N3300D SERIES NMX-ENC-N3312D ENCODER / NMX-DEC-N3322D DECODER

NMX-ENC-N3312D, NMX-ENC-N3312D-C
NMX-DEC-N3322D

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.

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.

ESD WARNING

	To avoid ESD (Electrostatic Discharge) damage to sensitive components, make sure you are properly grounded before touching any internal materials.
	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.
	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.

	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.
CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	Place the equipment near a main power supply outlet and make sure that you can easily access the power breaker switch.

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:

	This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE). 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.

此标识适用于在中华人民共和国销售的电子信息产品. 标识中间的数字为环保实用期限的年数.

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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Table of Contents

Introducing Your New N3300D Series Devices

Product Overview

AMX SVSI N3300 Series Encoders and Decoders deliver the highest quality 4K60 H.26x and Dante AV-H video content at the lowest bandwidth to extend the reach of SVSI 4K60 networked AV solutions to the WAN for streaming, video to desktop, digital signage, set-top boxes, or mobile device applications.

In addition to transmitting HDCP content from N3300 Encoders to Decoders, they also feature recording of video to a USB 3.0 external drive on encoders, video preview images viewable from the built-in web interface or from a touch panel, and enhanced support for high-security networks. N3300 Encoders simultaneously output both 4K60 H.26x and 1080p H.26x video streams to provide the best video quality locally and the lowest bandwidth video for remote viewing or recording when required.

N3300 Series Encoders and Decoders support Dante AV-H, a standard for AVoIP devices created to allow for the interoperability of multiple devices on the network. With Dante AV-H, N3300 products are compatible with Dante Studio, a suite of software tools for PC, that allows you to monitor or bring video directly into UC, recording, production, or streaming applications without the need for additional hardware. Dante Controller handles all device routing, naming and configuration, while Dante Domain Manager provides IT-level management over device organization, user access, multiple subnet coordination and complete audit logs for every endpoint and user.

Moving 4K60 video to or from the Cloud just became a lot easier with AMX SVIS N3300 Series Encoders and Decoders.

- High-quality 4K60 H.26x or Dante AV-H primary stream
- High-Compatibility, Low-Bandwidth 1080p H.26x secondary stream
- Audinate® Dante AV-H support of up to 4K60 resolutions
- Video Preview viewable from the built-in web interface or from a touch panel
- Dante Audio
- USB 3.0 video recording capability
- Support for high security networks
- PoE+ powered with low-power mode for energy savings
- Stand-alone box and card form factors

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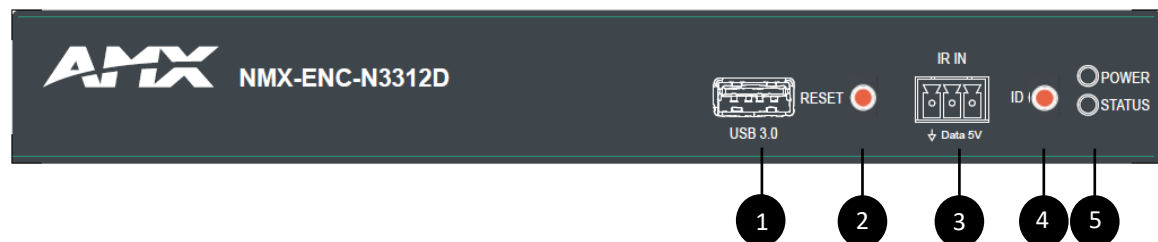
1) USB-A Port
2) Device Reset Button
3) IR Emitter Input Connection
4) Device ID Discovery Button
5) Power/Status Indicators

FIG. 1 N3312D Encoder Front Panel
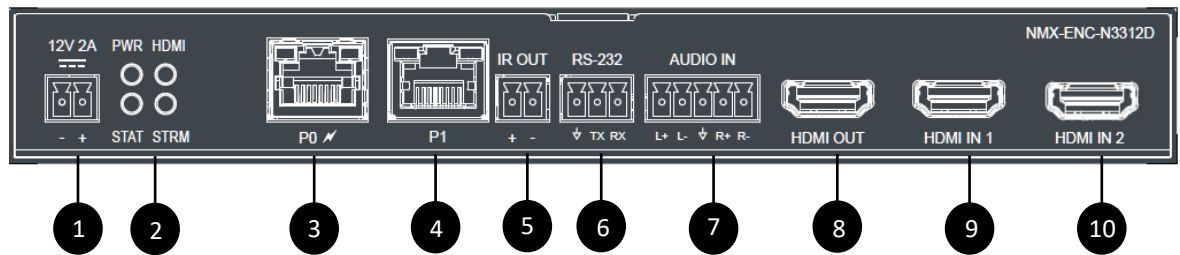
1) 12VDC Input (not needed with PoE+)
2) Status Indicators
3) RJ45 Auto-Sensing Gigabit Ethernet Switch Port —PoE+
4) RJ45 Auto-Sensing Gigabit Ethernet Switch Port
5) IR Emitter Output Connection

6) RS232 Connection
7) Analog Audio Input
8) Passthrough HDMI Video Out
9) HDMI 1 Video Input
10) HDMI 2 Video Input

FIG. 2 N3312D Encoder Rear Panel

1) Device Reset Button
2) IR Emitter Input Connection
3) Device ID Discovery Button

4) Power/Status Indicators

FIG. 3 N3322D Decoder Front Panel
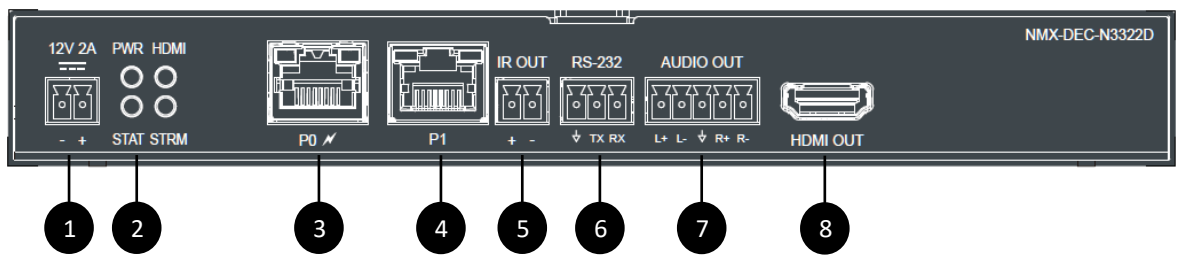
1) 12VDC Input (not needed with PoE+)
2) Status Indicators
3) RJ45 Auto-Sensing Gigabit Ethernet Switch Port —PoE+
4) RJ45 Auto-Sensing Gigabit Ethernet Switch Port

5) IR Emitter Output Connection
6) RS232 Connection
7) Analog Audio Output
8) HDMI Video Output

FIG. 4 N3322D Decoder Rear Panel

Front and Rear Panel Descriptions

Front Panel

USB Standard-A Port-Decoder	For Recording, Connect up to a 2TB USB drive
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.
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 for help.

Installation Overview

The N3300D 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 12.

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 directly to the network. All other units in the daisy-chain must have an external power supply.*
Video	**N3312D Encoders** • For video encoding of a *digital* 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). **N3322D Decoders** • 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	**N3312D Encoders** • 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.* **N3322D Decoders** • 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	
N3312D Encoder - Input	
Digital	HDMI - Native connection. No adapter necessary. DVI - Appropriate passive adapter required. DisplayPort- Appropriate passive adapter required.
N3322D Decoder - Output	
Digital	HDMI - Native connection. No adapter necessary. DVI- Appropriate passive adapter required. DisplayPort - Appropriate ACTIVE adapter required.
NOTE: *For all other Input/Output types, an active adapter is required.*	

Mounting Options

The N3300D 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 N3300D 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.
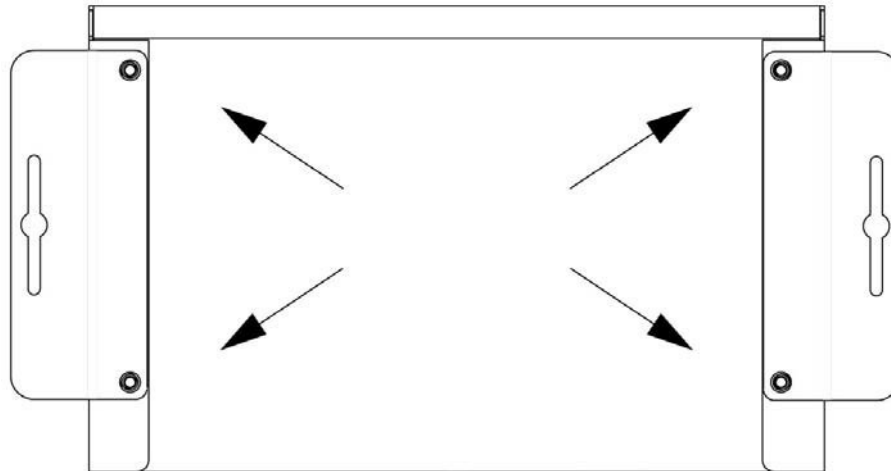
FIG. 5 Installing Mounting Wings

Rack Mounting

N3300D 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).
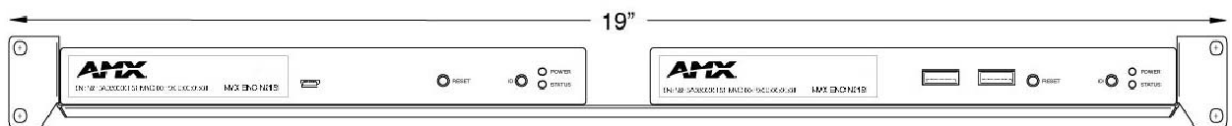
FIG. 6 Rack Mounting Stand-Alone Units

N3300D 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 whole the device boots.

To rack mount N3300D 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.
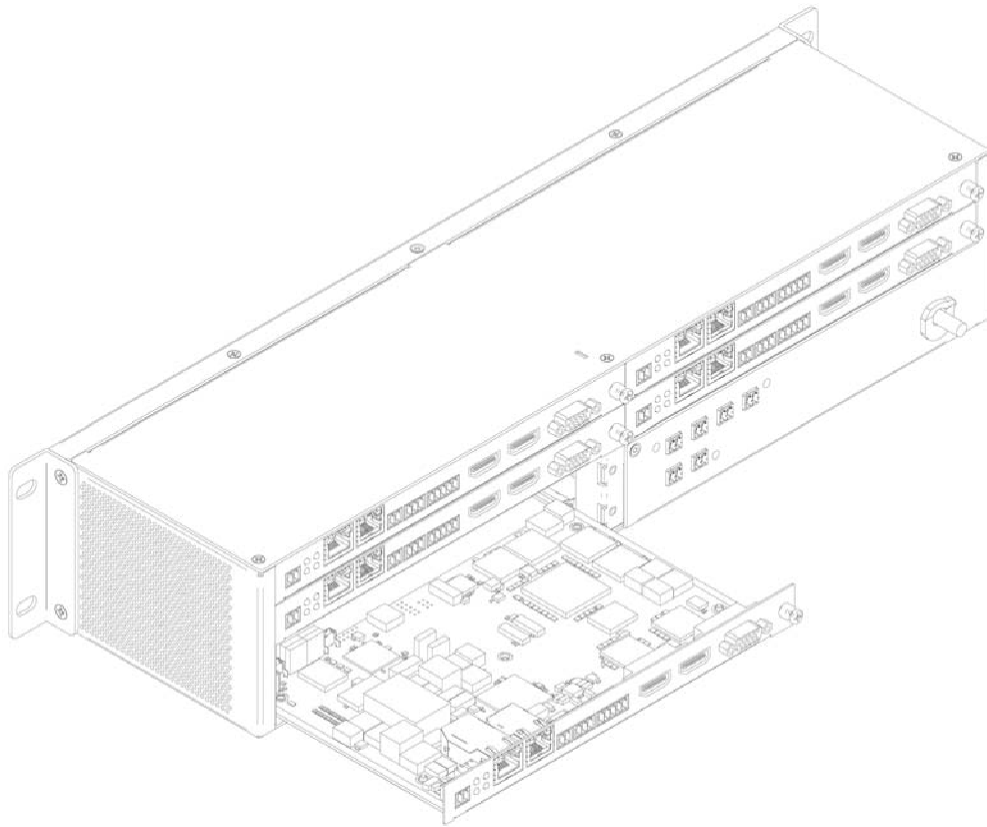
FIG. 7 Rack Mounting Cards

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.
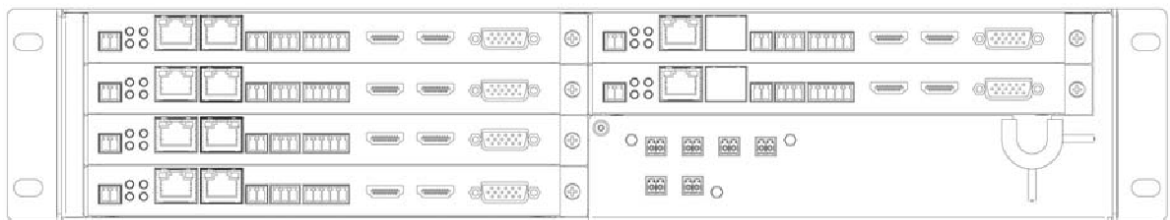
FIG. 8 Fully Populated Card Cage

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)

   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 105.*

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. N3300D 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**.
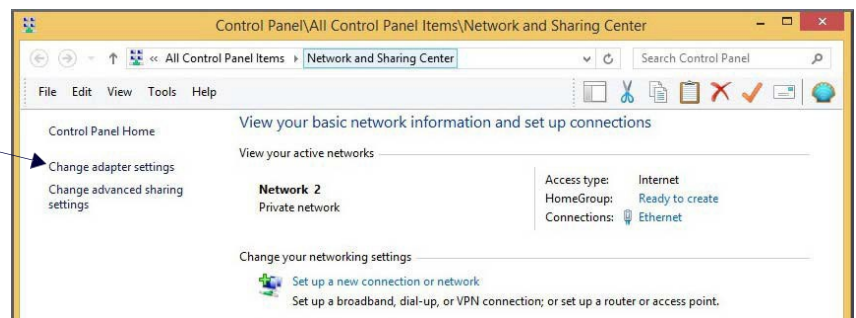
3. Double-click the wired interface to your AV network, and then click the **Properties** button.
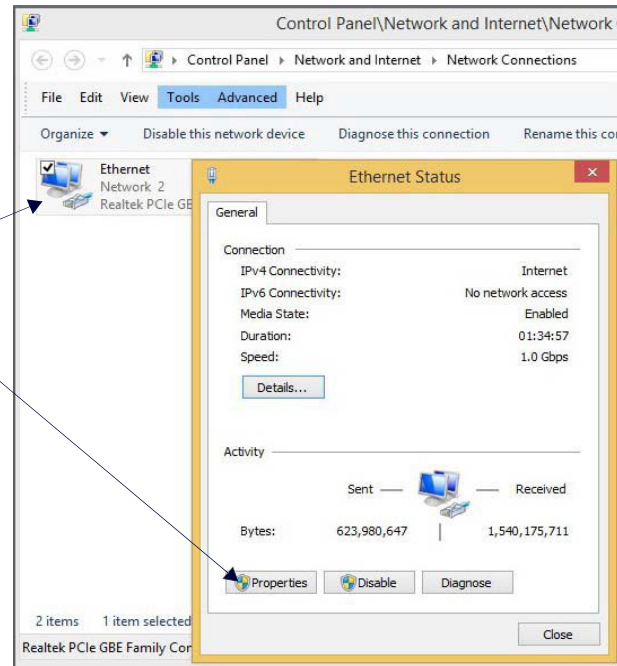
4. Scroll down in the list to the **Internet Protocol Version 4 (TCP/IPv4)** option. Highlight it and click the **Properties** button.
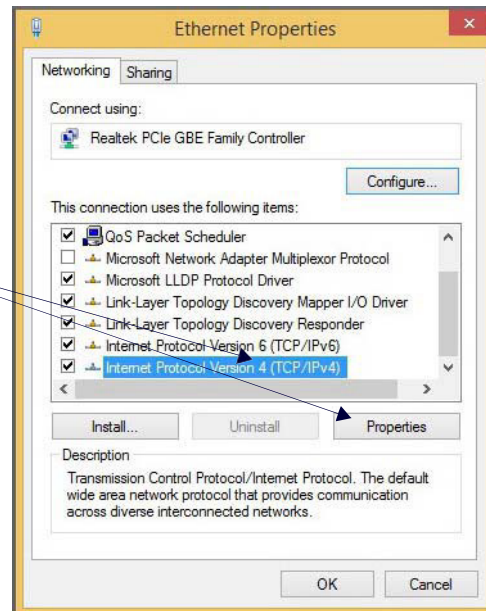
5. Enable the **Use the following IP address** option and enter the static IP address provided to you by your network administrator.
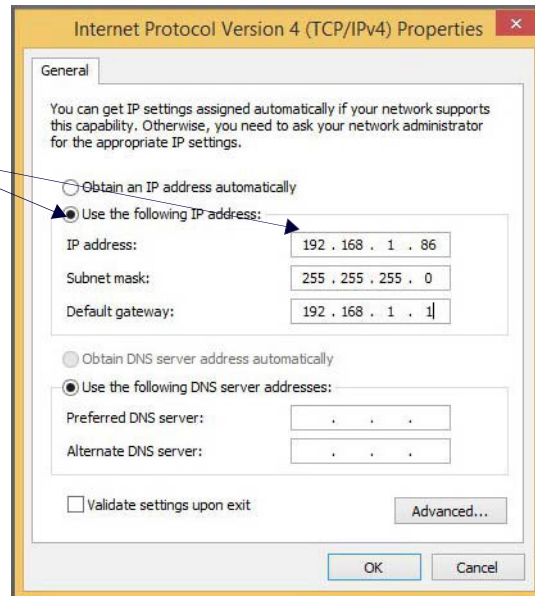
NOTE: *If the computer does not need Internet access, you can simply enter a unique 169.254.xxx.xxx IP address with a 255.255.0.0 subnet mask. Contact your network administrator if you are unsure of how to configure the existing network. N-Series units will not self-assign in the 169.254.0.xxx range.*

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). N3300D 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 **P0** 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.
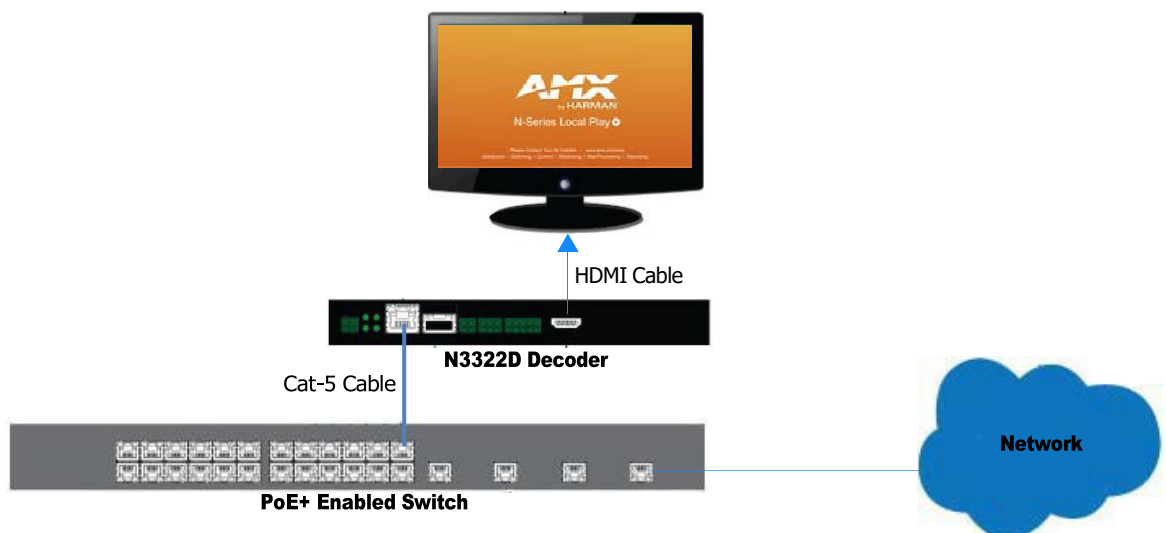
FIG. 9 Decoder Connections

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 100 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.

|	Name	Type	MAC	IP	SN	Streams	Mode	Resolution	Audio
1	ROOM 3 TV 4	N2300 Decoder	00:19:0B:80:21:64	169.254.146.73	N2235A30001115	145	Live Play	1080p60	On (Follow)
2	ROOM 6 TV 2	N2300 Decoder	00:19:0B:80:20:5E	169.254.134.105	N2235A30000858	200	Live Play	1280x720	On (Follow)
3	Front Display	N3000 Decoder	00:19:0B:80:2A:A9	169.254.187.39	N3232A20000221	526	Live Play	720p60	On (Follow)
4	Back Display	N3000 Decoder	00:19:0B:80:00:14:41	169.254.87.3	N322A030000231	526	Live Play	720p60	On (Follow)
5	2151 Latency Tester	N-Series 4K Encoder	00:19:0B:80:02:26	169.254.40.104	N215A020000183	U:1555,C:555	Live Play	0x8191	On
6	Podium 3 Computer	N2300 Encoder	00:19:0B:80:06:4C	169.254.163.76	N2135A30000143	200	Live Play	1280x720	On
7	Conference Room 42	N2300 Encoder	00:19:0B:80:06:48	169.254.220.199	N2135A30000139	145	Live Play	1080p60	On
8	Network Media N3000 Enc	N3000 Encoder	00:19:0B:00:23:D5	192.168.1.88	N312A040000413	213	Live Play	1080p60	On
9	Camera 45	N3000 Encoder	00:19:0B:80:1F:36	169.254.144.255	N3132A20000196	8754	Live Play	720p60	On
10	Camera 23	N3000 Encoder	00:19:0B:80:1F:22	169.254.7.6	N3132A20000176	34	Live Play	720p60	On
11	Lobby NVR	Network Video Recorder	00:19:0B:E0:00:96	169.254.251.182	VDA000000174	(2255,2233),(2510,300)	idle,idle		On (Follow,Follow)
12	NCMD-MAC-0103	N-Command N8000	00:19:0B:F0:01:03	192.168.1.37 / 169.254.10.37	NCMD-MAC-0103				
13	NCMD-MAC-017F	N-Command N8000	00:19:0B:F0:01:7F	192.168.1.237 / 169.254.20.189	NCMD-MAC-017F				
14	NCMD-MAC-01A1	N-Command N8000	00:19:0B:F0:01:A1	192.168.1.242 / 169.254.10.10	NCMD-MAC-01A1				

FIG. 10 Unit Management Page

3. Find your Encoder in the list. N3300D units are displayed on the following tabs:
   - **Unit Management** tab — N3300D units have **N3300D Encoder/Decoder** listed in their **Type** fields.
   - **Video Matrix** tab — The video Matrix is a unified listing of all N-Series devices.

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 3300. As you add Encoders to the network, you will need to set them up to use different streams.*
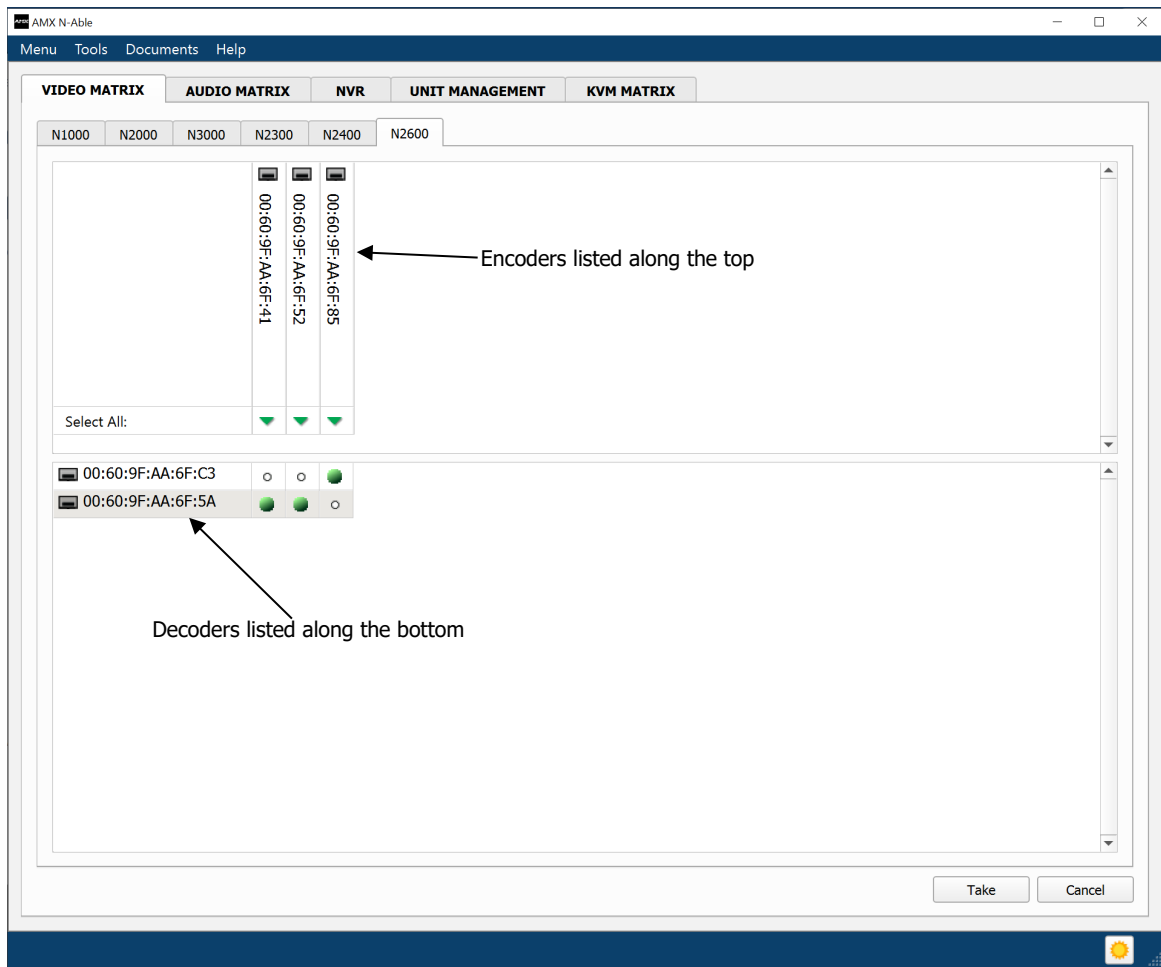
FIG. 11 Video Matrix Page

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**
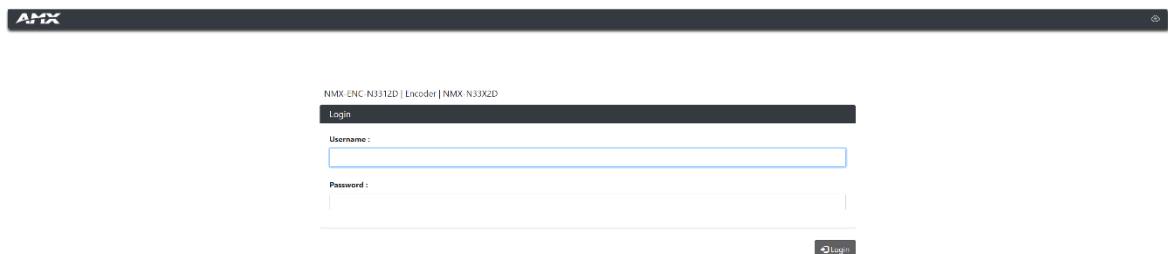
FIG. 12 Login Page

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 *and the* Decoder Configuration

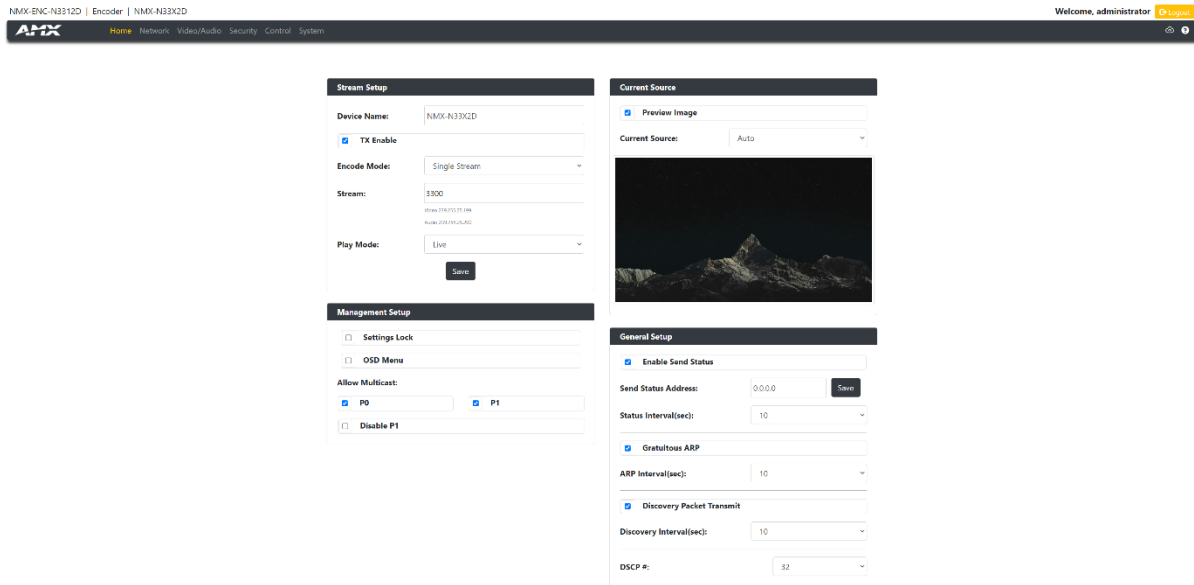# Step 4: Configuring Decoder and Encoder IP addresses (if needed)

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 N3300D 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 N3300D 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 **IP Setup** page make IP address changes for that unit either by setting a **STATIC** address or by enabling **DHCP**
   (see Figure 14).

FIG. 14 IP Setup of the Network settings

4.   Click the **Save** button.

5.   Return to the **Settings** page through the newly configured IP address.

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

N-Able can 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:

1.   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.

2.   From the N-Able main menu bar, select **Menu > Export CSV**.

3.   Select **Default** on the next screen that opens.

4.   Click **Ok** on the pop-up box informing you that a CSV file is about to be generated.

5.   Select the location to save the exported settings file.

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

6.   The folder containing your CSV file displays. Double-click the file to open it.

7.   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.

8.   Go back into N-Able and select **Menu > Import CSV**.

9.   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.

HDMI Cable

N3312D Encoder

Cat-5 Cable

PoE+ Enabled Switch

Network
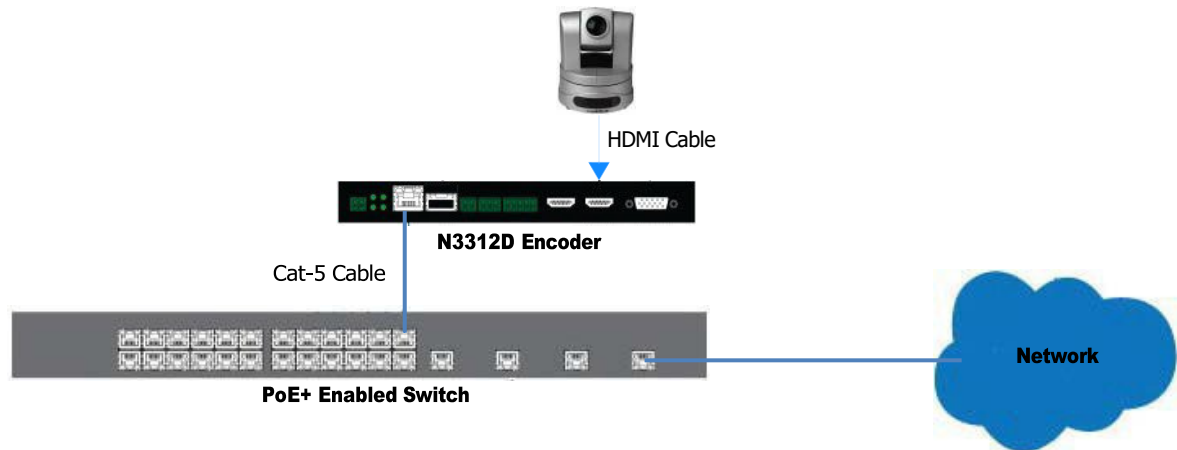
FIG. 15 Encoder Connection to Source

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.

Seamless Switching

The N3300D Series supports a 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 must do is click the common cell on the matrix and click the **Take** button. See Figure 16 for an example.
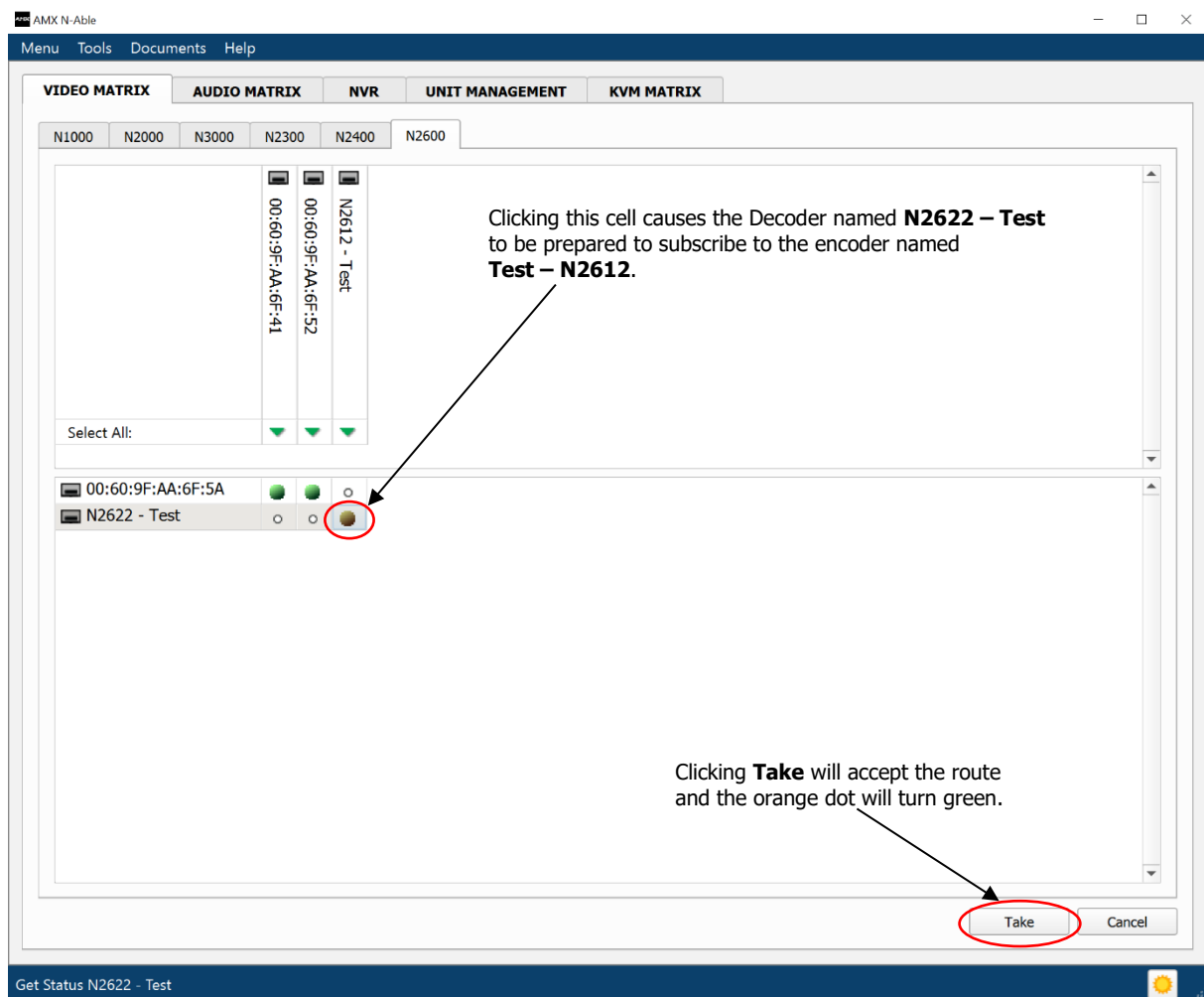
FIG. 16 Video Switching Using the Video Matrix

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 5.1.6 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.

Third-Party Controllers

The N3300 Series is capable of interfacing with third-party control systems such as Crestron, Q-Sys, Extron, Etc.. For direct control of N3300 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 Q2 2024 via firmware update.

Encoder Configuration Options

This chapter defines N3312D Encoder configuration options. For ease of navigation, it is organized to reflect the graphical user interface (GUI).

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 which describe each main page.

Home Page on page 25

Network Page on 30

Video/Audio on 36

Security on 48

Control on 53

System on 60

Home   Network   Video/Audio   Security   Control   System
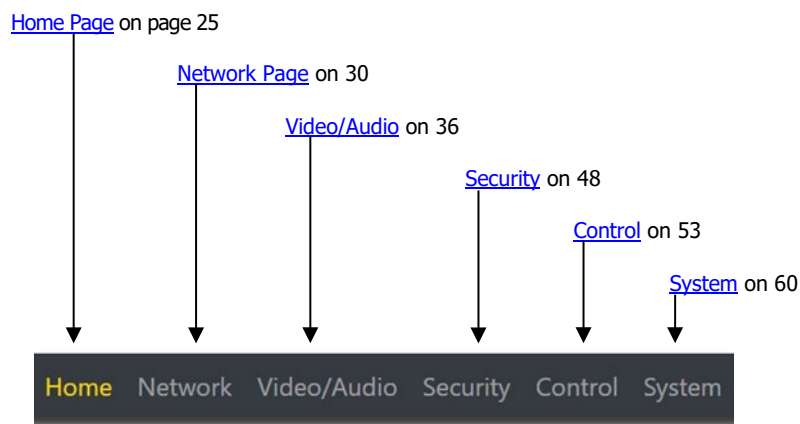
FIG. 17 Section Links

Home Page

Click the **Home** link at the top of any of the main web pages to access the page shown in Figure **18**. 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 Section on page 27
- Current Source Section on page 28
- General Setup Section on page 29

FIG. 18 Settings Page

Stream Setup Section

The **Stream Setup** section of the **Home** page is shown in Figure **19**. Options are described in **TABLE 1**.

Stream Setup

Device Name: NMX-N33X2D

☑ TX Enable

Encode Mode: Multi Stream

Stream: 3300

Video 239.255.25.199

Audio 239.255.25.200

Play Mode: Live

H.26x Stream URL:

rtsp://172.54.1.231:8554/stream

Save

FIG. 19 Device Settings Section

TABLE 1 Home Page: Stream Settings Section

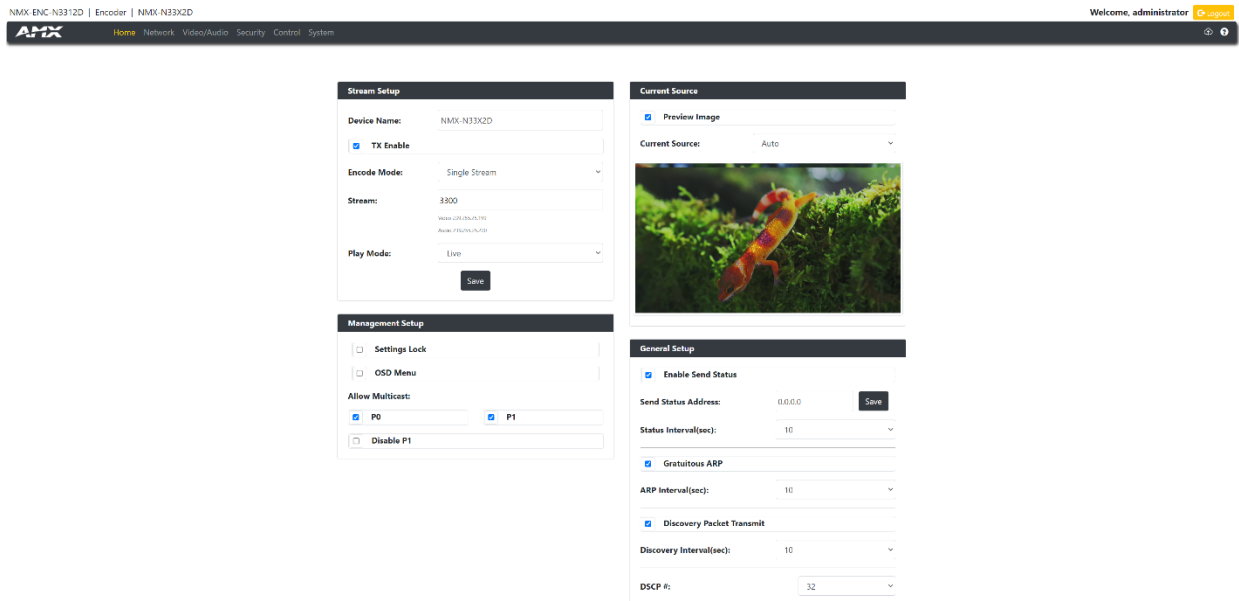| Option	Description	Notes
Device Name	Enter a user-friendly name for the unit.	More descriptive names in this field help you organize and manage the N-Series system efficiently. Names based on the unit's location and function are particularly useful. Some good examples are **Lobby-Left-HDMI** (for left 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 SVSI stream to be generated	
Encode Mode	Used to select between Single Stream or Multi Stream Modes	Single Stream = SVSI Only Multi Stream = SVSI 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 is shown in Figure **20**. Options are described in **TABLE 2**.

FIG. 20 Management Setup Settings

TABLE 2 Home Page: Management Setup Settings

Option	Description	Notes
Settings Lock	Enable to lock the Encoder IP settings and stream number, preventing automated processes (from N-Able or N-Command) from occurring.	
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 in Figure **21**. Options are described in **TABLE 3**.
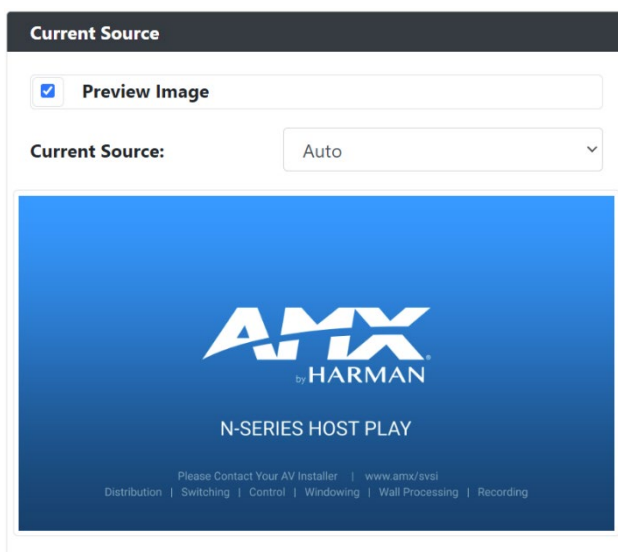
FIG. 21 Current Source Section

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 1 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 in Figure **22**. Options are described in **TABLE 4**.

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.	
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.	
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 shown in Figure **23**. 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:

- IP Setup Settings Section on page 31
- Date/Time Section on page 34
- 802.1x Section on page 35
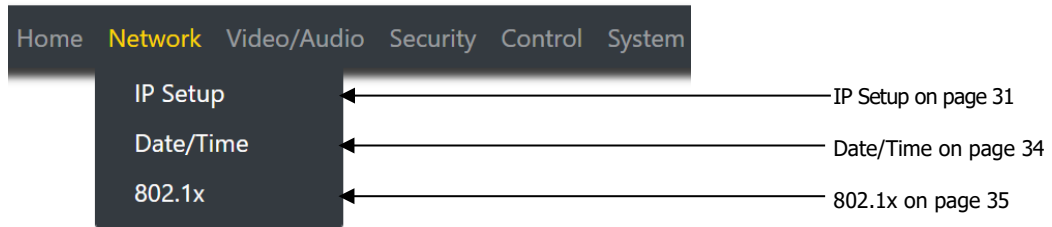
FIG. 23 Network Page

General Section – IP Setup

The **General Section** of the **IP Setup** on the **Network** page is shown in Figure **24**. Options are described in Table **5**.

FIG. 24 General Section

TABLE 5 Network Page: General Section of 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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

IPv4 Section – IP Setup

The **IPv4** section of the **IP Setup** on the **Network** page is shown in Figure **25**. Options are described in Table **6**.

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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

IPv6 Section – IP Setup

The **IPv6** section of the **IP Setup** on the **Network** page is shown in Figure 26. Options are described in Table **7**.

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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

Date/Time

The **Date/Time** section of the **Network** page is shown in Figure **27**. Options are described in Table **8**.

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
☐	pool.ntp.org	debian.pool.ntp...	pool.ntp.org	None	N/A	N/A	✎

✚ Add server

FIG. 27 Date/Time Section

TABLE 8 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 in Figure **28**. Options are described in Table **9**.

FIG. 28 802.1x Section

TABLE 9 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 in Figure **29**. 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 37
- Audio Settings on page 44
- EDID Settings on page 45
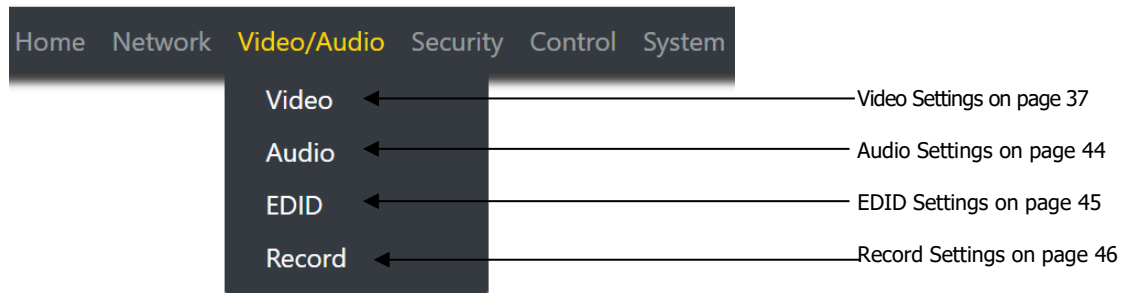- Record Settings on page 46

FIG. 29 Video/Audio Page

Stream Video Section – SVSI Stream – Video Section

The **Stream Video** section of the **SVSI Stream** section of the **Video** section on the **Video/Audio** page is shown in Figure **30**. Options are described in Table **10**.

FIG. 30 Stream Video Section

TABLE 10 Video/Audio: HDMI Video section of the Video tab

Option	Description	Notes
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	
Disable HDCP Advertising	When enabled will keep the encoder from sending HDCP information to the source	When enabled will cause the encoder to not be able to play HDCP protected content

Current Source Section – SVSI Stream – Video Section

The **Current Source** section of the **SVSI Stream** section of the Video section on the **Video/Audio** page is shown in Figure **31**. Options are described in Table **11**.
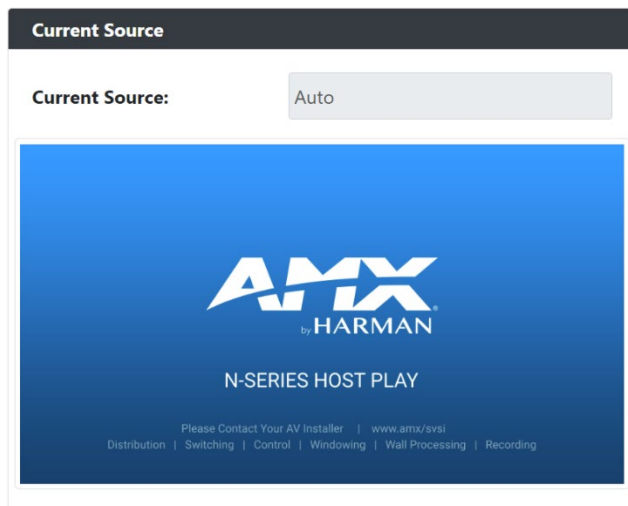
FIG. 31 Current Source Section

TABLE 11 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.

Video Quality Section – SVSI Stream – Video Section

The **Video Quality Section** of the **SVSI Stream** section of the **Video** section on the **Video/Audio** page is shown in Figure **32**. Options are described in Table **12**.

FIG. 32 Current Source Section

TABLE 12 Video/Audio: Current Source section of the Video tab

Option		Notes
Override Profile Recommendation	When enabled will allow for custom settings of streaming	
Max Video Bitrate	Allows for editing the max video bitrate	Range is from 0 to 32Mbps
Max Audio Bitrate	Allows for editing the max audio bitrate	
Key-Frame Freq.	Allows for editing the key-frame frequency in either frames or seconds	
Accept	Applies the settings to the stream profile	

Stream Video Section – H26x Stream – Video Section

The **Stream Video** section of the **H26x Stream** section of the **Video** section on the **Video/Audio** page is shown in Figure **33**. Options are described in Table **13**.


FIG. 33 Stream Video Section

TABLE 13 Video/Audio: H.26x section of the Video tab

Option	Description	Notes
TX Enable	When enabled will allow the encoder to transmit multicast video through the network.	
H.26x Profile	Used to select a preset streaming profile	Current option is only custom
Stream Output Mode	Changed based on the streaming profile selected	
Stram URL	URL address of the stream being encoded	
RTSP Port Number	Port used to transmit the RTSP stream on	Only visible when RTSP is selected for output mode.
RTSP Authentication	Credentials used to secure the RTSP stream	Only visible when RTSP is selected for output mode.

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 in Figure **34**. Options are described in Table **14**.

FIG. 34 General Section

TABLE 14 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 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 in Figure **35**. Options are described in Table **15**.
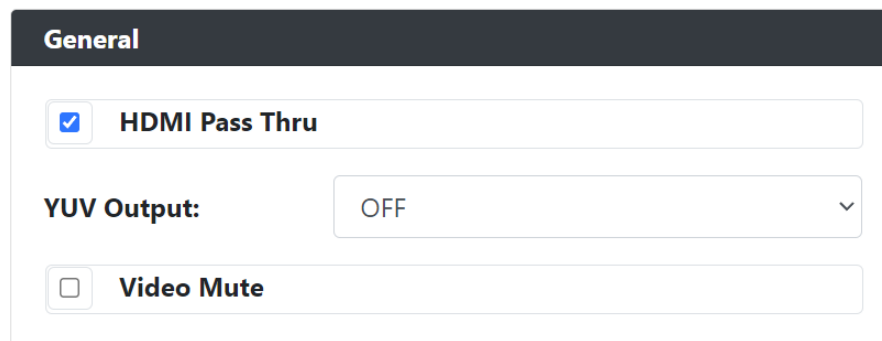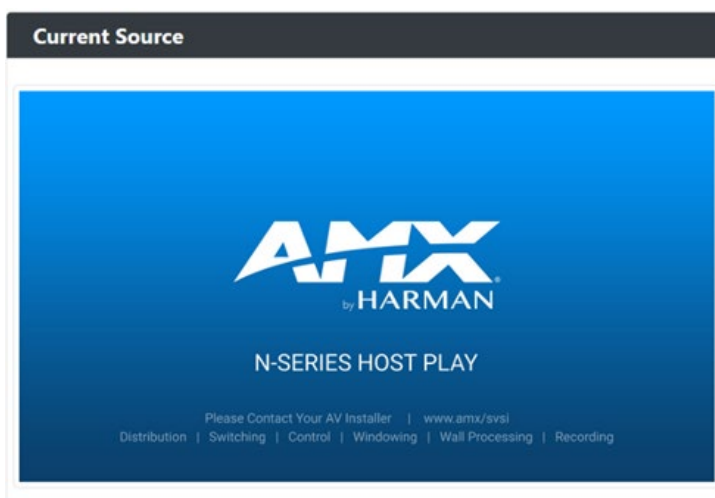

FIG. 35 Current Source Section

TABLE 15 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 in Figure **35**. Options are described in Table **15**.

Status

HDMI Pass thru Status:

Disconnected

HDMI Pass Thru Resolution:

1920x1080p@60

FIG. 36 Status Section

TABLE 16 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 in Figure **37**. Options are described in Table **17**.

FIG. 37 Audio Section

TABLE 17 Network Page: Audio Section of Audio Setup

Option	Description	Notes
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/LEF, 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 in Figure **38**. Options are described in Table **18**.

FIG. 38 EDID Section

TABLE 18 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.

Record Section – Record

The **Record** section of the **Record** on the **Video/Audio** page is shown in Figure **39**. Options are described in Table **19**.

FIG. 39 Record Section

TABLE 19 Record Page: USB Record Port

Option	Description	Notes
Enable	Select to enable the USB recording function	
Disable	Select to disable the USB recording function	
Format USB	Used to format the connected USB drive	Will delete everything on the USB drive
USB State	Used to show if a USB drive is connected	Will show connected or disconnected
USB Free Space	Used to show the amount of free space on the USB drive	Supports up to a 2TB drive

TABLE 20 Record Page: Stream Record Setup

Option	Description	Notes
Start Record	Will begin recording what is being encoded	
Stop/Transfer File	Will stop recording and begin transfer is configured	
Base Name	Used to define the name of the recorded file	
Validate after send		Requires 2x the amount of storage
Stream URL	Url of the stream that is being encoded	
Current Source	The source that is currently being recorded	Auto | HDMI 1 | HDMI 2
Source Resolution	Resolution of the source being recorded	
HDCP Status	HDCP status of the source being recorded	Unable to record HDCP protected streams

TABLE 21 Record Page: File Transfer Setup

Option	Description	Notes
Transfer Method	Method of transferring the recording	SFTP | FTP | Share
Server Port	Port used to connect to transfer the recording	Used for FTP or SFTP
Server Directory	Directory of where to transfer the recording	Used for Share
Destination IP	IP address of the where the recording is to be transferred	
Server Username	Username to log into the device for transferring the recording	
Server Password	Password to log into the device for transferring the recording	
Delete after Transfer	When enabled will delete the file after being transferred	
Unit Time	Current system date and time of the encoder	NTP should be configured for accurate date and time
Schedule	Used to schedule the files to be transferred	Never | Immediate | At Start Time | Time Window
Start Time	Used to define the start time to transfer the recording	Needs to be inputted as HH:MM
End Time	Used to define the end time to transfer the recording for Time Window schedule	Needs to be inputted as HH:MM
Accept	Used to save the settings and apply	
Cancel	Used to discard any settingsd	

Security Page

Click the **Security** link at the top of any of the main web pages to access the page shown in Figure **40**. 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 49
- Users Settings on page 51
- LDAP Settings on page 52

| Home | Network | Video/Audio | Security | Control | System |

General ← General Setup on page 49
Users ← Users on page 51
LDAP ← LDAP on page 52
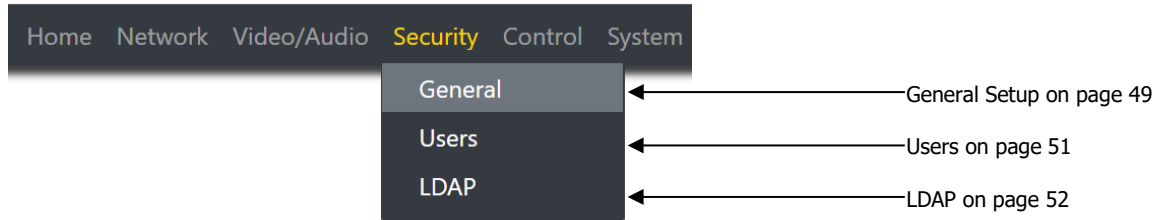
FIG. 40 Security Page

Web Page Section – General Setup

The **Web Page** section of the **General** on the **Security** page is shown in Figure **41**. Options are described in Table **22**.

FIG. 41 Web Page Section

TABLE 22 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	Wen 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>\r`.
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 in Figure **42**. Options are described in Table **23**.

FIG. 42 Security Certificates Section

TABLE 23 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 in Figure **43**. Options are described in Table **24**.

FIG. 43 User Security Details Section

TABLE 24 Security Page: User Security Details Section of Users

Option	Description	Notes
New Password	Input the new password for the Administrator account	
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 in Figure **44**. Options are described in Table **25**.

FIG. 44 LDAP Section

TABLE 25 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 in Figure **45**. 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 54
- IR Settings on page 56
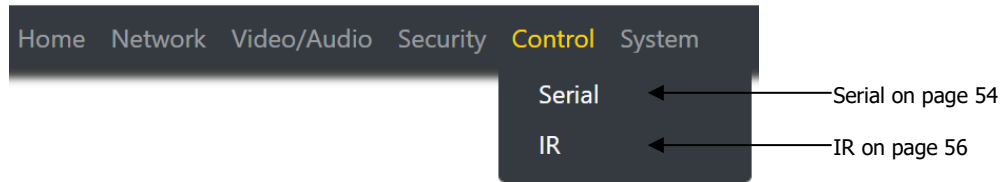
FIG. 45 Control Page

Serial Commands – Serial Setup

The **Serial Commands** section of the **Serial** on the **Control** page is shown in Figure **46**. Options are described in Table **26**.

FIG. 46 Serial Commands Section

TABLE 26 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 in Figure **47**. Options are described in Table **27**.

RS232 Settings

RS232 Baud Rate:	115200
RS232 Data Bits:	8
RS232 Parity:	none
RS232 Stop Bits:	1

Save

FIG. 47 RS232 Settings Section

TABLE 27 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 in Figure **48**. Options are described in Table **28**.

IR Command

Commands

[☑ Edit] [🗑 Delete] [☰ Execute] [+ New]
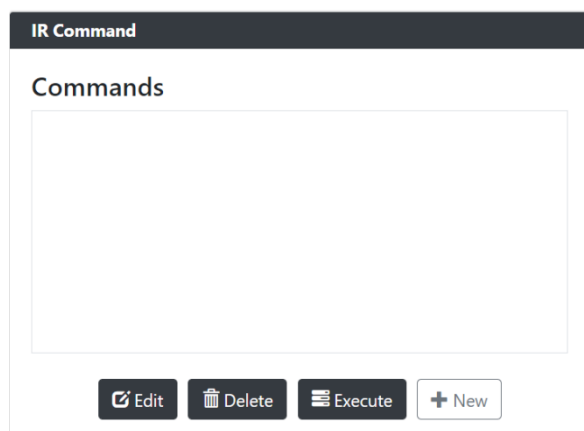
FIG. 48 IR Command Section

TABLE 28 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.	

System Page

Click the **System** link at the top of any of the main web pages to access the page shown in Figure **49**.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 Section on page 58
- Status Settings on page 61
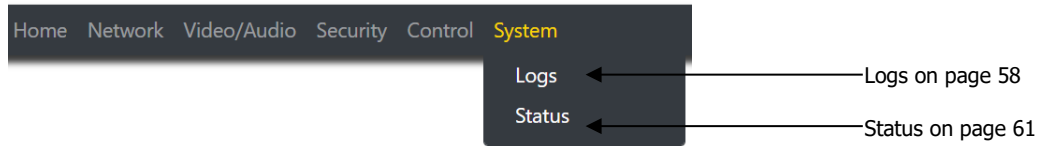
**FIG. 49** System Page

Command Log – Log

The **Command Log** section of the **Log** on the **System** page is shown in Figure **50**. Options are described in Table **29**.

Reset Logs

Command Log				
Elapsed Time	**IP**	**Port**	**Method**	**Command**
2022-11-04 04:55:44 (26 min ago)	Local	N/A	WEB	WEBProc:serialadd
2022-11-04 03:44:01 (1 h, 38 min ago)	Local	N/A	WEB	setSettings:hdmiAudio
2022-11-04 03:43:54 (1 h, 38 min ago)	Local	N/A	WEB	setSettings:hdmiAudio
2022-11-04 00:13:13 (5 h, 9 min ago)	Local	N/A	WEB	WEBProc:WPA

FIG. 50 Command Log Section

TABLE 29 System Page: Command Log Section of Log

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

Debug Log – Log

The **Debug Log** section of the **Log** on the **System** page is shown in Figure **51**. Options are described in Table **30**.
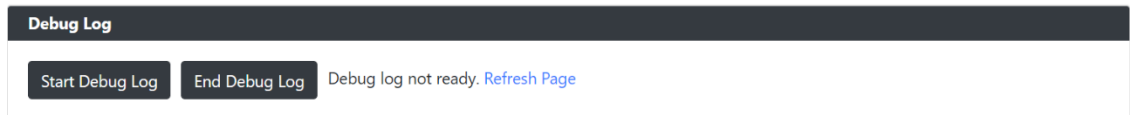
FIG. 51 Debug Log Section

TABLE 30 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

Link Layer Discovery Protocol (LLDP) – Status

The **LLDP** section of the **Status** on the **System** page is shown in Figure **52**. Options are described in Table **31**.

Link Layer Discover Protocol Information

Switch Mac:	mac d0:ec:35:f2:5a:00
Switch Name:	N/A
Switch Description:	CiscoIOSSoftware[Fuji],CatalystL3SwitchSoftware(CAT9K_IOS XE),Version16.9.4,RELEASESOFTWARE(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. 52 LLDP Section

TABLE 31 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 in Figure **53**. Options are described in Table **32**.

Status

HDMI 1 Status:	Connected
HDMI 1 Resolution:	1920x1080p60
HDCP 1 Status:	2.2 type-0
HDMI 2 Status:	Disconnected
HDMI 2 Resolution:	N/A
HDCP 2 Status:	N/A
HDMI Status Pass Thru:	Disconnected
Audio Activity:	Active
Port 50001 Source IP:	Disconnected [Flush]
Port 50002 Source IP:	Disconnected [Flush]
Serial Source IP:	N/A [Flush]

FIG. 53 Status Section

TABLE 32 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	
HDCP Status	Reports status of HDCP along with version information	
Port 50001 Source IP		
Port 50002 Source IP	IP address of the device connected to the port	
Serial Source IP		
Port P0	Displays the ethernet ports as either connected or disconnected.	
Audio Activity	Displays the status of the audio stream on the network. **Active**: Stream is detected **Inactive**: Stream is not detected	

Current Source – Status

The **Current Source** section of the **Status** on the **System** page is shown in Figure **54**. Options are described in Table **33**.
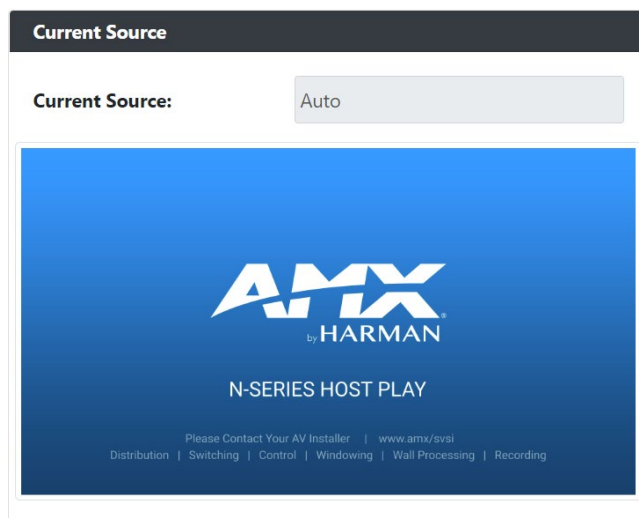
FIG. 54 Current Source Section

TABLE 33 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 in Figure **55**. Options are described in Table **34**.
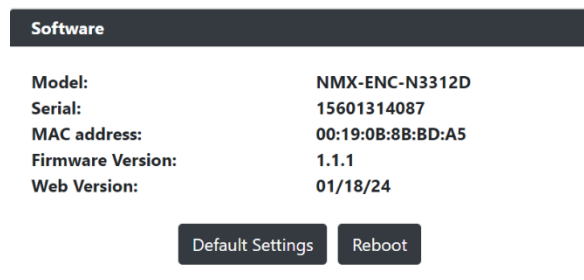
FIG. 55 Current Source Section

TABLE 34 System Page: Current Source of Status

Option	Description	Notes
Model	Displays the model of the N3300D device.	
Serial	Displays the serial number of the Encoder.	
Mac Address	Displays the MAC address of the network interface of the Encoder.	
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 N3322D Decoder configuration options. For ease of navigation, it is organized to reflect the graphical user interface (GUI).

As explained previously 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 shows the navigation bar and provides hot links to the sections of this chapter which describe each main page.

Home Page on page 65

Network Page on 70

Video/Audio Page on 76

Security Page on 84

Control Page on 89

System Page on 93

Home Network Video/Audio Security Control System
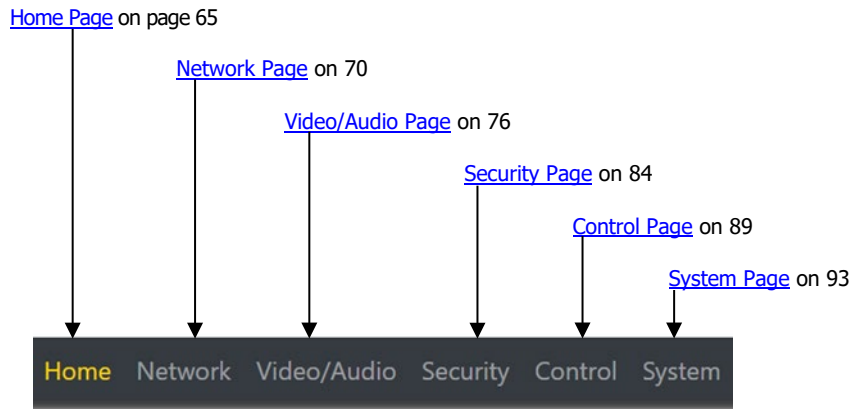
Home Page

Click the **Home** link at the top of any of the main web pages to access the page shown in Figure **56**. 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 66
- Management Setup Settings on page 67
- Current Source Section on page 68
- General Setup Section on page 69

FIG. 56 Home Page

Stream Setup Section

The **Stream Setup** section of the **Home** page is shown in Figure **57**. Options are described in Table **35**.

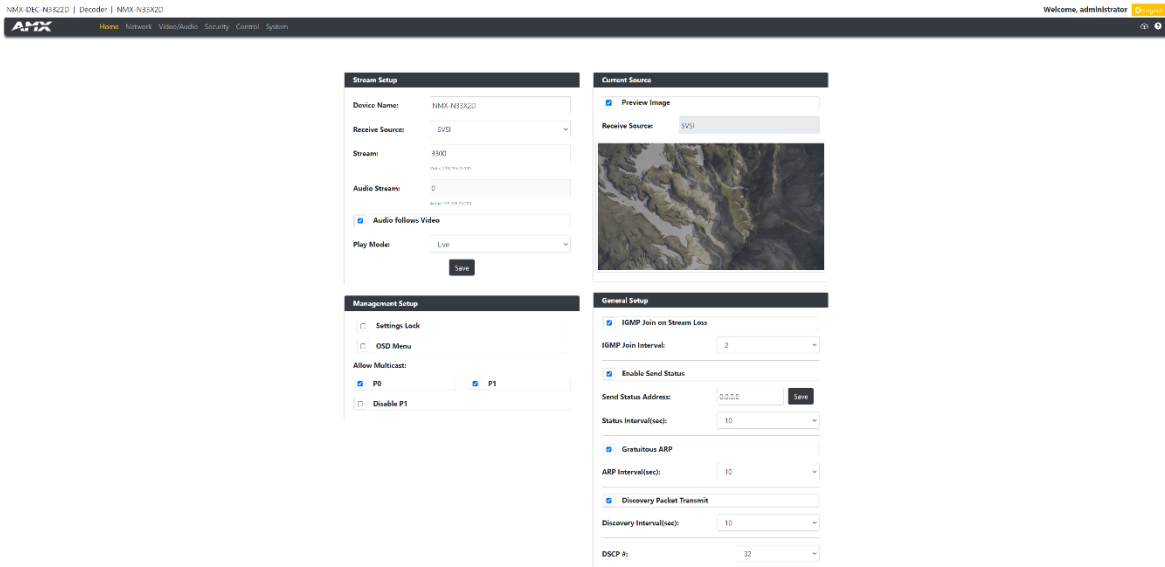| Stream Setup	
Device Name:	NMX-N33X2D
Receive Source:	SVSI
Stream:	3300
	Video 239.255.25.199
Audio Stream:	0
	Audio 239.255.25.200
☑	**Audio follows Video**
Play Mode:	Live
	Save

FIG. 57 Device Settings Section

TABLE 35 Home Page: Stream Settings Section

Option	Description	Notes
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 SVSI 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
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 in Figure **58**. Options are described in Table **36**.

Management Setup

☐ **Settings Lock**

☐ **OSD Menu**

Allow Multicast:

☑ **P0**   ☐ **P1**

☐ **Disable P1**

FIG. 58 Management Setup Settings

TABLE 36 Home Page: Management Setup Settings

Option	Description	Notes
Settings Lock	Enable to lock the Decoder IP settings and stream number, preventing automated processes (from N-Able or N-Command) from occurring.	
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 in Figure **59**. Options are described in Table **37**.

FIG. 59 Current Source Section

TABLE 37 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 1 seconds.
Receive Source:	Displays the current receiving source. The options are **SVSI** 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 in Figure **60**. Options are described in Table **38**.

FIG. 60 General Setup Section

TABLE 38 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.	
IGMP Join Interval	Determines how often (in seconds) the unit transmits IGMP Join messages.	
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.	

Network Page

Click the **Network** link at the top of any of the main web pages to access the page shown in Figure **61**. 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:

- IP Setup Settings Section on page 71
- Date/Time Section on page 74
- 802.1x Section on page 75

| Home | Network | Video/Audio | Security | Control | System |

IP Setup ⟵——————— IP Setup on page 71

Date/Time ⟵——————— Date/Time on page 74
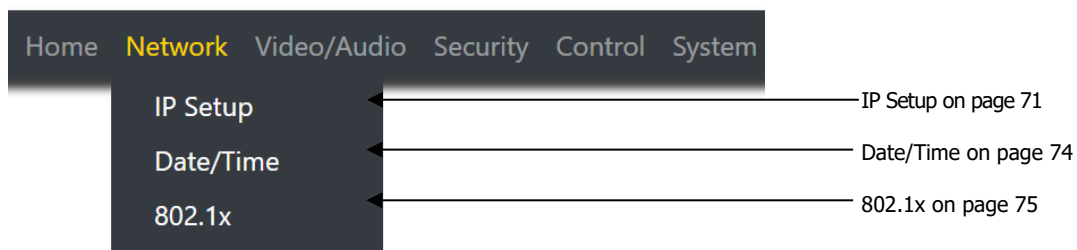
802.1x ⟵——————— 802.1x on page 75

FIG. 61 Network Page

General Section –IP Setup

The **General Section** of the **IP Setup** on the **Network** page is shown in Figure **62**. Options are described in Table **39**.

General
IP Hostname:	
Domain:	
☐ Manual DNS
DNS IP 1:	172.54.1.10
DNS IP 2:	8.8.8.8
DNS IP 3:	0.0.0.0
☐ IGMP v3 Support

FIG. 62 General Section

TABLE 39 Network Page: General Section of IP Setup

Option	Description	Notes
IP Hostname	Type in the hostname you wish to use for the device	
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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

IPv4 Section –IP Setup

The **IPv4** section of the **IP Setup** on the **Network** page is shown in Figure **63**. Options are described in Table **40**.

FIG. 63 IPv4 Section

TABLE 40 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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

IPv6 Section –IP Setup

The **IPv6** section of the **IP Setup** on the **Network** page is shown in Figure **64**. Options are described in Table **41**.

FIG. 64 IPv6 Section

TABLE 41 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 IP Setup page and apply those settings.	
Cancel	Pressed to discard all settings made on the IP setup page.	

Date/Time

The **Date/Time** section of the **Network** page is shown in Figure **65**. Options are described in Table **42**.

Current Date and Time: Fri Nov 4 17:12:06 2022

Time Zone: (UTC-05:00) Eastern Time (US & Canada)   ▼

NTP Server Manager

Select	Name	IP/Hostname	Description	Auth Type	Key ID	Secret	Edit

+ Add server

FIG. 65 Date/Time Section

TABLE 42 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 in Figure **66**. Options are described in Table **43**.

FIG. 66 802.1x Section

TABLE 43 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 in Figure **67**. 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 77
- Audio Settings on page 82
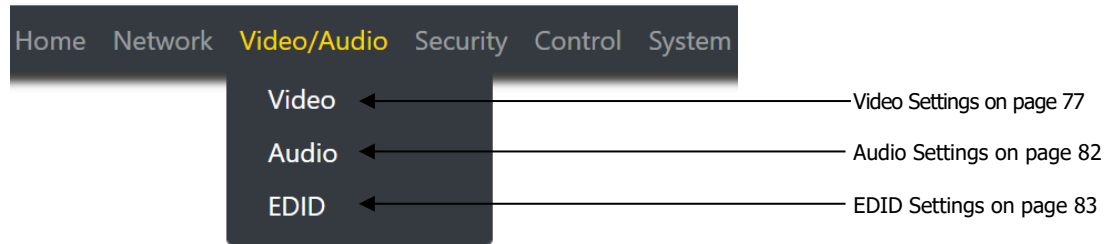- EDID Settings on page 83

FIG. 67 Video/Audio Page

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

The **Stream Video** section of the **SVSI/H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown in Figure **68** or **69**. Options are described in Table **44**.

FIG. 68 SVSI Stream Video Section

FIG. 69 H.26x Stream Video Section

TABLE 44 Video/Audio: Stream Video section of the Stream section of the Video tab

Option	Description	Notes
Receive Source	Drop down to select **SVSI** or **H.26x** for the type of stream to receive	The unit can only receive **SVSI** or **H.26x** at a time. The unit cannot receive both at the same time.
Video Stream	View/edit field to input the SVSI stream to be decoded.	Only shown when the SVSI 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 – SVSI/H.26x Stream Section – Video Section

The **Current Source** section of the **SVSI/H.26x Stream** section of the **Video** section on the **Video/Audio** page is shown in Figure **70**. Options are described in Table **45**.
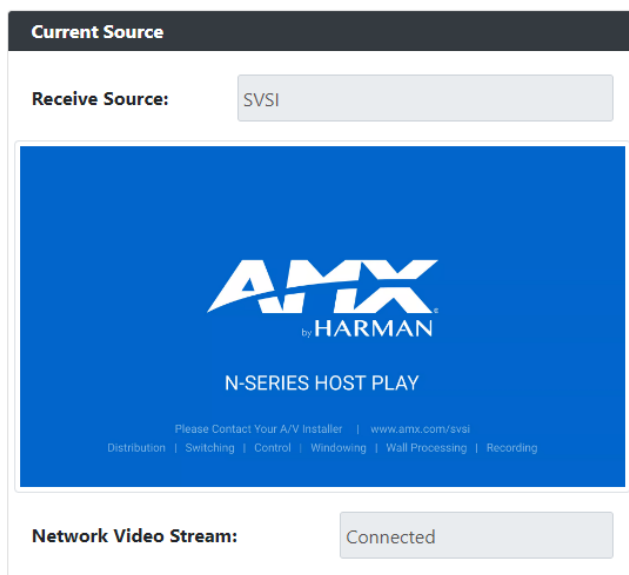

FIG. 70 Current Source Section

TABLE 45 Video/Audio: Current Source section of the SVSI/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 on 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 in Figure **71**. Options are described in Table **46**.

FIG. 71 General Section

TABLE 46 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	
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 in Figure **72**. Options are described in Table **47**.

CEC Settings

Manual Power On / Off: ON   OFF
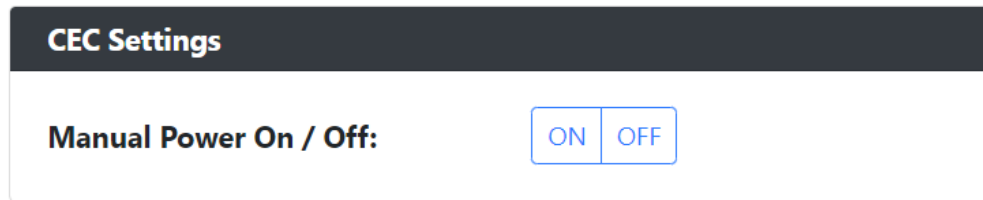
FIG. 72 CEC Settings Section

TABLE 47 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 in Figure **73**. Options are described in Table **48**.
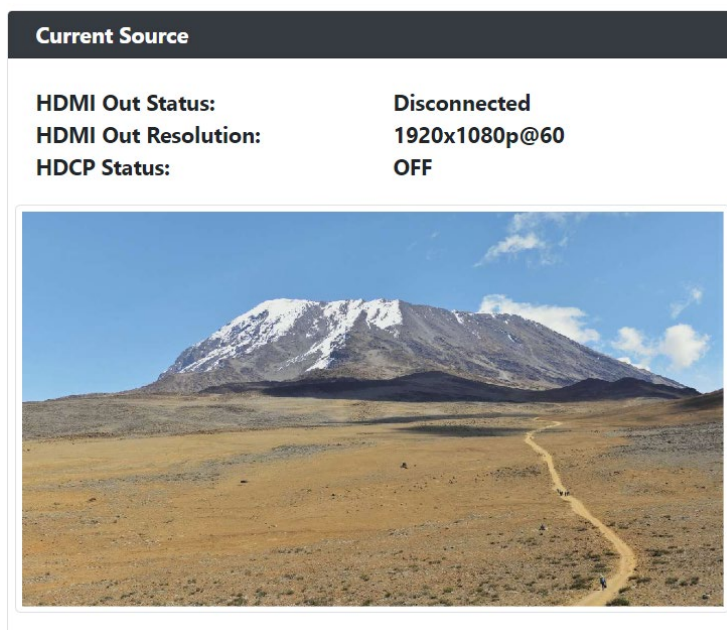

FIG. 73 Current Source Section

TABLE 48 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 in Figure **74**. Options are described in Table **49**.

FIG. 74 Audio Section

TABLE 49 Network Page: Audio Section of Audio Setup

Option	Description	Notes
Audio Stream	Drop down containing the options of SVSI Stream, Dante Audio, H.26x Stream	
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	
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	

EDID Section – EDID Setup

The **EDID** section of the **EDID** on the **Video/Audio** page is shown in Figure **75**. Options are described in Table **50**.

FIG. 75 EDID Section

TABLE 50 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**.	

Security Page

Click the **Security** link at the top of any of the main web pages to access the page shown in Figure **76**. 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 85
- Users Settings Section on page 87
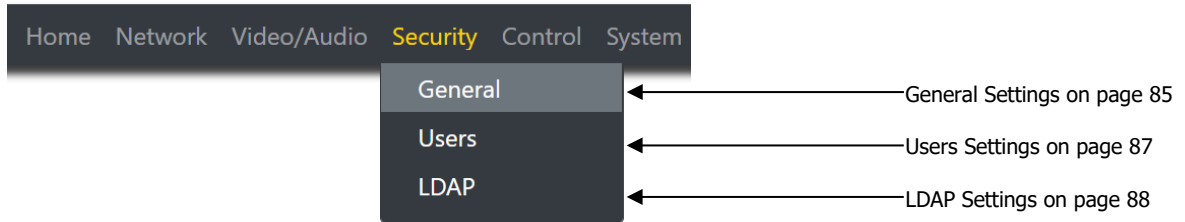- LDAP Settings Section on page 88

FIG. 76 Security Page

Web Page Section – General Setup

The **Web Page** section of the **General** on the **Security** page is shown in Figure **77**. Options are described in Table **51**.

FIG. 77 Web Page Section

TABLE 51 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	Wen 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>\r.`
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 in Figure **78**. Options are described in Table **52**.

FIG. 78 Security Certificates Section

TABLE 52 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 in Figure **79**. Options are described in Table **53**.

FIG. 79 User Security Details Section

TABLE 53 Security Page: User Security Details Section of Users

Option	Description	Notes
New Password	Input the new password for the Administrator account	
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 in Figure **80**. Options are described in Table **54**.

FIG. 80 LDAP Section

TABLE 54 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 in Figure **81**. 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 Section settings on page 90
- IR Settings on page 92
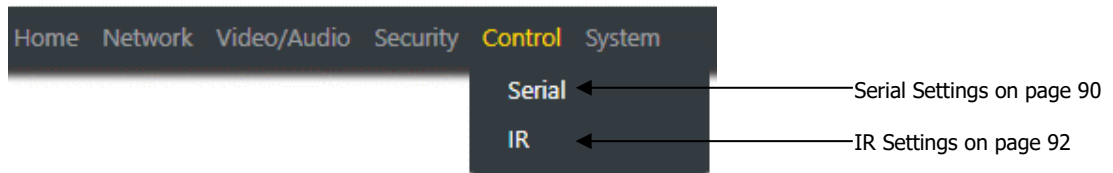
FIG. 81 Control Page

Serial Commands – Serial Setup

The **Serial Commands** section of the **Serial** on the **Control** page is shown in Figure **82**. Options are described in Table **55**.

FIG. 82 Serial Commands Section

TABLE 55 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 in Figure **83**. Options are described in Table **56**.

RS232 Settings

RS232 Baud Rate:	115200
RS232 Data Bits:	8
RS232 Parity:	none
RS232 Stop Bits:	1

Save

FIG. 83 RS232 Settings Section

TABLE 56 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 in Figure **84**. Options are described in Table **57**.
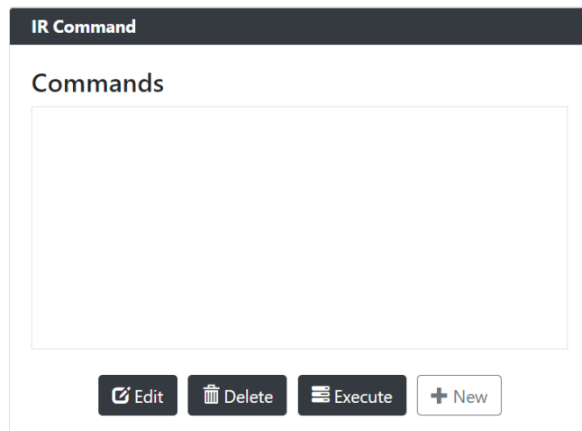
FIG. 84 IR Command Section

TABLE 57 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.	

System Page

Click the **System** link at the top of any of the main web pages to access the page shown in Figure **85**. 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 Section on page 94
- Status Settings on page 97
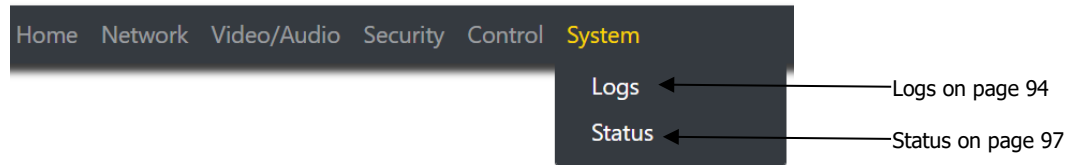
FIG. 85 System Page

Command Log – Log

The **Command Log** section of the **Log** on the **System** page is shown in Figure **86**. Options are described in Table **58**.

Reset Logs

Command Log

Elapsed Time	IP	Port	Method	Command
2022-11-04 04:55:44 (26 min ago)	Local	N/A	WEB	WEBProc:serialadd
2022-11-04 03:44:01 (1 h, 38 min ago)	Local	N/A	WEB	setSettings:hdmiAudio
2022-11-04 03:43:54 (1 h, 38 min ago)	Local	N/A	WEB	setSettings:hdmiAudio
2022-11-04 00:13:13 (5 h, 9 min ago)	Local	N/A	WEB	WEBProc:WPA

FIG. 86 Command Log Section

TABLE 58 System Page: Command Log Section of Log

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

Debug Log – Log

The **Debug Log** section of the **Log** on the **System** page is shown in Figure **87**. Options are described in Table **59**.

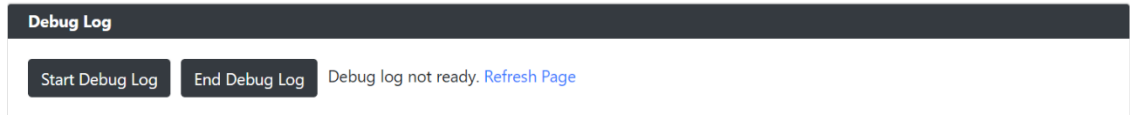**FIG. 87** Debug Log Section

TABLE 59 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

Link Layer Discovery Protocol (LLDP) – Status

The **LLDP** section of the **Status** on the **System** page is shown in Figure **88**. Options are described in Table **60**.

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. 88 LLDP Section

TABLE 60 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 in Figure **89**. Options are described in Table **61**.

FIG. 89 Status Section

TABLE 61 System Page: Status Section of Status

Option	Description	Notes
HDMI Out Status	Status if the HDMI cable is connected.	
HDMI Out Resolution	Select the output resolution of the video stream to be transmitted to the output device (e.g. LCD).	
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		
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. **Active**: Stream is detected **Inactive**: Stream is not detected	
Network Audio Stream		

Current Source – Status

The **Current Source** section of the **Status** on the **System** page is shown in Figure **90**. Options are described in Table **62**.

Current Source

Current Source: Auto

AMX
by HARMAN

N-SERIES HOST PLAY

Please Contact Your AV Installer | www.amx/svsi
Distribution | Switching | Control | Windowing | Wall Processing | Recording

FIG. 90 Current Source Section

TABLE 62 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 in Figure **91**. Options are described in Table **63**.
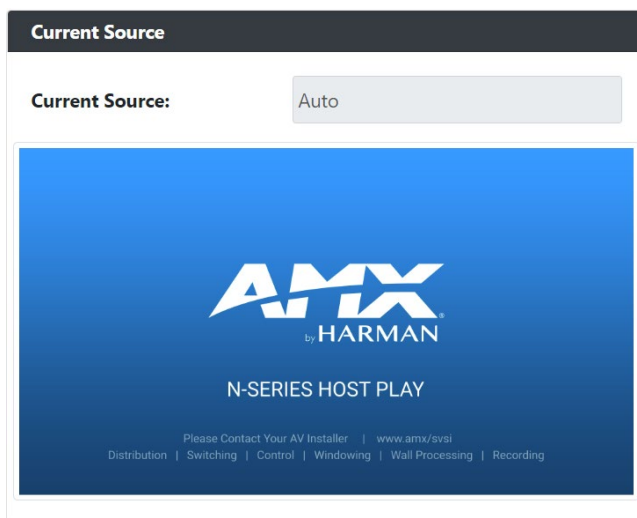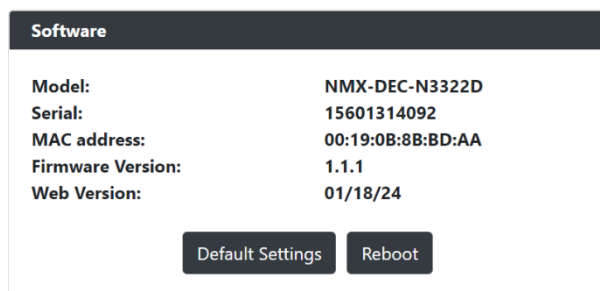
Software	
Model:	NMX-DEC-N3322D
Serial:	15601314092
MAC address:	00:19:0B:8B:BD:AA
Firmware Version:	1.1.1
Web Version:	01/18/24

Default Settings   Reboot

FIG. 91 Current Source Section

TABLE 63 System Page: Current Source of Status

Option	Description	Notes
Model	Displays the model of the N3300 device.	
Serial	Displays the serial number of the N3312D Encoder.	
Mac Address	Displays the MAC address of the network interface of the N3312D Encoder.	
Firmware Version	Displays the date code for the currently running version of the N3312D 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 suppot.harmanpro.com

Issues	Suggestions
LocalPlay screen displays instead of the stream from the Encoder.	• 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 41 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.	• 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 25 for more details). • Verify source is attached and is outputting a valid signal (**HDMI** LED on Encoder is on).
Black screen/no screen displays.	• 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.	• If there is no audio on all 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.	• Make sure your computer is in the same IP address range as the unit. See *Setting Up Your Host Computer* on page 12 for more information.
When changing the audio type, there are problems with audio in/out.	• 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.	• Check that the Decoder has proper audio stream setting (typically by enabling **Audio follows Video**).
Serial port is not working as expected.	• 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.

Appendix A: Local/Host Play Error Screens

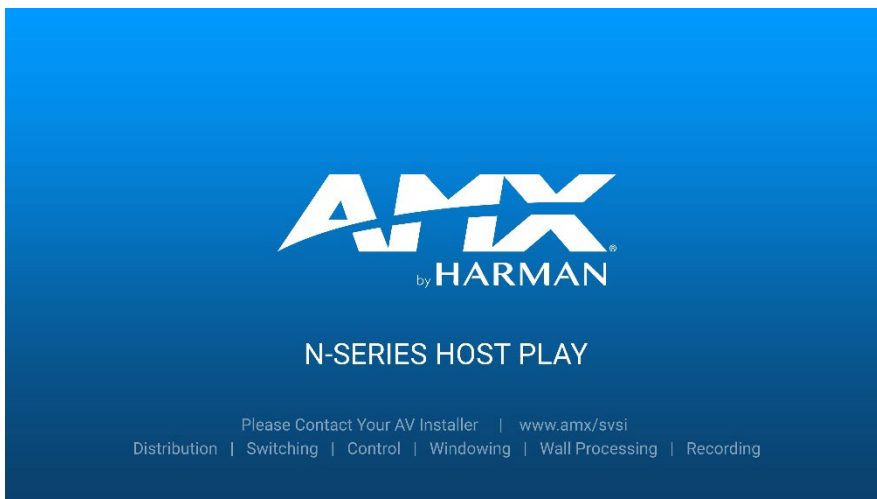This section shows and defines the status screens displayed by N3300D Series devices.

FIG. 92 Host Play Screen

Displayed when Decoder....	...and Encoder....	Notes
• is set to view an Encoder stream on the network	• 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. 93 Local Play Screen

Displayed when Decoder....	Notes
• is set to LocalPlay mode	If the Decoder is NOT set to **Local Play** mode, this screen could signify a network communication issue.

FIG. 94 Unsupported Input Resolution Screen

Displayed when Decoder....	...and Encoder....	Notes
• is set to view a encoder stream on the network	• is being fed a video resolution that is does not support	This screen can be useful to show you that the Decoder is receiving the stream from the intended Encoder. However, the video signal being sent to the encoder is not supported.

FIG. 95 Restricted Content Not Supported Screen

Displayed when Decoder....	...and Encoder....	Notes
• 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)	• 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 98 if your source is HDCP 2.2.*

FIG. 96 Video Encrypted Screen

Displayed when Decoder….	Notes
• 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. 97 Preview Image Disabled Screen

Displayed on Webpage….	Notes
• is set to Preview Disabled	This screen is also displayed in the image preview link and on N-Able Preview.

FIG. 98 HDCP Streaming Resolution Screen

Displayed when Decoder....	...and Encoder....	Notes
• is set to view a encoder stream on the network	• 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
1440x900	60	Yes	Yes	Yes	No	No
1400x1050	60	Yes	Yes	Yes	No	No

Resolution	Refresh Rates	YUV 4:4:4	YUV 4:2:2	RGB	YUV 4:2:0	Interlaced
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/N2600S/N3510

The following list specifies the configuration required on the N3k, N2600S or N3510 to function with the N3300D series products.

1. <u>**N3k Encoder to N3322D Decoder**</u>

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	N2622S 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 N3322D DEC H26x IP Addresses in the same subnet.
3. Have the N3322D 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 Video Stream URL on the N3322D DEC.

2. <u>**N3312D Encoder to N3k Decoder**</u>

H.26x Mode	H.26x Profile	Stream Output Mode
H.264	Custom	UDP
H.264	Custom	RTP
H.264	Custom	RTSP

Note: N3312D Settings

1. Set the N3312D 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 N3312D ENC and paste it into the stream URL box on the N3k DEC.

3. <u>**N3312D Encoder to N3510 Window Processor**</u>

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: N3312D Settings

1. Set the N3312D 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. <u>**N3510 Window Processor to N3322D**</u>

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 3322D to H.26x.
3. Paste the N3510 stream URL onto the H.26x Stream URL on the 3322D DEC.

5. **N3312D Encoder to N2622S Decoder**

H.26x Mode	H.26x Profile	Stream Output Mode
H.26x	Custom	UDP
H.26x	Custom	RTP
H.26x	Custom	RTSP

Note: N3312D Settings

4. Set the N3312D ENC and N2622D DEC H26x IP Addresses in the same subnet.
5. Set the N2622D DEC Receive Source to H.26x.
6. Copy the stream URL from the N3312D ENC and paste it into the stream URL box on the N2622D DEC.

6. **N2612S Encoder to N3322DD Decoder**

H.26x Mode	H.26x Profile	Stream Output Mode
H.26x	Custom	UDP
H.26x	Custom	RTP
H.26x	Custom	RTSP

Note: N2612s Settings

7. Set the N2612S ENC and N3322D DEC H26x IP Addresses in the same subnet.
8. Set the N3322D DEC Receive Source to H.26x.
9. Copy the stream URL from the N2612S ENC and paste it into the stream URL box on the N3322D 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.

<u>Thumbnail Preview:</u>

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.
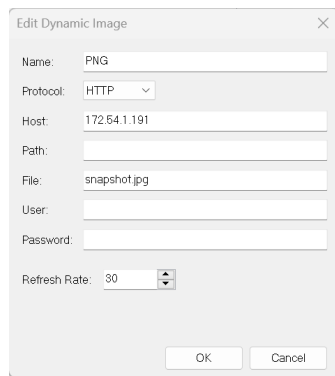
11. Create a button on the touch panel canvas for the model of Varia you're using.
12. Select the created button.
13. In button properties navigate to the "States" tab then expand "All State".
14. Locate the "Bitmaps" setting and click the box containing the three dots to open the Bitmaps window.
15. 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.
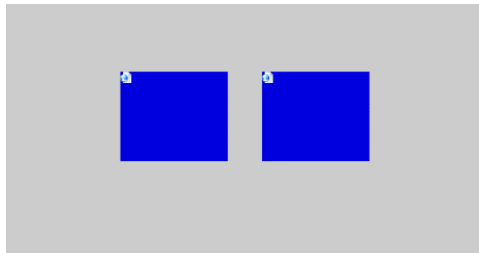
20. An example of what is seen on the Varia panel.
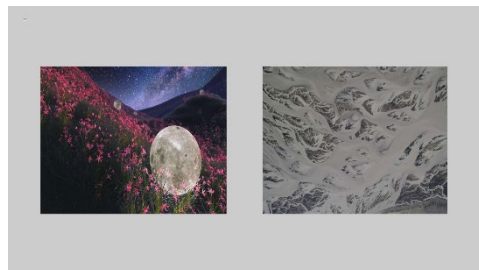
Streaming Setup – (VLC App):

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 1000 kbps.
10. Set the Maximum Resolution to 720P.
11. Click Accept and wait for the confirmation message the settings have been applied.

Stream Video		Video Quality	
☑ TX Enable		☑ Override Profile Recommendations	
H.26x Mode:	H.264	Maximum Video Bitrate(kbps):	2000
H.26x Profile:	Custom	Maximum Audio Bitrate(kbps):	160
Stream Output Mode:	RTSP	Key-Frame Frequency:	60 Frame
Stream URL:	rtsp://172.54.1.193:8554/stream	Maximum Resolution:	720p
RTSP Port Number:	8554	Maximum Frame rate(Hz):	60
RTSP Authentication:			✖ Reset ✔ Accept
Username:			
Password:			

Example of the H.26X settings menu of the N3312D 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 N3312D 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 N3312D.
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.

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. Click Accept and wait for the confirmation message the settings have been applied.

Example of the H.26X settings menu of the N3312D above.

9. 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.
10. Configure the streaming source on the previously created button by copying and pasting the "Stream URL" found on the N3312D H.26x Stream page under the Stream Video section.
11. Transfer the project to the panel, refer to the TPDesign5 user manual for transferring TP files.