Overview

An N-Series system is comprised of Encoders, Decoders, and other available accessories including Network Video Recording (NVR) solutions, Window Processing (WP) units, and Audio Transceivers (ATRs). The system allows you to distribute UHD video and audio across a Gigabit Ethernet network. The audio transceiver allows to send and receive Dante, AES67, and analog audio. Please verify hardware capabilities needed prior to ordering.

Each device can be controlled from standard TCP/IP and a secure SSH connection, as outlined below. It is advised to open a persistent socket connection rather than open and close socket connections continuously when sending and receiving communications from N-Series devices.

Standard TCP/IP:

Each device is controllable via TCP/IP direct socket using device IP addresses and port 50001 or 50002. Port 50001 and 50002 support a single connection at one time and reject all other connection attempts until the established connection is closed.

It is advised to open a persistent socket connection rather than open and close socket connections continuously when sending and receiving communications from N-Series devices.

Secure SSH:

Each device is controllable via an SSH direct socket using device IP addresses and port 50101 or 50102. Port 50101 and 50102 support a single connection at one time and reject all other connection attempts until the established connection is closed.

To send a secure command to port 50101 or 50102. The command password for the device must be sent with the command string. See below for an example. The default command password is *password*.

password\lovol:50\r

Refer to this document to find the commands needed for your application.

NOTE: In the Example sections of this document, <CR> indicates a carriage return as defined by your control method (e.g., \x0d, $0d, 00x0d, 0x0d, 0dH). <CRLF> is also supported but not required.

Command	Description	Variables	Example
seta	Switches output audio source stream.	<stream number>	seta:212 <CR>
mute	Disables audio output globally.		mute <CR>
unmute	Enables audio output globally.		unmute <CR>
txdisable	Disables the SVSI/PCM transmit stream.		txdisable <CR>
txenable	Enables the SVSI/PCM transmit stream.		txenable <CR>
mainvol	Sets the main volume, both left and right channels (0-100%).	<volume number>	mainvol:50 <CR>
mainvolleft	Sets the ATC's main volume level, left channel only (0-100%).	<volume number>	mainvolleft:50 <CR>
mainvolright	Sets the ATC's main volume level, right channel only (0-100%).	<volume number>	mainvolright:50 <CR>
hpvol	Sets the ATC's headphone jack volume level, both left and right channels (0-100%).	<volume number>	hpvol:50 <CR>
hpvolleft	Sets the headphone jack volume level, left channel only (0-100%).	<volume number>	hpvolleft:50 <CR>
hpvolright	Sets the headphone jack volume level, right channel only (0-100%).	<volume number>	hpvolright:50 <CR>
lovol	Changes output volume of line out, both left and right channels (0-100%).	<volume number>	lovol:50 <CR>
lovolleft	Changes output volume of line out, left channel only (0-100%).	<volume number>	lovolleft:50 <CR>
lovolright	Changes output volume of line out, right channel only (0-100%).	<volume number>	lovolright:50 <CR>
rxdisable	Disables the SVSI/PCM receive stream.		rxdisable <CR>
rxenable	Enables the SVSI/PCM receive stream.		rxenable <CR>
cmdhistreset	Resets the history log of commands.		cmdhistreset <CR>
getStatus	Returns current status of device.		getStatus <CR>
resetport	Resets a port of <type> TCP or UDP (or resets ALL).	<type>, <port number>	resetport ALL <CR>
help	Shows this API command list/descriptions.		help <CR>

Command	Description	Variables	Example
Changing Settings on the Unit: All commands in this section require a prefix of **setSettings**. For example, to change the name, the following would be sent: **setSettings:name:My New Name**			
name	Changes name of unit.	<name>	setSettings:name:My New Name <CR>
txName	Sets the unit's name for N-Able (transmit side).	<name>	setSettings:txName:My New Name <CR>
rxName	Sets the unit's name for N-Able (receive side).	<name>	setSettings:rxName:My New Name <CR>
inputType	Sets input type to balanced or unbalanced audio. bal = balanced audio unbal = unbalanced audio	bal | unbal	setSettings:inputType:bal <CR>
inputGainLeft	Changes input gain (pre-encoding cut) for the left channel. Valid entries for <gain> include 0, -1.5, -3, -4.5, -6, -7.5, -9, -10.5, and -12.	<gain>	setSettings:inputGainLeft:-4.5 <CR>
inputGainRight	Changes input gain (pre-encoding cut) for the right channel. Valid entries for <gain> include 0, -1.5, -3, -4.5, -6, -7.5, -9, -10.5, and -12.	<gain>	setSettings:inputGainRight:7.5 <CR>
audioDelay	Sets an audio <delay> in milliseconds. The valid <delay> range is 0-2000000.	<delay>	setSettings:audioDelay:150000 <CR>
outAudioDelay	Sets an audio <delay> for output in milliseconds. The valid <delay> range is 0-1000000.	<delay>	setSettings:outAudioDelay:9000 <CR>
setStream	Sets the output stream number. The valid <stream number> range is 1-32767.	<stream number>	setSettings:setStream 211 <CR>
vlanNumber	Sets the VLAN ID. The valid <vlan number> range is 1-4095.	<vlan number>	setSettings:vlanNumber:240 <CR>
ttl	Sets the time to live (TTL) counter. The valid <ttl count> range is 1-255.	<ttl count>	setSettings:ttl:255 <CR>
dscp	Sets a value for DSCP. The valid <dscp value> range is 0-255.	<dscp value>	setSettings:dscp:55 <CR>
mediaPort0	Controls multicast traffic on media port 0. on = multicast traffic can leave port off = no multicast traffic can leave port	on | off	setSettings:mediaPort0:on <CR>
mediaPort1	Controls multicast traffic on media port 1. on = multicast traffic can leave port off = no multicast traffic can leave port	on | off	setSettings:mediaPort1:off <CR>
shutdownPort1	Turns port 1 on and off.	on | off	setSettings:shutdownPort:on <CR>
TXenableUnicast	Enables/disables unicast mode on the SVS/PCM TX stream.	on | off	setSettings:TXenableUnicast:on <CR>
TXunicastDestIP	Specifies the destination for the first unicast stream.	<ipaddress>	setSettings:TXunicastDestIP:169.254.120.2 <CR>
TXunicastDestIP2	Specifies the destination for the second unicast stream.	<ipaddress>	setSettings:TXunicastDestIP2:169.254.120.5 <CR>
RXenableUnicast	When on, SVSI/PCM RX stream multicast is disabled	on | off	setSettings:RXenableUnicast:on <CR>

Command	Description	Variables	Example
ipset	Sets the device's network IP settings. <ip addr> = IP address to go to <netmask> = Network mask <gateway> = Gateway router number	<ip address>, <netmask>, <gateway>	setSettings:ipset:169.254.120.2, 255.255.0.0, 169.254.1.1 <CR>
ipdhcp	TCP only command. Sets the unit in DHCP mode and reboots.		setSettings:ipdhcp <CR>
ipautoip	TCP only command. Sets the unit in AutoIP mode and reboots.		setSettings:ipautoip <CR>

Command	Description	Variables	Example
ipsave	Saves the IP settings		setSettings:ipsave <CR>
reboot	Forces the N4321 to reboot.	reboot	setSettings:reboot:reboot <CR>
factoryRestore	Restores all settings back to factory settings.	factoryRestore	setSettings:factoryRestore:factoryRestore <CR>
factoryRestoreIP	Restores the unit's IP settings to the factory defaults.		setSettings:factoryRestoreIP <CR>
enableDiscoveryPackets	Enables/disables transmission of the discovery packet (which allows the device to be auto-discovered on the network).	on | off	setSettings:enableDiscoveryPackets:on <CR>
discoveryIntervalSec	Determines how often discovery packets are transmitted. The valid <seconds> range is 1-255.	<seconds>	setSettings:discoveryIntervalSec:10 <CR>
discoveryPort	Sets a destination port for discovery packets. The valid range is 10000-65535.	<port number>	setSettings:discoveryPort:50019 <CR>
discoveryIP	Sets a destination IP address for discovery packets.	<ip address>	setSettings:discoveryIP:239.254.12.16 <CR>
gratuitousARP	Enables/disables gratuitous ARP requests.	on | off	setSettings:gratuitousARP:on <CR>
gratuitousARPInterval	Determines how often gratuitous ARP packets are transmitted. The valid interval (in <seconds>) range is 10-2550.	<seconds>	setSettings:gratuitousARPInterval:200 <CR>
unsoliticedStatus	Enables/disables the reporting on unsolicited status. Default is on.	on|off	setSettings:unsoliticedStatus: off <CR>
unsolicitedStatusInterval	Determines how often unsolicited status reporting takes place. The valid interval (in <seconds>) range is 10-2550.	<seconds>	setSettings:unsolicitedStatusInterval:600 <CR>
downmixAnalogEnable	Enables/disables 7.1-to-stereo downmixing.	on | off	setSettings:downmixAnalogEnable:on <CR>
downmixAnalogSource	Sets the pair of channels to send out the Analog Out port	0 = FR/FL 1 = Center/LFE 2 = SL/SR 3 = RR/RL	setSettings:downmixAnalogSource:3\r
downmixCenter	Sets downmix level for the center channels. The valid <level> range is 0-63.	<level>	setSettings:downmixCenter:50 <CR>
downmixFront	Sets downmix level for the front channels. The valid <level> range is 0-63.	<level>	setSettings:downmixFront:0 <CR>
downmixSurround	Sets downmix level for the surround channels. The valid <level> range is 0-63.	<level>	setSettings:downmixSurround:40 <CR>
relay1State	Closes/opens relay 1.	close | open	setSettings:relay1State:close <CR>
relay2State	Closes/opens relay 2.	close | open	setSettings:relay2State:close <CR>
relayInterlock	When on, only one relay can be closed at a time.	on | off	setSettings:relayInterlock:on <CR>
phantomPower	Enables/disables microphone power. *WARNING: Only enable when in use.*	on | off	setSettings:phantomPower:off <CR>
gpiHighEventDelay	Sets the delay between an open event and the N-Act response. The valid <seconds> range is 0-86400.	<seconds>	setSettings:gpiHighEventDelay:80000 <CR>
gpiLowEventDelay	Sets the delay between a close event and the N-Act response.The valid <seconds> range is 0-86400.	<seconds>	setSettings:gpiLowEventDelay:10 <CR>
IGMPJoinsEnable	Enables/disables unit to periodically send IGMP join requests when receive stream is lost.	on | off	setSettings:IGMPJoinsEnable:on <CR>
IGMPJoinsInterval	Determines how often IGMP join requests are sent. The valid <seconds> range is 1-60.	<seconds>	setSettings:IGMPJoinsInterval:15 <CR>
interleaveMC	Sets the Interleave Multicast Stream IP range on or off.	on | off	setSettings:interleaveMC:off\r

Command	Description	Variables	Example
N4321 Test Tone Generation: All commands in this section affect the test tone that can be generated by the N4321.			
streamTone	Enables/disables tone generation into stream instead of capturing audio.	on | off	streamTone:on <CR>
playTone	Enables/disables local play of tone (instead of from stream values).	on | off	playTone: on <CR>
toneType	Sets the test tone to be an actual tone, white noise, or pink noise.	tone | noise | pinknoise	toneType:tone <CR>
leftTone	Turns left channel tone on or off.	on | off	leftTone:on <CR>
rightTone	Turns right channel tone on or off.	on | off	rightTone:on <CR>
tonePct	Sets the tone volume level (0 to 100%).	<volume>	tonePct:50 <CR>
toneFreq	The valid <frequency> range (in Hz) is 100-5000.	<frequency>	toneFreq:200 <CR>

N4321D Status Packet Responses

Field	Values	Notes
SVSI_N4000: N4321D	Serial Number of the device	
ID	0 – xxxxx	
NAME	Device Name	
txName	Device TX Name	For SVSI/PCM TX Stream Name in N-Able
rxName	Device RX Name	For SVSI/PCM RX Stream Name in N-Able
MAC	MAC Address of the device	
IP	IP address of the device	
NM	Subnet address of the device	
GW	Gateway address of the device	
IPTRIAL	0 or 1	
IPMODE	STATIC or DHCP	
SWVER	Version of firmware	
WEBVER	Version of Web firmware	Displays in Unix timestamp
UPDATE	0 or 1	Used by N-Able when updating firmware
UPDTRY	0 or 1	Used by N-Able when updating firmware
UPDFAILED	0 or 1	Used by N-Able when updating firmware
MAINVOL_L	0 – 100	
MAINVOL_R	0 – 100	
HEADPHONEVOL_L	0 – 100	
HEADPHONEVOL_R	0 – 100	
LINEOUTVOL_L	0 – 100	
LINEOUTVOL_R	0 – 100	
LINEIN	bal or unbal	
INPUTGAINLEFT	0	Used on Analog Input
INPUTGAINRIGHT	0	Used on Analog Input
PORTSD1	no or yes	yes = P1 disabled | no = P1 is enabled
USERMCMODE	off or on	on = multicast address override enabled off = multicast address override disabled
USERMCIP	Multicast Address	Displays current custom multicast scheme
DISABLED	0 or 1	
MEDIASRC	1	

Field	Values	Notes
OUTSTREAM	1-65535	Current SVSI/PCM TX Stream number
TXSAMPLE	48000	
TXUNICAST	0	0 = Disabled | 1 = Enabled
TXUNICASTIP2	192.168.1.50	Unicast destination IP address
TXAUDIODELAY	0	
ANALOG_IN_MUTE	0 or 1	0 = unmuted | 1 = muted
ANALOG_OUT_MUTE	0 or 1	0 = unmuted | 1 = muted
DANTE_IN_MUTE	0 or 1	0 = unmuted | 1 = muted
DANTE_OUT_MUTE	0 or 1	0 = unmuted | 1 = muted
SVSI_IN_MUTE	0 or 1	0 = unmuted | 1 = muted
SVSI_OUT_MUTE	0 or 1	0 = unmuted | 1 = muted
GLOBALMUTE	0 or 1	0 = unmuted | 1 = muted
RXDISABLED	0 or 1	0 = SVSI/PCM RX Enabled 1 = SVSI/PCM RX Disabled
RXMEDIASRC	1	
RXSTREAM	RX Stream Number 1-65535	Current SVSI/PCM RX Stream number
RXUNICAST	0 or 1	0 = RX Unicast Disabled 1 = RX Unicast Enabled
RXAUDIODELAY	0-1000	Adds delay (in ms) to RX stream
DM_A_EN	On or Off	On = Analog Out Downmixing Enabled Off = Analog Out Downmixing Disabled
DM_A_IEN	Off	
DM_A_SRC	0-3	Indicates selected downmix channels. 0 = FL/FR | 1 = Center/LFE 2 = SR/SL | 3 = RR/RL
DM_CGAIN	0	Center Gain for downmixing
DM_FGAIN	0	Front Gain for downmixing
DM_SLGAIN	0	Surround Left Gain for downmixing
DM_SRGAIN	0	Surround Right Gain for downmixing
ANALOG_ROUTE	None	Status of Analog IN routing
DANTE_ROUTE	SVSIOut	Status of Dante RX routing
SVSI_AUDIO_ROUTE	All	Status of SVSI/PCM RX routing
MEDIAPORT0	On or Off	0 = Multicast allowed on P0 1 = Multicast disabled on P0
MEDIAPORT1	On or Off	0 = Multicast allowed on P1 1 = Multicast disabled on P1
relay1State	Open or Close	
relay2State	Open or Close	
relayInterlock	Off or On	
phantomPower	Off or On	
HTTPS	0 or 1	0 = Force HTTPS disabled 1 = Force HTTPS enabled
gpiHighEvntDly	1	
gpiLowEvntDly	1	
gpiLevel	Low or High	
GRATARP	On or Off	
GRATARPINT	10	
discoveryIP	239.254.12.16	

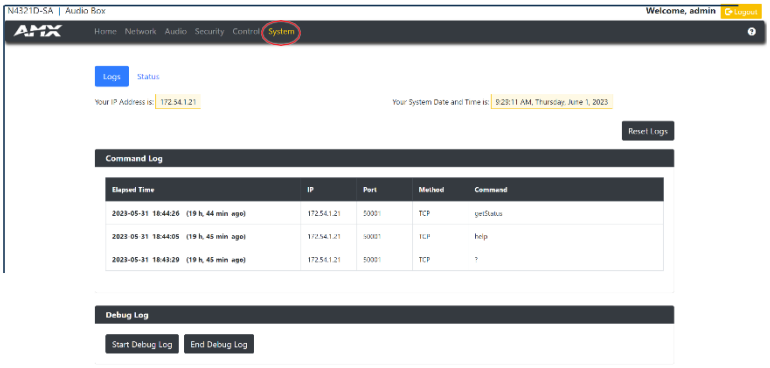
Field	Values	Notes
enableDiscoveryPackets	On or Off	
discoveryIntervalSec	1	
discoveryPort	50019	
chassisID	LLDP chassisID	Chassis ID of network switch connected to device.
sysName	LLDP sysName	System Name of network switch connected to device.
sysDescr	LLDP sysDescr	System Description of network switch connected to device.
portID	LLDP portID	Name of network switch port device is connected to.
portDescr	LLDP portDescr	Description of network switch port device is connected to.
streamTone	On or Off	
playTone	On or Off	
tonePct	25	Volume level of test tone (0 – 100)
toneFreq	1000	
leftTone	On or Off	On = Left Channel enabled Off = Left Channel disabled
rightTone	On or Off	On = Right Channel enabled Off = Right Channel enabled
toneType	tone | whiteNoise | pinkNoise	Indicates type of test tone in use

API Command Discovery

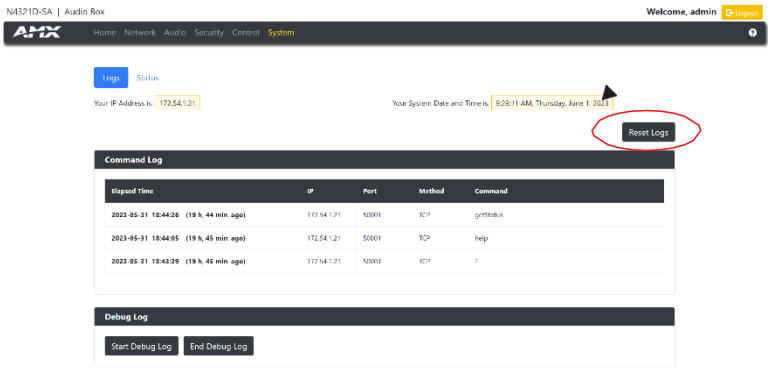
Follow these steps to discover API commands using the web interface's **Log** page.

NOTE: This example features an SVSI system Decoder, but the steps also apply to most SVSI system products.

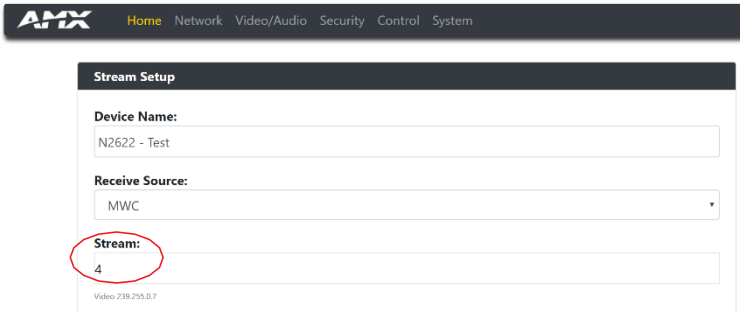
1. Log in to your unit's web interface and click the **Logs** link under the **System** heading.



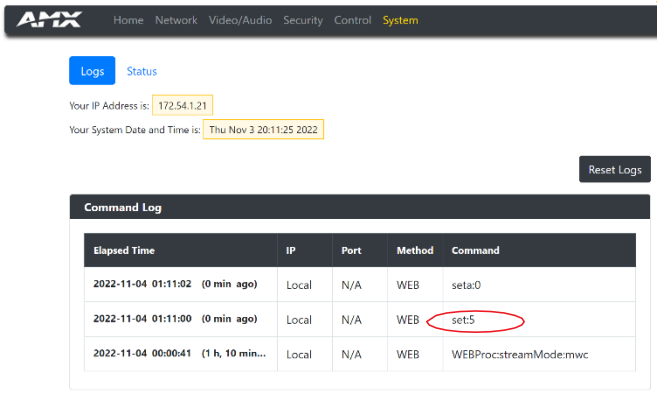
2. Click the **Reset Logs** button.



3. Change a setting. For this example, we are discovering the API command used to change the **Stream** setting.



4. Return to the **Logs** page. The API command for the change displays here.



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