

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 HD video and audio across a Gigabit Ethernet network. The Encoders accept HDMI sources including DVI-D, VGA, and Component through the use of passive adapters and analog audio using a balanced or unbalanced Phoenix connection. The Decoders have HDMI video output ports and will support digital audio (with HDMI-to-DVI cable or adapter). Options for Power over Ethernet (PoE), analog audio, and more depend on the version of Decoder used. Please verify hardware capabilities needed prior to ordering.

Legacy hardware and N2000 Series hardware is backwards-compatible (which allows both legacy and N2000 Series products to be used within the same system as needed).

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

Refer to this document to find the commands needed for your application. This document applies to the N1000 and N2000 Series of Encoders and Decoders.

NOTE: This information is considered current as of the date of publication. AMX reserves the right to add/modify/remove commands and change the standard response packet as needed.

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.

Using the Onboard RS-232 Port

Serial communications are enabled on port 50004. If a persistent socket is maintained, this becomes a bi-directional serial port to control the attached source or display. There are no commands to send a serial string. Instead, simply send the manufacturer's serial string to port 50004. Any response returns via port 50004 as well. To set the serial port settings, use N-Able (free N-Series device management software) or a product from the N-Command series of Control systems. Similarly to port 50002, this port only supports a single socket connection and rejects all other connection attempts until the open connection is successfully closed.

Getting More Information

To find direct control commands for other devices (other than N1000 and N2000 Encoders and Decoders) and for more information on controlling an N-Series device using N-Able or N-Command, please refer to additional documentation found on our website (<http://www.amx.com/techcenter/manuals.asp>).

Decoders

Device Status				
Command	Description	Response	Example	Notes
getStatus	Returns with current status of device.	Current status of device	getStatus<CR> or ?<CR>	Refer to return packet information in the <i>Decoder Response</i> table on page 4.
getNetStatus	Returns with current network status of device.	Current status of device	getNetStatus<CR>	Refer to return packet information in the <i>Decoder getNetStatus Response</i> table on page 7.

Video/Audio Switch				
Command	Description	Response	Example	Notes
set	Switches video streams.	Current status of device	set:1<CR>	If Decoder is set to Audio Follows Video this will also switch the audio stream. If set to a non-existent stream (like stream 0) then Decoder will revert to local play content.
seta	Switches audio streams.	Current status of device	seta:1<CR>	
KVMMasterIP:<ip>[, <video>]	KVM switch	Current status of device	KVMMaster:169.254.1.100,1	Changes the KVM to switch to an encoded specified by the <ip> number. If <video> is 1, the video switches to the encoder's video stream (and audio if following). If <video> is 0, only the USB access switches. If <video> is blank, defaults to 1.

Audio Controls				
Command	Description	Response	Example	Notes
mute	Disables audio output.	Current status of device	mute<CR>	This affects both analog outputs (if available) and digital outputs.
unmute	Enables audio output.	Current status of device	unmute<CR>	
lovol	Changes audio output level.	Current status of device	lovol:50<CR>	Range in Percentage 0 - 100%
lovolleft	Changes audio output level left channel.	Current status of device	lovolleft:50<CR>	Range in Percentage 0 - 100%
lovolright	Changes audio output level right channel.	Current status of device	lovolright:50<CR>	Range in Percentage 0 - 100%

Mode Change				
Command	Description	Response	Example	Notes
live	Changes mode to live play.	Current status of device	live<CR>	Only needed if Decoder has been commanded to local play.
local	Changes mode to local play.	Current status of device	local:4<CR>	8 playlists available, values: 1 - 8
dviOff	Disables video output.	Current status of device	dviOff<CR>	
dviOn	Enables video output.	Current status of device	dviOn<CR>	On by default. Only needed if DVI port has already been disabled.

External Device control (Cont.)				
Command	Description	Response	Example	Notes
serSet	Configures serial port to desired settings.	Current status of device	serSet:9600,8,none,1<CR>	serSet:baudrate,databits,parity,st op. Reference N-Able or other control software for valid settings. Only needed if serial port has not been initialized with N-Command software.

Decoder Response		
Response	Description	Notes
The response packet detailed in this table is sent as a confirmation to all commands as well as in response to the getStatus command. Additional information may be contained before the response packet. It is recommended when decoding response data to search for the field required and then output the data accordingly. All fields are separated by "\r".		
SVSI_RXGEN2:N222 A040000463	Device type and serial number	
NAME:Adam 2K	Name of device	Serial string with name (255 character max)
MAC:00:19:0B:00:0D: BE	Mac address of device	
IP:169.254.34.55	IP address of device	
NM:255.255.0.0	Subnet mask of device	
GW:169.254.1.1	Gateway of device	
IPTRIAL:0	IP in trial mode	N-Series software specific
IPMODE:AUTO IP	IP mode of device	DHCP Static Auto IP
SWVER:9/29/2014	Software version running on device	N-Series software specific
WEBVER:141202378 0	Web version running on device	N-Series software specific
UPDATE:0	N-Series software specific	N-Series software specific
UPDTRY:0	N-Series software specific	N-Series software specific
UPDFAILED:0	N-Series software specific	N-Series software specific
MEDIAPORT0:on	Multicast traffic control	on = multicast can leave port off = no multicast can leave port
MEDIAPORT1:off	Multicast traffic control	on = multicast can leave port off = no multicast can leave port
DIVASEN:0	N-Series software specific	N-Series software specific
DIVASIP:0.0.0.0	N-Series software specific	N-Series software specific
MASSEREN:0	Serial master enable	0 = disabled 1 = enabled
MASSERIP:0.0.0.0	IP of serial slave	IP address 0.0.0.0 = unassigned
discoveryIP:239.254.1 2.16	N-Series software specific	N-Series software specific
enableDiscoveryPack ets:on	N-Series software specific	N-Series software specific
discoveryIntervalSec:1 0	N-Series software specific	N-Series software specific
discoveryPort:50019	N-Series software specific	N-Series software specific
BAUD:115200	Serial port's communication speed in bits per second	300 1200 2400 4800 9600 14400 19200 28800 38400 57600 115200 230400

Decoder Response (Cont.)		
Response	Description	Notes
SNUMB:8	Number of databits per character specified for the serial port	7 8
SPAR:none	Serial port parity setting	even odd none
SP2S:1	Serial port's stop bit setting	1 2
MODE:720p60.mode	Scaler output mode	All modes are followed by .mode. Modes = auto 1080p59.94 1080p60 480p 480p59.94 720p59.94 720p60
PORTSD1:no	P1 disabled completely	yes = deactivated (no traffic) no = active and working
GARP:0	Gratuitous ARP option enabled/disabled	N-Series software specific
GARPINT:50	Interval setting	N-Series software specific
UNSOLST:1	Unsolicited status (to N-Series controllers)	N-Series software specific
UNSOLSTINT:10	Interval setting	N-Series software specific
ID:0	N-Series software specific	N-Series software specific
DVICEVTDLY:1	N-Act connect event delay time in seconds	up to 24 hours (measured in seconds)
DVIDEVDLY:1	N-Act disconnect event delay time in seconds	up to 24 hours (measured in seconds)
USERMCMODE:off	Customize multicast address?	on = multicast will be customized off = multicast will NOT be customized
USERMCIP:0.0.0.0	Custom multicast address (USERMCMODE must be on)	multicast address
LPDISKSPACE:83268608	Available disk space for local play storage	N-Series software specific
SERSRCIP:0.0.0.0	Serial source IP	
SEROPEN:0	Serial port open?	0 = closed 1 = open
SLCK:0	Setting lock	0 = unlocked 1 = locked
HTTPS:0	Use secure network connection	0 = off 1 = on
LINEOUTVOL_L:35	Current line out volume - left channel	0 - 100%
LINEOUTVOL_R:35	Current line out volume - right channel	0 - 100%
MUTE:0	Mute status	0 = audio enabled 1 = audio disabled
STREAM:3	Current video stream	Numeric value
STREAMAUDIO:0	Current audio stream	Numeric value 0 = follow video
SCALERBYPASS:no	Scaler status	yes = scaler IS disabled no = scaler IS enabled
PLAYMODE:local	Current playmode	local live
PLAYLIST:1	Current local playlist	Number 1 - 8
HDMIAUDIO:on	HDMI audio settings	auto on off
LIVEAUDIOLP:off	Play stream audio in local play	on = use stream audio off = use local play audio
YUVOUT:auto	Color space settings	auto on = YUV output off = normal output
GEN1COMP:auto	Compatibility mode with SVSI V-Series Encoders	auto on off

Decoder Response (Cont.)		
Response	Description	Notes
SIMDVIDET:on	Simplified DVI detect	on off
FRAMEHOLD:off	Hold last frame if stream lost	on = hold last frame off = display local play
VIDOFFNOSTRM:off	Disabled DVI port on loss of stream	on = disable DVI on loss of stream off= display local play
NEGSYNC:off	Invert DVI sync	on = switch sync off = normal sync
DVIOFF:off	DVI port state	on = DVI disabled off = outputting video
DVISTATUS:disconnected	DVI status	connected = monitor on/detected disconnected = monitor off/detached
INPUTRES:1280x720	Current incoming resolution	
FPGAVER:8/1/2014	N-Series software specific	N-Series software specific
STRMCAST:0	N-Series software specific	
NEEDVSTRM:0	Not receiving current assigned stream	0 = receiving stream 1 = not receiving stream
ND_MRRQ:172.20.87.80	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_MRRQ_CHG:0	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_A_DROP:341	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_A_DROP1S:0	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_V_DROP:4448	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_V_DROP1S:0	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_F_DROP:0	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
ND_F_DROP1S:0	Results of N-Able Network Diagnostic Tools	Tracks potential networking issues. Contact technical support for more information.
DM_D_EN:auto	Multichannel audio down mix settings	N-Series software specific
DM_D_IEN:off	Multichannel audio down mix settings	N-Series software specific
DM_A_EN:on	Multichannel audio down mix settings	N-Series software specific
DM_A_SRC:0	Multichannel audio down mix settings	N-Series software specific
DM_CGAIN:42	Multichannel audio down mix settings	N-Series software specific
DM_FGAIN:60	Multichannel audio down mix settings	N-Series software specific
DM_SLGAIN:-42	Multichannel audio down mix settings	N-Series software specific
DM_SRGAIN:42	Multichannel audio down mix settings	N-Series software specific
FCPC:on	Force copy protection	on auto
VMUTE:0	Video muted	0 = not muted 1 = video is muted
LPWR:0	Low power mode	0 = disabled 1 = enabled

Decoder getNetStatus Response	
Response	Description
SVSI_NETSTATS:N2222A20000383	Device type and serial number of the N-Series device
NAME:CBTest2000DEC	User-configured name of the N-Series device
MAC:00:19:0B:80:31:9E	MAC address of the N-Series device
IP:169.254.119.168	IP address of the N-Series device
NM:255.255.0.0	Subnet mask of the N-Series device
GW:169.254.1.1	Gateway IP address of the N-Series device
SWVER:10/24/2016	Software version of the N-Series device
chassisID:mac e0:d1:73:f5:0d:1d	MAC address of the switch connected to the N-Series device
sysName:switchf50d1d	User-configured name of the switch connected to the N-Series device
sysDescr:SG500X-24P 24-Port Gigabit with 4-Port 10-Gigabit PoE Stackable Managed Switch	User-configured description of the switch connected to the N-Series device
portID:ifname gi1/1/5	User-configured name of the switch's port that is connected to the N-Series device
portDescr:gigabitethernet1/1/5	User-configured description of the switch's port that is connected to the N-Series device
FPGAVER:0/0/2000	Bit file version of the N-Series device
ND_MRRQ:172.20.254.5	Most Recent Request Querier (IGMP) IP Address
ND_MRRQ_CHG:1	Flag if MRRQ changed above
ND_A_DROP:0	Audio packet drops (total)
ND_A_DROP1S:0	Audio packet drops (last second)
ND_V_DROP:0	Video packet drops (total)
ND_V_DROP1S:0	Video packet drops (last second)
ND_F_DROP:0	Video frame drops (total)
ND_F_DROP1S:0	Video frame drops (last second)
ND_CRC:0	Number packet CRC errors
ND_SRC0:0.0.0.0	First multicast address of sender (video or audio)
ND_DEST0:239.255.37.66	First multicast address (video or audio)
ND_CNT0:0	Number of packets received from this first multicast address
ND_SRC1:0.0.0.0	Second multicast address of sender (video or audio)
ND_DEST1:239.255.165.66	Second multicast address (video or audio)
ND_CNT1:2	Number of packets received from this second multicast address

Encoders

Device Status				
Command	Description	Response	Example	Notes
getStatus	Returns with current status of device.	Current status of device	getStatus<CR> or ?<CR>	Refer to return packet information in the <i>Encoder Response</i> table on page 9.
getNetStatus	Returns with current network status of device.	Current status of device	getNetStatus<CR>	Refer to return packet information in the <i>Encoder getNetStatus Response</i> table on page 12.

Audio Status				
Command	Description	Response	Example	Notes
mute	Disables audio input.	Current status of device	mute<CR>	This affects both analog inputs and digital inputs.
unmute	Enables audio input.	Current status of device	unmute<CR>	

Mode Change				
Command	Description	Response	Example	Notes
live	Changes mode to live play.	Current status of device	live<CR>	Only needed if Encoder has been commanded to local play.
local	Changes mode to host play.	Current status of device	local:4<CR>	8 playlists available, values: 1 - 8
txdisable	Disables all broadcasts from Encoder.	Current status of device	txdisable<CR>	Any Encoders currently viewing stream will transition to local play.
txenable	Enables broadcast from Encoder.	Current status of device	txenable<CR>	Re-enables broadcasting from Encoder if previously disabled.
vidsrc	Select the video input on the Encoder. Hdmivga or vga h dmi select a preferred order (digital over analog, or analog over digital) when both sources are connected.	Current status of device	vidsrc:hdmionly<CR>	Video input selections = hdmionly vgaonly hdmivga vga h dmi

Scaler Controls				
Command	Description	Response	Example	Notes
scalerenable	Enables scaled output.	Current status of device	scalerenable<CR>	Enables scaler. Content will be broadcast as selected output resolution.
scalerdisable	Disables scaled output.	Current status of device	scalerdisable<CR>	Disables scaler.
modeset	Changes output resolution.	Current status of device	modeset:1080p60<CR> >	Modes = 1080p59.94 1080p60 480p 480p59.94 720p59.94 720p60

External Device Control				
Command	Description	Response	Example	Notes
sendirraw: <commanddata>	Sends IR command with Pronto Code.	Current status of device	sendirraw: 0000 006C 0022 0000 015B 00AD 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0622<CR>	Sends Pronto Hex Code to attached IR port. No need to pre-store command in device.
sender: <commandname>	Executes serial command stored in unit's software. Recall is by saved name.	Current status of device	sender:play<CR>	The <commandname> is case and space sensitive. We recommend saving the commands as lowercase, all one word (for example, playpause).
serSet	Configures serial port to desired settings.	Current status of device	serSet:9600,8,none,1<CR>	serSet:baudrate,databits,parity,stop. Reference N-Able or other control software for valid settings. Only needed if serial port has not been initialized with N-Command software.

Encoder Response		
Response	Description	Notes
The response packet detailed in this table is sent as a confirmation to all commands as well as in response to the getStatus command. Additional information may be contained before the response packet. It is recommended when decoding response data to search for the field required and then output the data accordingly. All fields are separated by "r".		
SVSI_TXGEN2:N2122A030 000006	Device type and serial number	
NAME:Adam N-Enc	Device name	
MAC:00:19:0B:00:08:86	Device MAC	
IP:169.254.119.168	Device IP	
NM:255.255.0.0	Device subnet mask	
GW:169.254.1.1	Device gateway	
IPTRIAL:0	IP trial mode (during resetting of IP addresses)	N-Series software specific
IPMODE:AUTO IP	IP mode of device	DHCP Static Auto IP
SWVER:6/21/2014	Software version	N-Series software specific
WEBVER:1371820321	Web interface version	N-Series software specific
UPDATE:0	Update flags for N-Series updater	N-Series software specific
UPDTRY:0	Update flags for N-Series updater	N-Series software specific
UPDFAILED:0	Update flags for N-Series updater	N-Series software specific

Encoder Response (Cont.)		
Response	Description	Notes
MEDIAPORT0:on	P0 multicast status	on = multicast can leave port off = no multicast can leave port
MEDIAPORT1:on	P1 multicast status	on = multicast can leave port off = no multicast can leave port
DIVASEN:0	N-Series software specific	N-Series software specific
DIVASIP:0.0.0.0	N-Series software specific	N-Series software specific
MASSEREN:0	Serial master enable	0 = disabled 1 = enabled
MASSERIP:0.0.0.0	IP of serial slave	IP address 0.0.0.0 = unassigned
discoveryIP:239.254.12.16	N-Series software specific	N-Series software specific
enableDiscoveryPackets:on	N-Series software specific	N-Series software specific
discoveryIntervalSec:10	N-Series software specific	N-Series software specific
discoveryPort:50019	N-Series software specific	N-Series software specific
BAUD:9600	Serial port's communication speed in bits per second	300 1200 2400 4800 9600 14400 19200 28800 38400 57600 115200 230400
SNUMB:8	Number of databits per character specified for the serial port	7 8
SPAR:none	Serial port parity setting	even odd none
SP2S:1	Serial port's stop bit setting	1 2
MODE:720p59.94.mode	Scaler output mode	All modes are followed by .mode. Modes = auto 1080p59.94 1080p60 480p 480p59.94 720p59.94 720p60
PORTSD1:no	P1 disabled completely	yes = deactivated (no traffic) no = active and working
GARP:0	Gratuitous ARP option enabled/disabled	N-Command specific
GARPINT:50	Interval for ARP	N-Command specific
UNSOLST:1	Unsolicited status enabled	N-Command specific
UNSOLSTINT:10	Interval for unsolicited status	N-Command specific
ID:0	N-Series software specific	N-Series software specific
DVICEVTDLY:1	N-Act connect event delay time in seconds	up to 24 hours (measured in seconds)
DVIDEVDLY:1	N-Act disconnect event delay time in seconds	up to 24 hours (measured in seconds)
USERMCMODE:off	Customize multicast address?	on = multicast will be customized off = multicast will NOT be customized
USERMCIP:0.0.0.0	Custom multicast address (USERMCMODE must be on)	multicast address
LPDISKSPACE:95454208	Host play disk space	N-Series software specific
SERSRCIP:0.0.0.0	Serial source IP	
SEROPEN:0	Serial port open?	0 = closed 1 = open
SLCK:0	Setting lock	0 = unlocked 1 = locked
HTTPS:0	Use secure network connection	0 = off 1 = on
LINEIN:bal	Line in is balanced or unbalanced	se = unbalanced audio bal = balanced audio
MUTE:0	Mute status	0 = audio enabled 1 = muted
STREAM:134	Broadcast stream of Encoder	

Encoder Response (Cont.)		
Response	Description	Notes
SAMPLE:44100	Audio sample rate	
AUDIODELAY:21000	Audio delay in milliseconds	N-Series software specific (not currently used)
CLRSPCCOR:auto	Color space correction	auto on off <i>Note: Should be auto.</i>
HPNONSUP:off	Host play in unsupported mode	N-Series software specific
HDMIAUDIO:auto	HDMI audio state	auto on off
UNCOMP:off	Legacy equipment setting place-holder	Not applicable for N-Series Encoders. Used as a setting place-holder for compatibility with Gen1 devices.
LIVEAUDIOHP:off	Use live audio source while in HP mode	on off (N-Series software specific)
EXTREMEQUAL:off	Extreme quality mode	N-Series software specific
QUALITY:100	Compression level	N-Series software specific
MOTQUAL:100	Motion level	N-Series software specific
SCALERBYPASS:yes	Scaler enabled/disabled	yes = disabled no = enabled
PLAYMODE:live	Device mode	live local
PLAYLIST:1	Host playlist to be displayed	Playlists are 1 - 8
OUTBW:1034160	Output bandwidth in bytes per second	N-Series software specific
OUTBWMBS: 7.8	Output bandwidth in megabytes per second	N-Series software specific
DVIINPUT:connected	Source status	connected = source is available disconnected = no source
DVIPASSTHR:disconnected	Passthrough port	connected = monitor detected disconnected = no monitor
PTHDMIAUDIO:on	Passthrough HDMI audio	on off
PTYUVOUT:auto	Passthrough color correction	auto on off
PTSIMVIDET:off	Simplified DVI detect for passthrough port	N-Series software specific
PTNEGSYNC:off	N-Series software specific	N-Series software specific
AGAINL:0	Volume control - left channel (gain only)	0 - 100%
AGAINR:0	Volume control - right channel (gain only)	0 - 100%
CPC:allowed	Allow HDCP video to be encoded?	allowed blocked
CISPROT:not-protected	Current source protected?	protected not-protected
INPUTRES:1280x720	Current incoming resolution	
FPGAVER:6/20/2014	N-Series software specific	N-Series software specific
GEN1OUTPUTMODE:off	Compatibility with V-Series Decoders	on off <i>Note: Can be helpful in determining cause of incorrect colorization of output video in mixed-generation installations.</i>
SOGWindow:16	Current sync on green sensitivity	0-63
N2121CM:1	Compatibility with N2121	0 = disabled 1 = enabled
CRYPT:0	Current encryption status	0 = not encrypted 1 = encrypted
VSRC:0	Video Source selection setting (same as web page)	0 = HDMI/VGA 1 = VGA/HDMI 2 = HDMI Only 3 = VGA Only
VSTS:0	Currently active port	0 = None 1 = HDMI 2 = VGA

Encoder Response (Cont.)		
Response	Description	Notes
VDET:1	VGA source detected	0 = not detected 1 = detected
HDET:1	HDMI source detected	0 = not detected 1 = detected
VMUTE:0	Video muted	0 = not muted 1 = video is muted
VMUTEPT:0	Video pass thru muted	0 = not muted 1 = video muted
LPWR:0	Low power mode	0 = disabled 1 = enabled

Encoder getNetStatus Response	
Response	Description
SVSI_NETSTATS:N2122A20000383	Device type and serial number of the N-Series device
NAME:CBTest2000ENC	User-configured name of the N-Series device
MAC:00:19:0B:80:31:9E	MAC address of the N-Series device
IP:169.254.119.168	IP address of the N-Series device
NM:255.255.0.0	Subnet mask of the N-Series device
GW:169.254.1.1	Gateway IP address of the N-Series device
SWVER:10/24/2016	Software version of the N-Series device
chassisID:mac e0:d1:73:f5:0d:1d	MAC address of the switch connected to the N-Series device
sysName:switchf50d1d	User-configured name of the switch connected to the N-Series device
sysDescr:SG500X-24P 24-Port Gigabit with 4-Port 10-Gigabit PoE Stackable Managed Switch	User-configured description of the switch connected to the N-Series device
portID:ifname gi1/1/5	User-configured name of the switch's port that is connected to the N-Series device
portDescr:gigabitethernet1/1/5	User-configured description of the switch's port that is connected to the N-Series device
FPGAVER:0/0/2000	Bit file version of the N-Series device