P1	When enabled will disable the P1 for traffic of all types.	

Current Source Section

The **Current Source** section of the **Home** page

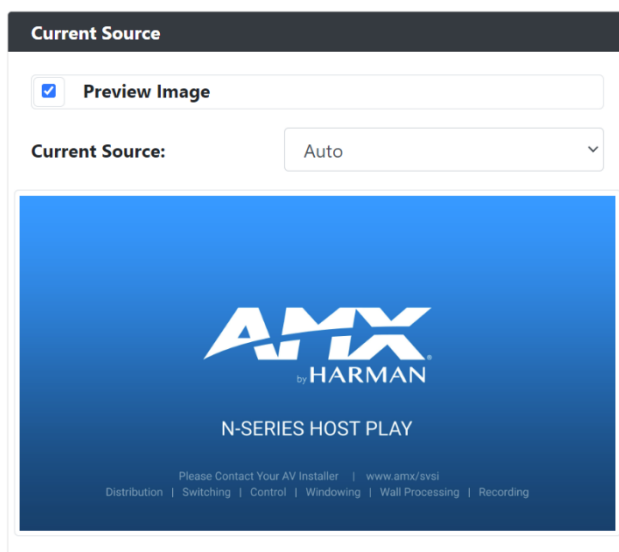


FIG. 21 Current Source Section

TABLE 3 Home Page: Current Source Section

Option	Description	Notes
Preview Image	When enabled the current source will be shown in the below image preview area.	The preview image is updated approximately every 2 seconds. Path MPJEG: <IP Address>/snapshot.jpg
Current Source	Selectable field consisting of three options and selecting one of the drop downs will select that input source. Auto: Last source plugged in will be the active source HDMI 1: HDMI In will be the active source HDMI 2: HDMI In will be the active source	There can only be one active source at a time. Recommended to leave Auto selected for majority of installations.
Video Preview Area	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

General Setup Section

The **General Setup** section of the **Home** page is shown.

FIG. 22 General Setup Section

TABLE 4 Home Page: General Setup Section

Option	Description	Notes
Enable Send Status	Enables the encoder to send a periodic status packet to the Send Status Address listed.	This is used by the N8002 for sending of unsolicited feedback to the N8002 based on status changes of the device.
Send Status Address	When Enable Send Status is enabled, the encoder sends a periodic status packet to the IP address specified here.	This is used by the N8002 for sending of unsolicited feedback to the N8002 based on status changes of the device.
Status Interval (sec)	Determines how often (in seconds) the unit transmits status packets.	
Gratuitous ARP	Enables the encoder to send a periodic address resolution protocol (ARP) packet to the network.	
Arp Interval (sec)	Determines how often (in seconds) the unit transmits gratuitous ARP packets.	
Discovery Packet Transmit	Enables the N-Series multicast discovery service (used to identify units)	For N-Series devices to communicate with each other, their multicast settings must be compatible.
Discovery Interval (sec)	Determines how often (in seconds) the unit transmits discovery packets.	
DSCP #	Select the Differentiated Services Code Point (DSCP) for the transmitting VLAN traffic.	

Network Page

Click the **Network** link at the top of any of the main web pages to access the page. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [MWC IP Setup Settings Section](#) on page 31
- [H.26x IP Setup Settings Section](#) on page 34
- [VLAN Setup](#) on page 35
- [Date/Time Section](#) on page 36
- [802.1x Section](#) on page 37

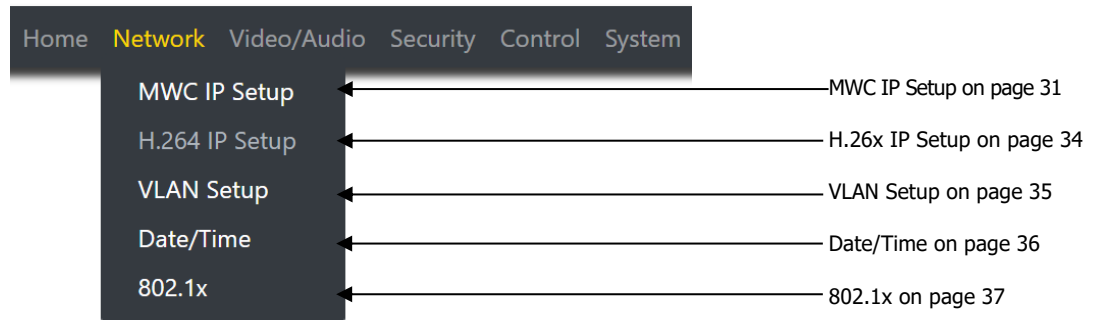


FIG. 23 Network Page

General Section – MWC IP Setup

The **General Section** of the **MWC IP Setup** on the **Network** page is shown.

The screenshot shows a configuration form titled "General". It contains the following elements:

- Domain:** A text input field.
- Manual DNS:** A checkbox that is currently unchecked.
- DNS IP 1:** A text input field containing the value "172.54.1.10".
- DNS IP 2:** A text input field containing the value "8.8.8.8".
- DNS IP 3:** A text input field containing the value "0.0.0.0".
- IGMP v3 Support:** A checkbox that is currently unchecked.

FIG. 24 General Section

TABLE 5 Network Page: General Section of MWC IP Setup

Option	Description	Notes
Domain	Type in the domain name of the network if needed	
Manual DNS	When selected allows for the static setting of DNS information.	
DNS IP 1	IP address of a DNS server.	
DNS IP 2	IP address of a DNS server.	
DNS IP 3	IP address of a DNS server.	
IGMP v3 Support	Enable to allow for IGMP v3 support.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

IPv4 Section –MWC IP Setup

The **IPv4** section of the **MWC IP Setup** on the **Network** page is shown.

FIG. 25 IPv4 Section

TABLE 6 Network Page: IPv4 Section of IP Setup

Option	Description	Notes
DHCP / Static IP Address	Used to select either DHCP or Static IP Address mode.	
IP Address	View the current IP address of the encoder. When in Static mode, enter an IP address into this field.	
Subnet Mask	View the current subnet mask address of the encoder. When in Static mode, enter a subnet mask address into this field.	
Gateway	View the current gateway address of the encoder. When in Static mode, enter a gateway address into this field.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

IPv6 Section –MWC IP Setup

The **IPv6** section of the **MWC IP Setup** on the **Network** page is shown.

IPv6 Address

IPv6 Address: fe80::260:9fff:feaa:6f85

IPv6 Subnet Mask: 64

IPv6 Gateway:

FIG. 26 IPv6 Section

TABLE 7 Network Page: IPv6 Section of IP Setup

Option	Description	Notes
Enable / Disable	When enabled the unit will attempt to obtain a DHCP IPv6 address.	Disabled by default, Requires an IPv6 DHCP server.
IPv6 Address	View the current IPv6 address of the encoder.	
IPv6 Subnet Mask	View the current IPv6 subnet mask address of the encoder.	
IPv6 Gateway	View the current IPv6 gateway address of the encoder.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

General Section – H.26x IP Setup

The **General Section** of the **H.26x IP Setup** on the **Network** page is shown.

General

H.26x Enable

Domain:
amx.com

Manual DNS

DNS Server 1:
8.8.8.8

DNS Server 2:
8.8.8.8

DNS Server 3:
0.0.0.0

FIG. 27 General Section

TABLE 8 Network Page: General Section of H.26x IP Setup

Option	Description	Notes
H.26x Enable	When selected allows for the H.26x to receive an IP address.	
Domain	Type in the domain name of the network if needed	
Manual DNS	When selected allows for the static setting of DNS information.	
DNS IP 1	IP address of a DNS server.	
DNS IP 2	IP address of a DNS server.	
DNS IP 3	IP address of a DNS server.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

VLAN – VLAN Setup

The **VLAN** of the **VLAN Setup** on the **Network** page is shown.

FIG. 28 VLAN Section

TABLE 9 Network Page: VLAN Section of VLAN Setup

Option	Description	Notes
Dante VLAN Tagging	Checkbox that when enabled will tag the Dante packets with the VLAN number specified.	The Webpage, Control, MWC will be untagged.
Dante VLAN #	VLAN number used to tag the Dante Packets	
Dedicate P1 to Dante	Checkbox that when enabled will force all the Dante packets out of P1	No VLAN tagging will occur when enabled. Everything should be untagged.

FIG. 29 VLAN Section

TABLE 10 Network Page: VLAN Section of VLAN Setup

Option	Description	Notes
IP Address	View the current IP address of the encoder. When in Static mode, enter an IP address into this field.	
Subnet Mask	View the current subnet mask address of the encoder. When in Static mode, enter a subnet mask address into this field.	
Gateway	View the current gateway address of the encoder. When in Static mode, enter a gateway address into this field.	

Date/Time

The **Date/Time** section of the **Network** page is shown.

Current Date and Time: Fri Nov 4 20:56:11 2022

Time Zone:
 (UTC) Greenwich Mean Time (Dublin & Edinburgh & Lisbon & London) ▼

NTP Server Manager

Sel...	Name	IP/Hostname	Description	Auth Type	Key ID	Secret	Edit
<input type="checkbox"/>	pool.ntp.org	debian.pool.ntp...	pool.ntp.org	None	N/A	N/A	

+ Add server

FIG. 30 Date/Time Section

TABLE 11 Network Page: Date/Time

Option	Description	Notes
Current Date and Time	Displays the current date and time of the unit.	
Time Zone	Used to select the offset for the NTP time.	
Select	Used to select the NTP server connection	
Edit	When selected will allow editing of that name server information.	
Add Server	When selected will open a pop-up allowing to input information for the NTP server	

802.1x

The **802.1x** section of the **Network** page is shown.

FIG. 31 802.1x Section

TABLE 12 Network Page: 802.1x

Option	Description	Notes
IEEE 802.1x Authentication	When enabled will allow the device to be used with 802.1x network configurations.	
Status	Displays the current port connection as either Disabled, Authorized, or Unauthorized.	
Authentication Method	Select one of the options listed, EAP-TLS Certificate or EAP-MSCHAP V2 Password to connect to the 802.1x server.	
Domain	Type the name of the domain the 802.1x server will be connecting.	
Username	Type the username here to access the 802.1x. Field is used when the Authentication Method is EAP-MSCHAP V2 Password.	
Password	Type the password here to access the 802.1x. Field is used when the Authentication Method is EAP-MSCHAP V2 Password.	
Configure Certificate	When pressed will navigate to the certificate page.	
Accept	Pressed to save all information on the 802.1x page and apply those settings.	
Cancel	Pressed to discard all settings made on the 802.1x page.	

Video/Audio Page

Click the **Video/Audio** link at the top of any of the main web pages to access the page. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Video Settings](#) on page 39
- [Audio Settings](#) on page 46
- [EDID Settings](#) on page 47
- [Playlist Settings](#) on page 48

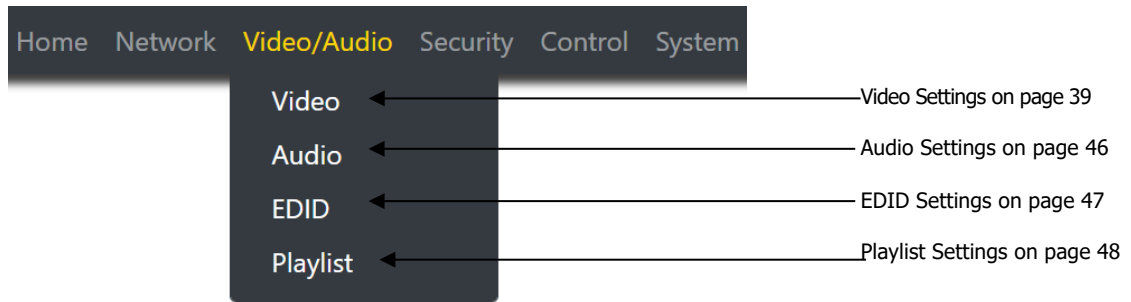


FIG. 32 Video/Audio Page

Stream Video Section – MWC Stream – Video Section

The **Stream Video** section of the **MWC Stream** section of the **Video** section on the **Video/Audio** page is shown.

The screenshot shows the 'Stream Video' configuration panel. At the top, there is a dark header with the text 'Stream Video'. Below this, there are several configuration options:

- A checkbox labeled 'MWC TX Enable' which is checked.
- A dropdown menu labeled 'Video Source Selection' with 'Auto' selected.
- An input field labeled 'Video Stream' containing the number '1523', with a 'Save' button to its right. Below the input field, the text 'Video 239.255.11.229' is displayed.
- A checkbox labeled 'Video Mute' which is unchecked.
- A dropdown menu labeled 'HDCP Support' with '2.x' selected.

FIG. 33 Stream Video Section

TABLE 13 Video/Audio: HDMI Video section of the Video tab

Option	Description	Notes
MWC TX Enable	When enabled will allow the encoder to transmit multicast video through the network.	
Disable HDCP Advertising	When enabled will cause the encoder to not send HDCP advertisements.	
Video Source	Status field displaying one of three options showing the current input source. Auto: Last source plugged in will be the active source HDMI 1: HDMI In 1 will be the active source HDMI 2: HDMI In 2 will be the active source	
Video Stream	View/edit the current receive video stream number.	
Video Mute	When enabled will mute the video for the source selected above	
HDCP Support	Drop down containing the options of 2.x, 1.x or none. Select the option for the version of HDCP the encoder will advertise.	The lowest HDCP level should be chosen in the system. Example if you had HDCP 2.x and 1.x displays. The HDCP Support for 1.x should be chosen to ensure the video signal can be seen by all displays.

Current Source Section – MWC Stream – Video Section

The **Current Source** section of the **MWCStream** section of the **Video** section on the **Video/Audio** page is shown.

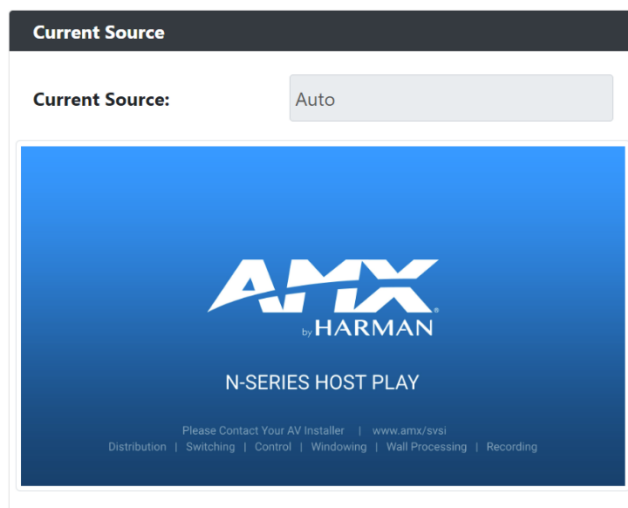


FIG. 34 Current Source Section

TABLE 14 Video/Audio: Current Source section of the Video tab

Option	Description	Notes
Current Source	Status field displaying one of three options showing the current input source. Auto: Last source plugged in will be the active source HDMI 1: HDMI 1 In will be the active source HDMI 2: HDMI 2 In will be the active source	
Preview Image	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

Stream Video Section – H.26x Stream - Video section

The **Stream Video** section of the **H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown.

Stream Video

H.26x TX Enable

H.26x Mode:

H.26x Profile:

Stream Output Mode:

Stream URL:

Multicast Address Override

Multicast Address:

TTL:

Unicast Enable

Unicast Dest 1 IP:

Unicast Dest 2 IP:

UDP Port Number:

FIG. 35 Stream Video Section

TABLE 15 Video/Audio: Stream Video section of the H.26x section of the Video tab

Option	Description	Notes
H.26x TX Enable	When enabled will allow the encoder to transmit H.26x video through the network.	
H.26x Mode	Drop down menu with options of H.264 and H.265	
H.26x Profile	Drop down menu with options to select a preset profile of YouTube, Panopto, HARMAN Device, or Custom	HARMAN device will allow the sending of HDCP content as long as the receiving device has HARMAN Device for the profile.
Stream Output Mode	Drop down menu with the options of RTMP, RTMPS, UDP, RTP, RTSP	The available options change depending on the H.26x Profile chosen.
Stream URL	User editable field used to enter the address of where to transmit the H.26x stream.	
Multicast Address Override	When enabled will allow for setting of a custom multicast address for the MWC stream	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet.
Multicast Address	Enter custom address and press save once done.	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet. All Decoders need to match the custom address to view video stream.
Stream Key	User editable field used to enter the stream key	
Backup Stream URL	User editable field used to enter the address of where to transmit the H.26x stream.	
Backup Stream Key	User editable field used to enter the stream key	

Profile Configuration Section – H.26x Stream - Video section

The **Profile Configuration** section of the **H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown.

Video Quality

Override Profile Recommendations

Maximum Video Bitrate(kbps):

Maximum Audio Bitrate(kbps):

Key-Frame Frequency: Second ▼

Maximum Resolution: 1080p ▼

Maximum Frame rate(Hz): 60 ▼

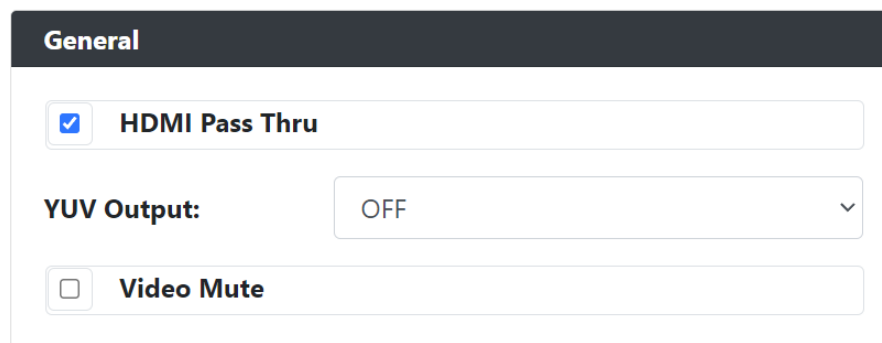
FIG. 36 Profile Configuration Section

TABLE 16 Video/Audio: Profile Configuration section of the H.26x section of the Video tab

Option	Description	Notes
Override Profile Recommendation	When enabled will allow user to change the values listed below for the H.26x stream	
Max. Video Bitrate	Maximum video bitrate in kbps to send the video stream to the URL provided.	
Max. Audio Bitrate	Maximum audio bitrate in kbps to send the audio stream to the URL provided.	
Key-Frame Freq.	GOP that can be specified in either seconds or frames.	
Max. Resolution	Drop down menu with the options of 720P or 1080P	
Max. Frame rate	Drop down menu with the options of 60 or 30	

General Section – HDMI Pass-thru - Video section

The **General** section of the **HDMI Pass-thru** section of the **Video** section on the **Video/Audio** page is shown.



The screenshot shows a configuration panel titled "General". It contains three settings:

- HDMI Pass Thru**: A checkbox that is checked.
- YUV Output**: A dropdown menu currently set to "OFF".
- Video Mute**: A checkbox that is unchecked.

FIG. 37 General Section

TABLE 17 Video/Audio: General section of the HDMI Pass-thru section of the Video tab

Option	Description	Notes
HDMI Pass Thru	When enabled will allow video to be transmitted out of the HDMI Output	
YUV Output	Drop down menu with options of Auto/On and Off	
Video Mute	When enabled will allow the video to be muted on the HDMI Output	

Current Source Section – HDMI Pass-thru - Video section

The **Current Source** section of the **HDMI Pass-thru** section of the **Video** section on the **Video/Audio** page is shown.

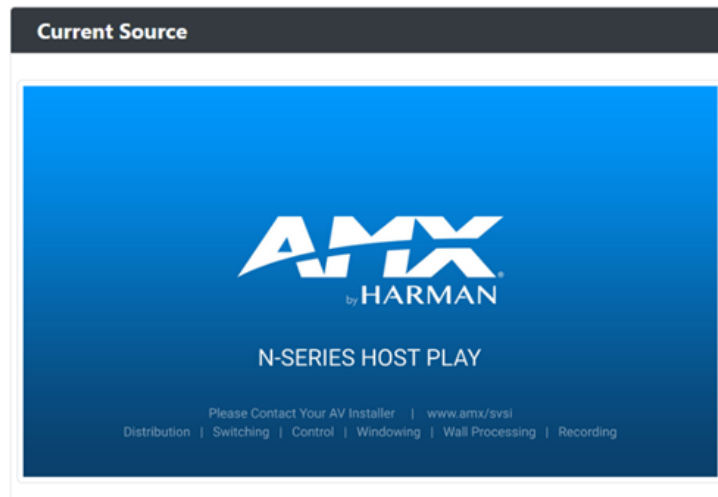


FIG. 38 Current Source Section

TABLE 18 Video/Audio: Current Source section of the HDMI Pass-thru section of the Video tab

Option	Description	Notes
Preview Image	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

Status Section – HDMI Pass-thru - Video section

The **Status** section of the **HDMI Pass-thru** section of the **Video** section on the **Video/Audio** page is shown.

Status

HDMI Pass thru Status:

Disconnected

HDMI Pass Thru Resolution:

1920x1080p@60

FIG. 39 Status Section

TABLE 19 Video/Audio: Status section of the HDMI Pass-thru section of the Video tab

Option	Description	Notes
HDMI Pass Thru Status	Status field displaying connection status of the HDMI Out port Disconnected: HDMI cable is not detected Connected: HDMI cable is detected	
HDMI Pass Thru Resolution	Current resolution of the video stream on the HDMI Out port.	

Audio Settings Section – Audio Setup

The **Audio Settings** section of the **Audio** on the **Video/Audio** page is shown.

The screenshot displays the 'Audio' configuration page. At the top, there is a 'Dante Audio TX/RX' section with a checkbox for 'Dante Audio Disable'. Below it is the 'Audio Source' section with a dropdown menu set to 'HDMI' and an 'Audio Mute' checkbox. A sub-section titled 'HDMI Audio In' contains a checked 'HDMI Downmix Enable' checkbox. Below this are four gain sliders: 'Center Gain', 'Front Gain', 'Surround Gain', and 'Rear Surround Gain', each with a numerical value of 0. At the bottom of this section is the 'HDMI Downmix Source' dropdown menu, currently set to 'Channel 0 FL/FR'.

FIG. 40 Audio Section

TABLE 20 Network Page: Audio Section of Audio Setup

Option	Description	Notes
Dante Audio TX/RX	When selected will disable the Dante audio from working and being shown in Dante Controller	When enabled will no longer show in the Dante Software. Dante will NOT be active
Audio Source	Drop down list containing two selections. HDMI: Play audio coming from the HDMI input Analog: Play audio coming from the Analog audio input	
Audio Mute	When enabled will mute the audio for the audio source selected above	
HDMI Downmix Enable	When enabled will allow the source audio to be downmixed.	
Center Gain	Gain level adjustment from -50 to 50	
Front Gain	Gain level adjustment from -50 to 50	
Surround Gain	Gain level adjustment from -50 to 50	
Near Surround Gain	Gain level adjustment from -50 to 50	
HDMI Downmix Source	Drop down menu with options of Channel 0 FR/FL, Channel 1 Center/LFE, Channel 2 SL/SR, Channel 3 RR/RL, or Downmix All Channels	

EDID Section – EDID Setup

The **EDID** section of the **EDID** on the **Video/Audio** page is shown.

FIG. 41 EDID Section

TABLE 21 Network Page: Audio Section of Audio Setup

Option	Description	Notes
EDID (drop down)	Select what EDID information to display. HDMI 1: Displays EDID information connected to the Encoder's HDMI 1 input. HDMI 2: Displays EDID information connected to the encoder's HDMI 2 input. Pass-thru: Displays EDID information connected to the encoder's HDMI Pass-thru.	
Decode	Click to translate the EDID currently displayed on the left to the operating parameters list on the right.	
Encode	After making any changes to the operating parameters list on the right, click this button to update the EDID information on the left. To store the new settings, click Set EDID .	
Read EDID	Click to initially show the EDID or if the source EDID has changed (refreshes the EDID table).	
Set EDID	If creating a custom EDID, click to apply the changes.	
Reset EDID	For Digital , choose a standard EDID from the drop-down menu and click Reset EDID to apply.	Ensure that the source is disconnected when setting an EDID.

Playlist Section – Playlist Setup

The **Playlist** section of the **Playlist** on the **Video/Audio** page is shown.

FIG. 42 Playlist Section

TABLE 22 Playlist Page: Playlist Section of Playlist Setup

Notes: When uploading Playlist Images

- The file name MUST have no spaces.
- The Image MUST be 1080P.
- Supported file types are JPG and PNG

Option	Description	Notes
Playlist	Dropdown containing Playlists 1-8 to be selected to work with.	

TABLE 23 Playlist Page: Playlist X Section of Playlist Setup

Option	Description	Notes
Name	Name of play list currently selected	
List Area	Listing of the current images in the playlist	
Up	Move the selected image up in the list	
Down	Move the selected image down in the list	
Remove Slides(s)	Delete the selected image(s) from the playlist selected	
Delay	Delay applied to the image until advances to the next image in the list	Measured in seconds and only applies when more than one image in a playlist
Apply	Set the delay for the selected image(s)	Different delay times can be applied to different image(s)
Save This List	Saves the current selected list changes for that selected list	

TABLE 24 Playlist Page: Image DB Section of Playlist Setup

Option	Description	Notes
Browse	Used to select the image wishing to be uploaded	One image can be uploaded at a time
Update	Used to upload the image selected to the unit	
Available Memory	A graphical bar showing the amount of available space for images	Max of 2 Mb is available
Image Preview	Preview of the selected images from the below list area	
List Area	Name of images that were uploaded	
Add Image(s)	Will add the selected image(s) to the playlist chosen	
Delete Image(s)	Will delete the image(s) from the list area above.	

Security Page

Click the **Security** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [General Settings Section on page 50](#)
- [Users Settings on page 52](#)
- [LDAP Settings on page 53](#)

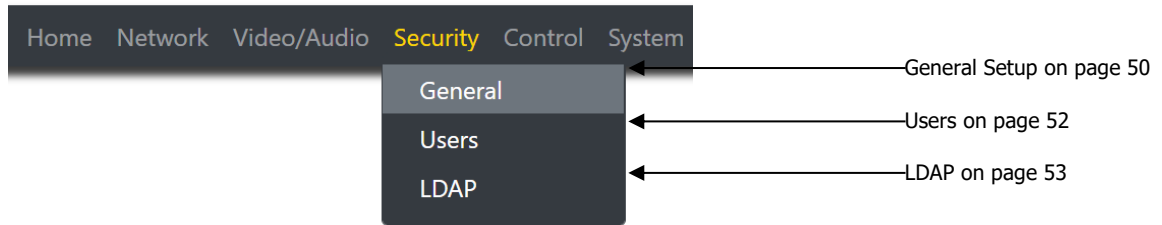


FIG. 41 Security Page

Web Page Section – General Setup

The **Web Page** section of the **General** on the **Security** page is shown.

The screenshot shows a web interface titled "Web Page". It contains three checkboxes: "Force HTTPS", "Web Page Disable", and "Command Secure Ports Only". Below these are two sections for changing passwords: "Change Command Password" and "Change Stream Encryption Password". Each section has a text input field (the first is masked with dots) and a "Reset" button. A "Save" button is positioned at the bottom center of the form.

FIG. 43 Web Page Section

TABLE 25 Security Page: Web Page Section of General

Option	Description	Notes
Force HTTPS	When enabled will force the web page access to always be HTTPS	
Web Page Disable	When enabled will cause the web pages to fail to load	To disable via API call will need to use secure socket connections. Once disabled a factory restore is needed to regain the webpages
Command Secure Ports Only	If enabled, commands must be sent using secure sockets (TLS/SSL) and follow the secure command port protocol.	
Change Command Password	Set the default password for command encryption.	When issuing API commands, this password must precede each command in the format: <code><password>\r<command></code> .
Change Stream Encryption Password	Set the default password for stream encryption.	To successfully communicate, the Decoder and Encoder passwords must match.
Reset	Click Reset to return to default password and settings.	
Save	Pressed to save all information on the Security Setup page and apply those settings.	

Security Certificates Section – General Setup

The **Security Certificates** section of the **General** on the **Security** page is shown.

The screenshot shows a web form titled "Security Certificates". It contains the following elements:

- Type of Certificate:** A dropdown menu with "CA Certificate" selected.
- Private Key(.key .pem):** A text input field with "Choose Private Key file(.key .pem)." and a "Browse" button.
- Certificate(.pem):** A text input field with "Choose Certificate file(.pem)." and a "Browse" button.
- Password:** A text input field.
- Upload:** A dark button at the bottom center.

FIG. 44 Security Certificates Section

TABLE 26 Security Page: Security Certificates Section of General

Option	Description	Notes
Type of Certificate	Three options exist for the drop down: CA Certificate Client Certificate Server Certificate	
Private Key	Browse for the Private Key file	
Certificate	Browse for the certificate file	
Password	If required input password for the Private Key or Certificate file	
Upload	Pressed to upload the private key or certificate to the device.	

User Security Details Section – Users Setup

The **Security Certificates** section of the **Users** on the **Security** page is shown.

The screenshot shows a modal window titled "User Security Details" for the user "administrator". It contains two password input fields: "New Password" and "Confirm Password". Each field has a small circular icon to its right, likely representing password strength or visibility. At the bottom right of the modal, there are two buttons: "Cancel" (with a red 'x' icon) and "Accept" (with a green checkmark icon).

FIG. 45 User Security Details Section

TABLE 27 Security Page: User Security Details Section of Users

Option	Description	Notes
New Password	Input the new password for the Administrator account	Available character for password are: See Appendix F
Confirm Password	Input the new password for the Administrator account	
Accept	Press to confirm and apply new password to the user account.	
Cancel	Press to discard changes and retain old password for the user account.	

LDAP Section – LDAP Setup

The **LDAP** section of the **LDAP** on the **Security** page is shown.

The screenshot shows the LDAP configuration interface. At the top, there is a dark bar with the text 'LDAP'. Below this, there is a form with the following elements:

- A checkbox labeled 'LDAP Enabled' which is currently unchecked.
- A text input field for 'LDAP/LDAPS URL' containing the value 'LDAP://127.0.0.1:50001'.
- A text input field for 'LDAP/LDAPS BASE DN' containing the value 'DC=HarmanLab,DC=local'.
- A text input field for 'BIND DN' containing the value 'CN_NAV_'.
- A text input field for 'User Query Attr' containing the value 'Person'.
- A password input field for 'Search Password' containing a series of dots '.....'.
- A button labeled 'Configure Certificate' located below the password field.
- At the bottom right of the form area, there are two buttons: 'Cancel' (with a red 'x' icon) and 'Accept/Test' (with a green checkmark icon).

FIG. 46 LDAP Section

TABLE 28 Security Page: LDAP Section of LDAP

Option	Description	Notes
LDAP Enabled	When enabled will allow the device to connect to an LDAP server.	
LDAP/LDAPS URL	Address and port of the LDAP Server	If using LDAP type ldap://<IP>:Port If using LDAPS type ldaps://<IP>:Port
LDAP/LDAPS Base DN	Location of the BIND DN user account with the AD structure	
BIND DN	The binding account being used to form the LDAP connection	
User Query Attr		
Search Password	Password used for the BIND DN account	
Configure Certificate	Pressed will redirect to the certificate management window	
Accept/Test	Press to accept and test the changes to the LDAP settings	
Cancel	Press to discard changes made to LDAP settings	

Control Page

Click the **Control** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Serial Settings](#) on page 56
- [IR Settings](#) on page 59
- [N-Act Settings](#) on Page 60
- [KVM/USB Settings](#) on page 61

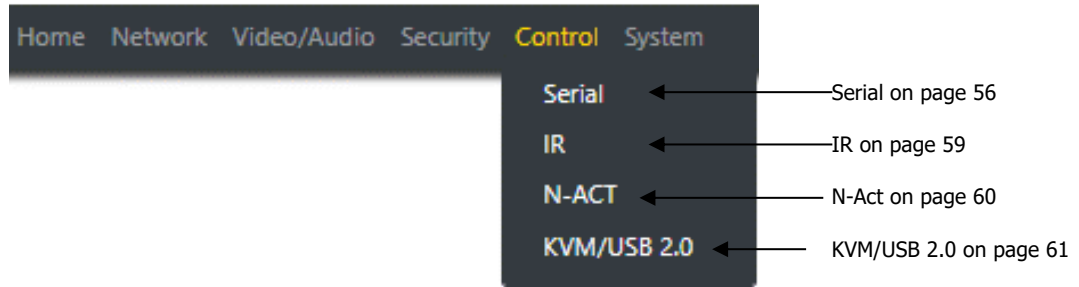


FIG. 47 Control Page

Serial Commands – Serial Setup

The **Serial Commands** section of the **Serial** on the **Control** page is shown.

FIG. 48 Serial Commands Section

TABLE 29 Control Page: Serial Commands Section of Serial

Option	Description	Notes
New	Will open a pop-up window where new commands can be stored on the device.	
Execute	Once a command is selected from the list of commands and pressing execute. Any response will be shown in the response box.	
Delete	Once a command is selected from the list of command and pressing delete will remove that command from the list.	
Edit	Once a command is selected from the list of commands and pressing edit will allow changes to be made to the selected commands.	

RS232 Settings – Serial Setup

The **RS232 Settings** section of the **Serial** on the **Control** page is shown.

RS232 Settings

RS232 Baud Rate:

RS232 Data Bits:

RS232 Parity:

RS232 Stop Bits:

FIG. 49 RS232 Settings Section

TABLE 30 Control Page: RS232 Settings Section of Serial

Option	Description	Notes
RS232 Baud Rate	Select the drop down and choose from the various baud rates.	
RS232 Data Bits	Select the drop down and choose from the various data bits.	
RS232 Parity	Select the drop down and choose from the various parity options.	
RS232 Stop Bits	Select the drop down and choose from the various stop bit options.	

Serial Settings– Serial Setup

The **Serial Settings** section of the **Serial** on the **Control** page is shown.

FIG. 50 RS232 Settings Section

TABLE 31 Control Page: RS232 Settings Section of Serial

Option	Description	Notes
RS232 Baud Rate	Select the drop down and choose from the various baud rates.	
RS232 Data Bits	Select the drop down and choose from the various data bits.	
RS232 Parity	Select the drop down and choose from the various parity options.	
RS232 Stop Bits	Select the drop down and choose from the various stop bit options.	

IR Command – IR Setup

The **IR Command** section of the **IR** on the **Control** page is shown.

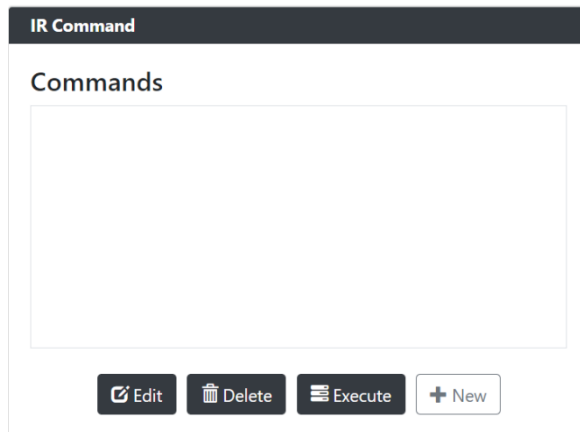


FIG. 51 IR Command Section

TABLE 32 Control Page: IR Command Section of IR

Option	Description	Notes
New	Will open a pop-up window where new commands can be stored on the device.	
Execute	Once a command is selected from the list of commands and pressing execute will transmit that command	
Delete	Once a command is selected from the list of command and pressing delete will remove that command from the list.	
Edit	Once a command is selected from the list of commands and pressing edit will allow changes to be made to the selected commands.	

N-Act Events – N-Act

The **N-Act Events Settings** section of the **N-Act** page is shown.

FIG. 52 N-Act Events Section

TABLE 33 N-Act Page: N-Act Events Section

Option	Description	Notes
Enable N-Act Events	Used to enable the N-Act events	
Power On Event	Event is triggered once the device is powered on and running	
Video Cable Connected Event	Event is triggered when a hot plug of the video cable is connected	
Video Cable Disconnected Event	Event is triggered when a video cable is disconnected	
Generic Events	List of different parameters that can be triggered based on the selected parameter	Refer to the N-Act documentation for list of events.
Save Events	Used to save the event parameters	Refer to the N-Act documentation for list of events.
Protocol	Drop down containing the different communication protocol formats to send	Refer to the N-Act documentation for list of events.
Address	IP address of the device to send the data	Refer to the N-Act documentation for list of events.
Port	Network port to send the data	Refer to the N-Act documentation for list of events.
Data	Command or payload to send the device being controlled	Refer to the N-Act documentation for list of events.
Delay (ms)	Can be used to delay the commands being sent to the device. Time is in milliseconds	Refer to the N-Act documentation for list of events.
Test	Once a macro of commands is inputted for event the Test button can be used to force the event without triggering the actual event.	
Trigger Delay	Used to create a delay in seconds until the commands are executed once the event is triggered.	
Add new	Used to add a new command to the event the Add new was clicked in	
Up Arrow	Used to move the selected command up in the event	
Down Arrow	Used to move the selected command down in the event	

KVM/USB 2.0 Connection – KVM/USB 2.0

The **KVM/USB 2.0 Settings** section of the **KVM/USB 2.0** on the **Control** page is shown.

The screenshot shows a configuration window titled "KVM/USB 2.0 Connection". Inside the window, there is a dark header bar labeled "KVM/USB 2.0 Setting". Below this header, there are two settings, each with a checked checkbox and a text label: "KVM Enable" and "USB 2.0 Enable".

FIG. 53 KVM/USB 2.0 Settings Section

TABLE 34 Control Page: KVM/USB 2.0 Settings Section of USB

Option	Description	Notes
USB 2.0 Enable	When enabled will allow a decoder USB 2.0 signal to be received.	Up to 4 decoders can connect to a single encoder for USB 2
KVM Enable	When enabled will allow a decoder KVM signal to be received.	

System Page

Click the **System** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Logs Setting Section](#) on page 63
- [Status Setting Section](#) on page 66

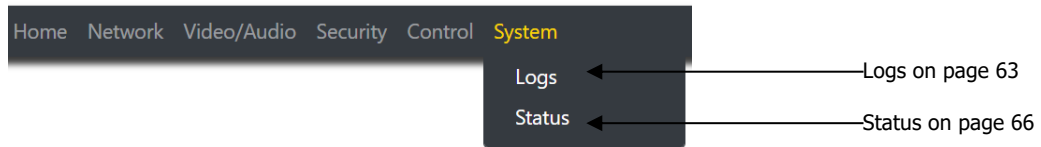


FIG. 54 System Page

Command Log – Log

The **Command Log** section of the **Log** on the **System** page is shown.

Command Log				
Elapsed Time	IP	Port	Method	Command
2022-11-16 10:03:46 (48 min ago)	Local	N/A	WEB	setSettings:holdLastFrame:on
2022-11-16 08:29:30 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:29:30 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:29:27 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:28:29 (2 h, 23 min ago)	172.54.1...	50001	UDP	setSettings:ReceiveSrc:MWC set:2610

FIG. 55 Command Log Section

TABLE 35 System Page: Command Log Section of Log

Option	Description	Notes
Reset Logs	When pressed will clear the Command Log history table	

Debug Log – Log

The **Debug Log** section of the **Log** on the **System** page is shown.

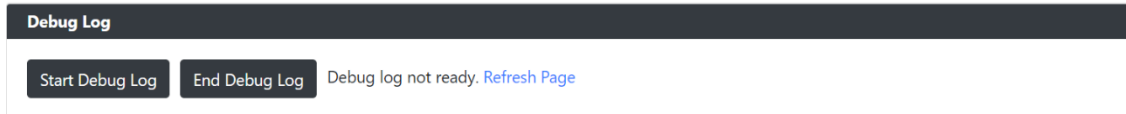


FIG. 56 Debug Log Section

TABLE 36 System Page: Debug Log Section of Log

Option	Description	Notes
Start Debug Log	When pressed will begin enhanced log gathering	Used when troubleshooting an issue with tech support
End Debug Log	When pressed will stop enhanced log gathering	Used when troubleshooting an issue with tech support

Syslog Settings – Log

The **Syslog Settings** section of the **Log** on the **System** page is shown.

The screenshot shows a configuration form for Syslog Settings. At the top, there is a dark header with the text 'Syslog Settings'. Below this, there is a white form area. The first element is a checkbox labeled 'Syslog Server Enable' which is checked. Below the checkbox are two input fields. The first is labeled 'Syslog Server:' and contains the text '172.54.1.177'. The second is labeled 'Syslog Port:' and contains the text '514'. At the bottom right of the form area is a dark button labeled 'Save'.

FIG. 57 Syslog Settings Section

TABLE 37 System Page: Syslog Settings Section of Log

Option	Description	Notes
Syslog Server Enable	When enabled will output logging to the defined Syslog Server	
Syslog Server	IPv4 address of the Syslog Server	
Syslog Port	Port which the Syslog server is configured to use	

Link Layer Discovery Protocol (LLDP) – Status

The **LLDP** section of the **Status** on the **System** page is shown.

Link Layer Discover Protocol Information	
Switch Mac:	mac d0:ec:35:f2:5a:00
Switch Name:	N/A
Switch Description:	CiscoIOSSoftware[Fuji],Catalys tL3SwitchSoftware(CAT9K_IOS XE),Version16.9.4,RELEASESOF TWARE(fc2) TechnicalSupport:http://www. cisco.com/techsupport Copyright(c)1986- 2019byCiscoSystems,Inc. CompiledThu22-Aug- 1918:14bymcpre
Port Number:	ifname Gi1/0/7
Description:	GigabitEthernet1/0/7
Vlan ID:	N/A
PoE:	N/A

FIG. 58 LLDP Section

TABLE 38 System Page: LLDP Section of Status

Option	Description	Notes
Switch Mac	Mac address of the network switch	
Switch Name	Name of the network switch	
Switch Description	Network description of the switch	
Port Number	Port number the device is connected	
Description	Network port description	
VLAN ID	VLAN of the network device is connected	
PoE	Watts being supplied to the device.	

Status – Status

The **Status** section of the **Status** on the **System** page is shown.

Status		
HDMI 1 Status:	Connected	
HDMI 1 Resolution:	3840x2160p@30	
HDCP 1 Status:	None	
HDMI 2 Status:	Disconnected	
HDMI 2 Resolution:	Disconnected	
HDCP 2 Status:	None	
HDMI Status Pass Thru:	Disconnected	
Audio Activity:	Active	
Port 50001 Source IP:	Disconnected	Flush
Port 50002 Source IP:	Disconnected	Flush
Serial Source IP:		Flush
KVM IP:	0.0.0.0	
USB 2.0 IP:	0.0.0.0	
Port P0:	1000M,Full-duplex	
Port P1:	Disconnected	

FIG. 59 Status Section

TABLE 39 System Page: Status Section of Status

Option	Description	Notes
HDMI 1 Status	Displays the status of the HDMI 1 input as either Connected or Disconnected	
HDMI 1 Resolution	Displays the resolution detected on the HDMI 1 Input	
HDMI 2 Status	Displays the status of the HDMI 2 input as either Connected or Disconnected	
HDMI 2 Resolution	Displays the resolution detected on the HDMI 2 Input	
HDMI Status Pass-Thru	Displays the status of the Pass-thru HDMI port	
HDCP Status	Reports status of HDCP along with version information	
Audio Activity	Displays the status of the audio stream on the network. Active: Stream is detected Inactive: Stream is not detected	
Port 50001 Source IP	IP address of the device connected to the port	
Port 50002 Source IP		
Serial Source IP		
KVM IP		
USB 2.0 IP		
Port P0	Displays the ethernet ports as either connected or disconnected.	
Port P1	Displays the ethernet ports as either connected or disconnected.	

Current Source – Status

The **Current Source** section of the **Status** on the **System** page is shown.

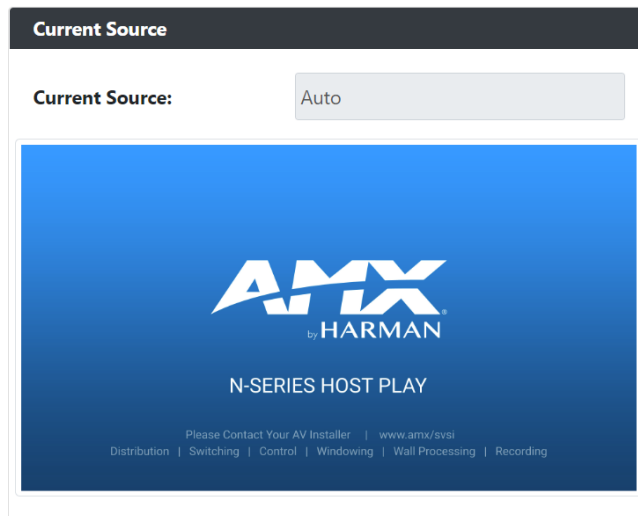


FIG. 60 Current Source Section

TABLE 40 System Page: Current Source of Status

Option	Description	Notes
Current Source	Displays the current source selected. Auto: Last source plugged in will be the active source HDMI 1: HDMI 1 In will be the active source HDMI 2: HDMI 2 In will be the active source	
Preview Area	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

Software – Status

The **Software** section of the **Status** on the **System** page is shown.

Software	
Model:	N2612S-SA
Serial:	15601301051
MAC address:	00:19:0B:8B:67:7B
H.26x Firmware:	1.77
Firmware Version:	V1.1.2
Web Version:	08/17/2023

FIG. 61 Current Source Section

TABLE 41 System Page: Current Source of Status

Option	Description	Notes
Model	Displays the model of the N2600 device.	
Serial	Displays the serial number of the Encoder.	
Mac Address	Displays the MAC address of the network interface of the Encoder.	
H.26X Firmware	Displays the version of firmware for the H.26X internal firmware.	
Firmware Version	Displays the date code for the currently running version of the Encoder internal firmware.	
Web Version	Displays the date code for the currently running version of the web interface.	
Default Settings	Click to restore the device to the original factory settings. This resets everything except the IP address (including name, stream number, serial settings, etc.).	
Reboot	Click to reboot the device (does not affect current configuration).	

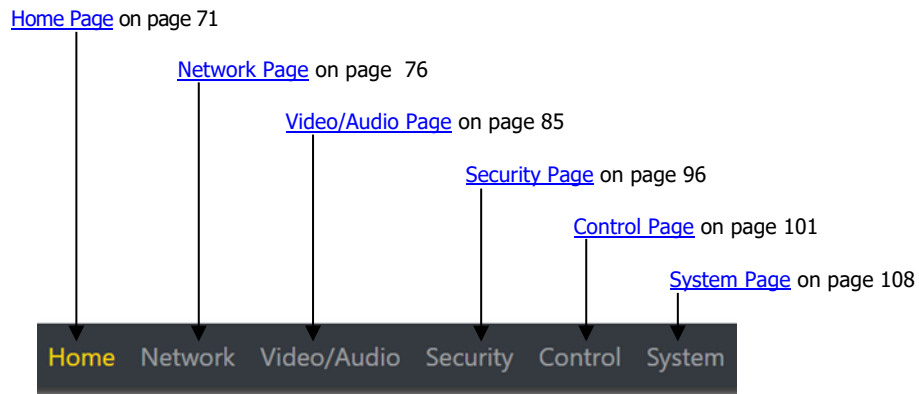
Decoder Configuration Options

This chapter defines N2622S Decoder configuration options. It is organized to reflect the graphical user interface (GUI) for ease of navigation.

As explained in the [Encoder Configuration Options section](#) on page 24, you can access the GUI main pages by clicking the links in the top navigation bar. Below, the navigation bar is shown and hot links are provided to the sections of this chapter that describe each main page.

Note: When deploying the N2600 Series into a secure environment such as a Government, Military, or other secure network, refer to [Appendix G](#) for more guidance.

*Decoder Configuration section is based on firmware version 1.9.4



Home Page

Click the **Home** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Stream Setup Settings Section](#) on page 72
- [Management Setup Settings](#) on page 73
- [Current Source Section](#) on page 74
- [General Setup Section](#) on page 75

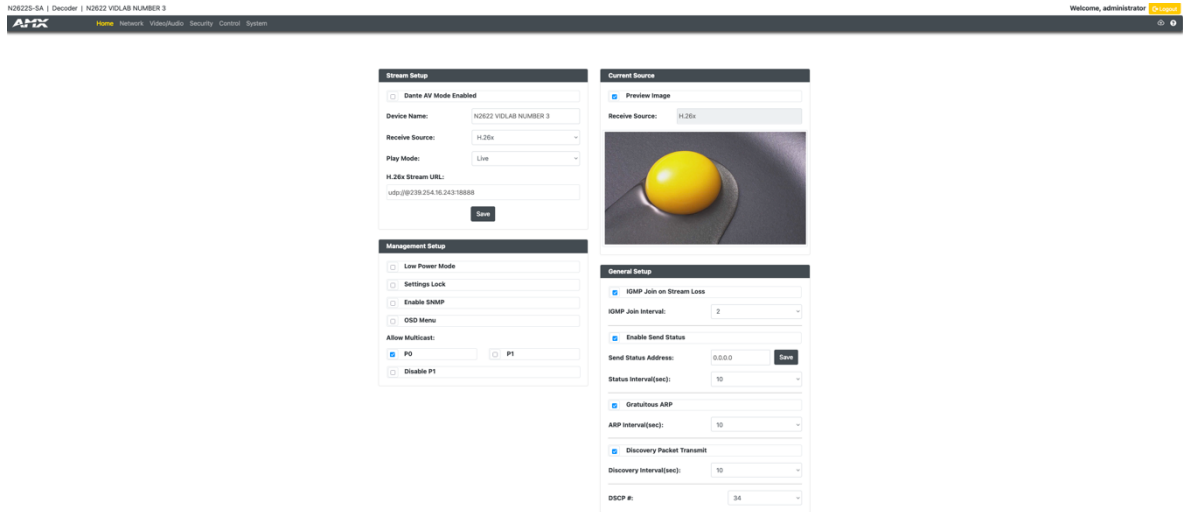


FIG. 62 Settings Page

Stream Setup Section

The **Stream Setup** section of the **Home** page is shown.

Stream Setup

Dante AV Mode Enabled

Device Name:

Receive Source:

Stream:
Video 239.255.20.139

Audio Stream:
Audio 239.255.0.0

Audio follows Video

Play Mode:

FIG. 63 Device Settings Section

TABLE 42 Home Page: Stream Settings Section

Option	Description	Notes
Dante AV Mode Enabled	When enabled will allow the Dante Video and Audio channels to be discoverable in Dante Controller	When Enabled/Disabled and after pressing save will reboot the unit for the settings to take effect. Dante audio will always be available despite the Dante AV Mode. Direct API commands to switch streams of audio and video will not function. Only Dante Controller, Dante Domain Manager and Dante Director
Device Name	Enter a user-friendly name for the unit.	More descriptive names in this field help you organize and manage the N-Series system efficiently. Names based on the unit's location and function are particularly useful. Some good examples are Lobby-Left-HDMI (for left side of lobby, HDMI input) or CR201-HDMI (for Conference Room 201, HDMI input). Keep in mind the matrices are organized alphanumerically.
Receive Source	Drop down menu containing the options of MWC or H.26x.	
Stream	View/edit the current receive video stream number.	
Audio Stream	View/edit the current receive audio stream number.	
Audio Follows Video	When enabled will force the Audio Stream to be the same as the video stream.	
Play Mode	Drop down menu to select between Live video or a Play List	Options include Live and Host Play #1-8
H.26x Stream URL	View/edit the URL of the H.26x stream being received.	Only visible if Receive source is set to H.26x
Save button	Click to save settings made in this section.	Only applies Device Name and Stream fields. The other fields are dynamically updated.

Management Setup Settings

The **Management Setup** section of the **Home** page is shown.

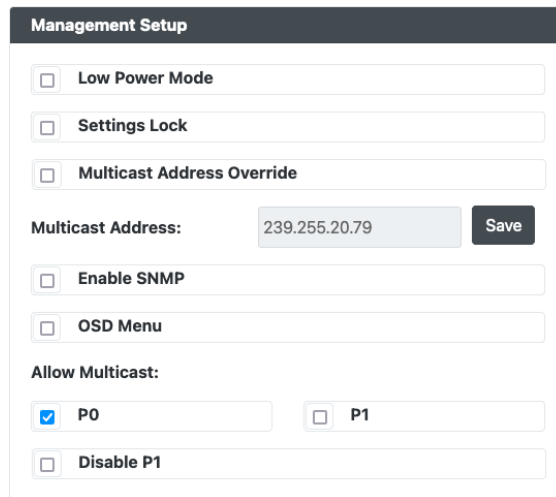


FIG. 64 Management Setup Settings

TABLE 43 Home Page: Management Setup Settings

Option	Description	Notes
Low Power Mode	Enabled will stop receiving and put the device into a standby state reducing the PoE request from the device.	Power reduction is roughly 50%. The device takes approximately 5 seconds to disable Low Power and begin receiving video.
Settings Lock	Enable to lock the Encoder IP settings and stream number, preventing automated processes (from N-Able or N-Command) from occurring.	
Multicast Address Override	When enabled will allow for setting of a custom multicast address for the MWC stream	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet.
Multicast Address	Enter custom address and press save once done.	Only the first 2 octets can be modified, example: 239.250.0.0. Ensure to use 0's for the 3 rd and 4 th octet. All Decoders need to match the custom address to view video stream.
Enable SNMP	When enabled will allow the device to provide SNMP messages to an SNMP manager application.	
OSD Menu	Enables the On-Screen Display (OSD) for 10 seconds then turns off for 10 seconds. The process repeats until disabled.	
P0	When enabled will allow multicast traffic in and out of the P0 network port	
P1	When enabled will allow multicast traffic in and out of the P1 network port	
Disable P1	When enabled will disable the P1 for traffic of all types.	

Current Source Section

The **Current Source** section of the **Home** page is shown.

Current Source

Preview Image

Receive Source:




FIG. 65 Current Source Section

TABLE 44 Home Page: Current Source Section

Option	Description	Notes
Preview Image	When enabled the current source will be shown in the below image preview area.	The preview image is updated approximately every 2 seconds.
Receive Source:	Displays the current receiving source. The options are MWC or H.26x .	
Video Preview Area	When Preview Image is enabled will display a snapshot of the current output source.	Clicking on the preview image will open a pop-up showing a larger preview image.

General Setup Section

The **General Setup** section of the **Home** page is shown.

FIG. 66 General Setup Section

TABLE 45 Home Page: General Setup Section

Option	Description	Notes
IGMP Join on stream loss	When enabled will send IGMP Join messages when no incoming stream is detected.	This is used by the N8002
IGMP Join Interval	Determines how often (in seconds) the unit transmits IGMP Join messages.	This is used by the N8002
Enable Send Status	Enables the encoder to send a periodic status packet to the Send Status Address listed.	
Send Status Address	When Enable Send Status is enabled, the encoder sends a periodic status packet to the IP address specified here.	
Status Interval (sec)	Determines how often (in seconds) the unit transmits status packets.	
Gratuitous ARP	Enables the encoder to send a periodic address resolution protocol (ARP) packet to the network.	
Arp Interval (sec)	Determines how often (in seconds) the unit transmits gratuitous ARP packets.	
Discovery Packet Transmit	Enables the N-Series multicast discovery service (used to identify units)	For N-Series devices to communicate with each other, their multicast settings must be compatible.
Discovery Interval (sec)	Determines how often (in seconds) the unit transmits discovery packets.	
Differentiated services code point (DSCP)	Specifies a mechanism for classifying and managing network traffic and providing quality of service (QoS)	Drop down list containing the optional values to choose from.

Network Page

Click the **Network** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [MWC IP Setup Settings Section](#) on page 77
- [H.26x IP Setup Settings Section](#) on page 80
- [VLAN Setup](#) on page 82
- [Date/Time Section](#) on page 82
- [802.1x Section](#) on page 84

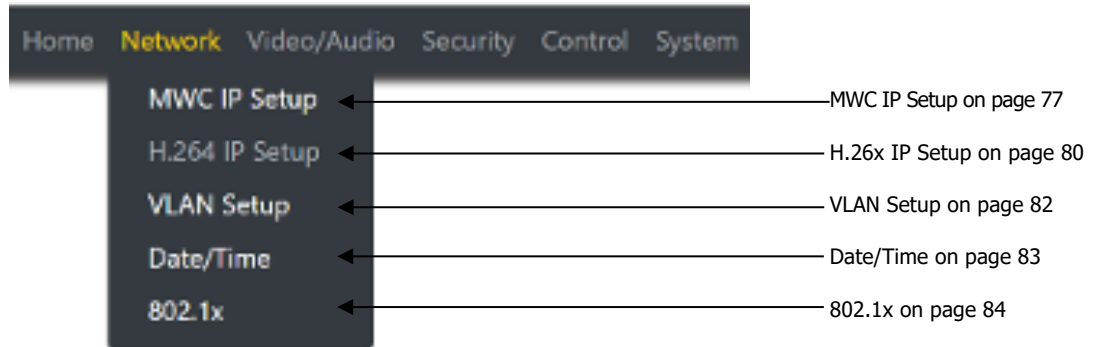


FIG. 67 Network Page

General Section – MWC IP Setup

The **General Section** of the **MWC IP Setup** on the **Network** page is shown.

General

Domain:

Manual DNS

DNS IP 1:

DNS IP 2:

DNS IP 3:

IGMP v3 Support

FIG. 68 General Section

TABLE 46 Network Page: General Section of MWC IP Setup

Option	Description	Notes
Domain	Type in the domain name of the network if needed	
Manual DNS	When selected allows for the static setting of DNS information.	
DNS IP 1	IP address of a DNS server.	
DNS IP 2	IP address of a DNS server.	
DNS IP 3	IP address of a DNS server.	
IGMP v3 Support	Enable to allow for IGMP v3 support.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

IPv4 Section – MWC IP Setup

The **IPv4** section of the **MWC IP Setup** on the **Network** page is shown.

The screenshot shows the 'IPv4 Address' configuration interface. At the top, there is a dark header with the text 'IPv4 Address'. Below the header, there are two tabs: 'DHCP' (which is highlighted in blue) and 'Static IP Address'. Underneath the tabs, there are three rows of configuration fields. The first row is labeled 'IP Address:' and has a text input field containing '172.54.1.191'. The second row is labeled 'Subnet Mask:' and has a text input field containing '255.255.255.0'. The third row is labeled 'Gateway:' and has a text input field containing '172.54.1.1'.

FIG. 69 IPv4 Section

TABLE 47 Network Page: IPv4 Section of MWC IP Setup

Option	Description	Notes
DHCP / Static IP Address	Used to select either DHCP or Static IP Address mode.	
IP Address	View the current IP address of the encoder. When in Static mode, enter an IP address into this field.	
Subnet Mask	View the current subnet mask address of the encoder. When in Static mode, enter a subnet mask address into this field.	
Gateway	View the current gateway address of the encoder. When in Static mode, enter a gateway address into this field.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

IPv6 Section – MWC IP Setup

The **IPv6** section of the **MWC IP Setup** on the **Network** page is shown.

IPv6 Address

Enable
 Disable

IPv6 Address: fe80::260:9fff:feaa:6f85

IPv6 Subnet Mask: 64

IPv6 Gateway:

FIG. 70 IPv6 Section

TABLE 48 Network Page: IPv6 Section of MWC IP Setup

Option	Description	Notes
Enable / Disable	When enabled the unit will attempt to obtain a DHCP IPv6 address.	Disabled by default, Requires an IPv6 DHCP server.
IPv6 Address	View the current IPv6 address of the encoder.	
IPv6 Subnet Mask	View the current IPv6 subnet mask address of the encoder.	
IPv6 Gateway	View the current IPv6 gateway address of the encoder.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

General Section – H.26x IP Setup

The **General Section** of the **H.26x IP Setup** on the **Network** page is shown.

General

Domain:

Manual DNS

DNS IP 1:

DNS IP 2:

DNS IP 3:

IGMP v3 Support

FIG. 71 General Section

TABLE 49 Network Page: General Section of H.26x IP Setup

Option	Description	Notes
Domain	Type in the domain name of the network if needed	
Manual DNS	When selected allows for the static setting of DNS information.	
DNS IP 1	IP address of a DNS server.	
DNS IP 2	IP address of a DNS server.	
DNS IP 3	IP address of a DNS server.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

IPv4 Section –H.26x IP Setup

The **IPv4** section of the **H.26x IP Setup** on the **Network** page is shown.

The screenshot shows the IPv4 Address configuration interface. At the top, there is a dark header with the text "IPv4 Address". Below the header, there are two tabs: "DHCP" (which is highlighted in blue) and "Static IP Address". Underneath the tabs, there are three rows of configuration fields. The first row is labeled "IP Address:" and has a text input field containing "172.54.1.191". The second row is labeled "Subnet Mask:" and has a text input field containing "255.255.255.0". The third row is labeled "Gateway:" and has a text input field containing "172.54.1.1".

FIG. 72 IPv4 Section

TABLE 50 Network Page: IPv4 Section of IP Setup

Option	Description	Notes
DHCP / Static IP Address	Used to select either DHCP or Static IP Address mode.	
IP Address	View the current IP address of the encoder. When in Static mode, enter an IP address into this field.	
Subnet Mask	View the current subnet mask address of the encoder. When in Static mode, enter a subnet mask address into this field.	
Gateway	View the current gateway address of the encoder. When in Static mode, enter a gateway address into this field.	
Save	Pressed to save all information on the MWC IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the MWC IP setup page.	

VLAN – VLAN Setup

The **VLAN** of the **VLAN Setup** on the **Network** page is shown.

FIG. 73 VLAN Section

TABLE 51 Network Page: VLAN Section of VLAN Setup

Option	Description	Notes
Dante VLAN Tagging	Checkbox that when enabled will tag the Dante packets with the VLAN number specified.	The Webpage, Control, MWC will be untagged.
Dante VLAN #	VLAN number used to tag the Dante Packets	
Dedicate P1 to Dante	Checkbox that when enabled will force all the Dante packets out of P1	No VLAN tagging will occur when enabled. Everything should be untagged.

FIG. 74 IPv4 Section

TABLE 52 Network Page: IPv4 Section of VLAN Setup

Option	Description	Notes
IP Address	View the current IP address of the encoder. When in Static mode, enter an IP address into this field.	
Subnet Mask	View the current subnet mask address of the encoder. When in Static mode, enter a subnet mask address into this field.	
Gateway	View the current gateway address of the encoder. When in Static mode, enter a gateway address into this field.	

Date/Time

The **Date/Time** section of the **Network** page is shown.

Current Date and Time:

Time Zone:

NTP Server Manager

Select	Name	IP/Hostname	Description	Auth Type	Key ID	Secret	Edit
<input type="button" value="+ Add server"/>							

FIG. 75 Date/Time Section

TABLE 53 Network Page: Date/Time

Option	Description	Notes
Current Date and Time	Displays the current date and time of the unit.	
Time Zone	Used to select the offset for the NTP time.	
Select	Used to select the NTP server connection	
Edit	When selected will allow editing of that name server information.	
Add Server	When selected will open a pop-up allowing to input information for the NTP server	

802.1x

The **802.1x** section of the **Network** page is shown.

FIG. 76 802.1x Section

TABLE 54 Network Page: 802.1x

Option	Description	Notes
IEEE 802.1x Authentication	When enabled will allow the device to be used with 802.1x network configurations.	
Status	Displays the current port connection as either Disabled, Authorized, or Unauthorized.	
Authentication Method	Select one of the options listed, EAP-TLS Certificate or EAP-MSCHAP V2 Password to connect to the 802.1x server.	
Domain	Type the name of the domain the 802.1x server will be connecting.	
Username	Type the username here to access the 802.1x. Field is used when the Authentication Method is EAP-MSCHAP V2 Password.	
Password	Type the password here to access the 802.1x. Field is used when the Authentication Method is EAP-MSCHAP V2 Password.	
Configure Certificate	When pressed will navigate to the certificate page.	
Accept	Pressed to save all information on the 802.1x page and apply those settings.	
Cancel	Pressed to discard all settings made on the 802.1x page.	

Video/Audio Page

Click the **Video/Audio** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Video Settings section](#) on page 86
- [Audio Settings section](#) on page 91
- [Wall Settings section](#) on page 92
- [EDID Settings section](#) on page 93
- [Playlist settings section](#) on page 94

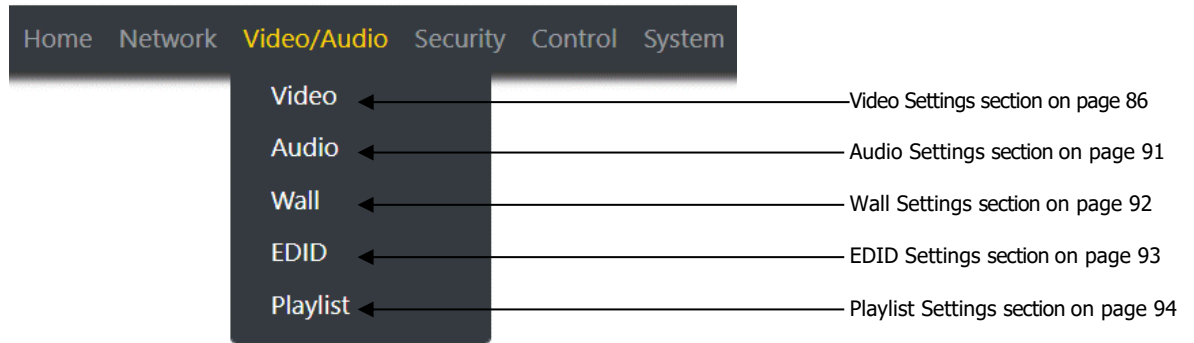


FIG. 77 Video/Audio Page

Stream Video Section – MWC/H.26x Stream Section – Video Section

The **Stream Video** section of the **MWC/H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown.

Stream Video

Receive Source: MWC

Video Stream: 2602

Video 239.255.20.83

Save

FIG. 78 MWC Stream Video Section

Stream Video

Receive Source: H.264

Stream URL: rtsp://172.54.1.193:554/stream

Save

FIG. 79 H.26x Stream Video Section

TABLE 55 Video/Audio: Stream Video section of the MWC Stream section of the Video tab

Option	Description	Notes
Receive Source	Drop down to select MWC or H.26x for the type of stream to receive	The unit can only receive MWC or H.26x at a time. The unit can not receive both at the same time.
Video Stream	View/edit field to input the MWC stream to be decoded.	Only shown when the MWC is selected.
Stream URL	View/edit field to decode the inputted H.26x stream.	Only shown when H.26x is selected.
Save	Pressed to save the information inputted into the Video Stream or Stream URL field.	

Current Source Section – MWC/H.26x Stream Section – Video Section

The **Current Source** section of the **MWC/H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown.

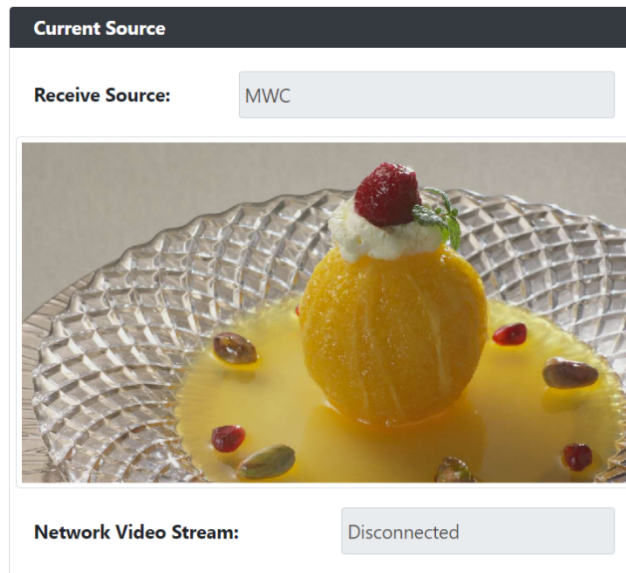


FIG. 80 Current Source Section

TABLE 56 Video/Audio: Current Source section of the MWC/H.26x Stream section of the Video tab

Option	Description	Notes
Current Source	Status field displaying one of three options showing the current input source. Auto: Last source plugged in will be the active source HDMI 1: HDMI 1 In will be the active source HDMI 2: HDMI 2 In will be the active source	
Preview Image	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.
Network Video Stream	Status field displaying one of two options: Connected: Video stream connected Disconnected: Video stream disconnected	

General Section – HDMI Out Section – Video Section

The **General** section of the **HDMI Out** section of the **Video** section on the **Video/Audio** page is shown.

General

HDMI Out Enable

Scaler Enable

Output Resolution: 2160p30

YUV Output: Auto

Video Mute

Last Frame Hold

HDMI Off on Stream Loss

HDMI Off Delay (0~1800 s): 10
Save

FIG. 81 General Section

TABLE 57 Video/Audio: General section of the HDMI Out section of the Video tab

Option	Description	Notes
HDMI Out Enable	Used to Enable or Disable the HDMI output.	
Scaler Enable	Used to Enable or Disable the scaler function	
Output Resolution	Drop down to select the desire resolution to be used by the scaler.	The scaler must be enabled for the selected resolution to be used.
Video Mute	Used to Mute the video from the HDMI output	
Last Frame Hold	When enabled will hold the last frame of video during stream changes	Will hold the last video frame received for up to 9 seconds.
HDMI Off on Stream Loss	When enabled will cause the HDMI output to be disabled if the stream is lost	
HDMI Off Delay	Time in seconds ranging from 0 to 1800 to wait before turning the HDMI output off.	The HDMI Off on stream loss must be enabled to be used.

CEC Settings Section – HDMI Out Section – Video Section

The **CEC Settings** section of the **HDMI Out** section of the **Video** section on the **Video/Audio** page is shown.

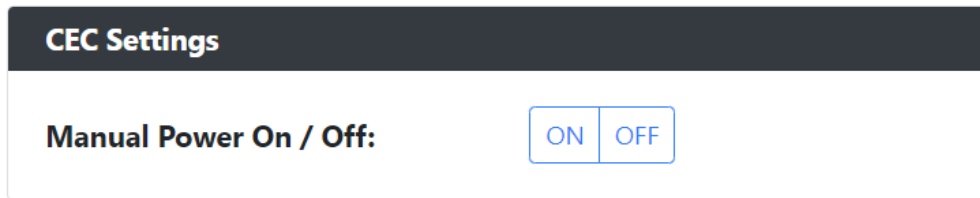


FIG. 82 CEC Settings Section

TABLE 58 Video/Audio: CEC Settings section of the HDMI Out section of the Video tab

Option	Description	Notes
Manual CEC Power	Manual Power On / Off	Allows for control of CEC Power over the HDMI cable with monitors equipped and enabled to support the CEC Protocol. On: When pressed will turn the monitor on Off: When pressed will turn the monitor off

Current Source Section – HDMI Out - Video section

The **Current Source** section of the **HDMI Out** section of the **Video** section on the **Video/Audio** page is shown.

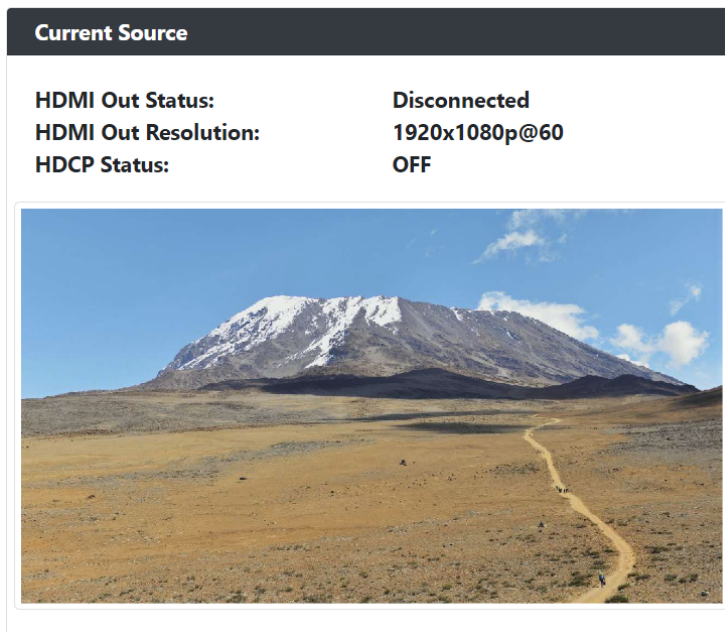


FIG. 83 Current Source Section

TABLE 59 Video/Audio: Current Source section of the Video tab

Option	Description	Notes
HDMI Out Status	Status of the HDMI Output as: Connected: HDMI signal detected on the HDMI Output Disconnected: No HDMI signal detected on the HDMI Output	
HDMI Out Resolution	Output Resolution being sent to the display.	
HDCP Status	Current status of the HDCP flag being detected.	
Preview Image	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

Audio Section – Audio Setup

The **Audio** section of the **Audio** on the **Video/Audio** page is shown.

FIG. 84 Audio Section

TABLE 60 Network Page: Audio Section of Audio Setup

Option	Description	Notes
Dante Audio TX/RX	When selected will disable the Dante audio from working and being shown in Dante Controller	When enabled will no longer show in the Dante Software. Dante will NOT be active
Audio Stream	Used to select the type of audio the decoder will receive. Drop down list options are SVSI Stream or Dante Audio	When SVSI Stream is selected, the Decoder will begin to Transmit Dante audio. The decoder will receive SVSI audio and transmit Dante Audio.
Audio follow Video	When selected the audio will follow the routing of the video	When enabled does not allow break-away audio.
Audio Stream	Audio stream number	Visible only when SVSI Stream is selected
Audio Delay	Amount of delay that can be added to the audio stream	
Audio Mute	When enabled will cause the audio to be muted.	
Enable HDMI Audio	Setting to allow HDMI audio to be outputted.	
Line Out Volume	Volume range from 0 to 100 for the analog output volume	
Left Volume	Volume range from 0 to 100 for the left volume channel	
Right Volume	Volume range from 0 to 100 for the right volume channel	

Wall Setup Section – Wall

The **Wall Setup** section of the **Wall** on the **Video/Audio** page is shown.

Wall Setup

Enable Wall

Wall Stretch: Auto

Wall Dimensions: **Rows** 2 **Columns** 2

Bezel Adjust: **Horz** 0 **Vert** 0

Current Wall Position: **Rows** 1 **Columns** 1 Save




FIG. 85 Wall Setup Section

TABLE 61 Video Page: Wall Setup Section of the Wall

Option	Description	Notes
Enable Wall	When enabled will allow the decoder to operate in Wall Mode	
Wall Stretch	Available options are, Auto, Stretch and Fit	
Wall Dimensions	Used to specify the number of rows and columns for the wall	Max Rows are 16 and max columns is 16
Bezel Adjust	Used to specify the horizontal and vertical offset for the bezel in pixels.	Max for horizontal is 64 and max for vertical is 64
Current Wall Position	Used to specify the selected decoder chosen within the defined video wall	
Save	Used to save the settings applied for the above commands.	

EDID Section – EDID Setup

The **EDID** section of the **EDID** on the **Video/Audio** page is shown.

FIG. 86 EDID Section

TABLE 62 Video Page: EDID Section of EDID Setup

Option	Description	Notes
EDID (drop down)	Select EDID information to display.	
Decode	Click to translate the EDID currently displayed on the left to the operating parameters list on the right.	
Encode	After making any changes to the operating parameters list on the right, click this button to update the EDID information on the left. To store the new settings, click Set EDID .	

Playlist Section – Playlist Setup

The **Playlist** section of the **Playlist** on the **Video/Audio** page is shown.

FIG. 87 Playlist Section

TABLE 63 Playlist Page: Playlist Section of Playlist Setup

Notes: When uploading Playlist Images

- The file name MUST have no spaces.
- The Image MUST be 1080P.
- Supported file types are JPG and PNG

Option	Description	Notes
Playlist	Dropdown containing Playlists 1-8 to be selected to work with.	

TABLE 64 Playlist Page: Playlist X Section of Playlist Setup

Option	Description	Notes
Name	Name of play list currently selected	
List Area	Listing of the current images in the playlist	
Up	Move the selected image up in the list	
Down	Move the selected image down in the list	
Remove Slides(s)	Delete the selected image(s) from the playlist selected	
Delay	Delay applied to the image until advances to the next image in the list	Measured in seconds and only applies when more than one image in a playlist
Apply	Set the delay for the selected image(s)	Different delay times can be applied to different image(s)
Save This List	Saves the current selected list changes for that selected list	

TABLE 65 Playlist Page: Image DB Section of Playlist Setup

Option	Description	Notes
Browse	Used to select the image wishing to be uploaded	One image can be uploaded at a time
Update	Used to upload the image selected to the unit	
Available Memory	A graphical bar showing the amount of available space for images	Max of 2 Mb is available
Image Preview	Preview of the selected images from the below list area	
List Area	Name of images that were uploaded	
Add Image(s)	Will add the selected image(s) to the playlist chosen	
Delete Image(s)	Will delete the image(s) from the list area above.	

Security Page

Click the **Security** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [General Settings Section](#) on page 97
- [Users Settings Section](#) on page 99
- [LDAP Settings Section](#) on page 100

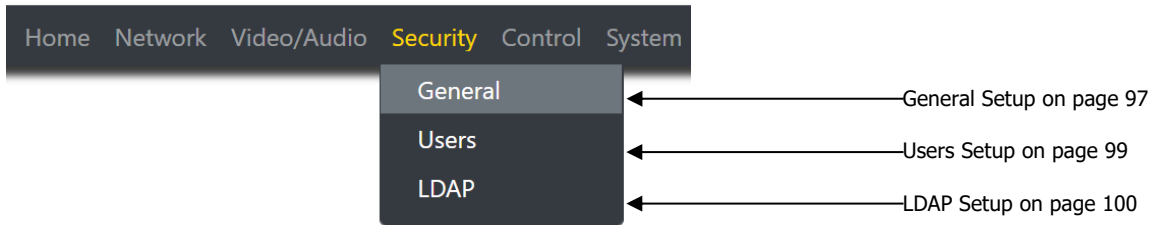


FIG. 88 Security Page

Web Page Section – General Setup

The **Web Page** section of the **General** on the **Security** page is shown.

The screenshot shows a configuration panel titled "Web Page". It contains three checkboxes: "Force HTTPS", "Web Page Disable", and "Command Secure Ports Only". Below the checkboxes are two sections for password management. The first is "Change Command Password:" with a text input field containing "....." and a "Reset" button. The second is "Change Stream Encryption Password:" with a text input field containing "." and a "Reset" button. A "Save" button is positioned at the bottom center of the panel.

FIG. 89 Web Page Section

TABLE 66 Security Page: Web Page Section of General

Option	Description	Notes
Force HTTPS	When enabled will force the web page access to always be HTTPS	
Web Page Disable	When enabled will cause the web pages to fail to load	To enable or disable via API call will need to use secure socket connections.
Command Secure Ports Only	If enabled, commands must be sent using secure sockets (TLS/SSL) and follow the secure command port protocol.	
Change Command Password	Set the default password for command encryption.	When issuing API commands, this password must precede each command in the format: <password>\r<command>.
Change Stream Encryption Password	Set the default password for stream encryption.	To successfully communicate, the Decoder and Encoder passwords must match.
Reset	Click Reset to return to default password and settings	
Save	Pressed to save all information on the Security Setup page and apply those settings.	

Security Certificates Section – General Setup

The **Security Certificates** section of the **General** on the **Security** page is shown.

The screenshot shows a web form titled "Security Certificates". It contains the following elements:

- Type of Certificate:** A dropdown menu with "CA Certificate" selected.
- Private Key(.key .pem):** A text input field with "Choose Private Key file(.key .pem)." and a "Browse" button.
- Certificate(.pem):** A text input field with "Choose Certificate file(.pem)." and a "Browse" button.
- Password:** A text input field.
- Upload:** A dark button at the bottom center.

FIG. 90 Security Certificates Section

TABLE 67 Security Page: Security Certificates Section of General

Option	Description	Notes
Type of Certificate	Three options exist for the drop down: CA Certificate Client Certificate Server Certificate	
Private Key	Browse for the Private Key file	
Certificate	Browse for the certificate file	
Password	If required input password for the Private Key or Certificate file	
Upload	Pressed to upload the private key or certificate to the device.	

User Security Details Section – Users Setup

The **Security Certificates** section of the **Users** on the **Security** page is shown.

The screenshot shows a modal window titled "User Security Details" for the user "administrator". It contains two password input fields: "New Password" and "Confirm Password". Each field has an eye icon to toggle visibility. At the bottom right, there are two buttons: "Cancel" (with an 'x' icon) and "Accept" (with a checkmark icon).

FIG. 91 User Security Details Section

TABLE 68 Security Page: User Security Details Section of Users

Option	Description	Notes
New Password	Input the new password for the Administrator account	Available character for password are: See Appendix F
Confirm Password	Input the new password for the Administrator account	
Accept	Press to confirm and apply new password to the user account.	
Cancel	Press to discard changes and retain old password for the user account.	

LDAP Section – LDAP Setup

The **LDAP** section of the **LDAP** on the **Security** page is shown.

The screenshot shows the LDAP configuration interface. At the top, there is a dark header with the text 'LDAP'. Below this, there is a form with the following elements:

- A checkbox labeled 'LDAP Enabled' which is currently unchecked.
- A text input field for 'LDAP/LDAPS URL' containing the value 'LDAP://127.0.0.1:50001'.
- A text input field for 'LDAP/LDAPS BASE DN' containing the value 'DC=HarmanLab,DC=local'.
- A text input field for 'BIND DN' containing the value 'CN_NAV_'.
- A text input field for 'User Query Attr' containing the value 'Person'.
- A text input field for 'Search Password' containing a masked password '.....'.
- A button labeled 'Configure Certificate' located below the password field.
- At the bottom right of the form, there are two buttons: 'Cancel' (with a red 'X' icon) and 'Accept/Test' (with a green checkmark icon).

FIG. 92 LDAP Section

TABLE 69 Security Page: LDAP Section of LDAP

Option	Description	Notes
LDAP Enabled	When enabled will allow the device to connect to an LDAP server.	
LDAP/LDAPS URL	Address and port of the LDAP Server	If using LDAP type ldap://<IP>:Port If using LDAPS type ldaps://<IP>:Port
LDAP/LDAPS Base DN	Location of the BIND DN user account with the AD structure	
BIND DN	The binding account being used to form the LDAP connection	
User Query Attr		
Search Password	Password used for the BIND DN account	
Configure Certificate	Pressed will redirect to the certificate management window	
Accept/Test	Press to accept and test the changes to the LDAP settings	
Cancel	Press to discard changes made to LDAP settings	

Control Page

Click the **Control** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- [Serial Settings Section](#) on page 102
- [IR Settings Section](#) on page 105
- [N-Act Settings Section](#) on page 106
- [KVM/USB Settings Section](#) on page 107

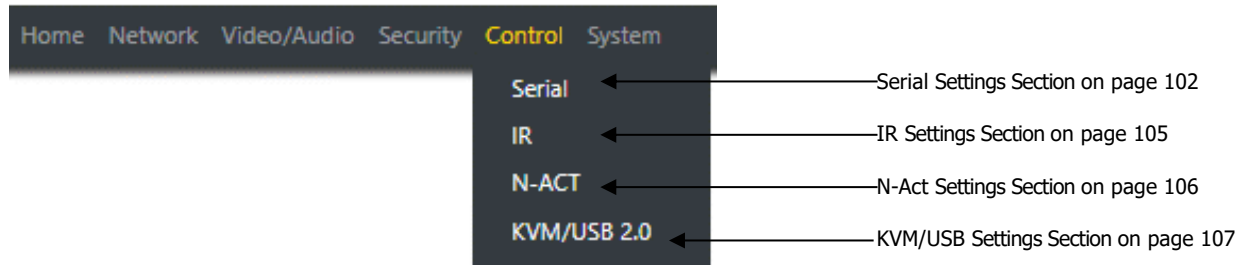


FIG. 93 Control Page

Serial Commands – Serial Setup

The **Serial Commands** section of the **Serial** on the **Control** page is shown.

FIG. 94 Serial Commands Section

TABLE 70 Control Page: Serial Commands Section of Serial

Option	Description	Notes
New	Will open a pop-up window where new commands can be stored on the device.	
Execute	Once a command is selected from the list of commands and pressing execute. Any response will be shown in the response box.	
Delete	Once a command is selected from the list of command and pressing delete will remove that command from the list.	
Edit	Once a command is selected from the list of commands and pressing edit will allow changes to be made to the selected commands.	

RS232 Settings – Serial Setup

The **RS232 Settings** section of the **Serial** on the **Control** page is shown.

RS232 Settings

RS232 Baud Rate:

RS232 Data Bits:

RS232 Parity:

RS232 Stop Bits:

FIG. 95 RS232 Settings Section

TABLE 71 Control Page: RS232 Settings Section of Serial

Option	Description	Notes
RS232 Baud Rate	Select the drop down and choose from the various baud rates.	
RS232 Data Bits	Select the drop down and choose from the various data bits.	
RS232 Parity	Select the drop down and choose from the various parity options.	
RS232 Stop Bits	Select the drop down and choose from the various stop bit options.	

Serial Settings– Serial Setup

The **Serial Settings** section of the **Serial** on the **Control** page is shown.

FIG. 96 RS232 Settings Section

TABLE 72 Control Page: RS232 Settings Section of Serial

Option	Description	Notes
RS232 Baud Rate	Select the drop down and choose from the various baud rates.	
RS232 Data Bits	Select the drop down and choose from the various data bits.	
RS232 Parity	Select the drop down and choose from the various parity options.	
RS232 Stop Bits	Select the drop down and choose from the various stop bit options.	

IR Command – IR Setup

The **IR Command** section of the **IR** on the **Control** page is shown.

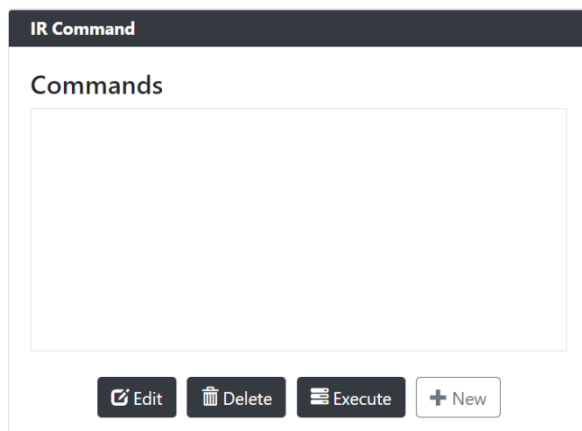


FIG. 97 IR Command Section

TABLE 73 Control Page: IR Command Section of IR

Option	Description	Notes
New	Will open a pop-up window where new commands can be stored on the device.	
Execute	Once a command is selected from the list of commands and pressing execute will transmit that command	
Delete	Once a command is selected from the list of command and pressing delete will remove that command from the list.	
Edit	Once a command is selected from the list of commands and pressing edit will allow changes to be made to the selected commands.	

N-Act Events – N-Act

The **N-Act Events Settings** section of the **N-Act** page is shown.

FIG. 98 N-Act Events Section

TABLE 74 N-Act Page: N-Act Events Section

Option	Description	Notes
Enable N-Act Events	Used to enable the N-Act events	
Power On Event	Event is triggered once the device is powered on and running	
Video Cable Connected Event	Event is triggered when a hot plug of the video cable is connected	
Video Cable Disconnected Event	Event is triggered when a video cable is disconnected	
Generic Events	List of different parameters that can be triggered based on the selected parameter	Refer to the N-Act documentation for list of events.
Save Events	Used to save the event parameters	Refer to the N-Act documentation for list of events.
Protocol	Drop down containing the different communication protocol formats to send	Refer to the N-Act documentation for list of events.
Address	IP address of the device to send the data	Refer to the N-Act documentation for list of events.
Port	Network port to send the data	Refer to the N-Act documentation for list of events.
Data	Command or payload to send the device being controlled	Refer to the N-Act documentation for list of events.
Delay (ms)	Can be used to delay the commands being sent to the device. Time is in milliseconds	Refer to the N-Act documentation for list of events.
Test	Once a macro of commands is inputted for event the Test button can be used to force the event without triggering the actual event.	
Trigger Delay	Used to create a delay in seconds until the commands are executed once the event is triggered.	
Add new	Used to add a new command to the event the Add new was clicked in	
Up Arrow	Used to move the selected command up in the event	
Down Arrow	Used to move the selected command down in the event	

USB Setting – KVM/USB

The **USB Settings** section of the **KVM/USB** on the **Control** page is shown. Options are described in Table 68. Supports up to 4 decoders USB 2.0 devices being routed to a single encoder device. The KVM Enable must be unchecked when sending more than one decoder to the same encoder.

KVM/USB 2.0 Connection

KVM/USB 2.0 Setting

KVM Enable

USB 2.0 Enable

Connect to Encoder IP Address

IP Address:

0.0.0.0

Switch Disconnect

FIG. 99 USB Settings Section

TABLE 75 Control Page: USB Settings Section of USB

Option	Description	Notes
KVM Enable	When enabled will allow the decoder to connect to the encoder listed in the IP Address field for KVM.	
USB 2.0 Enable	When enabled will allow the decoder to connect to the encoder listed in the IP Address field for USB 2.0.	
IP Address	View/edit field of what encoder to connect the decoder	
Switch	When executed will cause the decoder to connect to the encoder listed.	
Disconnect	When executed will cause the decoder to disconnect from the encoder listed.	

System Page

Click the **System** link at the top of any of the main web pages to access the page shown. This page is divided into several sections and has links to other dialog boxes for additional configuration options. Refer to the following sections for detailed descriptions:

- Logs Setting Section on page 109
- Status Settings Section on page 113

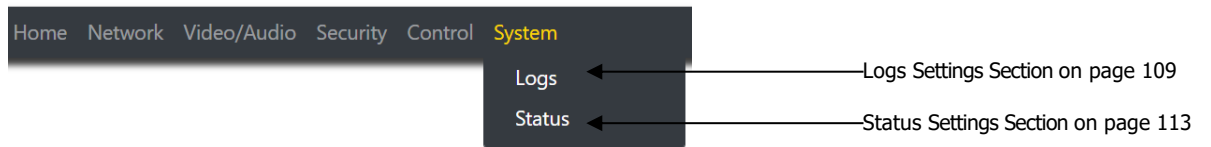


FIG. 100 System Page

Command Log – Log

The **Command Log** section of the **Log** on the **System** page is shown.

Command Log				
Elapsed Time	IP	Port	Method	Command
2022-11-16 10:03:46 (48 min ago)	Local	N/A	WEB	setSettings:holdLastFrame:on
2022-11-16 08:29:30 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:29:30 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:29:27 (2 h, 22 min ago)	172.54.1...	50001	UDP	set:2610
2022-11-16 08:28:29 (2 h, 23 min ago)	172.54.1...	50001	UDP	setSettings:ReceiveSrc:MWC set:2610

FIG. 101 Command Log Section

TABLE 76 System Page: Command Log Section of Log

Option	Description	Notes
Reset Logs	When pressed will clear the Command Log history table	

Debug Log – Log

The **Debug Log** section of the **Log** on the **System** page is shown.

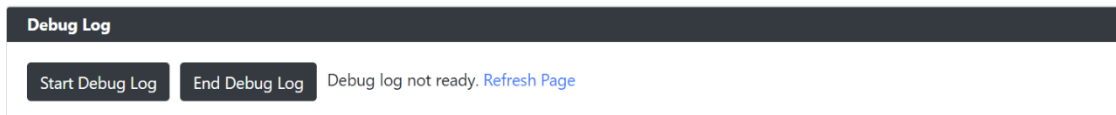


FIG. 102 Debug Log Section

TABLE 77 System Page: Debug Log Section of Log

Option	Description	Notes
Start Debug Log	When pressed will begin enhanced log gathering	Used when troubleshooting an issue with tech support
End Debug Log	When pressed will stop enhanced log gathering	Used when troubleshooting an issue with tech support

Syslog Settings – Log

The **Syslog Settings** section of the **Log** on the **System** page is shown.

The screenshot shows a configuration panel for Syslog Settings. At the top, there is a dark header with the text 'Syslog Settings'. Below this, there is a white form area. The first field is a checkbox labeled 'Syslog Server Enable', which is checked. Below this is a text input field for 'Syslog Server' containing the IP address '172.54.1.177'. The next field is a dropdown menu for 'Syslog Port' with '514' selected. At the bottom center of the form is a dark 'Save' button.

FIG. 103 Syslog Settings Section

TABLE 78 System Page: Syslog Settings Section of Log

Option	Description	Notes
Syslog Server Enable	When enabled will output logging to the defined Syslog Server	
Syslog Server	IPv4 address of the Syslog Server	
Syslog Port	Port which the Syslog server is configured to use	

Link Layer Discovery Protocol (LLDP) – Status

The **LLDP** section of the **Status** on the **System** page is shown.

Link Layer Discover Protocol Information	
Switch Mac:	mac 34:56:fe:2b:48:a9
Switch Name:	N/A
Switch Description:	MerakiMS120-8LPCloudManagedPoESwitch
Port Number:	ifalias 2
Description:	Port Port2
Vlan ID:	0
PoE:	0

FIG. 104 LLDP Section

TABLE 79 System Page: LLDP Section of Status

Option	Description	Notes
Switch Mac	Mac address of the network switch	
Switch Name	Name of the network switch	
Switch Description	Network description of the switch	
Port Number	Port number the device is connected	
Description	Network port description	
VLAN ID	VLAN of the network device is connected	
PoE	Watts being supplied to the device.	

Status – Status

The **Status** section of the **Status** on the **System** page is shown.

Status	
HDMI Out Status:	Disconnected
HDMI Out Resolution:	3840x2160p@30
HDCP Status:	None
Audio Activity:	Active
Port 50001 Source IP:	Disconnected <input type="button" value="Flush"/>
Port 50002 Source IP:	Disconnected <input type="button" value="Flush"/>
Serial Source IP:	<input type="button" value="Flush"/>
KVM IP:	0.0.0.0
USB 2.0 IP:	0.0.0.0
Port P0:	1000M,Full-duplex
Port P1:	Disconnected
Network Video Stream:	Active
Network Audio Stream:	Active

FIG. 105 Status Section

TABLE 80 System Page: Status Section of Status

Option	Description	Notes
HDMI Out Status		
HDMI Out Resolution	Select the output resolution of the video stream to be transmitted to the output device (e.g. LCD).	The Scaler Enabled setting must also be enabled for output resolution to work. Downscaling is supported only if the input stream is 3840x2160 and the scaler is set to 1080P. Any other attempts at downscaling are not recommended/supported.
HDCP Status	Reports status of HDCP along with version information	
Port 50001 Source IP	IP address of the device connected to the port	
Port 50002 Source IP		
Serial Source IP		
KVM IP		
USB 2.0 IP		
Port P0	Displays the ethernet ports as either connected or disconnected.	
Port P1		
Network Video Stream	Displays the status of the streams on the network.	
Network Audio Stream	Active: Stream is detected Inactive: Stream is not detected	
Audio Activity		

Current Source – Status

The **Current Source** section of the **Status** on the **System** page is shown.

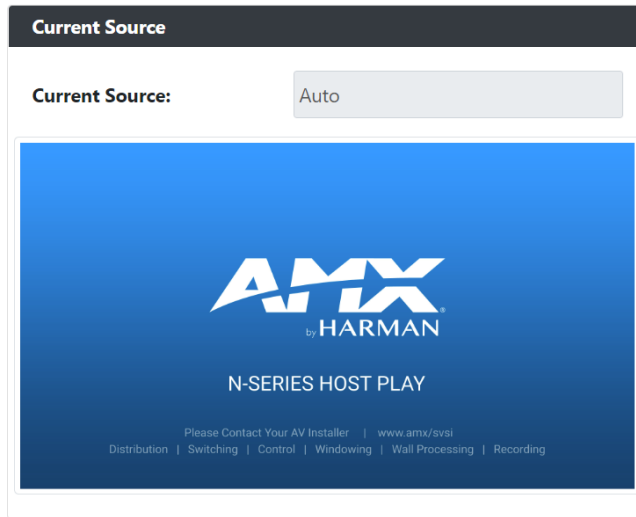


FIG. 106 Current Source Section

TABLE 81 System Page: Current Source of Status

Option	Description	Notes
Current Source	Status field displaying one of three options showing the current input source. Auto: Last source plugged in will be the active source HDMI 1: HDMI 1 In will be the active source HDMI 2: HDMI 2 In will be the active source	
Preview Image	When Preview Image is enabled will display a snapshot of the current input source.	Clicking on the preview image will open a pop-up showing a larger preview image.

Software – Status

The **Software** section of the **Status** on the **System** page is shown.

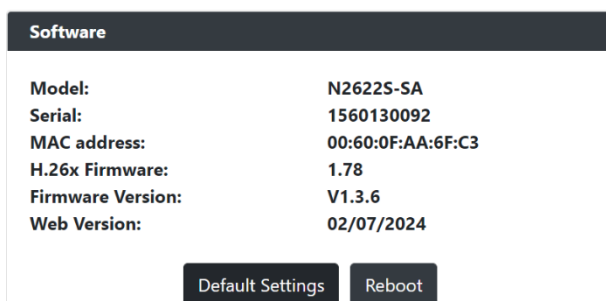


FIG. 107 Current Source Section

TABLE 82 System Page: Current Source of Status

Option	Description	Notes
Model	Displays the model of the N2600 device.	
Serial	Displays the serial number of the N2612 Encoder.	
Mac Address	Displays the MAC address of the network interface of the N2612 Encoder.	
H.26X Firmware	Displays the version of firmware for the H.26X internal firmware.	
Firmware Version	Displays the date code for the currently running version of the N2612 Encoder internal firmware.	
Web Version	Displays the date code for the currently running version of the web interface.	
Default Settings	Click to restore the device to the original factory settings. This resets everything except the IP address (including name, stream number, serial settings, etc.).	
Reboot	Click to reboot the device (does not affect current configuration).	

Troubleshooting

This chapter contains possible solutions to some common issues. Should you encounter any problems not covered by these guidelines, please contact technical support. You can also visit our support webpage at support.harmanpro.com

Issues	Suggestions
LocalPlay screen displays instead of the stream from the Encoder.	<ul style="list-style-type: none"> • Verify Decoder is assigned to view a valid stream (of an active Encoder). • Verify that Encoder and Decoder are on the same subnet. • Verify Decoder is currently in Live play mode (its name will display in black text on the Video Matrix page). You can change to Live mode on the Settings page (see the Settings Page: Device Settings Section table on page 72 for more details). • Verify network is properly configured and set up. If needed, connect Encoder's network port to Decoder to bypass the network.
HostPlay screen displays instead of the video from the source.	<ul style="list-style-type: none"> • Verify Encoder is in Live play mode (its name will display in black text on the Video Matrix page). You can change to Live mode on the Settings page (see Settings Page: Device Settings Section table on page 26 for more details). • Verify source is attached and is outputting a valid signal (HDMI LED on Encoder is on).
Black screen/no screen displays.	<ul style="list-style-type: none"> • Set Decoder to LocalPlay. If the LocalPlay screen does not appear, check the display input settings and cabling. As mentioned previously in this table, you can change to the Local mode on the Decoder's Settings page. • If LocalPlay appears, set Decoder to Live play mode and verify network is configured properly. • If screen is black with a slight sparkle effect, verify that your switch has Jumbo Frame support enabled.
No audio is detected.	<ul style="list-style-type: none"> • If there is no audio on <u>all</u> Decoders, verify audio settings are correct on Encoder. • If there is no audio on a single Decoder, verify audio settings are correct on Decoder.
Device has been discovered in N-Able, but the configuration pages do not open when double-clicking device name on the Video Matrix page.	<ul style="list-style-type: none"> • Make sure your computer is in the same IP address range as the unit. See Setting Up Your Host Computer on page 14 for more information.
When changing the audio type, there are problems with audio in/out.	<ul style="list-style-type: none"> • Verify that the Encoder's Enable HDMI Audio setting is set to Auto. • Verify that Audio Mute is disabled (Encoder and Decoder).
Not receiving audio.	<ul style="list-style-type: none"> • Check that the Decoder has proper audio stream setting (typically by enabling Audio follows Video).
Serial port is not working as expected.	<ul style="list-style-type: none"> • Verify the RS232 Settings on the Settings page. • Connecting the Tx and Rx pins on the RS232 connector creates a loopback that could also help when troubleshooting.
Unit appears as unlicensed in Dante Controller	<ul style="list-style-type: none"> • Use Dante Activator. Under Devices > Upgradeable > Recoverable. Select the device and click recover. Follow prompts and instructions, once completed device will be licensed in Dante Controller.

Appendix A: Local/Host Play Error Screens

This section shows and defines the status screens displayed by N2600 Series devices.

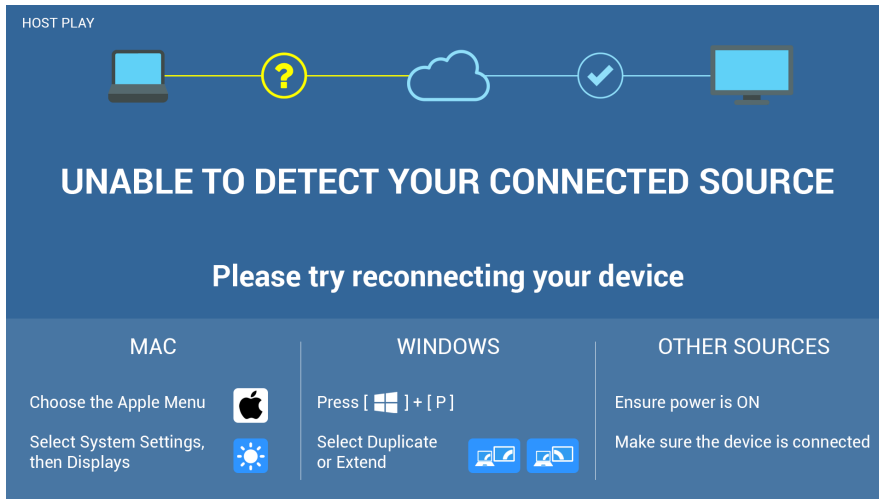


FIG. 108 Host Play Screen

Displayed when Decoder....	...and Encoder....	Notes
<ul style="list-style-type: none"> is set to view an Encoder stream on the network 	<ul style="list-style-type: none"> is set to HostPlay, or does NOT have a valid input video signal 	Seeing this screen means that the Decoder CAN communicate with the Encoder across the network. It is a good way to troubleshoot network communication between segments using only Encoders and Decoders (without the need for source video into an Encoder).

NOTE: If you see can see the HostPlay screen but cannot see live video, this could mean that the Encoder and Decoder are not on the same subnet.

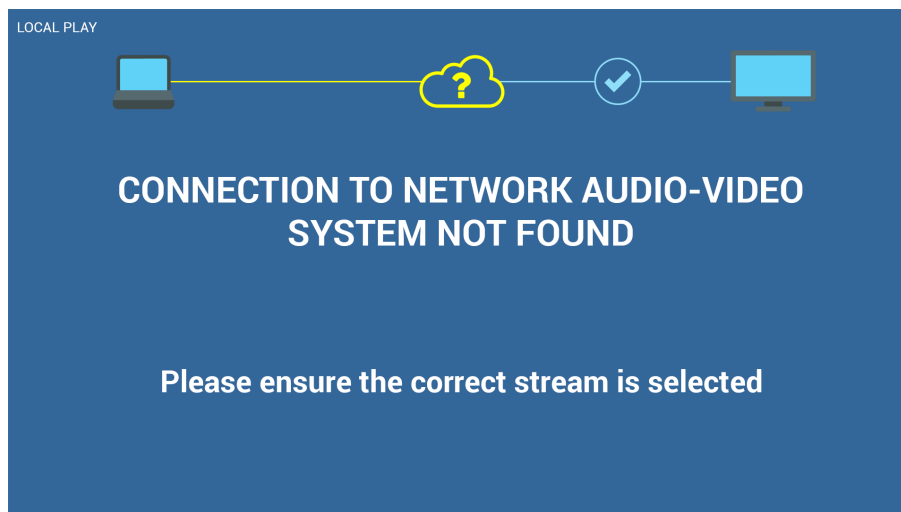


FIG. 109 Local Play Screen

Displayed when Decoder....	Notes
<ul style="list-style-type: none"> is set to LocalPlay mode 	If the Decoder is NOT set to Local Play mode, this screen could signify a network communication issue.

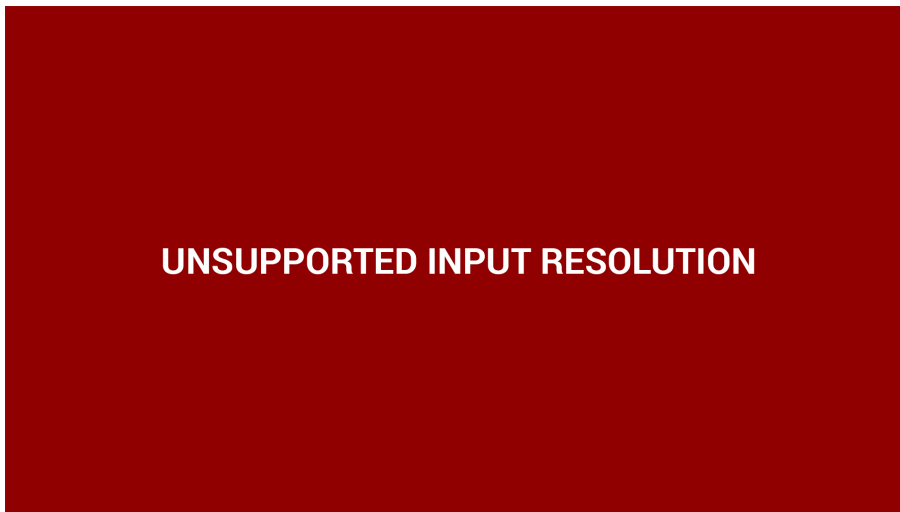


FIG. 110 Unsupported Input Resolution Screen

Displayed when Decoder....	...and Encoder....	Notes
<ul style="list-style-type: none"> is set to view an encoder stream on the network 	<ul style="list-style-type: none"> is being fed a video resolution that it does not support 	This screen can be useful to show you that the Decoder is receiving the stream from the intended Encoder. However, the resolution input video signal being sent to the encoder is not supported.

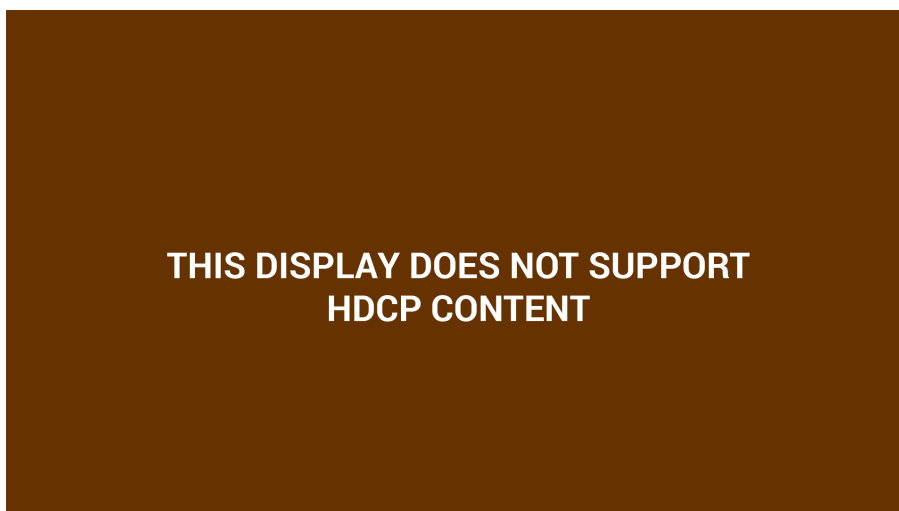


FIG. 111 Restricted Content Not Supported Screen

Displayed when Decoder....	...and Encoder....	Notes
<ul style="list-style-type: none"> is receiving a stream from an Encoder is connected to a monitor that does NOT support Restricted Content (i.e., the monitor is NOT HDCP compliant) 	<ul style="list-style-type: none"> is transmitting HDCP-protected content to the Decoder 	Once the Decoder detects that the monitor is not HDCP compliant, this screen is displayed. If you suspect that this message was displayed in error, please call Technical Support.

NOTE: The version of HDCP protection of the source and the monitor must be compatible for the content to display successfully. For example, you can have an HDCP 1.4 compliant monitor and still see the screen in Figure 106 if your source is HDCP 2.2.



FIG. 112 Video Encrypted Screen

Displayed when Decoder....	Notes
<ul style="list-style-type: none"> is receiving a stream from an encoder it cannot decrypt 	Make sure the decoder has the correct password for decrypting the stream. To reset the password, go to the security page on both the encoder and decoder and click the reset button. Refer to the security page section if you are not sure where to find this setting.



FIG. 113 Preview Image Disabled Screen

Displayed on Webpage....	Notes
<ul style="list-style-type: none"> is set to Preview Disabled 	This screen is also displayed in the image preview link and on N-Able Preview.

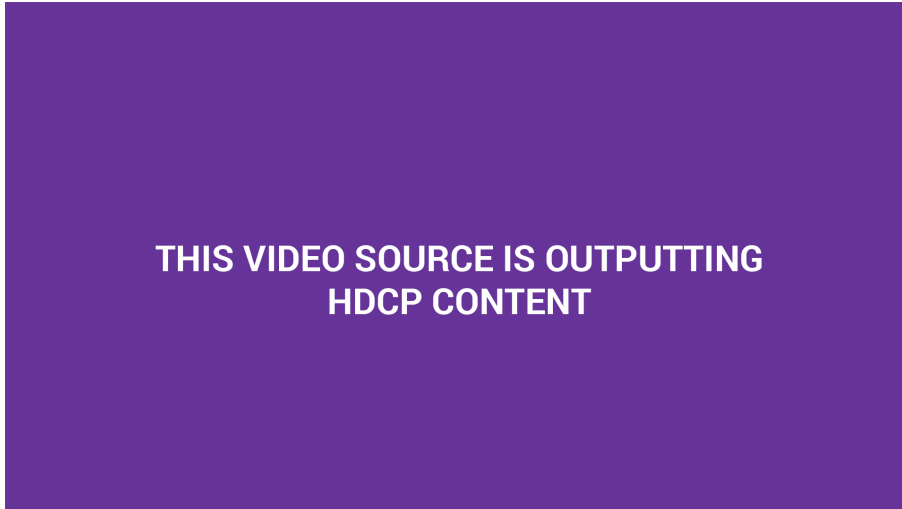


FIG. 114 HDCP Streaming Resolution Screen

Displayed when Decoder....	...and Encoder....	Notes
<ul style="list-style-type: none">• is set to view a encoder stream on the network	<ul style="list-style-type: none">• setting of disabled HDCP Advertisement	This screen can be useful to show you that the Encoder is streaming HDCP material with the HDCP Advertisement disabled on the encoder.

Appendix B: Minimum Network Requirements

The following list specifies the minimum network requirements that must be considered when deploying your N-Series equipment. These requirements cover the necessary protocols and features needed to drive N-Series streams.

NOTE: *Specific configuration recommendations are based off the Cisco Catalyst series, however this may vary.*

1. Managed Network Switch

2. Gigabit Ethernet

3. Internet Group Management Protocol (IGMP) Version 2

- IGMP Snooping
- IGMP Snooping Querying
 - Network must include at least one IGMP Querier to maintain stream connections. It is recommended to have all capable switches with the querier enabled and allow IGMP auto-elect to determine the Designated Querier (DQ).
 - Query Interval – 30 seconds. This is the interval between sending IGMP general queries.
 - Query Response Interval – 10 seconds. This is the maximum time the system waits for a response to general queries.
 - Last Member Query Interval – 100 milliseconds. This is the interval to wait for a response to a group specific or group- and-source-specific query message.
 - Immediate Leave (also known as Fast Leave, etc. depending on switch manufacturer).
 - Immediate Leave breaks any daisy chaining of multiple units together with a single home run; therefore, you will not be able to have both Immediate Leave units and daisy chaining on the same VLAN.

NOTE: *If Immediate Leave is disabled, set IGMP Robustness to Default 2. Robustness can be adjusted generally from 2-10. The higher the value, the more leave latency is added.*

- Warnings/Notices
 - There is a known behavior within IGMP that Encoder streams, whether requested across an uplink or not, will be requested by the DQ and will be present on all uplinks between the stream source switch and the DQ.
 - This means that even though you may not be routing a stream to another switch, the DQ's request still puts the stream on the uplink. Therefore, it is important to account for all streams forwarding to the DQ.
 - The presence of a multicast router with PIM-Sparse configured to handle the multicast traffic may eliminate or limit this behavior.

4. Jumbo Frames Enabled

The N2600 Series Encoders/Decoders produce a frame payload larger than 1500 bytes which requires the switch to have the capacity of handling Jumbo Frames.

5. TCN Flood Off

TCN flood protocol will cause unnecessary backplane and bandwidth usage when adding or removing a device on the network. This can cause stream interruptions as the flooding sweeps through the network.

6. 802.1X

If the network is using 802.1x the Encoder and Decoder have the ability to generate 2 Mac Addresses depending on configuration. Recommendation is to enable multi-auth on the ports requiring

Appendix C: Supported Resolutions

Resolution	Refresh Rates	YUV 4:4:4	YUV 4:2:2	RGB	YUV 4:2:0	Interlaced
4096x2160 (DCI)	60	Yes	Yes	Yes	Yes	No
4096x2160	59	Yes	Yes	Yes	Yes	No
4096x2160	50	Yes	Yes	Yes	Yes	No
4096x2160	30	Yes	Yes	Yes	No	No
4096x2160	29	Yes	Yes	Yes	No	No
4096x2160	24	Yes	Yes	Yes	No	No
4096x2160	23	Yes	Yes	Yes	No	No
3840x2160 (UHD)	60	Yes	Yes	Yes	Yes	No
3840x2160	59	Yes	Yes	Yes	Yes	No
3840x2160	50	Yes	Yes	Yes	Yes	No
3840x2160	30	Yes	Yes	Yes	No	No
3840x2160	29	Yes	Yes	Yes	No	No
3840x2160	24	Yes	Yes	Yes	No	No
3840x2160	23	Yes	Yes	Yes	No	No
3440x1440 (WQHD)	60	Yes	Yes	Yes	No	No
3440x1440	59	Yes	Yes	Yes	No	No
3440x1440	50	Yes	Yes	Yes	No	No
3440x1440	30	Yes	Yes	Yes	No	No
3440x1440	29	Yes	Yes	Yes	No	No
3440x1440	24	Yes	Yes	Yes	No	No
3440x1440	23	Yes	Yes	Yes	No	No
3840x1080 (DFHD)	60	Yes	Yes	Yes	No	No
3840x1080	59	Yes	Yes	Yes	No	No
3840x1080	50	Yes	Yes	Yes	No	No
3840x1080	30	Yes	Yes	Yes	No	No
3840x1080	29	Yes	Yes	Yes	No	No
3840x1080	24	Yes	Yes	Yes	No	No
3840x1080	23	Yes	Yes	Yes	No	No
1920x1200	60	Yes	Yes	Yes	No	No
1920x1080	120	Yes	Yes	Yes	No	No
1920x1080 (FHD)	60	Yes	Yes	Yes	No	Yes
1920x1080	59	Yes	Yes	Yes	No	Yes
1920x1080	50	Yes	Yes	Yes	No	Yes
1920x1080	30	Yes	Yes	Yes	No	No
1920x1080	29	Yes	Yes	Yes	No	No
1920x1080	24	Yes	Yes	Yes	No	No
1920x1080	23	Yes	Yes	Yes	No	No
1680x1050	60	Yes	Yes	Yes	No	No
1600x1200	60	Yes	Yes	Yes	No	No
1600x900	60	Yes	Yes	Yes	No	No

Resolution	Refresh Rates	YUV 4:4:4	YUV 4:2:2	RGB	YUV 4:2:0	Interlaced
1440x900	60	Yes	Yes	Yes	No	No
1400x1050	60	Yes	Yes	Yes	No	No
1366x768	60	Yes	Yes	Yes	No	No
1360x768	60	Yes	Yes	Yes	No	No
1280x1024	60	Yes	Yes	Yes	No	No
1280x960	60	Yes	Yes	Yes	No	No
1280x800	60	Yes	Yes	Yes	No	No
1280x768	60	Yes	Yes	Yes	No	No
1280x720 (HD)	60	Yes	Yes	Yes	No	No
1280x720	59	Yes	Yes	Yes	No	No
1280x720	50	Yes	Yes	Yes	No	No
1024x768	60	Yes	Yes	Yes	No	No

Appendix D: Setup Guide for N3k/N3510

The following list specifies the configuration required on the N3k or N3510 to function with the N2600S series products.

1. N3k Encoder to N2622S Decoder

Mode	Transport Stream	Encoder Output Mode	RTP Encapsulation	Unicast	Unicast Dest IP
RTSP (elementary)	Unchecked	SVSI Decoder	Unchecked	Unchecked	None
RTSP (unicast)	Checked	RTSP	Unchecked	Checked	N2622 H26x IP Address
UDP	Checked	SVSI Decoder	Unchecked	Unchecked	None
RTP	Checked	SVSI Decoder	Checked	Unchecked	None

Note: N3k Settings

1. Set the N3k according to the table above.
2. Have the N3k ENC and N2622S DEC H26x IP Addresses in the same subnet.
3. Have the N2622S DEC video stream number set to an unused video stream.
4. On the N3k, copy the Stream URL from the VLC Media Player section.
5. Paste this URL onto the H.26x Stream URL on the N2622S DEC.

2. N2612S Encoder to N3k Decoder

H.26x Mode	H.26x Profile	Stream Output Mode
H.264	Custom or SVSI N3000	UDP
H.264	Checked	RTP
H.264	Checked	RTSP

Note: N2612S Settings

1. Set the N2612S ENC and N3k DEC H26x IP Addresses in the same subnet.
2. Set the N3k DEC stream source to URL.
3. Copy the stream URL from the N2612S ENC and paste it into the stream URL box on the N3k DEC.

3. N2612S Encoder to N3510 Window Processor

H.26x Mode	H.26x Profile	Stream Output Mode
H.264	Custom or SVSI N3000	UDP
H.264	Checked	RTP
H.264	Checked	RTSP

Note: N2612S Settings

1. Set the N2612S ENC and N3510 IP Addresses in the same subnet.
2. On the N3510, paste the URL into the stream input box on the desired window.

4. N3510 Window Processor to N2622S

Mode	Stream Format	Stream Output
UDP	UDP	Checked
RTP	RTP	Checked

Note: N3510 Settings

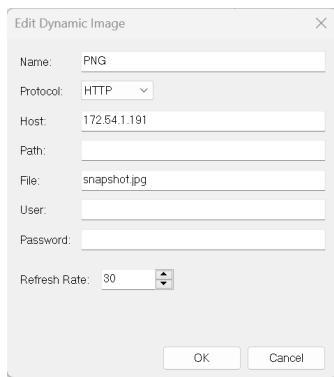
1. Set the N3510 according to the table above.
2. Set the receive source on the N2622S to H.26x.
3. Paste the N3510 stream URL onto the H.26x Stream URL on the N2622S DEC.

Appendix E: Thumbnail and H.26x on Varia Panels

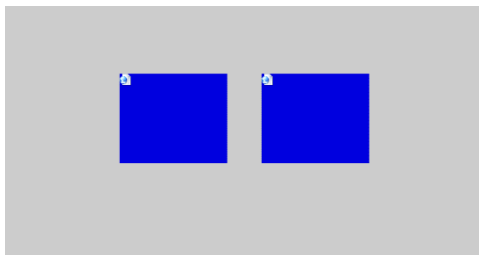
The following will outline the steps and some best practices to begin streaming H.26x to a Varia panel in VLC and provide a video preview to an object in G5.

Thumbnail Preview:

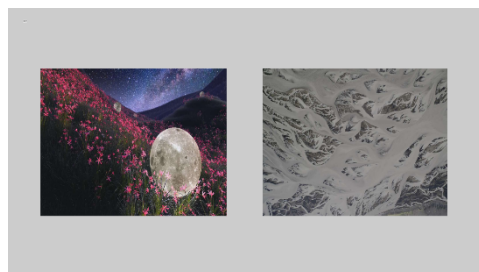
1. Open "Resource Manager" located in the "Panel" menu or by pressing "Ctrl + M".
2. A "Resource Manager" window will open.
3. Click on the "Dynamic Images" tab.
4. Click "New", where a new window will open, "Create Dynamic Image".
5. Provide a unique name.
6. In the protocol field set as "HTTP".
7. In the "host" field is where you type the IP address or DNS name of the Encoder/Decoder.
8. In the "file" field type "snapshot.jpg".
9. In the "Refresh Rate" box type in 30.
Note: The refresh rate is measured in 10th of a second.
10. An example of what a Dynamic Image should look like.



11. Create a button on the touch panel canvas for the model of Varia you're using.
12. Select the created button.
13. In button properties navigate to the "States" tab then expand "All State".
14. Locate the "Bitmaps" setting and click the box containing the three dots to open the Bitmaps window.
15. Click on the Add button.
16. A window "Select Resource" will open and click on the "Dynamic Images" tab.
17. Select the name of the Dynamic Image you created in step 5.
18. In "Bitmap Justification" it is recommended to select "Scale to Fit".
19. An example of a TP5 project with two Preview Windows.



20. An example of what is seen on the Varia panel.



Streaming Setup – (VLC App):

Note: The section applies to configuring VLC to run as an app on the Varia Touch Panel.

1. Configure the Encoder(s) for "Multi Stream" in the Encoder Mode setting in the Stream Setup section on the Home page.
2. Click save and wait for the confirmation message the settings have been applied.
3. Then go to H.26x settings found in the Video menu in the Video/Audio page.
4. Ensure TX Enable is checked.
5. Ensure that the H.26x Mode is set to H.264
6. Select the Custom profile un the H.26x Profile options.
7. Select RTSP as the Stream Output Mode.
8. Select to Override Profile Recommendations check box.
9. Set the Maximum Video Bitrate(kbps) to nothing higher than 2000 kbps.
10. Set the Maximum Resolution to 720P.
11. Click Accept and wait for the confirmation message the settings have been applied.

The image shows two side-by-side configuration panels for VLC. The left panel, titled "Stream Video", has a "TX Enable" checkbox checked. Below it are dropdown menus for "H.26x Mode" (set to H.264), "H.26x Profile" (set to Custom), and "Stream Output Mode" (set to RTSP). There is a text field for "Stream URL" containing "rtsp://172.54.1.193:8554/stream", a "RTSP Port Number" field with "8554", and "RTSP Authentication" fields for "Username" and "Password". The right panel, titled "Video Quality", has an "Override Profile Recommendations" checkbox checked. It includes fields for "Maximum Video Bitrate(kbps)" (2000), "Maximum Audio Bitrate(kbps)" (160), "Key-Frame Frequency" (60) with a "Frame" dropdown, "Maximum Resolution" (720p), and "Maximum Frame rate(Hz)" (60). At the bottom right of the right panel are "Reset" and "Accept" buttons.

Example of the H.26X settings menu of the N2612S above.

12. Install the VLC .apk onto the Varia panel, refer to the Manager software user manual for loading .apk files to the panel.
13. Launch the VLC app from AMX G5 persona using the '^APP-Show,org.videolan.vlc' command from TP5 or from you Netlinx code.
14. Once VLC is open on Varia click the 3 dots titled more and select "Settings" at the top of the window.
15. Select Hardware Acceleration and choose "Full Acceleration" option.
16. Scroll down to Extra Settings and select Video.
17. Ensure Match Display Frame Rate is selected.
18. Select Preferred Video Resolution and select HD (720P)
19. Click New Stream and enter the information from the N2612S H.26x Stream URL found in Stream Setup on the Home page. Example is rtsp://172.54.1.193:8554/stream.
20. Press enter and within a couple seconds you should be seeing the video from the N2612S.
21. To exit and return to the AMX G5 controls tap on the Varia panel and in the footer bar at the bottom of the VLC press the circle button in the middle.



22. The Varia panel will return AMX G5 control screen.

Streaming Setup – (G5 App):

Note: The section applies to configuring G5 to run video preview on Varia Touch Panel. The video windows placed onto the panel should be placed into a ratio to match the resolution, i.e. 16x9 for 1920P.

1. Configure the Encoder(s) for "Multi Stream" in the Encoder Mode setting in the Stream Setup section on the Home page.
2. Click save and wait for the confirmation message the settings have been applied.
3. Then go to H.26x settings found in the Video menu in the Video/Audio page.
4. Ensure TX Enable is checked.
5. Ensure that the H.26x Mode is set to H.264
6. Select the Custom profile un the H.26x Profile options.
7. Select **UDP** as the Stream Output Mode.
8. Select to Override Profile Recommendations check box.
9. Set the Maximum Video Bitrate(kbps) to nothing higher than **1000** kbps.
10. Set the Maximum Resolution to **720P**.
11. Click Accept and wait for the confirmation message the settings have been applied.

The image shows two side-by-side configuration panels. The left panel, titled "Stream Video", has a "TX Enable" checkbox checked. Below it are dropdown menus for "H.26x Mode" (set to H.264), "H.26x Profile" (set to Custom), and "Stream Output Mode" (set to UDP). A "Stream URL" field contains "udp://@239.254.20.79:18888". There are checkboxes for "Multicast Address Override" and "Unicast Enable", both unchecked. Below these are input fields for "Multicast Address" (239.254.20.79), "TTL" (10), "Unicast Dest 1 IP" (10.10.10.10:1111), "Unicast Dest 2 IP" (10.10.10.10:2222), and "UDP Port Number" (18888). The right panel, titled "Video Quality", has an "Override Profile Recommendations" checkbox checked. It contains input fields for "Maximum Video Bitrate(kbps)" (2000), "Maximum Audio Bitrate(kbps)" (160), "Key-Frame Frequency" (60), "Maximum Resolution" (720p), and "Maximum Frame rate(Hz)" (60). At the bottom right of this panel are "Reset" and "Accept" buttons.

Example of the H.26X settings menu of the N2612S above.

12. Create a button and set the video fill to "streaming video", refer to the TPDesign5 user manual for creating a button and video fill settings on the panel.
13. Configure the streaming source on the previously created button by copying and pasting the "Stream URL" found on the N2612S H.26x Stream page under the Stream Video section.
14. Transfer the project to the panel, refer to the TPDesign5 user manual for transferring TP files.

Appendix F: Allowed Characters for Passwords

The following will outline the list of available characters for use in a password.

[Space]	@	`
!	A	a
"	B	b
#	C	c
\$	D	d
%	E	e
&	F	f
'	G	g
(H	h
)	I	i
*	J	j
+	K	k
,	L	l
-	M	m
.	N	n
/	O	o
0	P	p
1	Q	q
2	R	r
3	S	s
4	T	t
5	U	u
6	V	v
7	W	w
8	X	x
9	Y	y
:	Z	z
;	[{
<	\	
=]	}
>	^	~
?	_	[Delete]

Appendix G: Secure Network Configuration

The following outlines the steps to be completed for deployment to a secure network.

When configuring the N2600 Series encoders and decoders. The below recommended steps should be followed to deploy, setup, test and commission the network AV system.

These settings include such things as:

- Enable Command Secure Ports Only
- Update the Command Password
- Update the device Admin password
- Update the device Encryption Password
- Enable Force HTTPS
- Update Device Name
- Change the Encoder Stream Number
- Set Scaler Mode and Resolution
- Upload desired Host / Local Play Files
- Any additional Settings needed

* The Direct Control API will need to communicate with the device using the Secure Ports, 50101 and 50102. Additional information can be found in the Direct Control API document for using Secure Commands.

Once these settings or any others are applied, the system should be tested to verify functionality and the desired performance.

The last step to be performed before commissioning of the system is to disable the device's webpages. This will put the unit into a secure mode where access to the unit is accomplished via the Direct Control API or HControl API. Once the webpages are disabled, the only way to gain access back to the webpages is to perform a factory reset on the unit by pressing and holding the ID button for 30 seconds.



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