

Introduction

NetLinx Studio is commonly used by system programmers to streamline the integration, programming, organization, and support of their AMX equipment. As the cornerstone of AMX's system design software tools, NetLinx Studio offers programmers the most flexible application capable of generating the most sophisticated code possible. Now equipment in our latest N-Series Networked AV Product comes equipped with NetLinx support. This addendum introduces the new configuration aspects necessary to bring all of your NetLinx-compatible equipment up to speed with the latest functionality. This addendum covers NetLinx functionality as it applies to AMX's N-Series product line and is designed to be used as a supplement to additional product documentation found on our website at http://www.amx.com/techcenter/.

COMMON APPLICATIONS

NetLinx Studio is a Microsoft Windows program that integrates programming, organization, and support into one application for NetLinx system development.

NetLinx Configuration Using the Unit's Webpage

From any main page of the unit webpage, click the NetLinx tab. See Figure 1. Table 1 provides descriptions for each configuration option.

NOTE: For instructions on how to log in to your unit for the first time, please see the Quick Start Guide (provided in shipment) or visit our website to view the unit's user manual.

Click here to access NetLinx configuration options.

∞ <u>N-Series Deco</u>		1000										<u> </u>
ttings Crop/Pan/Zoon	m <u>Loca</u>	IPlay_	IR	N-Act	Serial	Security	<u>KVM</u>	EDID	Logs	LLDP	NetLinx	
Netlinx Setup												
Enable	•											
Device Status:	Online				C	Configura	tion op	otions a	vailabl	e will		
Master Mode:	URL	-				lepend on				-		
IP/URL	192.16	8.1.2	00		C	hoose. Se	ee labi	e 1 for	more of	details.		
Port	1319	\$			J							
Device Number	8001	\$										
		•										
System Number												
Username	admini	strate	or									
Password	•••••	••			J							
	Save	-										

FIGURE 1 NetLinx Configuration Page

TABLE 1	NetLinx	Page	Options
---------	---------	------	---------

Command	Description
Enable	Click to enable/disable NetLinx on this device.
Device Status	This status field will show the device to be Online , Connected , Offline , or Unknown .
Master Mode	Select Auto, Listen, or URL.

TABLE 1 NetLinx Page Options (Cont.)

Command	Description
IP/URL	Enter the address of the Master Controller.
Port	This field should always be set to 1319 .
Device Number	Defaults to a dynamic device number. May be set to a static range (e.g., 8000).
System Number	 Determines which system to connect. This setting is dependent upon the Master Mode selected (see above). If Master Mode is set to Auto, the System Number is set and the system discovers the Master Controller's IP address. If Master Mode is set to Listen, the device connects to any Master Controller. If Master Mode is set to URL, the IP of the Master Controller is set.
Username	Username for the Master Controller.
Password	Password for the Master Controller.
Save	Save settings made on this page.

Batch Configurations Using N-Able

One of the many benefits of using N-Able control is batch configuration. This is especially useful in larger deployments. Instead of using the individual unit web pages (discussed in the previous section), simply open N-Able and select **Tools > Batch Config**. See Figure 2.

N-Able	Tools	Documents Help	
VIDEC	C Re	efresh Network	F5
VIDEC		erial Commands	
N100	BOD N	etwork Troubleshooter	Ctrl+Shift+N
	Stroadcast IP Reset		Ctrl+I
	⊐ Batch Config		
	- N	-Series EDID Configuration	

FIGURE 2 Selecting Batch Config in N-Able

The screen shown in figure xx displays and allows you to choose the units you would like to enable for NetLinx control. To select multiple units, hold down the **<Ctrl>** key. Once all of the units are selected, enable the NetLinx On button and click the OK button at the bottom of the screen.

									1
Ba	atch Config								
Set	Selected Units to: O AUTO-IP		Off CEactory Re	store (Netliny		ff 🔿 Set Multic	ast to: exam	onle: 239.25	Clear
_	~					1			
	Name	MAC	SN	Туре	IP	Subnet	Gateway	IP Type	
1	Name (4) PAN COM ANALOG		SN N225A020000686		-		Gateway 169.254.1.1	IP Type Auto IP	
1		00:19:0B:80:49:CB		N1-DEC-KVM	169.254.121.225		169.254.1.1		
1 2 3	(4) PAN COM ANALOG	00:19:0B:80:49:CB 00:19:0B:80:01:BD	N225A020000686 N225A020000140	N1-DEC-KVM N1-DEC-KVM	169.254.121.225 192.168.1.205	255.255.0.0 255.255.255.0	169.254.1.1	Auto IP	
1 2 3 4	(4) PAN COM ANALOG 00:19:0B:80:01:BD	00:19:0B:80:49:CB 00:19:0B:80:01:BD	N225A020000686 N225A020000140 N225A02000078	N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM	169.254.121.225 192.168.1.205 169.254.213.187	255.255.0.0 255.255.255.0 255.255.0.0	169.254.1.1 192.168.1.1	Auto IP DHCP	
1 2 3 4 5	(4) PAN COM ANALOG 100:19:08:80:01:8D Cameron 4K Decoder #2	00:19:0B:80:49:CB 00:19:0B:80:01:BD 00:19:0B:80:01:1B 00:19:0B:80:01:EC	N225A020000686 N225A020000140 N225A02000078	N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM	169.254.121.225 192.168.1.205 169.254.213.187 169.254.229.244	255.255.0.0 255.255.255.0 255.255.0.0	169.254.1.1 192.168.1.1 169.254.1.1	Auto IP DHCP Static IP	
1 2 3 4 5 6	 (4) PAN COM ANALOG 00:19:0B:80:01:BD Cameron 4K Decoder #2 Cameron's 4K Decoder 	00:19:0B:80:49:CB 00:19:0B:80:01:BD 00:19:0B:80:01:1B 00:19:0B:80:01:EC	N225A020000686 N225A020000140 N225A02000078 N225A020000187	N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM N1-DEC-KVM	169.254.121.225 192.168.1.205 169.254.213.187 169.254.229.244 169.254.59.207	255.255.0.0 255.255.255.0 255.255.0.0 255.255.0.0	169.254.1.1 192.168.1.1 169.254.1.1 169.254.1.1 169.254.1.1	Auto IP DHCP Static IP Static IP	

FIGURE 3 Enabling NetLinx on Multiple Units

NOTE: Items are not filtered. In other words, if you send a NetLinx command to a device that does not support it, the command is simply ignored.

Encoder/Decoder Commands

The following section provides information on native, string, IR, and serial commands for N-Series Encoders and Decoders as related to NetLinx management. Commands are issued on the following ports:

- Port 1: Native and String Commands
- Port 2: IR Commands
- Port 3: Serial Commands

Command	Description
CO <stream> Set the current Encoder stream number.</stream>	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'CO <stream>' Variables: stream = The target stream number from 1 to 32767. NOTE: Stream number MOD 256 must not equal 0 or 255. Examples: SEND_COMMAND 5002:1:0, 'CO 2' Command the Encoder to transmit on stream 2.</stream></dev>
CI <stream> Set the current Decoder stream number.</stream>	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'CI <stream>' Variables: stream = The target stream number from 0 to 32767. NOTE: Stream number MOD 256 must not equal 0 or 255. The only exception to this limitation is that the stream number can be 0 (no stream). Examples: SEND_COMMAND 5002:1:0, 'CI 2' Command the Decoder to receive stream 2.</stream></dev>
CA <stream> Set the current Decoder Audio stream number.</stream>	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'CA <stream>' Variables: stream = The target stream number from 0 to 32767. Set to 0 for the audio stream to follow the video stream. Examples: SEND_COMMAND 5002:1:0, 'CA 2' Command the Decoder to receive audio stream 2.</stream></dev>
AUDOUT_MUTE Set the audio mute.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'AUDOUT_MUTE-<enable disable="" ="">' Variables: ENABLE = Enables audio mute. DISABLE = Disables audio mute. Examples: SEND_COMMAND 5002:1:0, 'AUDOUT_MUTE-ENABLE' Enable audio mute.</enable></dev>
VIDOUT_MUTE Disable the Encoder/Decoder output stream.	<pre>IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'VIDOUT_MUTE-<enable disable>' Variables: ENABLE = Enables video mute. DISABLE = Disables video mute. Examples: SEND_COMMAND 5002:1:0, 'VIDOUT_MUTE-ENABLE' Enable video mute.</enable disable></dev></pre>
LIVE_PLAY Set the device into live play mode.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'LIVE_PLAY' Examples: SEND_COMMAND 5002:1:0, 'LIVE_PLAY' Enable live play.</dev>

Native Commands Port 1 (Cont.)

Command	Description
LOCAL_PLAY <playlist index=""> Enable Local Play on Decoders or Host Play on Encoders using the Playlist number. USB_HID_SERVICE Enable or disable USB.</playlist>	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'LOCAL_PLAY index' Variables: Playlist index = Which Default Playlist index to enable. Examples: SEND_COMMAND 5002:1:0, 'LOCAL_PLAY 1' Enable local play with Default Playlist 1. IMPORTANT: This command must be sent to D:P:S port 1. Syntax:</dev>
	<pre>SEND_COMMAND <dev>, 'USB_HID_SERVICE-<enable disable>' Variables: ENABLE = Enables USB. DISABLE = Disables USB. Examples: SEND_COMMAND 5002:1:0, 'USB_HID_SERVICE-ENABLE' Enable USB.</enable disable></dev></pre>
REBOOT Reboot the device.	Syntax: SEND_COMMAND <dev>, 'REBOOT' Variables: None Examples: SEND_COMMAND 5002:1:0, 'REBOOT' Reboots the device.</dev>
?VIDOUT_OUTPUT Request the Encoder current stream number.	Syntax: SEND_COMMAND <dev>, '?VIDOUT_OUTPUT' Examples: SEND_COMMAND 5002:1:0, '?VIDOUT_OUTPUT' Command Response: 'VIDOUT_OUTPUT-852'</dev>
?VIDIN_INPUT Request the Decoder current stream number.	<pre>Syntax: SEND_COMMAND <dev>, '?VIDIN_INPUT' Examples: SEND_COMMAND 5002:1:0, '?VIDIN_INPUT' Command Response: 'VIDIN_INPUT-852'</dev></pre>
?AUDOUT_MUTE Request the state of the audio mute.	Syntax: SEND_COMMAND <dev>, '?AUDOUT_MUTE' Examples: SEND_COMMAND 5002:1:0, '?AUDOUT_MUTE' Command Response: 'AUDOUT_MUTE-ENABLE'</dev>
?VIDOUT_MUTE Request the state of the Encoder stream transmission.	Syntax: SEND_COMMAND <dev>, '?VIDOUT_MUTE' Examples: SEND_COMMAND 5002:1:0, '?VIDOUT_MUTE' Command Response: 'VIDOUT_MUTE-DISABLE'</dev>
?LIVE_PLAY Request the status of Live Play.	<pre>Syntax: SEND_COMMAND <dev>, '?LIVE_PLAY' Examples: SEND_COMMAND 5002:1:0, '?LIVE_PLAY' Command Response: 'LIVE_PLAY-live' or 'LIVE_PLAY-local'</dev></pre>

Native Commands Port 1 (Cont.)

Command	Description
?LOCAL_PLAY Request the Local Play/Host Play Playlist number.	<pre>Syntax: SEND_COMMAND <dev>, '?LOCAL_PLAY' Examples: SEND_COMMAND 5002:1:0, '?LOCAL_PLAY' Command Response: 'LOCAL_PLAY-1'</dev></pre>
?USB_HID_SERVICE Request the status of the USB.	<pre>Syntax: SEND_COMMAND <dev>, '?USB_HID_SERVICE' Examples: SEND_COMMAND 5002:1:0, '?USB_HID_SERVICE' Command Response: 'USB_HID_SERVICE-<0 1>'</dev></pre>

IR/Serial Send Commands Port 3

Command	Description
GET BAUD Get the RS-232 port's communication parameters.	Syntax: SEND_COMMAND <dev>, 'GET BAUD' Example: SEND_COMMAND 5002:3:0, 'GET BAUD' Command Response: 'GET-9600,N,8,1'</dev>
SET BAUD Set the RS-232 port's communication parameters.	<pre>Syntax: SEND_COMMAND <dev>, 'SET BAUD <baud>, <parity>, <data>, <stop>' Variables: baud = baud rates are: 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200. parity = N (none), O (odd), E (even). data = 8 data bits. stop = 1 and 2 stop bits. Example: SEND_COMMAND 5002:3:0, 'SET BAUD 9600,N,8,1' Command Response: 'SET- BAUD 9600,N,8,1'</stop></data></parity></baud></dev></pre>

Pass Through Commands

For other commands, the NetLinx String command will interpret any existing N-Series API command. For example, to enable the scaler, send the following string command:

SEND STRING <DEV>, 'scalerenable'

Similarly, to disable the scaler, send the string command:

```
SEND_STRING <DEV>, 'scalerdisable'
```

The response to a pass through string command is the issued command followed by the status message. For example:

- Command string: SEND STRING <DEV>, 'scalerenable'
- Response string

"'scalerenable-SVSI RXGEN2:N225A020000140',A, 'NAME:00:19:0B:80:01:BD',A, 'MAC:00:19:0B:80:01:BD'..."

NOTE: Multiple commands cannot be issued together separated by ' \r' . For more information, refer to the API documentation for the N-Series device.

IR Port 2

Using the NetLinx Studio application, download the appropriate IR file to the N-Series device to use the appropriate channels. Port 2 is used to send IR commands. Some tuning of the NetLinx **Pulse Time**, **IR Command Holdoff**, and **IR Repeat Holdoff** on the N-Series device may be required. The Pulse Time is controlled in the SNAPY code. The **IR Command Holdoff** and the **IR Repeat Holdoff** are controlled on the **Advanced** section of the N-Series device **Settings** web page. See Figure 4 to see where to find these options.

IR Command Holdoff

- This is the delay between IR commands portions.
- To set the IR Command Holdoff, issue the following string command: SEND_STRING <DEV>, 'setSettings:ircmdtime:<time in ms>'
- The default value is 25 ms.

IR Repeat Holdoff

- This is the repeat delay between IR commands.
- To set the IR Repeat Holdoff, issue the following string command:
 - SEND_STRING <DEV>, 'setSettings: irc2rtime:<time in ms>'
- The default value is 90 ms.

ngs Crop/Pan/Zoom L	ocalPlay IR <u>N-Act Serial</u>	Security EDID Logs LLDP NetLinx
Decoder Setup		
Device Name:	samsung 2chip digital	Network Setup
Stream	2135	IP Mode: AUTO IP AUTO IP
Audio Stream	Video: 239.255.8.87:50002	IP address 169.254.176.33 169.254.176.33 Netmask 255.255.0.0 255.255.0.0
Audio Follows Video	Audio: 239.255.136.87:50003	Gateway address 169.254.1.1 169.254.1.1
scaler	♥ Follows	Ping Test 169.254.1.1 Ping
Dutput Mode	1080p60 •	Trial Save
.ive/Local	Live	
/ideo Mute	Mute	Status
Audio Mute	OMute	HDMI Status: disconnected
Lineout Volume		Input Resolution: 1280x720 (59.94 Hz)
Set Left/Right		Port 50001 Source IP: Disconnected Flush
Enable HDMI Audio	Auto (is off)	Port 50002 Source IP: Disconnected Flush
	Cancel Save	Serial Source IP: Disconnected Flush
Advanced Settings		Port PO: 1000 Mbps Full Duplex
Settings Lock	Enable	Port P1: Disconnected
input audio for LocalPlay	C Enable	Change Password
/CbCr 4:2:2 Output	Off (is off)	Change Password
Simplified HDMI Detect	□ Enable	
ast Frame Hold	C Enable	Software
ocal Play Holdoff	3 • secs	Serial: N2222A30000139
3en1 Compatibility	Auto 🔻 (is off)	MAC address 00:19:0B:80:0A:1B
HDMI off on stream loss	🔾 Enable	Firmware Version: v1.11.3 (8/31/2016)
IDMI Enable	🗷 Enable	Web Version: 9/7/2016
nvert HDMI Horizontal Sync	🔾 Enable	Factory Restore Reboot
invert HDMI Vertical Sync	🗐 Enable	
Gratuitous ARP	OEnable	Audio Downmixer
ARP Interval(secs)	50 •	Audio Downmixer Settings
Insolicited Status	ᢞ Enable	
Send Status Address	0.0.0.0	
Status Interval(secs)	10 •	
Discovery Packet Transmit	C Enable	
Discovery Interval(secs)	10 •	
Serial Master Enable	C Enable	
Serial Slave Address	0.0.0.0	
R Command Holdoff	25 ms 🖒	
R Repeat Holdoff	90 ms 🖒	
GMP Joins on Stream Loss	M Enable	
GMP Join Interval	3 • secs	
Auto Sync Control	Enable	

FIGURE 4 Advanced IR Port Settings

Serial Port 3

Port 3 is used for serial commands. Any string sent with the send string command will be output through the serial port. Data returned from the serial port will be from the device also on port 3.

Windowing Processor Commands

The following section provides information on native and string commands for N-Series Windowing Processors as related to NetLinx management. Native and string commands are issued on Port 1.

Command	Description
CO <stream></stream>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the current output stream number.	Syntax:
	SEND_COMMAND <dev>, 'CO <stream>'</stream></dev>
	Variables:
	stream = The target stream number from 1 to 32767.
	Examples: SEND COMMAND 5002:1:0, 'CO 2'
	Command the windowing processor to transmit on stream 2.
	IMPORTANT: This command must be sent to D:P:S port 1.
CI <window> <stream> Set the current stream number for window.</stream></window>	Syntax:
	SEND COMMAND <dev>, 'CI <window> <stream>'</stream></window></dev>
	Variables:
	window = The target window from 0 to 3.
	stream = The target stream number from 1 to 32767.
	Examples:
	SEND_COMMAND 5002:1:0, 'CI 4 2' Command the windowing processor to receive stream 2 on window 4.
CA <stream> Set the current Decoder Audio stream number.</stream>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the current becoder Audio stream number.	Syntax: SEND COMMAND <dev>, 'CA <stream>'</stream></dev>
	Variables:
	stream = The target stream number from 0 to 32767. Set to 0 for the audio stream to
	follow the video stream.
	Examples:
	SEND_COMMAND 5002:1:0, 'CA 2' Command the Decoder to receive audio stream 2.
AUDOUT_MUTE Set the audio mute.	IMPORTANT: This command must be sent to D:P:S port 1.
Set the audio mute.	Syntax: SEND COMMAND <dev>, 'AUDOUT MUTE-<enable disable>'</enable disable></dev>
	Variables:
	ENABLE = Enables audio mute.
	DISABLE = Disables audio mute.
	SEND_COMMAND 5002:1:0, 'AUDOUT_MUTE-ENABLE' Enable audio mute.
	IMPORTANT: This command must be sent to D:P:S port 1.
VIDOUT_MUTE Disable the Encoder output stream.	
Disable the Decoder video output stream.	Syntax: SEND COMMAND <dev>, 'VIDOUT MUTE-<enable disable>'</enable disable></dev>
	Variables:
	ENABLE = Enables video mute.
	DISABLE = Disables video mute.
	Examples:
	SEND_COMMAND 5002:1:0, 'VIDOUT_MUTE-ENABLE' Enable video mute.
?VIDOUT_OUTPUT Request the current output stream number.	
	SEND_COMMAND <dev>, '?VIDOUT_OUTPUT' Examples:</dev>
	SEND_COMMAND 5002:1:0, '?VIDOUT_OUTPUT'
	Command Response:
	'VIDOUT_OUTPUT-852'
?VIDIN_INPUT <window></window>	Syntax:
Request the current stream number.	SEND_COMMAND <dev>, '?VIDIN_INPUT <window>'</window></dev>
	Variables:
	window = The target window from 0 to 3.
	Examples: SEND COMMAND 5002:1:0, '?VIDIN INPUT 3'
	Command Response:
	'VIDIN_INPUT-852'

Native Commands Port 1 (Cont.)

Command	Description
?AUDIN_INPUT Request the current audio stream number.	Syntax: SEND_COMMAND <dev>, '?AUDIN_INPUT' Examples: SEND_COMMAND 5002:1:0, '?AUDIN_INPUT' Command Response: 'AUDIN_INPUT-124'</dev>
?AUDOUT_MUTE Request the state of the audio mute.	Syntax: SEND_COMMAND <dev>, '?AUDOUT_MUTE' Examples: SEND_COMMAND 5002:1:0, '?AUDOUT_MUTE' Command Response: 'AUDOUT_MUTE-ENABLE'</dev>
?VIDOUT_MUTE Request the state of the Encoder stream transmission.	Syntax: SEND_COMMAND <dev>, '?VIDOUT_MUTE' Examples: SEND_COMMAND 5002:1:0, '?VIDOUT_MUTE' Command Response: 'VIDOUT_MUTE-DISABLE'</dev>

Windowing Processor Pass Through Command Examples

For other commands, the NetLinx String command will interpret any existing N-Series API command. The following sequence of string commands exemplifies the pass through commands used to set up a quad window with white border of two pixels for windows 0 and 1 and no border for windows 2 and 3.

SEND_STRING <dev>, 'bordon:0' SEND_STRING <dev>, 'setbord:0:2,2' SEND_STRING <dev>, 'winset:0:0,0,959,539' SEND_STRING <dev>, 'setz:0:1' SEND_STRING <dev>, 'setz:0:1' SEND_STRING <dev>, 'set:1<<stream 1="" window="">' SEND_STRING <dev>, 'setbordcol:1:255,255,255' SEND_STRING <dev>, 'setbordcol:1:255,255,255' SEND_STRING <dev>, 'bordon:1' SEND_STRING <dev>, 'setbord:1:2,2' SEND_STRING <dev>, 'winset:1:960,0,1919,539' SEND_STRING <dev>, 'setz:1:2' SEND_STRING <dev>, 'setz:1:2' SEND_STRING <dev>, 'setbordcol:2:255,255,255' SEND_STRING <dev>, 'setbordcol:2:255,255,255' SEND_STRING <dev>, 'setbordcol:2:255,255,255' SEND_STRING <dev>, 'winset:2:0,540,959,1079' SEND_STRING <dev>, 'setz:2:3' SEND_STRING <dev>, 'setbordcol:3:255,255,255' SEND_STRING <dev>, 'setbordcol:3:255,255,255'</dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></dev></stream></dev></dev></dev></dev></dev></dev>
SEND_STRING <dev>, 'winset:3:960,540,1919,1079'</dev>

Network Video Recorder Commands

The following section provides information on native and string commands for the N-Series Network Video Recorder (NVR) as related to NetLinx management.

Command	Description
MODE <mode></mode>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the recording and playback mode.	Syntax:
	SEND_COMMAND <dev>, 'MODE <mode>'</mode></dev>
	Variables:
	<pre><mode> = the desired recording/playback mode. Modes include: 1 = N1000 mode</mode></pre>
	2 = N2000 mode
	3 = N3000 mode
	Examples:
	SEND_COMMAND 5002:1:0, 'MODE 2' Command Response:
	'MODE-2'
	Command the NVR to N2000 mode.
MPEG_MODE <mode></mode>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the conversion mode.	Syntax:
	SEND_COMMAND <dev>, 'MPEG_MODE <mode>'</mode></dev>
	Variables:
	<mode> = The desired conversion mode. mp4 = Convert to mp4 format.</mode>
	mov = Convert to mov format.
	Examples:
	SEND_COMMAND 5002:1:0, 'MPEG_MODE mp4'
	Command Response:
	'MPEG_MODE-mp4' Command the NVR to convert to mp4 format.
PLAY	IMPORTANT: This command must be sent to D:P:S port 1.
Play a recorded stream.	<pre>Syntax: SEND_COMMAND <dev>, 'PLAY <channel>,<recording>, <loop>[, <single> [,</single></loop></recording></channel></dev></pre>
	Variables:
	<channel> = Number of the NVR channel to use for playback.</channel>
	<recording> = Filename of recording in "f.########.index" format, or zero-based index number in list.</recording>
	<loop> = 1 for looping, 0 to play once.
	<pre><single> = 1 for first stream only (for dual recordings only), 0 to play all streams. (default). <start> = Number of seconds from start to start playing.</start></single></pre>
	<pre><end> = Number of seconds from start to end playing.</end></pre>
	Examples:
	SEND_COMMAND 5002:1:0, 'PLAY 0,0,1'
	Command Response: 'PLAY-1000000000'
	Indicates NVR is playing on channel 1.
PLAY_STOP	IMPORTANT: This command must be sent to D:P:S port 1.
Stop the current playback.	Syntax:
· · ·	SEND_COMMAND <dev>, 'PLAY_STOP [<channel>]'</channel></dev>
	Variables:
	<pre><channel> = Number of the NVR channel to use for playback. Use -1 or leave blank for all playing</channel></pre>
	all playing. Examples:
	SEND COMMAND 5002:1:0, 'PLAY STOP'
	Command Response:
	'PLAY-000000000'
	Indicates NVR is not playing on any channel. Stops playback on all channels.

Command	Description
PLAY PAUSE	IMPORTANT: This command must be sent to D:P:S port 1.
Pause the current playing video.	Syntax: SEND_COMMAND <dev>, 'PLAY_PAUSE [<channel>]' Variables: <channel> = Number of the NVR channel to use for pause. Use -1 or leave blank for all playing. Examples:</channel></channel></dev>
	SEND_COMMAND 5002:1:0, 'PLAY_PAUSE' Command Response: none Pause the current playing video.
PLAY_RESUME Resume the currently paused, rewinding, or fast forward video.	<pre>IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'PLAY_RESUME [<channel>]' Variables: <channel> = Number of the NVR channel to use for pause. Use -1 or leave blank for all playing. Examples: SEND_COMMAND 5002:1:0, 'PLAY_RESUME' Command Response: none Resume the video.</channel></channel></dev></pre>
PLAY_FAST_FORWARD Put the current playing video into fast forward using the last speed or the given <speed>.</speed>	<pre>IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'PLAY_FAST_FORWARD [<channel>[,<speed>]]' Variables: <channel> = Number of the NVR channel to control. Use -1 or leave blank for all playing. <speed> = Number of frames to jump forward per update. Examples: SEND_COMMAND 5002:1:0, 'PLAY_FAST_FORWARD' Command Response: none Start fast forwarding the playing video.</speed></channel></speed></channel></dev></pre>
PLAY_REWIND Play current video backward.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'PLAY_REWIND [<channel>[,<speed>]] Variables: <channel> = Number of the NVR channel to control. Use -1 or leave blank for all playing. <speed> = Number of frames to jump back per update. Examples: SEND_COMMAND 5002:1:0, 'PLAY_REWIND'</speed></channel></speed></channel></dev>
	Command Response: none Put the current playing video into rewind mode using the last speed.
PLAY_SINGLE_STEP_FORWARD Skip a number of frames forward.	<pre>IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'PLAY_SINGLE_STEP_FORWARD [<channel>[,<frames>]]' Variables: <channel> = Number of the NVR channel to control. Use -1 or leave blank for all playing. <frames> = Number of frames to jump forward. Default is 1. Examples: SEND_COMMAND 5002:1:0, 'PLAY_SINGLE_STEP_FORWARD' Command Response: none</frames></channel></frames></channel></dev></pre>
	•

Command	Description
PLAY_SINGLE_STEP_BACKWARD	IMPORTANT: This command must be sent to D:P:S port 1.
Skip a number of frames backward.	Syntax:
	SEND_COMMAND <dev>, 'PLAY_SINGLE_STEP_BACKWARD [<channel>[,<frames>]]'</frames></channel></dev>
	Variables:
	<pre><channel> = Number of the NVR channel to control. Use -1 or leave blank for all playing.</channel></pre>
	<pre></pre>
	Examples:
	SEND_COMMAND 5002:1:0, 'PLAY_SINGLE_STEP_BACKWARD' Command Response:
	none
	Step a single frame backward.
PLAY_HOLD	IMPORTANT: This command must be sent to D:P:S port 1.
Hold a channel from playing videos until a	Syntax:
"release" command is executed. Use	SEND_COMMAND <dev>, 'PLAY_HOLD [<channel>]'</channel></dev>
"PLAY_STOP <channel>" to abort the hold.</channel>	Variables: <channel> = Number of the NVR channel to control. Use -1 or leave blank for all</channel>
	playing.
	Examples:
	SEND_COMMAND 5002:1:0, 'PLAY_HOLD'
	Command Response: none
	Hold all channels from playing video until released.
PLAY_RELEASE	IMPORTANT: This command must be sent to D:P:S port 1.
Release a playback waiting to start. Used for	Syntax:
playing multiple channels at the same	SEND_COMMAND <dev>, 'PLAY_RELEASE'</dev>
synchronous time. Hold first, then do the	Examples:
commands for playback, then do the matching release command.	SEND_COMMAND 5002:1:0, 'PLAY_RELEASE' Command Response:
	none
	Release all channels from play hold.
RECORD	IMPORTANT: This command must be sent to D:P:S port 1.
Start a single or dual recording on the given	Syntax:
streams.	<pre>SEND_COMMAND <dev>, 'RECORD <channel>, <vid1stream>, <aud1stream>,</aud1stream></vid1stream></channel></dev></pre>
	<pre>[<vid2stream>, <aud2stream>,] <duration>, <description>' Variables:</description></duration></aud2stream></vid2stream></pre>
	<channel> = Number of the NVR channel to use for this recording.
	<vid1stream> = Stream number of first video stream to record.</vid1stream>
	<pre><aud1stream> = Stream number of first audio stream to record, or 0 to follow</aud1stream></pre>
	vid1stream. <vid2stream> = Stream number of second video stream to record.</vid2stream>
	<pre><ud2stream> = Stream number of second audio stream to record. <aud2stream> = Stream number of second audio stream to record, or 0 to follow</aud2stream></ud2stream></pre>
	vid2stream.
	<pre><duration> = Length of recording in seconds. <description> = Text of description in ASCII (NO SPACES ARE ALLOWED IN</description></duration></pre>
	DESCRIPTION).
	Examples:
	SEND_COMMAND 5002:1:0, 'RECORD 0,123,0,600, TestRecording'
	Start a recording on channel 0, video and audio stream 123, for 10 minutes (600 seconds).
	IMPORTANT: This command must be sent to D:P:S port 1.
RECORD_STOP Stop the current recording.	·
	Syntax: SEND COMMAND <dev>, 'RECORD STOP [<channel>]'</channel></dev>
	Variables:
	<pre><channel> = Number of the NVR channel to control. Use -1 or leave blank for all</channel></pre>
	playing. Examples:
	SEND COMMAND 5002:1:0, 'RECORD STOP'
	Command Response:
	none
	Stop recording video on all channels.

Command	Description
RECORD_CONTINUOUS	IMPORTANT: This command must be sent to D:P:S port 1.
Start a continuous single or dual recording on the given streams. The recording contains the	Syntax: SEND COMMAND <dev>, 'RECORD CONTINUOUS <channel>, <vid1stream>,</vid1stream></channel></dev>
last <duration> time.</duration>	<pre><audistream>, [<vid2stream>, <aud2stream>,] <duration>, <description>'</description></duration></aud2stream></vid2stream></audistream></pre>
	Variables:
	<channel> = Number of the NVR channel to use for this recording.</channel>
	<pre><vid1stream> = Stream number of first video stream to record. <aud1stream> = Stream number of first audio stream to record, or 0 to follow</aud1stream></vid1stream></pre>
	vid1stream.
	<pre><vid2stream> = Stream number of second video stream to record. <aud2stream> = Stream number of second audio stream to record, or 0 to follow</aud2stream></vid2stream></pre>
	vid2stream.
	<pre><duration> = Length of recording in seconds.</duration></pre>
	<pre><description> = Text of description in ASCII (NO SPACES ARE ALLOWED IN DESCRIPTION).</description></pre>
	Examples:
	SEND COMMAND 5002:1:0, 'RECORD CONTINUOUS 0,123,0,600,TestRecording'
	Command Response: none
	Start a continuous recording of the last 10 minutes (600 seconds) on channel 0, video
	and audio stream 123.
RECORD_CONVERT	IMPORTANT: This command must be sent to D:P:S port 1.
Start a single or dual recording on the given streams and convert the recording to either	Syntax: SEND COMMAND <dev>, 'RECORD CONVERT</dev>
MP4 or MOV (based on MPEG_MODE)	<pre><channel>,<vidlstream>,<audlstream>,[<vid2stream>,<aud2stream>,]</aud2stream></vid2stream></audlstream></vidlstream></channel></pre>
afterward.	<duration>, <bitrate>, <description>'</description></bitrate></duration>
	Variables: <channel> = Number of the NVR channel to use for this recording.</channel>
	<vid1stream> = Stream number of first video stream to record.</vid1stream>
	<pre><aud1stream> = Stream number of first audio stream to record, or 0 to follow vid1stream.</aud1stream></pre>
	<pre>vid2stream> = Stream number of second video stream to record.</pre>
	<aud2stream> = Stream number of second audio stream to record, or 0 to follow</aud2stream>
	vid2stream. <duration> = Length of recording in seconds.</duration>
	 bitrate> = bps video output rate, 0=default (7,500,000 bps).
	<pre><description> = Text of description in ASCII (NO SPACES ARE ALLOWED IN DESCRIPTION).</description></pre>
	Examples:
	SEND COMMAND 5002:1:0, 'RECORD_CONVERT 0,123,0,600,0,TestRecording'
	Command Response: none
	Start a recording on channel 0, video and audio stream 123, for 10 minutes. When the recording is complete, convert the recording at the default 7.5 Mbps video bitrate.
RECORD_HOLD Holds a channel from recording videos until a "release" command is executed. Use "stop: <channel>" to abort the hold.</channel>	IMPORTANT: This command must be sent to D:P:S port 1.
	Syntax:
	SEND_COMMAND <dev>, 'RECORD_HOLD [<channel>]' Variables:</channel></dev>
	<channel> = Number of the NVR channel to control. Use -1 or leave blank for all</channel>
	playing. Examples:
	SEND_COMMAND 5002:1:0, 'RECORD_HOLD'
	Command Response:
	none Hold all channel from recording video until released.
RECORD_RELEASE	IMPORTANT: This command must be sent to D:P:S port 1.
Release a recording waiting to start. Used for recording multiple channels at the same synchronous time. Hold first, then do the commands for record, then do the matching release command.	Syntax:
	SEND_COMMAND <dev>, 'RECORD_RELEASE'</dev>
	Examples: SEND_COMMAND 5002:1:0, 'RECORD_RELEASE'
	Command Response:
	none Release all channels from record hold.

Command	Description
?MODE	IMPORTANT: This command must be sent to D:P:S port 1.
Query the recording and playback mode.	Syntax: SEND_COMMAND <dev>, '?MODE' Variables: <mode> = The desired recording/playback mode. 1 = N1000 mode 2 = N2000 mode 3 = N3000 mode Examples: SEND_COMMAND 5002:1:0, '?MODE'</mode></dev>
	Command Response: 'MODE-2' Values: <mode> The recording/playback mode (1 = N1000, 2 = N2000, and 3 = N3000). IMPORTANT: This command must be sent to D:P:S port 1.</mode>
?MPEG_MODE <mode> Query the conversion mode.</mode>	Syntax: SEND_COMMAND <dev>, '?MPEG_MODE' Examples: SEND_COMMAND 5002:1:0, '?MPEG_MODE' Command Response: 'MPEG_MODE-mp4' Variables: <mode> = The desired conversion mode. mp4 = Convert to mp4 format. mov = Convert to mov format.</mode></dev>
?PLAY Query the playback channels.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, '?PLAY' Examples: SEND_COMMAND 5002:1:0, '?PLAY' Command Response: 'PLAY-1000000000' Indicating NVR is playing on channel 1.</dev>
PLAY_HOLD Query the playback channels that are in play hold.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, '?PLAY_HOLD' Examples: SEND_COMMAND 5002:1:0, '?PLAY_HOLD' Command Response: 'PLAY_HOLD-100000000' Indicating NVR is holding playing on channel 1.</dev>
?RECORD Query the recording channels.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, '?RECORD' Examples: SEND_COMMAND 5002:1:0, '?RECORD' Command Response: 'RECORD-100000000' Indicating NVR is recording on channel 1.</dev>
?RECORD_HOLD Query the recording channels that are in record hold.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, '?RECORD_HOLD' Examples: SEND_COMMAND 5002:1:0, '?RECORD_HOLD' Command Response: 'PLAY_HOLD-100000000' Indicating NVR is holding recording on channel 1.</dev>

Audio over IP Transceiver Commands

The following section provides information on native and string commands for the N-Series Audio over IP Transceiver (ATC) as related to NetLinx management.

Command	Description
CO <stream></stream>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the current output audio stream number.	Syntax: SEND_COMMAND <dev>, 'CO <stream>' Variables: <stream> = the target stream number from 1 to 32767 Examples: SEND_COMMAND 5002:1:0, 'CO 2' Command the ATC to transmit audio on stream 2.</stream></stream></dev>
CA <stream></stream>	IMPORTANT: This command must be sent to D:P:S port 1.
Set the current input audio stream number.	<pre>Syntax: SEND_COMMAND <dev>, 'CA <stream>' Variables: <stream> = The target stream number from 1 to 32767. Examples: SEND COMMAND 5002:1:0, 'CA 2'</stream></stream></dev></pre>
	Command the ATC to receive audio stream 2.
AUDOUT_MUTE Set the audio mute.	IMPORTANT: This command must be sent to D:P:S port 1. Syntax: SEND_COMMAND <dev>, 'AUDOUT_MUTE-<enable disable="" ="">' Variables: ENABLE = Enables audio mute. DISABLE = Disables audio mute. Examples: SEND_COMMAND 5002:1:0, 'AUDOUT_MUTE-ENABLE' Enables audio mute.</enable></dev>
REBOOT Reboot the device.	Syntax: SEND_COMMAND <dev>, 'REBOOT' Variables: None Examples: SEND_COMMAND 5002:1:0, 'REBOOT' Reboots the device.</dev>
?AUDOUT_OUTPUT Request the current output audio stream number.	Syntax: SEND_COMMAND <dev>, '?AUDOUT_OUTPUT' Examples: SEND_COMMAND 5002:1:0, '?AUDOUT_OUTPUT' Command Response: 'AUDIN_OUTPUT-123'</dev>
?AUDIN_INPUT Request the current input audio stream number.	<pre>Syntax: SEND_COMMAND <dev>, '?AUDIN_INPUT' Examples: SEND_COMMAND 5002:1:0, '?AUDIN_INPUT' Command Response: 'AUDIN_INPUT-124'</dev></pre>
?AUDOUT_MUTE Request the state of the audio mute.	Syntax: SEND_COMMAND <dev>, '?AUDOUT_MUTE' Examples: SEND_COMMAND 5002:1:0, '?AUDOUT_MUTE' Command Response: 'AUDOUT_MUTE-ENABLE'</dev>

Pass Through Commands Port 1

For other commands, the NetLinx String command will interpret any existing N-Series API command. For example, to set the ATC's master volume level for the right channel to 50, send the following string command: SEND STRING 5002:1:0, 'mastervolright:50'

For more information, refer to the API documentation for the N4321.

N-Command

Pass Through Commands Port 1

The NetLinx String command will interpret any existing N-Series N-Command API command. For example, to switch the output stream to 30 of a decoder at IP address 169.254.22.30, send the following string command: SEND STRING 5002:1:0, 'switch 169.254.22.30 25'

For more information, refer to the API documentation of N-Command.



© 2016 Harman. All rights reserved. AMX, AV FOR AN IT WORLD, and HARMAN, and their respective logos are registered trademarks of HARMAN. Oracle, Java and any other company or brand name referenced may be trademarks/registered trademarks of their respective companies. AMX does not assume responsibility for errors or omissions. AMX also reserves the right to alter specifications without prior notice at any time. The AMX Warranty and Return Policy and related documents can be viewed/downloaded at www.amx.com.

3000 RESEARCH DRIVE, RICHARDSON, TX 75082 AMX.com | 800.222.0193 | 469.624.8000 | +1.469.624.7400 | fax 469.624.7153 AMX (UK) LTD, AMX by HARMAN - Unit C, Auster Road, Clifton Moor, York, YO30 4GD United Kingdom • +44 1904-343-100 • www.amx.com/eu/

850N9900-13 REV:C