N-Series Networked AV solutions can be used in a wide range of environments: from small, isolated systems to more extensive, integrated deployments with complicated topologies. With this broad spectrum of use cases to support, N-Series development engineers have designed networked AV solutions using multiple approaches, fostering the diversity necessary for covering as many networking scenarios as possible while at the same time enhancing the balance between bandwidth, image quality, and streaming capabilities.

N-Series Encoders, Decoders, and Windowing Processors are divided into five main product series lines: N1000, N2300, N2400, N2600, N3000, and N3300. Although in most cases these five product lines represent independent solutions that support a specific networking environment type, you must also consider other compatibility considerations when designing the ideal system that will fit your project needs. This document provides basic system design guidelines with a focus on stream compatibility.

Product Details

An N-Series system comprises Encoders, Decoders, Windowing Processor units, and Audio Transceivers. N-Series systems allow you to distribute up to 4K@60 4:4:4, HDR10+, HDCP 2.2, HDMI 2.0 video, Dante, and AES67 audio across a Gigabit Ethernet network. The document provides details on the individual N-Series products available. Refer to the *N-Series Networked AV - Stream Compatibility Chart* on page 3 for more information.

N1000 Series

- **Minimal Proprietary Compression (MPC)** – Compatible across all MPC-enabled products.
- **Uncompressed** – N1000 Uncompressed will also work with legacy N1000 products.
- **N1512 Windowing Processor** – Compatible with both MPC and uncompressed modes. Takes up to 4 input streams and outputs a single MPC or uncompressed stream. Allows for stacking of windows processors to increase the number of windows available.

N2300 Series

- **N2300 4K Compressed** – Compatible only between the N2300 4K Compressed Encoders and Decoders.

N2400 Series

- **N2400 4K Compressed** – Compatible only between the N2400 4K Compressed Encoders and Decoders.
- **N2410 Windowing Processor** – Compatible across all N2400 4K product lines. Takes up to 4 input streams and outputs a single N2400 4K JPEG2000 Compressed stream. Allows for stacking of windows processors to increase the number of windows available.

N2600 Series

- **Motion Wavelet Compression (MWC) –** Compatible only between the N2600 4K Encoders and Decoders.
- **H.26x (S Models) –** Full compatibility with N2600S devices. The N2600S uses H.264/H.265 standards for encoding and decoding and can, therefore, be used with N2600S, N3000, and N3300 devices and many third-party H.264/H.265 networked AV products. HDCP-protected sources cannot be streamed to third-party devices.

NOTE: H.264/H.265 implementations can vary significantly with each manufacturer, so it is best to test compatibility in-house with the N2600 units before specifying, designing, purchasing, and/or implementing a system with a mixed approach.

N3000 Series

- **H.264** – Uses industry-standard H.264 encoding and decoding methods and is directly compatible across all N2600S, N3000, and N3300 products. It can be run in SVSI Encoder, RTP, RTSP, HTTP Live, and RTMP stream modes. It also can be set up in either unicast or multicast mode with the ability to output a multicast stream and a single unicast stream simultaneously. The N3000 uses H.264 standards for encoding and decoding and can, therefore, be used with many third-party H.264 networked AV products. HDCP-protected sources cannot be streamed to third-party devices.

NOTE: H.264 implementations can vary significantly with each manufacturer, so it is best to test compatibility in-house with the N3000 units before specifying, designing, purchasing, and/or implementing a system with a mixed approach.

- **N3510 Windowing Processor** – Compatible across all N3000 product lines. It takes up to nine inputs and then outputs a single H.264 stream. It also has a single, direct HDMI output. Allows for stacking of Windows processors to increase the number of windows available.

N3300D Series

- **H.26x** – Uses industry-standard H.264/H.265 encoding and decoding methods and is directly compatible across all N2600S, N3000, and N3300 products. It can be run in SVSI Encoder, RTP, RTMP, RTSP, SRTP, and UDP stream modes. It also can be set up in either unicast or multicast mode with the ability to output a multicast stream and a single unicast stream simultaneously. The N3300 uses H.264/H.265 standards for encoding and decoding and can, therefore, be used with many third-party H.264 networked AV products. HDCP-protected sources cannot be streamed to third-party devices.

NOTE: H.264/H.265 implementations can vary significantly with each manufacturer, so it is best to test compatibility in-house with the N3300 units before specifying, designing, purchasing, and/or implementing a system with a mixed approach.

N4321D Audio Transceiver (ATC)

- **Audio Only** – Compatible across all product lines regardless of video stream type. Ability to input mic/line level analog audio to generate an SVSI audio network stream. It can also take any SVSI network audio stream, convert it to analog, and output balanced or unbalanced audio.
- **Audio Streams** – All audio streams are 100% compatible across all N-Series products regardless of video stream type.
- **Dante/AES67 Audio** – Provides 2 channels of transmission and 2 channels of receive.

AES67 Compatibility

Networked audio delivery via AES67 is available in all "A" versions of the stand-alone and card-based Encoders and Decoders. This includes the following products:

- N1122A Encoder / N1222A Decoder
- N1133A Encoder / N1233A Decoder
- N2412A Encoder / N2422A Decoder / N2424A Decoder

Wall Encoders of all product families, as well as the N2300 4K or N2600 4K, do not have AES67 "A" type units available. Note that "A" type units can be configured to use the SVSI audio transport method, rather than AES67, in order to transmit audio to non-"A" type units.

Dante Compatibility

Networked audio delivery via DANTE is available in all "D" and "S" versions of the stand-alone and card-based Encoders and Decoders. This includes the following products:

- N2612S Encoder / N2622S Decoder
- N3312D Encoder / N3322D Decoder
- N4321D Audio Transceiver

N-Series Networked AV - Stream Compatibility Chart

	N1122A Encoder	N1133A Encoder	N1115 Encoder	N1512 WP	N2312 Encoder	N2315 Wall Encoder	N2412A Encoder	N2410 WP	N2612S Encoder	N2615 Wall Encoder	N3132 Encoder	N3312D Encoder	N3510 WP	N4321D ATC
N1222A Decoder	●	●	●	●	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	◆
N1233A Decoder	●	●	●	●	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	◆
N1512 WP	●	●	●	●	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	◆
N2322 Decoder	⊠	⊠	⊠	⊠	▲	▲	⊠	⊠	⊠	⊠	⊠	⊠	⊠	◆
N2422A Decoder	⊠	⊠	⊠	⊠	⊠	⊠	▼	▼	⊠	⊠	⊠	⊠	⊠	◆
N2424A Decoder	⊠	⊠	⊠	⊠	⊠	⊠	▼	▼	⊠	⊠	⊠	⊠	⊠	◆
N2410 WP	⊠	⊠	⊠	⊠	⊠	⊠	▼	▼	⊠	⊠	⊠	⊠	⊠	◆
N2622S Decoder	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	►	►	✿	✿	✿	◆
N2625 Wall Decoder	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	►	►	⊠	⊠	⊠	◆
N3232 Decoder	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	✿	⊠	✿	✿	✿	↕
N3322D Decoder	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	◉	⊠	◉	◉	◉	↕
N3510 WP	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	✿	⊠	✿	✿	✿	↕
N4321D ATC	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	↕	↕	↕	◆

Legend

Symbol	Description	Symbol	Description
●	N1000 MPC Mode 1920X1200@60	✿	N3000 H.264 1920x1080@60
▲	N2300 4K 3840x2160@30 4:4:4 [1]	◆	N4000 Audio [2]
▼	N2400 JPEG 2000 4K Compressed Mode 4096 x 2160@60 4:4:4	↕	N4000 Audio (N3K requires that you enable the **Audio Stream** setting) [2]
⊠	Incompatible - Requires Transcode	►	N2600 MWC 4K Mode 4096 x 2160@60 4:4:4 (H.264 with N3K, N33 Only) [3]
		◉	N3300 H.26x 4K Mode 3840 x 2160@60 (H.264 with N3Kn H.265 w/ N26S, N33) [4]

[1] Supports input resolutions up to 3840x2160@60 4:2:0.
[2] Audio streams can be shared throughout all products and across streams regardless of video stream compatibility.
[3] "S" Models support H.264/H265 encoding and decoding of 720P or 1080P resolutions.
[4] Supports H.264/H.265 encoding and decoding up to 4K60 resolutions.

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