View this document in HTML
crestron.com/docs/9045

Product Manual

DM NAX®

Audio-over-IP Distribution Platform

Crestron Electronics, Inc.

Have feedback on this document? Contact docfeedback@crestron.com.

The original language version of this document is U.S. English.
All other languages are a translation of the original document.

This product is licensed under the Crestron Software End-User License Agreement, available at www.crestron.com/Legal/software-license-agreement/Crestron-Software-End-User-License-Agreement.

The product warranty can be found at www.crestron.com/warranty.

The specific patents that cover Crestron products are listed online at www.crestron.com/legal/patents.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

Certain Crestron products collect information that may include personal data. For further details regarding those Crestron products that collect, process, and transmit information directly to Crestron via the internet, refer to the Crestron Privacy Statement Regarding Internet Data Collection, located at www.crestron.com/legal-data-collection-privacy.

Crestron, the Crestron logo, Crestron Toolbox, DM, DM NAX, DM NVX and XiO Cloud are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Amazon Music is either a trademark or a registered trademark of Amazon in the United States and/or other countries. AirPlay, Apple, Apple Music, and macOS are either trademarks or registered trademarks of Apple Inc., registered in the U.S. and other countries. Bluetooth is either a trademark or registered trademark of Bluetooth SIG, Inc. in the United States and/or other countries. Dante is either a trademark or registered trademark of Audinate Pty Ltd. in the United States and/or other countries. Deezer is either a trademark or registered trademark of Deezer société anonyme (sa) in the United States and/or other countries. SOUNDMACHINE is either a trademark or registered trademark of Easy Tempo, Inc. in the United States and/or other countries. RACO is either a trademark or registered trademark of Hubbell Incorporated in the United States and/or other countries. Active Directory and Windows are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Pandora is either a trademark or registered trademark of Pandora Media, Inc. in the United States and/or other countries. Roon and Roon Core are either trademarks or registered trademarks of Roon Labs LLC in the United States and/or other countries. SiriusXM is either a trademark or registered trademark of Sirius XM Radio Inc. in the United States and/or other countries. Spotify is either a trademark or registered trademark of Spotify Inc. in the United States and/or other countries. TIDAL is either a trademark or registered trademark of Tidal Music as Corporation Norway in the United States and/or other countries. TOSLINK is either a trademark or registered trademark of Toshiba Electronics Devices & Storage Corporation in the United States and/or other countries. USB-C is either a trademark or registered trademark of USB Implementers Forum, Inc. in the United States and/or other countries. Qobuz is either a trademark or registered trademark of Xandrie société anonyme (sa) in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography.

©2026 Crestron Electronics, Inc.

Contents

What's New? 6

Getting Started 9

- Installation Content (Quick Start Guides) 9
- Specifications 9
- Web Interface Configuration 9
- Network Design and Configuration 9
- Starting an Audio-over-IP Stream 10
- Authorizing a Streaming Service Account 11
- Using Casting Services 13
- Changing Device Modes 14
- Pairing Bluetooth® Wireless Audio Devices 15

Overview 18

- Features 18
- Products 18
- DM-NAX-2XLRI-1G 19
- DM-NAX-4ZSA-50 21
- DM-NAX-4ZSP 23
- DM-NAX-8ZSA 25
  - Application Diagrams 27
- DM-NAX-16AIN 32
  - Application Diagram 33
- DM-NAX-AMP-X300 34
  - Application Diagrams 36
- DM-NAX-AUD-IO 38
- DM-NAX-AUD-USB 40
- DM-NAX-BTIO-100-1G 42
- Application Diagrams 44
- DM-NAX-XSP 46
  - Application Diagrams 47

Specifications 50

- DM-NAX-2XLRI-1G Specifications 50
  - Specifications 50
  - Dimension Drawing 53
- DM-NAX-4ZSA-50 Specifications 54
  - Specifications 54
  - Dimension Drawing 57
- DM-NAX-4ZSP Specifications 58
  - Specifications 58
  - Dimension Drawing 62

DM-NAX-8ZSA Specifications 63
Specifications 63
Dimension Drawing 67
DM-NAX-16AIN Specifications 68
Specifications 68
Dimension Drawing 70
DM-NAX-AMP-X300 Specifications 71
Specifications 71
Dimension Drawings 75
DM-NAX-AUD-IO Specifications 76
Specifications 76
Dimension Drawing 78
DM-NAX-AUD-USB Specifications 79
Specifications 79
Dimension Drawing 81
DM-NAX-BTIO-100-1G Specifications 82
Specifications 82
Dimension Drawing 85
DM-NAX-XSP Specifications 86
Product Specifications 86
Dimension Drawings 88

Installation 89

DM-NAX-2XLRI-1G Installation 90
In the Box 90
Mounting the Device 90
Connect the Device 93
DM-NAX-4ZSA-50 Installation 95
In the Box 95
Install the Device 95
Connect the Device 99
Observe the LED Indicators 100
DM-NAX-4ZSP Installation 102
In the Box 102
Install the Device 102
Connect the Device 104
Observe the LED Indicators 106
DM-NAX-8ZSA Installation 107
In the Box 107
Install the Device 107
Connect the Device 109
Observe the LED Indicators 112
DM-NAX-16AIN Installation 114
In the Box 114
Install the Device 114
Observe the LED Indicators 117

DM-NAX-AMP-X300 Installation 119
In the Box 120
Install the Device 121
Connect the Device 126
Speaker Mode Selection Switch 126
Lo-Z Modes Switches 127
Observe the LED Indicators 127
Output Wiring Options 128
DM-NAX-AUD-IO Installation 132
In the Box 132
Mount the Device 132
Connect the Device 137
DM-NAX-AUD-USB Installation 139
In the Box 139
Mount the Device 139
Connect the Device 144
DM-NAX-BTIO-100-1G Installation 146
In the Box 146
Mount the Device 146
Connect the Device 148
DM-NAX-XSP Installation 150
In the Box 151
Install the Device 151
Connect the Device 156
Observe the LED Indicators 157

Configuration 158

DM-NAX-2XLRI-1G 159
Web Interface Configuration 159
Access the Web Interface With Crestron Toolbox™ Software 162
Action 163
Status 168
Settings 172
DM-NAX-4ZSA-50 220
Web Interface Configuration 220
Access the Web Interface With Crestron Toolbox™ Software 223
Action 224
Status 231
Settings 235
DM-NAX-4ZSP 284
Web Interface Configuration 284
Access the Web Interface With Crestron Toolbox™ Software 287
Action 288
Status 296
Settings 300
DM-NAX-8ZSA 349

Web Interface Configuration 349
Access the Web Interface With Crestron Toolbox™ Software 352
Action 353
Status 361
Settings 365
DM-NAX-16AIN 419
Web Interface Configuration 419
Access the Web Interface With Crestron Toolbox™ Software 422
Action 423
Status 427
Settings 430
DM-NAX-AMP-X300 449
Web Interface Configuration 449
Access the Web Interface With Crestron Toolbox™ Software 451
Action 452
Status 458
Settings 462
Security 513
802.1X Configuration 521
DM-NAX-AUD-IO 522
Web Interface Configuration 522
Access the Web Interface With Crestron Toolbox™ Software 525
Action 526
Status 531
Settings 535
DM-NAX-AUD-USB 589
Web Interface Configuration 589
Access the Web Interface With Crestron Toolbox™ Software 592
Action 593
Status 598
Settings 602
DM-NAX-BTIO-100-1G 656
Web Interface Configuration 656
Front Panel Menu 659
Access the Web Interface With Crestron Toolbox™ Software 667
Action 668
Status 673
Settings 677
DM-NAX-XSP 733
Web Interface Configuration 733
Access the Web Interface With Crestron Toolbox™ Software 736
Action 737
Status 750
Settings 755
Security 772

802.1X Configuration ... 780

Troubleshooting ... 782

Reset the Device ... 783
Network Reset ... 783
Factory Restore ... 784

Audio-over-IP Network Design ... 785

Minimum Network Requirements ... 785
Network Design Overview ... 786
Multicast Network Traffic ... 787
Precision Time Protocol ... 788
Quality of Service Configuration ... 788
Network Topologies ... 790
Star ... 790
Tree ... 791
Network Security ... 792
Network Design Considerations ... 793
System Installation ... 794
Endpoint Installation ... 794
Network Installation ... 795

Resources ... 796

Crestron Support and Training ... 796
Programmer and Developer Resources ... 796
Product Certificates ... 796

What's New?

Updates to the DM NAX® audio-over-IP distribution platform and this document are described below.

August 28, 2026

- **Documentation Updates**
  - Firmware version 3.2 released for DM-NAX-4ZSP, DM-NAX-8ZSA, and DM-NAX-16AIN. The following sections have been updated to reflect the new features.
    - Settings on page 300
    - Status on page 296
    - Settings on page 365
    - Status on page 361
    - Settings on page 430
    - Status on page 427

June 15, 2026

- **Documentation Updates**
  - Revised the installation steps for all devices for clarity. See Installation on page 89.
  - Added Troubleshooting on page 782.

March 17, 2026

- **DM-NAX-4ZSA-50 firmware version 3.1 released**
  - Amazon Music® and Apple Music® streaming are now supported. Refer to Settings on page 235 for information on authenticating accounts.

- **Documentation Updates**
  - The sections detailing the **Security** and **802.1X** tabs of the web interfaces for the following models have been removed. The latest firmware consolidates these into the **Status** and **Settings** tabs:
    - DM-NAX-2XLRI-1G on page 159
    - DM-NAX-4ZSA-50 on page 220
    - DM-NAX-AUD-IO on page 522
    - DM-NAX-AUD-USB on page 589

February 5, 2026

- **DM-NAX-BTIO-100-1G released**
  - The DM-NAX-BTIO-1G has been discontinued and replaced with the DM-NAX-BTIO-100-1G.
- **Documentation Updates**
  - All sections of this manual referring to the DM-NAX-BTIO-1G have been updated to refer to the new model. The information in the affected sections applies to both models unless otherwise noted.

December 16, 2025

- **DM-NAX-BTIO-1G firmware version 1.0.0677.10017 released**
  - Bluetooth® wireless audio transmission is now supported.
  - Refer to the release notes on the Crestron website for detailed information about this release.

- **Documentation Updates**
  - Added information for configuring Bluetooth wireless audio transmission on the DM-NAX-BTIO-1G.
    - Refer to Getting Started on page 9 and Front Panel Menu on page 659 for information on front panel menu updates.
    - Refer to Commercial Mode on page 678 or Residential Mode on page 706 for information on web interface updates.
  - The **Security** and **802.1X Configuration** tabs from the DM-NAX-BTIO-1G web interface have been consolidated into the **Settings** tab. The settings for these features are now housed under the **System Setup**, **Access Control**, and **TLS Configuration** accordions. Refer to Commercial Mode on page 678 or Residential Mode on page 706 for more information.
  - Updated application diagrams:
    - New diagrams for the DM-NAX-BTIO-100-1G on page 42 highlight the Bluetooth wireless audio modes of the DM-NAX-BTIO-1G.
    - Updated the existing diagrams for the DM-NAX-8ZSA on page 25, DM-NAX-16AIN on page 32, DM-NAX-AMP-X300 on page 34, and DM-NAX-XSP on page 46 to highlight the devices at the center of each use case.

May 27, 2025

- **DM-NAX-4ZSP, DM-NAX-8ZSA, and DM-NAX-16AIN firmware version 3.0 released**
  - Refer to the release notes on the Crestron website for detailed information about this release.
- **Documentation Updates**
  - Added What's New and Getting Started sections.
  - Updated application diagrams.
  - Consolidated content from DM-NAX-XSP product manual into this platform manual.

Getting Started

Welcome to the DM NAX® Audio-over-IP Distribution Platform Manual. This one-stop-shop manual replaces documents for each DM NAX endpoint. If this is your first time setting up DM NAX audio-over-IP, or you are looking for content from these replaced documents, please refer to the headings below to get your system up and running smoothly.

- Installation Content (Quick Start Guides) on page 9
- Specifications on page 9
- Web Interface Configuration on page 9
- Network Design and Configuration on page 9
- Starting an Audio-over-IP Stream on page 10
- Authorizing a Streaming Service Account on page 11
- Using Casting Services on page 13
- Changing Device Modes on page 14
- Pairing Bluetooth® Wireless Audio Devices on page 15

Installation Content (Quick Start Guides)

Installation and connection instructions previously covered in individual Quick Start guides are now contained in a dedicated section for each DM NAX device. Refer to Installation on page 89 for a full list of the installation instructions covered in this manual, then select the desired model from the list.

Specifications

The specifications for each DM NAX device are available on their respective product pages on the Crestron website, as are downloadable PDF files. For convenient reference, the specifications for all models covered in this manual are also available under Specifications.

Web Interface Configuration

All information regarding how to use each device's web interface is contained in a dedicated configuration section. Refer to Configuration for a full list of the configuration topics covered in this manual, then select the desired model from the list.

Network Design and Configuration

Refer to Audio-over-IP Network Design on page 785 for the fundamentals of how to design and configure a network that can handle multicast Audio-over-IP traffic.

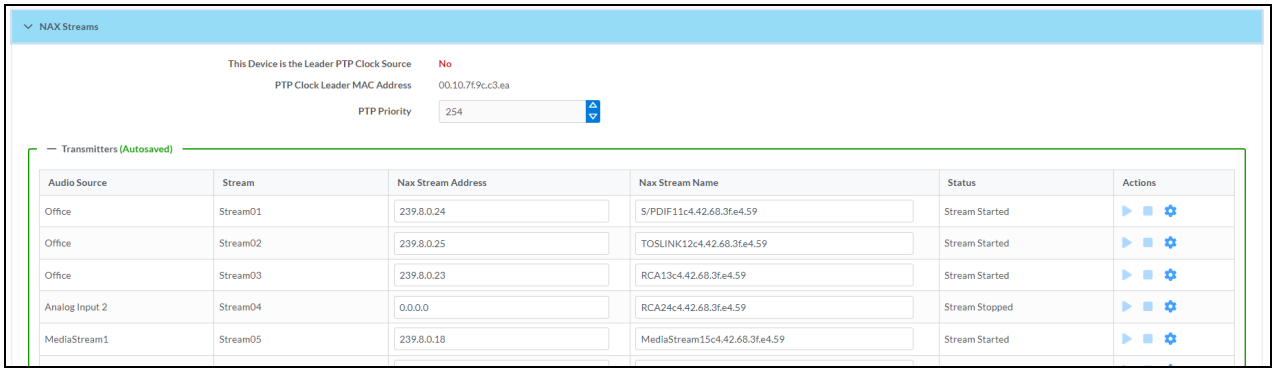
Starting an Audio-over-IP Stream

Once a DM NAX device is connected to a network, any of its available network streams can be initiated (most DM NAX devices support multiple network streams). This will allow audio from the device to be received by any number of other DM NAX or AES67 devices on the network.

CAUTION: This process assumes that the network is ready to handle multicast DM NAX Audio-over-IP traffic. If the network is not properly configured to handle this traffic, starting a DM NAX stream can flood the network and take devices offline. Refer to Audio-over-IP Network Design on page 785 for details on designing and configuring a network to handle multicast Audio-over-IP traffic.

To start a DM NAX stream:

1. Access the web interface of the DM NAX device.
2. Navigate to the **Settings** tab.
3. Select the **NAX Streams** accordion to expand the stream settings (DM-NAX-4ZSA-50 web interface shown as an example).



4. In the **Transmitters** table, enter a multicast address in the **Multicast Address** field of one of the available streams. Each stream corresponds to a different local audio connection or media player. The name for each stream in the **Audio Source** column will reference which connection or media player that stream corresponds to.

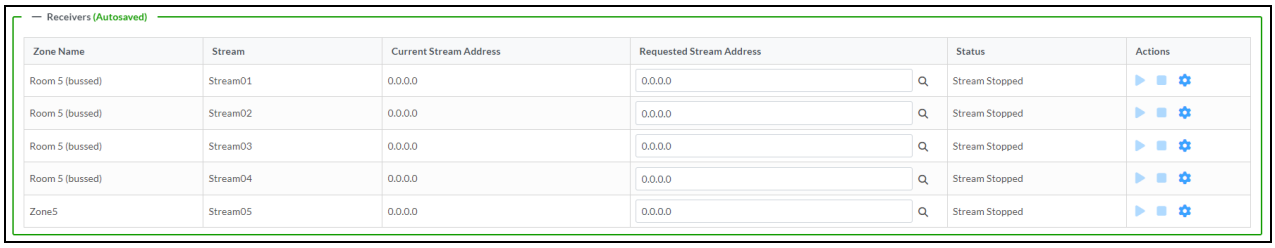
   NOTE: DM NAX devices can use multicast transmit addresses anywhere in the range from 239.0.8.0 to 239.127.255.255. If multiple DM NAX devices are present on the network, be sure the entered **Multicast Address** value is not already being used by another encoder.

   The DM NAX device will begin transmitting this audio source as an audio-over-IP stream on the network at the specified multicast address.

To receive this DM NAX stream at another DM NAX device:

1. Access the web interface of the receiving DM NAX device.
2. Navigate to the **Settings** tab.

3. Select the **NAX Streams** accordion to expand the stream settings (DM-NAX-4ZSA-50 web interface shown as an example).



4. Enter the transmitting stream's multicast address in the **Requested Stream Address** column for the desired zone. Once the zone's receiver has connected to the stream, the **Status** column for that zone will read **Stream Started**.

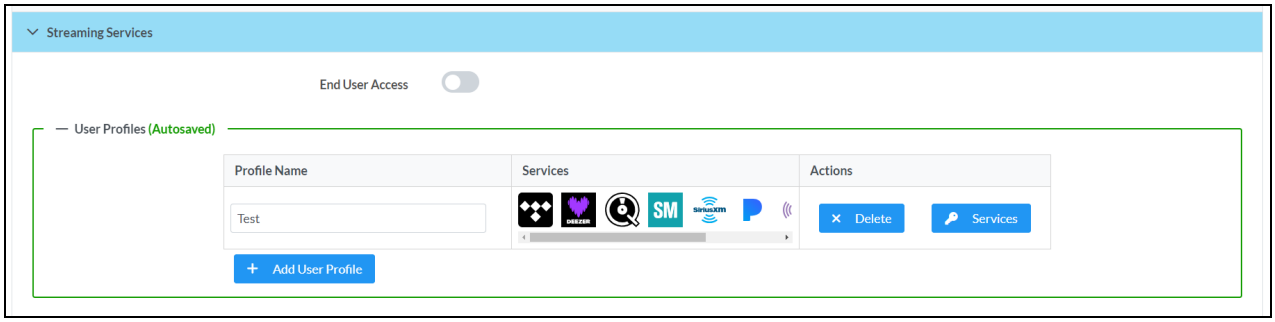
> **NOTE:** To hear the audio of the stream on the zone output, increasing the zone's volume level may be necessary. Expand the **Zones** accordion of the **Settings** tab to adjust the output volume level for the zone.

Authorizing a Streaming Service Account

The DM-NAX-4ZSA-50, DM-NAX-4ZSP, and DM-NAX-8ZSA feature multiple built-in media streaming players. Each media streaming player can stream content from supported streaming services discretely from the other players (for example, up to 8 different media streams can play back simultaneously on the DM-NAX-8ZSA). Multiple user profiles can be created for each of these players to access so that each user of the device can keep their content, favorites, and playlists separate from other users.

To create a user profile:

1. Access the web interface of the DM NAX device.
2. Navigate to the **Settings** tab.
3. Select the **Streaming Services** accordion to expand the streaming service settings.

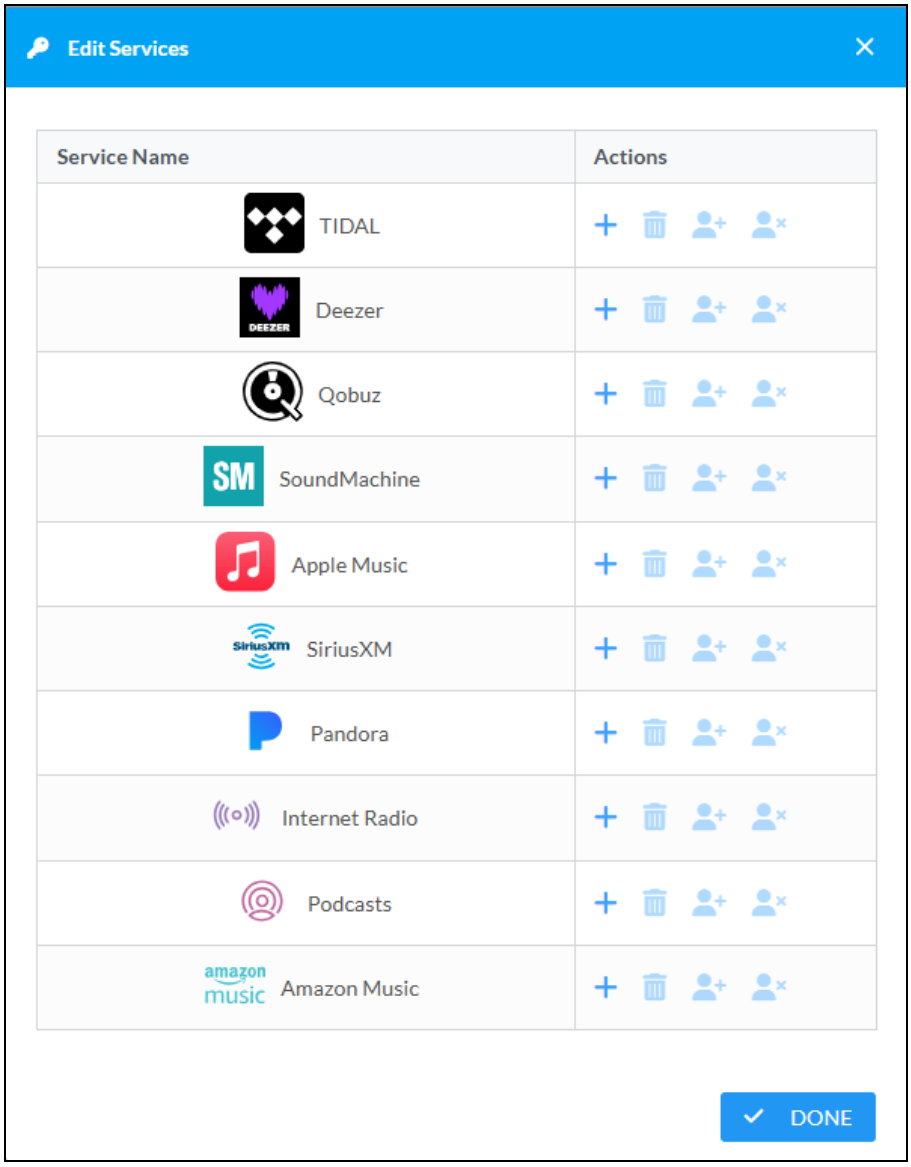


4. Select **+ Add User Profile**.
5. Enter a name for the profile in the text entry field that is displayed, then select **Save**.

Services such as Internet Radio and Podcasts that do not require account authentication are added automatically to each new profile, and can be accessed from a paired control processor and user interface as soon as the account is added. The remaining streaming services will require a valid user

account to be accessible from a user interface. To authorize a streaming service within the created user profile (one account per streaming service can be added to each user profile):

1. Select **Services** from the **Actions** column in the new user profile's table row. The **Edit Services** window is displayed.



2. Select the icon to proceed to the account authorization process for a given streaming service. An **Authorize User** window is displayed. Each service's authorization process may vary.
    a. For services that can be authenticated directly from the DM NAX device web interface, enter the username and password of a valid account.
    b. For services that require authentication through the streaming service provider's website, select the link that is displayed. Once at the provider's website, enter the username and password of a valid account.

    > **NOTE:** If a pairing code is provided in the Authorize User window, copy it to your clipboard by selecting the icon, then enter it when prompted by the provider's authentication process.

    Return to the DM NAX device's web interface when the authentication process has completed.
3. Select **Done** to close the **Edit Services** window.

Using Casting Services

The DM-NAX-4ZSA-50, DM-NAX-4ZSP, and DM-NAX-8ZSA feature multiple built-in media streaming players. Each media player can receive either an Apple AirPlay® or Spotify Connect™ casting stream from another device on the same network. This casting service feature must be enabled for each individual media player before they can be discovered by the casting device.

To enable the casting service feature for a media player:

1. Access the web interface of the DM NAX device.
2. Navigate to the **Settings** tab.
3. Select the **Zones** accordion to expand the zone settings.
4. Select **Configure** to open the **Edit Zone** window.
5. Select the **Output** accordion to expand the zone output settings.

6. Scroll to the **Casting** section of the **Output** accordion and configure the available settings:
    - **Maximum Casting Volume:** The maximum volume level that can be set on the output zone when a casting service is the active audio source.
    - **Casting Name:** The friendly name for the media player that is displayed in the casting menu of devices that discover the media player on the network.
    - **AirPlay:** Set the toggle to the right position to enable Apple AirPlay casting for the media player.

      > **NOTE:** Casting via AirPlay 2 requires iOS 11.4 or later.

    - **Spotify:** Set the toggle to the right position to enable Spotify Connect casting for the media player.

      > **NOTES:**
      > - To configure Spotify, use your phone, tablet or computer as a remote control for Spotify. Go to spotify.com/connect to learn how.
      > - The Spotify Software is subject to third party license found here: https://www.spotify.com/connect/third-party-licenses.

Changing Device Modes

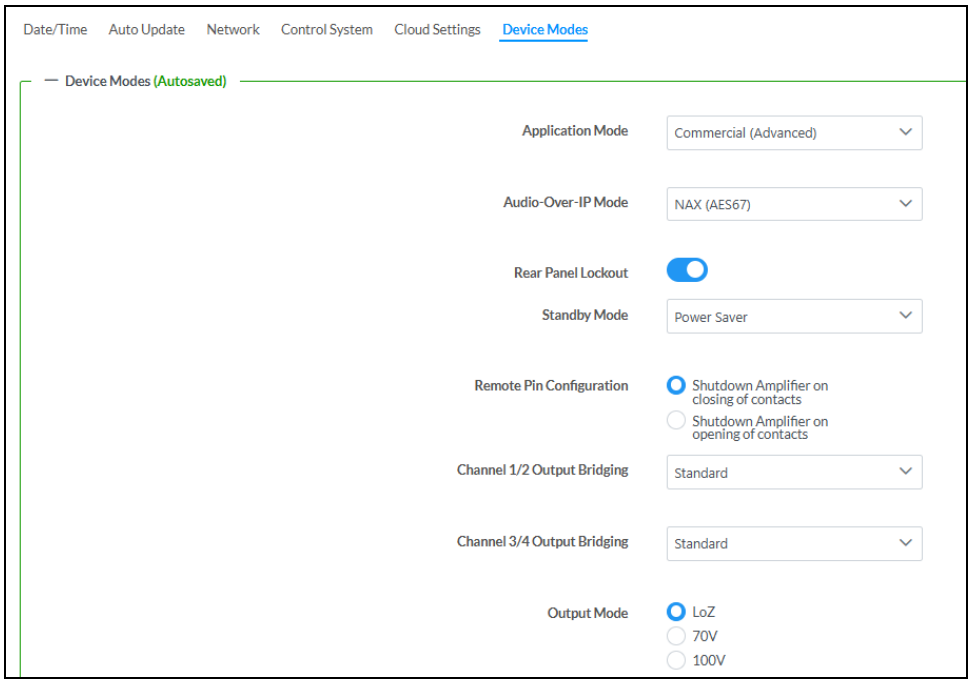
Some DM NAX audio-over-IP devices feature an option to expose more advanced configuration settings. The simplified configuration mode for these devices is referred to as **Residential Mode**, while the more advanced configuration mode is referred to as **Commercial Mode**. The following DM NAX audio-over-IP devices support **Residential Mode** and **Commercial Mode**:

- DM-NAX-2XLRI-1G
- DM-NAX-AMP-X300
- DM-NAX-AUD-IO
- DM-NAX-AUD-USB
- DM-NAX-BTIO-100-1G

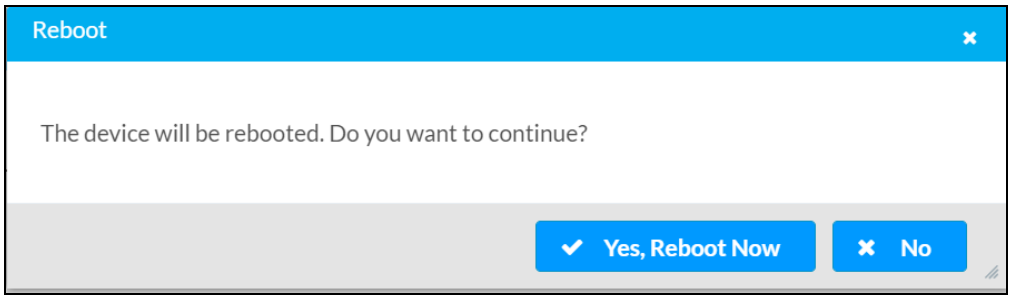
To change the device mode of a DM NAX audio-over-IP device:

1. Access the web interface of the DM NAX device.
2. Navigate to the **Settings** tab.
3. Expand the **System Settings** accordion.

4. Select the **Device Modes** tab within this accordion.



5. Select either **Commercial (Advanced)** or **Residential (Standard)** from the **Application Mode** drop-down. A **Reboot** confirmation message box is displayed.



6. Select **Yes, Reboot Now** to apply the mode change or select **No** to cancel the change. If **Yes, Reboot Now** was selected, the device will restart into the new mode. Wait for the restart to fully complete before attempting to reconnect to the web interface.

Pairing Bluetooth® Wireless Audio Devices

The DM-NAX-BTIO-100-1G wall plate features built-in Bluetooth® wireless audio support. To pair Bluetooth devices with the wall plate, the wall plate must be put into pairing mode.

To put the wall plate into pairing mode, do one of the following:

- Press and hold the **Bluetooth Rune** button on the front panel of the wall plate. Initially, the **HOLD TO PAIR** page is displayed on the OLED display. Keep holding the button until a new page is displayed.

  Sample Pairing Page - Hold to Pair

  - In receive mode, a **DISCOVERABLE AS** page is displayed. The name of the device as it will be displayed in a Bluetooth discovery list is shown at the bottom of this page.

    Sample Pairing Page - Receive Mode

    Once the wall plate is in pairing mode, complete the pairing process from the source device (such as a smart phone or laptop). Consult manufacturer documentation for instructions on discovering a Bluetooth receiver from your source device.

  - In transmit mode, a list of discovered sink devices (such as headphones and speakers) is displayed.

    Sample Pairing Page - Transmit Mode

    Use the **Up** and **Down** buttons to highlight a device, then use the **Menu** button to select and pair with it.

- Use the web interface of the DM-NAX-BTIO-100-1G to put the wall plate into pairing mode:
    1. Access the web interface of the device.
    2. Navigate to the **Settings** page.
    3. Expand the **Bluetooth** accordion.
    4. Set the **Pairing Active** toggle to the right to put the wall plate into pairing mode.

Overview

DM NAX® Audio-over-IP (AoIP) solutions are built on AES67 standards with the additional ease of configuration via a web interface, SIMPL, C#, and/or a RESTful API. It is compatible with DM NVX® endpoints through an AES67 secondary audio stream, and also with third-party AES67 solutions, including Dante® devices.

Features

- **Scalability**: DM NAX systems can scale to meet any demand. DM NAX supports up to 32 DM NAX devices in sync. In addition, DM NAX can support any combination of units for additional input-output requirements.
- **Flexibility**: Multiple input-output options are supported. Built-in streaming services and an expanding hardware lineup are available for a broad range of applications.
- **Interoperability**: DM NAX is built on AES67 AoIP standards and is compatible with any third-party AES67 solution

Products

The following products are described in this product manual:

- DM-NAX-2XLRI-1G on page 19
- DM-NAX-8ZSA on page 25
- DM-NAX-16AIN on page 32
- DM-NAX-4ZSA-50 on page 21
- DM-NAX-4ZSP on page 23
- DM-NAX-AMP-X300 on page 34
- DM-NAX-AUD-IO on page 38
- DM-NAX-AUD-USB on page 40
- DM-NAX-BTIO-100-1G on page 42
- DM-NAX-XSP on page 46

DM-NAX-2XLRI-1G

The DM-NAX-2XLRI-1G provides a single-gang wall mount for (2) XLR inputs. The rear of the wall plate features an Ethernet connection for power and DM NAX® audio-over-IP (AOIP) networking. The rear panel also features a five-pin line-level audio output for transmitting an audio signal to a Crestron media wall plate (MP-WP-2XLRO-1G and MP-WP-2RCAO-1G).



- Two XLR input connectors
- Two rear-panel line-level audio outputs
- Single-gang U.S. wall box installation
- Power over Ethernet (PoE) network powered
- Mountable in a standard US electrical box or on a rack rail via included hardware
- Connects directly to a managed network to route to or from other DM NAX® and DM NVX® devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Streamlined configuration through a web interface
- Seamless Crestron system integration with SIMPL Windows programming

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-2XLRI-1G sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Line Level and Microphone Level Support

The front panel XLR connectors of the DM-NAX-2XLRI-1G can be configured for either line level or microphone level input. Each XLR input can be configured to send a +48V phantom power signal to power a connected condenser microphone.

Digital Signal Processing (DSP)

DSP capabilities such as a 5-band EQ per XLR input and level control of all input and output signal types are available to configure via the web interface.

Encoder and Decoder Functionality

The DM-NAX-2XLRI-1G can operate as a network AV encoder and decoder. The local input sources on one amplifier can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-2XLRI-1G can receive AoIP streams from these same devices and decode them for local output.

DM-NAX-4ZSA-50

The Crestron DM-NAX-4ZSA-50 is a next generation DM NAX® Audio-over-IP (AoIP) amplifier that puts Crestron multiroom audio distribution on the network. It provides four amplified stereo zone (8-channel) outputs and an independent line level zone (2-channel) output.
A dedicated streaming service player for each of the four zones enables complete freedom to stream different content in every zone. Full DSP capabilities are available on the speaker outputs.



- Audio-over-IP (AoIP) amplifier
- Built-in streaming services support
- Full DSP capabilities
- Gallium Nitride (GaN) Class D amplification
- 50 W of output power per channel
- Provides four amplified output zones and one additional line-level output zone
- 1 RU high, half-rack width modular form factor
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Built-in chime support
- Streamlined configuration through a web interface
- Seamless Crestron system integration with SIMPL Windows programming

The DM-NAX-4ZSA-50 supports Amazon Connected Speakers.

Audio-over-IP

The DM-NAX-4ZSA-50 sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Streaming and Casting Services

A dedicated streaming service player is built-in for each zone, supporting AirPlay® 2, Amazon Music® Unlimited, Internet Radio, Spotify Connect™, Pandora®, SiriusXM®, TIDAL™, Deezer®, Qobuz®, Podcasts and more. The DM-NAX-4ZSA-50 delivers streaming, routing, distribution, and amplification in a single device. Streams can be routed to other non-streaming AoIP devices.

Chimes

A library of chimes is built into the unit. Chimes can be assigned to different zones to help identify them. Whenever a chime is triggered, the zone audio will duck or pause, so the chime can be clearly heard over active media until the chime concludes.

Digital Signal Processing (DSP)

DSP capabilities such as bass and treble boost and cut, loudness, adjustable delay, speaker protection and limiting, tone profiles, a full 10-band EQ per output, and an option to have line output as a fixed or variable level with or without DSP applied are available. Speaker profiles for first and third party speaker models are built in to simplify output DSP tuning.

Encoder and Decoder Functionality

The DM-NAX-4ZSA-50 can operate as a network AoIP encoder and decoder. The local input sources on one amplifier can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-4ZSA-50 can receive AoIP streams from these same devices and decode them for local output.

Modular Design

The DM-NAX-4ZSA-50 is housed in a half-width rack-mountable form factor that can be installed individually or ganged together in a single rack space. The amplifier is high-density stackable with other Crestron DM NAX or X-Series amplifiers, allowing multiple units to be installed vertically in an equipment rack without needing extra ventilation space. Rack mount parts are included, so no additional mounting accessories or rack shelves are required.

Whether mounting in a rack or placing on a shelf, it is easy to combine two amplifiers into a single, full rack-width assembly.

Gallium Nitride (GaN) Amplification

The DM-NAX-4ZSA-50 is the first Crestron amplifier to feature GaN Class D technology. GaN amplification allows higher output power to fit into small form factors without sacrificing efficiency or audio performance. The DM-NAX-4ZSA-50 is capable of 50 W per channel of amplifier output power in a half-width 1RU housing that matches the depth of the DM-NAX-AMP-X300.

DM-NAX-4ZSP

The Crestron DM-NAX-4ZSP is a next generation Audio-over-IP (AoIP) preamplifier that puts Crestron multiroom audio distribution on the network. It provides four stereo zone (8-channel) line-level outputs. A dedicated streaming service player enables streaming different content in each of the four zones.



- Built-in streaming services support
- 1 RU form factor, low power consumption, cool running operation
- Built-in chime support
- Voice control support for Crestron Home OS
- Provides 4 stereo zones (8 channels total) of line-level output
- Output bussing enables linked operation of multiple adjacent zones
- Connects directly to a managed network to route to or from other DM NAX and DM NVX devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Includes 4 stereo unbalanced analog RCA and 4 SPDIF (2 TOSLINK and 2 Coaxial) audio inputs
- Full DSP capabilities
- Streamlined setup and adjustment via the device's web interface
- Seamless Crestron system integration with Crestron Home® OS and SIMPL Windows programming

For installation information, refer to the DM-NAX-4ZSP Quick Start.

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-4ZSP sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Streaming and Casting Services

A dedicated streaming service player for each of the zones supporting AirPlay® 2, Amazon Music® Unlimited, Internet Radio, Spotify Connect™, Pandora®, SiriusXM®, TIDAL™, Deezer®, Qobuz®, SOUNDMACHINE®, Podcasts and more. The DM-NAX-4ZSP delivers streaming, routing, distribution, and amplification in a single device. Streams can be routed to other non-streaming AoIP amplifiers.

Chimes

A library of chimes is built into the unit. Chimes can be assigned to different zones to help identify them. Whenever a chime is triggered, the zone audio will duck or pause, so the chime can be clearly heard over active media until the chime concludes.

DSP

DSP capabilities such as bass and treble boost and cut, loudness, adjustable delay, speaker protection and limiting, tone profiles, a full 10-band EQ per output, and an option to have each line output at a fixed or variable level with or without DSP applied are available.

Zones can be permanently bussed together (up to 2 buses available per unit, and up to all 4 zones can join a given bus) for simultaneous routing and control, or grouped dynamically with other zones for a temporary collection of zones that play back the same media.

Encoder and Decoder Functionality

The DM-NAX-4ZSP operates simultaneously as a network AV encoder and decoder. The analog line level sources, digital S/PDIF sources or media streams on one DM NAX device can be sent to any other DM NAX or AES67 capable endpoint on the network.

DM-NAX-8ZSA

The Crestron DM-NAX-8ZSA is a next generation DM NAX® Audio-over-IP (AoIP) amplifier that puts Crestron multiroom audio distribution on the network. It provides eight amplified stereo zone (16-channel) outputs. Four stereo line-level outputs mirror speaker zone outputs 1-4.
A dedicated streaming service player for each of the eight zones enables complete freedom to stream different content in every zone. Full DSP capabilities are available on the line and speaker outputs.



- Robust, high-efficiency, audiophile grade amplification
- Built-in streaming services support
- 2 RU form factor, low power consumption, cool running operation
- Built-in chime support
- Voice control support for Crestron Home OS
- Provides 8 amplified stereo zones (16 channels total) of output
- 150 W/Ch. @ 8 Ω or 300 W/Ch. @ 4 Ω, with zones bridgeable up to 500 W/Ch.
- Four stereo line-level outputs mirror speaker zone outputs 1-4
- Output bussing enables linked operation of multiple adjacent zones
- Connects directly to a managed network to route to or from other DM NAX and DM NVX devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Includes 4 stereo unbalanced analog RCA and 4 SPDIF (2 TOSLINK and 2 Coaxial) audio inputs
- Full DSP capabilities
- Individual zone power control and global standby
- Streamlined setup and adjustment via the device's web interface
- Seamless Crestron system integration with Crestron Home® OS and SIMPL Windows programming

The DM-NAX-8ZSA supports Amazon Connected Speakers.

For installation information, refer to the DM-NAX-8ZSA Quick Start.

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-8ZSA sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Streaming and Casting Services

A dedicated streaming service player for each of the zones supporting AirPlay® 2, Amazon Music® Unlimited, Internet Radio, Spotify Connect™, Pandora®, SiriusXM®, TIDAL™, Deezer®, Qobuz®, SOUNDMACHINE®, Podcasts and more. The DM-NAX-8ZSA delivers streaming, routing, distribution, and amplification in a single device. Streams can be routed to other non-streaming AoIP amplifiers.

Voice Control

Amazon® Voice Services are currently only supported when using the DM-NAX-8ZSA with Crestron Home OS.

Chimes

A library of chimes is built into the unit. Chimes can be assigned to different zones to help identify them. Whenever a chime is triggered, the zone audio will duck or pause, so the chime can be clearly heard over active media until the chime concludes.

DSP

DSP capabilities such as bass and treble boost and cut, loudness, adjustable delay, speaker protection and limiting, tone profiles, a full 10-band EQ per output, and an option to have each line output at a fixed or variable level with or without DSP applied are available.

Zones can be permanently bussed together (up to 4 buses available per unit, and up to all 8 zones can join a given bus) for simultaneous routing and control, or grouped dynamically with other zones for a temporary collection of zones that play back the same media.

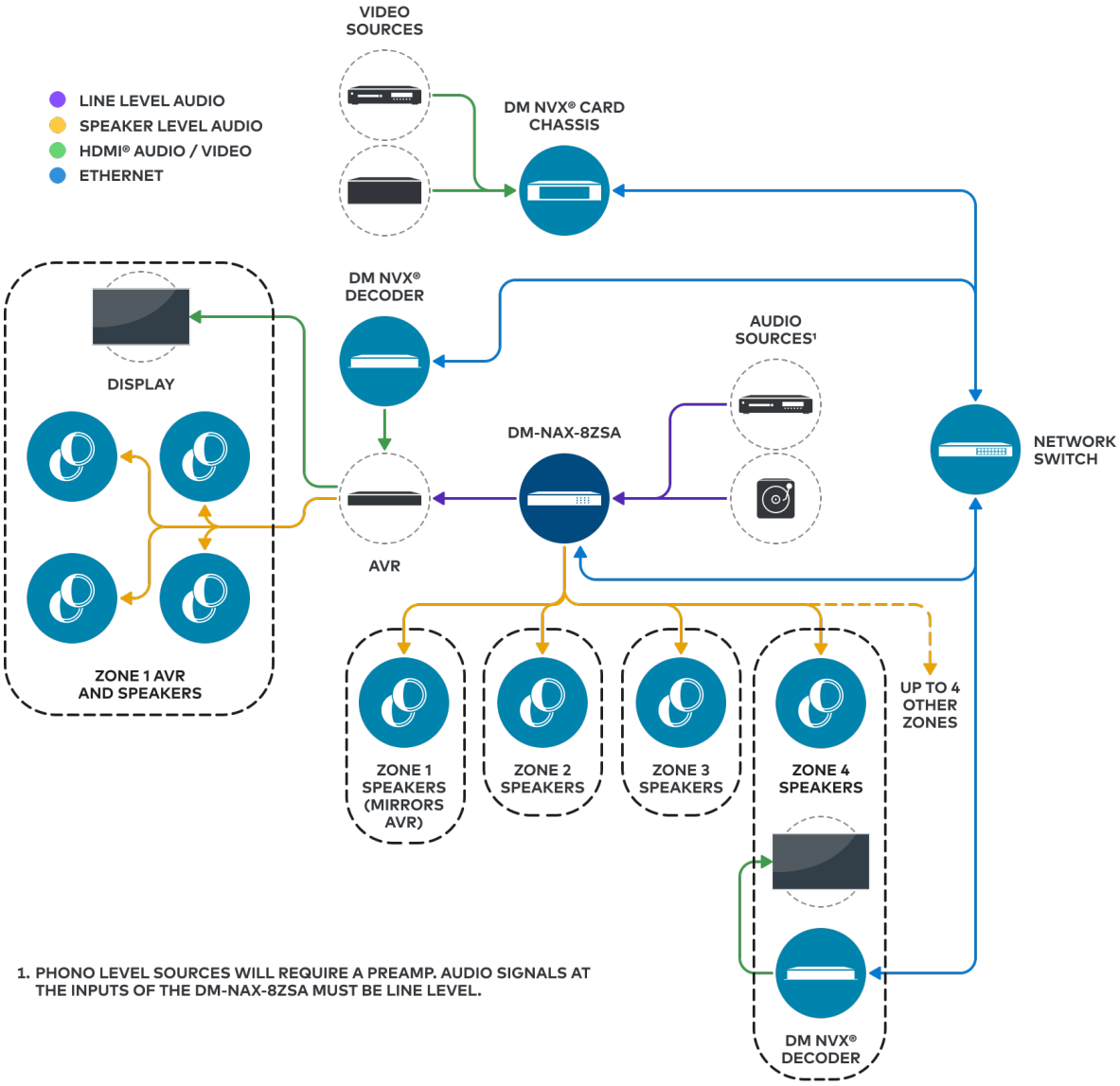
Encoder and Decoder Functionality

The DM-NAX-8ZSA operates simultaneously as a network AV encoder and decoder. The analog line level sources, digital S/PDIF sources or media streams on one DM NAX device can be sent to any other DM NAX or AES67 capable endpoint on the network.

Application Diagrams

This section shows the DM-NAX-8ZSA in multizone applications.

DM-NAX-8ZSA with DM NVX AV-over-IP Devices



1. PHONO LEVEL SOURCES WILL REQUIRE A PREAMP. AUDIO SIGNALS AT THE INPUTS OF THE DM-NAX-8ZSA MUST BE LINE LEVEL.

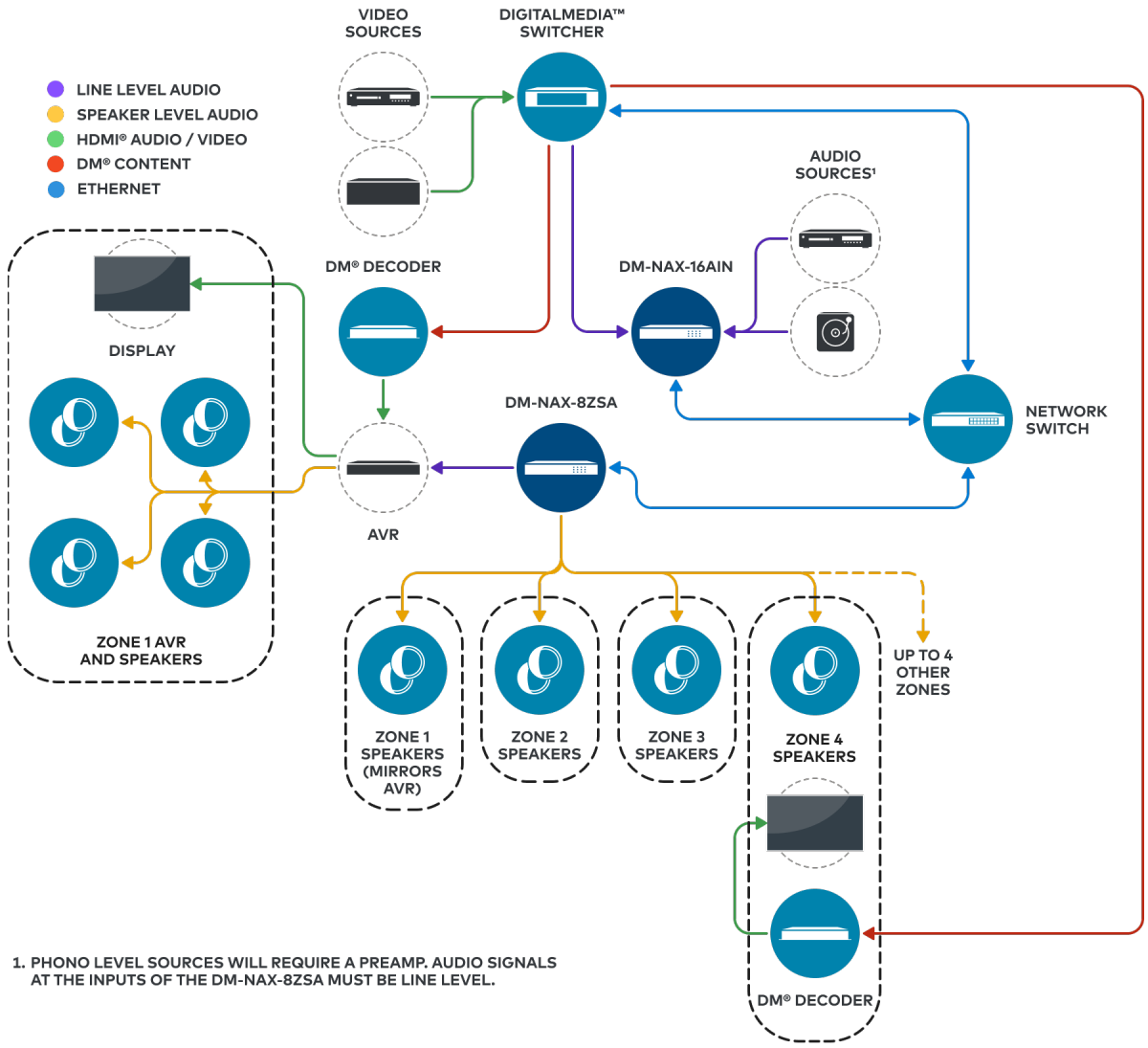
NOTES:

- DM NAX devices generate multicast traffic on the network. Even a single DM NAX device connected to an unmanaged network can cause communication issues with other devices connected to the same network. For information on system installation, refer to the Audio-over-IP Network Design on page 785.
- If DM NAX devices must be set up before configuring network settings on a managed switch, refer to Settings on page 365. The **Port Selection** feature allows the DM NAX device to isolate the AoIP traffic to the secondary Ethernet port. For example, when connecting the DM NAX to a control system or authenticating streaming service accounts. This ensures that during setup, the primary Management port of the device does not receive AoIP traffic.

This application diagram highlights the following:

- Up to eight zones of amplification and audio distribution
- Local line level input
- Local line level output to an Audio Video Receiver (AVR) mirroring a zone of amplification
- Available DM NVX audio streams to route audio from video sources to non-video zones
- Available music streaming services on up to eight DM NAX zones

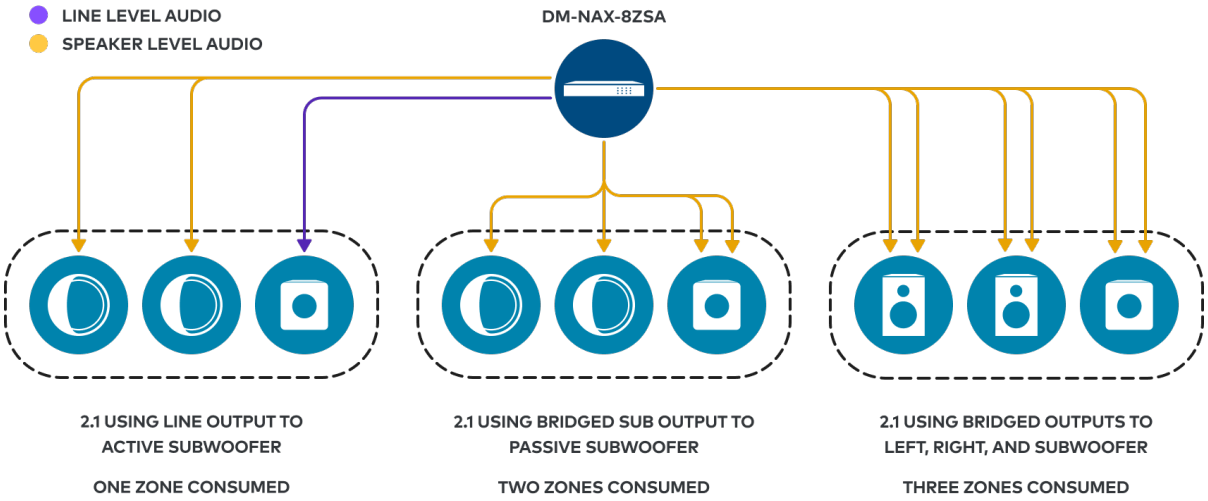
DM-NAX-8ZSA with a DM® Chassis



This application diagram highlights the following:

- Up to eight zones of amplification and audio distribution
- Local line level input
- Local line level output to an AVR mirroring a zone of amplification
- Available music streaming services on up to eight DM NAX zones
- The DM-NAX-16AIN is used to transmit audio from the DM chassis' video sources onto the DM NAX network for routing to the non-video zones on the DM-NAX-8ZSA

DM-NAX-8ZSA 2.1 Options



This application diagram shows different 2.1 configurations and how they affect the zone count of an DM-NAX-8ZSA. By default, the zones of the amplifier are configured as stereo pairs comprising two speaker outputs each - one left channel and one right channel. Each of the 2.1 zone output options can consume a different number of speaker outputs for the left, right, and subwoofer channels:

- The 2.1 configuration at the left of the diagram comprises two speaker outputs, with a line output that feeds an active subwoofer. If the subwoofer has a stereo input, only one zone needs to be consumed for this configuration. If the subwoofer only has a mono input, a second zone will need to be consumed to sum the signal to mono, effectively comprising four speaker outputs instead.

  > **NOTE:** This configuration is only applicable for zones with an available line output (zones 1 through 4).

- The middle configuration (referred to as **2.1 Bridged Sub** during zone configuration) comprises four speaker outputs - one for the left channel, one for the right channel, and two for the bridged subwoofer output.

  > **NOTE:** This configuration is only applicable when enough subsequently numbered zones are available on the amplifier. For example, the **2.1 Bridged Sub** configuration cannot be used on zone 8 as there is no speaker output pair 9.

- The right configuration (referred to as **Bridged 2.1** during zone configuration) comprises six speaker outputs - two for the left channel, two for the right channel, and two for the subwoofer output.

  > **NOTE:** This configuration is only applicable when enough subsequently numbered zones are available on the amplifier. For example, the 2.1 bridged sub cannot be used on zone 7 or 8 as there is no speaker output pair 9 or 10.

Having higher output-count zone configurations on a single DM-NAX-8ZSA will affect the total available zone count on a given box. For example, if you have a single Bridged 2.1 configuration on an

DM-NAX-8ZSA, it will lower the maximum zone count to six, as the Bridged 2.1 consumes three zones worth of speaker outputs on its own.

DM-NAX-16AIN

The Crestron DM NAX® Audio-over-IP (AoIP) encoder (DM-NAX-16AIN) provides 16 local stereo audio inputs to a DM NAX Crestron multiroom audio distribution network. It provides 8 digital inputs comprised of 4 SPDIF TOSLINK® connectors and 4 SPDIF coaxial connectors. Each digital input supports 2-channel PCM audio. The DM-NAX-16AIN also provides 8 analog stereo inputs. Inputs 1-4 offer balanced 5-pin terminal block connectors in parallel with unbalanced RCA connectors, and inputs 5-8 offer RCA connectors.



- 1 RU form factor, low power consumption, cool running operation
- Provides 16 stereo inputs for a DM NAX AoIP network
- Includes 8 SPDIF (4 TOSLINK and 4 Coaxial) digital audio inputs, 8 stereo unbalanced analog RCA inputs, and 4 stereo balanced analog terminal block connector inputs in parallel with RCA inputs 1-4
- Connects directly to a managed network to route to other DM NAX and DM NVX devices
- Adjustable level compensation for each local input
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Streamlined setup and adjustment via the device's web interface
- Seamless Crestron system integration with Crestron Home® OS and SIMPL Windows programming

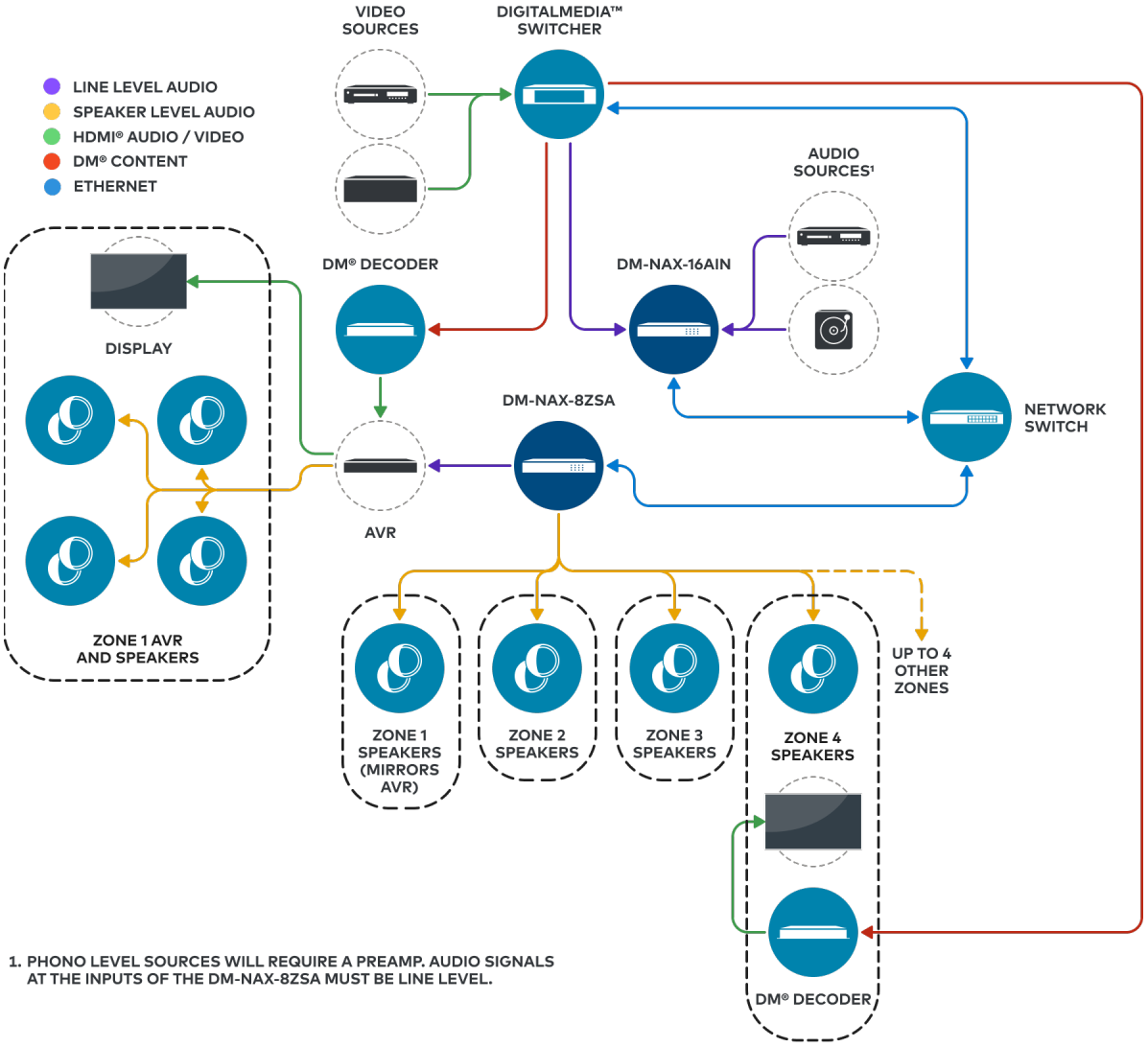
For installation information, refer to the DM-NAX-16AIN Quick Start.

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-16AIN sends DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Application Diagram

This section shows the DM-NAX-16AIN device in a multizone application.



This application diagram shows the following setup:

- Up to eight zones of amplification and audio distribution
- Local line level input
- Local line level output to an AVR mirroring a zone of amplification
- Available music streaming services on up to eight DM NAX zones
- The DM-NAX-16AIN is used to transmit audio from the DM chassis' video sources onto the DM NAX network for routing to the non-video zones on the DM-NAX-8ZSA

DM-NAX-AMP-X300

The DM-NAX-AMP-X300 is a high performance, space saving, energy efficient, professional grade Audio-over-IP (AoIP) amplifier. Supporting DM NAX, Dante, AES67, and local inputs, all with full DSP capabilities, this multichannel amplifier is suitable for both residential and commercial configurations.



- Audio-over-IP (AoIP) amplifier
- Native Dante® mode
- Full DSP capabilities
- Streamlined configuration through a web interface
- ENERGY STAR® certified power amplifier
- 1 RU high, half-rack width form factor supports surface and rack mounting
- Configurable for Lo-Z (4/8 Ω) or Hi-Z (70V or 100V) operation
- Configurable for 4 x up to 75 W output, 2 x up to 150 W output, 1 x up to 300 W (bridged) output, and 2 x up to 75 W + 1 x up to 150 W (bridged) output
- Matrix mixing of any input to any output
- Always On feature allows constant on connection with very low power consumption
- Connects directly to a managed network to route to or from DM NAX/DM NVX®, AES67, or Dante devices
- Supports mic/line level analog inputs and balanced/unbalanced line level outputs
- Individual zone power control and global standby
- Seamless Crestron system integration with Crestron Home® OS and SIMPL Windows programming

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-AMP-X300 sends and receives DM NAX, Dante, and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Digital Signal Processing (DSP)

The DM-NAX-AMP-X300 has two DSP modes. Residential mode enables the quick and easy configuration of layout, speaker protection output limits, and speaker profiles for each zone. In Commercial mode, make full use of the DM-NAX-AMP-X300's true mixing matrix as well as advanced options for equalization and dynamics processing on each individual speaker, line, and network channel.

Encoder and Decoder Functionality

The DM-NAX-AMP-X300 can operate as a network AV encoder and decoder. The local input sources on one amplifier can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-AMP-X300 can receive AoIP streams from these same devices and decode them for local output.

Lo-Z (4/8 Ω) and Hi-Z (70V or 100V) Output

The DM-NAX-AMP-X300 is a 4-channel amplifier (up to 75 W per channel) which can also be configured for 3-channel bridged operation (up to 75 W per single ended channel and up to 150 W for the bridged channel), 2-channel bridged operation (up to 150 W per channel), or 1 channel bridged operation (up to 300 W). A choice of Lo-Z outputs to drive 4- or 8-Ω speakers, or Hi-Z outputs to drive a distributed speaker system (70V or 100V) can be used. Balanced/Unbalanced inputs are provided for connection to two stereo or four mono sources through detachable terminal blocks.

ENERGY STAR® Certified

An energy-efficient design enables the DM-NAX-AMP-X300 to meet demanding ENERGY STAR requirements. In addition to its high efficiency under operation, the amplifier draws no added inrush current during power-up, thereby reducing AC circuit requirements and allowing multiple amplifiers to be connected to a single switched circuit. To reduce energy usage further, the DM-NAX-AMP-X300 can be configured to enter a low-power standby state if no input signal is detected on either channel for 25 minutes. Signal detection sensitivity has been optimized to improve response time when triggering the amplifier to the on state, allowing it to return to full operation within a half-second. The REMOTE input can be connected to a contact closure to place the amplifier outputs in controlled standby mode.

Modular Design

The DM-NAX-AMP-X300 is housed in a half-width rack-mountable form factor that can be installed individually or ganged together in a single rack space. The amplifier is high-density stackable with other Crestron modular amps, allowing multiple units to be installed vertically in an equipment rack without needing extra ventilation space. Rack and surface mount parts are included, so no additional mounting accessories or rack shelves are required.

Whether mounting in a rack, attaching to a flat surface, or placing on a shelf, it is easy to combine two amplifiers into a single, full rack-width assembly.

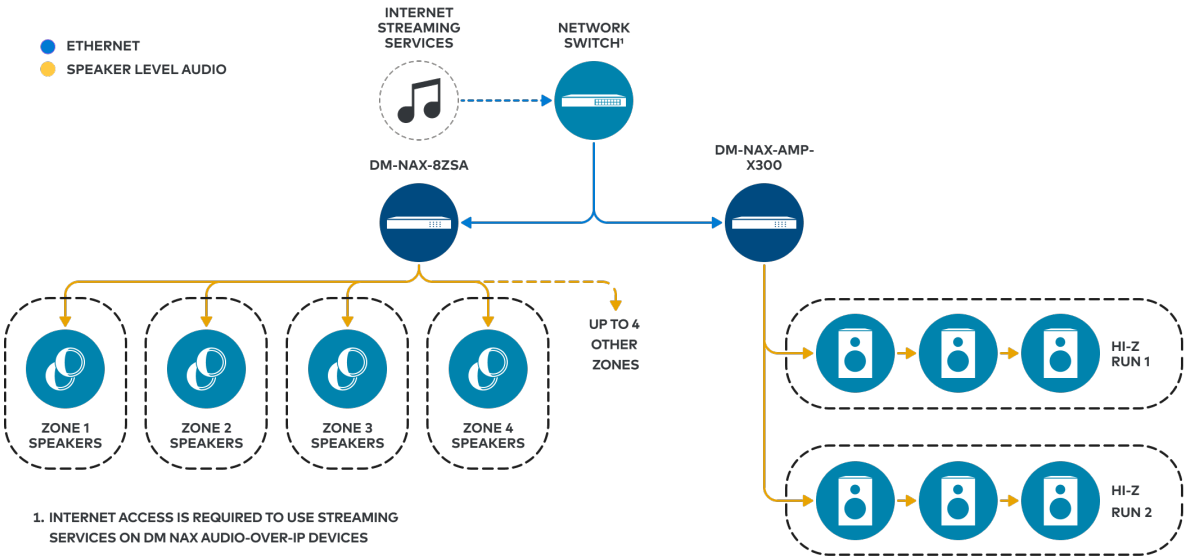
Fully Protected

The DM-NAX-AMP-X300 features protection against overheating, shorted or overloaded speaker lines, excessive input signals, and other faults. In the case of a shorted speaker line or overheating condition, paired outputs mute automatically until the fault condition is resolved. In the event of a prolonged fault, all outputs mute and the amplifier shuts down.

Application Diagrams

This section shows the DM-NAX-AMP-X300 in a broader DM NAX audio-over-IP system application.

Streaming Services with the DM-NAX-AMP-X300



NOTES:

- DM NAX devices generate multicast traffic on the network. Even a single DM NAX device connected to an unmanaged network can cause communication issues with other devices connected to the same network. For information on system installation, refer to the Audio-over-IP Network Design on page 785.
- If DM NAX devices must be set up before configuring network settings on a managed switch, refer to Settings on page 365. The **Port Selection** feature allows the DM NAX device to isolate the AoIP traffic to the secondary Ethernet port. For example, when connecting the DM NAX to a control system or authenticating streaming service accounts. This ensures that during setup, the primary Management port of the device does not receive AoIP traffic.

This application diagram highlights the following:

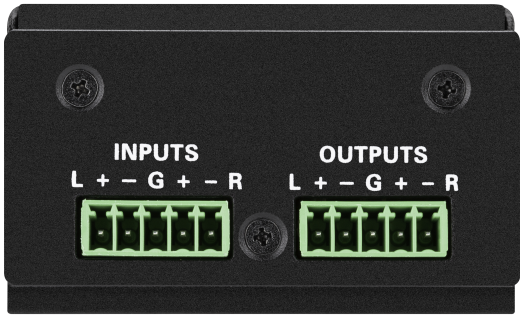
- A streaming service capable DM NAX device (such as a DM-NAX-8ZSA) routing cloud-based content over the network to a DM-NAX-AMP-X300.
    - For example, a TIDAL® stream on the DM-NAX-8ZSA can be routed as a DM NAX audio-

over-IP stream to the porch zone of the DM-NAX-AMP-X300.

- Hi-Z (70 or 100V) output from the DM-NAX-AMP-X300 to runs of multiple speakers.

DM-NAX-AUD-IO

The DM-NAX-AUD-IO is a DM NAX® encoder and decoder with support for analog line-level audio input and output. The device is housed in a versatile form factor that can be mounted in a single-gang standard electrical box, under a table, or on a rack rail. An additional polycarbonate label is included with rotated text to make the front panel more legible in electrical box installations. The rear panel of the device features an Ethernet connection for PoE, Audio over IP (AoIP), and control.



- Line-level, balanced/unbalanced analog audio input and output via detachable terminal block connectors
- Power over Ethernet (PoE) network powered
- Mountable in a standard US electrical box, under a table, or on a rack rail via included hardware
- Connects directly to a managed network to route to or from other DM NAX® and DM NVX® devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Streamlined configuration through a web interface
- Seamless Crestron system integration with SIMPL Windows programming

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-AUD-IO sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Digital Signal Processing (DSP)

DSP capabilities such as bass and treble boost and cut, loudness, adjustable delay, tone profiles, and a full 10-band EQ per output are available on each output channel of the DM-NAX-AUD-IO.

Encoder and Decoder Functionality

The DM-NAX-AUD-IO can operate as a network AV encoder and decoder. The local input sources on the adapter can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-AUD-IO can receive AoIP streams from these same devices and decode them for local output.

DM-NAX-AUD-USB

The DM-NAX-AUD-USB is a DM NAX® encoder and decoder with support for USB audio and analog line-level audio input and output. The device is housed in a versatile form factor that can be mounted in a single-gang standard electrical box, under a table, or on a rack rail. An additional polycarbonate label is included with rotated text to make the front panel more legible in electrical box installations. Two 1/8 in. (3.5 mm) TRS connectors for analog line-level audio input and output are also included on the front panel. The rear panel of the device features an Ethernet connection for PoE, Audio over IP (AoIP), and control.



- USB Audio Class 1 (UAC1) device with bidirectional stereo USB audio support
- Power over Ethernet (PoE) network powered
- Line-level, unbalanced analog audio input and output via 1/8 in. (3.5 mm) TRS connectors
- Mountable in a standard US electrical box, under a table, or on a rack rail via included hardware
- Connects directly to a managed network to route to or from other DM NAX® and DM NVX® devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Streamlined configuration through a web interface
- Seamless Crestron system integration with SIMPL Windows programming

USB Audio

A USB-C® connector is built-in to the front panel of the DM-NAX-AUD-USB, allowing for bidirectional stereo USB audio transfer at rates up to 24-bit/48 kHz. This stereo signal can be output as a DM NAX AoIP stream onto the network or as an unbalanced line-level analog signal from the local 1/8 in. (3.5 mm) audio output connector.

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-AUD-USB sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Digital Signal Processing (DSP)

DSP capabilities such as bass and treble boost and cut, loudness, adjustable delay, tone profiles, and a full 10-band EQ per output are available on each output channel of the DM-NAX-AUD-USB.

Encoder and Decoder Functionality

The DM-NAX-AUD-USB can operate as a network AV encoder and decoder. The local input sources on the adapter can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-AUD-USB can receive AoIP streams from these same devices and decode them for local output.

DM-NAX-BTIO-100-1G

The DM-NAX-BTIO-100-1G is a DM NAX® encoder and decoder with support for Bluetooth® wireless and analog line-level wired audio input and output, housed in a single-gang wall plate form factor. The front panel features an OLED display and four buttons for device pairing and menu navigation. Two 1/8 in. (3.5 mm) TRS connectors for stereo unbalanced analog line-level audio input and output are concealed under a front panel door. The rear panel of the wall plate features an Ethernet connection for PoE, Audio over IP (AoIP), and control.

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.



- Built-in Bluetooth® wireless audio input and output support
- Front panel OLED display provides metadata readout and device setup menus
- Single-gang U.S. wall box installation
- Power over Ethernet (PoE) network powered
- Stereo unbalanced analog line-level audio input and output via 3.5 mm TRS connectors
- Mountable in a standard US electrical box or on a rack rail via included hardware
- Connects directly to a managed network to route to or from other DM NAX® and DM NVX® devices
- Interoperable with Dante® audio networking devices via AES67 compatibility

- Streamlined configuration through front panel push buttons and a web interface
- Seamless Crestron system integration with SIMPL Windows programming

Bluetooth® Wireless Connectivity

Bluetooth wireless audio input and output support is built into the DM NAX®. In transmitter mode, the wall plate transmits an audio signal to a sink device such as wireless headphones, a soundbar, or a freestanding speaker.

In receiver mode, a smart phone or other source device transmits an audio signal to the wall plate. Metadata for the audio signal is displayed on the front panel, and up to seven previous source device connections can be recalled. This audio signal can also be made available to other devices on the network as a DM NAX audio-over-IP stream.

Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-BTIO-100-1G sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system with a Crestron Home OS processor can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. A SIMPL Windows program can handle as many DM NAX devices and zones as the network hardware will support. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Encoder and Decoder Functionality

The DM-NAX-BTIO-100-1G can operate as a network AV encoder and decoder. The local input sources on the wall plate can be sent as AoIP streams to DM NAX, Dante, or AES67 capable devices. Simultaneously, the DM-NAX-BTIO-100-1G can receive AoIP streams from these same devices and decode them for local output.

Front Panel Controls and Display

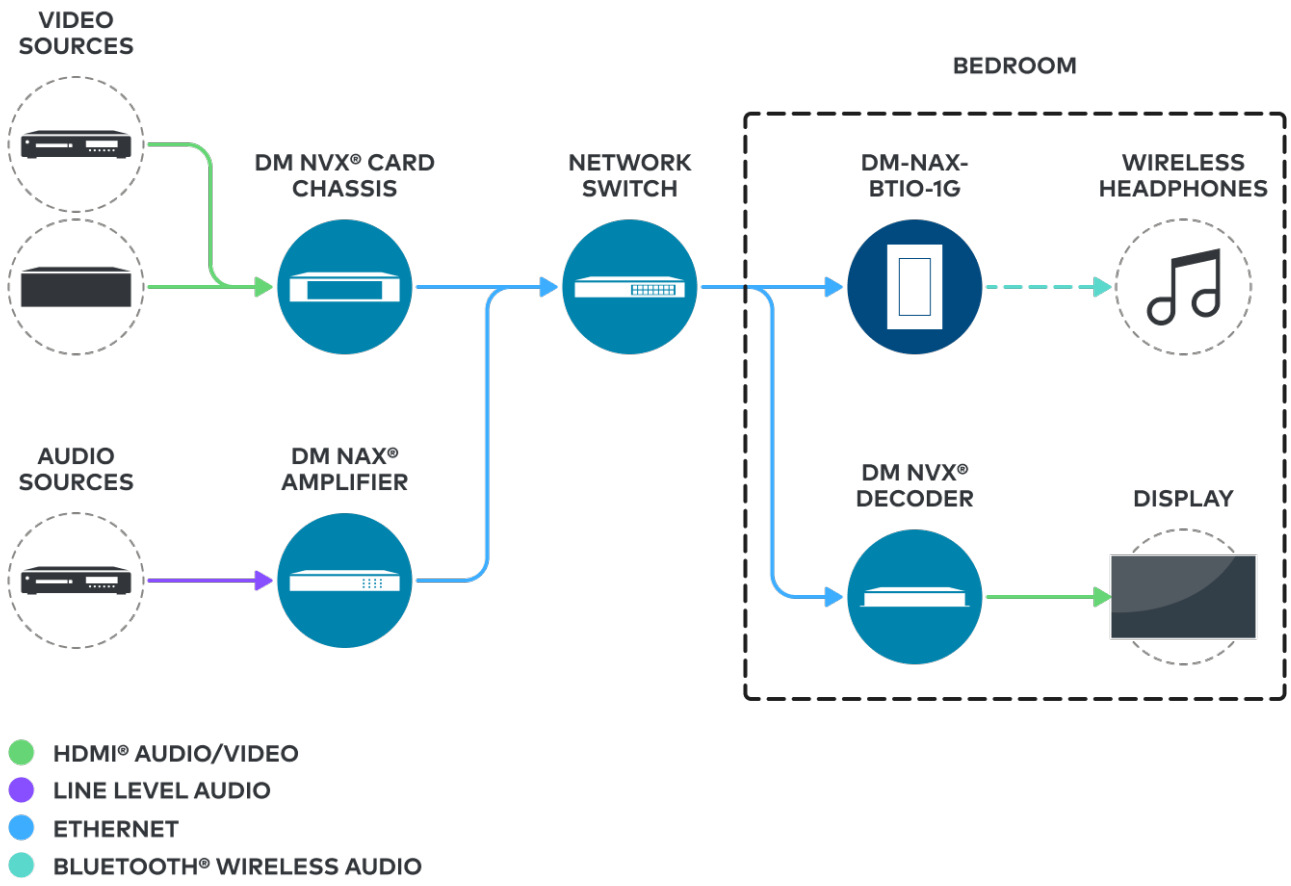
The DM-NAX-BTIO-100-1G features four front panel push buttons and a 128 x 64 dot matrix OLED display. The push buttons allow local volume control and Bluetooth pairing, with volume feedback and pairing status reflected in real time on the display. Metadata for Bluetooth media and basic configuration menus are also shown on the display.

Both the display and push buttons can be disabled via the configuration web interface or programming for applications where a more discreet or secure installation is required.

Application Diagrams

This section shows the DM-NAX-BTIO-100-1G in applications highlighting transmit mode and receive mode use cases.

DM-NAX-BTIO-100-1G Transmit Mode



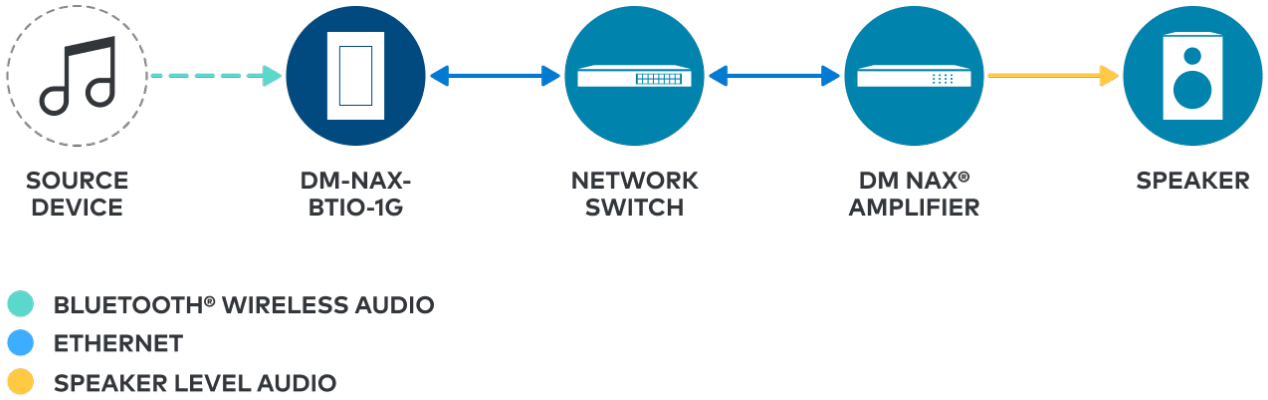
NOTE: DM NAX devices generate multicast traffic on the network. Even a single DM NAX device connected to an unmanaged network can cause communication issues with other devices connected to the same network. For information on system installation, refer to the Audio-over-IP Network Design on page 785.

This application diagram highlights the DM-NAX-BTIO-100-1G transmitting a Bluetooth wireless stereo audio signal to a pair of headphones in a bedroom. This allows a user in a shared space to hear the audio from a DM NAX audio-over-IP, DM NVX AV-over-IP, or Dante networked audio source without disturbing other users.

NOTE: The DM-NAX-BTIO-100-1G is only compatible with Dante networked audio devices if AES67 Compatibility Mode is enabled on the Dante devices. Dante network streams must be transmitted

as AES67 streams to be received by a DM NAX audio-over-IP device. Refer to the original manufacturer's documentation to ensure that AES67 Compatibility Mode is available on a Dante device.

DM-NAX-BTIO-100-1G Receive Mode



NOTE: DM NAX devices generate multicast traffic on the network. Even a single DM NAX device connected to an unmanaged network can cause communication issues with other devices connected to the same network. For information on system installation, refer to the Audio-over-IP Network Design on page 785.

This application diagram highlights the DM-NAX-BTIO-100-1G receiving a Bluetooth wireless stereo audio signal from a source device, such as a smart phone or laptop. The incoming stereo audio is converted to a DM NAX audio-over-IP stream, which is sent over a managed network to a DM NAX amplifier for playback over a speaker.

This use case allows users who are not connected to the network or who have source devices that do not support Apple AirPlay to transmit wireless audio to DM NAX audio-over-IP zones. This also provides a way to get Bluetooth wireless audio onto a Dante audio network via the AES67 compatibility mode on the Dante device.

NOTE: Not all Dante devices support AES67 compatibility mode. Refer to the original manufacturer's documentation to ensure that this mode is available on the Dante device.

DM-NAX-XSP

The DM-NAX-XSP is an 8K display controller with a local HDMI input and HDMI passthrough, DM NAX AoIP encoder and decoder functionality, and eARC support. Its compact form factor facilitates mounting the device behind a display, or it can be mounted to a single rack rail using included hardware.

DM NAX® audio-over-IP is built on the AES67 standards, with additional ease of configuration via a web interface, SIMPL Windows, C#, and/or a RESTful API. It is compatible with DM NVX® AV-over-IP through the AES67 secondary audio stream, and also with third-party AES67 solutions and Dante® Networking via the compatibility mode enabled through Dante Controller.



- Audio-over-IP (AoIP) display controller and audio encoder/decoder
- Handles video resolutions up to 8K60 4:2:0 and 4K120 4:4:4
- Supports HDR10, HDR10+, and Dolby Vision® video formats
- Supports all Dolby® audio formats up to Dolby Atmos® and all DTS® formats up to DTS:X®
- eARC support available on HDMI® connection to display
- HDCP 2.3 compliant
- Connected device control via CEC, RS-232, IR, and relays
- Connects directly to a managed network to route audio to or from other DM NAX® and DM NVX® devices
- Interoperable with Dante® audio networking devices via AES67 compatibility
- Streamlined configuration through a web interface
- Seamless Crestron system integration with SIMPL Windows programming
- Compact, surface-mountable design
- PoE+ powered device

8K60 4:2:0, 4K120 4:4:4, and HDR Support

The DM-NAX-XSP supports video resolutions up to 8K60 with 4:2:0 color sampling, 8K30 4:4:4, or 4K120 4:4:4. HDR10, HDR10+, and Dolby Vision video formats are also supported.

eARC Support

The HDMI output of the DM-NAX-XSP supports Enhanced Audio Return Channel (eARC) connectivity, allowing audio to be extracted from a connected display and transmitted over the network as a DM NAX AoIP stream. Extracting audio from the display via the eARC connection means only a single cable

is required for video and bidirectional audio. This connection also allows local audio content from the display (such as smart TV streaming applications) to be encoded as streams available to an AoIP audio distribution system.

Surround Sound and Downmixing

The HDMI input and eARC connections of the DM-NAX-XSP support Dolby audio formats including Dolby Atmos and DTS formats including DTS:X. Digital audio formats received at the HDMI input can be passed through to the HDMI output. Supported surround sound formats can be downmixed to stereo via the built-in DSP to transmit a 2-channel AoIP stream onto the network.

Device Control via RS-232, IR, Relay, and Digital Input Ports

The DM-NAX-XSP includes built-in COM (RS-232), IR, relay, and digital input ports for controlling source devices and accessories.

CEC Control

CEC (Consumer Electronics Control) can control compatible source and display devices via the HDMI connection, eliminating the need for dedicated serial cables or IR emitters. CEC over the HDMI output can also turn the connected display on or off without additional programming.

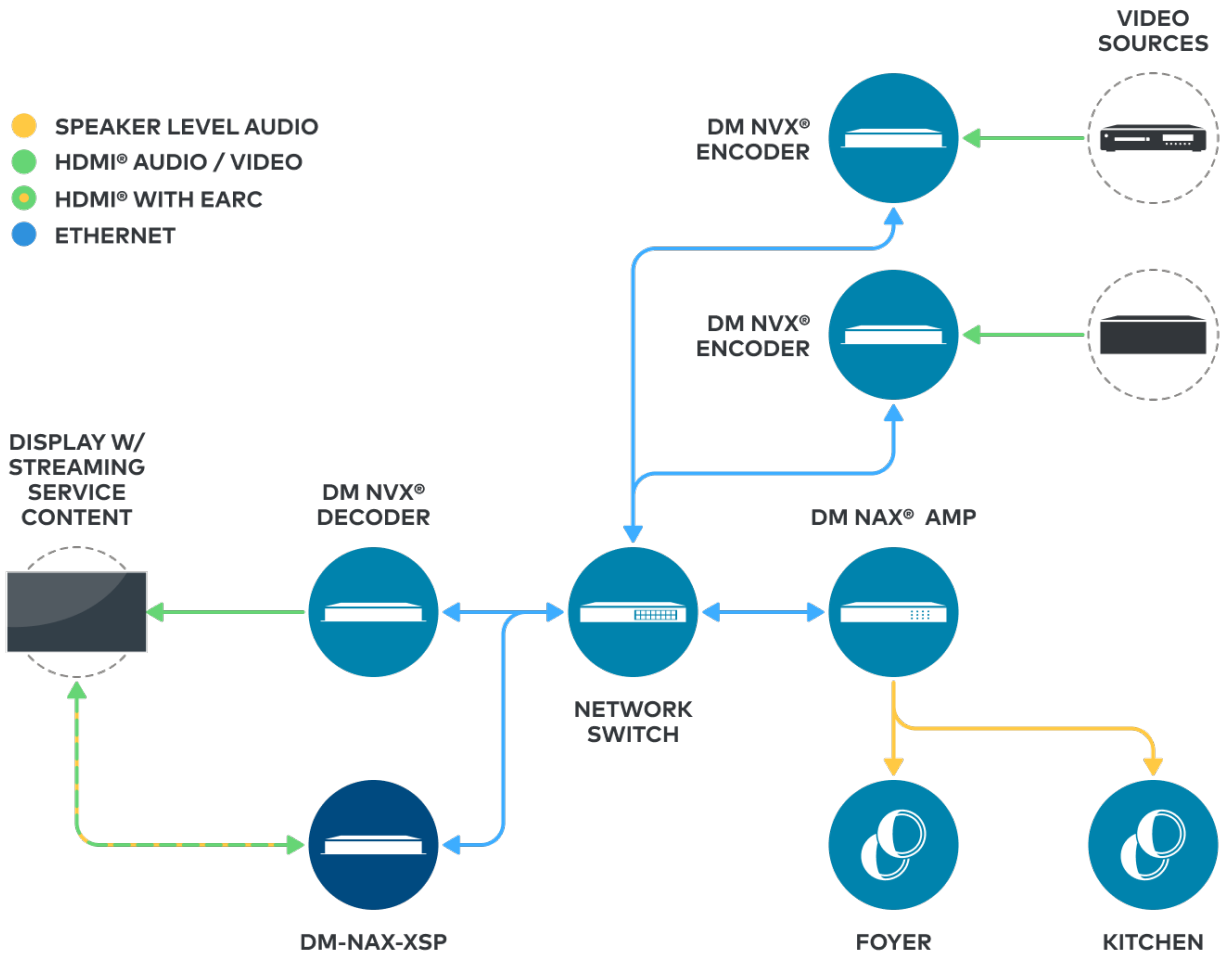
Audio-over-IP

DM NAX takes audio distribution to a whole new level by putting it on the network. The DM-NAX-XSP sends and receives DM NAX and AES67 encoded audio over a standard IP network. A single DM NAX system can handle audio distribution between 32 DM NAX devices and supports up to 256 audio output zones. DM NAX devices can seamlessly pull and distribute the audio from DM NVX sources.

Application Diagrams

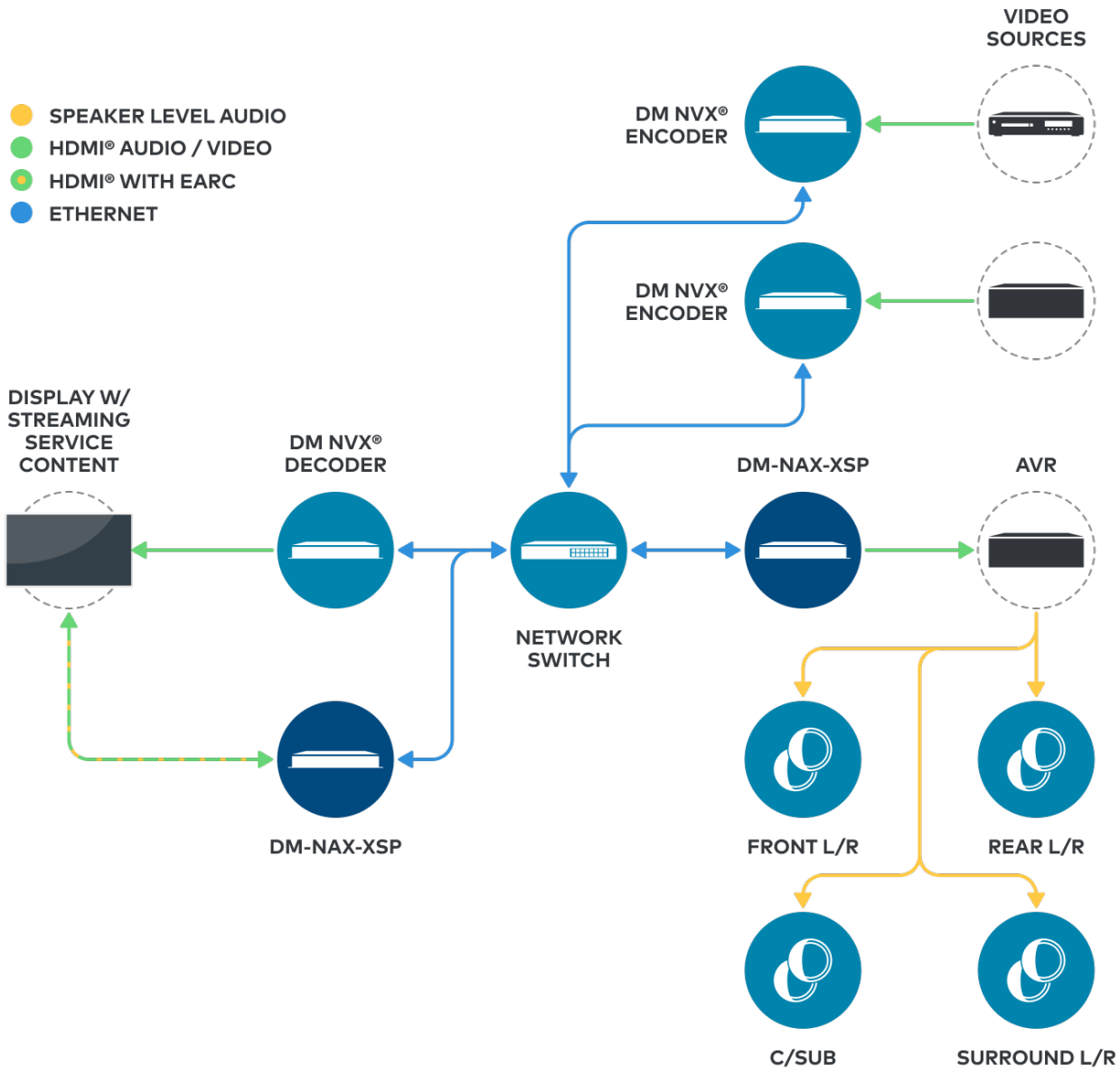
This section shows the DM-NAX-XSP in the context of a broader DM NAX audio-over-IP system application.

DM-NAX-XSP eARC Return from a Display to a DM NAX Amplifier



In this application, the DM-NAX-XSP extracts all audio from the display via an eARC connection. This allows audio from either connected sources (such as the DM NVX decoder) or internal sources (such as streaming applications) to be sent over the network to a DM NAX audio-over-IP amplifier as a stereo downmix stream.

DM-NAX-XSP Multichannel BTS Stream to another DM-NAX-XSP



In this application, the DM-NAX-XSP extracts all audio from the display via an eARC connection. This allows multichannel audio from either connected sources (such as the DM NVX decoder) or internal sources (such as streaming applications) to be sent over the network to another DM-NAX-XSP as a multichannel BTS stream. This multichannel audio can then be output to a multichannel amplifier or AVR to power a surround sound home theater or listening room.

Specifications

Refer to the following sections for more information on the specifications for various DM NAX devices.

- DM-NAX-2XLRI-1G
- DM-NAX-8ZSA
- DM-NAX-4ZSA-50
- DM-NAX-4ZSP
- DM-NAX-16AIN
- DM-NAX-AMP-X300
- DM-NAX-AUD-IO
- DM-NAX-AUD-USB
- DM-NAX-BTIO-100-1G
- DM-NAX-XSP

DM-NAX-2XLRI-1G Specifications

Product specifications for the DM-NAX-2XLRI-1G are provided below.

Specifications

Audio

Input Signal Types	Balanced/unbalanced analog line/mic-level; DM NAX/AES67 audio-over-IP
Output Signal Types	Balanced/unbalanced analog line-level; DM NAX/AES67 audio-over-IP
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Frequency Response (at line-level output)	From mic-level input: 20 Hz to 20 kHz ±1.0 dB; From line-level input: 20 Hz to 20 kHz +0.1/-1.0 dB
THD+N (at line-level output)	From mic-level input: 0.3% @ 1 kHz, max output From line-level input: 0.005% @ 1 kHz, max output
S/N Ratio (at line-level output)	From analog input: 105 dB, 20 Hz to 20 kHz, A-weighted; From digital input: 111 dB, 20 Hz to 20 kHz, A-weighted
Balance Control	Left/right adjustable
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch
EQ Center Frequency	10 Hz to 20 kHz per band

EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band

Connectors

INPUTS 1-2	(2) Balanced XLR input ports Line or microphone-level audio inputs; Mic-level maximum gain: 60 dB Mic-level maximum signal level: 2Vrms; Mic-level channel separation: 70 dB @ 60 dB gain @ 1 kHz; Line-level maximum signal level: +21 dBu (8.7Vrms) Impedance: >10 kΩ; +48V phantom power is available when used as mic-level inputs
OUTPUT L-R	(1) 5-pin 3.5 mm screw terminal block; Balanced line-level audio output; Pins 1-2: Left channel output; Pin 3: Shared ground; Pins 4-5: Right channel output; Maximum signal level: +14.7 dBu (4.2Vrms) Impedance: 200 Ω; Channel separation: 100 dB @ 1 kHz
G	(1) 6-32 screw; Chassis ground lug
ETHERNET PoE	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port

Controls and Indicators

ETHERNET PoE	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
SETUP	(1) Push button: Used for factory reset procedures; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

PoE	IEEE 802.3af Class 0 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE
Power Consumption	2.9 W

Environmental

Temperature	32° to 95° F (0° to 35° C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	9.9 BTU/hr

Construction

Chassis	Metal, black and silver finish, vented sides
Mounting	Mountable on the following: 1-gang U.S. electrical box or plaster ring (not included), 3.5 in. (26 mm) electrical box depth recommended; Rack rail

Dimensions

Height	4.12 in. (105 mm)
Width	1.72 in. (44 mm)
Depth	2.14 in. (55 mm)

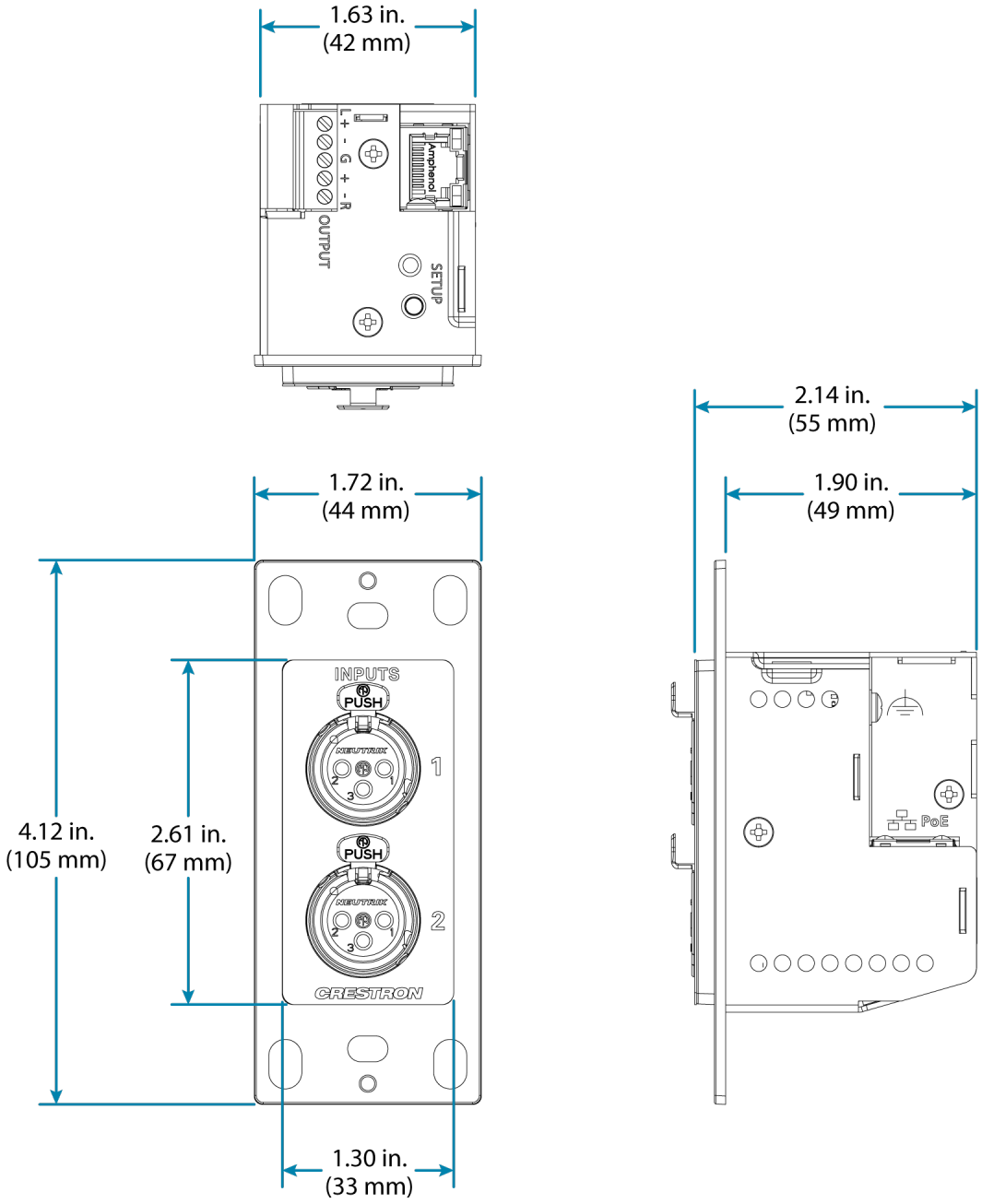
Weight

6 oz. (170 g)

Compliance

Regulatory Model: M202050006
IC, FCC Part 15 Class B digital device

Dimension Drawing



DM-NAX-4ZSA-50 Specifications

Product specifications for the DM-NAX-4ZSA-50 are provided below.

Specifications

Audio

Input Signal Types	2 stereo analog (RCA); 2 digital S/PDIF (1 TOSLINK® connection and 1 coaxial connection, PCM only)
Output Signal Types	4 stereo speaker-level amplified outputs; 1 stereo analog line-level output
Sampling Rates and Bit Depths	Digital Input (Coaxial): Up to 192 kHz, 24-bit; Digital Input (Optical): Up to 192 kHz, 24-bit; Media Players: Up to 192 kHz, 24-bit
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Output Power	50 W per channel at 4 Ω or 8 Ω
Amplifier Monitoring	Over Current, Over/Under Voltage, Over Temperature, DC Offset, Clipping
Frequency Response	20 Hz to 20 kHz ±0.5 dB
THD	0.006%
S/N Ratio	110 dB digital in; 108 dB analog in
Stereo Separation	95 dB @ 1 kHz, 8 Ohm; 90 dB @ 1 kHz, 4 Ohm
Zone Separation	100 dB @ 1 kHz, 8 Ohm; 95 dB @ 1 kHz, 4 Ohm
Zone Volume Level Control	-80.0 to +20.0 dB, adjustable from 0% to 100% plus mute
Bass Control	±12.0 dB
Treble Control	±12.0 dB
Loudness Compensation	On/Off
Dynamic Range Control	Off/Low/Medium/High
Balance Control	Left/right adjustable
Zone Configuration	Stereo Single Ended; Mono Single Ended
Power Limiting	Configurable 5 to 50 W @ 4 Ω or 8 Ω
Tone Profiles	Flat, Classical, Jazz, Pop, Rock, Spoken Word
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch

EQ Center Frequency	10 Hz to 20 kHz per band
EQ Gain	-40.0 to +20.0 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band
Bus Volume Offset	±12.0 dB per zone for output bussing

Communications

Ethernet	For control, AoIP, and/or console; 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

Connectors

SPEAKER ZONES 1-4	(4) 4-pin 5.08 mm detachable terminal blocks; Stereo speaker-level audio outputs; Maximum Wire Size: 12 AWG
LINE OUT 5	(2) RCA female comprising (1) unbalanced stereo line-level audio output; Output Impedance: 100 Ω; Maximum Output Level: 2Vrms
DIGITAL INPUT 1	(1) RCA female; S/PDIF coaxial digital audio input; Input Impedance: 75 Ω
DIGITAL INPUT 2	(1) JIS F05 female TOSLINK® optical fiber connector; S/PDIF optical digital audio input
ANALOG INPUTS 3-4	(4) RCA female comprising (2) unbalanced stereo line-level audio inputs; Input Impedance: 10 kΩ; Maximum Input Level: 2Vrms
ETHERNET 1-2	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port; Green LED indicates Ethernet link status; Flashing amber LED indicates Ethernet activity
100-240 VAC 1.0-0.4A 50/60HZ	(1) 100-240V~50/60Hz Universal AC; IEC 60320 C14 main power inlet, mates with removable power cord (included)

Controls and Indicators

PWR	(1) LED; Amber indicates that the device is starting; White indicates that the device is switched on with audio passing; Red indicates that the device is in standby mode
LAN	(1) White LED; Indicates that the device has a valid IP address
NAX	(1) White LED; White indicates that audio-over-IP traffic is passing in or out of the DM NAX unit

SOURCE 1-4	(4) LEDs; White indicates signal presence on the specified input/source; Red indicates there is clipping on the specified input/source
ZONE 1-5	(5) LEDs; White indicates there is audio output on the indicated zone; Red indicates a fault due to clipping, over current, over temperature, or low voltage
SETUP	(1) Push button: Pressing and holding the **SETUP** button for 15 seconds with power supplied clears network settings and restores the default DHCP mode; To perform a factory restore, press and hold the **SETUP** button with power disconnected, then connect the power supply and continue to hold the **SETUP** button for 30 seconds; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

Main Power	1.0-0.4A @ 100-240VAC, 50/60 Hz
Power Consumption	50 W (all channels driven at 1/8 output power, 8 Ω)

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	85 BTU/hr (all channels driven at 1/8 output power, 4 Ω)

Construction

Chassis	Metal, black and silver finish, vented front and rear panels
Mounting	1 RU rack-mountable

Dimensions

Height	1.72 in. (44 mm)
Width	8.66 in. (220 mm)
Depth	10.97 in. (279 mm)

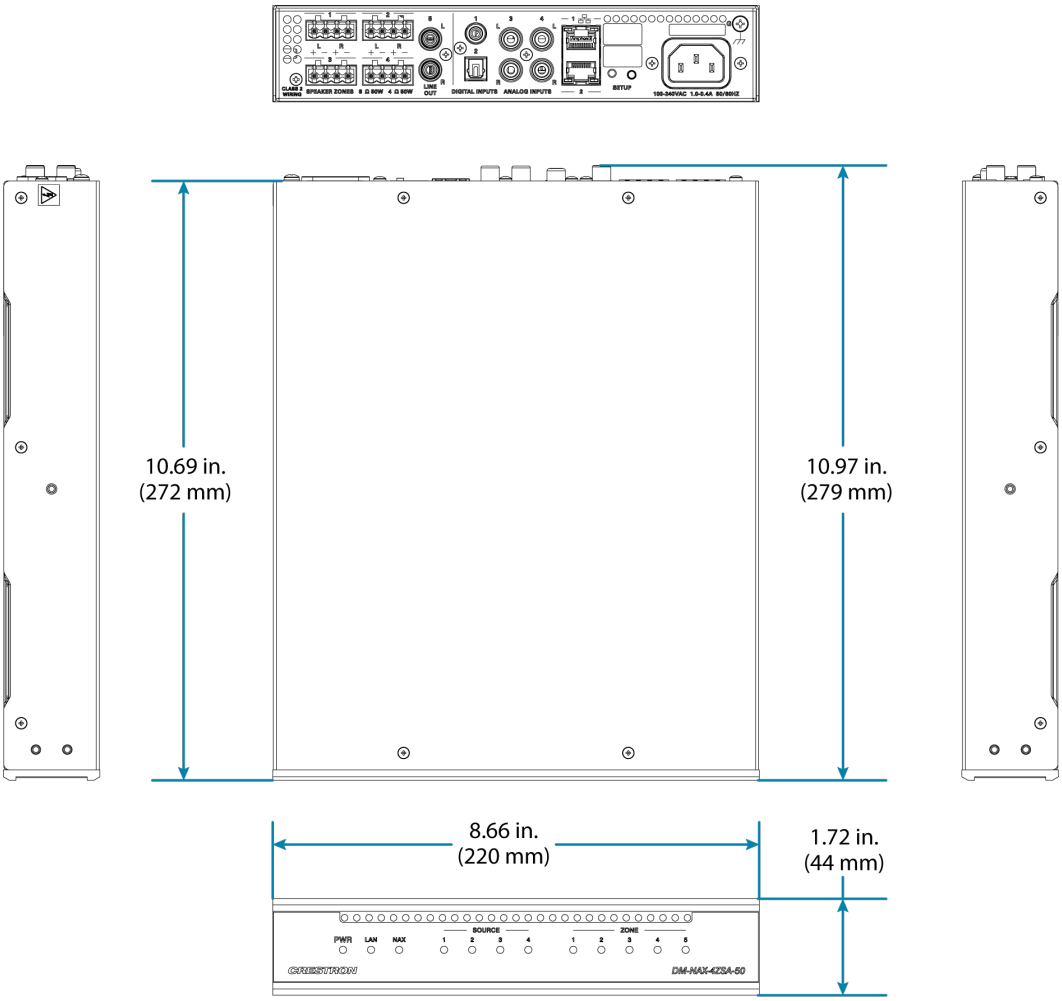
Weight

4.15 lb (1.88 kg)

Compliance

Regulatory Model: M202123001
Intertek® Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

Dimension Drawing



DM-NAX-4ZSP Specifications

Product specifications for the DM-NAX-4ZSP are provided below.

Specifications

Audio

Input Signal Types	4 stereo analog (RCA); 4 digital S/PDIF (2 TOSLINK® and 2 Coaxial)
Output Signal Types	4 stereo analog outputs, Outputs 1 and 2 have a balanced 5-pin stereo Phoenix connection and an unbalanced RCA connection
Sampling Rates and Bit Depths	Digital Input (Coaxial): Up to 192 kHz, 24-bit; Digital Input (Optical): Up to 96 kHz, 24-bit; Media Players: Up to 192 kHz, 24-bit
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Frequency Response	20 Hz to 20 kHz ±0.2 dB
THD	0.006%
S/N Ratio	110 dB digital in, 108 dB analog in
Zone Volume Level Control	-80.0 to +20.0 dB, adjustable from 0% to 100% plus mute
Bass Control	±12.0 dB
Treble Control	±12.0 dB
Loudness Compensation	On/Off
Dynamic Range Control	Off/Low/Medium/High
Balance Control	Left/right adjustable
Tone Profiles	Flat, Classical, Jazz, Pop, Rock, Spoken Word
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch
EQ Center Frequency	10 Hz to 20 k Hz per band
EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band
Bus Volume Offset	±12.0 dB per zone for output bussing

Communications

Ethernet	For control, AoIP, and or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB	For configuration management

Connectors

SPDIF SOURCES 1 – 2	(2) JIS F05 female (TOSLINK) optical fiber connector; S/PDIF optical digital audio input
SPDIF SOURCES 3 – 4	(2) RCA female; S/PDIF coaxial digital audio inputs; Input Impedance: 75 Ohms
ANALOG SOURCES L/R 5 – 8	(8) RCA female comprising (4) unbalanced stereo line-level audio inputs; Input Impedance: 10k Ohms; Maximum Input Level: 2 Vrms
ANALOG OUT L/R 1 – 4	(8) RCA connectors, female; Comprises (4) unbalanced line-level stereo audio outputs (mirror corresponding amplified output pairs 1 – 4); Output Impedance: 100 Ohms; Maximum Output Level: 2 Vrms
ANALOG OUT L/R 1 – 2	(2) 5-pin 3.5mm detachable terminal blocks; Balanced stereo line-level audio outputs (mirror corresponding unbalanced output pairs 1 – 2); Output Impedance: 150 Ohms; Maximum Output Level: 4 Vrms
I/O 1-4	(1) 5-pin 3.5 mm detachable terminal block; Comprises (4) Versiport digital input/output or analog input ports (referenced to **G**); Digital Input: Rated for 0-24VDC, input impedance 20 kΩ, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250mA sink from maximum 24VDC, catch diodes for use with real world loads; Analog Input: Rated for 0-10VDC, protected to 24VDC maximum, input impedance 21 kΩ with pull-up resistor disabled; Programmable 5V, 2 kΩ pull-up resistor per pin
TRIGGER 1-4	(2) 4-pin 3.5 mm detachable terminal block; Comprises (4) voltage triggers to turn on a connected external amplifier; Outputs +12VDC @ 50mA for as long as an audio output signal is detected on the corresponding **ANALOG OUT**
Ethernet 1	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
Ethernet 2	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port

USB	(1) USB Type B connector, female; USB computer console port (cable included); For setup only
100-240V~50/60Hz Universal AC	(1) IEC 60320 C14 main power inlet, mates with removable power cord (included)
I/O	(1) 5-pin 3.5 mm detachable terminal block; Comprises (4) Versiport digital input/output or analog input ports (referenced to GND); Digital Input: Rated for 0–24VDC, input impedance 20k Ω, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250 mA sink from maximum 24VDC, catch diodes for use with real world loads; Analog Input: Rated for 0–10VDC, protected to 24VDC maximum, input impedance 21k Ω with pull-up resistor disabled; Programmable 5V, 2k Ω pull-up resistor per pin
G	(1) 6-32 screw, chassis ground lug

Controls and Indicators

PWR	(1) LED. White indicates that the device is switched on with audio passing. Red indicates that the device is in standby mode. Off indicates that there is no power from the power supply.
LAN	(1) LED. White indicates that the device is switched on and has a valid IP address. Off indicates that the device is not connected to a network or the IP address is invalid.
NAX	(1) LED. White indicates that AoIP is ready to pass and the unit's PTP clock is synced. Off indicates that no AoIP is passing to or from and/or PTP is not synced.
SOURCE 1-8	(8) LEDs. White indicates signal presence on the specified input/source. Red indicates there is a clipping on an analog input or a bitstream issue on a digital input. Off indicates that there is no signal detected on the specified input/source.
ZONE 1-4	(4) LEDs. White indicates there is audio output on the indicated zone. Red indicates clipping is detected on the output audio.
SETUP	(1) LED. Blinking red indicates that a network reset or factory restore has been initiated via the adjacent SETUP button.

Power

Power Consumption	15.9 W

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	57 BTU/hr

Construction

Chassis	Metal, black and silver finish, vented sides
Mounting	1 RU rack-mountable

Dimensions

Height	1.73 in. (44 mm)
Width	19 in. (482 mm) 17.28 in. (439 mm) without rack ears
Depth	14.50 in. (368 mm)

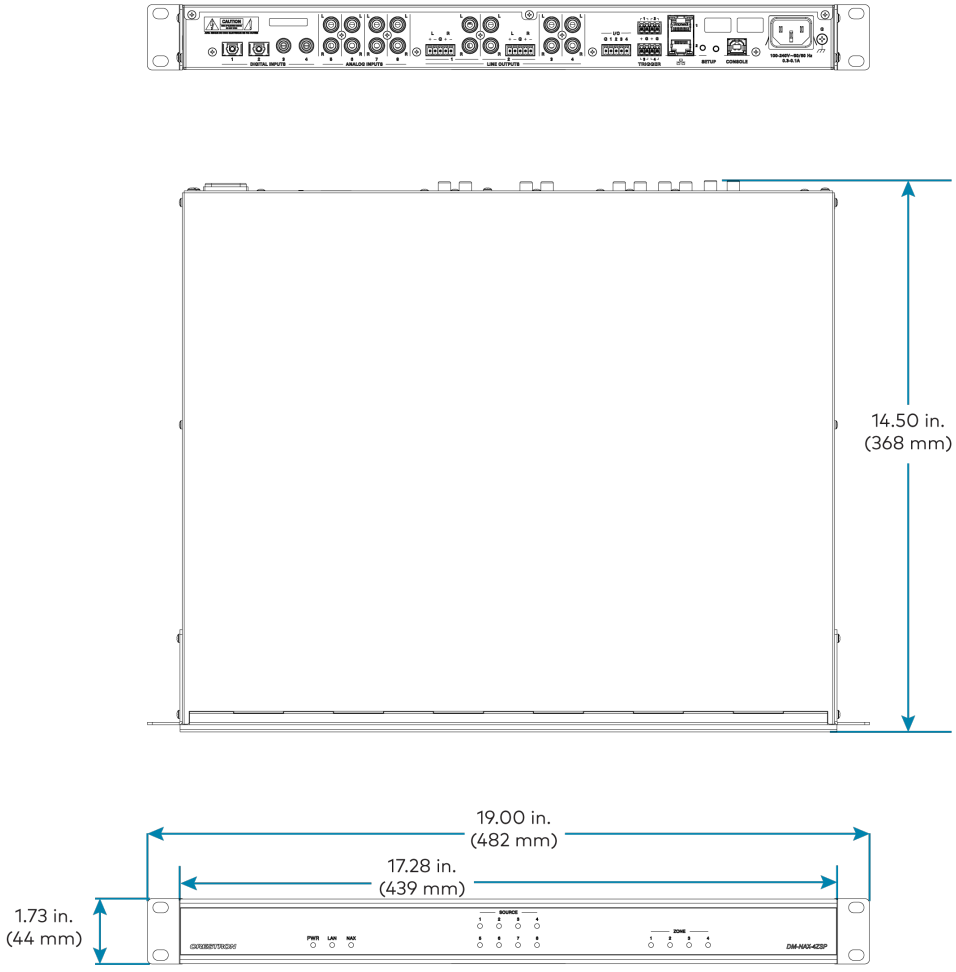
Weight

8.06 lb (3.65 kg)

Compliance

Regulatory Model: M202123001
FCC Part 15 Class B digital device, IC Class B, CE, ETL listed

Dimension Drawing



DM-NAX-8ZSA Specifications

Product specifications for the DM-NAX-8ZSA are provided below.

Specifications

Audio

Input Signal Types	4 stereo analog (RCA); 4 digital S/PDIF (2 TOSLINK® and 2 Coaxial)
Output Signal Types	4 stereo analog outputs (mirrors speaker zone outputs 1-4), Outputs 1 and 2 have a balanced 5-pin stereo Phoenix connection and an unbalanced RCA connection
Sampling Rates and Bit Depths	Digital Input (Coaxial): Up to 192 kHz, 24-bit; Digital Input (Optical): Up to 96 kHz, 24-bit; Media Players: Up to 192 kHz, 24-bit
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Output Power	150 Watts per channel at 8 Ohms; 300 Watts per channel at 4 Ohms; 500 Watts per channel at 8 Ohms bridged
Amplifier Monitoring	Over Current, Over/Under Voltage, Over Temperature, DC Offset, Clipping
Frequency Response	20 Hz to 20 kHz ±0.6 dB
THD	0.006%
S/N Ratio	110 dB digital in, 108 dB analog in
Stereo Separation	85 dB @ 1 kHz, 8 ohm; 80 dB @ 1 kHz, 4 ohm
Zone Separation	100 dB @ 1 kHz, 8 ohm; 95 dB @ 1 kHz, 4 ohm
Zone Volume Level Control	-80.0 to +20.0 dB, adjustable from 0% to 100% plus mute
Bass Control	±12.0 dB
Treble Control	±12.0 dB
Loudness Compensation	On/Off
Dynamic Range Control	Off/Low/Medium/High
Balance Control	Left/right adjustable
Zone Configuration	Stereo Single Ended, Mono Single Ended, Stereo Bridged, Mono Bridged, Bridged 2.1, and Bridged 2.1 with Bridged Sub

Power Limiting	Configurable 5 to 150 Watts @ 8 Ohms; 5 to 300 Watts @ 4 Ohms; 5 to 500 Watts @ 8 Ohms bridged
Tone Profiles	Flat, Classical, Jazz, Pop, Rock, Spoken Word
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch
EQ Center Frequency	10 Hz to 20 kHz per band
EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band
Bus Volume Offset	±12.0 dB per zone for output bussing

Communications

Ethernet	For control, AoIP, and or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB	For configuration management

Connectors

SPDIF SOURCES 1 – 2	(2) JIS F05 female (TOSLINK) optical fiber connector; S/PDIF optical digital audio input
SPDIF SOURCES 3 – 4	(2) RCA female; S/PDIF coaxial digital audio inputs; Input Impedance: 75 Ohms
ANALOG SOURCES L/R 5 – 8	(8) RCA female comprising (4) unbalanced stereo line-level audio inputs; Input Impedance: 10k Ohms; Maximum Input Level: 2 Vrms
ANALOG OUT L/R 1 – 4	(8) RCA connectors, female; Comprises (4) unbalanced line-level stereo audio outputs (mirror corresponding amplified output pairs 1 – 4); Output Impedance: 100 Ohms; Maximum Output Level: 2 Vrms
ANALOG OUT L/R 1 – 2	(2) 5-pin 3.5mm detachable terminal blocks; Balanced stereo line-level audio outputs (mirror corresponding unbalanced output pairs 1 – 2); Output Impedance: 150 Ohms; Maximum Output Level: 4 Vrms
I/O 1-4	(1) 5-pin 3.5 mm detachable terminal block; Comprises (4) Versiport digital input/output or analog input ports (referenced to **G**); Digital Input: Rated for 0-24VDC, input impedance 20 kΩ, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250mA sink from maximum 24VDC, catch diodes for use with real world loads; Analog Input: Rated for 0-10VDC, protected to 24VDC maximum, input impedance 21 kΩ with pull-up resistor disabled; Programmable 5V, 2 kΩ pull-up resistor per pin

TRIGGER 1-4	(2) 4-pin 3.5 mm detachable terminal block; Comprises (4) voltage triggers to turn on a connected external amplifier; Outputs +12VDC @ 50mA for as long as an audio output signal is detected on the corresponding **ANALOG OUT**
Ethernet 1	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
Ethernet 2	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
USB	(1) USB Type B connector, female; USB computer console port (cable included); For setup only
100-240V~50/60Hz Universal AC	(1) IEC 60320 C14 main power inlet, mates with removable power cord (included)
I/O	(1) 5-pin 3.5 mm detachable terminal block; Comprises (4) Versiport digital input/output or analog input ports (referenced to GND); Digital Input: Rated for 0–24VDC, input impedance 20k Ω, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250 mA sink from maximum 24VDC, catch diodes for use with real world loads; Analog Input: Rated for 0–10VDC, protected to 24VDC maximum, input impedance 21k Ω with pull-up resistor disabled; Programmable 5V, 2k Ω pull-up resistor per pin
G	6-32 screw, chassis ground lug
SPEAKER OUTPUTS L/R 1 – 8	(16) 2-pin 7.62mm 15A detachable terminal blocks; Power amplifier outputs; Wire Size: Terminals accept up to 12AWG

Controls and Indicators

PWR	(1) LED; Amber indicates that the device is starting; White indicates that the device is switched on with audio passing; Red indicates that the device is in standby mode; Off indicates that there is no power from the power supply
LAN	(1) LED; White indicates that the device is switched on and has a valid IP address; Off indicates that the device is not connected to a network or the IP address is invalid
NAX	(1) LED; White indicates that AoIP is ready to pass and the unit's PTP clock is synced; Off indicates that no AoIP is passing to or from and/or PTP is not synced
SOURCE 1-8	(8) LEDs; White indicates signal presence on the specified input/source; Red indicates there is a clipping on an analog input or a bitstream issue on a digital input; Off indicates that there is no signal detected on the specified input/source

ZONE 1-8	(8) LEDs; White indicates there is audio output on the indicated zone; Red indicates a fault due to clipping, over current, over temperature, or low voltage
SETUP	(1) LED; Blinking red indicates that a network reset or factory restore has been initiated via the adjacent SETUP button

Power

Power Consumption	240 W (All channels driven at 1/8th power, 8 ohms)

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	450 BTU/hr
Ambient Noise	Idle, No Load: 28 dB @ 1 m; Steady State Full Power: 39 dB @ 1 m; Peak: 45 dB @ 1 m

Construction

Chassis	Metal, black and silver finish, vented sides
Mounting	2 RU rack-mountable

Dimensions

Height	3.50 in. (89 mm)
Width	19 in. (482 mm) 17.28 in. (439 mm) without rack ears
Depth	14.52 in. (369 mm)

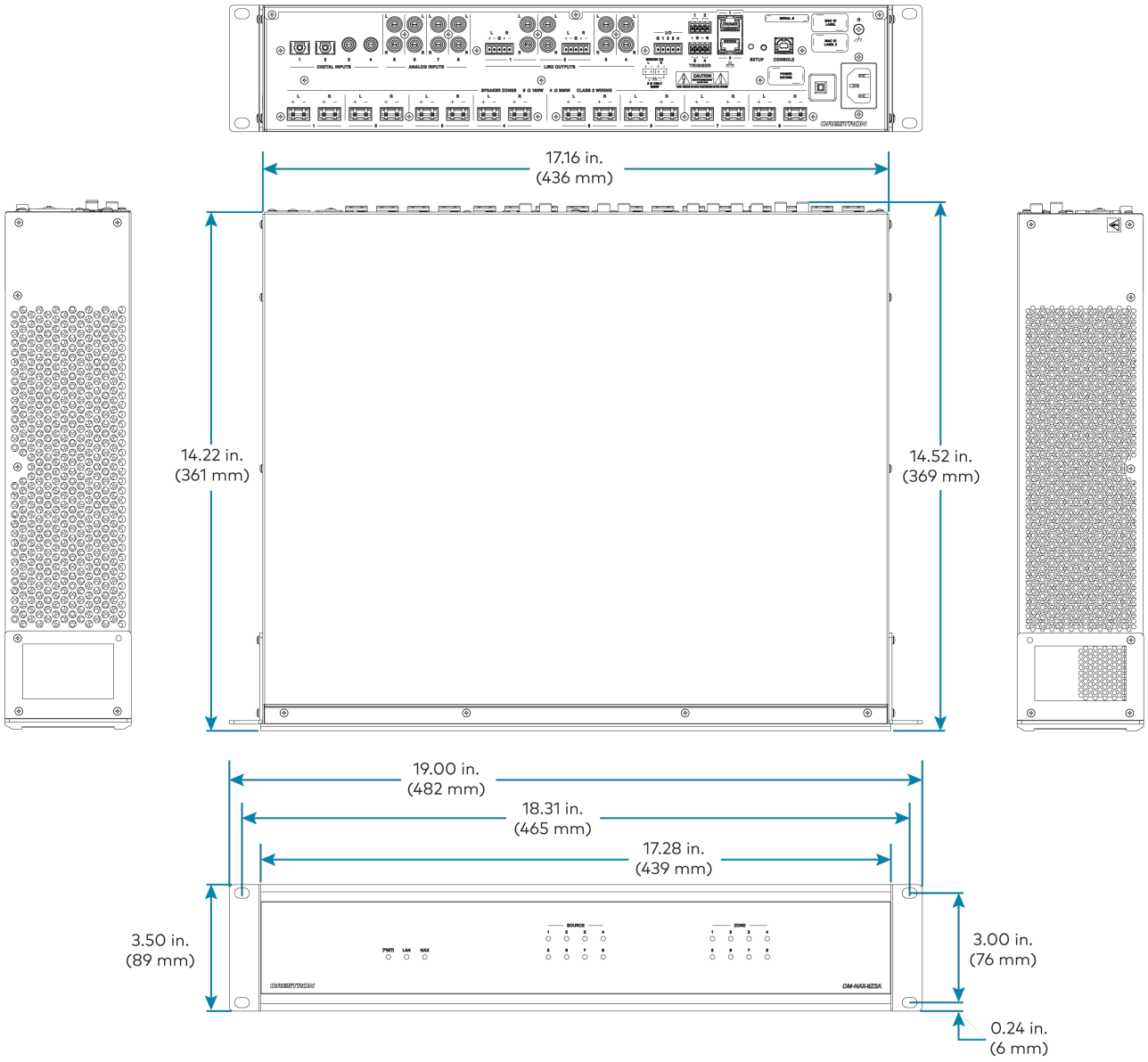
Weight

28 lb (12.70 kg)

Compliance

Regulatory Model: M1845004
FCC Part 15 Class B digital device, IC Class B, CE, ETL listed

Dimension Drawing



DM-NAX-16AIN Specifications

Product specifications for the DM-NAX-16AIN are provided below.

Specifications

Audio

Input Signal Types	8 stereo unbalanced analog (RCA) includes (4) 5-pin phoenix balanced connector; 8 digital SPDIF (4 TOSLINK® and 4 Coaxial)
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
THD	0.002%
S/N Ratio	110 dB digital in, 108 dB analog in
Frequency Response	20 Hz to 20 kHz (±0.6 dB)
Supported Sample Rates	Coaxial: Up to 192 kHz; Optical: 192 kHz

Communications

Ethernet	For control, AoIP, and or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB	For configuration management

Connectors

ANALOG SOURCES L/R 1 – 8	(8) RCA female comprising (4) unbalanced stereo line-level audio inputs; (4) 5-pin phoenix balanced connector Input Impedance: 10 kΩ; Maximum Input Level: 2 Vrms
SPDIF SOURCES 9 – 12	(4) JIS F05 female (TOSLINK) optical fiber connector; S/PDIF optical digital audio input
SPDIF SOURCES 13 – 16	(4) RCA female; S/PDIF coaxial digital audio inputs; Input Impedance: 75 Ω
Ethernet 1	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
Ethernet 2	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
USB	(1) USB Type B connector, female; USB computer console port (cable included); For setup only
100-240V~50/60Hz Universal AC	(1) IEC 60320 C14 main power inlet, mates with removable power cord (included)

G	6-32 screw, chassis ground lug

Controls and Indicators

PWR	(1) LED; Amber indicates that the device is starting; White indicates that the device is switched on with audio passing; Red indicates that the device is in standby mode; Off indicates that there is no power from the power supply
LAN	(1) LED; White indicates that the device is switched on and has a valid IP address; Off indicates that the device is not connected to a network or the IP address is invalid
NAX	(1) LED; White indicates that AoIP is ready to pass and the unit's PTP clock is synced; Off indicates that no AoIP is passing to or from and/or PTP is not synced
SOURCE 1-16	(16) LEDs; White indicates signal presence on the specified input/source; Red indicates there is a clipping on an analog input or a bitstream issue on a digital input; Off indicates that there is no signal detected on the specified input/source
SETUP	(1) LED; Blinking red indicates that a network reset or factory restore has been initiated via the adjacent SETUP button

Power

Power Consumption	20 Watts

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	70 BTU/hr

Construction

Chassis	Metal, black and silver finish, vented sides
Mounting	1 RU rack-mountable

Dimensions

Height	1.25 in. (32 mm)
Width	19 in. (483 mm); 17.28 in. (439 mm) without rack ears
Depth	14.46 in. (368 mm)

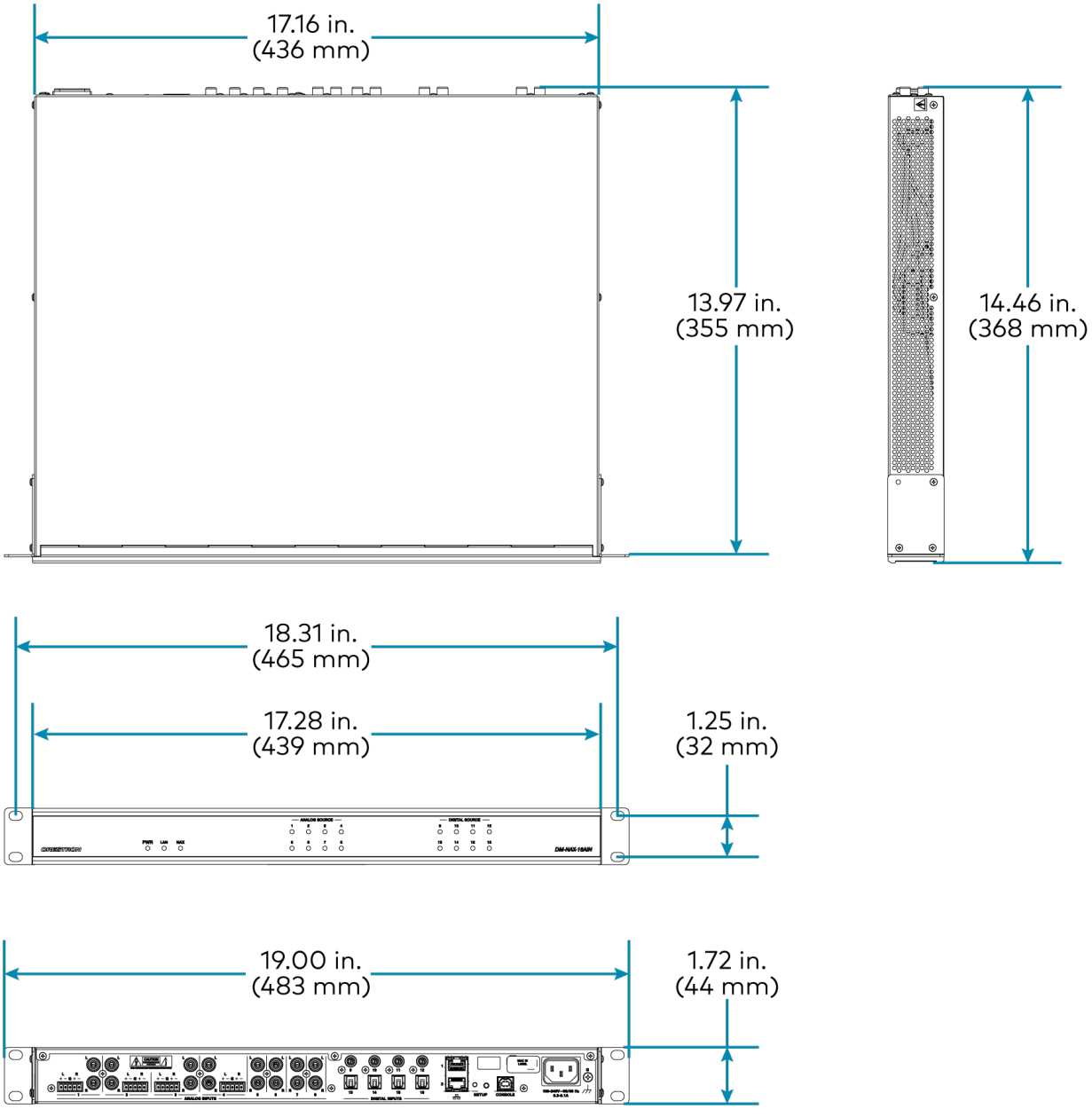
Weight

7.39 lb (3.35 kg)

Compliance

Regulatory Model: M201845005
FCC Part 15 Class B digital device, CE, ETL listed

Dimension Drawing



DM-NAX-AMP-X300 Specifications

Product specifications for the DM-NAX-AMP-X300 are provided below.

Specifications

Audio

Input Signal Types	Balanced/unbalanced analog line/mic-level and AoIP streams.
Balanced Analog Input	Maximum signal level: +21 dBu (8.7Vrms); Impedance: >10 kΩ; ƒ Response: 20 Hz to 20 kHz±0.5 dB; THD+N: <0.005% @ 1 kHz; S/N Ratio: 105 dB A-weight; Channel Separation: 100 dB @ 1 kHz; Equalizer: 5-band
Mic Input	Maximum gain: 60 dB; Impedance: >10 kΩ; ƒ Response: 20 Hz to 20 kHz±0.5 dB; THD+N: <0.005% @ 1 kHz @ 60 dB gain; S/N Ratio: 71 dB @ 60 dB gain A-weight; Channel Separation: 69 dB @ 60 dB gain @ 1 kHz; Equalizer: 5-band
Balanced Analog Output	Maximum signal level: +21 dBu (8.7Vrms); Impedance: 200 Ω; ƒ Response: 20 Hz to 20 kHz ±0.5 dB; THD+N: 0.005% @ 1 kHz at max output; S/N Ratio: 113 dB digital in, 105 dB analog in, 20 Hz -20 kHz, A-weight; Channel Separation: 100 dB @ 1 kHz; Equalizer: 10-band
Speaker Output	ƒ Response: 20 Hz to 20 kHz ±0.5 dB at 1 W; High-Pass Filter (70V and 100V operation only): -3 dB @ 80 Hz, -12 dB/octave; THD+N: <0.1% at 1 kHz @ -3 dB full rated output power; S/N Ratio: >103 dB, 20 Hz to 20 kHz, balanced; Crosstalk: -75 dB at 1 kHz; Gain: 29 dB @ 8 Ω; Equalizer: 10-band Protection: Over current, under voltage, over temperature, DC offset, extreme high frequency; Go to Sleep Time: 25 minutes with no signal present (when set to POWER SAVER); Wake Time: 0.5 s typical
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch

EQ Center Frequency	10 Hz to 20 kHz per band
EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band

Output Power Per Channel

Mode	1 Channel Driven	2 Channels Driven	3 Channels Driven	4 Channels Driven
Lo-Z, 8 Ω (single ended)	150 W	150 W	75 W[1]	75 W
Lo-Z, 4 Ω (single ended)	200 W	150 W	75 W[1]	75 W
Lo-Z, 8 Ω Bridged	300 W	150 W	150 W[1]	N/A
Hi-Z 70V	300 W	150 W	N/A	N/A
Hi-Z 100V	300 W	150 W	N/A	N/A

NOTES:

- Total output power from all channels combined (simultaneously) is up to 300 W.
- Each mode will output power in watts up to the value listed in the table.

Connectors

CH1-CH4	(2) 4-pin 5.08 mm pitch, 12A plug with screw locking retainers; Power amplifier output; Terminals accept up to 12 AWG (3.31 mm) **NOTE:** Output is direct-coupled, not transformer isolated.
IN1-IN4	(4) 3-pin 3.5 mm detachable terminal block; Balanced/unbalanced line or mic-level audio inputs; Maximum Input Level: 8.7Vrms, +21 dBu; Input Impedance: 10 kΩ Wake threshold is -65 dBu; Phantom power is available when used as mic-level inputs
OUT1-OUT4	(4) 3-pin 3.5 mm detachable terminal block; Balanced/unbalanced line-level audio outputs; Maximum Output Level: 8.7Vrms, +21 dBu
REMOTE	(1) 2-pin 3.5 mm detachable terminal block; Connect to dry contact closure to place amplifier in standby mode
G	(1) 6-32 screw; Chassis ground lug
100-240V~ 1.2-0.6A 50/60 Hz	(1) IEC 60320 C14 main power inlet; Mates with removable power cord, included
Ethernet 1	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port
Ethernet 2	(1) 8-wire RJ45 female; 100Base-T/1000Base-TX Ethernet port

Controls and Indicators

PWR	(1) LED; White indicates amplifier is on and ready for use; Amber indicates the amplifier is starting; Red indicates amplifier is in standby
HI-Z	(1) White LED; Indicates when Hi-Z mode is enabled (70V or 100V)
LAN	(1) White LED; Indicates that the device has a valid IP address
AoIP	(1) White LED; Indicates an active AoIP stream
FAULT	(4) Red LEDs (one per speaker output); Indicates that the input channel has a fault or is clipping
SIGNAL	(4) White LEDs (one per speaker output); Indicates an active input signal
LOCKOUT	(1) Red LED; Indicates that rear panel slide switches are being overridden by programmatic or web UI control
Lo-Z MODES	(2) Slide switches, one switch controlling channels 1 and 2, and one switch controlling channels 3 and 4; Selects stereo, summed, or bridged operation: • STEREO: The input signal received on each channel is sent to its respectively numbered speaker, line, and network output for use in applications where left and right channel separation is required. • SUM: The input signals received on a pair of line inputs (1 + 2 or 3 + 4) are each routed to both channels of their respectively numbered speaker, line, and network output pair. • BRIDGE: The input signals received on a pair of line inputs (1 + 2 or 3 + 4) are summed and sent to a bridged output (1 + 2 or 3 + 4) for use in high power applications.
Operations Mode	(1) Slide switch; Sets the amplifier for Lo-Z (4 or 8 Ω) or Hi-Z operation (70V or 100V)
Power Mode	(1) Slide switch; Selects Power Saver or Always On operation
SETUP	(1) Red LED and push button; Utilized in some restore procedures

Power

Main Power	1.2-0.6A @ 100-240VAC, 50/60 Hz

Power Consumption	75 W (All channels driven at 1/8th power, 8 Ω)

Environmental

Temperature	41 to 104°F (5° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	130 BTU/hr

Dimensions

Height	1.74 in. (44 mm)
Width	9.38 in. (238 mm)
Depth	11.03 in. (280 mm)

Weight

5.3 lb (2.4 kg)

Compliance

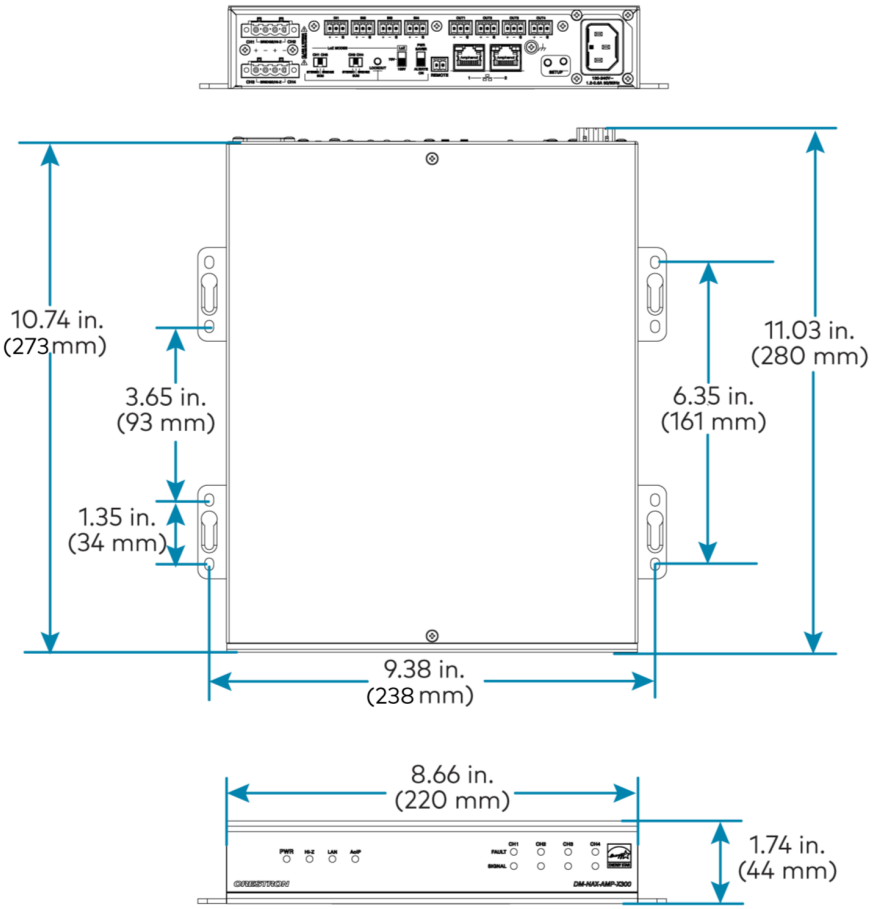
Regulatory Model: M1845006

UL® Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

Note:

1. 3 channel operation requires two single ended loads and one bridged load.

Dimension Drawings



DM-NAX-AUD-IO Specifications

Product specifications for the DM-NAX-AUD-IO are provided below.

Specifications

Audio

Input Signal Types	Balanced/unbalanced stereo analog line-level; DM NAX/AES67 audio-over-IP
Output Signal Types	Balanced/unbalanced stereo analog line-level; DM NAX/AES67 audio-over-IP
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Frequency Response (at line-level output)	20 Hz to 20 kHz ±0.5 dB
THD+N (at line-level output)	0.005% @ 1 kHz, max output
S/N Ratio (at line-level output)	From line-level input: 110 dB, 20 Hz to 20 kHz, A-weighted; From digital input: 113 dB, 20 Hz to 20 kHz, A-weighted
Balance Control	Left/right adjustable
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch
EQ Center Frequency	10 to 20,000 Hz per band
EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band

Communications

Ethernet	For control and PoE, AoIP, and/or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

Connectors

INPUTS	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced line-level audio inputs; Maximum Input Level: +21 dBu (8.7Vrms); Input Impedance: 10 kΩ
OUTPUTS	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced line-level audio outputs; Maximum Output Level: +21 dBu (8.7Vrms); Channel separation: 100 dB @ 1 kHz; Output Impedance: 400 Ω

G	(1) 6-32 screw; Chassis ground lug
ETHERNET PoE	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;

Controls and Indicators

ETHERNET PoE	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
SETUP	(1) Push button: Used for factory reset procedures; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

PoE	IEEE 802.3af Class 0 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE
Power Consumption	5 W

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	17 BTU/hr

Construction

Chassis	Metal, black and silver finish
Mounting	Mountable on the following via included hardware: 1-gang U.S. electrical box or plaster ring (not included), 3.5 in. (26 mm) electrical box depth recommended; Rack rail; Surface mount

Dimensions

Height	1.59 in. (41 mm)
Width	2.60 in. (66 mm)
Depth	2.11 in. (54 mm)

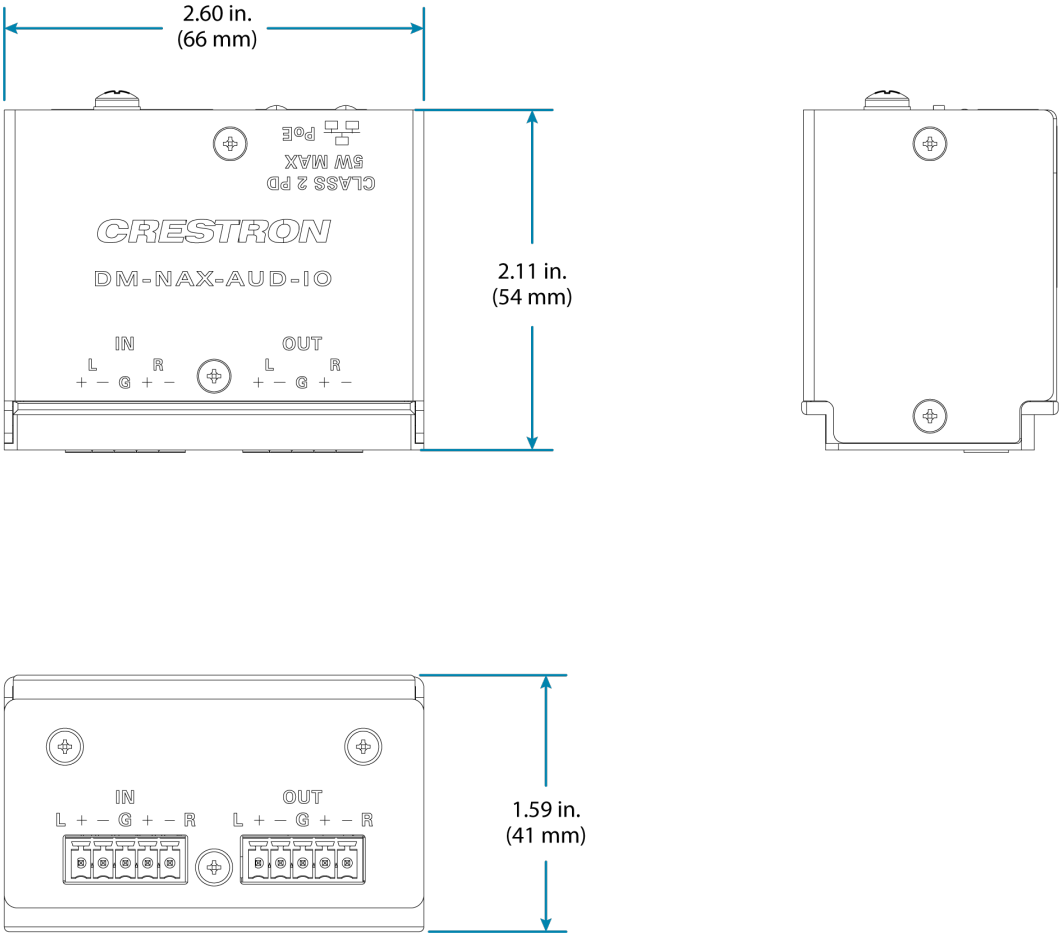
Weight

7 oz. (199 g)

Compliance

Regulatory Model: M202050001
IC, FCC Part 15 Class B digital device

Dimension Drawing



DM-NAX-AUD-USB Specifications

Product specifications for the DM-NAX-AUD-USB are provided below.

Specifications

Audio

Input Signal Types	USB stereo; Unbalanced stereo analog line-level; DM NAX/AES67 audio-over-IP
Output Signal Types	USB stereo; Unbalanced stereo analog line-level; DM NAX/AES67 audio-over-IP
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Frequency Response (at line-level output)	20 Hz to 20 kHz ±0.5 dB
THD+N (at line-level output)	0.005% @ 1 kHz, max output
S/N Ratio (at line-level output)	From line-level input: 108 dB, 20 Hz to 20 kHz, A-weighted; From digital input: 111 dB, 20 Hz to 20 kHz, A-weighted
Balance Control	Left/right adjustable
EQ Filter Types	EQ, High Pass, Low Pass, Treble Shelf, Bass Shelf, Notch
EQ Center Frequency	10 to 20,000 Hz per band
EQ Gain	+20/-40 dB per band
EQ Bandwidth	0.1 to 4.0 octaves per band

Communications

Ethernet	For control and PoE, AoIP, and/or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB	Bidirectional USB Audio Class 1 (UAC1) device connection, up to 24-bit/48 kHz stereo audio transfer

Connectors

USB	(1) USB Type-C connector, female; UAC1 audio support; Enumerates as a Non-AEC Enabled Speakerphone

INPUT	(1) 1/8 in. 3.5 mm connector, female TRS; Unbalanced line-level audio input; Maximum input level: 2Vrms; Input Impedance: 10 kΩ
OUTPUT	(1) 1/8 in. 3.5 mm connector, female TRS; Unbalanced line-level audio output; Maximum output level: 2Vrms; Channel separation: 100 dB @ 1 kHz; Output impedance: 100 Ω
G	(1) 6-32 screw; Chassis ground lug
ETHERNET PoE	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port

Controls and Indicators

ETHERNET PoE	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
SETUP	(1) Push button: Used for factory reset procedures; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

PoE	IEEE 802.3af Class 0 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE
Power Consumption	5 W

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	17 BTU/hr

Construction

Chassis	Metal, black and silver finish
Mounting	Mountable on the following via included hardware: 1-gang U.S. electrical box or plaster ring (not included), 3.5 in. (26 mm) electrical box depth recommended; Rack rail; Surface mount

Dimensions

Height	1.59 in. (41 mm)
Width	2.60 in. (66 mm)

Depth	2.11 in. (54 mm)

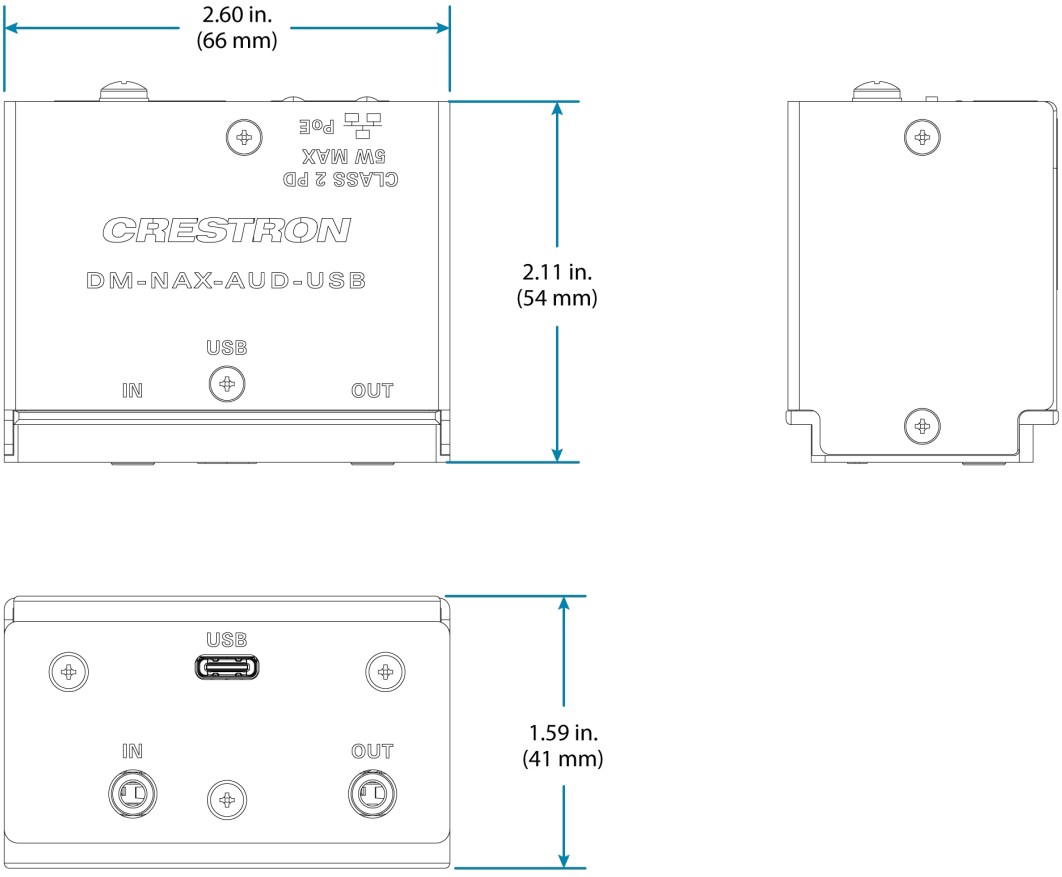
Weight

7 oz. (199 g)

Compliance

Regulatory Model: M202050001
IC, FCC Part 15 Class B digital device

Dimension Drawing



DM-NAX-BTIO-100-1G Specifications

Product specifications for the DM-NAX-BTIO-100-1G are provided below.

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

Specifications

Audio

Input Signal Types	Unbalanced stereo analog line-level; Stereo Bluetooth wireless; DM NAX/AES67 audio-over-IP
Output Signal Types	Unbalanced stereo analog line-level; Stereo Bluetooth wireless; DM NAX/AES67 audio-over-IP
Source Compensation	±10.0 dB per input
Input Monitoring	Source Signal Detect
Frequency Response (at line-level output)	20 Hz to 20 kHz ±0.5 dB
THD+N	Line-level: 0.005% @ 1 kHz, max output; Bluetooth: 0.05% @ 1 kHz, max output
S/N Ratio (at line-level output)	From line-level input: 108 dB, 20 Hz to 20 kHz, A-weighted; From digital input: 111 dB, 20 Hz to 20 kHz, A-weighted
Balance Control	Left/right adjustable

Communications

Ethernet	For control and PoE, AoIP, and/or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
Bluetooth Receive	Recalls up to seven previously paired devices, persistent or nonpersistent pairing, exclusive, interrupting, or temporary connection modes; Maximum Simultaneous Connections: 1 active device; Exclusive Connection Mode: Remembers up to 7 paired devices; Interrupt Connection Mode: Remembers up to 6 paired devices; Temporary Connection Mode: Remembers 1 paired device; Connection Range: 30 to 60 ft (9 to 18 m) typical, line-of-sight DM-NAX-BTIO-100-1G: Bluetooth 5.4 sink device DM-NAX-BTIO-1G: Bluetooth 5.2 sink device

Bluetooth Transmit	Recalls one previously paired device; Connection Range: 30 to 60 ft (9 to 18 m) typical, line-of-sight DM-NAX-BTIO-100-1G: Bluetooth 5.4 source device DM-NAX-BTIO-1G: Bluetooth 5.2 source device

Connectors

IN	(1) 3.5 mm connector, female TRS; Unbalanced line-level audio input; Maximum input level: 2Vrms; Input Impedance: 10 kΩ
OUT	(1) 3.5 mm connector, female TRS; Unbalanced line-level audio output; Maximum output level: 2Vrms; Channel separation: 80 dB @ 1 kHz; Output Impedance: 100 Ω
G	(1) 6-32 screw; Chassis ground lug
ETHERNET PoE	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port

Controls and Indicators

Front Panel Display	(1) OLED screen, 128 x 64 dot matrix Height (active area): 0.43 in. (11 mm) Width (active area): 0.86 in. (22 mm) Displays metadata, menus, and volume feedback
Menu	(1) Push button Used to enter the front panel menu and select menu items
Bluetooth	(1) Push button Used to initiate Bluetooth pairing
UP and DOWN Arrows	(2) Push buttons Used to navigate menus and control volume
ETHERNET PoE	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
SETUP	(1) Push button: Used for factory reset procedures; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

PoE	IEEE 802.3af Class 0 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE
Power Consumption	3.5 W

Environmental

Temperature	32° to 95° F (0° to 35° C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	11.95 BTU/hr

Construction

Chassis	Metal, black and silver finish, vented sides
Mounting	Mountable on the following: 1-gang U.S. electrical box or plaster ring (not included), 3.5 in. (26 mm) electrical box depth recommended; Rack rail

Dimensions

Height	4.12 in. (105 mm)
Width	1.76 in. (45 mm)
Depth	2.25 in. (57 mm)

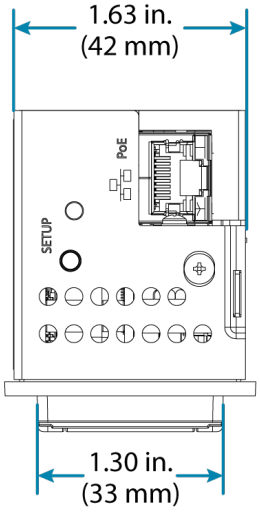
Weight

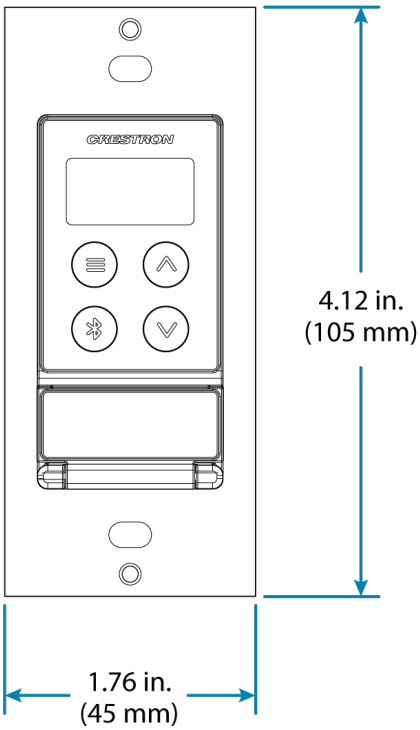
4.8 oz. (136 g)

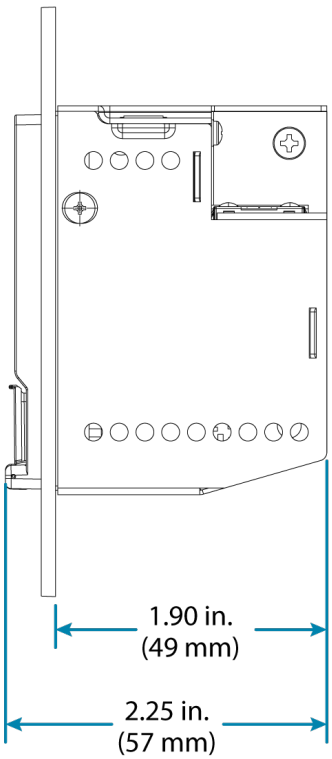
Compliance

Regulatory Model: M202050005
IC, FCC Part 15 Class B digital device

Dimension Drawing







DM-NAX-XSP Specifications

Product specifications for the DM NAX® are provided below.

Product Specifications

Audio

Input Signal Types	HDMI®, DM NAX audio-over-IP, AES67
Output Signal Types	HDMI (multichannel pass-through), DM NAX audio-over-IP (2-channel downmix), AES67 (2-channel downmix)
Digital Formats	Dolby Digital®, Dolby Digital® EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos®, DTS®, DTS ES, DTS 96/24, DTS HD® High Res, DTS HD Master Audio, DTS:X®

Video

Input Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, 8K30 4:4:4 12-bit, and 4K120 4:4:4 12-bit support
Output Signal Types	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, 8K30 4:4:4 12-bit, and 4K120 4:4:4 12-bit support
Copy Protection	HDCP 2.3

Connectors

Ethernet 1	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; PoE+ PD (powered device) port, IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant
Ethernet 2	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port
HDMI IN	(1) HDMI Type A connector, female; HDMI digital video/audio input
HDMI OUT	(1) HDMI Type A connector, female; HDMI digital video/audio output, pass-through from **HDMI IN**; eARC audio return support
COM	(1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
IR	(1) 2-pin 3.5 mm detachable terminal block; IR output up to 1.1 MHz; 1-way serial TTL (0-5 V) up to 19200 baud

RELAY	(1) 4-pin 3.5 mm detachable terminal blocks; Comprises (2) normally open, isolated relays; Rated 1A, 30VAC/VDC; MOV arc suppression across contacts
G	(1) 6-32 screw; Chassis ground lug
IN	(1) 2-pin 3.5 mm detachable terminal block; Programmable digital input; Input Voltage Range: 0-24VDC, referenced to GND; Logic Threshold: 2.5VDC nominal with 1V hysteresis band; Pull-up Resistor: 2.2k Ω

Communications

Ethernet	For control, and/or console, 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
RS-232	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking via control system
IR	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud via control system
HDMI	HDCP 2.3, EDID, CEC

Controls and Indicators

PWR	(1) Green/amber bicolor LED; Amber indicates unit is powering up/loading firmware; Green indicates unit is fully powered and ready for use
HDMI IN	(1) Green LED, indicates sync detection at the HDMI input
HDMI OUT	(1) Green LED, indicates video signal transmission at the HDMI output
Ethernet 1	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
Ethernet 2	Left amber LED indicates 1000 Mb link status; Left green LED indicates 100 Mb link status; Flashing right amber LED indicates Ethernet activity
RESET	(1) Push button: Used for factory reset procedures; (1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

Power

PoE+	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant; Compatible with Crestron DM-PSU-ULTRA-MIDSPAN, PoE+ compliant Ethernet switch, or third-party IEEE 802.3at compliant PSE
Power Consumption	14 W maximum

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 90% RH (non-condensing)

Construction

Chassis	Metal, black finish, vented sides
Mounting	Surface-mountable or attachable to a single rack rail

Dimensions

Height	5.03 in. (128 mm)
Width	8.36 in. (213 mm)
Depth	1.12 in. (29 mm)

Weight

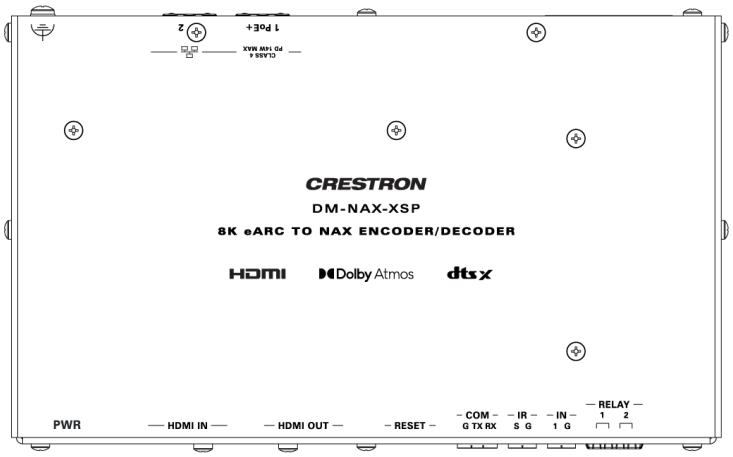
1.82 lb (0.83 kg)

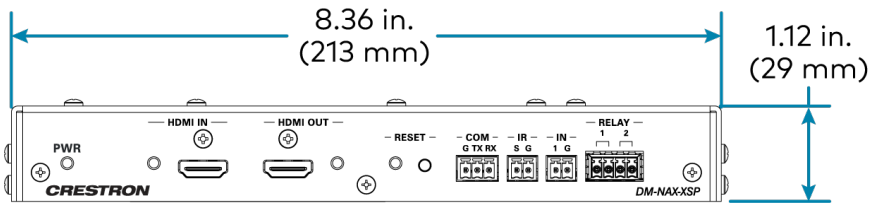
Compliance

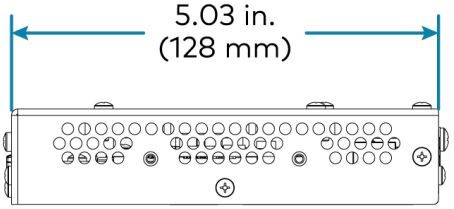
Regulatory Model: M202116001
Intertek® Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

To search for product certificates, refer to support.crestron.com/app/certificates.

Dimension Drawings







Installation

Refer to the following sections for instructions on how to install the various DM NAX devices.

- DM-NAX-2XLRI-1G
- DM-NAX-8ZSA
- DM-NAX-4ZSA-50
- DM-NAX-4ZSP
- DM-NAX-16AIN
- DM-NAX-AMP-X300
- DM-NAX-AUD-IO
- DM-NAX-AUD-USB
- DM-NAX-BTIO-100-1G
- DM-NAX-XSP

DM-NAX-2XLRI-1G Installation

Refer to the following sections to install the DM-NAX-2XLRI-1G.

- In the Box on page 90
- Mounting the Device on page 90
- Connect the Device on page 93

In the Box

Qty.	Description
1	DM-NAX-2XLRI
	Additional Items
2	Screw, 6-32 x 3/4 in., Truss Head, Combo (2009211)

Mounting the Device

The DM-NAX-2XLRI-1G can be mounted into a 1-gang electrical box or onto a rack rail.

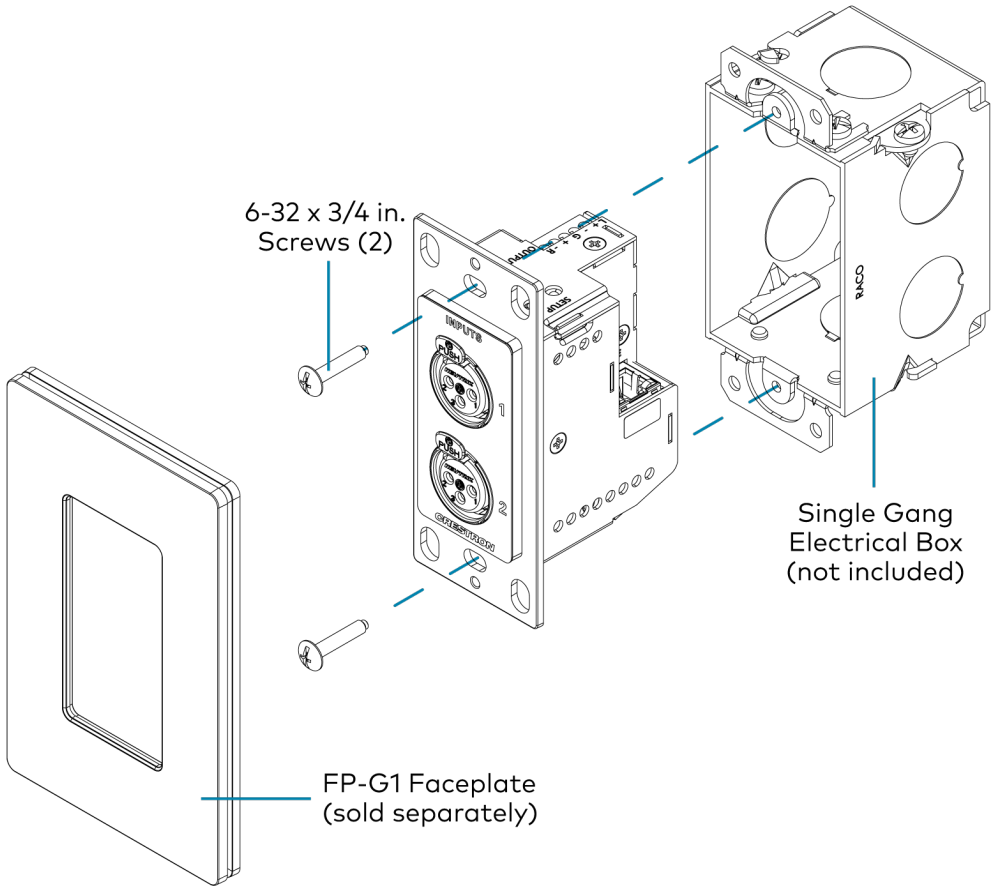
Mount into a 1-Gang Electrical Box

NOTES:

- The DM-NAX-2XLRI-1G should only be mounted with a RACO® 3 x 2 x 2 in. gangable metal switch box with eight 0.5 in. knockouts and plaster ears (catalog ID #420). Alternative metal switch boxes should not be used as they may have incompatible knockout placements.
- For thermal performance reasons, fully enclosed plastic back boxes should not be used with the DM-NAX-2XLRI-1G. In installations where an enclosed back box is not required, the DM-NAX-2XLRI-1G can be installed into most single gang metal or plastic mud rings.
- Connector boots should not be used on CAT5e (or greater) cables connected to the DM-NAX-2XLRI-1G to avoid bend radius issues.

To mount the wall plate into a 1-gang electrical box:

1. Make connections to the rear of the device. For details, refer to Top Panel on page 94.
2. Attach the wall plate to the electrical box using the two included 6-32 x 3/4 in. truss head screws and a Phillips screwdriver (not included).



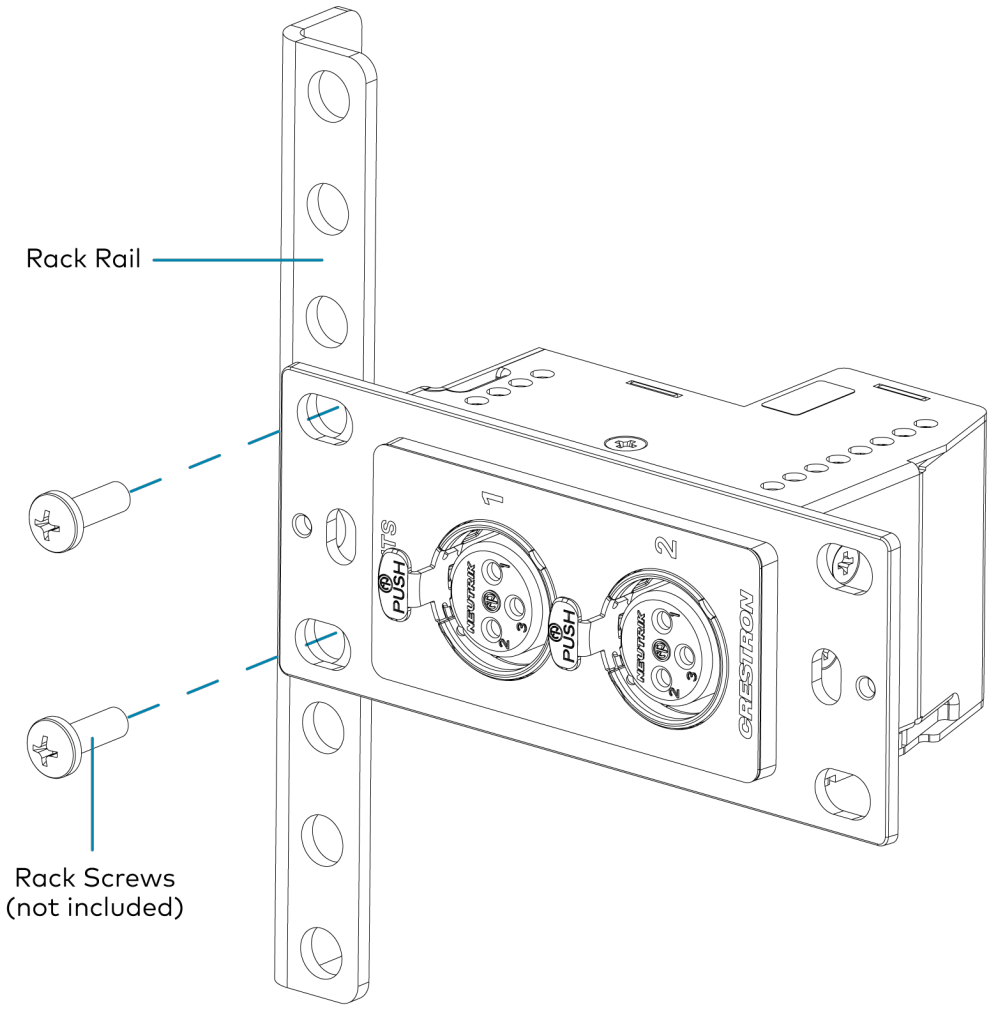
3. Attach an FP-G1 faceplate (sold separately) to the wall plate using two 6-32 x 1/4 in. flat head screws (not included).

Mount onto a Rack Rail

To mount the wall plate onto a rack rail:

1. Position the wall plate horizontally so that the holes in the left or right mounting flange align with the holes in the rack rail.

2. Secure the wall plate to the rack rail using two mounting screws (not included).

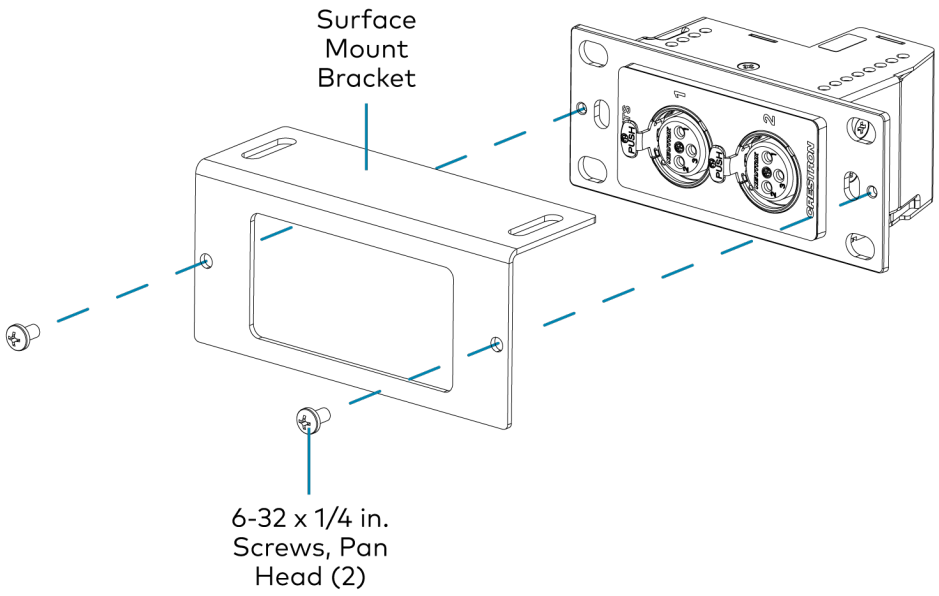


Mounting to a Flat Surface

To mount the wall plate to a flat surface:

1. Position the wall plate so that the holes in the mounting flange align with the mounting bracket (not included).

2. Connect the wall plate to the mounting bracket using a Phillips screwdriver and two SEMS screws 6-32 x 1/4 in. (not included).

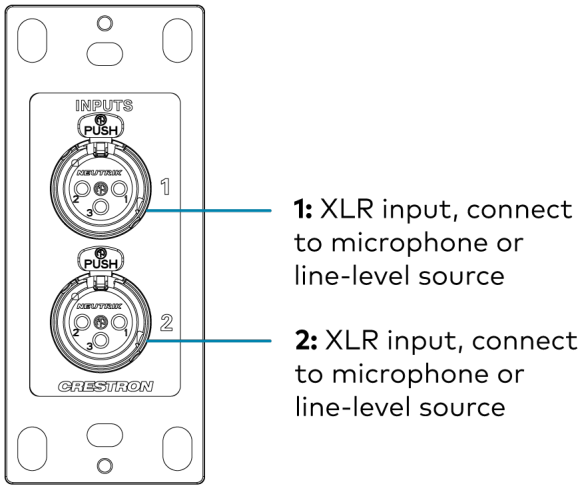


3. Secure the mounting bracket to a flat surface using the appropriate mounting screws (not included).

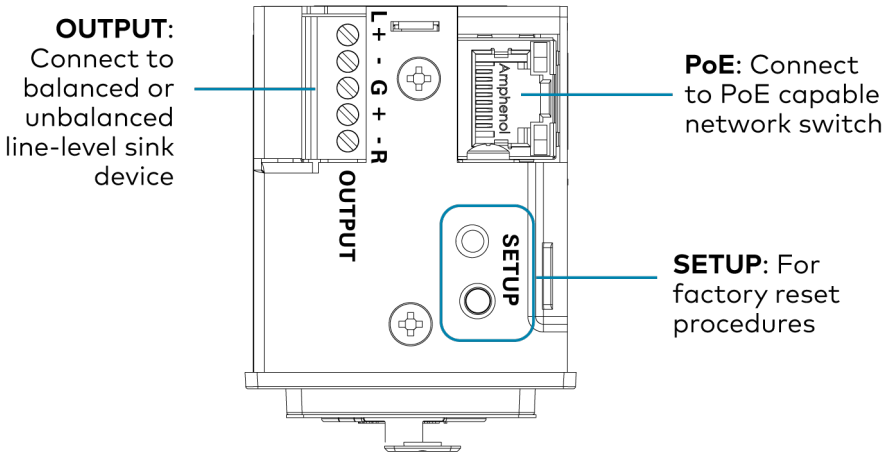
Connect the Device

Make connections to the front and top of the DM-NAX-2XLRI-1G.

Front Panel



Top Panel



> **NOTE: PoE** is a PoE powered device (PD) port. In order for the port to receive PoE, it must be connected to a PoE compliant Ethernet switch.

On the top panel:

- Connect a PoE capable network switch to the **PoE** port.
- Connect a balanced or unbalanced line level sink device (such as the MP-WP-2RCAO-1G or MP-WP-2XLRO-1G, sold separately) to the **OUTPUT** port.
- Connect XLR sources to the front panel XLR connections.

DM-NAX-4ZSA-50 Installation

Refer to the following sections to install the DM-NAX-4ZSA-50.

- In the Box on page 95
- Install the Device on page 95
- Connect the Device on page 99
- Observe the LED Indicators on page 100

In the Box

Qty.	Description
1	DM-NAX-4ZSA-50
	Additional Items
1	Power Cord, 6.5 ft (2 m) (2001134)
2	Bracket, Rack Ear, Quarter-Wide (2057495)
4	Joining Plate (2056313)
4	Speaker Connector, 4-Pin (2057001)
4	Screw, 6-32 x 5/16 in., Flat Head, Phillips (2007223)
8	Screw, 8-32 x 5/16 in., Phillips (2056985)
4	Adhesive Feet (2002389)

Install the Device

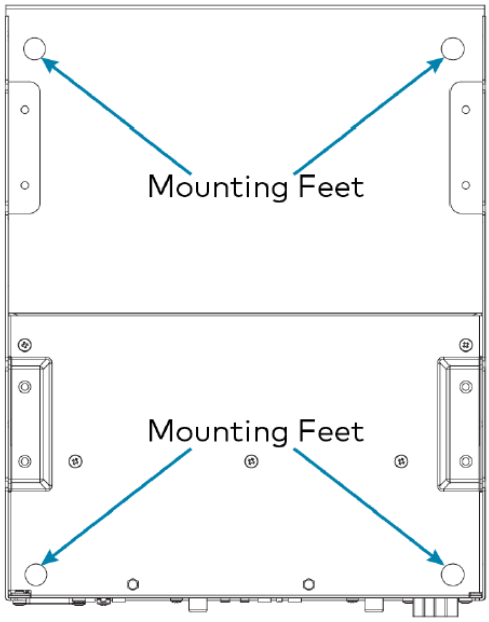
Refer to the Safety Instructions prior to installation.

The device can be placed on a flat surface or installed in a rack.

Surface Placement

For a surface placement installation:

1. Attach the four included adhesive feet to the bottom of the device.



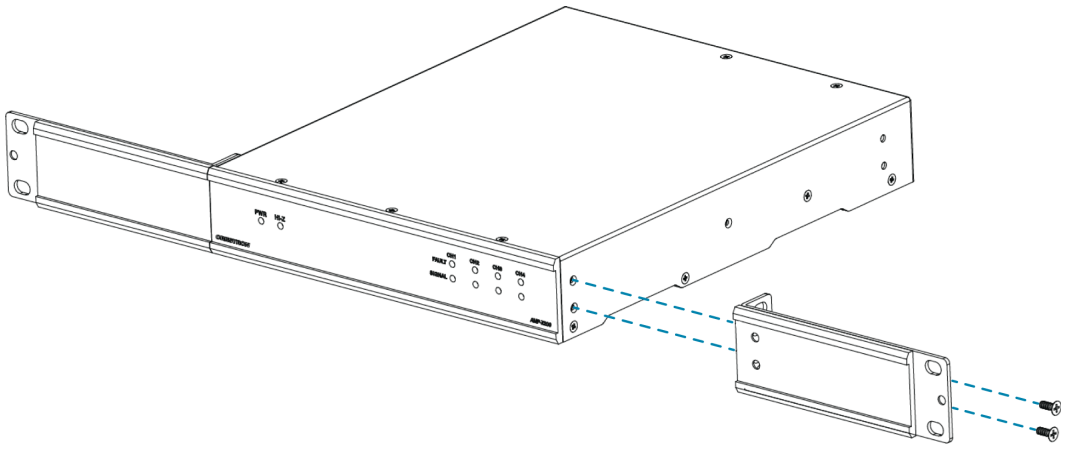
2. Place the device on a flat surface.

> **NOTE:** Surface placement should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Rack Installation

To mount the device in a rack:

1. Attach the included rack ears to the device using the four included 6-32 x 5/16 in. Phillips screws and a Phillips screwdriver (not included).



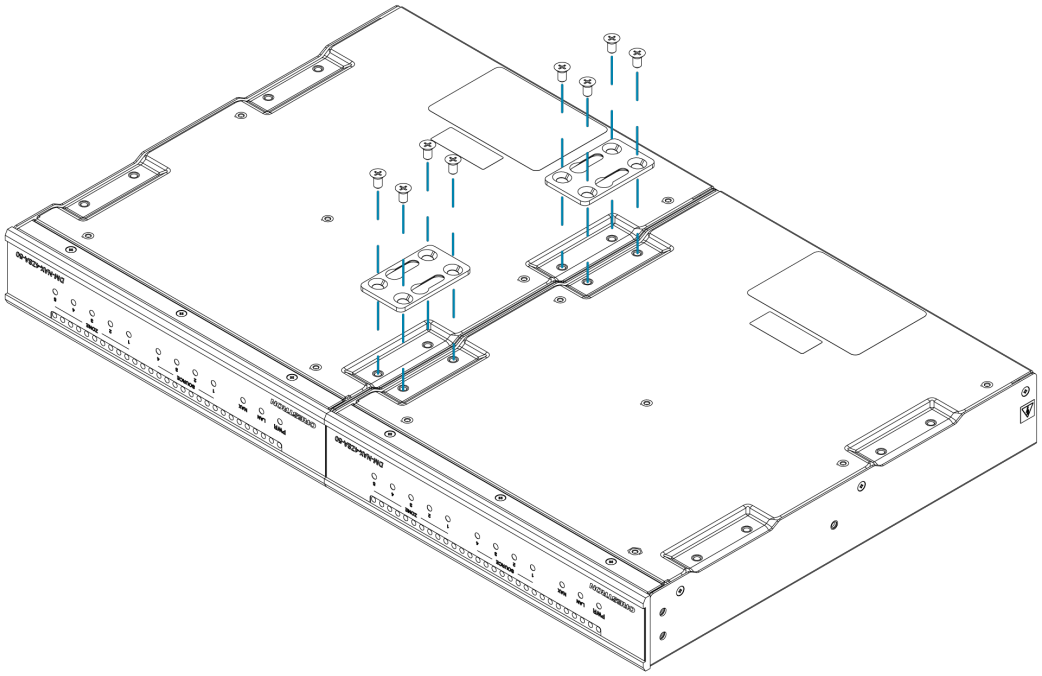
2. Mount the device into the rack using four rack mounting screws (not included).

Double Mount

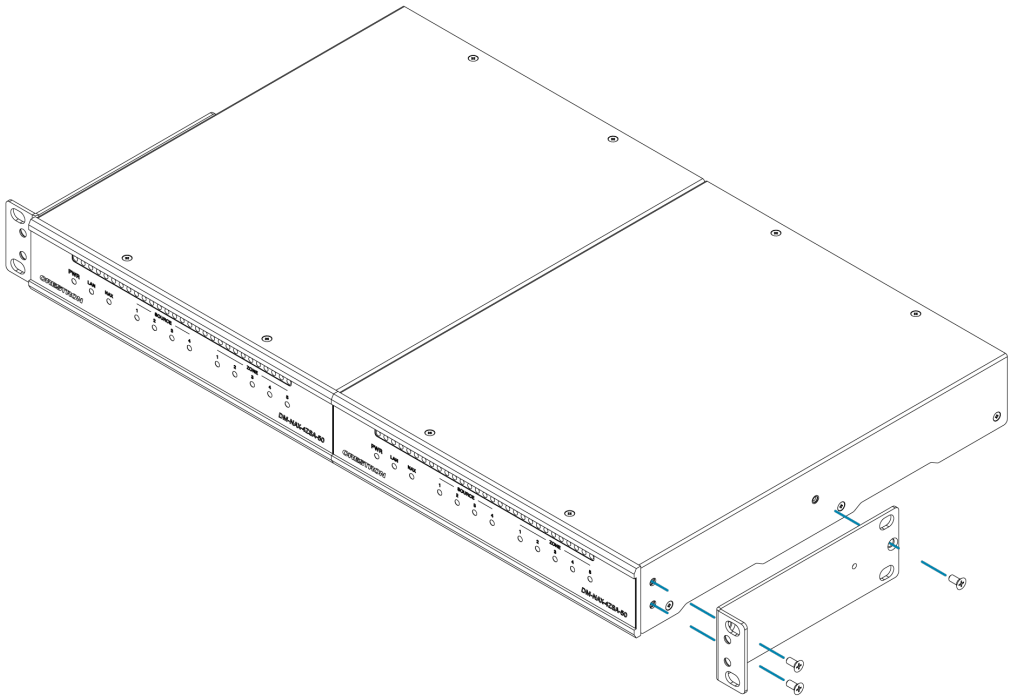
The DM-NAX-4ZSA-50 can be ganged together with an additional DM-NAX-4ZSA-50 or another device that supports the joining plate hardware (such as the AMP-X75, AMP-X300, or DM-NAX-AMP-X300, all sold separately).

To gang and mount devices:

1. Place the devices upside-down and adjacent to each other on a flat surface.
2. Gang the devices together using two of the included joining plates, eight 8-32 x 5/16 in. screws, and a Phillips screwdriver (not included).



3. Turn the device assembly over. Attach the rack ears to each side using six 6-32 x 5/16 in. screws.



4. Mount the assembly into the rack using four rack mounting screws (not included).

NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Connect the Device

Make the necessary connections as called out in the following illustration. Connect power last.

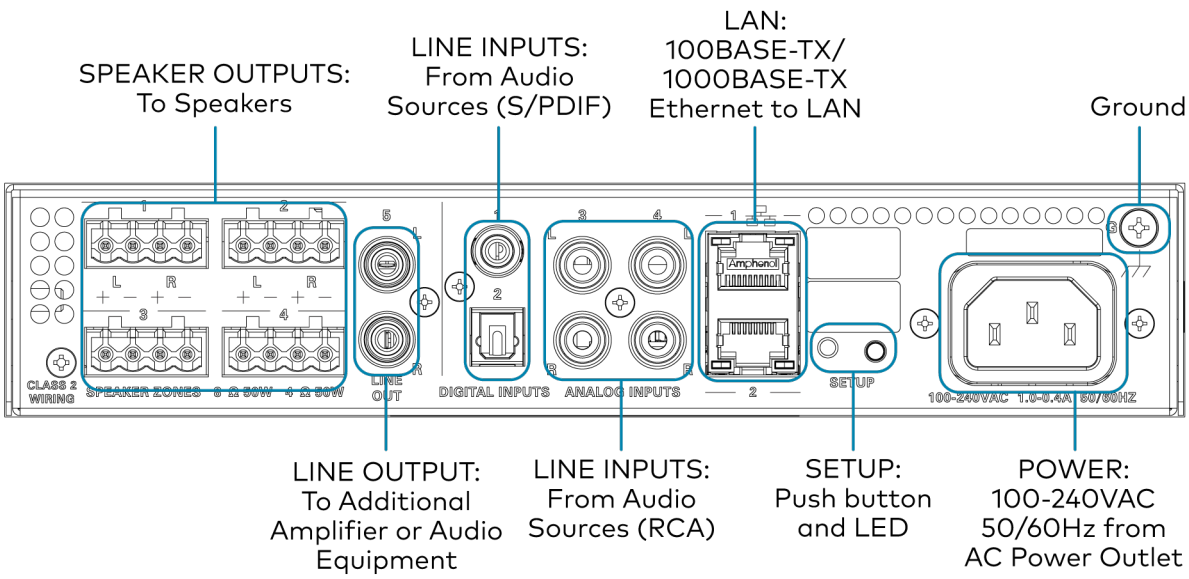
CAUTION:

- Keep the device unplugged until all of the input, network, output, and speaker wiring is complete.
- Check the speaker cables for shorts and frayed wiring around the **SPEAKER ZONES** connectors.

NOTES:

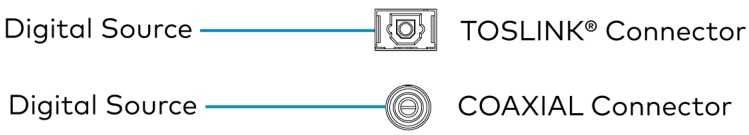
- Ensure that the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).
- To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the product specifications.
- Do not bundle power cords together with audio cables. Doing so can result in audible noise.

Rear Panel



Digital Inputs

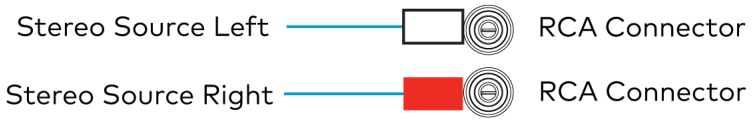
Connect digital audio sources as shown in the following illustration.



NOTE: Only 2-channel PCM digital audio is supported via the digital inputs.

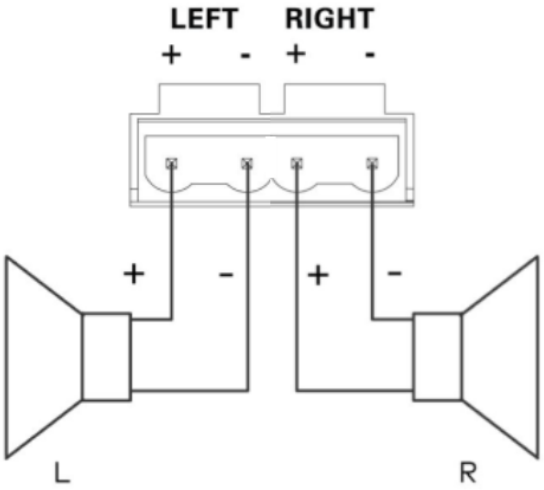
Analog Inputs

Connect analog audio sources as shown in the following illustration.



Speaker Connections

Connect speakers to the DM-NAX-4ZSA-50 as shown in the following illustration.



Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	The device is starting.
	White	The device is powered on with audio passing.
	Red	The device is in standby mode (no sources are routed and the network is disconnected).
	Off	The device is not connected to power.
Ethernet 1	White	The device is powered on, is connected to a network, and has a valid IP address.
	Off	The device is not connected to a network and/or the IP address is invalid.

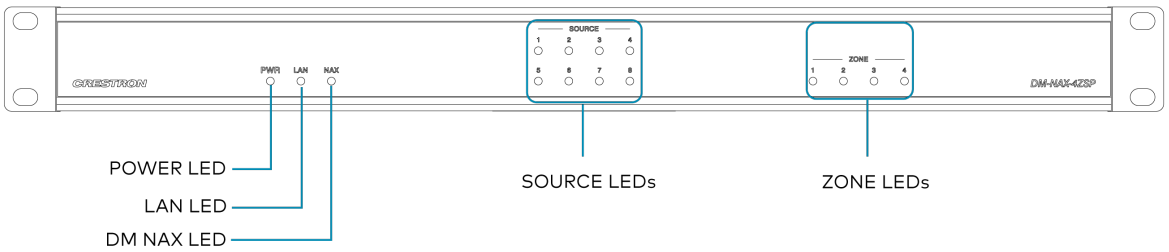
LED Indicator	Color	Meaning
Ethernet 2	White	AoIP is ready to pass and the device's PTP clock is synced.
	Off	No AoIP is passing to or from the device and/or PTP is not synced.
SOURCE 1-4	White	Signal is detected at the input.
	Red	Bitstream/multichannel audio is detected (digital inputs) or clipping is detected (analog inputs).
	Off	No signal is detected.
ZONE 1-4	White	Audio is detected at the output.
	Red	Clipping or a fault state (over current, over temperature, or low voltage) is detected at the output.
	Off	No signal is detected.
ZONE 5	White	Audio is detected at the output.
	Red	Clipping is detected at the output.
	Off	No signal is detected.
SETUP	Solid Red	The **SETUP** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **SETUP** button.

DM-NAX-4ZSP Installation

Refer to the following sections to install the DM-NAX-4ZSP.

- In the Box on page 102
- Install the Device on page 102
- Connect the Device on page 104
- Observe the LED Indicators on page 106

Front Panel



In the Box

Qty.	Description
1	DM-NAX-4ZSP

	Additional Items
2	Bracket, Rack Ear, 2 RU (2032122)
1	Power Cord, 6.5 ft (2 m) (2001134)
2	Connector, 4-Pin (2003576)
3	Connector, 5-Pin (2003577)
4	Feet, Adhesive (2002389)

Install the Device

Refer to the Safety Instructions prior to installation.

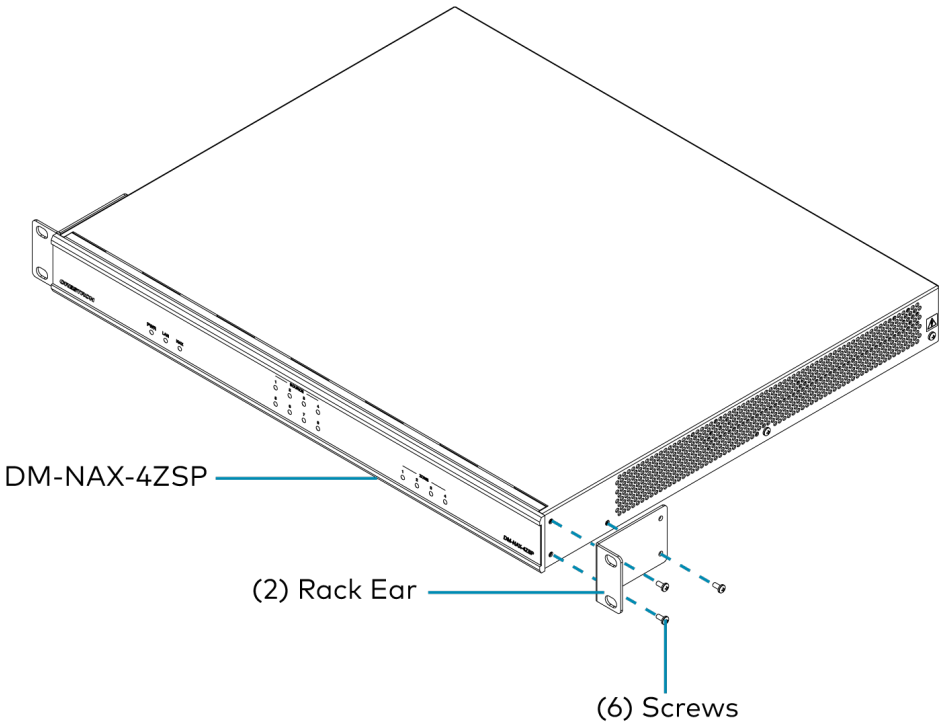
The device can be placed on a flat surface or installed in a rack.

Install in a Rack

The device occupies 1U of rack space.

To mount the device into a rack:

1. Remove the three screws from each side panel of the device using a Phillips screwdriver (not included).
2. Attach the included rack ears to the device using the removed screws.



3. Mount the device into the rack using four rack mounting screws (not included).

NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

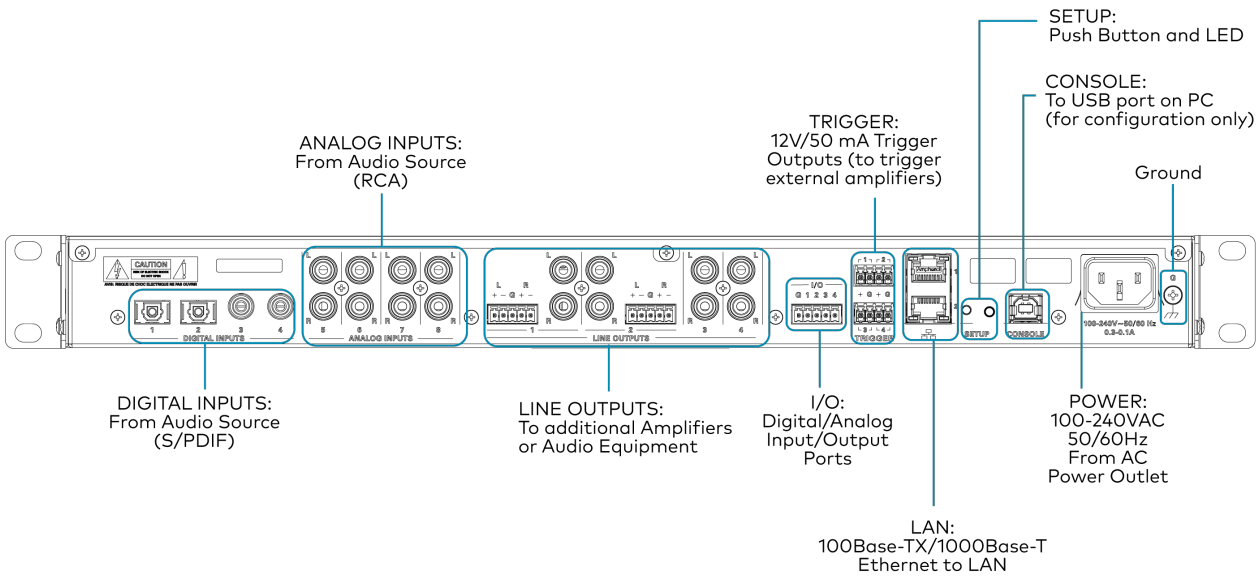
Connect the Device

Make the necessary connections as called out in the following illustration. Connect power last.

NOTES:

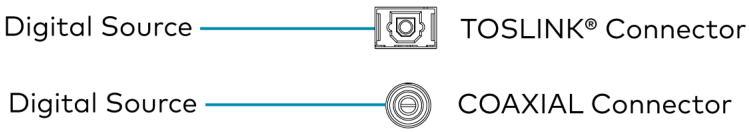
- Ensure that the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).
- To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range of 32° to 104°F (0° to 40°C).
- Do not bundle power cords together with audio cables. Doing so can result in noise.

Rear Panel



Digital Inputs

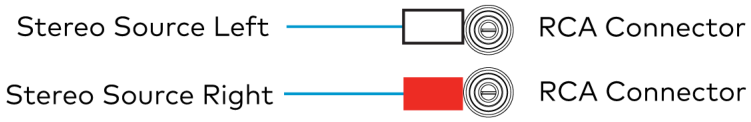
Connect digital audio sources as shown in the following illustration.



NOTE: 2-channel PCM digital audio is the only supported digital input format.

Analog Inputs

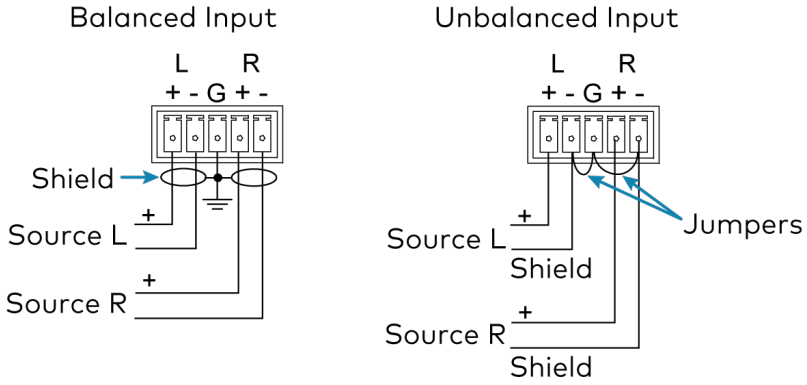
Connect analog audio sources as shown in the following illustration.



Balanced/Unbalanced Audio Output

Refer to the following table and illustration for analog audio output pin assignments and connection information.

Signal Name	Balanced Audio Output	Unbalanced Audio Output
+	L+	L+
-	L–	L Shield
G	Shield/ground	G, L Shield, and R Shield
+	R+	R+
-	R-	R Shield



Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

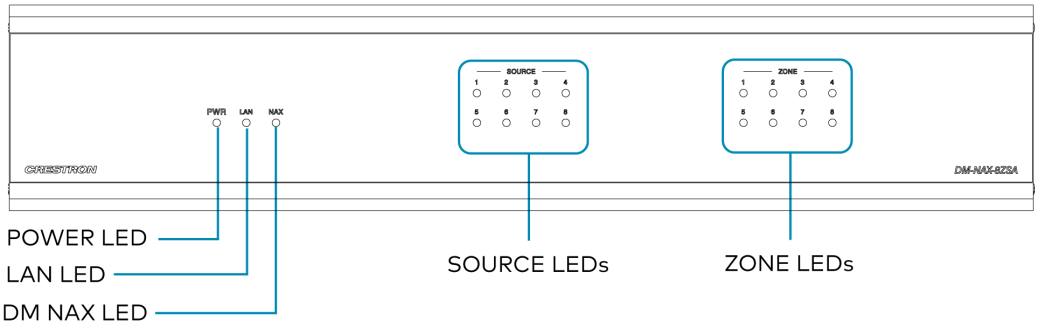
LED Indicator	Color	Meaning
PWR	White	The device is powered on with audio passing.
	Red	The device is in standby mode (no sources are routed and the network is disconnected).
	Off	The device is not connected to power.
LAN	White	The device is powered on, is connected to a network, and has a valid IP address.
	Off	The device is not connected to a network and/or the IP address is invalid.
NAX	White	AoIP is ready to pass and the device's PTP clock is synced.
	Off	No AoIP is passing to or from the device and/or PTP is not synced.
SOURCE 1-8	White	Signal is detected at the input.
	Red	Bitstream/multichannel audio is detected (digital inputs) or clipping is detected (analog inputs).
	Off	No signal is detected.
ZONE 1-4	White	Audio is detected at the output.
	Red	Clipping is detected at the output.
	Off	No signal is detected.
SETUP	Solid Red	The **SETUP** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **SETUP** button.

DM-NAX-8ZSA Installation

Refer to the following sections to install the DM-NAX-8ZSA.

- In the Box on page 107
- Install the Device on page 107
- Connect the Device on page 109
- Observe the LED Indicators on page 112

Front Panel



In the Box

Qty.	Description
1	DM-NAX-8ZSA

	Additional Items
2	Bracket, Rack Ear, 2 RU (2053799)
1	Power Cord, 6.5 ft (2 m) (2014835)
1	Cable, CAT6, RJ45-to-RJ-45, 5 ft (1.5 m) (2036196)
16	Connector, 2-Pin (2012361)
2	Connector, 4-Pin (2003576)
3	Connector, 5-Pin (2003577)
6	Screw, 4B x 1/4 in., Pan Head, Phillips (2007195)

Install the Device

Refer to the Safety Instructions prior to installation.

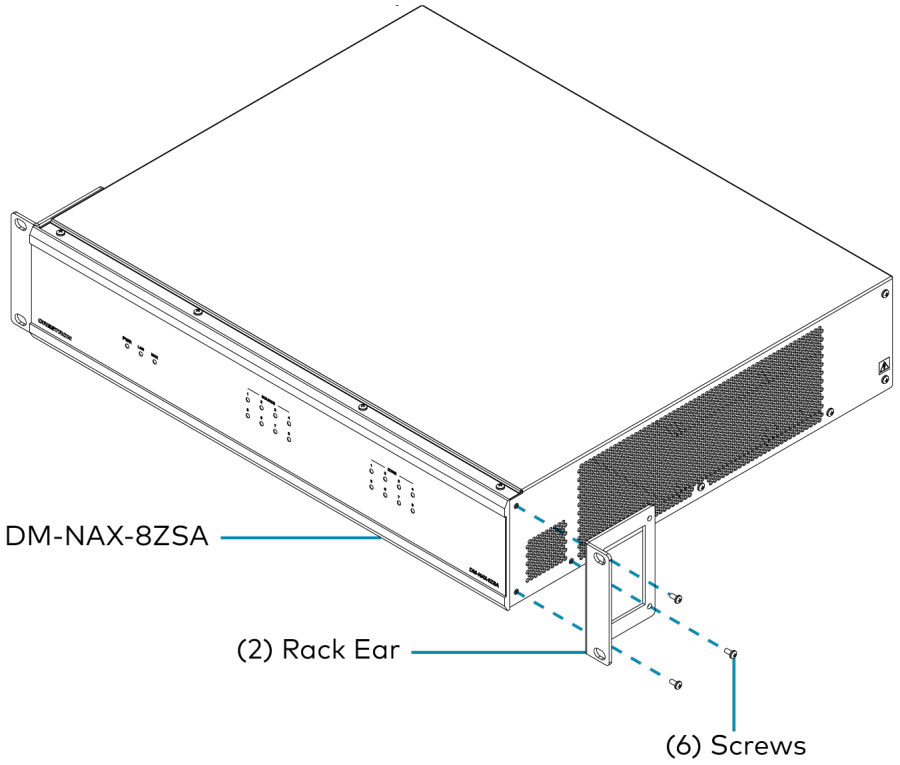
The device can be placed on a flat surface or installed in a rack.

Rack Installation

This device occupies 2 RU of rack space.

To mount the device:

1. Remove the three screws from each side panel of the device using a Phillips screwdriver (not included).
2. Attach the included rack ears to the device using the six included 1/4 in. Phillips pan head screws.



3. Mount the device into the rack using four rack mounting screws (not included).

NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and

supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Connect the Device

Make the necessary connections as called out in the following illustration. Connect power last.

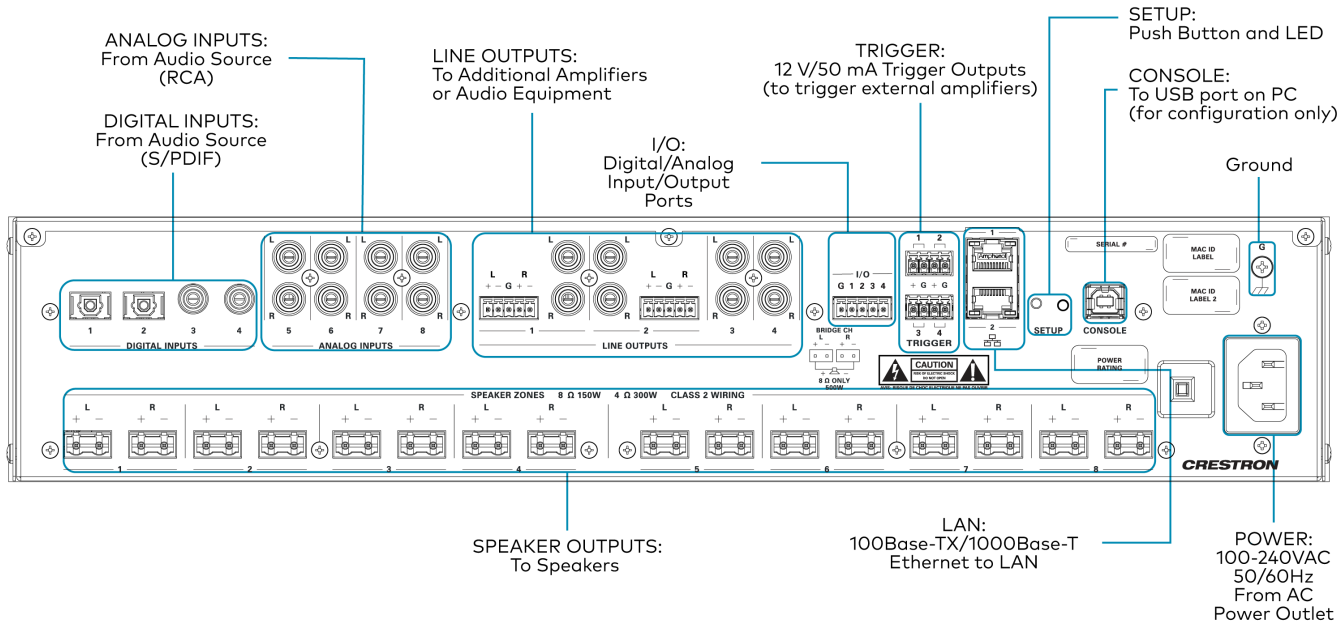
CAUTION:

- Keep the device unplugged until all of the input, network, output, and speaker wiring is complete.
- Check the speaker cables for shorts and frayed wiring around the **SPEAKER OUTPUTS** connectors.

NOTES:

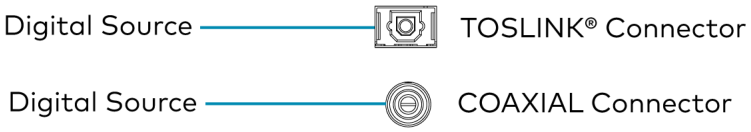
- Ensure that the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).
- To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the product specifications.
- Do not bundle power cords together with audio cables. Doing so can result in noise.

Rear Panel



Digital Inputs

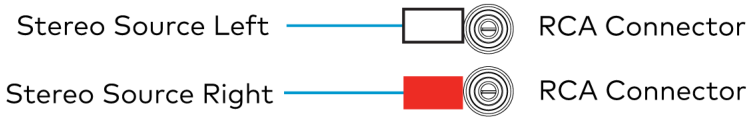
Connect digital audio sources as shown in the following illustration.



> **NOTE:** 2-channel PCM digital audio is the only supported digital input format.

Analog Inputs

Connect analog audio sources as shown in the following illustration.



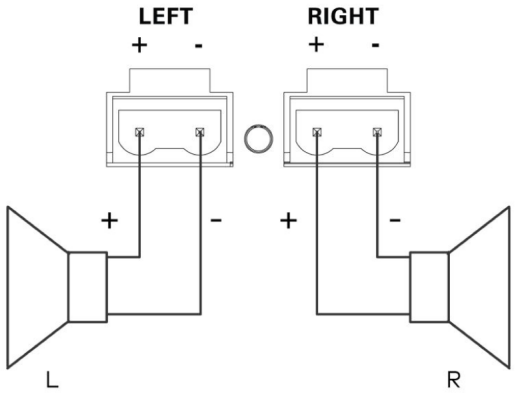
Speaker Connections

The speaker outputs can be wired conventionally (single-ended) or bridged to deliver higher output power.

> **NOTE:** Line outputs 1-4 mirror speaker outputs 1-4. These outputs can feed another amplifier or an active subwoofer.

Single-ended Wiring

Connect the speakers as shown in the following illustration for single-ended wiring.

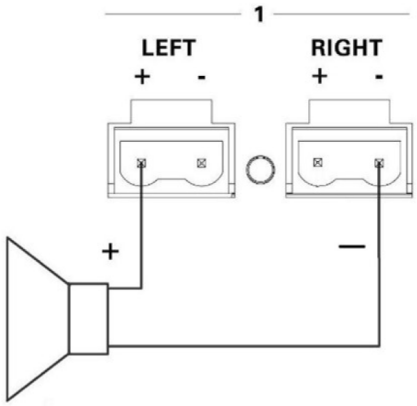


Bridged Wiring

Connect the speakers as shown in the following illustration for bridged wiring (8 ohm speakers only).

NOTES:

- Ensure that the device is configured for bridged output before connecting the speaker this way. Refer to Settings on page 365.
- Bridging can only be done between the **LEFT** and **RIGHT** connectors of a single zone. The **RIGHT** connector of one zone cannot be bridged with the **LEFT** connector of another.

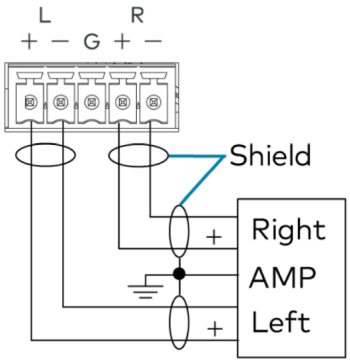


Balanced/Unbalanced Audio Output

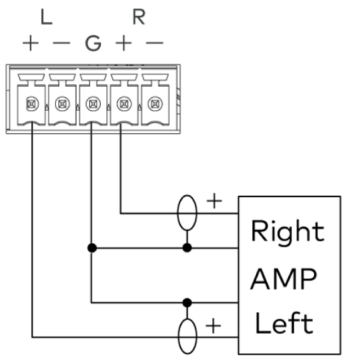
Refer to the following table and illustration for analog audio output pin assignments and connection information.

Signal Name	Balanced Audio Output	Unbalanced Audio Output
+	L+	L+ Out
-	L–	Open
G	Shield/ground	Open
+	R+	R+ Out
-	R-	Open

Balanced Output



Unbalanced Output



Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	The device is starting.
	White	The device is powered on with audio passing.
	Red	The device is in standby mode (no sources are routed and the network is disconnected).
	Off	The device is not connected to power.
LAN	White	The device is powered on, is connected to a network, and has a valid IP address.
	Off	The device is not connected to a network and/or the IP address is invalid.
NAX	White	AoIP is ready to pass and the device's PTP clock is synced.
	Off	No AoIP is passing to or from the device and/or PTP is not synced.

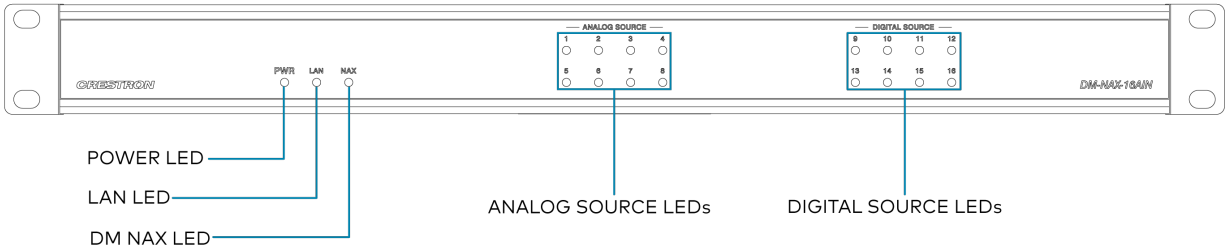
LED Indicator	Color	Meaning
SOURCE 1-8	White	Signal is detected at the input.
	Red	Bitstream/multichannel audio is detected (digital inputs) or clipping is detected (analog inputs).
	Off	No signal is detected.
ZONE 1-8	White	Audio is detected at the output.
	Red	Clipping or a fault state (over current, over temperature, or low voltage) is detected at the output.
	Off	No signal is detected.
SETUP	Solid Red	The **SETUP** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **SETUP** button.

DM-NAX-16AIN Installation

Refer to the following sections to install the DM-NAX-16AIN.

- In the Box on page 114
- Install the Device on page 114
- DM-NAX-16AIN Installation on page 114
- Observe the LED Indicators on page 117

Front Panel



In the Box

Qty.	Description
1	DM-NAX-16AIN

	Additional Items
2	Bracket, Rack Ear, 1U (2032122)
4	Connector, 5-Pin (2003577)
1	Power Cord, 6 ft 7 in. (2 m) (2001134)

Install the Device

Refer to the Safety Instructions prior to installation.

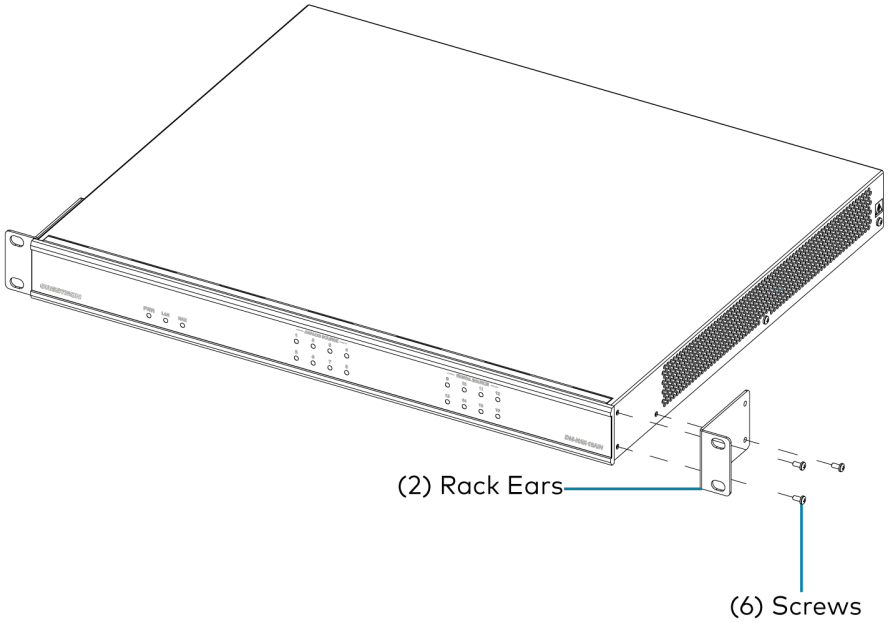
The device can be placed on a flat surface or installed in a rack.

Install in a Rack

This device occupies 1U of rack space.

To mount the device into a rack:

1. Remove the three screws from each side panel of the device using a Phillips screwdriver (not included).
2. Attach the included rack ears to the device using the removed screws.



3. Mount the device into the rack using four rack mounting screws (not included).

NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

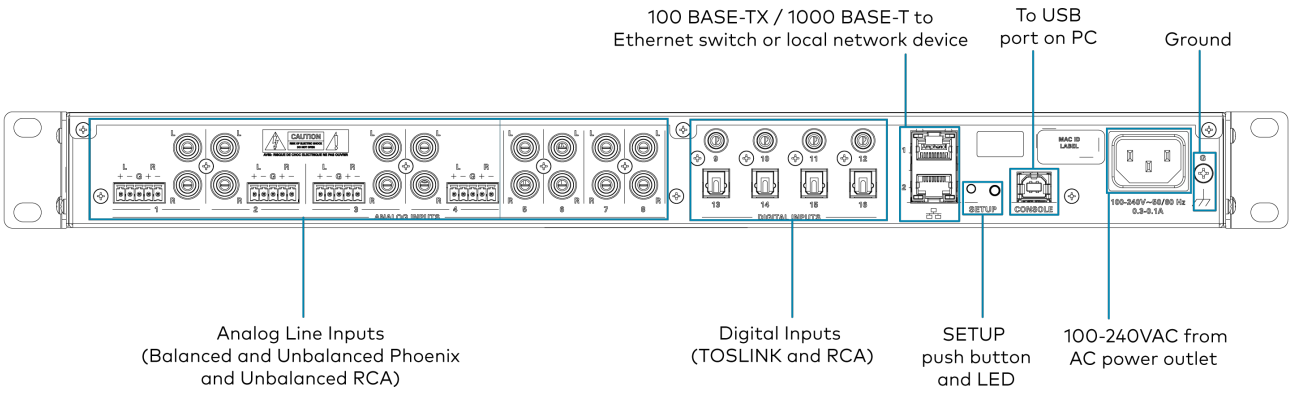
Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

Rear Panel



Digital Inputs

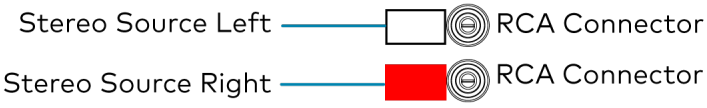
Connect digital audio sources as shown in the following illustration.



> **NOTE:** 2-channel PCM digital audio is the only supported digital input format.

Analog Inputs

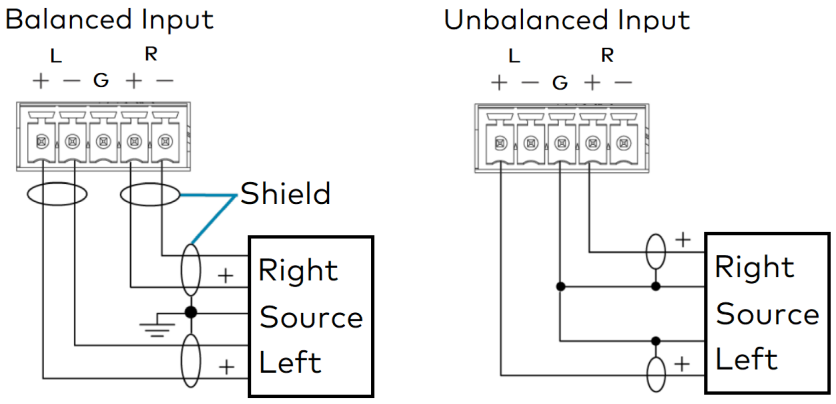
Connect analog audio sources as shown in the following illustration.



Balanced/Unbalanced Audio Input

Refer to the following table and illustration for analog audio input pin assignments and connection information.

Signal Name	Balanced Audio Input	Unbalanced Audio Input
+	L+	L+
-	L–	Open
G	Shield/ground	Open
+	R+	R+
-	R-	Open



Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	The device is starting.
	White	The device is powered on with audio passing.
	Red	The device is in standby mode.
	Off	The device is not connected to power.
LAN	White	The device is powered on, is connected to a network, and has a valid IP address.
	Off	The device is not connected to a network and/or the IP address is invalid.
NAX	White	AoIP is ready to pass and the device's PTP clock is synced.
	Off	No AoIP is passing to or from the device and/or PTP is not synced.

LED Indicator	Color	Meaning
SOURCE 1-16	White	Signal is detected at the input.
	Red	Bitstream/multichannel audio is detected (digital inputs) or clipping is detected (analog inputs).
	Off	No signal is detected.
SETUP	Solid Red	The **SETUP** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **SETUP** button.

DM-NAX-AMP-X300 Installation

Refer to the following sections to install the DM-NAX-AMP-X300.

- In the Box on page 120
- Install the Device on page 121
- Connect the Device on page 126
- Speaker Mode Selection Switch on page 126
- Lo-Z Modes Switches on page 127
- Observe the LED Indicators on page 127
- DM-NAX-AMP-X300 Installation on page 119

In the Box

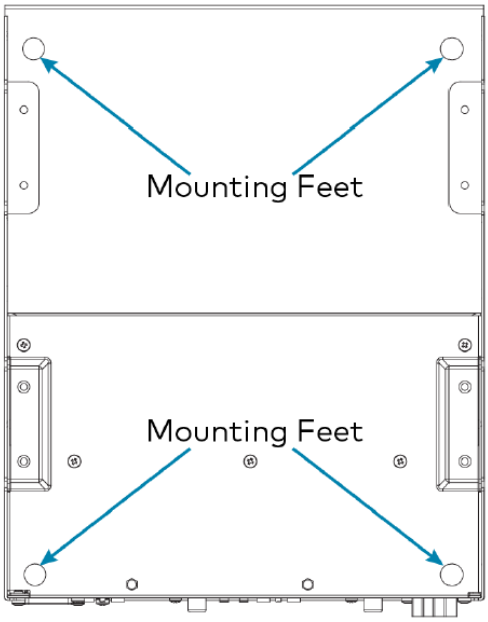
Qty.	Description
1	DM-NAX-AMP-X300
	Additional Items
4	Screw, 6-32 x 3/8 in., Undercut Head, Philips (2055196)
4	Foot, Adhesive, Black (2055200)
2	Rack Ear, 1U, Quarter-width (2055199)
8	Connector, Input, Output (2055207)
1	Connector, 2-Pin (2003574)
1	Power Cord (2055205)

Install the Device

Out of the box, the DM-NAX-AMP-X300 can be placed on a flat surface or installed in a rack. To surface-mount the DM-NAX-AMP-X300 or gang it alongside another half-width or quarter-width 1RU amplifier, the RMK-AMP-X (sold separately) is required.

Place on a Flat Surface

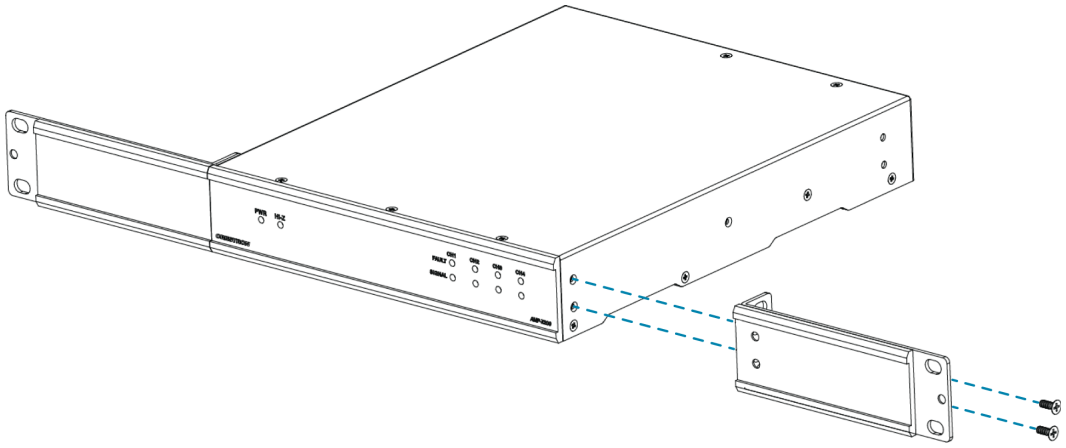
Place the DM-NAX-AMP-X300 on a table or other flat surface. Attach the four adhesive feet as shown below.



Rack Installation

To mount the device in a rack:

1. Remove the three screws from each side panel of the device using a Phillips screwdriver (not included).
2. Attach the included rack ears to the device using the four included 1/4 in. Philips pan head screws.



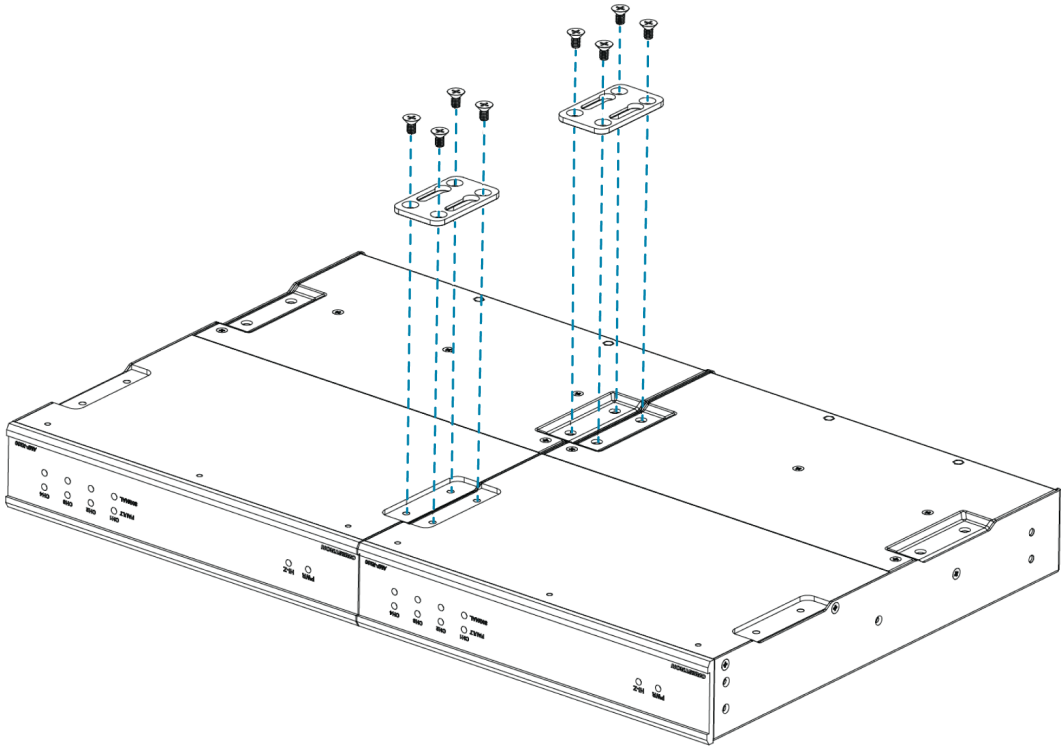
3. Mount the device into the rack using four rack mounting screws (not included).

Double Mount

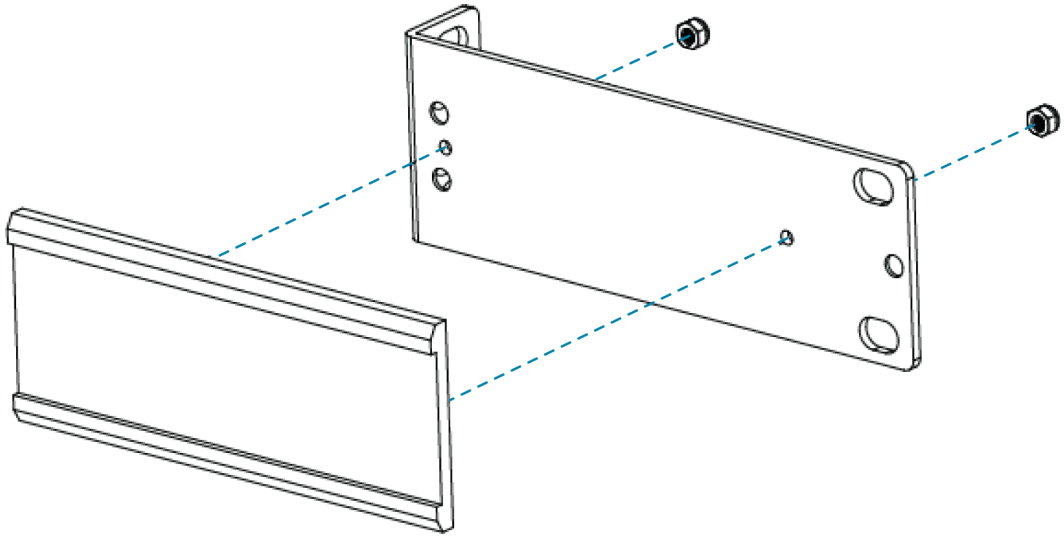
> **NOTE:** All instructions in this section assume that an RMK-AMP-X mounting kit (sold separately) has been obtained.

The DM-NAX-AMP-X300 can be ganged together with an additional DM-NAX-AMP-X300 or another device that supports the joining plate hardware (such as the AMP-X75, AMP-X300, or DM-NAX-4ZSA-50, all sold separately).

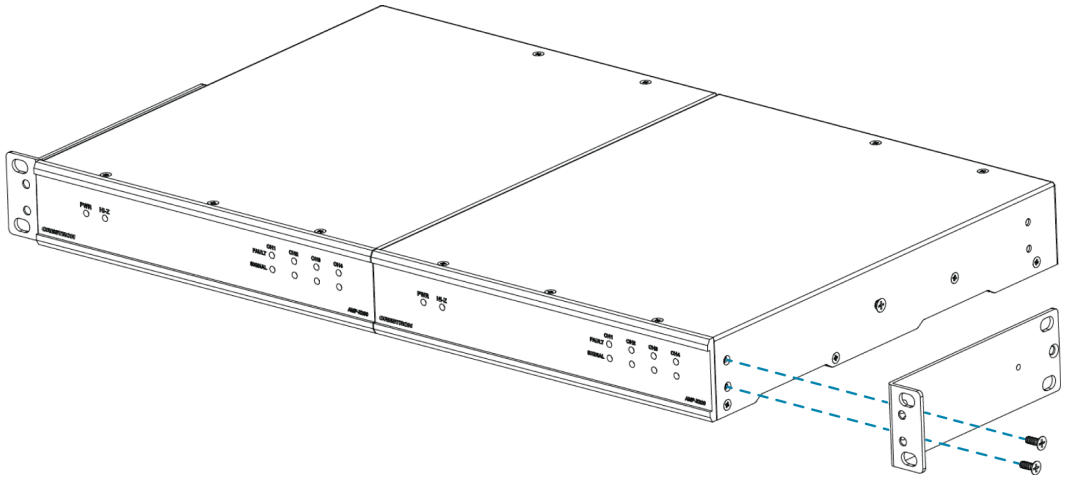
1. On a flat surface, place the amplifiers upside-down and adjacent to each other.
2. Using a Philips screwdriver and the eight 8-32 x 5/16 in. screws, gang the amplifiers together with two of the joining plates.



3. Use a wrench or M5.5 socket to remove the nuts from the rack ears.



4. Turn the amplifier assembly over. Attach the rack ears to each side using the six 6-32 x 3/8 in. screws from the mounting kit.



5. Mount the assembly into the rack using four rack mounting screws (not included).

NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

WARNING: To prevent bodily injury when mounting or servicing the unit in a rack:

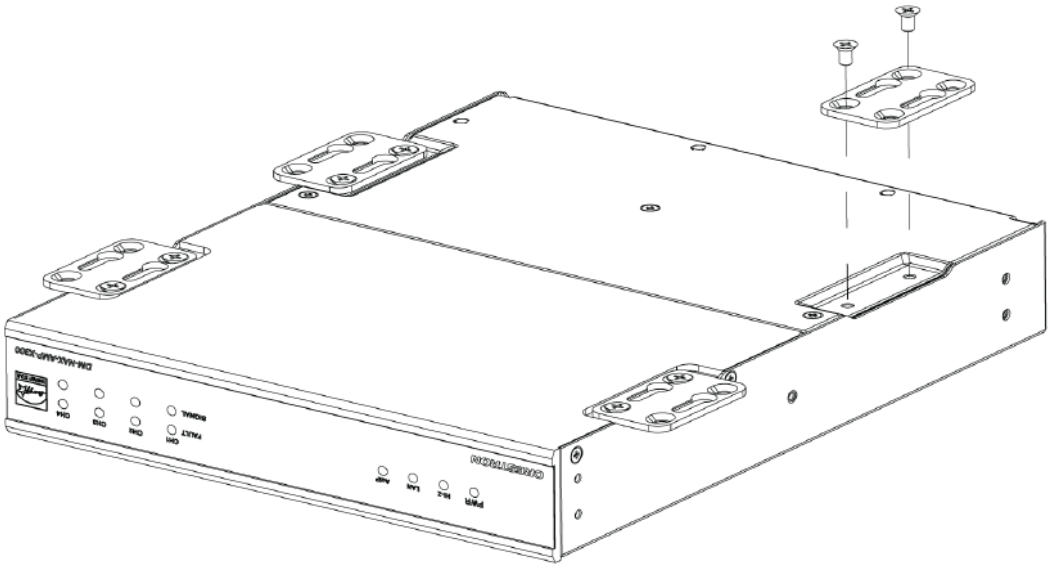
- When mounting the unit into a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Mount on a Flat Surface

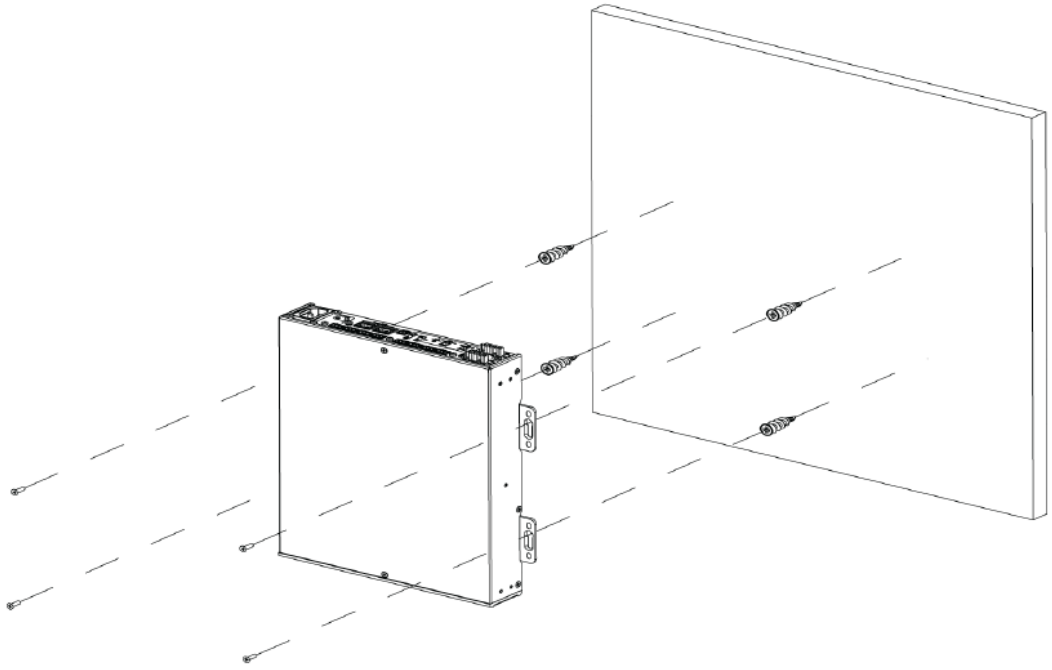
> **NOTE:** All instructions in this section assume that an RMK-AMP-X mounting kit (sold separately) has been obtained.

To mount the DM-NAX-AMP-X300 to a flat surface:

1. Attach the four joining plates to the underside of the device using the eight 8-32 x 5/16 in. screws.



2. Use surface-appropriate screws (not included) and anchors (not included) to mount the device.



Connect the Device

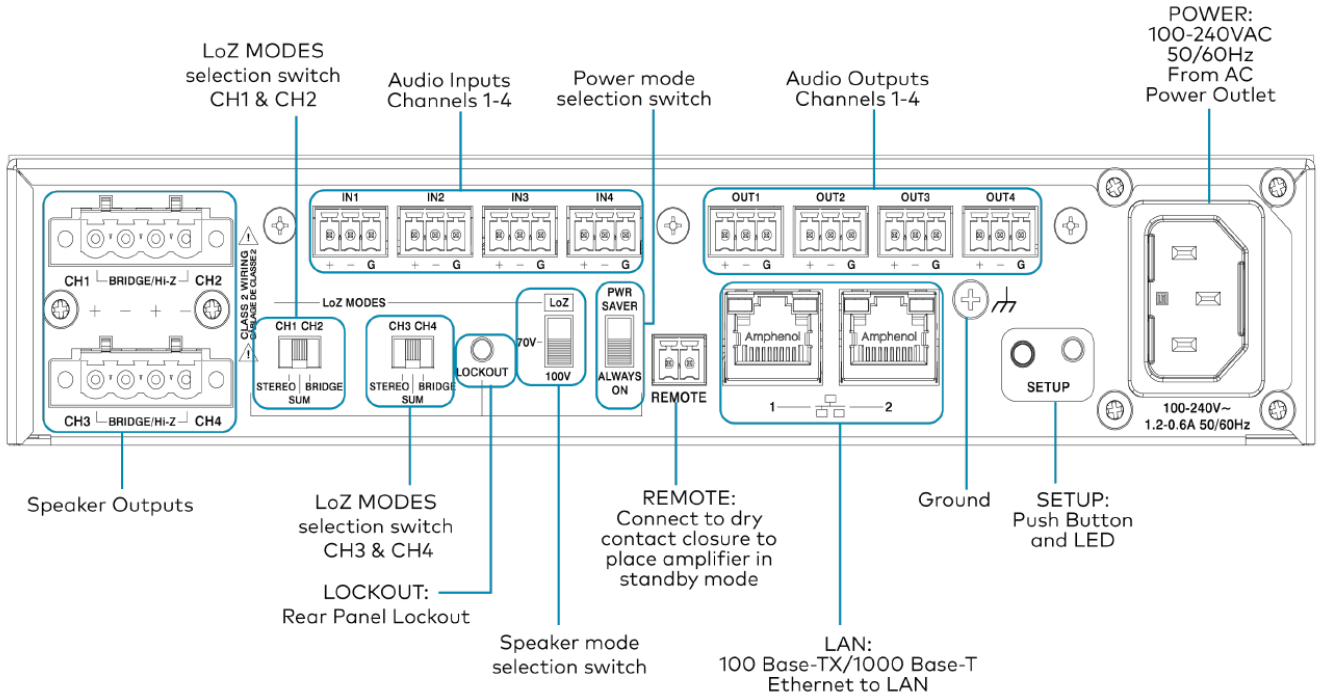
Make the necessary connections as called out in the following illustration. For details on wiring, refer to Output Wiring Options on page 128.

CAUTION:

- Keep the device unplugged until all of the input, network, output, and speaker wiring is complete.
- Check the speaker cables for shorts and frayed wiring around the speaker output connectors.

NOTES:

- Ensure that the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).
- To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications.
- Ensure that both the Ethernet ports are not connected to the same network or switch.



Speaker Mode Selection Switch

The DM-NAX-AMP-X300 can be configured to work with 4 Ω and 8 Ω (low impedance or Lo-Z) loads or a distributed audio (high impedance or Hi-Z) 70/100V system.

- **Lo-Z**: Set the switch to LoZ to use the amplifier with 4 Ω or 8 Ω low impedance loudspeakers.
- **70V**: Set the switch to 70V to use the amplifier in a 70V distributed audio system.
- **100V**: Set the switch to 100V to use the amplifier in a 100V distributed audio system.

Lo-Z Modes Switches

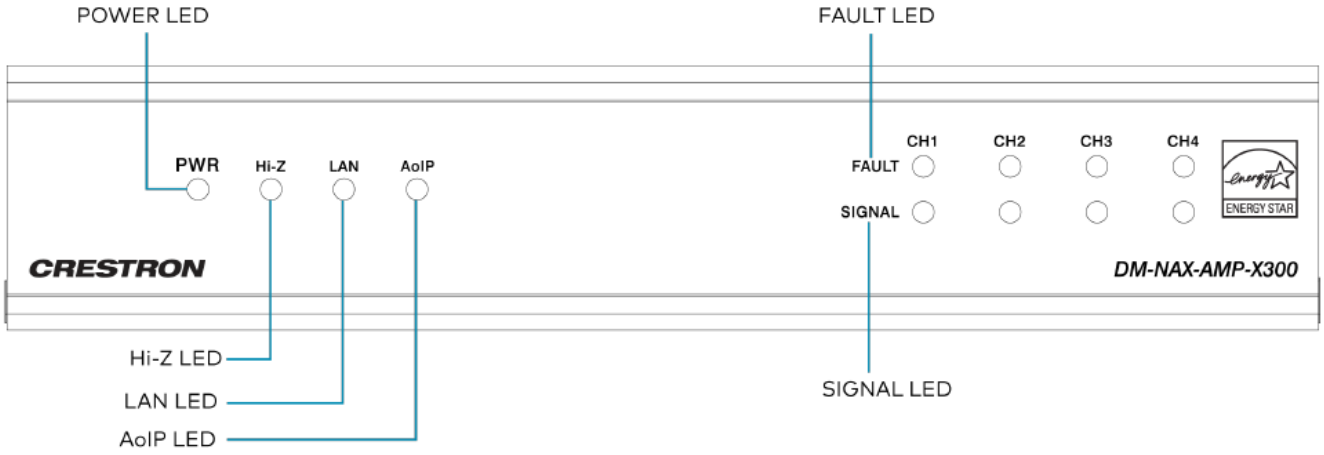
When operating in Lo-Z mode, the DM-NAX-AMP-X300 outputs can operate in stereo, as summed outputs, or as bridged outputs. Set the **Lo-Z Modes** selection switch to the desired setting and connect the outputs as required.

Set each switch to one of the available positions:

- **STEREO**: The input signal received on each channel is sent to its respective output, preserving left and right channel separation.
- **SUM**: The input signals sent to the channel pair (**1** and **2** or **3** and **4**) are summed to mono and sent to their respective outputs.
- **BRIDGE**: The input signals sent to a channel pair (**1** and **2** or **3** and **4**) are summed to mono and sent to a bridged output (**1** plus **2** or **3** plus **4**) for use in high-power applications.

NOTE: If the **LOCKOUT** indicator is illuminated, the rear panel lockout feature is enabled. The web interface will override all rear panel switch settings. Refer to Commercial Mode on page 463 or Residential Mode on page 487.

Observe the LED Indicators



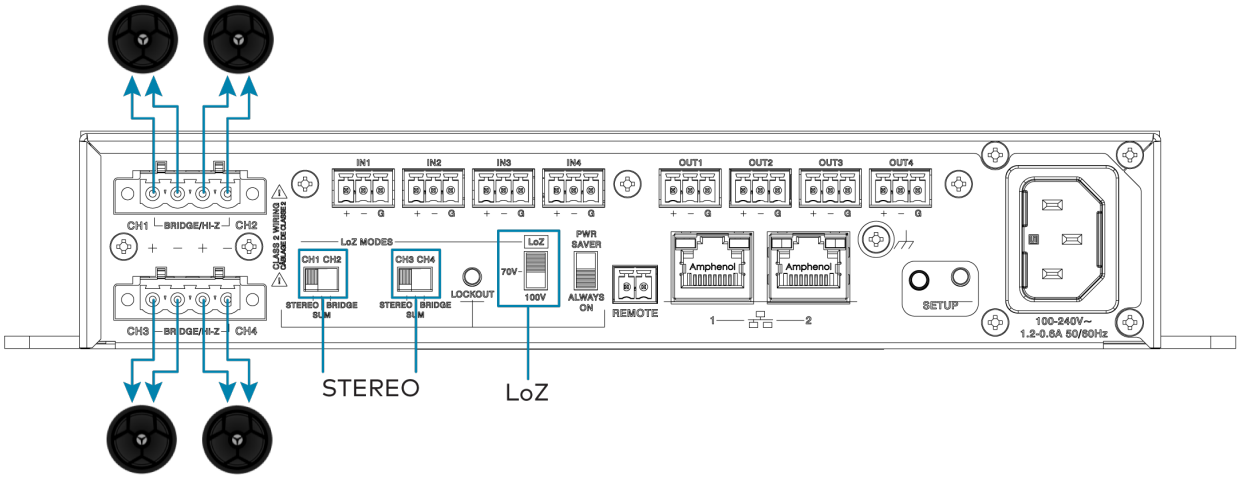
Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	White	The device is powered on with audio passing.
	Red	The device is in standby mode (no sources are routed and the network is disconnected).
	Off	The device is not connected to power.
Hi-Z	White	The device is set to Hi-Z (70V or 100V) mode.
	Off	The device is set to LoZ (4Ω or 8Ω) mode.
LAN	White	The device is powered on, is connected to a network, and has a valid IP address.
	Off	The device is not connected to a network and/or the IP address is invalid.
AoIP	White	AoIP is ready to pass and the device's PTP clock is synced.
	Off	No AoIP is passing to or from the device and/or PTP is not synced.
FAULT CH1-CH4	Red	A fault state (over current, over temperature, or low voltage) is detected at the output
	Off	No fault state is detected.
SIGNAL CH1-CH4	White	Audio is detected at the output.
	Red	Clipping is detected at the output.
	Off	No signal is detected.
SETUP	Solid Red	The **SETUP** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **SETUP** button.
LOCKOUT	Red	The rear panel lockout feature has been enabled from the web interface. All rear panel physical switch settings will be overridden by the web interface.
	Off	The rear panel lockout feature is disabled. Device settings can be configured using the rear panel switches.

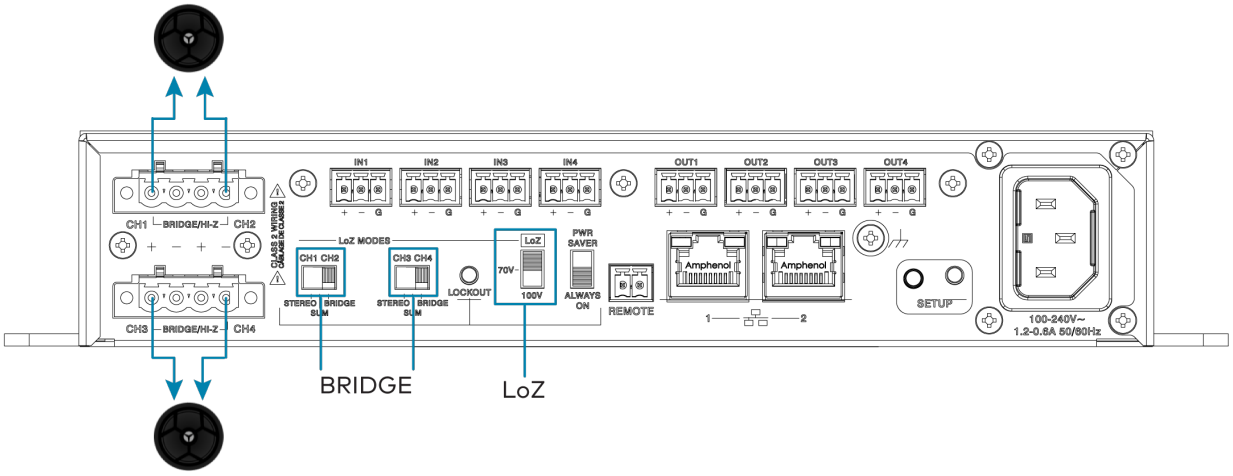
Output Wiring Options

The DM-NAX-AMP-X300 can be configured for low impedance (LoZ) stereo operation over two or four channels and high impedance (70 V or 100 V) operation over two channels. Refer to the following diagrams for details.

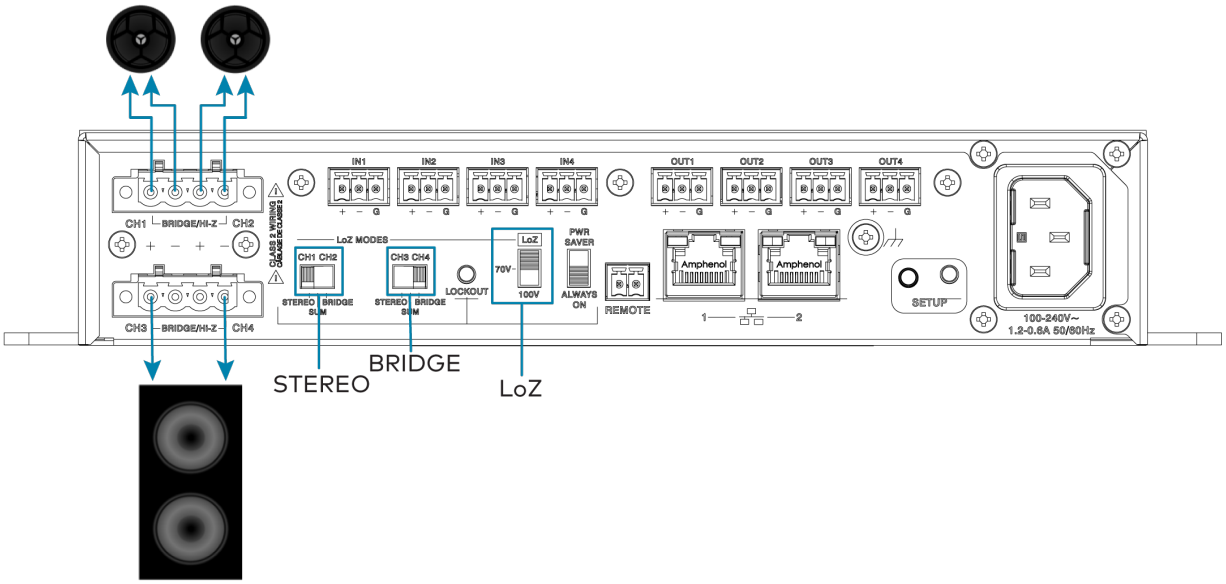
Four Channels up to 75 W (Lo-Z)



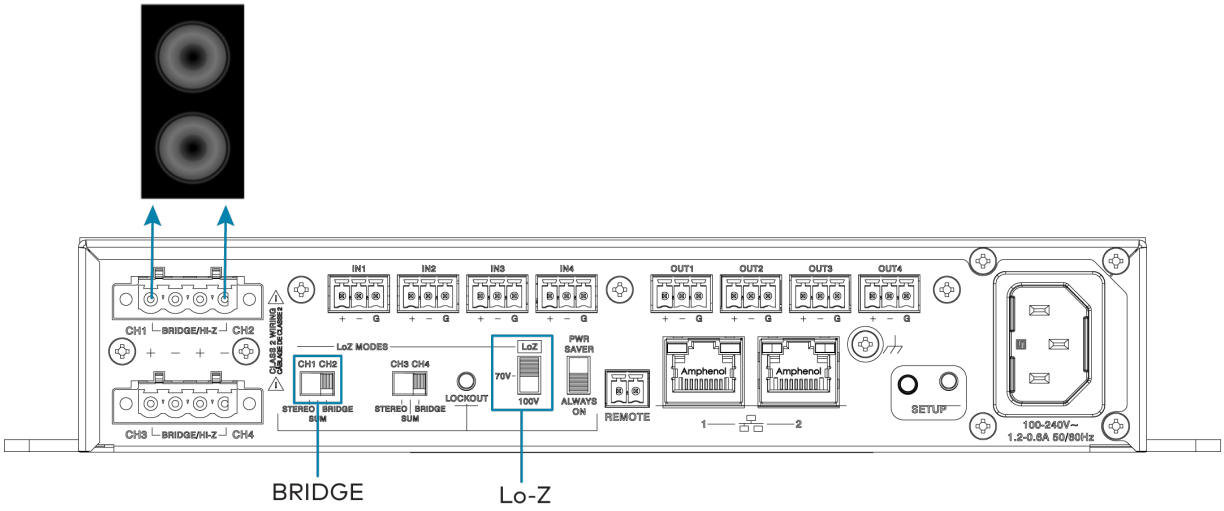
Two Channels up to 150 W (Lo-Z)



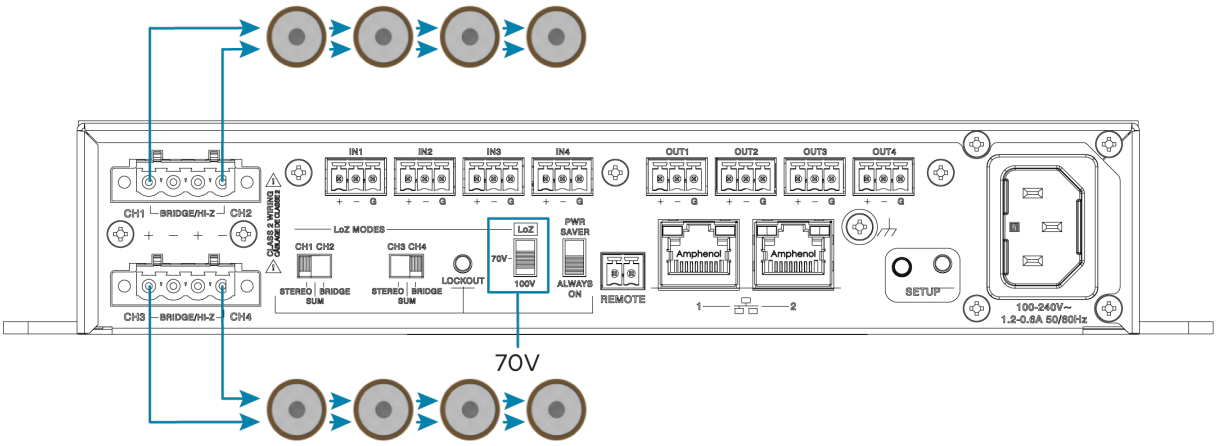
Two Channels up to 75 W and One Channel up to 150 W (Lo-Z)



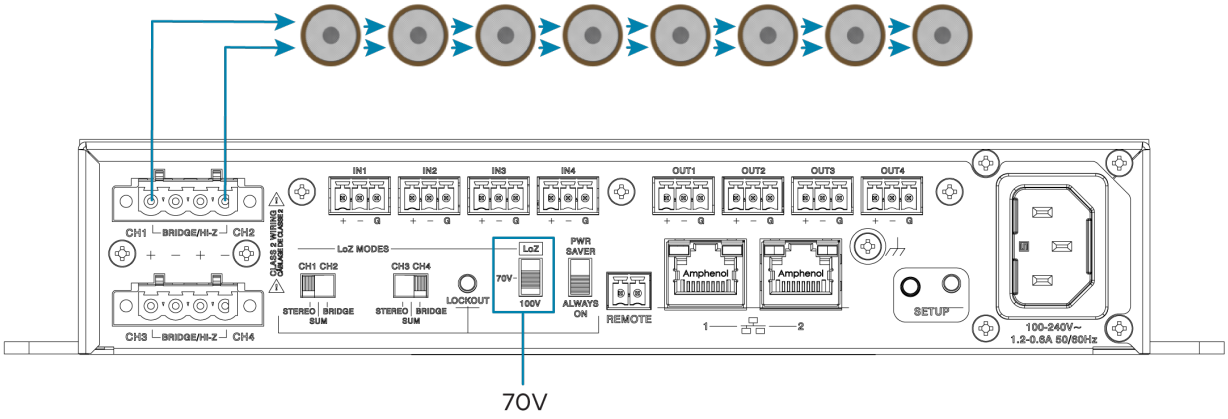
One Channel up to 300 W (Lo-Z)



Two Runs up to 150 W (Hi-Z)



One Run up to 300 W (Hi-Z)



DM-NAX-AUD-IO Installation

Refer to the following sections to install the DM-NAX-AUD-IO.

- In the Box on page 132
- Mount the Device on page 132
- Connect the Device on page 137

In the Box

Qty.	Description
1	DM-NAX-AUD-IO
	Additional Items
1	Single Gang Electrical Box Adapter Bracket, Galvanized Metal (2059673)
2	Surface Mount Bracket, Aluminum (2059674)
2	Connector, 5-pin (2003577)
2	Screws, M3 x 6 mm, Flat Head, Phillips (2062526)
4	Screws, M3 x 0.5 x 6 mm, Pan Head, Phillips (2058870)
1	Polycarbonate Front Panel Label (4536923)

Mount the Device

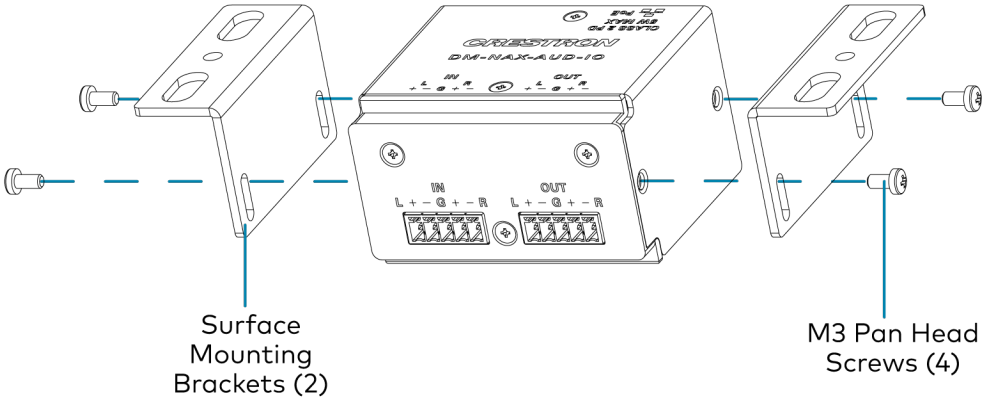
The DM-NAX-AUD-IO can be mounted under a table, into a 1-gang electrical box, or onto a rack rail.

Mount under a Table

To mount the device under a table:

1. Remove the four flat head screws from the left and right panels of the device using a Phillips screwdriver (not included).
2. Align the two included right angle surface mount brackets with the left and right panels of the device. For mounting under a table, keep the flanged surface of the brackets flush with the top panel of the device. For mounting to a surface, keep the flanged surface of the brackets flush with the bottom panel of the device.

3. Attach the mounting brackets to the device using the four included M3 pan head screws.



4. Secure the device to a surface or under a table using the appropriate mounting screws (not included).

Mount into a 1-Gang Electrical Box

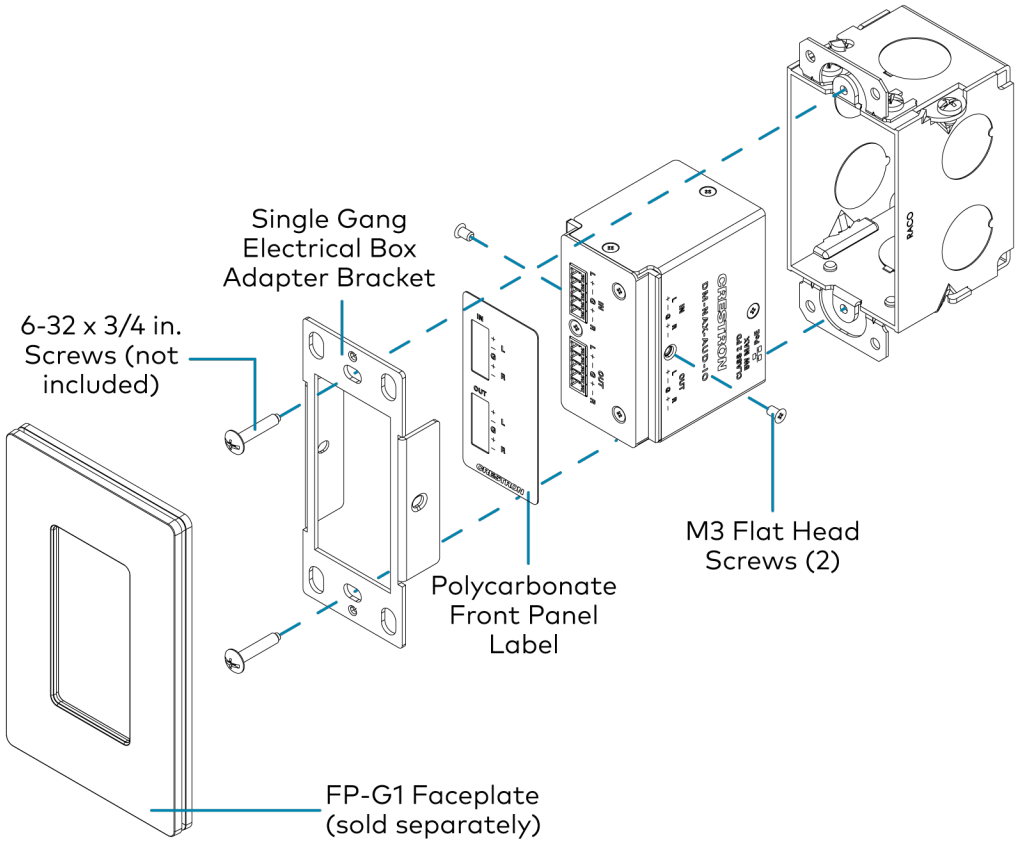
NOTES:

- The DM-NAX-AUD-IO should only be mounted with a RACO® 3 x 2 x 2 in. gangable metal switch box with eight 0.5 in. knockouts and plaster ears (catalog ID #420). Alternative metal switch boxes should not be used as they may have incompatible knockout placements.
- For thermal performance reasons, fully enclosed plastic back boxes should not be used with the DM-NAX-AUD-IO. In installations where an enclosed back box is not required, the DM-NAX-AUD-IO can be installed into most single gang metal or plastic mud rings.
- Connector boots should not be used on CAT5e (or greater) cables connected to the DM-NAX-AUD-IO to avoid bend radius issues.

To mount the device into a 1-gang electrical box:

1. Remove the two screws from the top and bottom panels nearer to the front panel of the device using a Phillips screwdriver (not included).
2. Align the included polycarbonate front panel label with the front panel of the device so the holes in the label line up with the 5-pin connectors.

3. Secure the included single gang electrical box adapter bracket to the top and bottom panels of the device using the included M3 flat head screws.



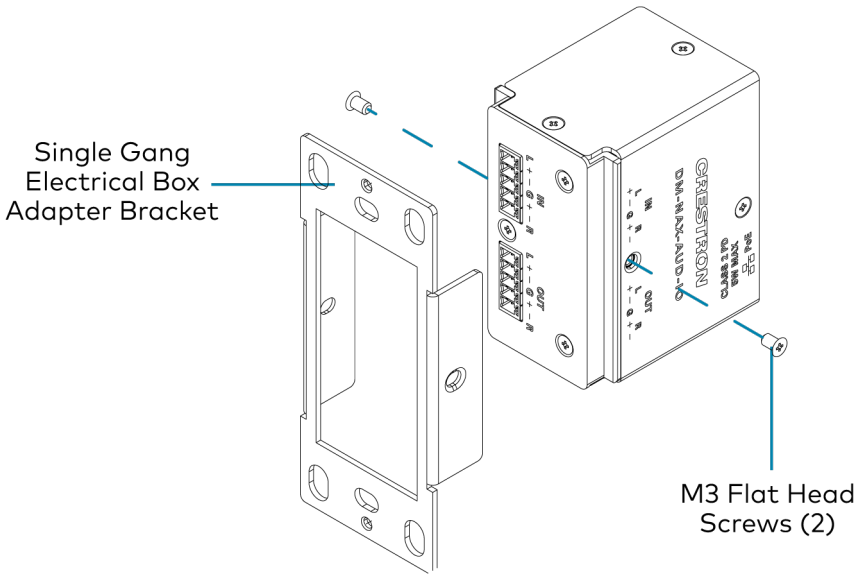
4. Attach the wall plate adapter bracket to the electrical box using two 6-32 x 3/4 in., truss head screws (not included).
5. Attach a FP-G1 decorator style faceplate (sold separately) to the wall plate using two 6-32 x 1/4 in., flat head screws (not included).

Mount onto a Rack Rail

To mount the device onto a rack rail:

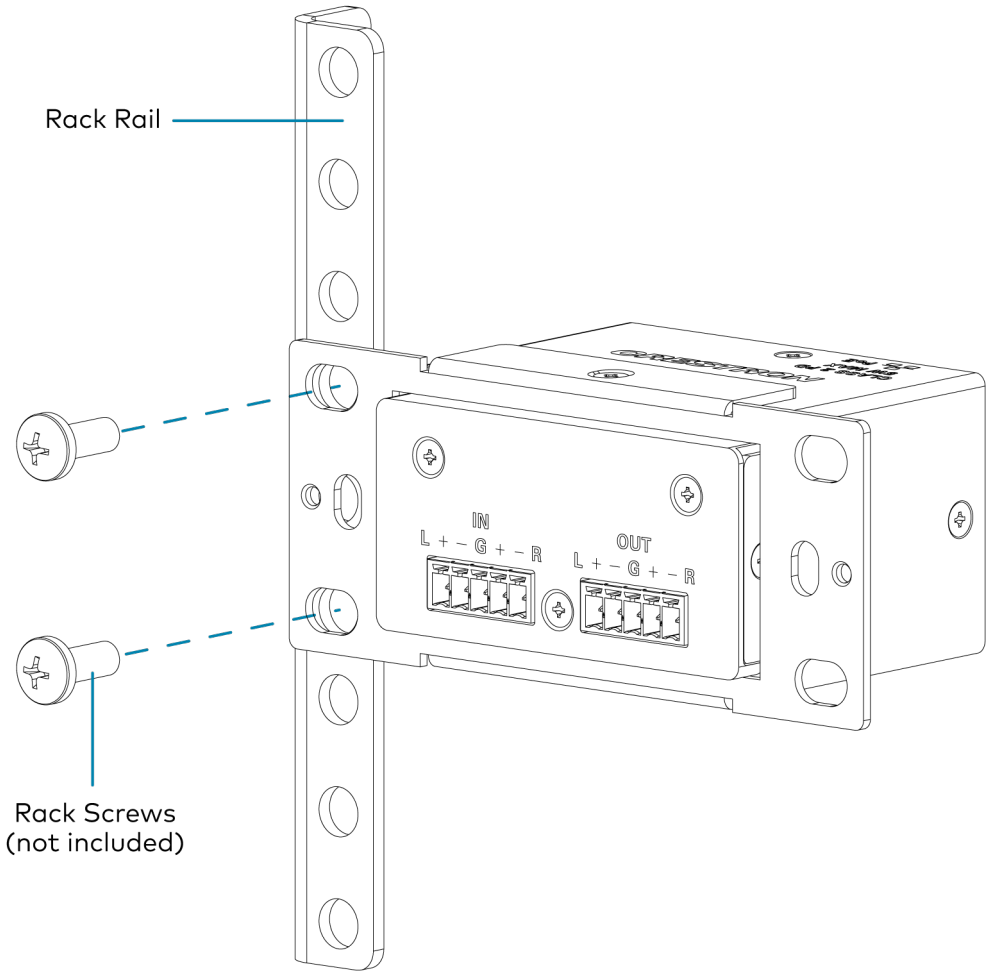
1. Remove the two screws from the top and bottom panels nearer to the front panel of the device using a Phillips screwdriver (not included).

2. Secure the included single gang electrical box adapter bracket to the top and bottom panels of the device using the included M3 flat head screws.



3. Position the wall plate horizontally so that the holes in the left or right mounting flange align with the holes in the rack rail.

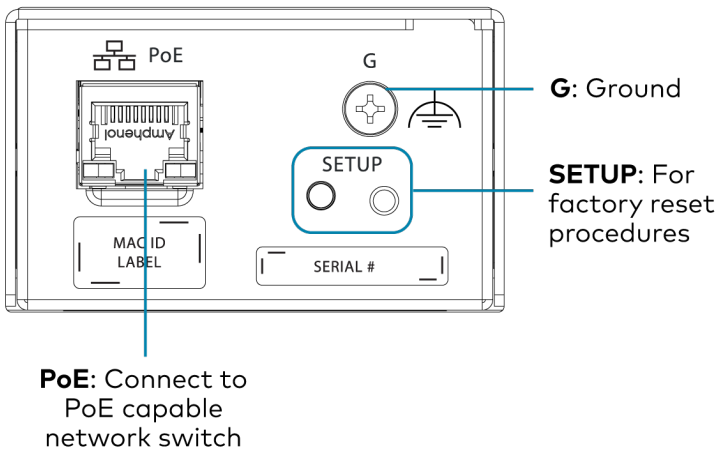
4. Secure the wall plate to the rack rail using two mounting screws (not included).



Connect the Device

Make connections to the front and rear panels of the DM-NAX-AUD-IO:

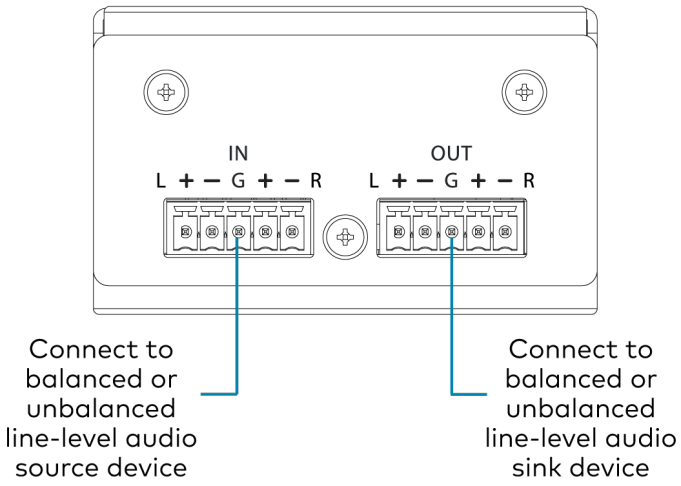
Rear Panel



> **NOTE: PoE** is a PoE powered device (PD) port. In order for the port to receive PoE, it must be connected to a PoE compliant Ethernet switch.

Connect a PoE capable network switch to the **PoE** port.

Front Panel



On the front panel:

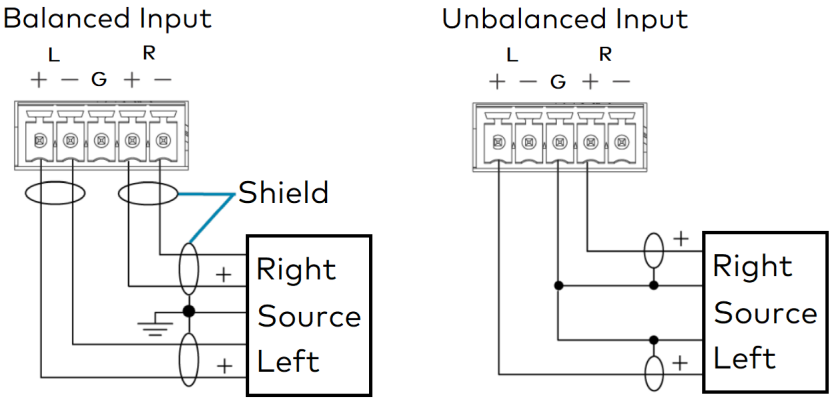
- Connect a balanced or unbalanced line-level audio source signal to the **INPUTS** 5-pin terminal block.

- Connect a balanced or unbalanced line-level audio sink device to the **OUTPUTS** 5-pin terminal block.

Balanced/Unbalanced Audio Input

Refer to the following table and illustration for analog audio input pin assignments and connection information.

Signal Name	Balanced Audio Input	Unbalanced Audio Input
+	L+	L+
-	L–	Open
G	Shield/ground	Open
+	R+	R+
-	R-	Open



DM-NAX-AUD-USB Installation

Refer to the following sections to install the DM-NAX-AUD-USB.

- In the Box on page 139
- Mount the Device on page 139
- Connect the Device on page 144

In the Box

Qty.	Description
1	DM-NAX-AUD-USB
	Additional Items
1	Single Gang Electrical Box Adapter Bracket, Galvanized Metal (2059673)
2	Surface Mount Bracket, Aluminum (2059674)
2	Screws, M3 x 6 mm, Flat Head, Phillips (2062526)
4	Screws, M3 x 0.5 x 6 mm, Pan Head, Phillips (2058870)
1	Polycarbonate Front Panel Label (4536924)

Mount the Device

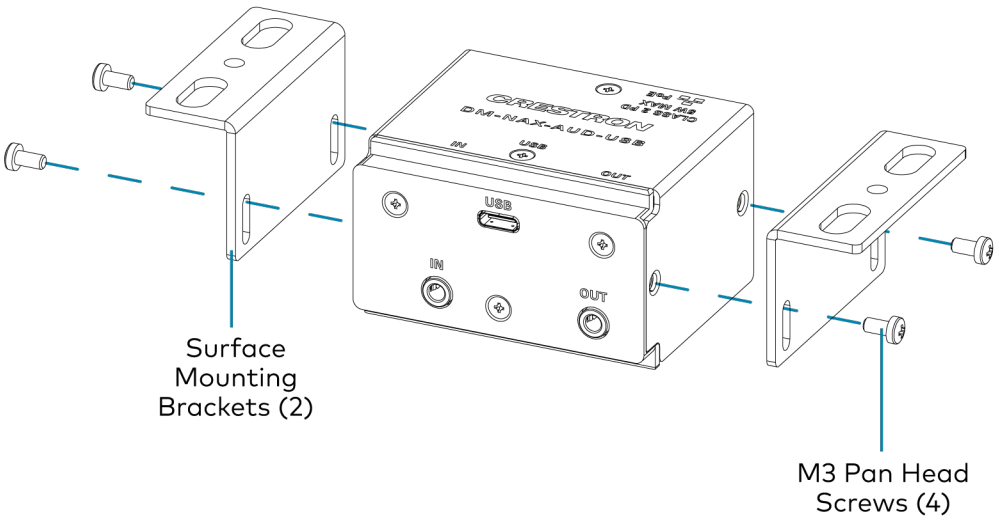
The DM-NAX-AUD-USB can be mounted under a table, into a 1-gang electrical box, or onto a rack rail.

Mount under a Table

To mount the device under a table:

1. Remove the four flat head screws from the left and right panels of the device using a Phillips screwdriver (not included).
2. Align the two included right angle surface mount brackets with the left and right panels of the device. For mounting under a table, keep the flanged surface of the brackets flush with the top panel of the device. For mounting to a surface, keep the flanged surface of the brackets flush with the bottom panel of the device.

3. Attach the mounting brackets to the device using the four included M3 pan head screws.



4. Secure the device to a surface or under a table using the appropriate mounting screws (not included).

Mount into a 1-Gang Electrical Box

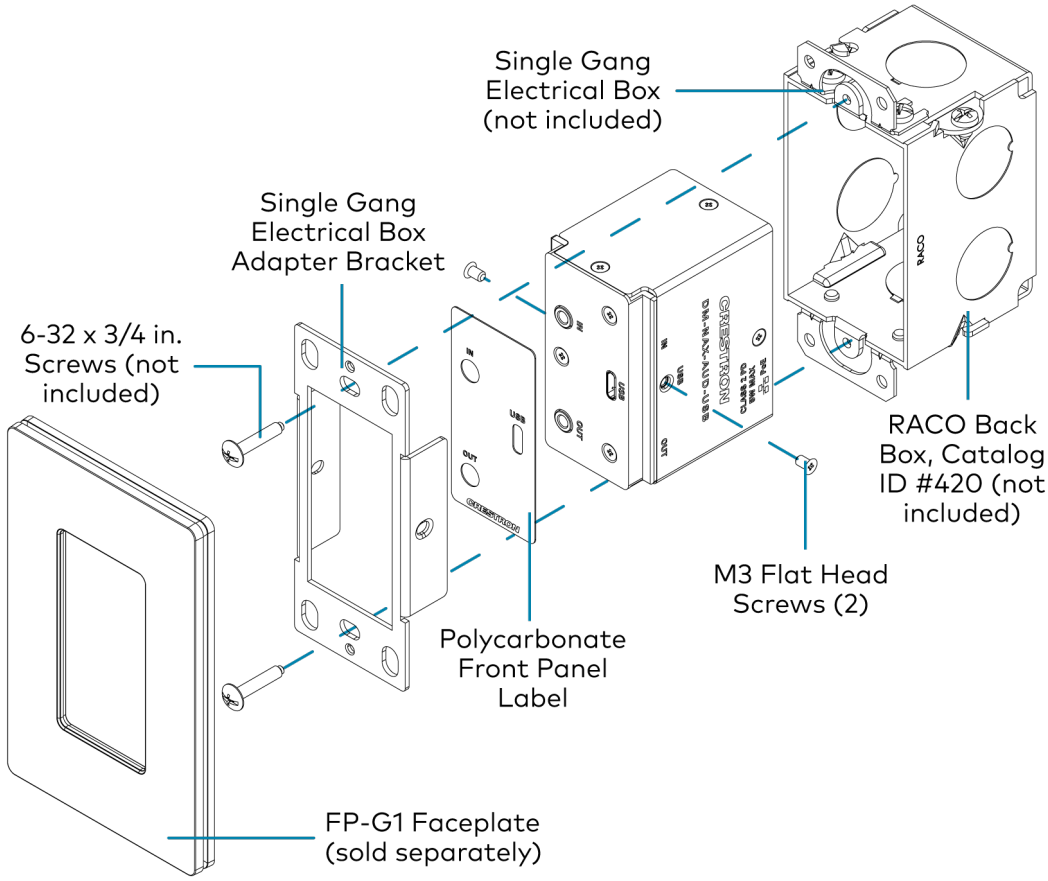
NOTES:

- The DM-NAX-AUD-USB should only be mounted with a RACO® 3 x 2 x 2 in. gangable metal switch box with eight 0.5 in. knockouts and plaster ears (catalog ID #420). Alternative metal switch boxes should not be used as they may have incompatible knockout placements.
- For thermal performance reasons, fully enclosed plastic back boxes should not be used with the DM-NAX-AUD-USB. In installations where an enclosed back box is not required, the DM-NAX-AUD-USB can be installed into most single gang metal or plastic mud rings.
- Connector boots should not be used on CAT5e (or greater) cables connected to the DM-NAX-AUD-USB to avoid bend radius issues.

To mount the device into a 1-gang electrical box:

1. Remove the two screws from the top and bottom panels nearer to the front panel of the device using a Phillips screwdriver (not included).
2. Align the included polycarbonate front panel label with the front panel of the device so the holes in the label line up with the 5-pin connectors.

3. Secure the included single gang electrical box adapter bracket to the top and bottom panels of the device using the included M3 flat head screws.



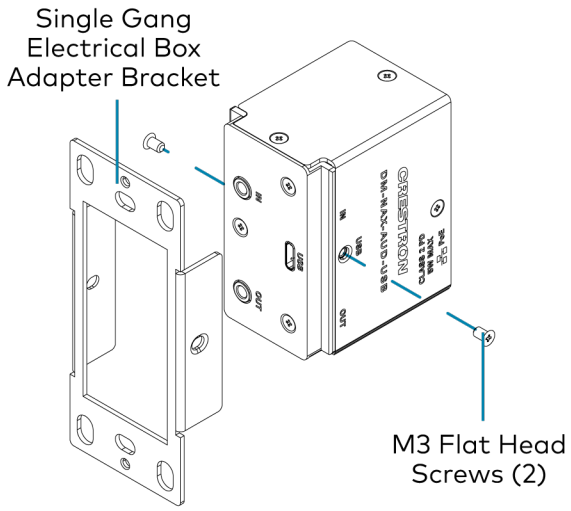
4. Attach the wall plate adapter bracket to the electrical box using two 6-32 x 3/4 in., truss head screws (not included).
5. Attach a FP-G1 decorator style faceplate (sold separately) to the wall plate using two 6-32 x 1/4 in., flat head screws (not included).

Mount onto a Rack Rail

To mount the device onto a rack rail:

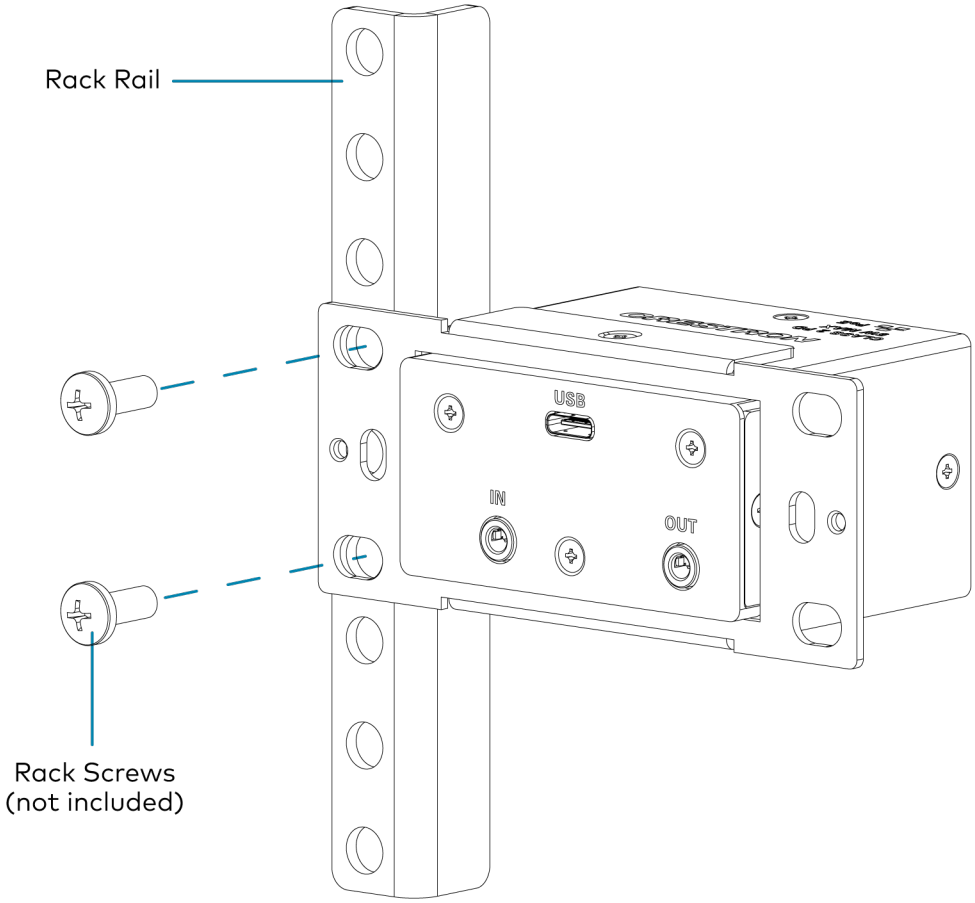
1. Remove the two screws from the top and bottom panels nearer to the front panel of the device using a Phillips screwdriver (not included).

2. Secure the included single gang electrical box adapter bracket to the top and bottom panels of the device using the included M3 flat head screws.



3. Position the wall plate horizontally so that the holes in the left or right mounting flange align with the holes in the rack rail.

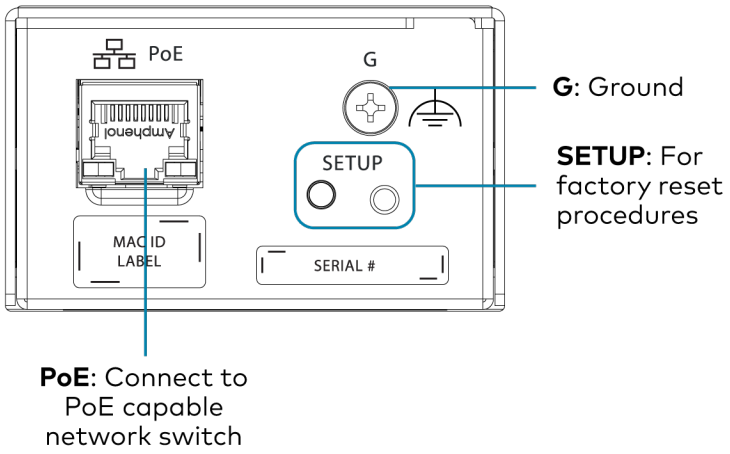
4. Secure the wall plate to the rack rail using two mounting screws (not included).



Connect the Device

Make connections to the front and rear panels of the DM-NAX-AUD-USB:

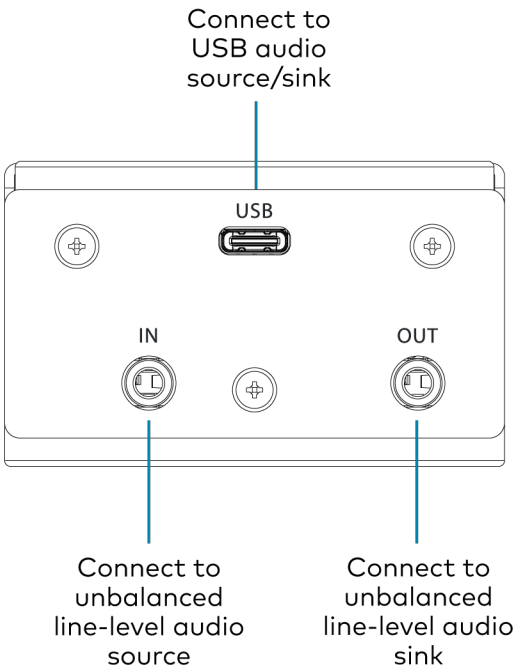
Rear Panel



> **NOTE: PoE** is a PoE powered device (PD) port. In order for the port to receive PoE, it must be connected to a PoE compliant Ethernet switch.

Connect a PoE capable network switch to the **PoE** port.

Front Panel



On the front panel:

- Connect a USB audio source to the **USB** port using a USB Type-C male connector.
- Connect an unbalanced line-level audio source to the **INPUT** TRS port.
- Connect an unbalanced line-level audio sink device to the **OUTPUT** TRS port.

DM-NAX-BTIO-100-1G Installation

Refer to the following sections to install the DM-NAX-BTIO-100-1G.

- In the Box on page 146
- Mount the Device on page 146
- Connect the Device on page 148

NOTE: The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) .

In the Box

Qty.	Description
1	DM-NAX-BTIO-100-1G

	Additional Items
1	Metal Mounting Bracket, Steel (2016054)
2	Screw, 06-32, 1/4 in., Pan Head, Phillips (2007218)
2	Screws, 6-32 x 3/4 in., Truss Head, Combo (2009211)

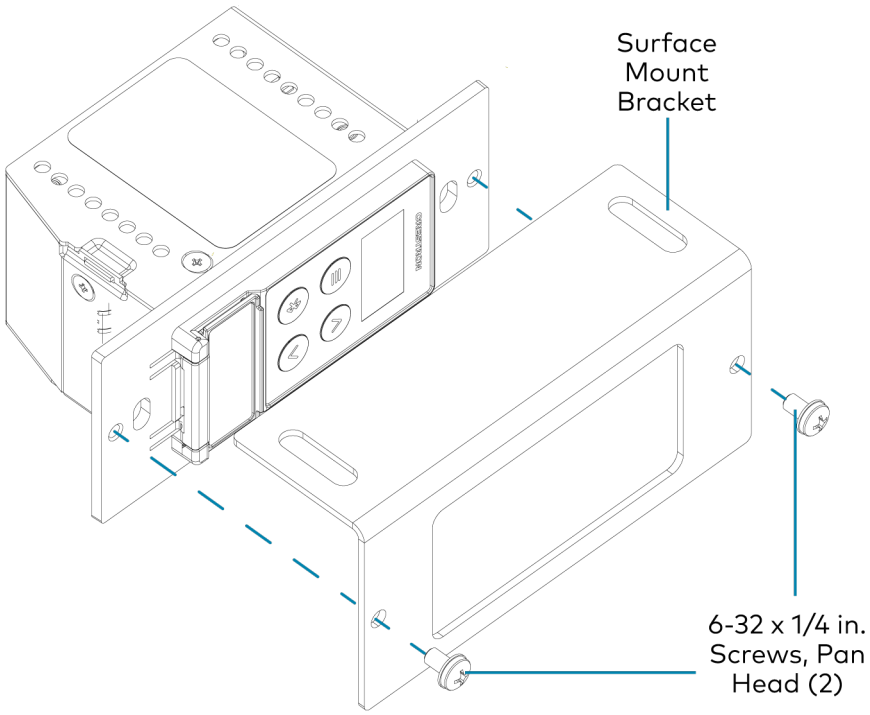
Mount the Device

The DM-NAX-BTIO-100-1G can be mounted under a table or into a 1-gang electrical box.

Mount under a Table

To mount the device under a table:

1. Align the included right angle surface mount bracket with the front panel of the device.
2. Attach the mounting bracket to the device using the two included 6-32 x 1/4 in. pan head screws and a Phillips screwdriver (not included).



3. Secure the device to the underside of a table using the appropriate mounting screws (not included).

Mount into a 1-Gang Electrical Box

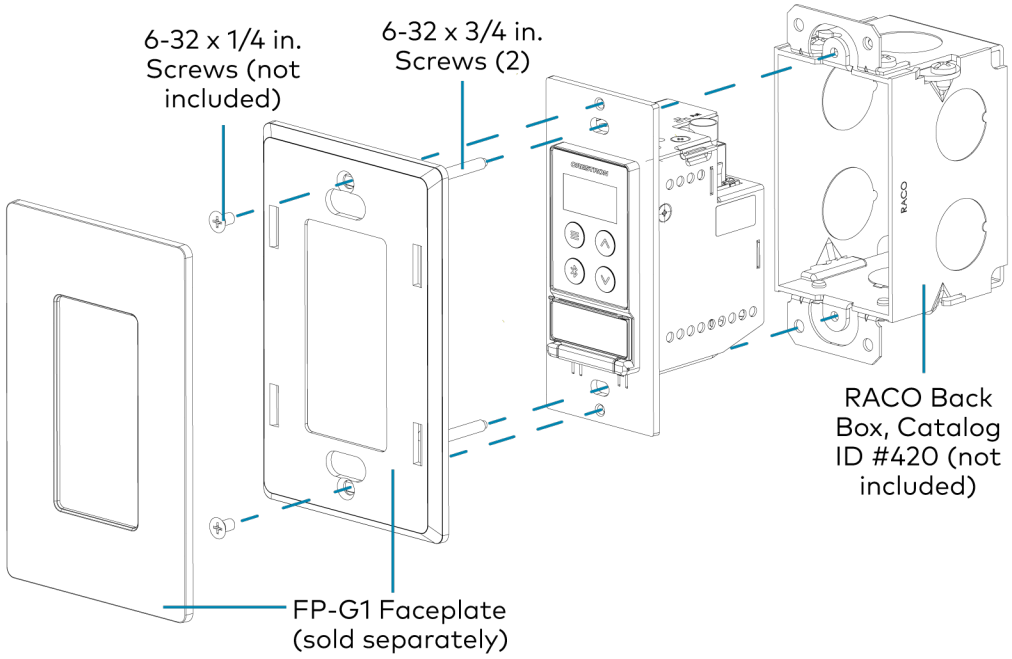
NOTES:

- The DM-NAX-BTIO-100-1G should only be mounted with a RACO® 3 x 2 x 2 in. gangable metal switch box with eight 0.5 in. knockouts and plaster ears (catalog ID #420). Alternative metal switch boxes should not be used as they may have incompatible knockout placements.
- For thermal performance reasons, fully enclosed plastic back boxes should not be used with the DM-NAX-BTIO-100-1G. In installations where an enclosed back box is not required, the DM-NAX-BTIO-100-1G can be installed into most single gang metal or plastic mud rings.
- Connector boots should not be used on CAT5e (or greater) cables connected to the DM-NAX-BTIO-100-1G to avoid bend radius issues.

To mount the wall plate into a 1-gang electrical box:

1. Attach the wall plate to the electrical box using the two included 6-32 x 3/4 in. truss head screws and Phillips screwdriver (not included).

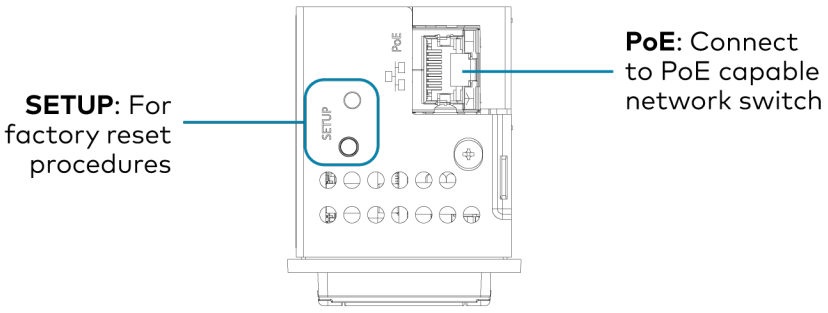
2. Attach a FP-G1 decorator style faceplate (sold separately) to the wall plate using two 6-32 x 1/4 in., flat head screws (not included).



Connect the Device

Make connections to the front and top panels of the DM-NAX-BTIO-100-1G:

Top Panel



> **NOTE: PoE** is a PoE powered device (PD) port. In order for the port to receive PoE, it must be connected to a PoE compliant Ethernet switch.

Connect a PoE capable network switch to the **PoE** port.

On the front panel:

- Connect an unbalanced line-level audio input to the **INPUT** TRS port.
- Connect an unbalanced line-level audio output to the **OUTPUT** TRS port.

DM-NAX-XSP Installation

Refer to the following sections to install the DM-NAX-XSP.

- In the Box on page 151
- Install the Device on page 151
- Connect the Device on page 156
- Observe the LED Indicators on page 157

In the Box

Qty.	Description
1	DM-NAX-XSP
	Additional Items
2	Room Box Mounting Bracket (2057072)
4	Screw, 04-40 x 1/4 in. Pan Head, Philips (2007158)
4	Screw, 06-32 x 3/4 in. Steel, Truss (2009211)
4	Wall Anchor
2	Connector, 2-Pin (2003574)
1	Connector, 3-Pin (2003575)
1	Connector, 4-Pin (2003576)
4	Washer, Flat, Steel (2007644)

Install the Device

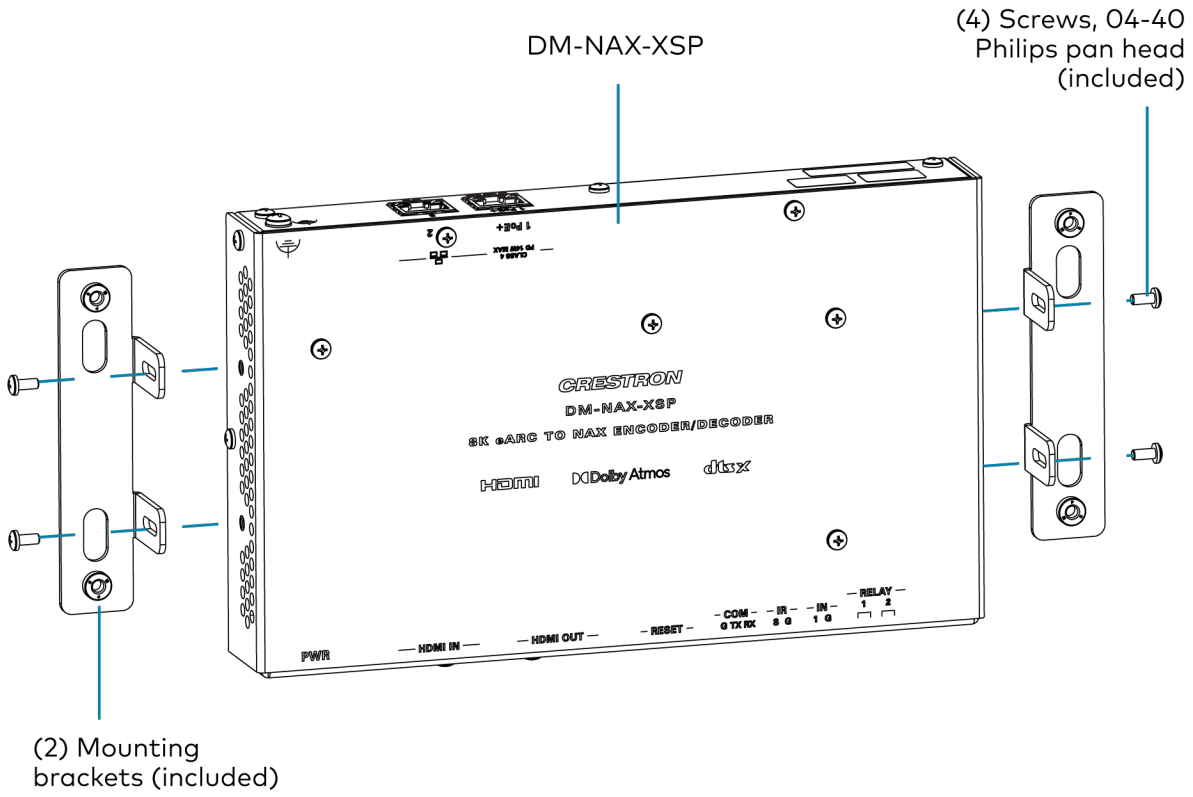
Refer to the Safety Instructions prior to installation.

The device can be mounted to a wall, under a table, or installed on a single rack rail.

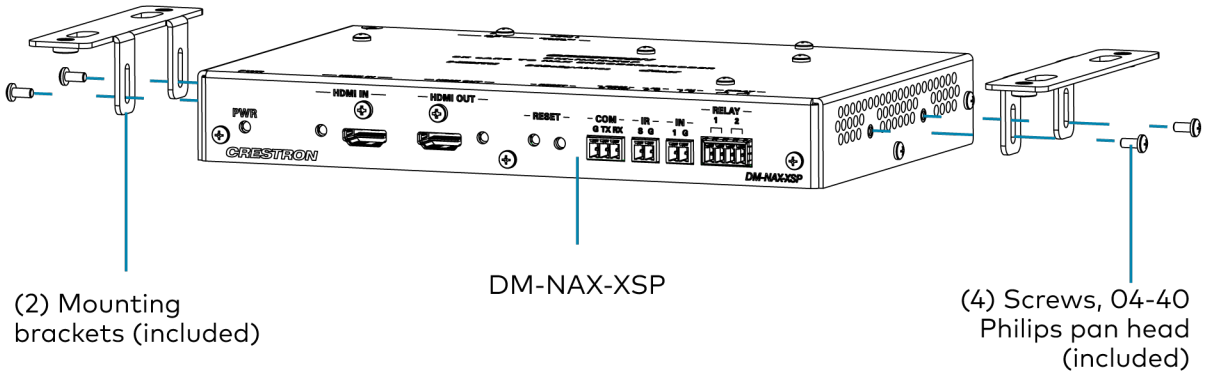
Connect the Mounting Brackets

Attach the two included mounting brackets to the device using the four included 4-40 x 1/4 in. Phillips pan head screws and a Phillips screwdriver (not included).

- If mounting the device to a wall or a rack rail, orient the mounting brackets to be flush with the bottom face of the DM-NAX-XSP.

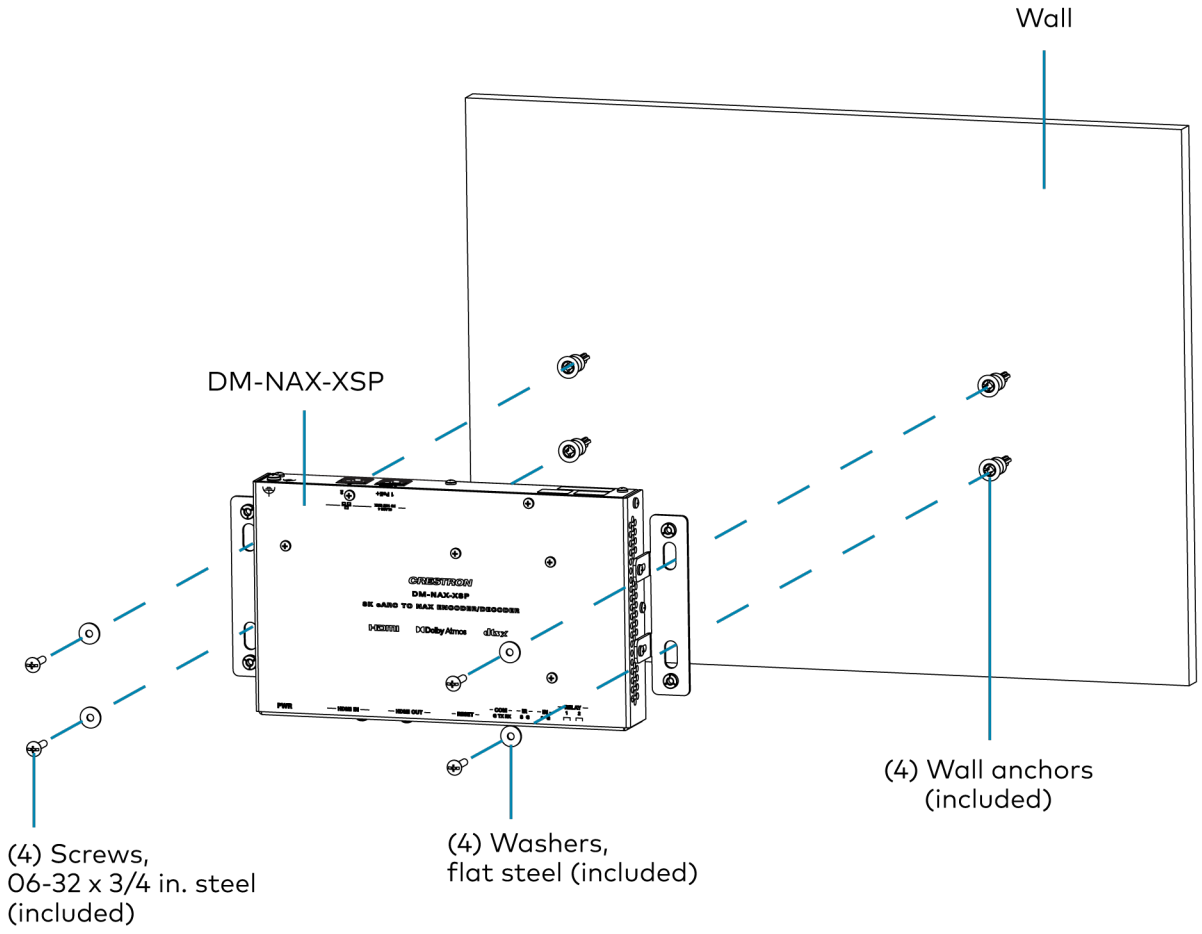


- If mounting the device under a table, orient the mounting brackets to be flush with the top face of the DM-NAX-XSP.



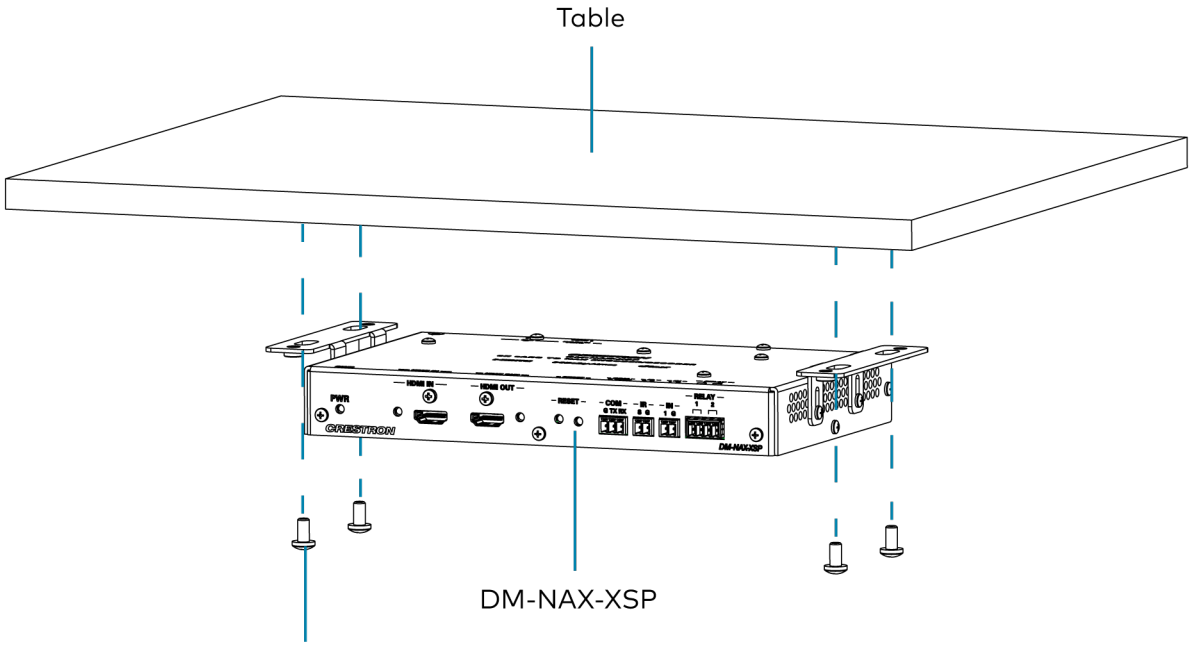
Mount to a Wall

To mount the device to a wall, use the four included sets of wall anchors, washers, and 6-32 x 3/4 in. Philips pan head screws.



Mount under a Table

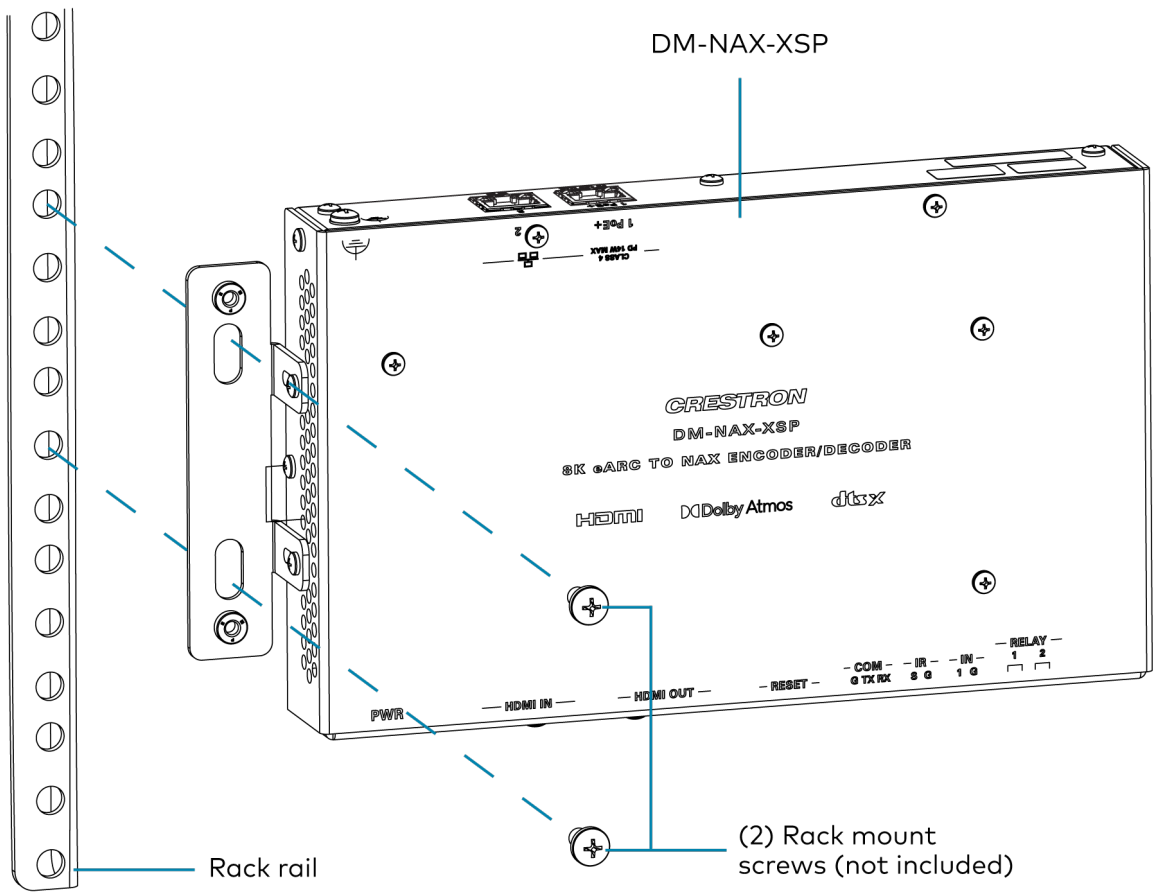
To mount the device under a table, use four 10-32 Philips pan head wood screws (not included).


Table
DM-NAX-XSP
(4) 10-32 wood
screws (not included)

Install on a Rack Rail

To mount the device onto a front or rear rack rail:

1. Position one of the mounting brackets so that the holes align with the holes in the rack rail.
2. Secure the device to the rack rail using two 10-32 Philips pan head rack mount screws (not included).



NOTE: Observe the following rack mount installation guidelines.

Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

Reduced Airflow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

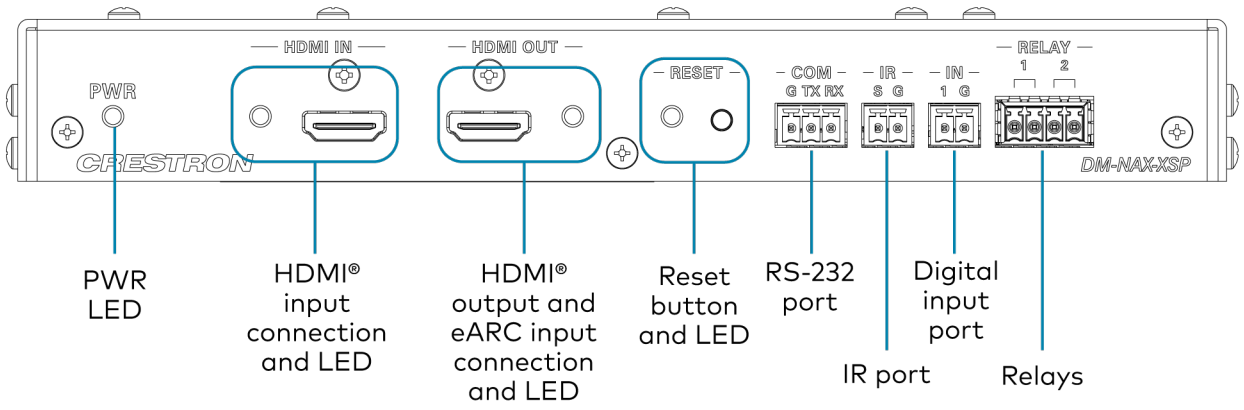
Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

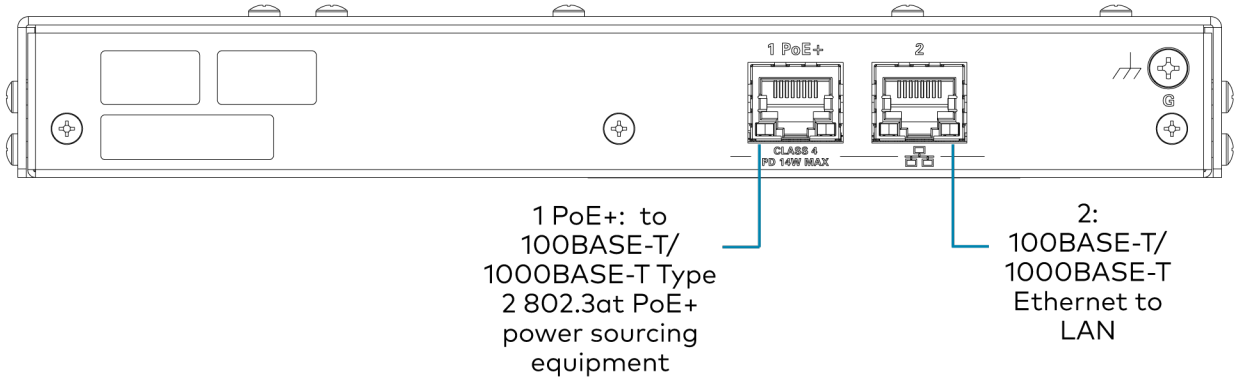
Connect the Device

Make the necessary connections as called out in the following illustrations.

Front Panel



Rear Panel



Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	The device is starting.
	Green	The device is powered on and fully booted.
	Off	The device is not connected to power.
HDMI IN	Green	HDMI sync is detected with the source connected to the **HDMI IN** connector.
	Off	No HDMI sync is detected at **HDMI IN**.
HDMI OUT	Green	HDMI sync is detected with the display connected to the **HDMI OUT** connector.
	Off	No HDMI sync is detected at **HDMI OUT**.
RESET	Solid Red	The **RESET** button is pressed.
	Blinking Red	A network reset or factory restore has been initiated via the adjacent **RESET** button.

Configuration

The following products can be configured:

- DM-NAX-2XLRI-1G on page 159
- DM-NAX-4ZSA-50 on page 220
- DM-NAX-4ZSP on page 284
- DM-NAX-8ZSA on page 349
- DM-NAX-16AIN on page 419
- DM-NAX-AMP-X300 on page 449
- DM-NAX-AUD-IO on page 522
- DM-NAX-AUD-USB on page 589
- DM-NAX-BTIO-100-1G on page 656
- DM-NAX-XSP on page 733

DM-NAX-2XLRI-1G

This section describes how to configure the DM-NAX-2XLRI-1G.

Web Interface Configuration

The DM-NAX-2XLRI-1G web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 160
- Access the Web Interface With Crestron Toolbox™ Software on page 162

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

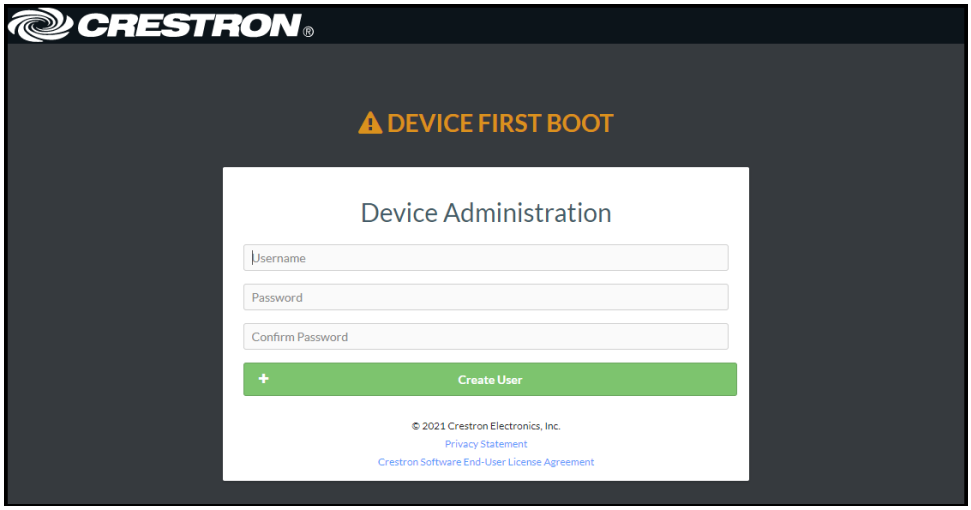
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

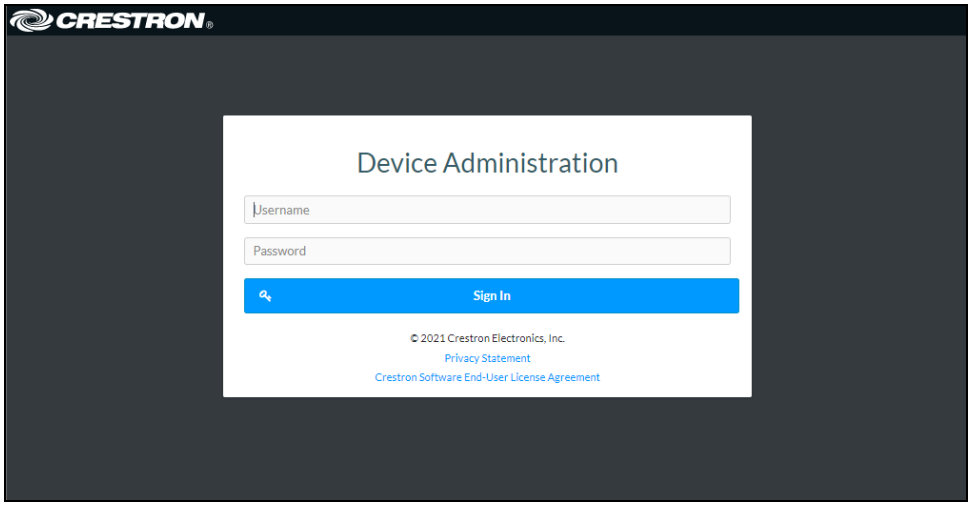
1. Enter the IP address of the DM-NAX-2XLRI-1G into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser from Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-2XLRI-1G is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

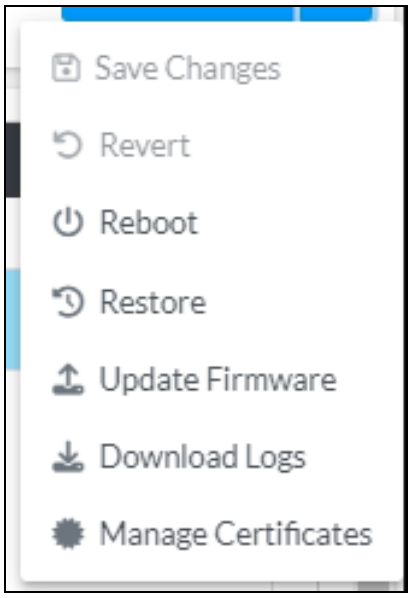
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 163
- Revert on page 163
- Reboot on page 164
- Restore to Factory Default Settings on page 164
- Update Firmware on page 165
- Download Logs on page 165
- Manage Certificates on page 165



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

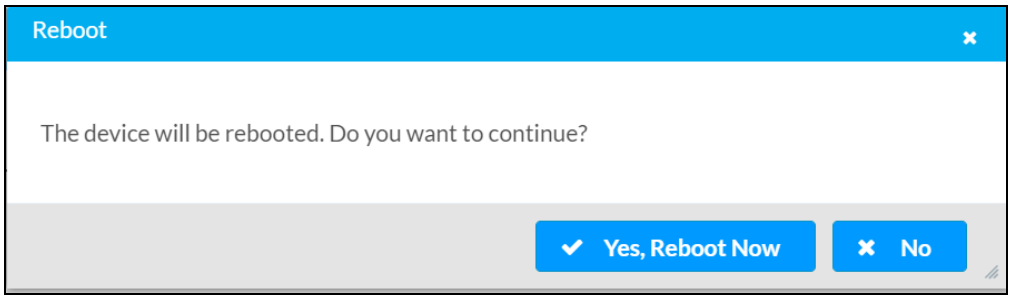
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-2XLRI-1G to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



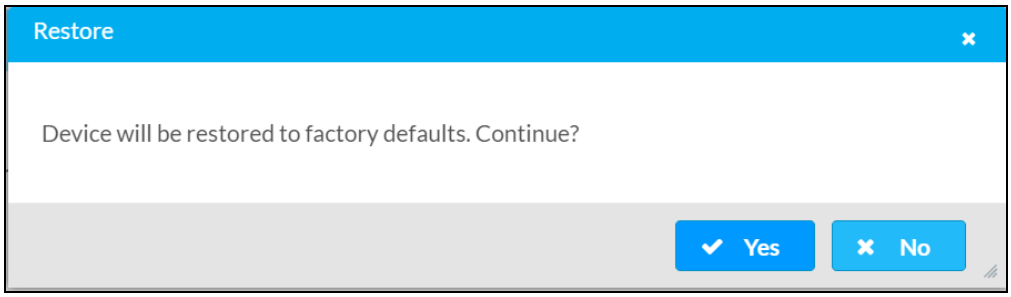
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-2XLRI-1G to factory defaults.

   NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



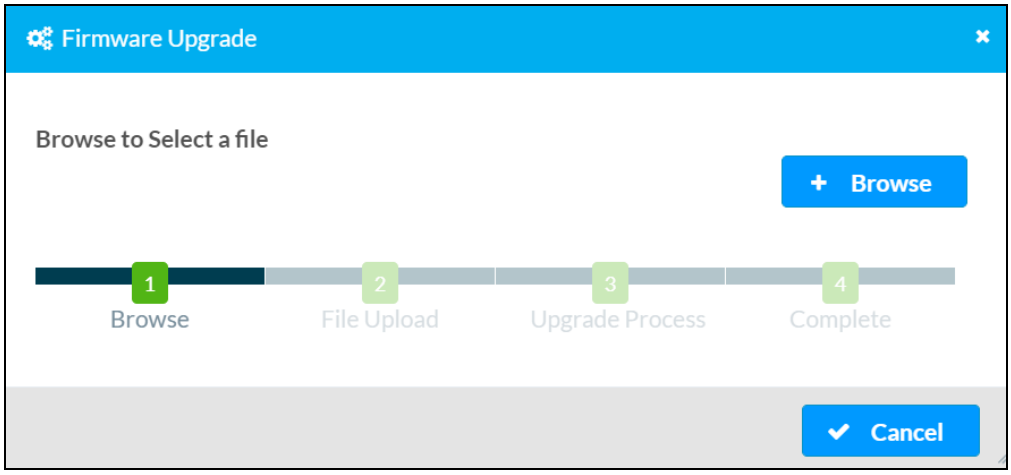
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-2XLRI-1G to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

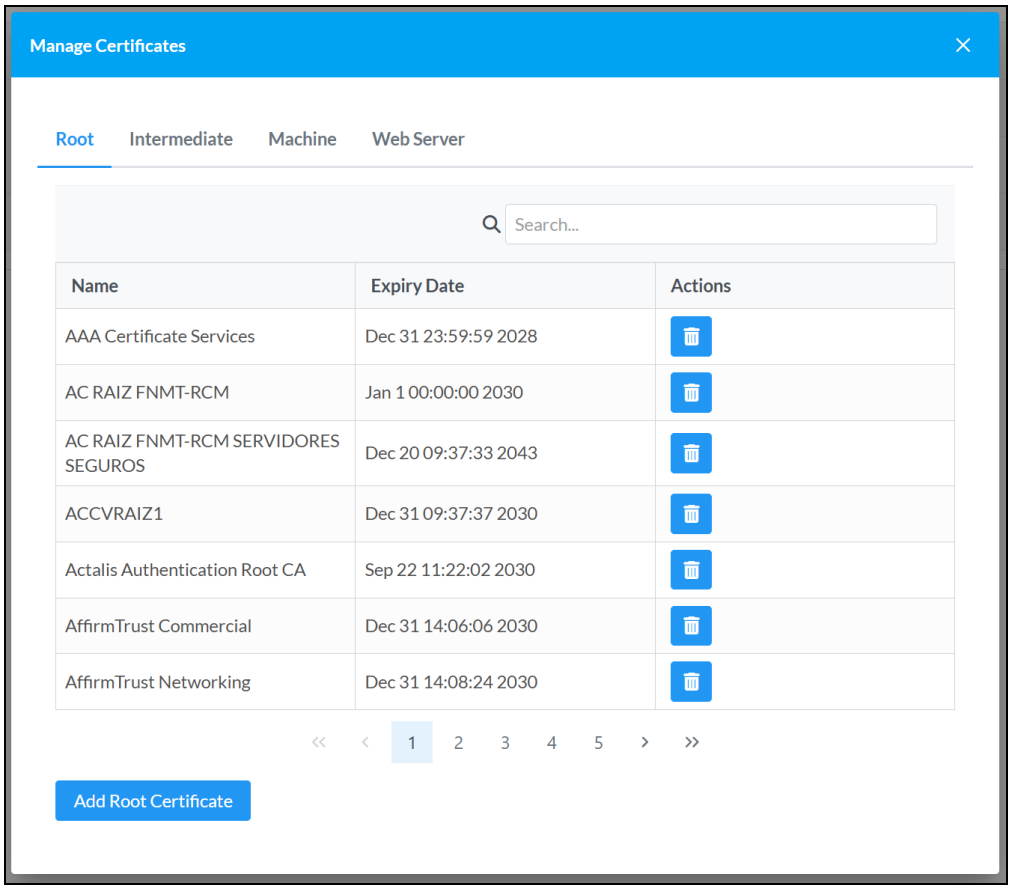
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-2XLRI-1G to validate the network's authentication server. The DM-NAX-2XLRI-1G has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-2XLRI-1G. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

> **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

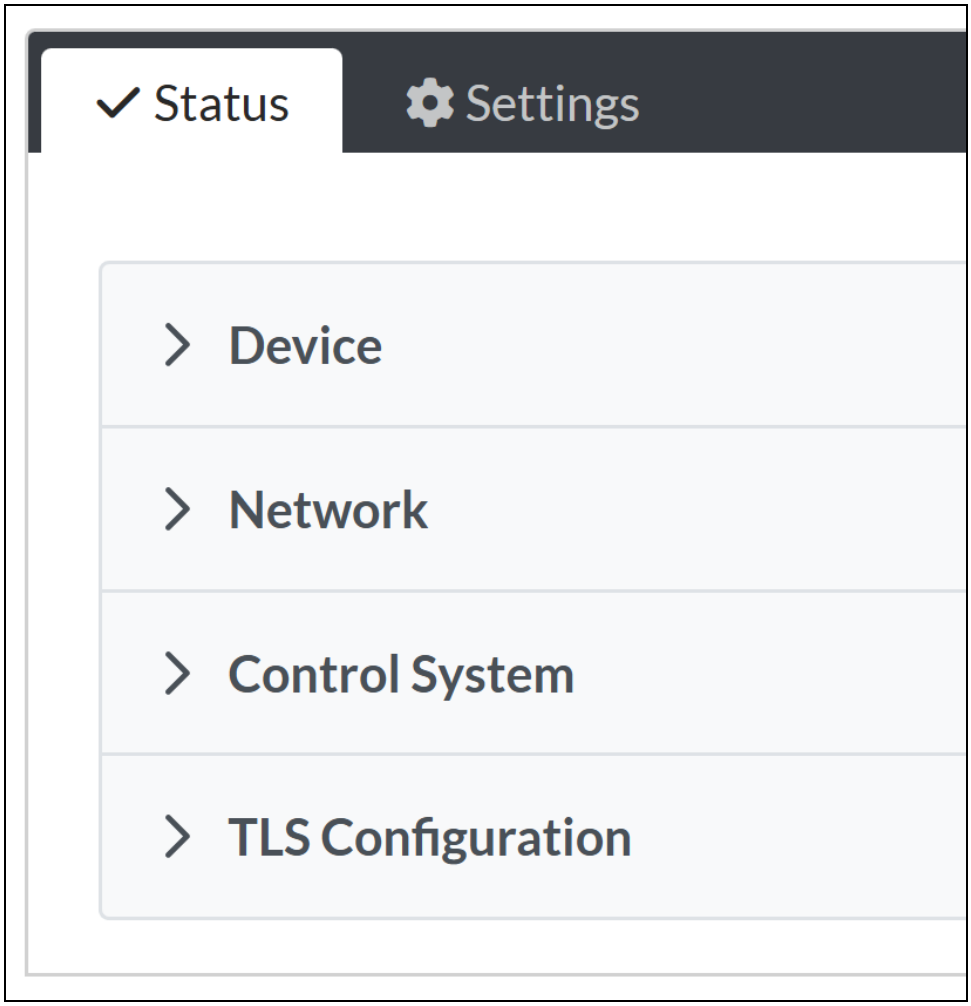
To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-2XLRI-1G. It displays general information about the DM-NAX-2XLRI-1G (such as Model Name, Firmware Version, and Serial Number), current network settings (such as Host Name and IP Address, etc.), and input and output ports' current status.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-2XLRI-1G web interface.



Information displayed on the **Status** tab is organized into different collapsible accordions:

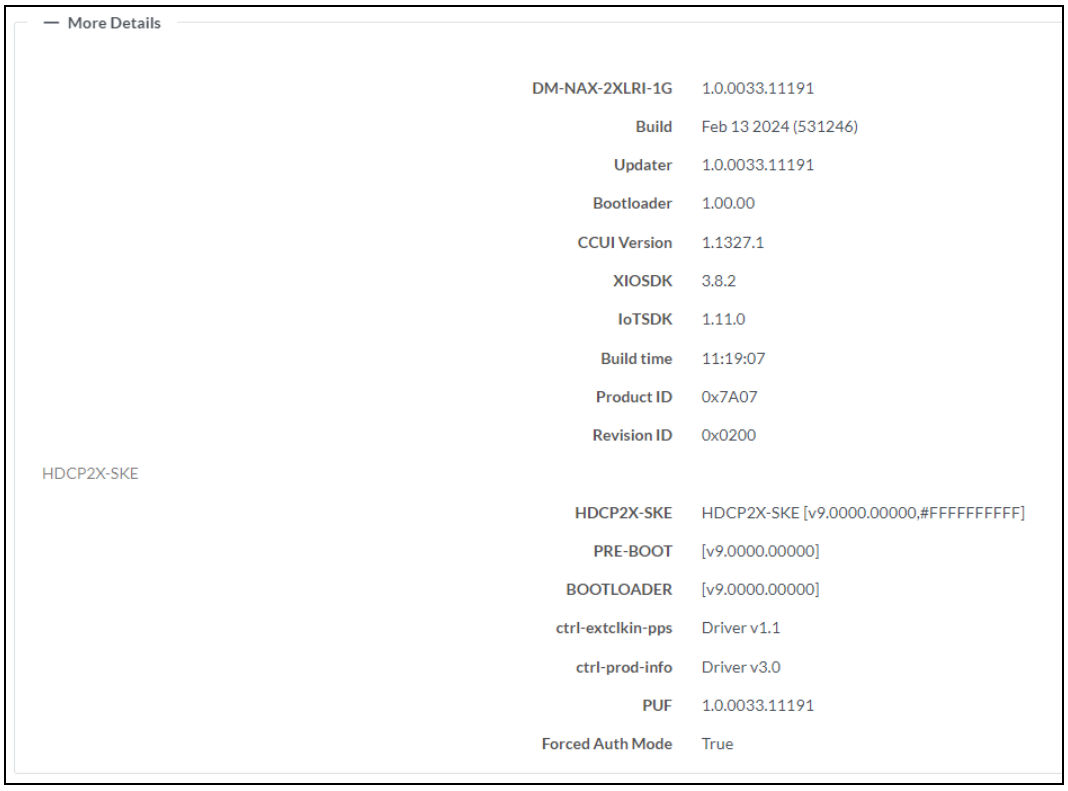
- Device on page 169
- Network on page 169
- Control System on page 170
- TLS Configuration on page 170

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-2XLRI-1G.

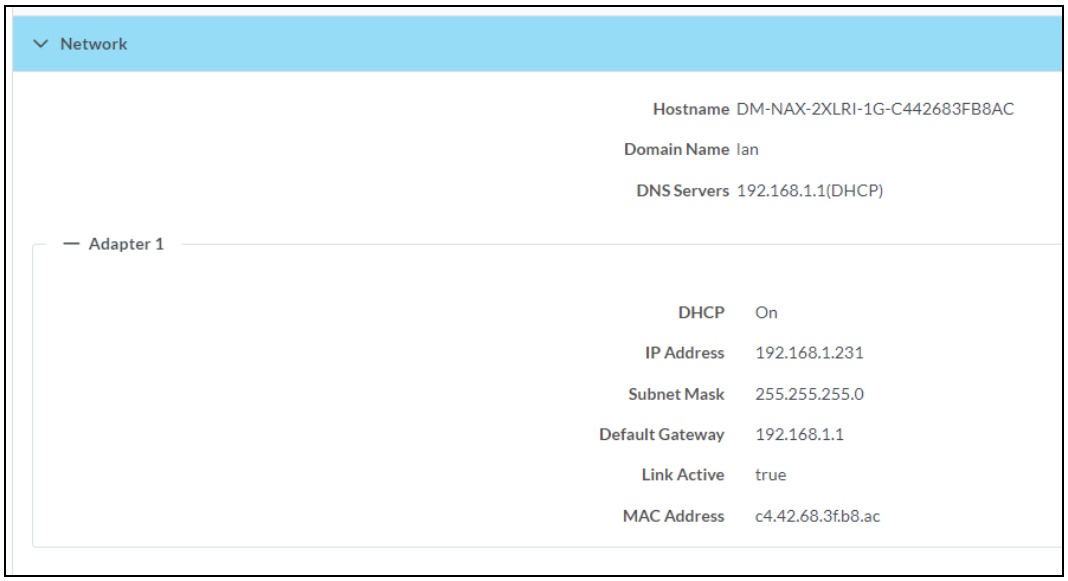


Select **+ More Details** to review additional information about the DM-NAX-2XLRI-1G.



Network

The **Network** section displays network-related information about the DM-NAX-2XLRI-1G, including the **Hostname**, **Domain Name**, and **DNS Servers**.

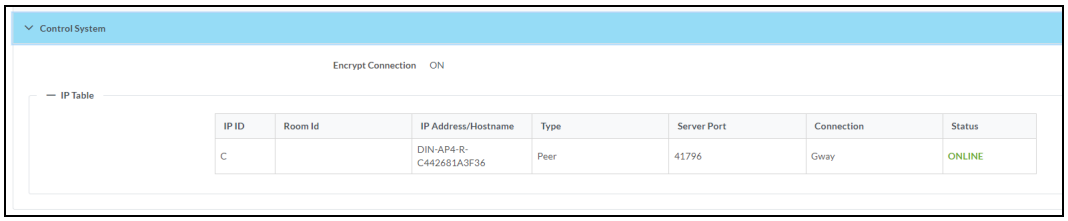


NOTE: By default, the host name of the DM-NAX-2XLRI-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-2XLRI-1G-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** to collapse the section.

Control System

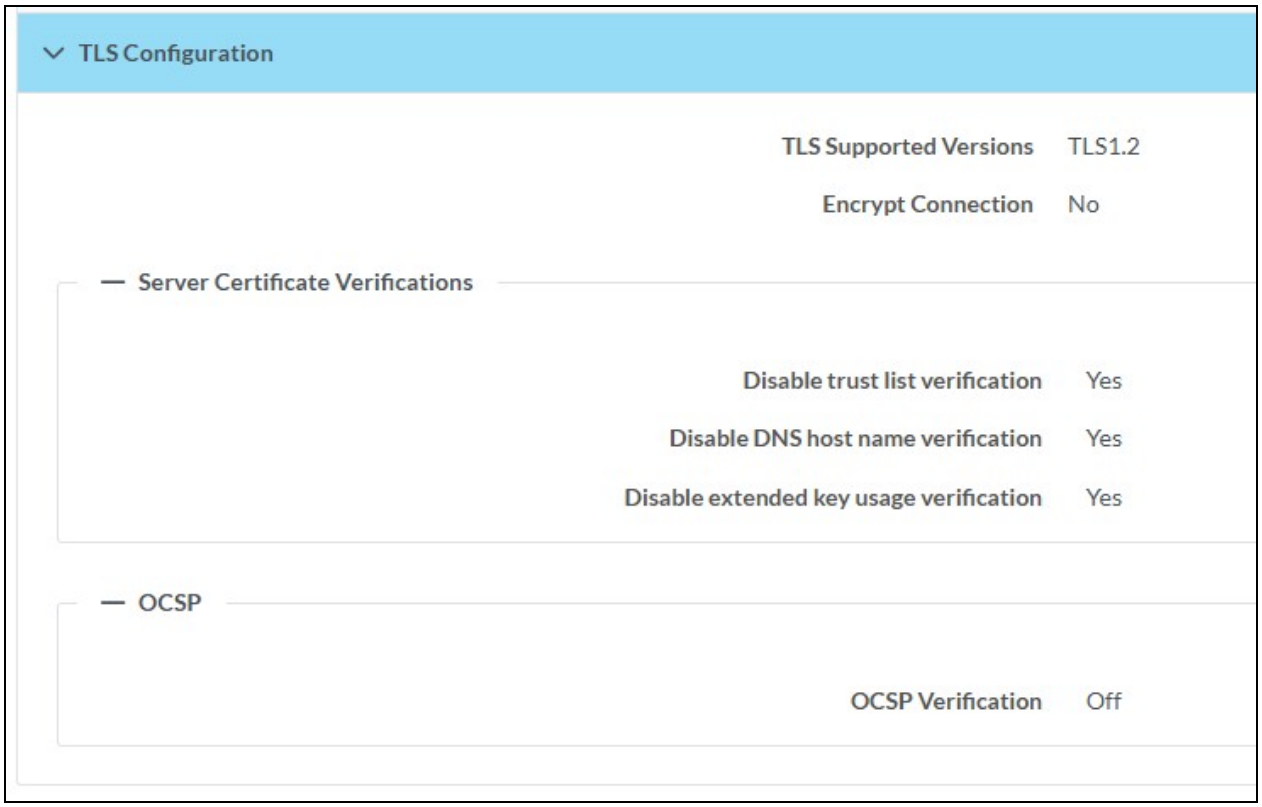
The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-2XLRI-1G.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE**.

TLS Configuration

The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-2XLRI-1G.



TLS settings can be adjusted in the **Settings** tab under the **System Setup** and **TLS Configuration** accordions. Depending on the device mode of the DM-NAX-2XLRI-1G, refer to either Commercial Mode on page 173 or Residential Mode on page 197 for information.

Settings

The **Settings** page enables configuration of the DM-NAX-2XLRI-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-2XLRI-1G web interface.

Many options in the **Settings** page are exclusive to a specific device mode: Residential or Commercial. The DM-NAX-2XLRI-1G is in Commercial mode by default.

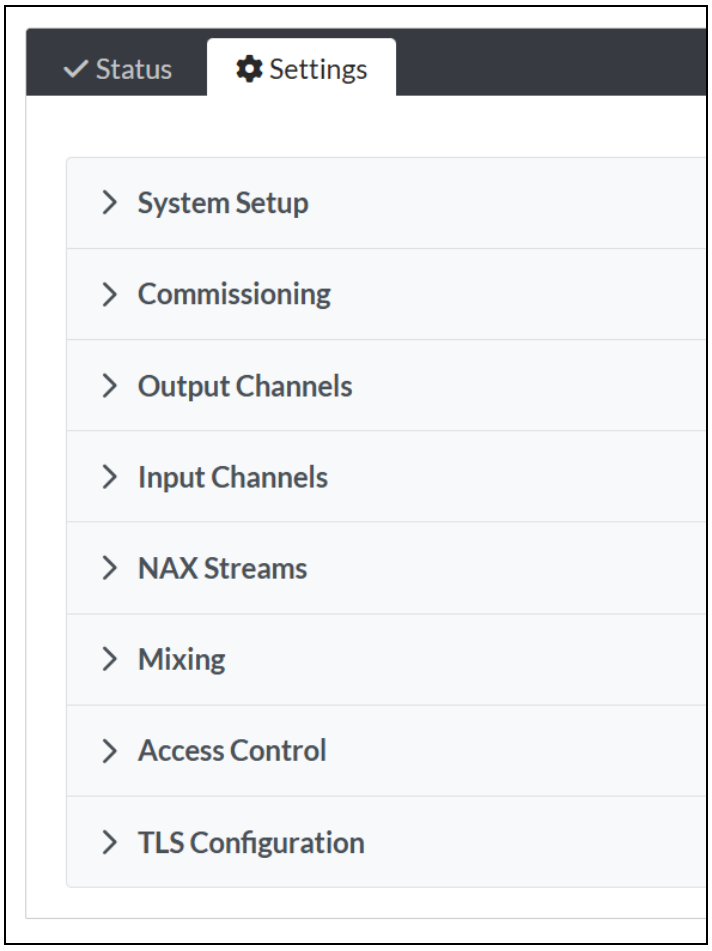
This section provides the following information:

- Commercial Mode on page 173
- Residential Mode on page 197

Commercial Mode

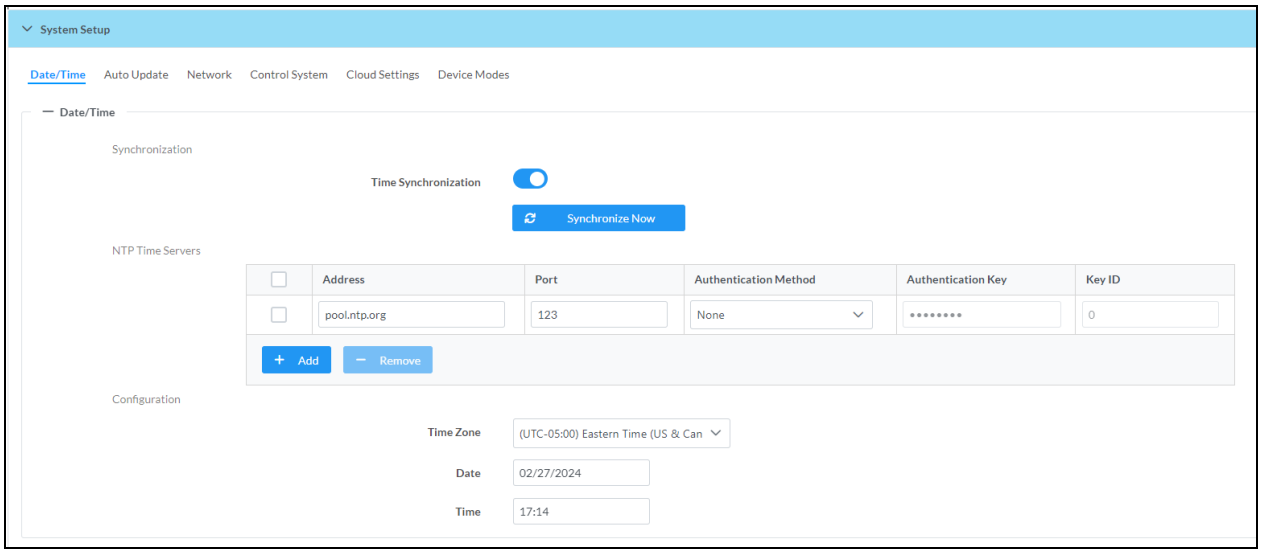
The **Settings** page enables you to configure the DM-NAX-2XLRI-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-2XLRI-1G web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 173
- Commissioning on page 179
- Output Channels on page 180
- Input Channels on page 183
- DM NAX Streams on page 186
- Mixing on page 189
- Access Control on page 190
- TLS Configuration on page 195



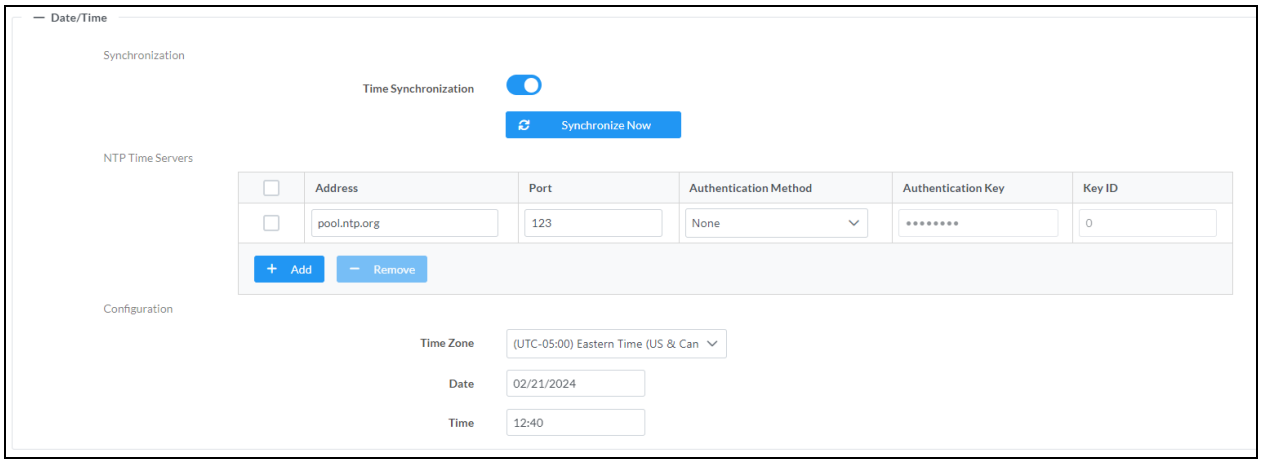
System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.



Date/Time

Use the **Date/Time** tab to configure the date and time settings of the DM-NAX-2XLRI-1G.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

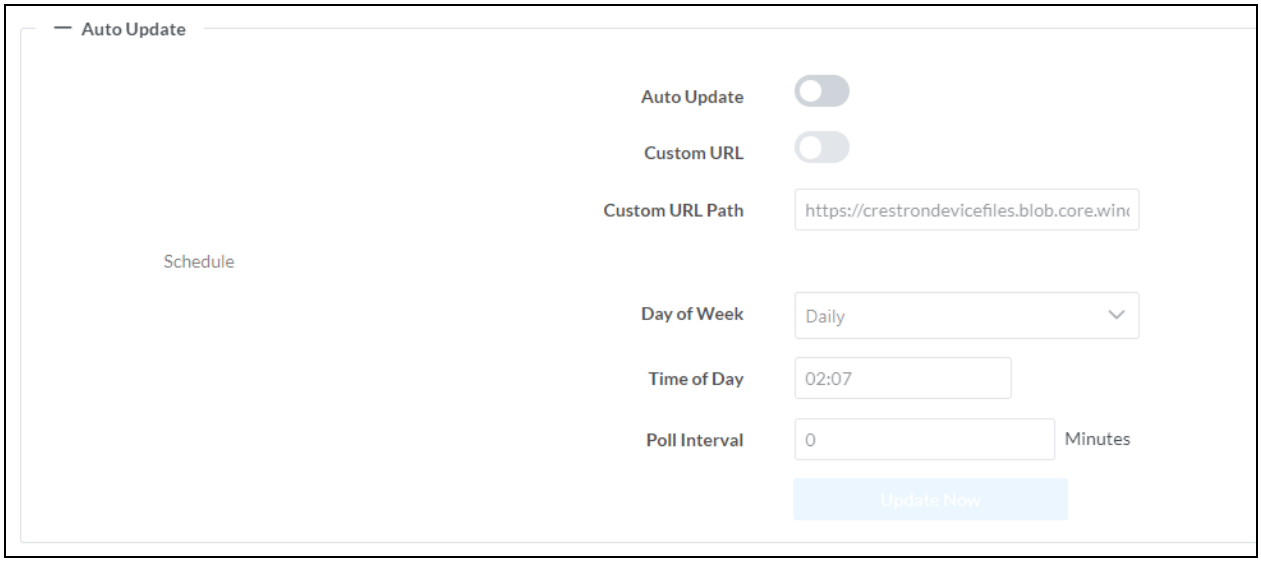
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-2XLRI-1G can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

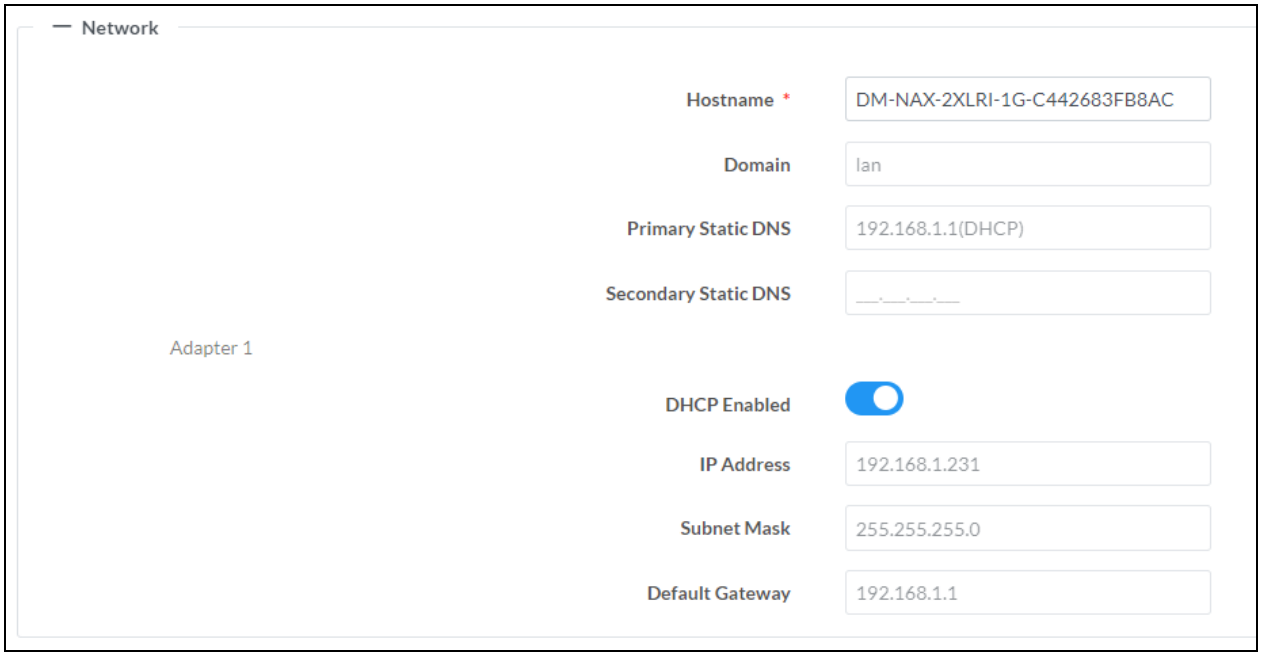


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** tab contains network-related settings for the DM-NAX-2XLRI-1G, including the Hostname, Domain, Primary Static DNS, and Secondary Static DNS.



NOTE: By default, the hostname of the DM-NAX-2XLRI-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-2XLRI-1G-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

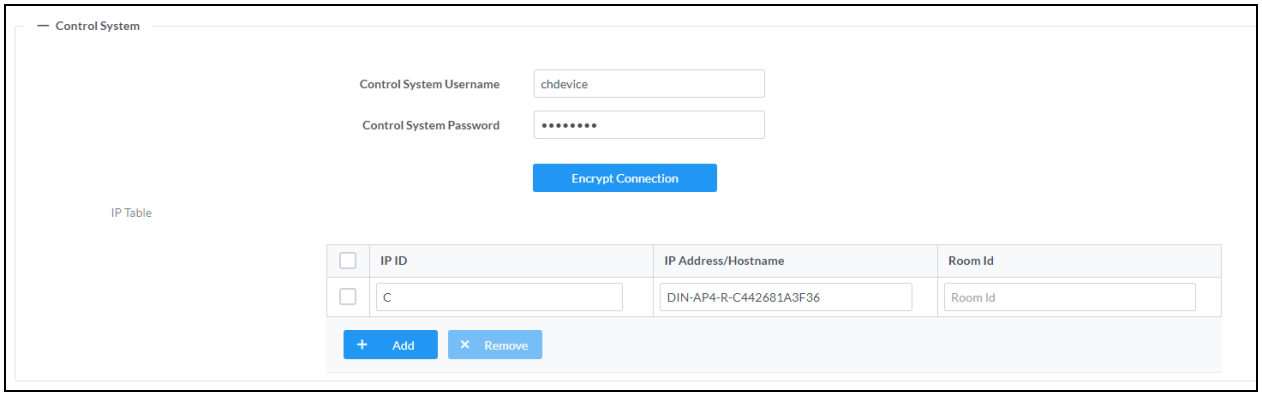
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-2XLRI-1G is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-2XLRI-1G is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-2XLRI-1G.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

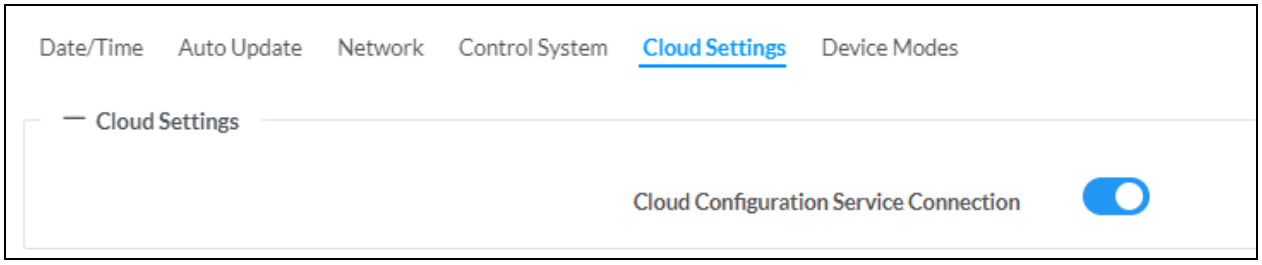
To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
   a. Enter the username in the **Control System Username** field.
   b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
   a. Enter the Room ID in the **Room ID** field.
   b. Enter the IP ID of the DM-NAX-2XLRI-1G in the **IP ID** field.
   c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

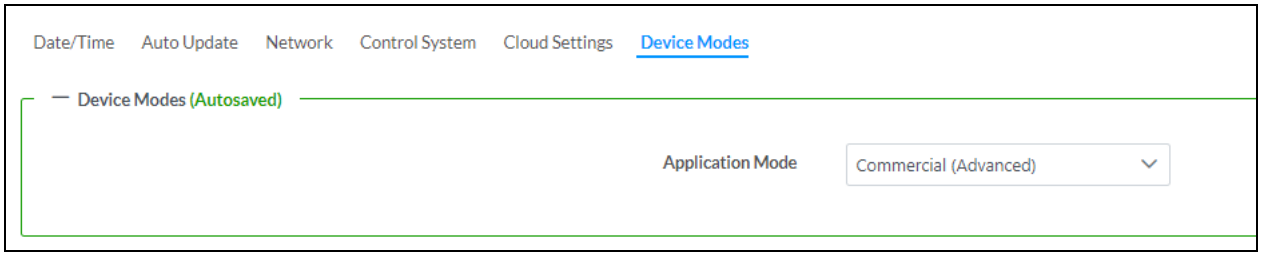
Cloud Settings



Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-2XLRI-1G can communicate with the XiO Cloud® platform.

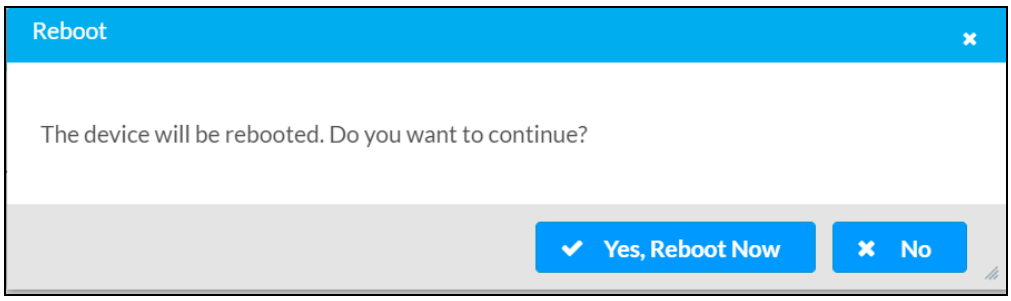
Device Modes

Use the **Device Modes** tab to configure the **Application Mode** of the DM-NAX-2XLRI-1G.



Application Mode determines which options and controls are available.

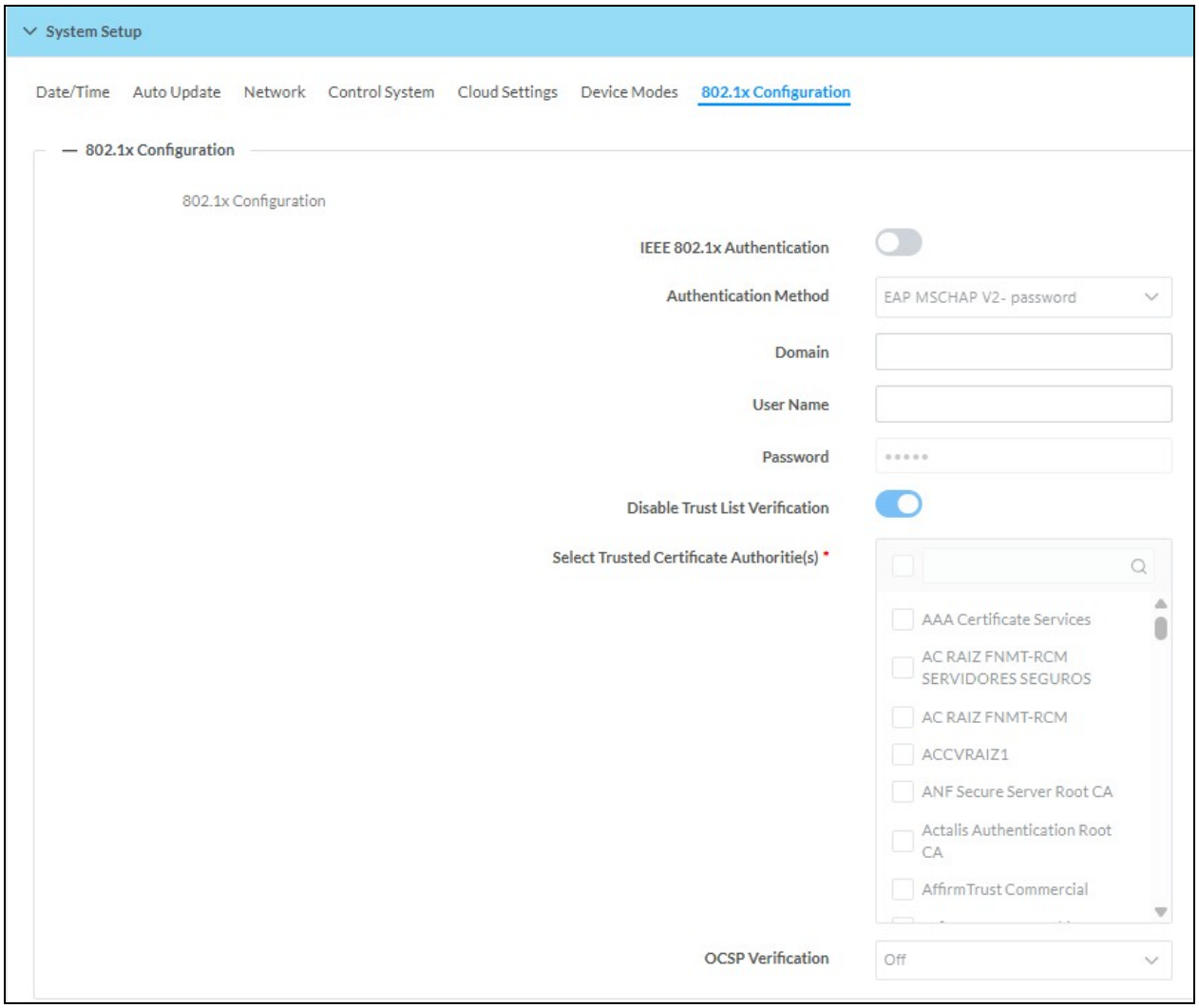
- Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



- Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
- Wait for the device restart to complete before attempting to reconnect to the device.

By default, the DM-NAX-2XLRI-1G is set to **Commercial (Advanced)** mode.

802.1X Configuration



The DM-NAX-2XLRI-1G has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-2XLRI-1G:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.
4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

    The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-2XLRI-1G. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

    If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

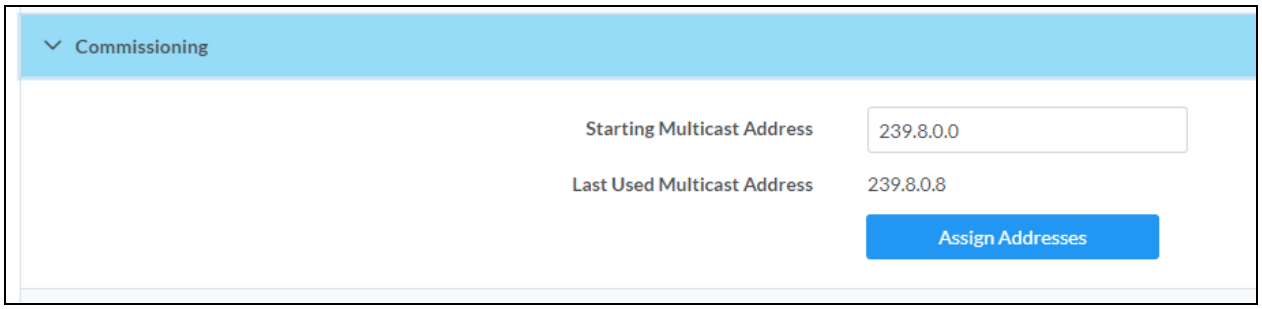
    When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

    > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

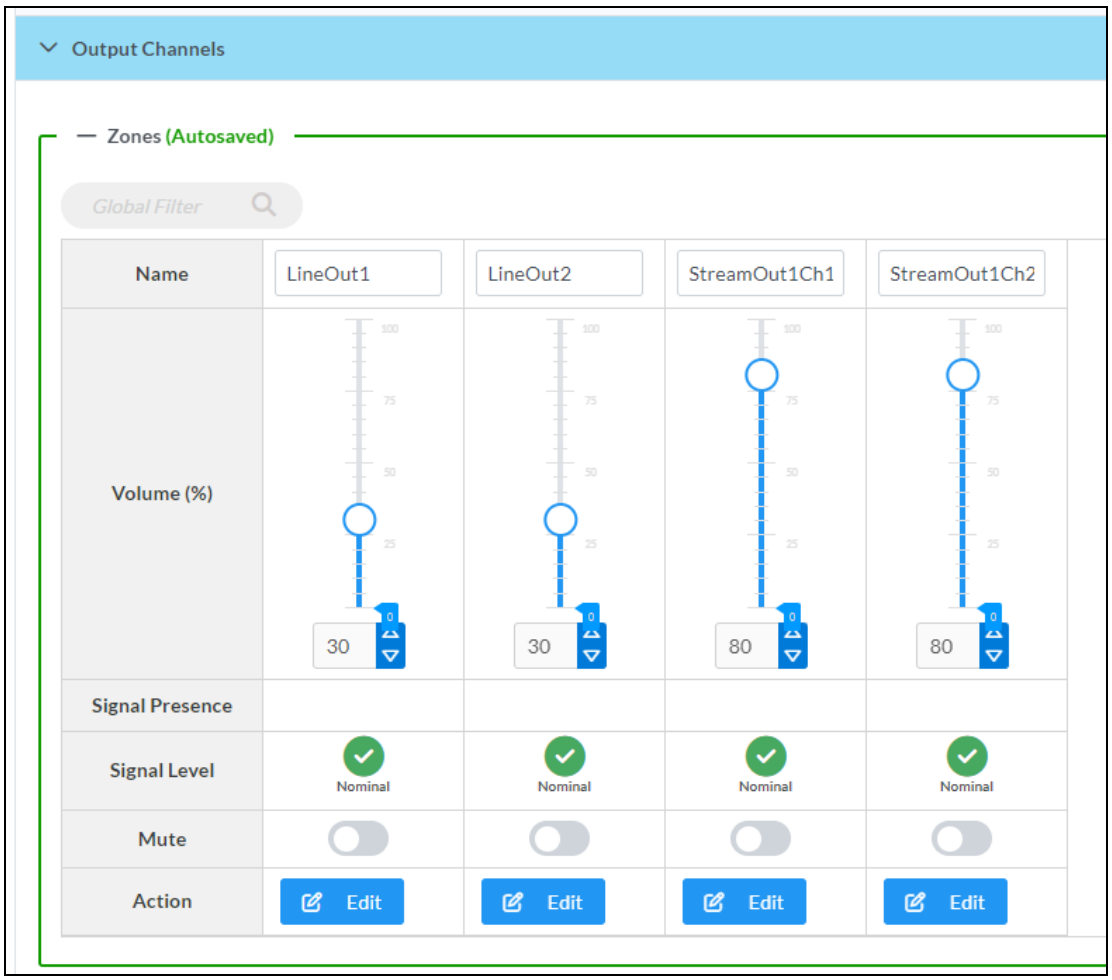


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-2XLRI-1G a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Output Channels

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as an **Edit** option for more advanced settings within each zone.



Signal Presence indicates whether or not an audio signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- **Nominal**: The signal level is within normal operating bounds and below the clipping threshold.
- **Clipping**: The signal level is clipping or above the -3 dB warning threshold and in danger of clipping.

Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider up to increase or down to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Select **Edit** to view additional **Zone** and **Output** options.

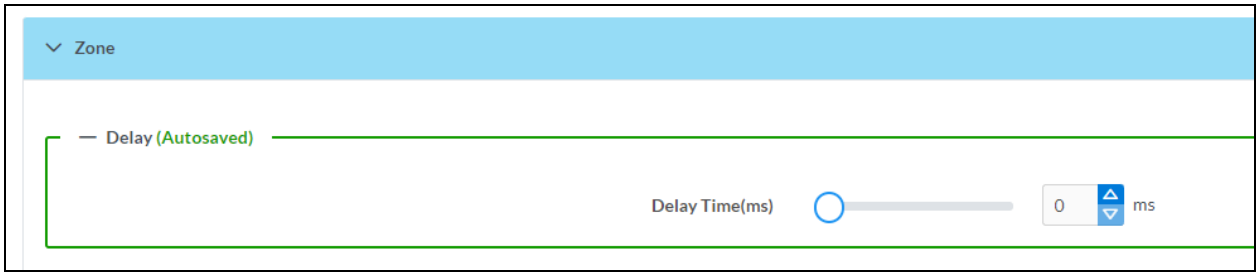
Zone Settings

To configure the settings for an output channel, select **Edit**. The **Edit Zone** window is displayed.



Zone

Select **Zone** to access the settings for **Delay**.



Delay

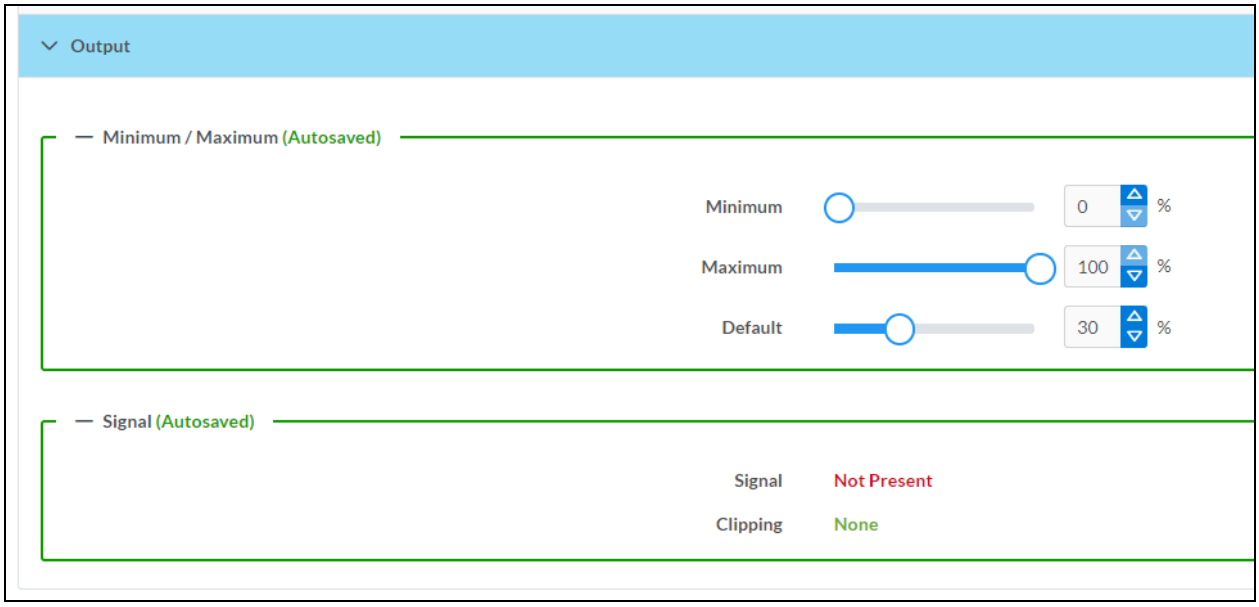
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

NOTE: The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume** and **Signal**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

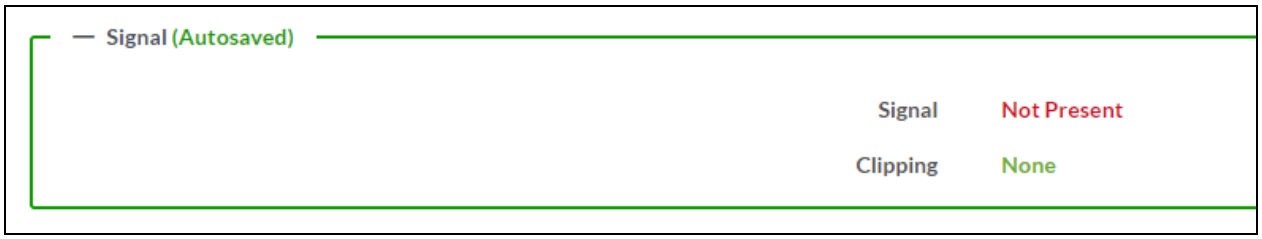
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

    > **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

    > **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Signal

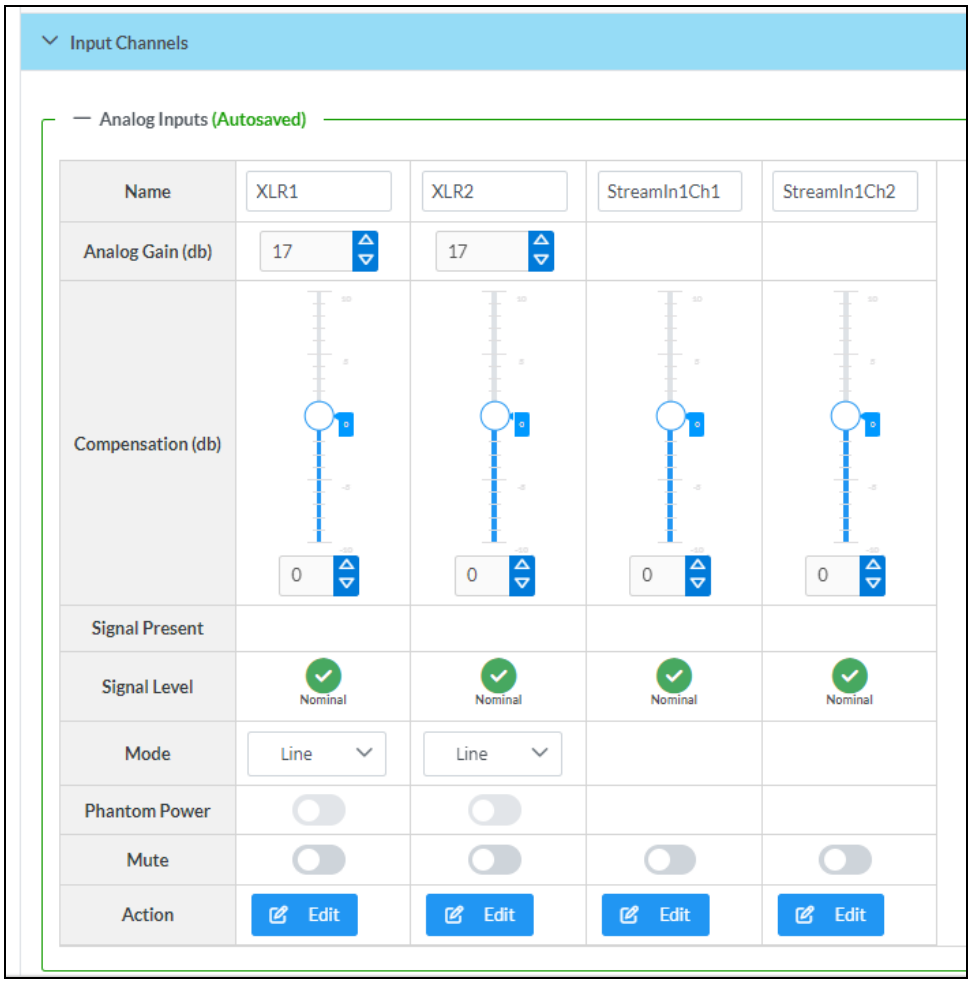


The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Input Channels

The **Input Channels** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the front panel XLR inputs on the DM-NAX-2XLRI-1G.



Configure Inputs

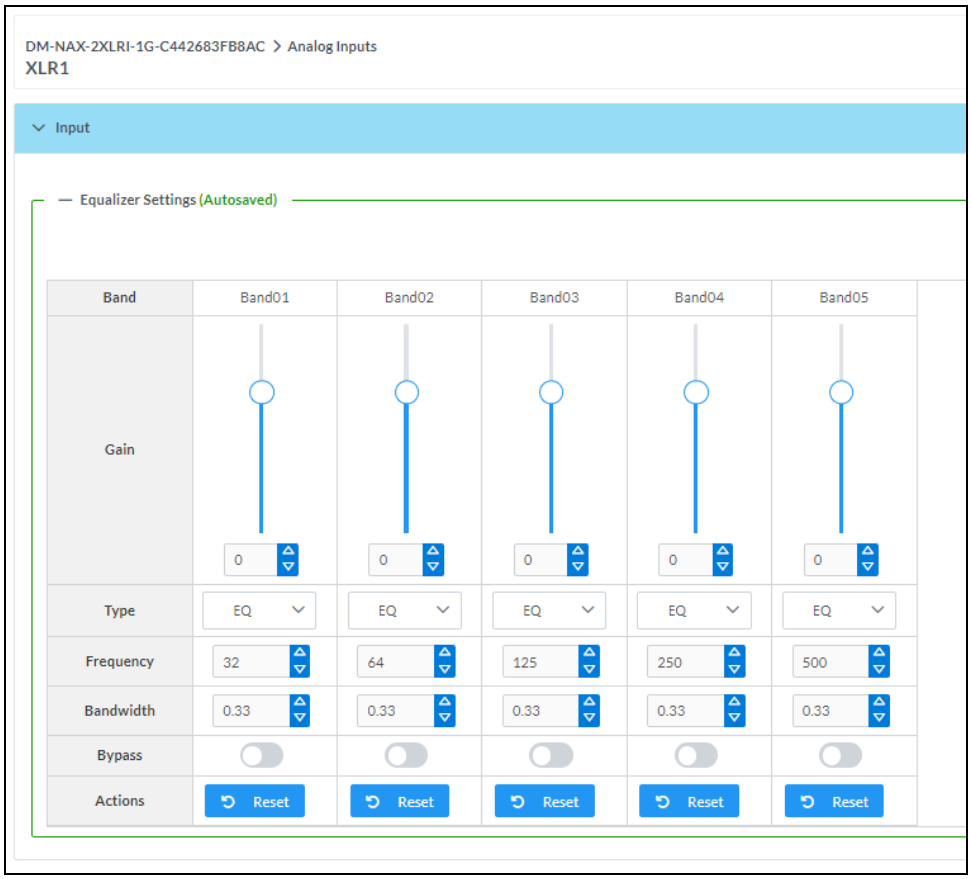
1. If needed, enter a friendly name for each input in its **Name** field.
2. To set an analog gain value for a given input, use the **db** arrows to increase or decrease the compensation. Values range from 0 dB to 60 dB, adjustable in increments of 1 dB.
3. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
4. To switch between microphone level and line level input signals, expand the **Mode** drop-down and select the desired input signal level. By default, the XLR inputs are both set to **Line** level.
5. Set a channel's **Phantom Power** toggle to the right position to enable +48V phantom power. Set the channel's **Phantom Power** toggle to the left to disable phantom power. By default, **Phantom Power** is disabled, and can only be enabled while the **Mode** of the channel is set to **Mic**.
6. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

Select **Edit** to open the equalizer for a given input channel.

Equalizer Settings



Each XLR input channel of the DM-NAX-2XLRI-1G has a dedicated five-band equalizer that can be fully customized to tune the input signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed.

To configure a given equalizer band:

1. To set a band's gain, do one of the following:
    - Move the **Gain** slider up to increase or down to decrease the gain.
    - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
    - Manually enter a value in the **Gain** field.

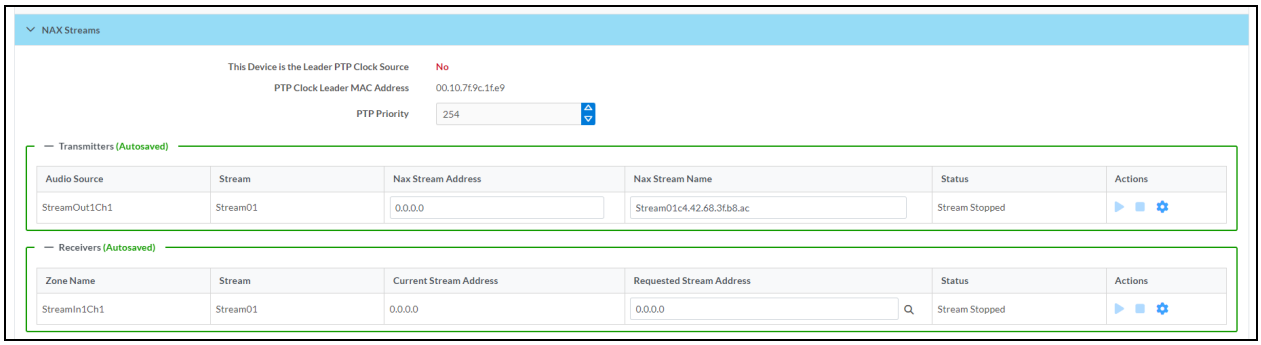
2. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
3. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
4. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
5. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
6. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

DM NAX Streams

The local inputs of the DM-NAX-2XLRI-1G can be made available as a DM NAX audio-over-IP stream. This single two channel stream will encode XLR input 1 as the left channel, and XLR input 2 as the right channel.

Select **NAX Streams** to expand the tab and display the following information.

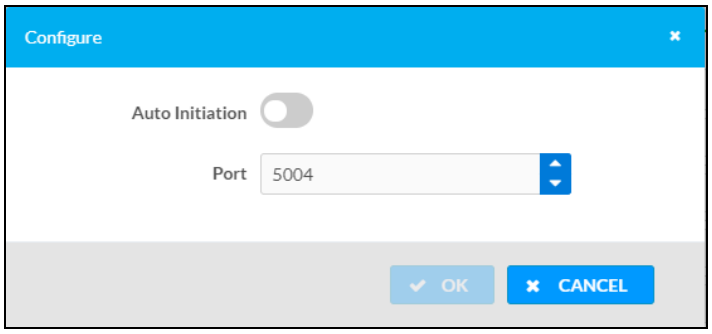


- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-2XLRI-1G's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-2XLRI-1G will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure the DM NAX transmit stream:

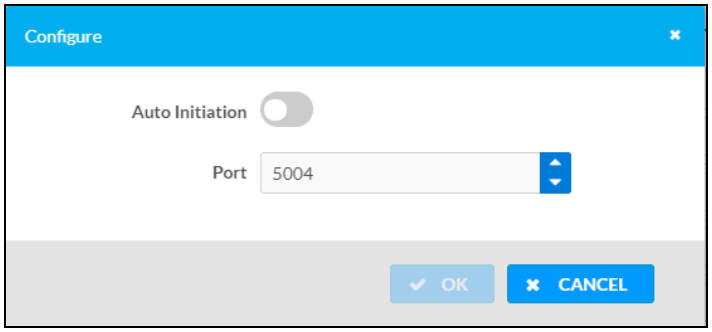
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



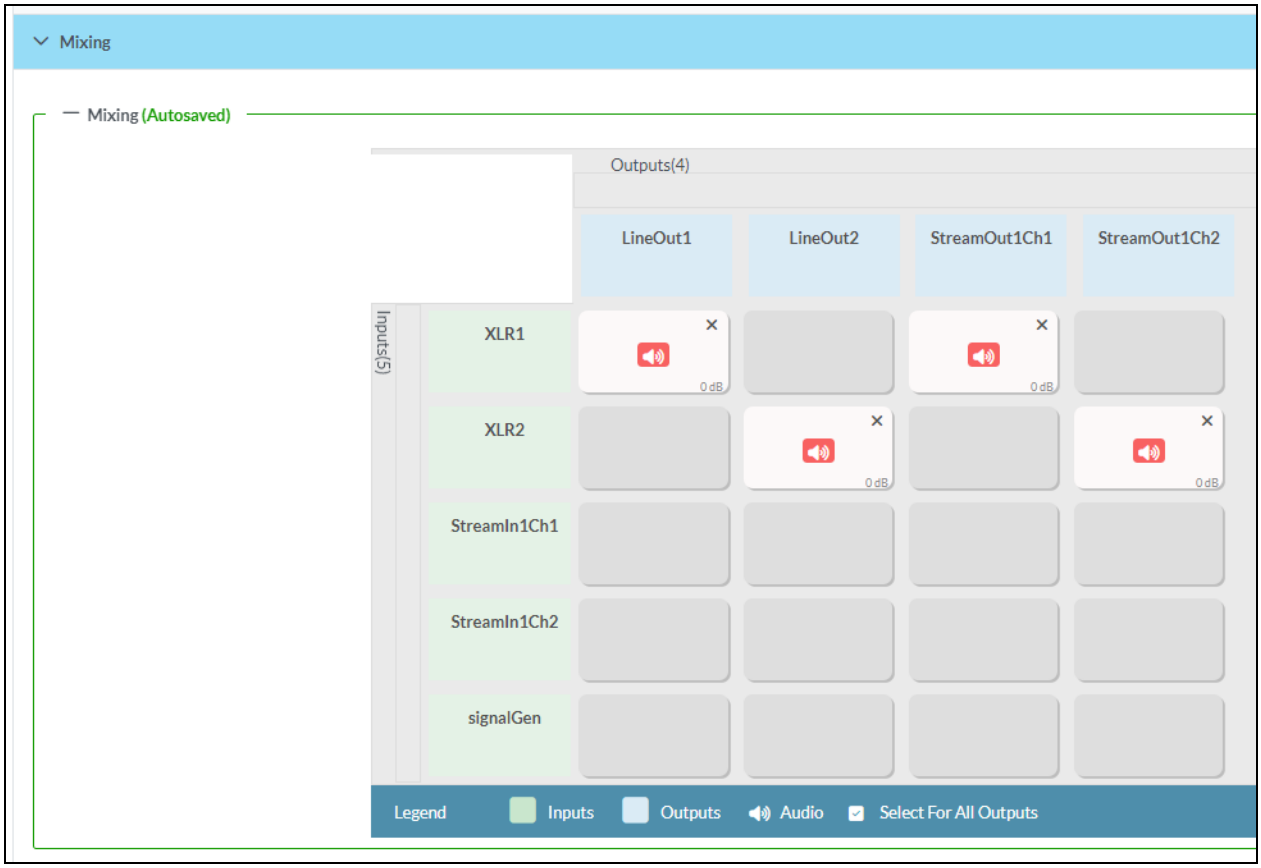
3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Mixing

The **Mixing** matrix is used to route a local input or AES67 stream to an output on the DM-NAX-2XLRI-1G.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



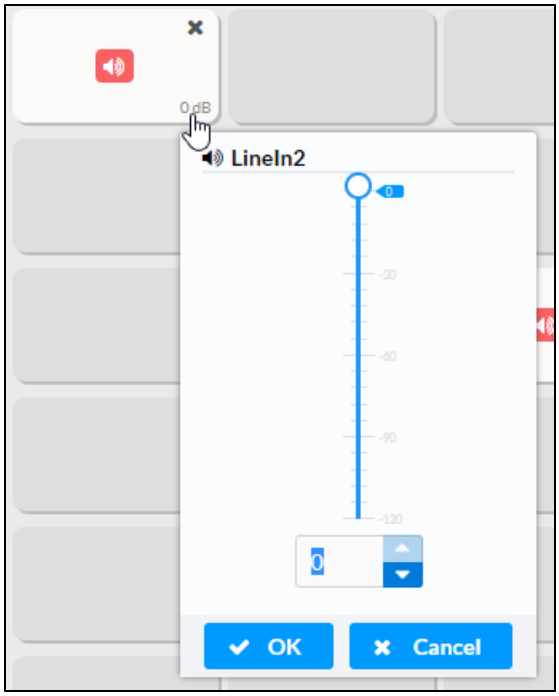
To route inputs to outputs on the device:

- Select the cells corresponding to the desired output that are to be paired for routing. Once a route is made, a speaker icon is displayed. The input that you have selected for a given row will route to the output corresponding to that row in the matrix.
- To break a given route select the speaker icon or the **x** at the top right of the box.

Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

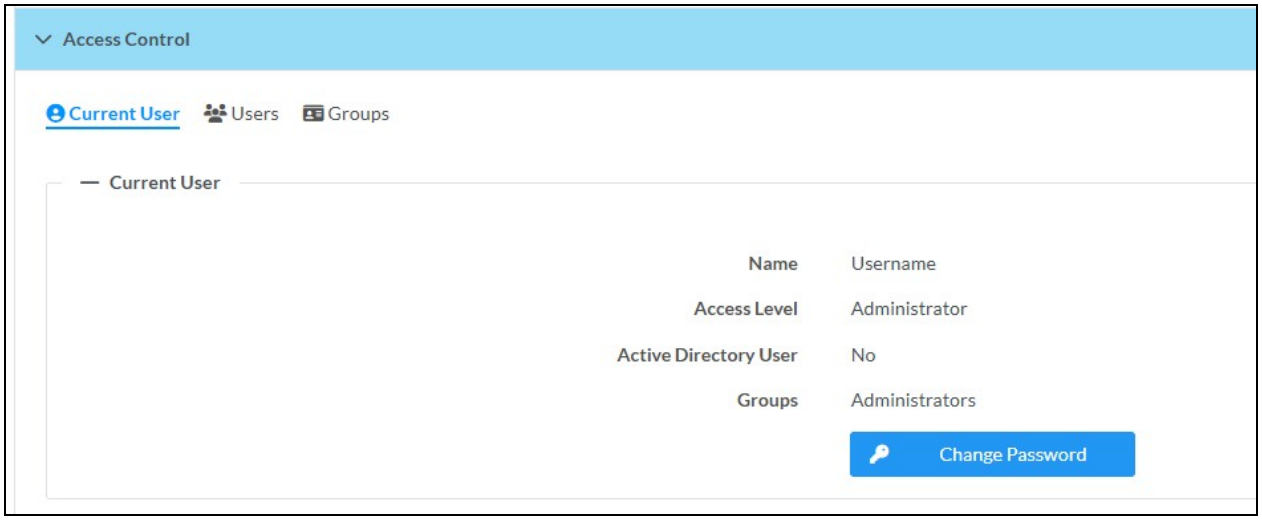
- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.

- Manually enter a value in the field.



Access Control

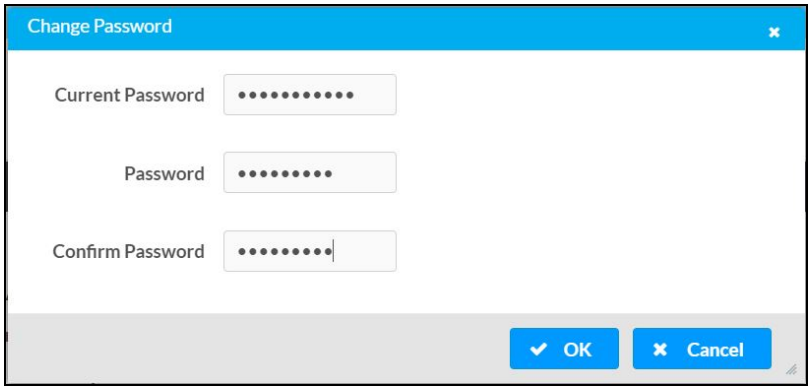
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-2XLRI-1G functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

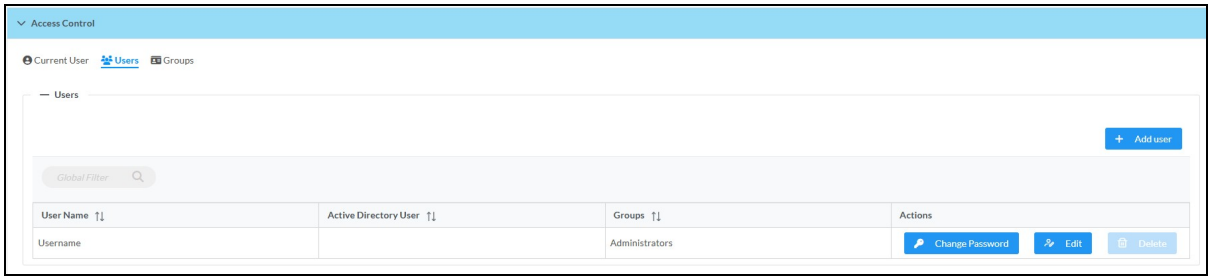
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

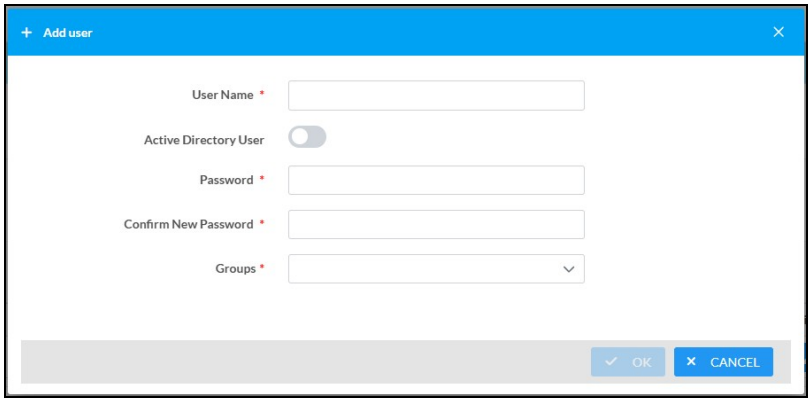
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-2XLRI-1G:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

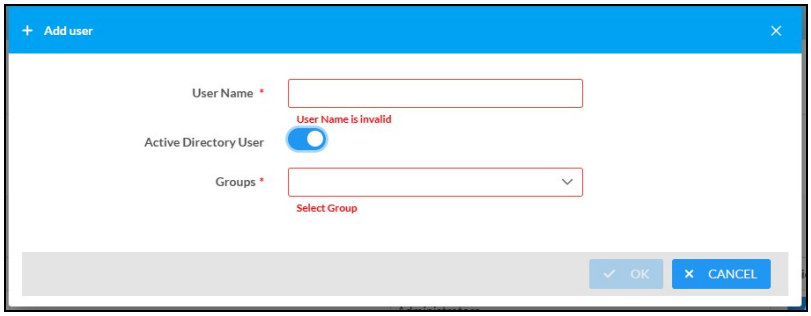
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-2XLRI-1G, or add the Active Directory group(s) that they are a member of to the DM-NAX-2XLRI-1G.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

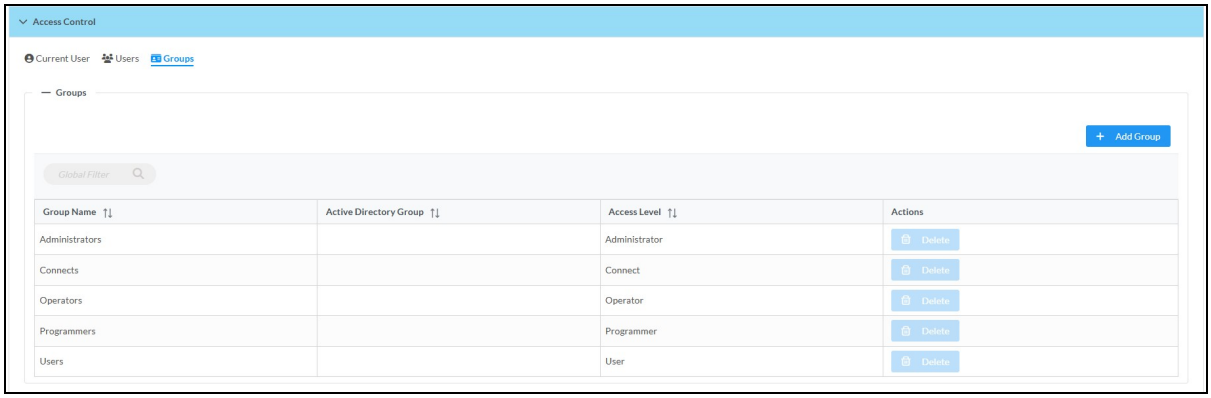
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

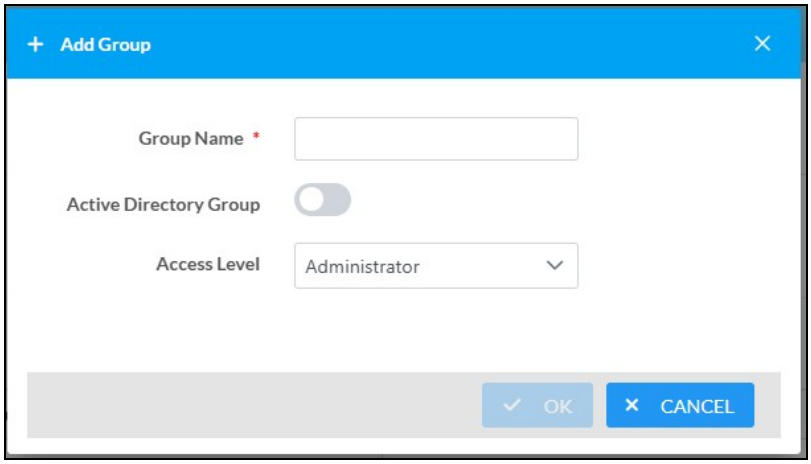
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



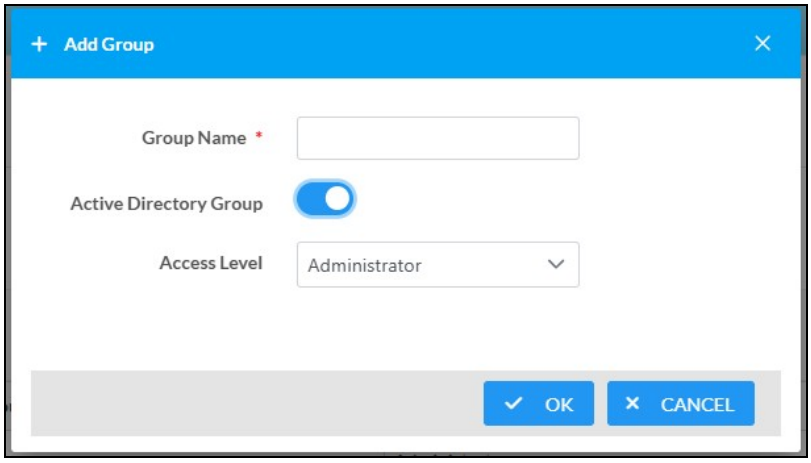
1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
   a. Enter the group name in the **Name** field.
   b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-2XLRI-1G.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:

a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

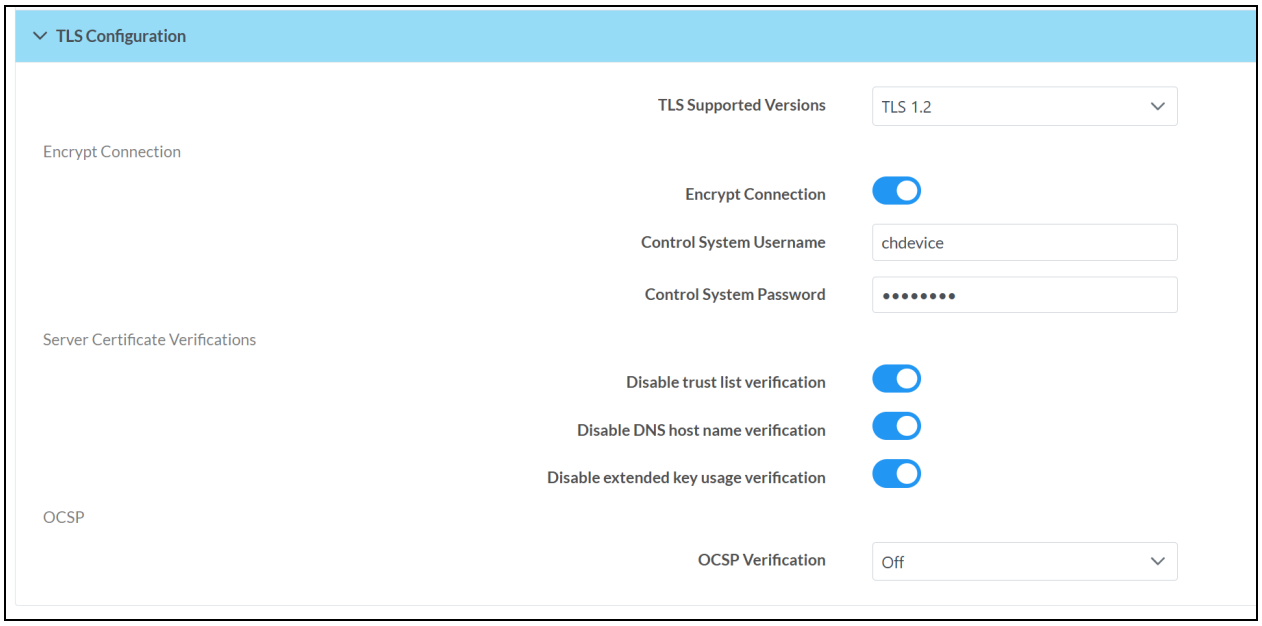
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-2XLRI-1G.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.

- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

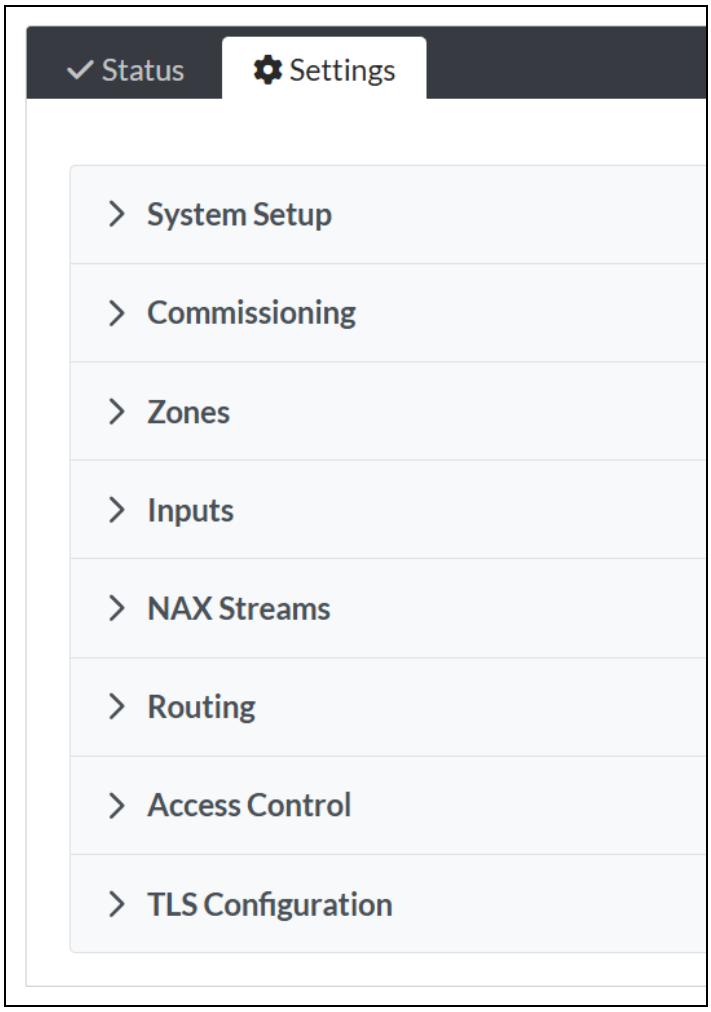
  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

Residential Mode

The **Settings** page enables you to configure the DM-NAX-2XLRI-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-2XLRI-1G web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 197
- Commissioning on page 204
- Output Channels on page 205
- Inputs on page 210
- NAX Streams on page 211
- Routing on page 213
- Access Control on page 213
- TLS Configuration on page 218

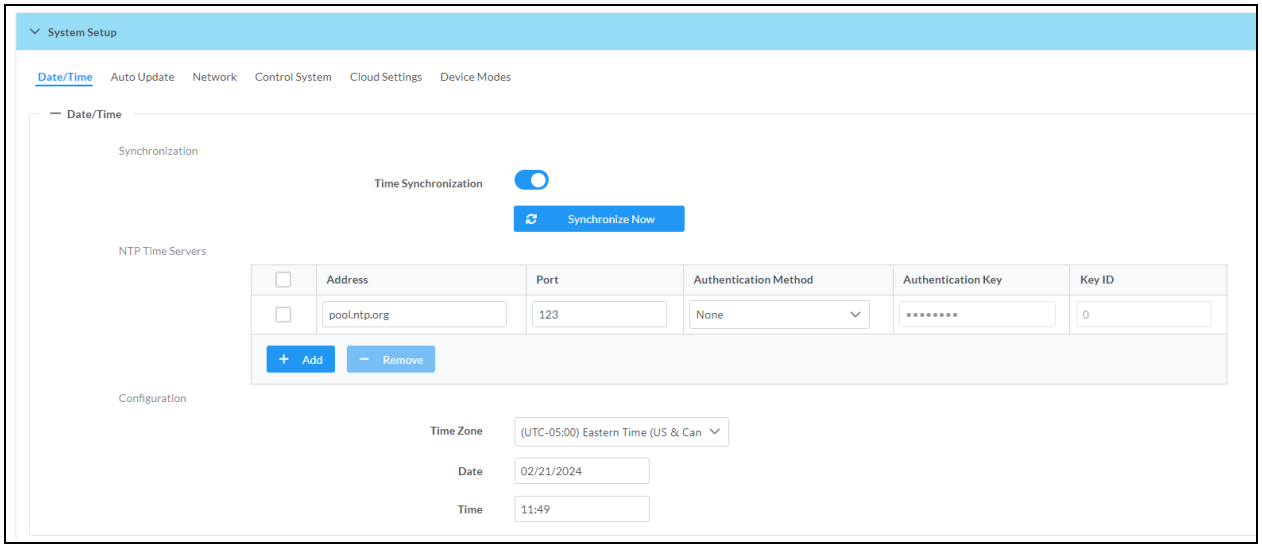


System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-2XLRI-1G.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

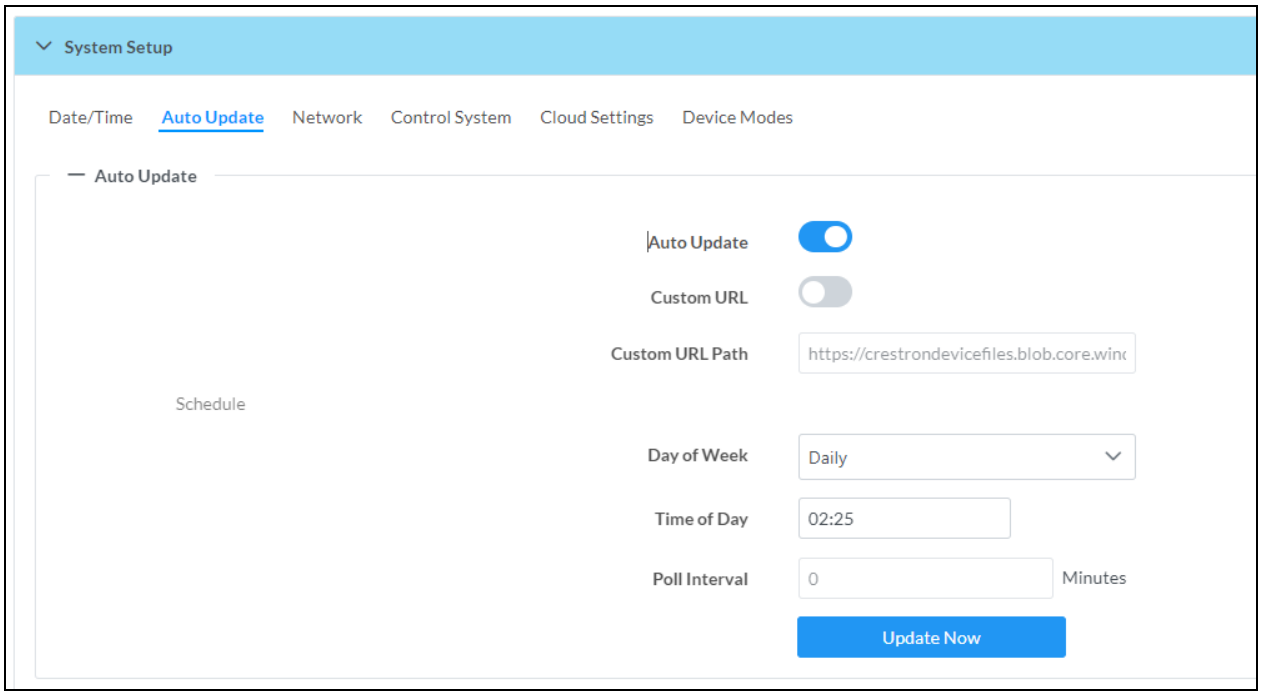
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-2XLRI-1G can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

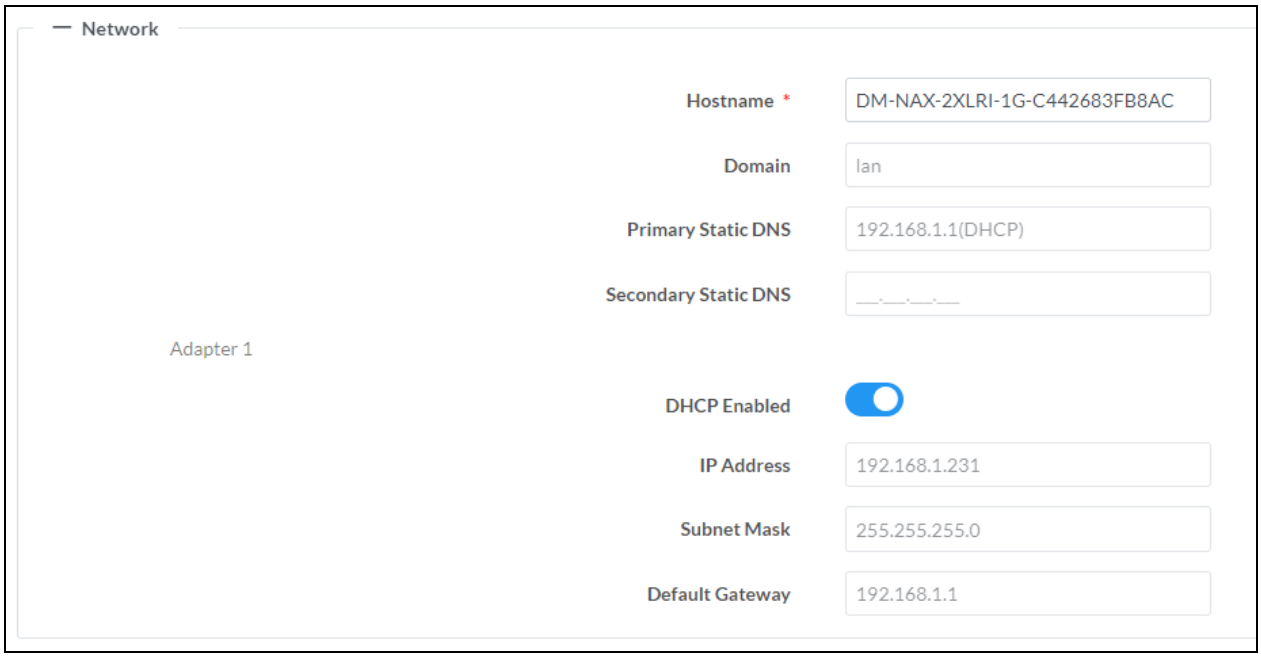


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-2XLRI-1G, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the host name of the DM-NAX-2XLRI-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-2XLRI-1G-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

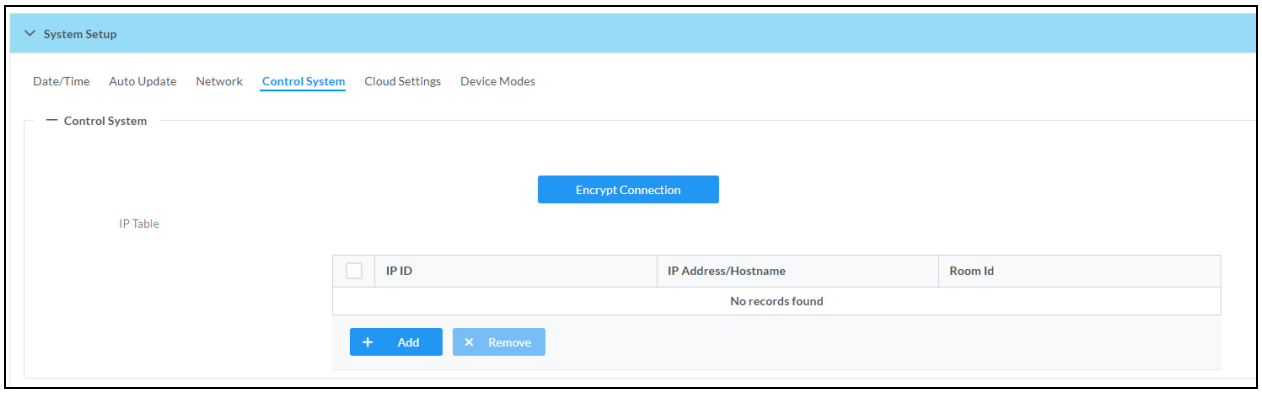
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-2XLRI-1G is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-2XLRI-1G is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-2XLRI-1G.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-2XLRI-1G in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

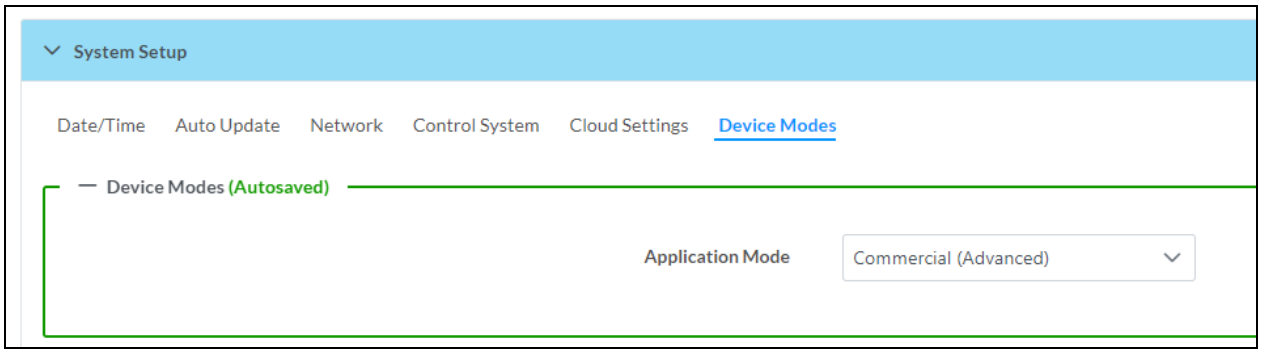
Cloud Settings



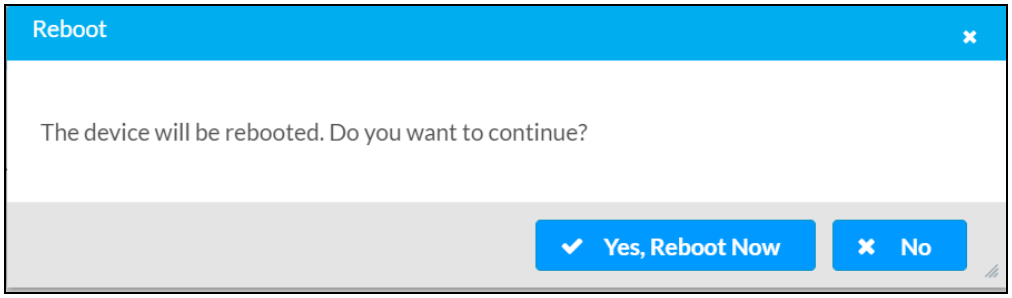
Set the **Cloud Settings** to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-2XLRI-1G can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode**.

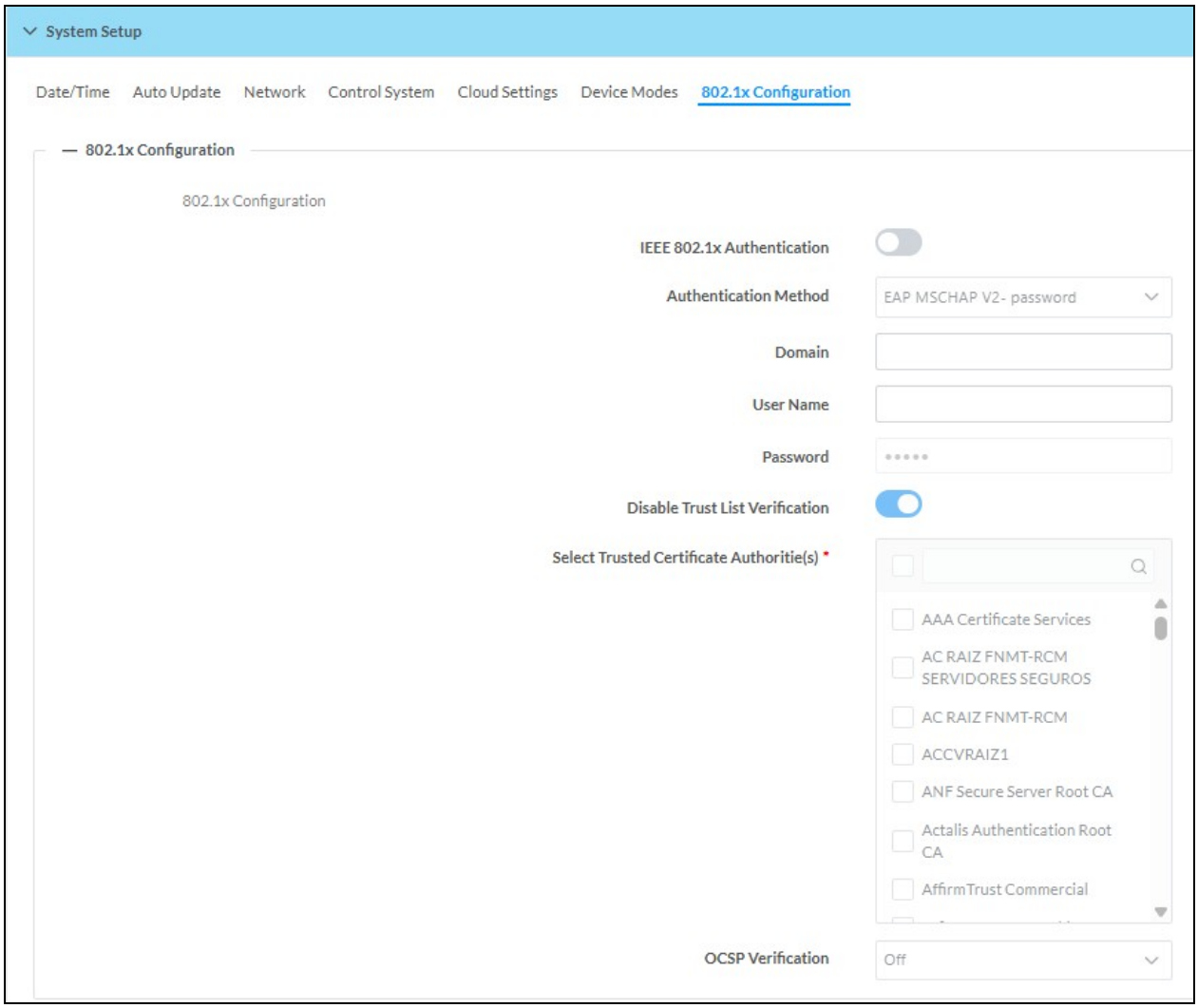


- **Application Mode**: The Application Mode determines which options and controls are available.
  - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



  - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
  - Wait for the device restart to complete before attempting to reconnect to the device.

802.1X Configuration



The DM-NAX-2XLRI-1G has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-2XLRI-1G:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.

- If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.

4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

   The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-2XLRI-1G. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

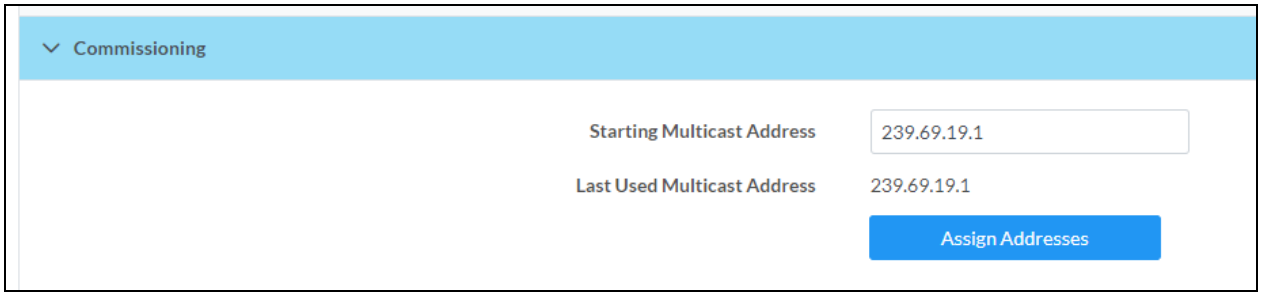
   When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

   > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

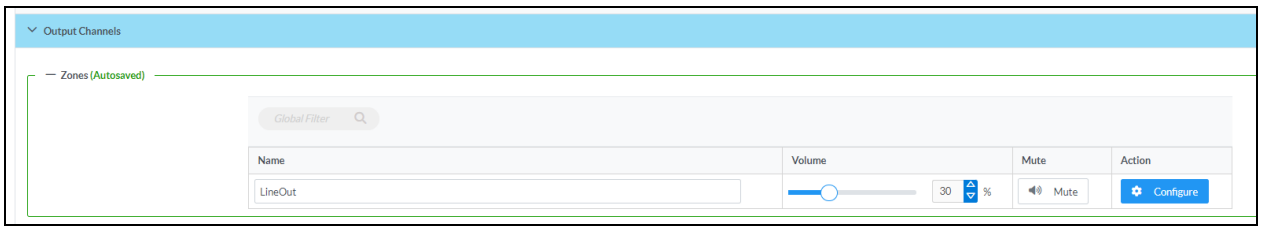


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-2XLRI-1G a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Output Channels

The **Output Channels** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a Configure option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

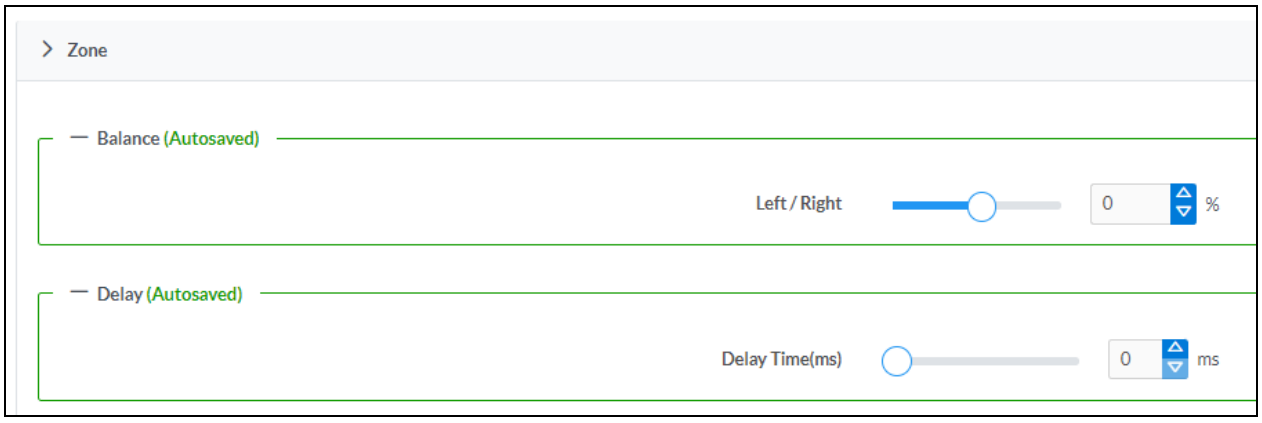
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Zone Settings

To configure zone settings, select **Configure** (Configure). The **Edit Zone** window is displayed.

Zone

Select **Zone** to access the settings for **Balance**, and **Delay**.



Balance

To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.

- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

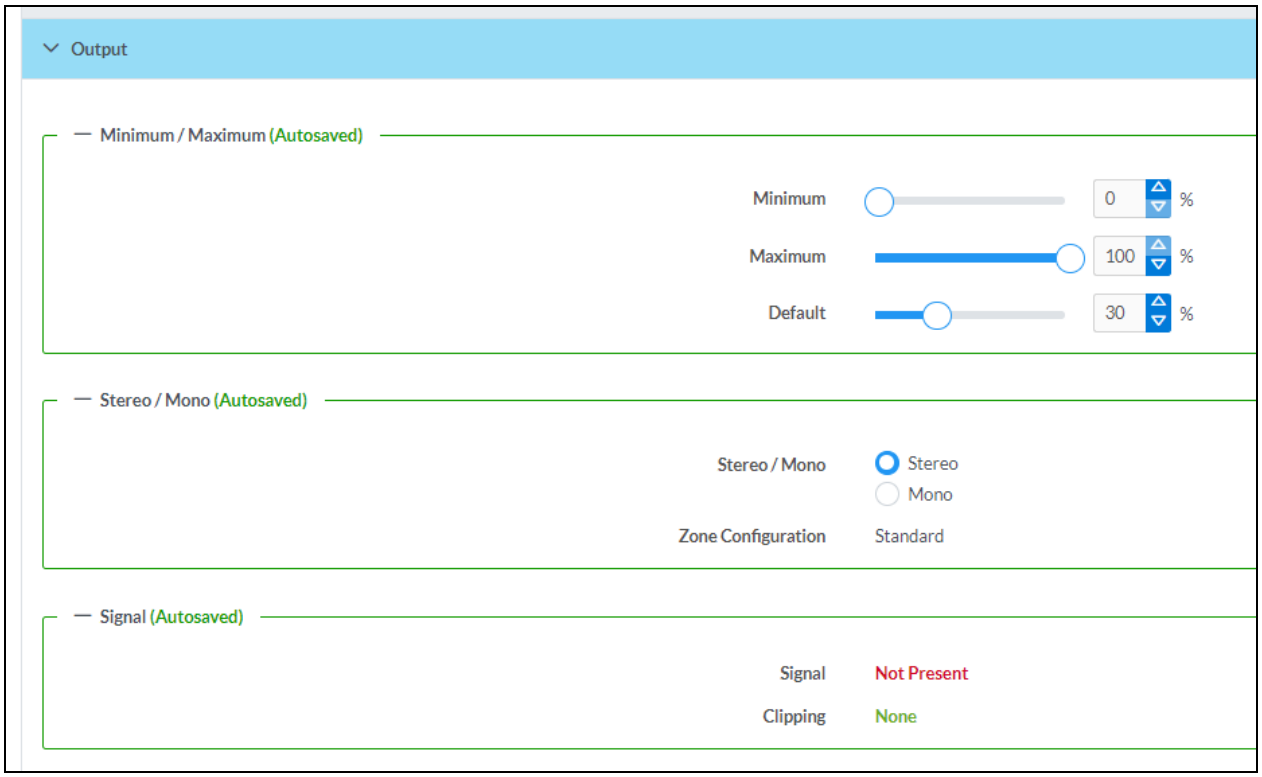
Delay

To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, and **Signal Generator**.



Minimum/Maximum Volume



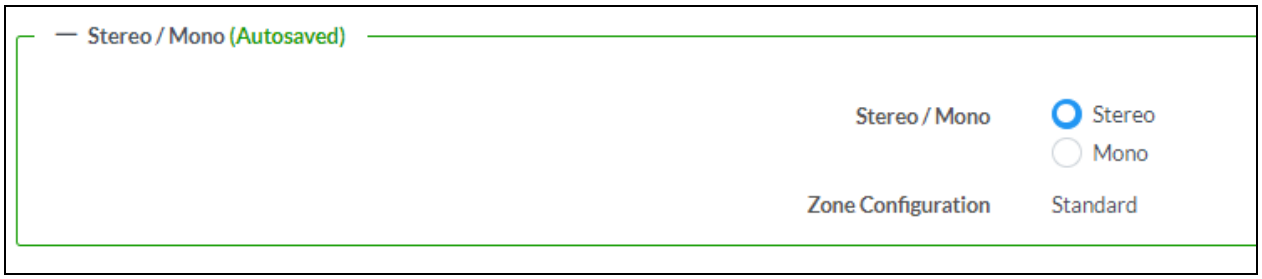
1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

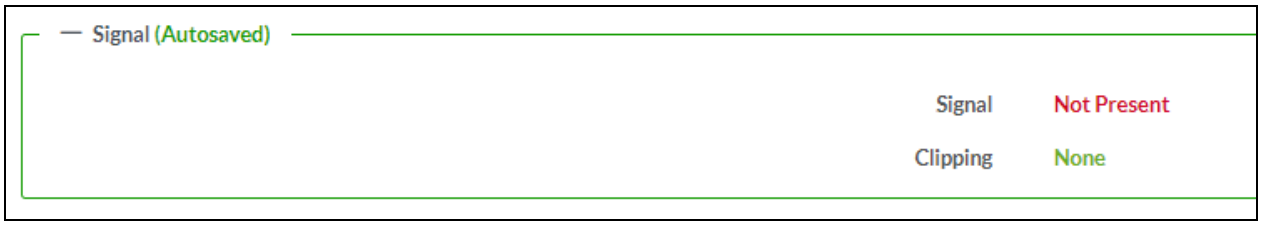
> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono



Select either **Stereo** or **Mono**. If **Stereo** is selected, both output channels can have independent audio content. If **Mono** is selected, both output channels receive the same audio content.

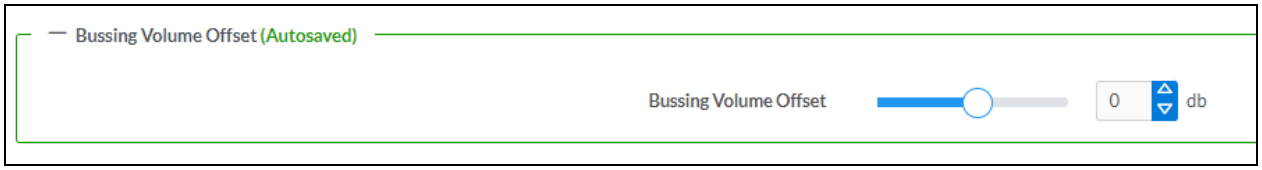
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset

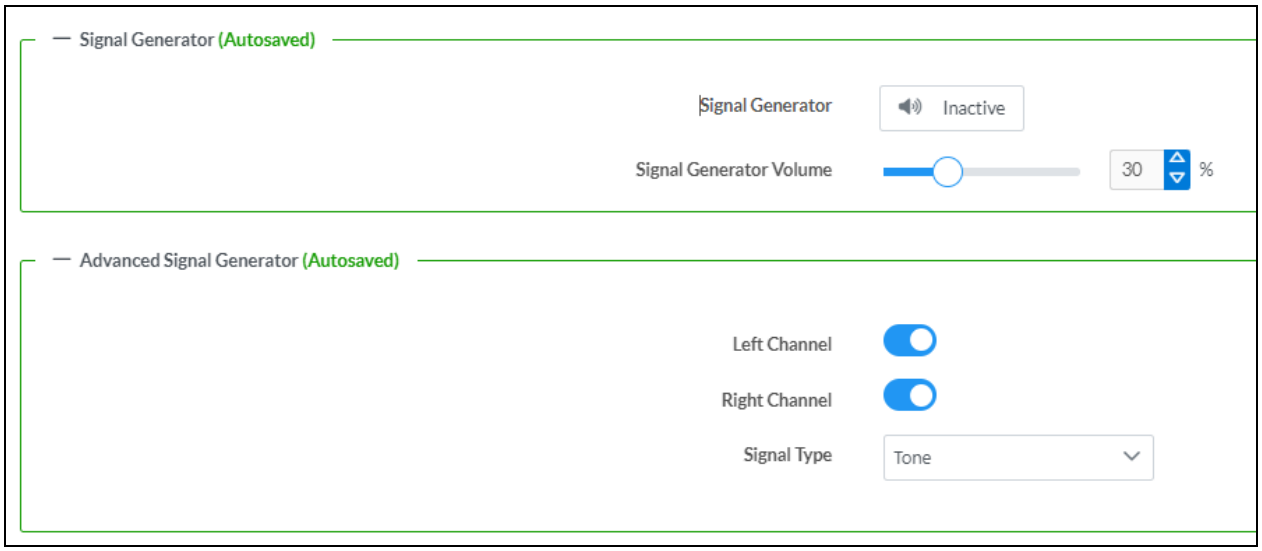


Bussing Volume Offset is an additional level compensation applied to the zone relative to any other zones it is grouped with via the **Bussing** feature.

To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

Signal Generator



The DM-NAX-2XLRI-1G has a built-in signal generator that allows an integrator to send an audio signal to the output for testing purposes.

1. To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue. To unroute the signal generator on the zone output, select **Signal Generator** again so that it displays **Inactive** and is highlighted in grey. By default, the signal generator is not routed to the zone output.
2. To adjust the signal generator's volume, do one of the following:
    - Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
    - Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
    - Manually enter a value in the **Signal Generator Volume** field.

Advanced Signal Generator

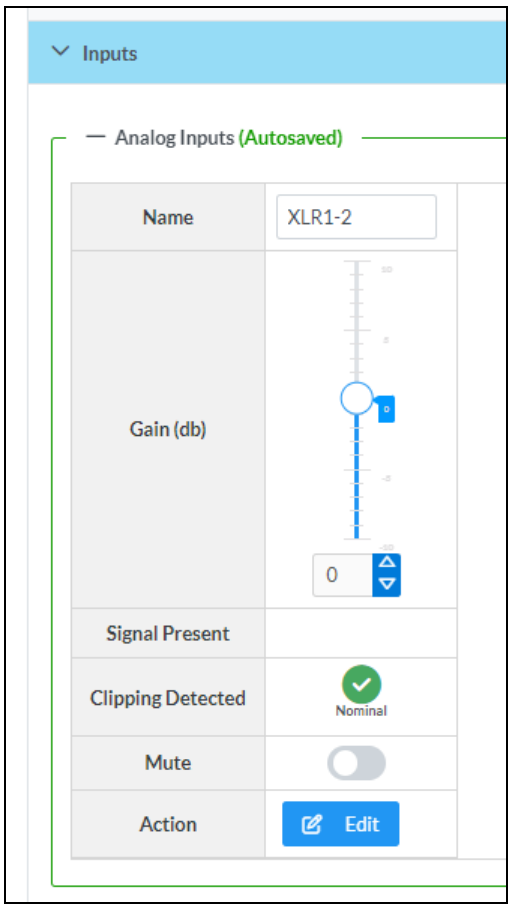
The advanced signal generator settings control the signal type of the signal generator, and allow the left and right channel to be enabled or disabled independently of one another.

1. Set the **Left Channel** toggle to the right position to enable the left channel of the signal. Set the toggle to the left position to disable the left channel. By default, **Left Channel** is enabled.
2. Set the **Right Channel** toggle to the right position to enable the right channel of the signal. Set the toggle to the left position to disable the right channel. By default, **Right Channel** is enabled.
3. Select an audio test signal type from the **Signal Type** drop-down. The available signal types are:
    - **Tone**: Generates a 1 kHz sine wave tone.
    - **Pink Noise**: Generates pink noise.
    - **White Noise**: Generates white noise.

Select **Done** to return to the **Settings** tab of the web interface.

Inputs

The **Inputs** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-2XLRI-1G.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
   - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
   - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
   - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

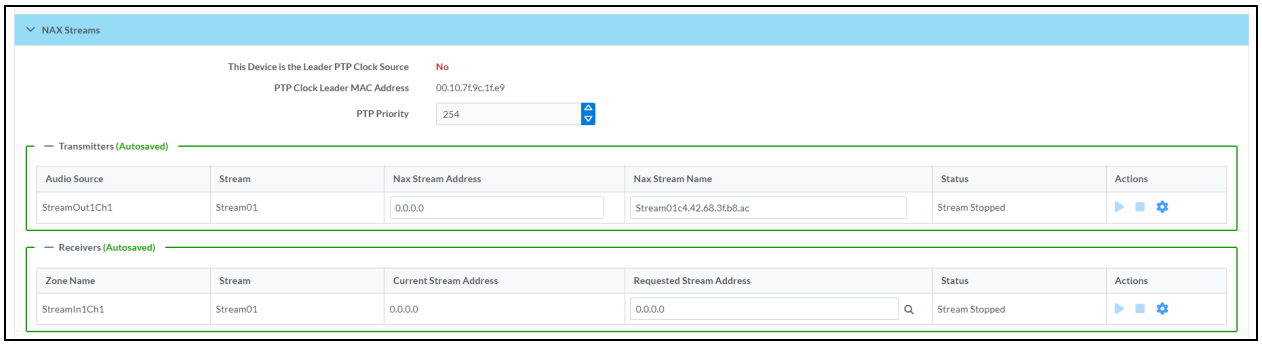
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

NAX Streams

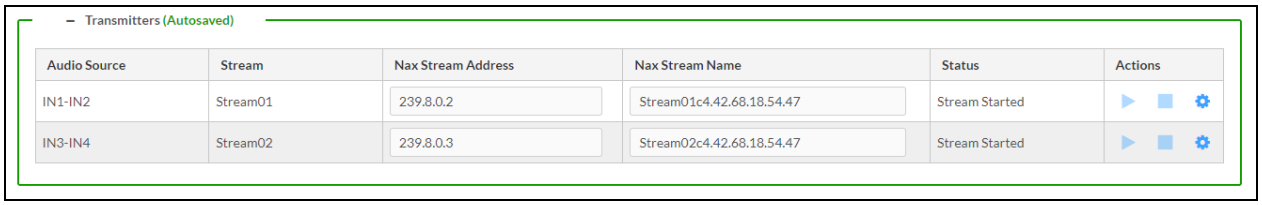
The local inputs of the DM-NAX-2XLRI-1G can be made available as a DM NAX audio-over-IP stream. This single two channel stream will encode XLR input 1 as the left channel, and XLR input 2 as the right channel.

Select **NAX Streams** to expand the tab and display the following information.



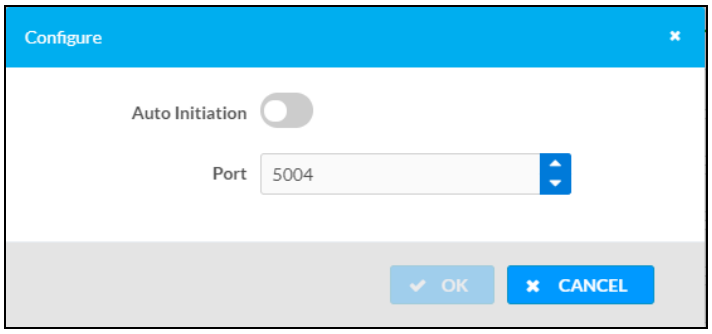
- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-2XLRI-1G is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-2XLRI-1G will only operate as the ledaer clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters



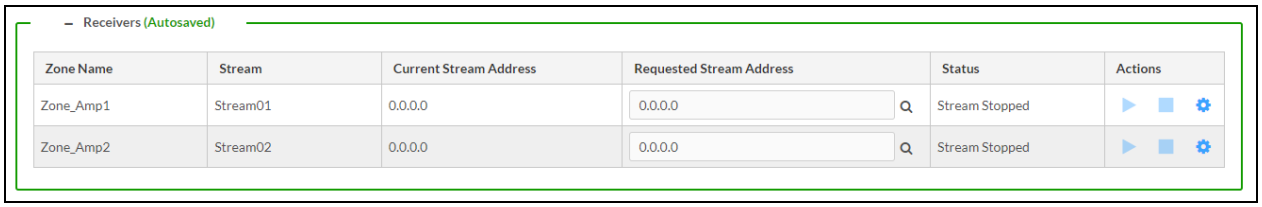
To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

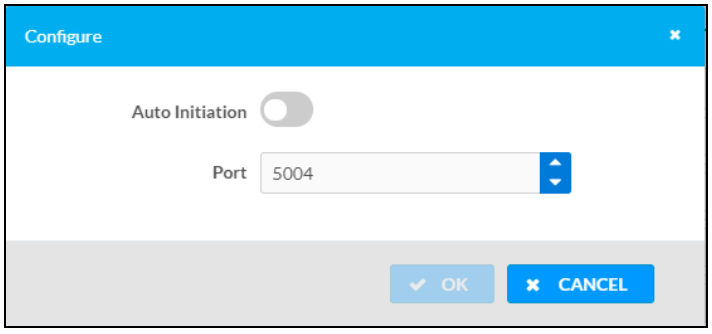


5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers



1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

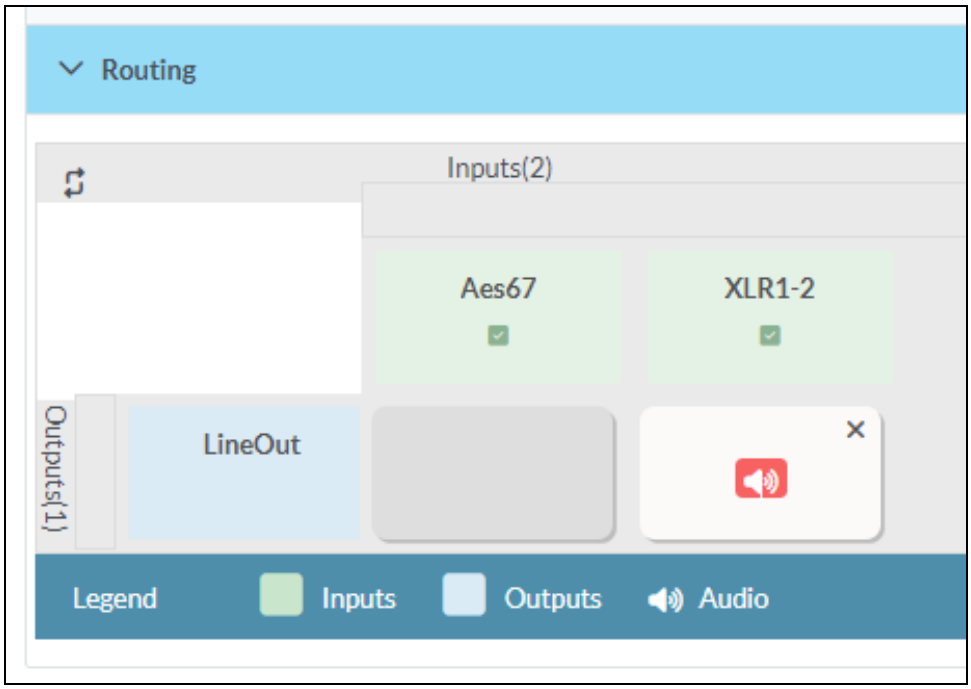


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Routing

The **Routing** section is used to route a local input or AES67 stream to a zone on the DM-NAX-2XLRI-1G.

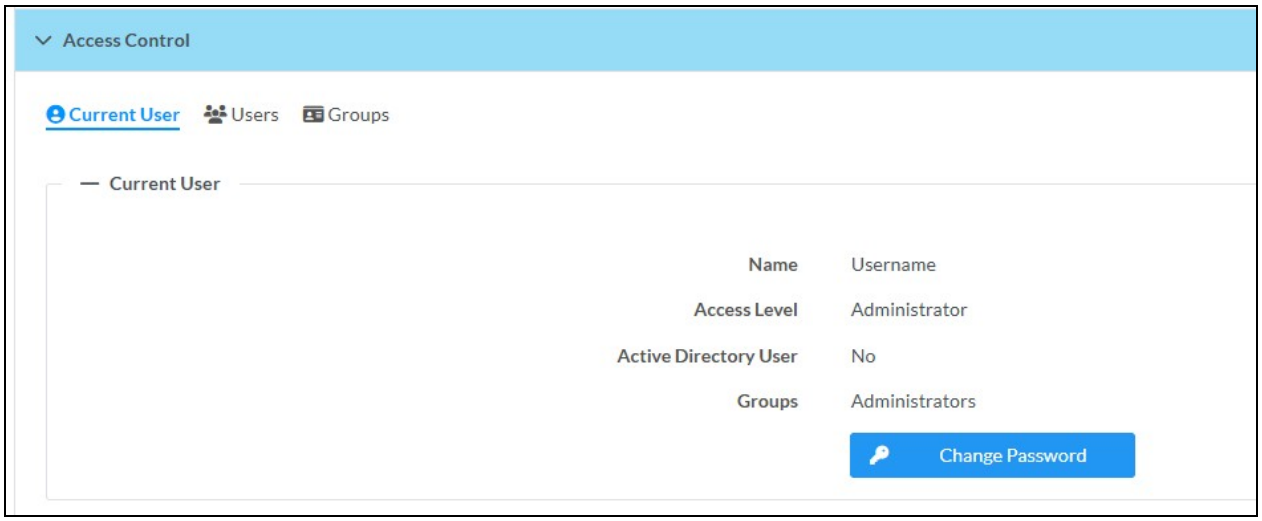
> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the checkmark icon under the input's name.

Access Control

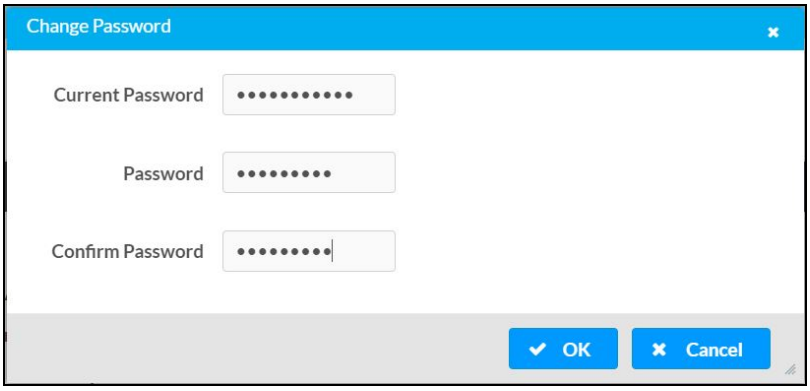
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-2XLRI-1G functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

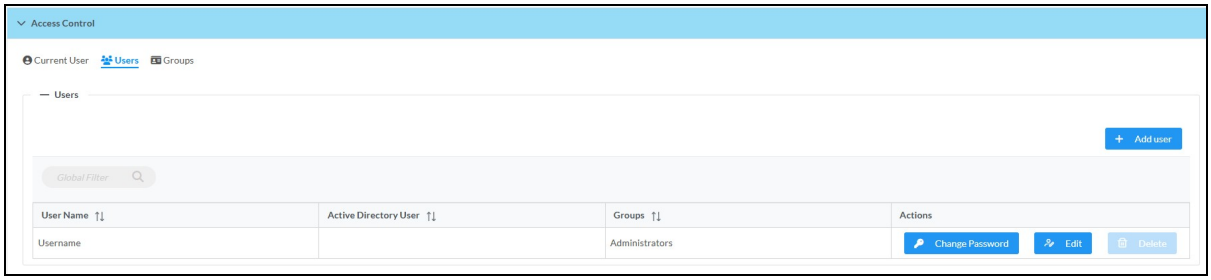
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

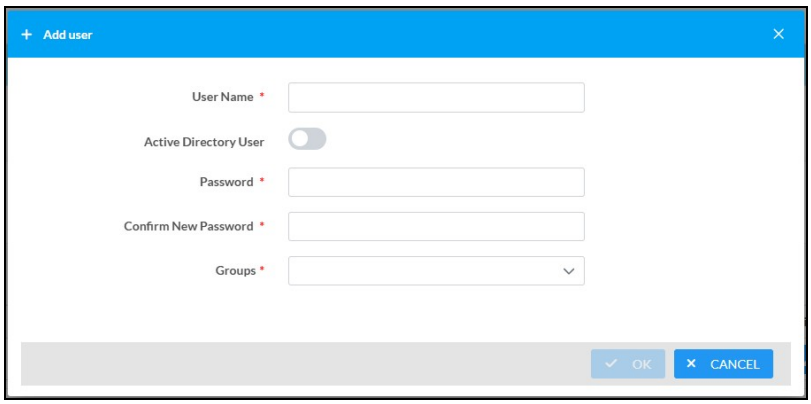
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-2XLRI-1G:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

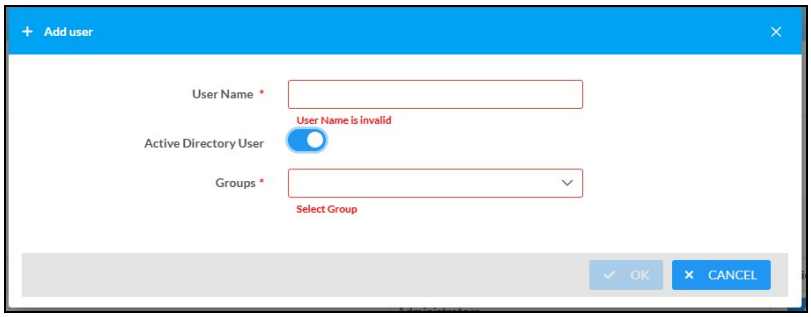
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-2XLRI-1G, or add the Active Directory group(s) that they are a member of to the DM-NAX-2XLRI-1G.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



   a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

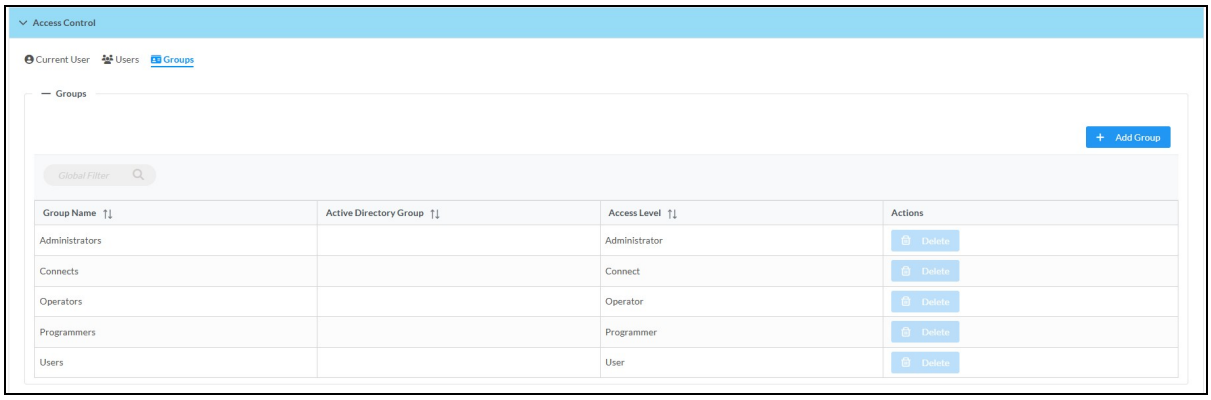
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

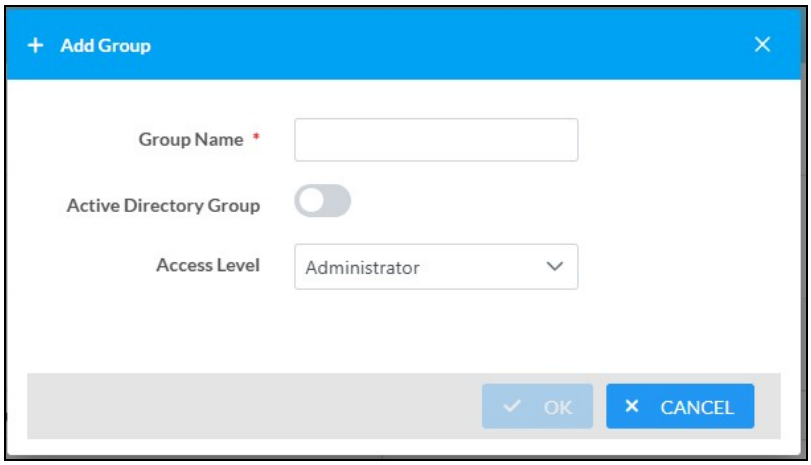
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator,

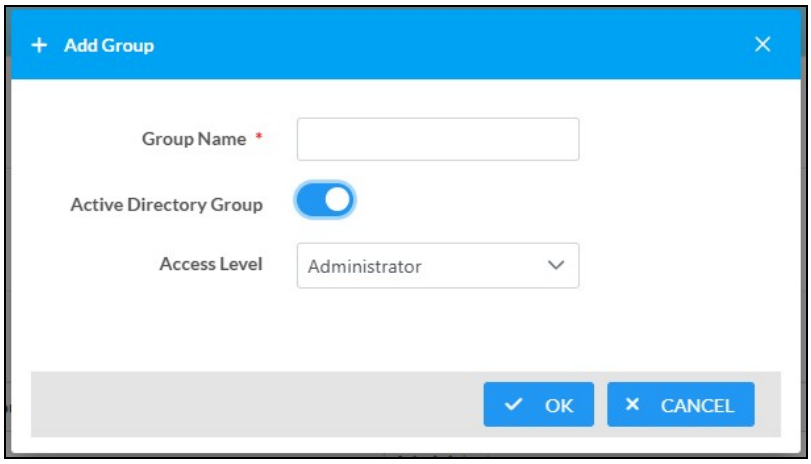
Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

> **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-2XLRI-1G.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

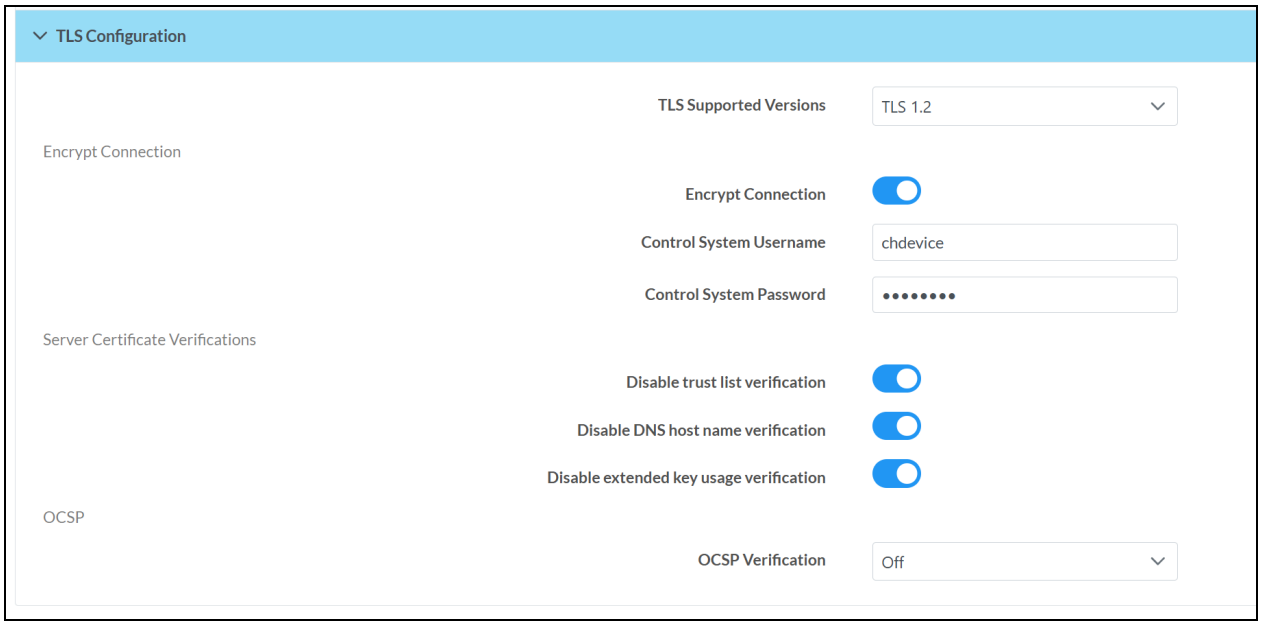
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-2XLRI-1G.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

DM-NAX-4ZSA-50

This section describes how to configure the DM-NAX-4ZSA-50.

Web Interface Configuration

The DM-NAX-4ZSA-50 web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 221
- Access the Web Interface With Crestron Toolbox™ Software on page 223

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

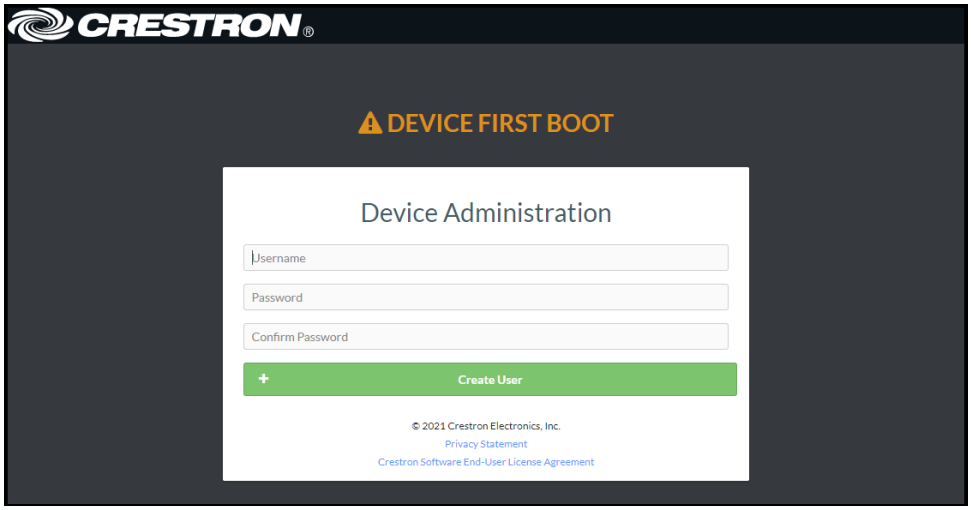
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

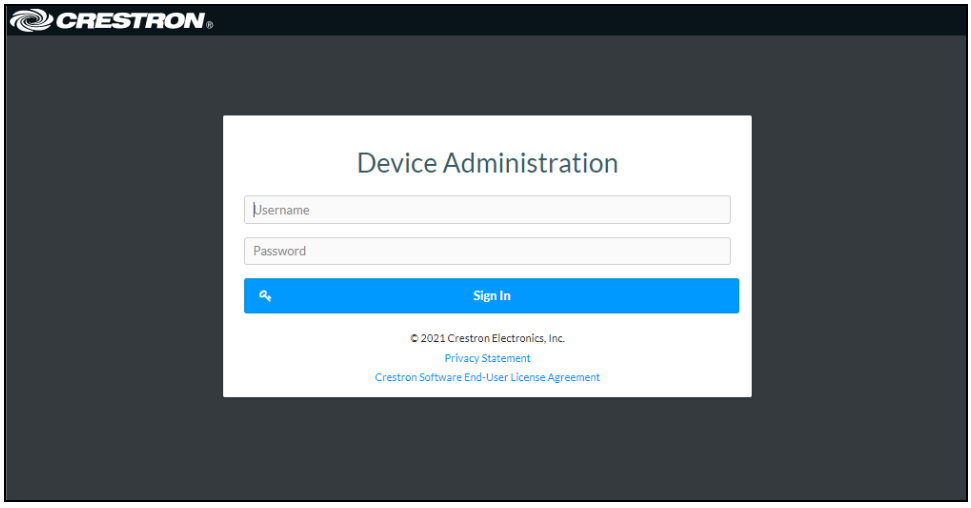
1. Enter the IP address of the DM-NAX-4ZSA-50 into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser from Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-4ZSA-50 is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

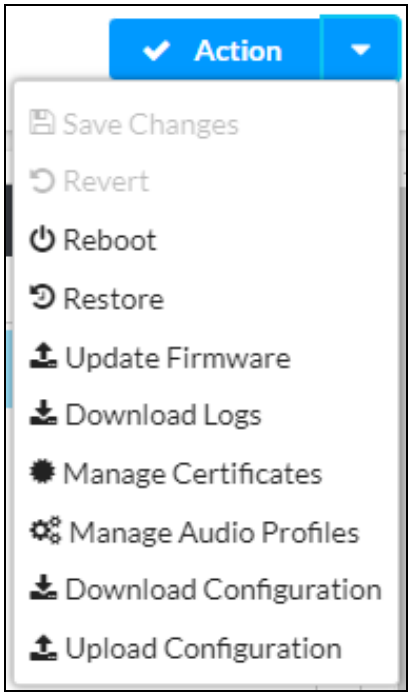
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 224
- Revert on page 224
- Reboot on page 225
- Restore to Factory Default Settings on page 225
- Update Firmware on page 226
- Download Logs on page 226
- Manage Certificates on page 227
- Manage Audio Profiles on page 228
- Download Configuration on page 229
- Download Configuration on page 229



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

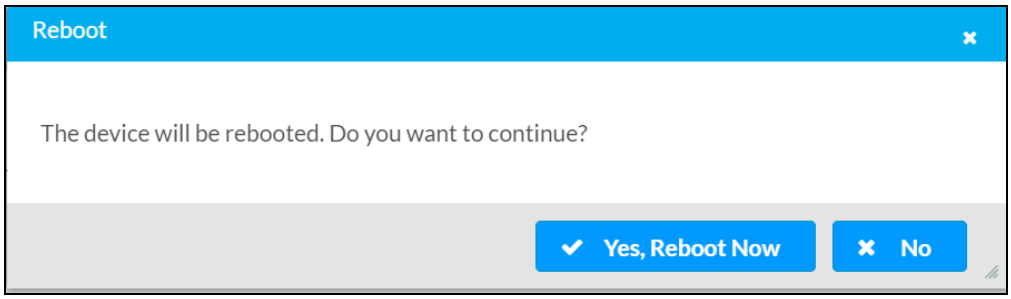
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-4ZSA-50 to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



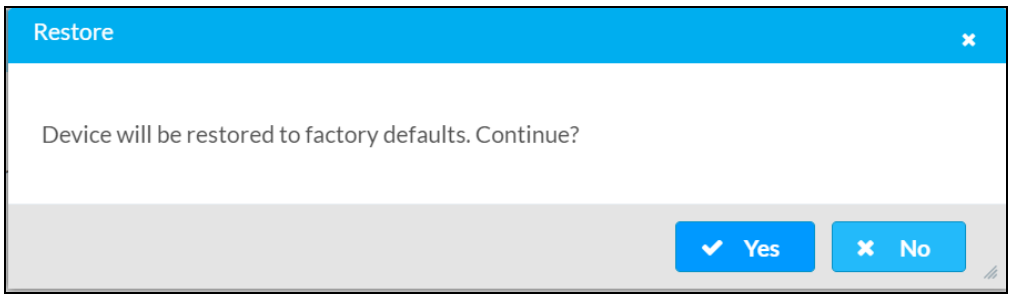
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-4ZSA-50 to factory defaults.

   NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



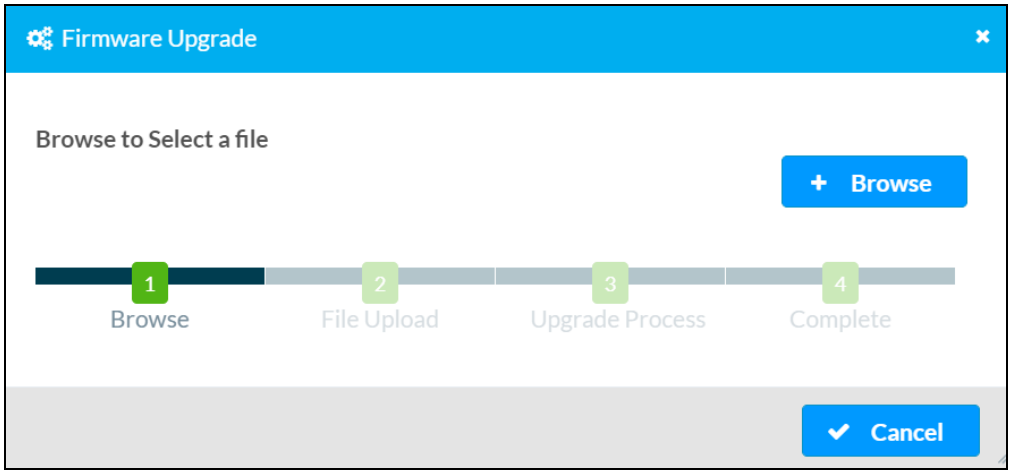
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-4ZSA-50 to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

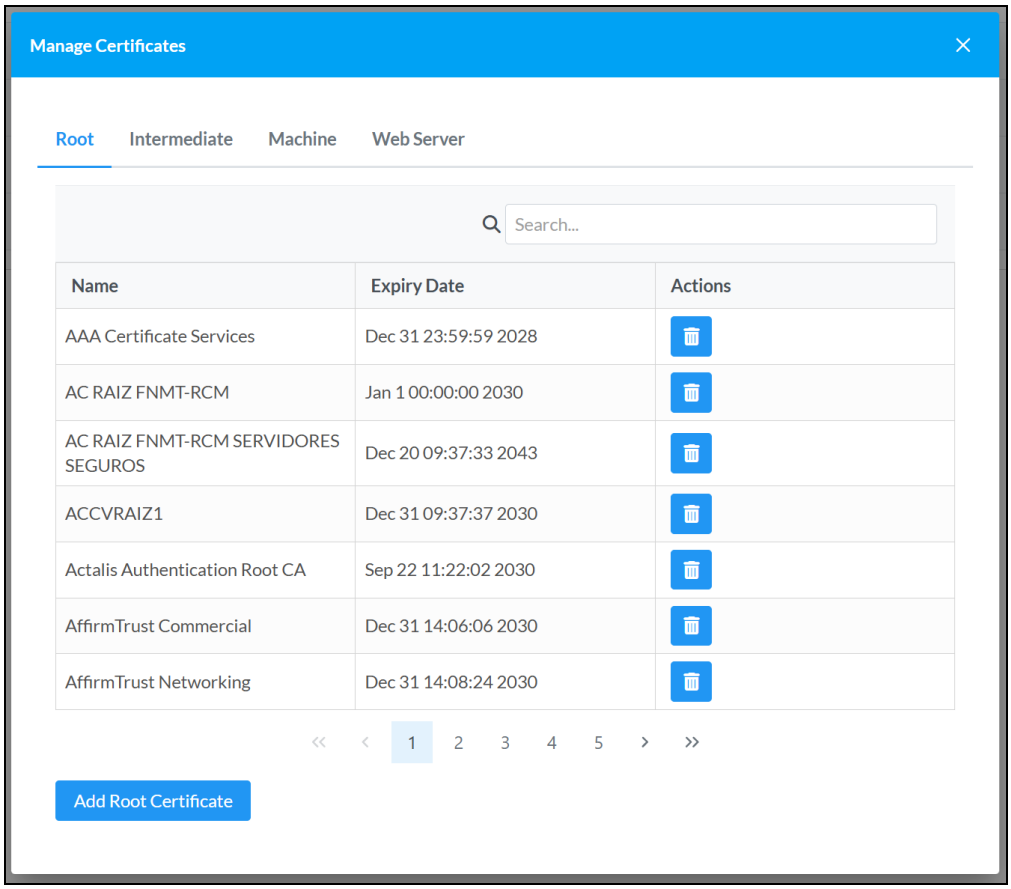
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-4ZSA-50 to validate the network's authentication server. The DM-NAX-4ZSA-50 has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-4ZSA-50. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, and then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

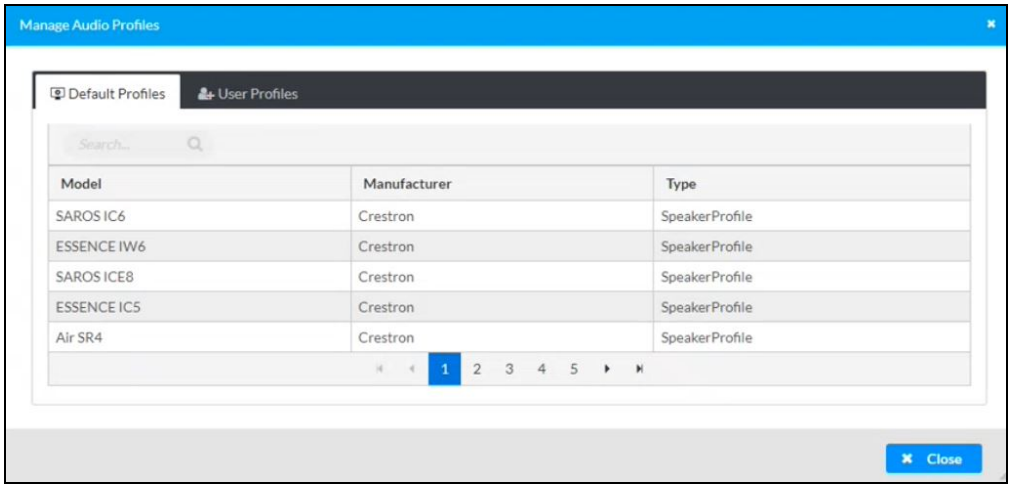
5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Manage Audio Profiles

Use the **Manage Audio Profiles** dialog to add, remove, and manage the audio profiles of speakers.



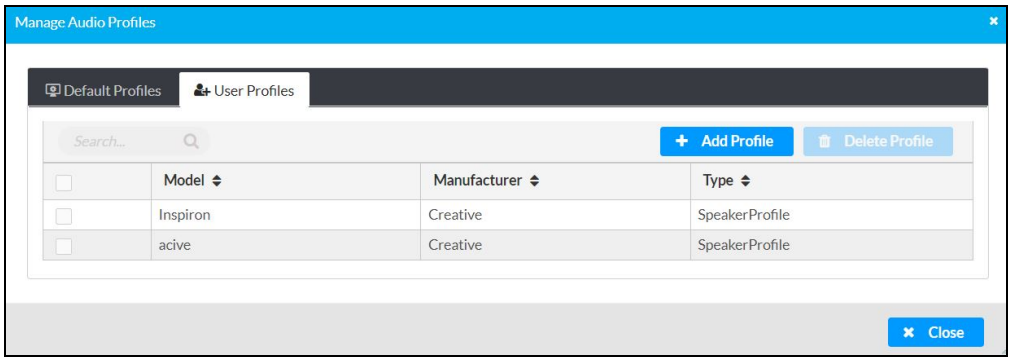
Select **Manage Audio Profiles** in the **Action** menu. The following audio profiles tabs are displayed, providing information such as **Model**, **Manufacturer**, and **Type** of the audio profiles:

- **Default Profiles**: Lists the default library of included audio profiles.
- **User Profiles**: Lists the custom, user loaded profiles, and allows them to be loaded and removed.

In the **Search** field, enter a name to search for a profile. The profile matching the search criteria is displayed.

> **NOTE**: To create a custom audio profile, refer to Knowledge Article 1001820.

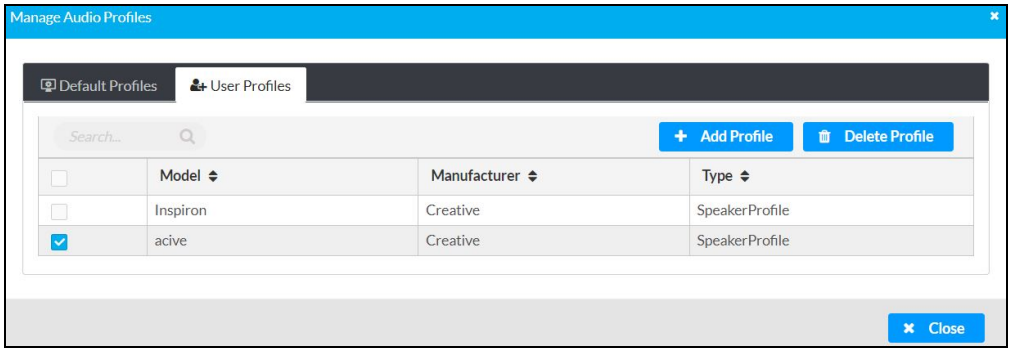
To Add an Audio Profile



1. Select the **User Profiles** tab.
2. Select **+ Add Profiles**.
3. Select **+ Browse**.
4. Locate and select the .prof file, then select **Open**.
5. Select **Upload**.
6. Select **OK**. This will add the profile to the list box.

   The audio profile is now available for selection and can be applied.

To Delete an Audio Profile



1. Select the **User Profiles** tab.
2. Select the checkbox corresponding to the audio profile that needs to be deleted.
3. Select **Delete Profile**.

   The audio profile is deleted.

Download Configuration

Select **Download Configuration** to download a TGZ file containing the settings data for the DM NAX device.

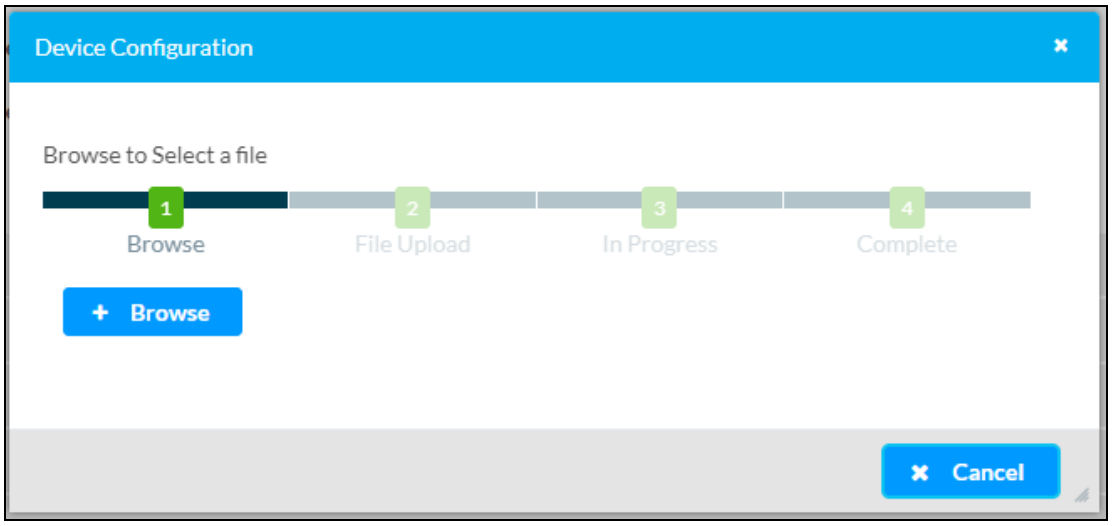
> **NOTE:** User accounts for accessing the device, streaming service accounts, multicast addresses, and stream names are not saved in this configuration file.

Upload Configuration

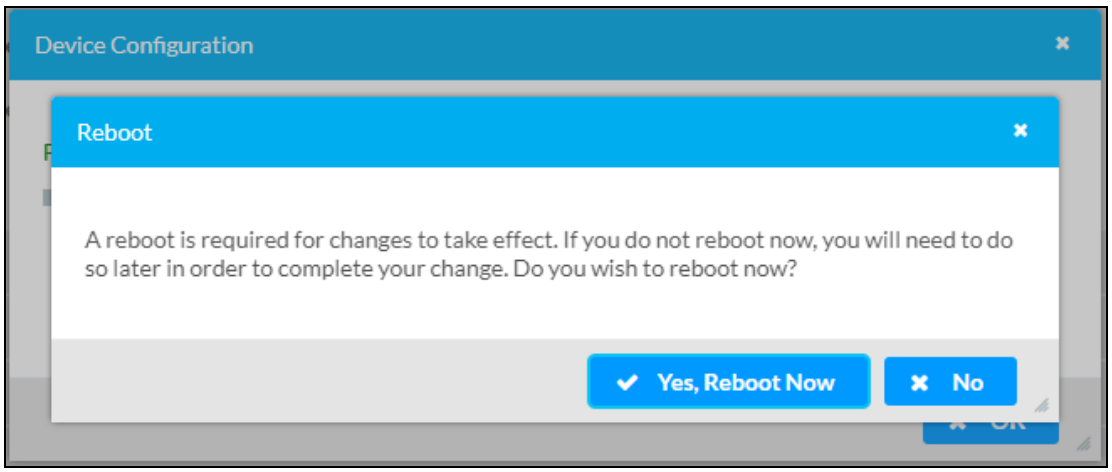
1. Select **Upload Configuration** to upload a TGZ file that will overwrite the current settings of the DM NAX device with a saved configuration.

   CAUTION: Be sure to load a TGZ file for the same DM NAX device type while using the Load Configuration feature. For example, if loading a TGZ file to a DM-NAX-4ZSA-50, be sure that the TGZ file originated from a DM-NAX-4ZSA-50.

2. Select **Browse** to navigate to the desired TGZ file in your file browser. Select the file, then select **Open**.



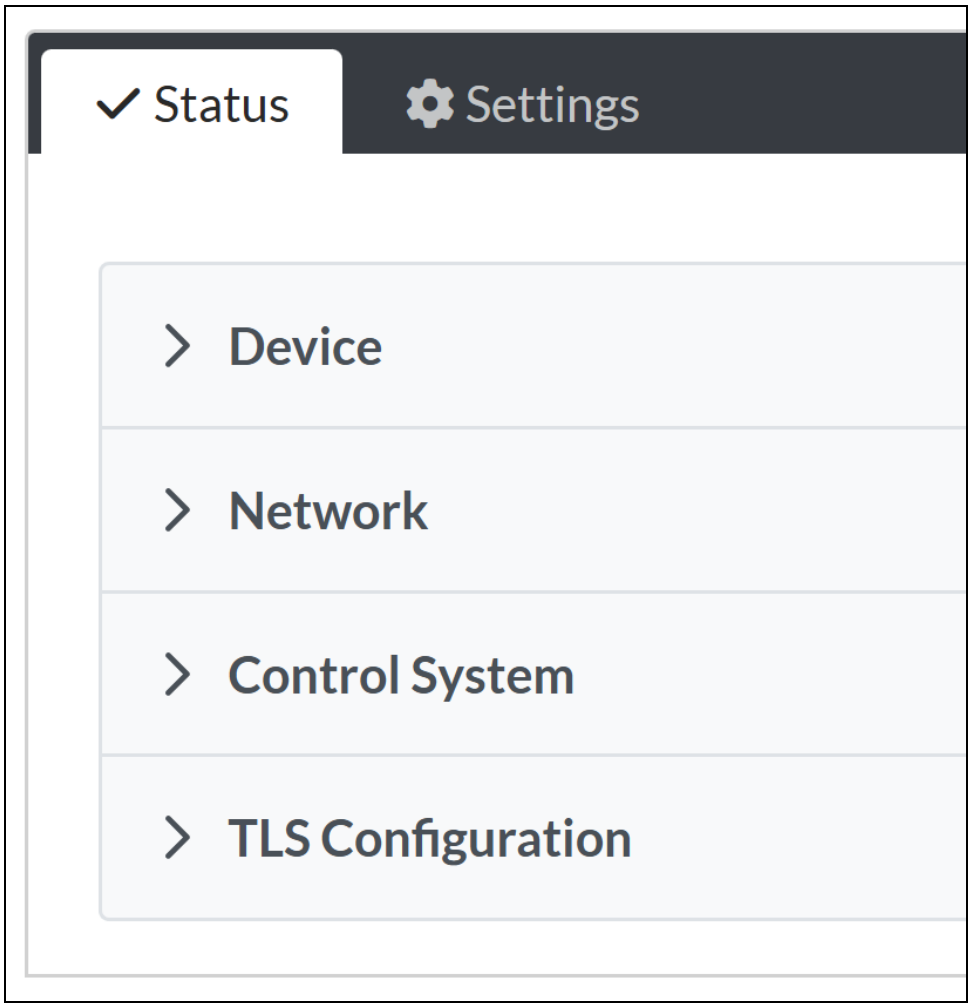
3. Select **Upload** to begin the file upload process. A progress bar will indicate the status of the configuration file upload.
4. Once the upload is complete, the device will require a restart. Select **Yes, Reboot Now** to restart the device, or select **No** to return to the web interface.



   NOTE: Any changes made after the configuration file upload, but before a device restart, may be overwritten when the device is restarted.

Status

When the DM-NAX-4ZSA-50 web interface is opened, the **Status** page is displayed by default. It provides information about the DM-NAX-4ZSA-50 configuration and can be accessed at any time by selecting the **Status** tab of the DM-NAX-4ZSA-50 web interface.



Information displayed on the **Status** tab is organized into different sections.

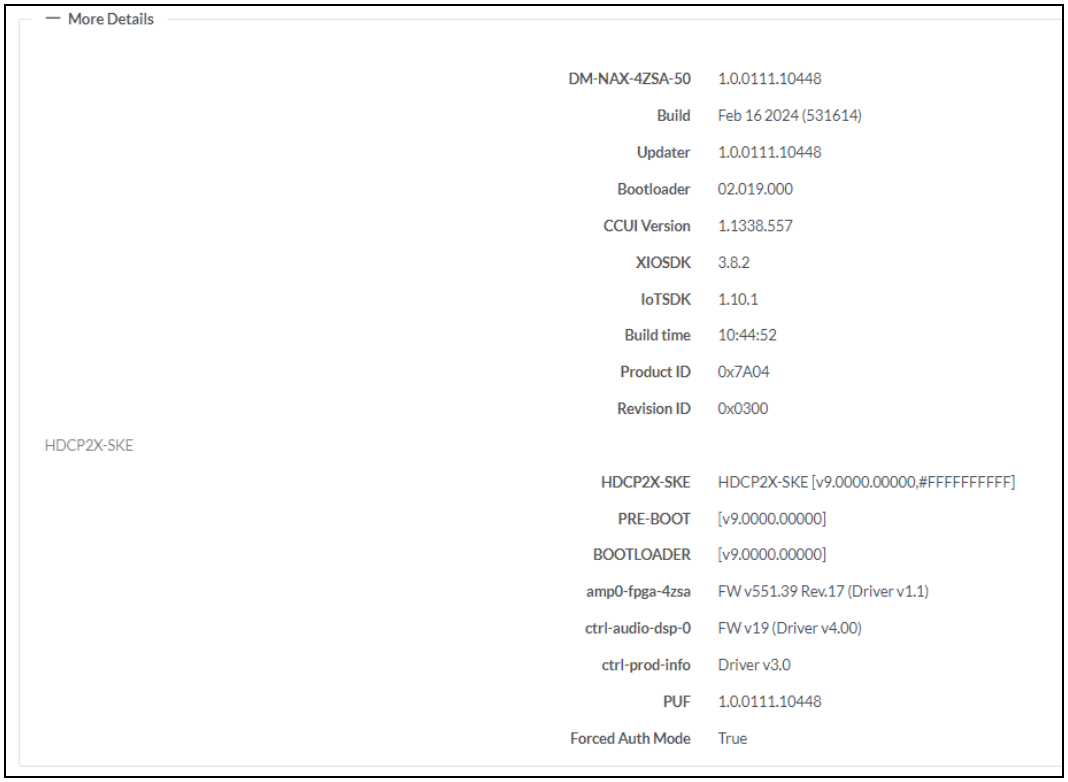
- Device on page 231
- Network on page 232
- Control System on page 233
- TLS Configuration on page 234

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-4ZSA-50.

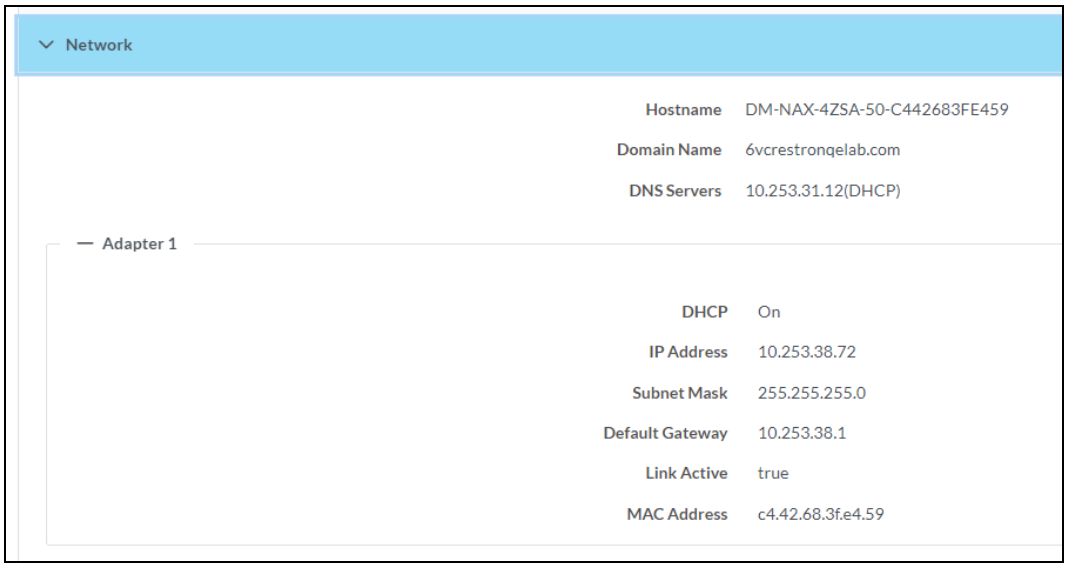


Select **+ More Details** to review additional information about the DM-NAX-4ZSA-50.



Network

The **Network** section displays network-related information about the DM-NAX-4ZSA-50, including the **Hostname**, **Domain Name**, and **DNS Servers**.



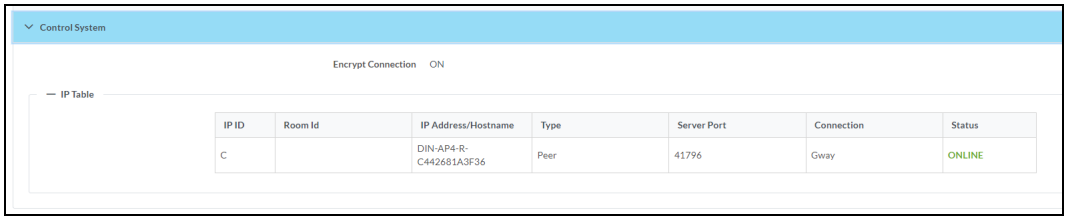
NOTE: By default, the host name of the DM-NAX-4ZSA-50 consists of the model name followed by the MAC address of the device. For example: DM-NAX-4ZSA-50-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** to collapse the section.

NOTE: The **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-4ZSA-50 are set to isolate traffic using the **Port Selection** feature. Refer to Settings on page 235 for details on configuring the **Port Selection** feature.

Control System

The **Control System** accordion displays information for connections to Crestron control systems.

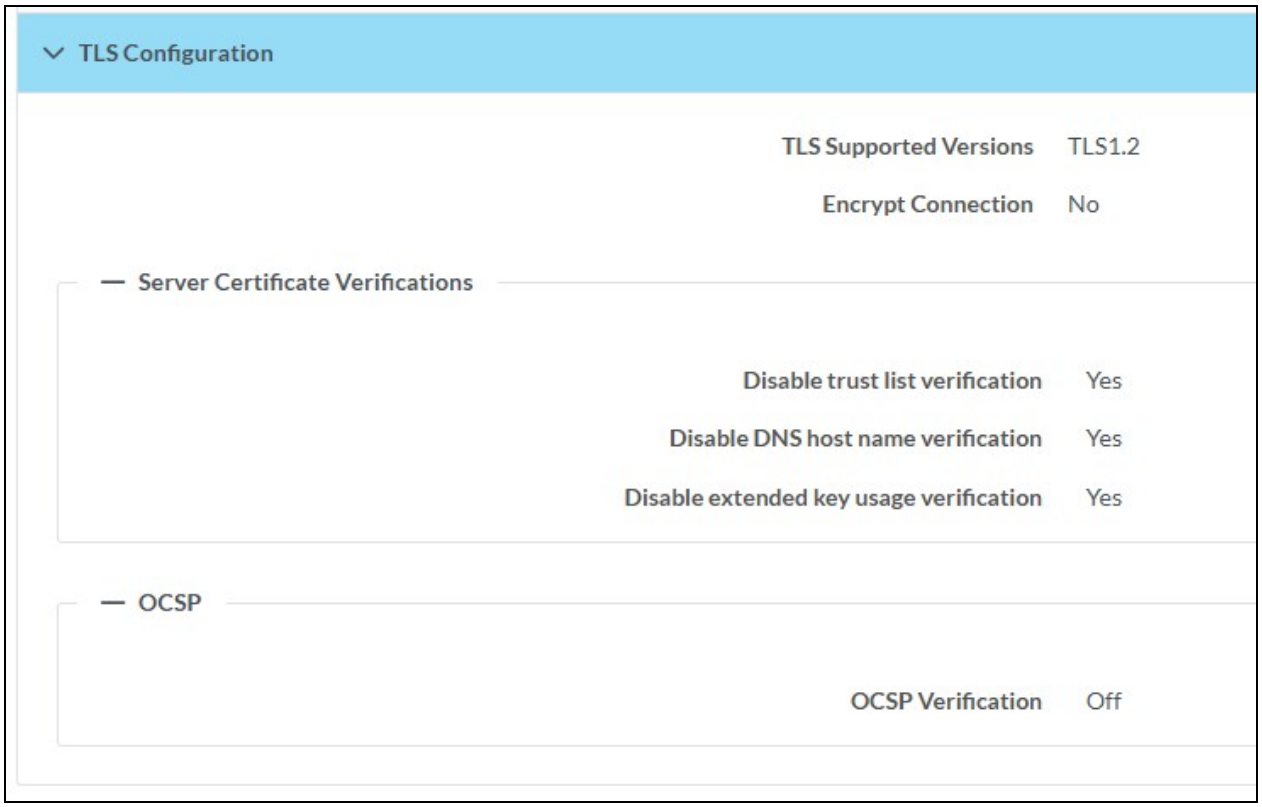


The following information is provided:

- **Encrypt Connection**: Displays **ON** or **OFF** depending on whether the control system connection is encrypted or not.
- **IP ID**: Displays the current IP ID of the DM-NAX-4ZSA-50.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE** to indicate the control system connection status.

TLS Configuration

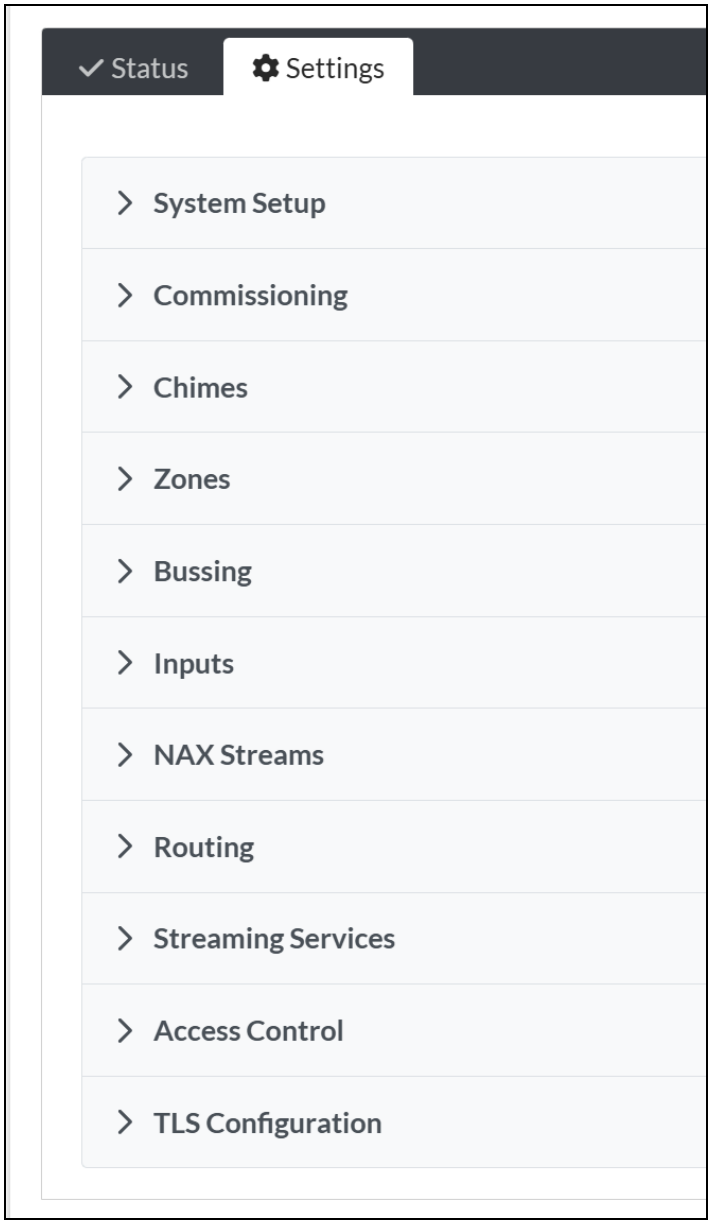
The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-4ZSA-50.



TLS settings can be adjusted in the **Settings** tab under the **System Setup** and **TLS Configuration** accordions. Refer to Settings on page 235 for information.

Settings

The **Settings** page provides controls for configuring various DM-NAX-4ZSA-50 settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-4ZSA-50 web interface.



The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 236
- Commissioning on page 242
- Chimes on page 243
- Zones on page 244
- Bussing on page 265

- Inputs on page 266
- DM NAX Streams on page 267
- Routing on page 269
- Streaming Services on page 271
- Access Control on page 278
- TLS Configuration on page 282

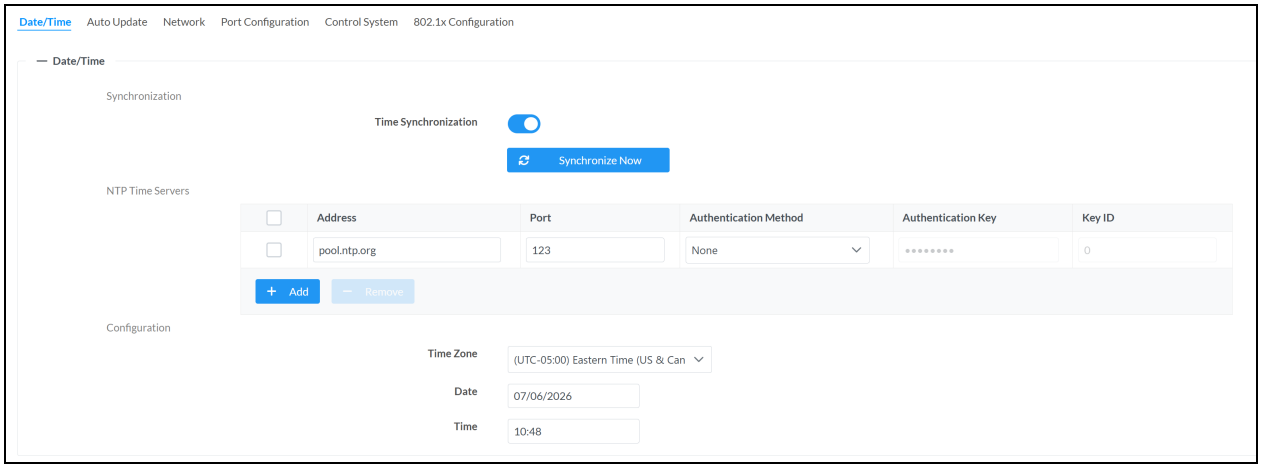
System Setup

The **System Setup** accordion contains settings to configure the following system functions:

- Date/Time on page 236
- Auto Update on page 237
- Network on page 238
- Port Configuration on page 239
- Control System on page 240
- 802.1X Configuration on page 241

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-4ZSA-50.



Configure the available settings:

- Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
- In the **NTP Time Servers** table, enter the **Address** (URL) and **Port** of an NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server.

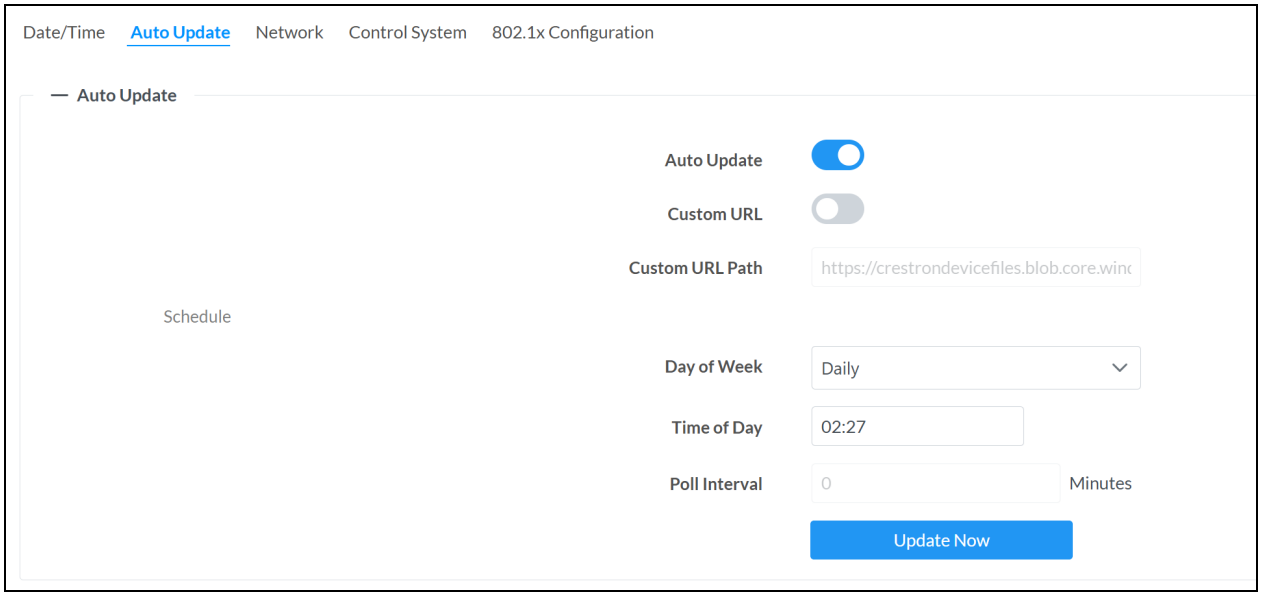
  If an **Authentication Method** other than **None** is selected (either **MD5**, **SHA1**, or **SHA256**), enter an **Authentication Key** and **Key ID** provided by the network administrator.

  > **NOTE:** Up to three time servers can be added on a device.

- Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.
- Select the correct time zone from the **Time Zone** drop-down list.
- Enter the current date in the **Date** field.
- Enter the current time in the **Time** field (in 24-hour format).

Auto Update

The DM-NAX-4ZSA-50 can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



To configure the **Auto Update** feature:

1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the update server URL by doing either of the following:
   - Set the **Custom URL** toggle to the left to use the default URL to download the updates from the Crestron server.
   - Use a custom URL:
     a. Set the **Custom URL** toggle to the right position.
     b. Enter the path to a custom manifest file in the **Custom URL Path** text box (in FTP or SFTP URL format).
     c. Use the Crestron Auto Update Tool within Crestron Toolbox software to generate a custom manifest file.
     d. Store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server at the address specified in step b.
3. Set a schedule for the automatic firmware update by doing either of the following:

- Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
- Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the **Poll Interval**.

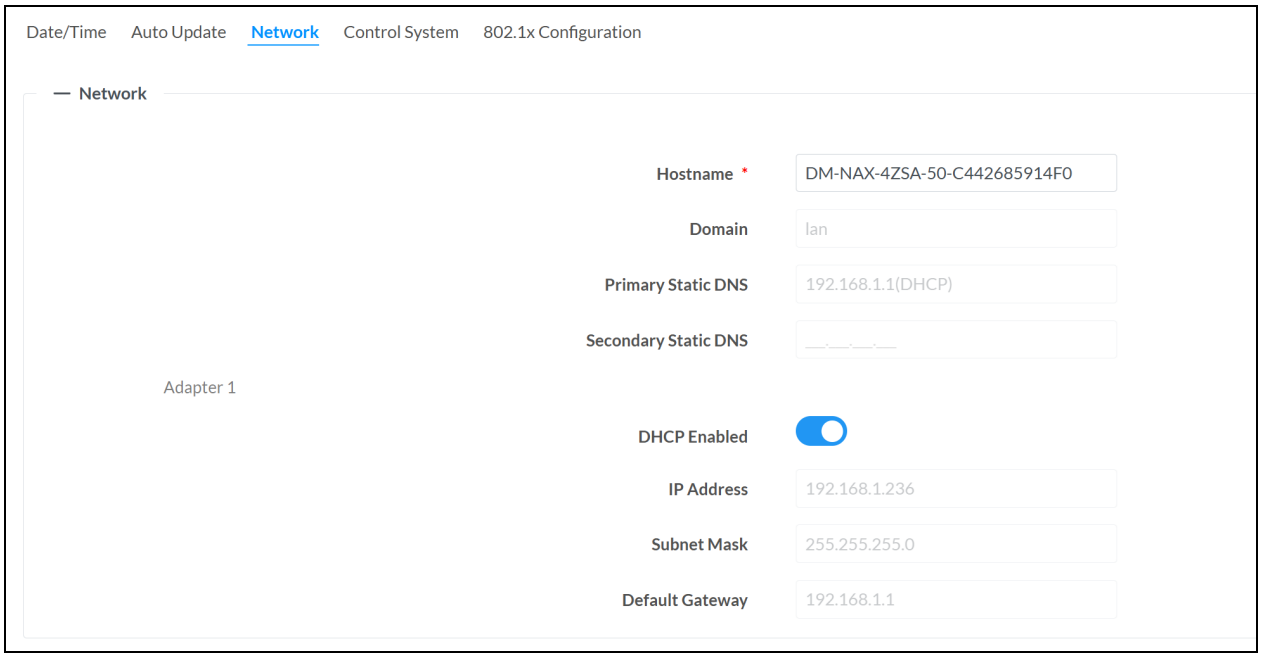
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-4ZSA-50, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

> **NOTES:**
>
> - Most settings in this section are automatically assigned by a DHCP server. The DHCP toggle for all adapters must be set to the left position in order to manually configure the **Domain** and **DNS** settings.
> - DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX device Ethernet ports to prevent conflicts.



Configure the available network settings:

- Enter a hostname for the device in the **Hostname** field.

  > **NOTE:** By default, the hostname of the DM-NAX-4ZSA-50 consists of the model name followed by the MAC address of the device. For example: DM-NAX-4ZSA-50-00107FB58088.

- Enter a network domain in the **Domain** field.

- Enter a primary DNS IP address in the **Primary Static DNS** field.
- Enter a secondary DNS IP address in the **Secondary Static DNS** field.

Adapter 1

The **Adapter 1** section contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-4ZSA-50 is assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-4ZSA-50 is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **IP Address**: Enter a unique IP address for the DM-NAX-4ZSA-50.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

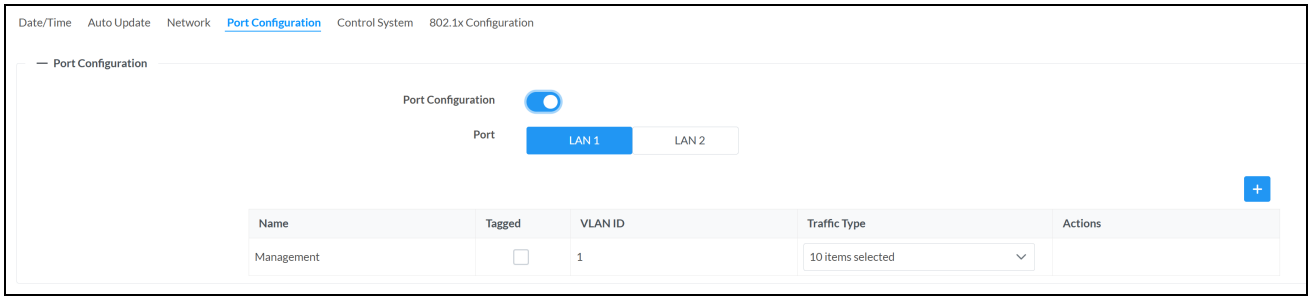
> **NOTE:** An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-4ZSA-50 are set to isolate traffic using the **Port Configuration** feature (see Port Configuration on page 239). The settings for **Adapter 2** are identical to those available for **Adapter 1**.

Port Configuration

Use the **Port Configuration** tab to isolate and VLAN tag certain types of network traffic to each of the discrete LAN ports on the DM-NAX-4ZSA-50.

Set the **Port Configuration** toggle to the right position to enable this feature and display the rest of the settings. Set the toggle to the left to disable the feature and share all network traffic between both LAN ports. This feature is disabled by default.

When **Port Configuration** is enabled, up to ten unique network interfaces can be created to handle and tag traffic across the two physical LAN ports on the DM-NAX-4ZSA-50. A generic **Management** interface is automatically created on **LAN 1** and cannot be deleted.

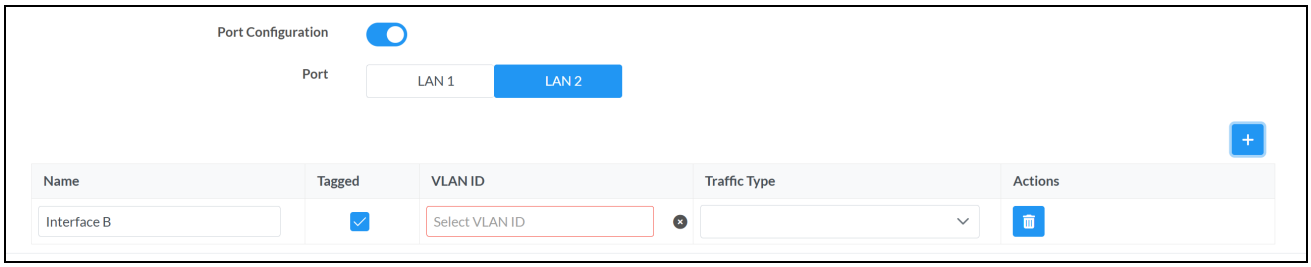


Select **LAN 1** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 1** on the DM-NAX-4ZSA-50:

- Use the **Traffic Type** drop-down list to select which traffic types will pass on the **Management** interface. By default, all traffic types are selected for the **Management** interface. Any selected types will be able to pass on LAN 1. Any unselected types will be dropped by the internal network switch.
- To add another interface to **LAN 1**, select **+** at the top-right of the table. Another row is added to the table.
- In each new row, configure the following:
  - Enter a name for the interface in the **Name** field.
  - Select the **Tagged** checkbox to VLAN tag the traffic associated with the interface.
  - Enter a unique **VLAN ID**.
  - Select one or more **Traffic Type** options from the drop-down list.
  - Select the delete icon to delete the interface.

Select **LAN 2** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 2**.

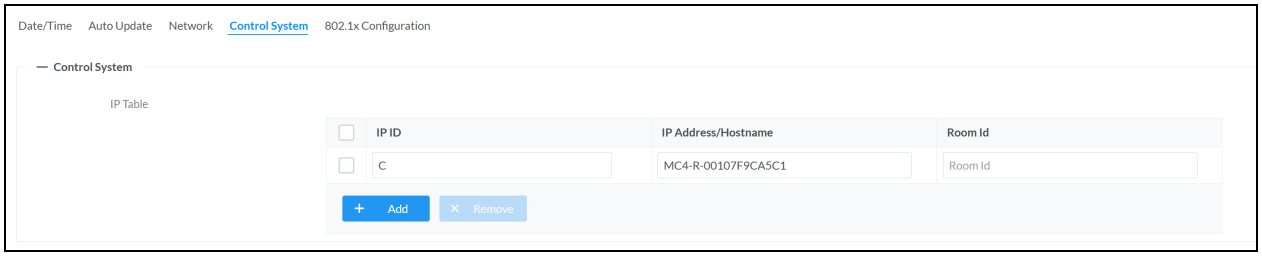
LAN 2 does not have any interfaces added by default. To add another interface to **LAN 2**, select the **+** icon at the top-right of the table. Another row will be added to the table. Interface configuration for **LAN 2** is the same as for **LAN 1**.



When the ports are configured as desired, select **Save Changes**. A restart confirmation window is displayed. Select **Yes, reboot now** to save the changes and restart the device or select **No** to cancel the restart.

Control System

Select the **Control System** tab to configure the connection from the DM-NAX-4ZSA-50 to a control system.



Select **+ Add** to add a new row to the IP table. Up to 16 IP table entries can be added to the DM-NAX-4ZSA-50.

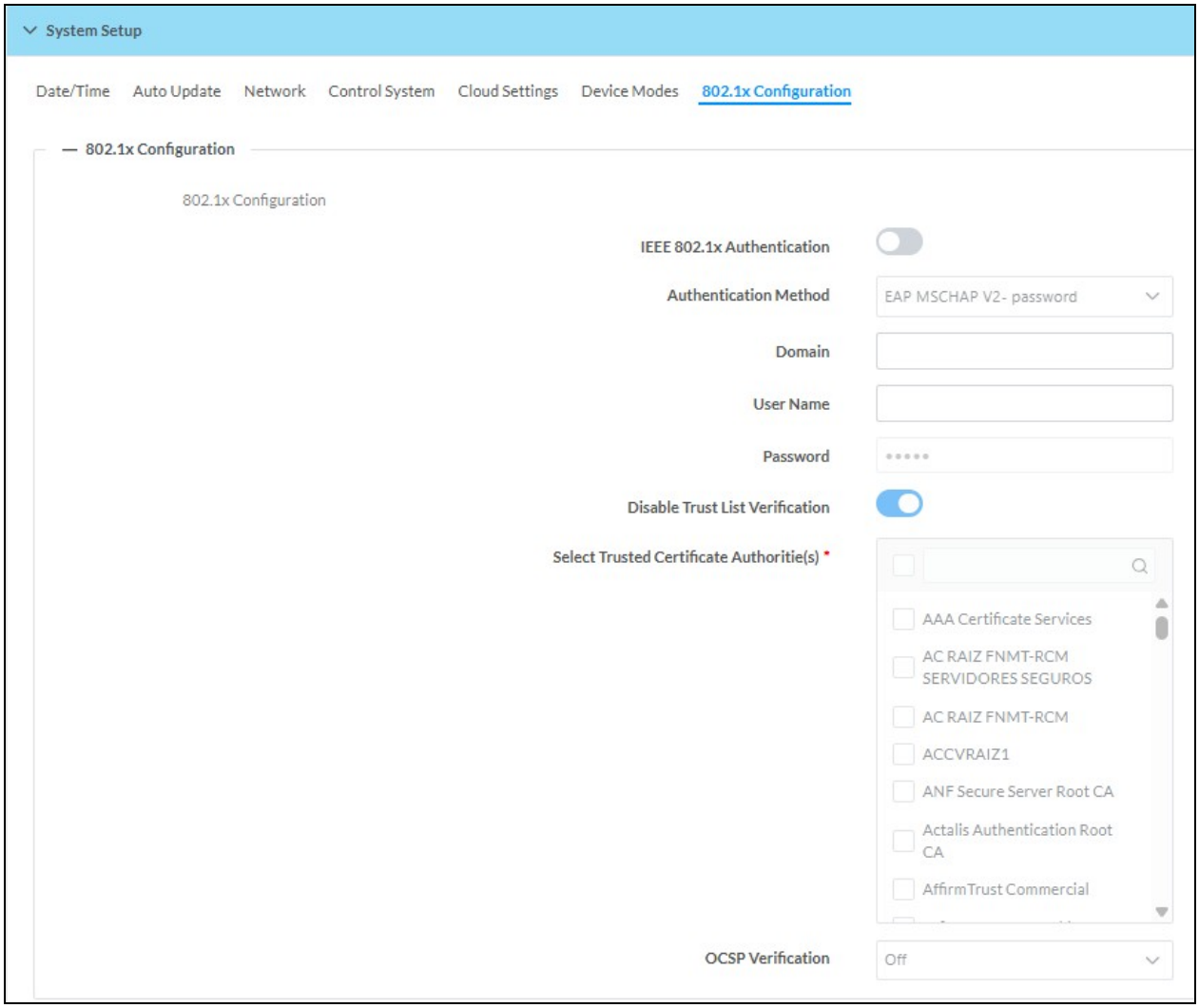
In each row, configure the following:

- Enter the IP ID of the DM-NAX-4ZSA-50 in the **IP ID** field.
- Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
- Enter the Room ID in the **Room ID** field.

To remove an IP table entry, select the checkbox to the left of an entry's table row, and then select **X Remove**.

802.1X Configuration

The DM-NAX-4ZSA-50 has built-in support for the 802.1x standard, allowing communication with the authentication server and access to protected corporate networks.



To configure 802.1x authentication on the amplifier:

1. Set the **IEEE 802.1x Authentication** toggle to the right to enable 802.1x. This will enable all remaining options in the **802.1x Configuration** tab.
2. Select an option from the **Authentication Method** drop-down, either **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.

3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate; it only requires credentials.
4. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

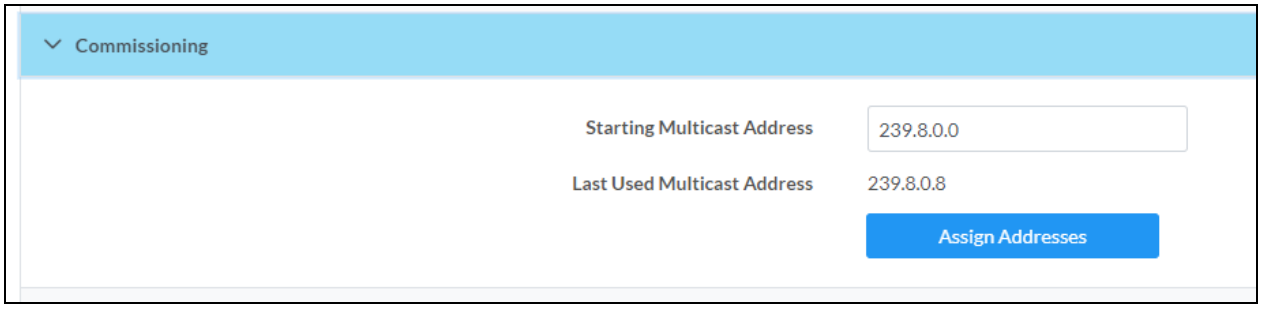
    The **Select Trusted Certificate Authoritie(s)** list contains signed trusted Certificate Authorities (CAs) preloaded into the audio processor. Select the check box next to each CA whose certificate can be used for server validation as specified by a network administrator.

    If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.

Once the 802.1x settings are configured as desired, select **Save Changes** to save the changes to the device and restart it.

Commissioning

Use the **Commissioning** accordion to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.



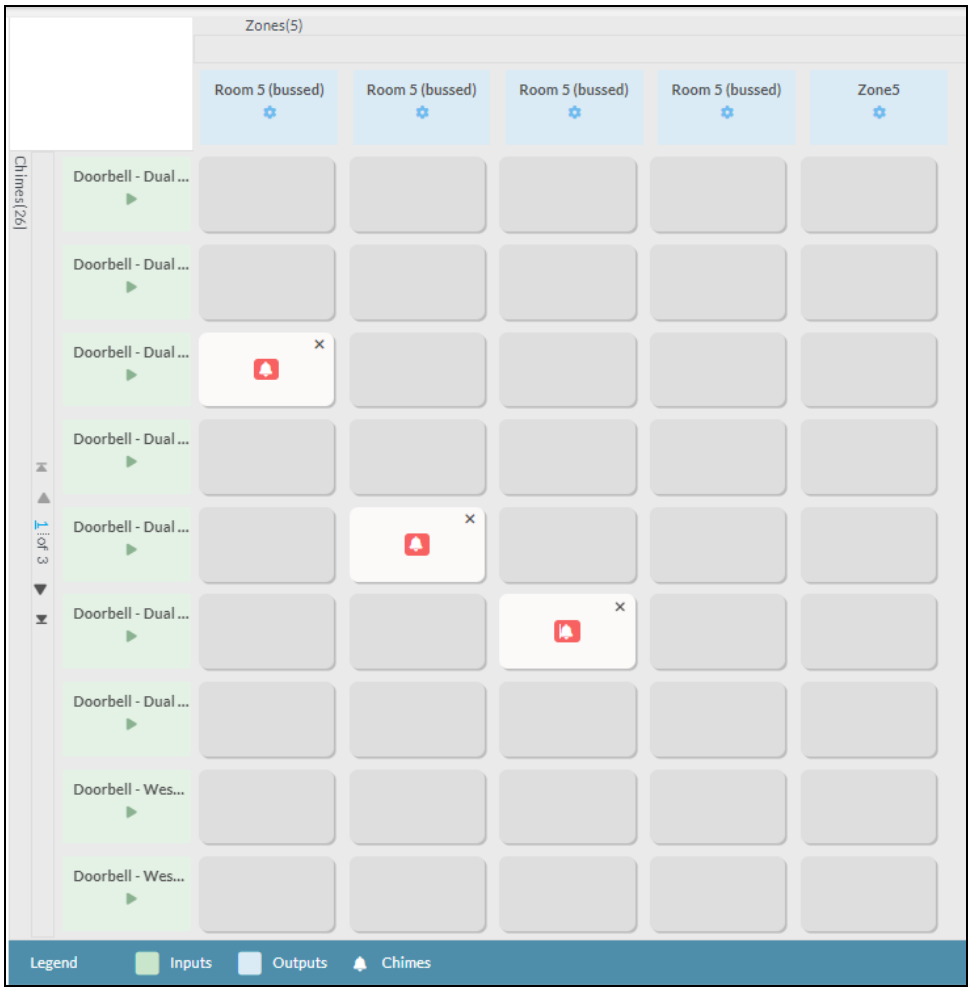
Specify the first multicast address for the amplifier to assign in the **Starting Multicast Address** field. The **Last Used Multicast Address** field displays the final address in the range that the amplifier will assign.

Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-4ZSA-50 a unique multicast address in the specified range. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.247.

> **NOTE:** Selecting **Assign Addresses** will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Chimes

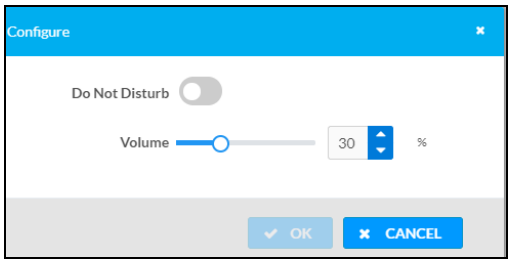
The DM-NAX-4ZSA-50 features a library of built-in chime audio files to use as doorbells or alerts. Each chime file can be assigned to one or more zones on the amplifier, then triggered via a custom program to play back over those zones. Use the **Chimes** accordion to assign the chimes to the zones.



For each chime file, select the cells that correspond to the **Zones** designated to play that specific chime. You can assign multiple chimes to the same zone. To view all available chimes, use the up ▲ or down ▼ arrows at the left of the matrix to change pages.

To configure the chime volume of a zone:

1. Select the gear icon corresponding to the zone. A **Configure** window is displayed.



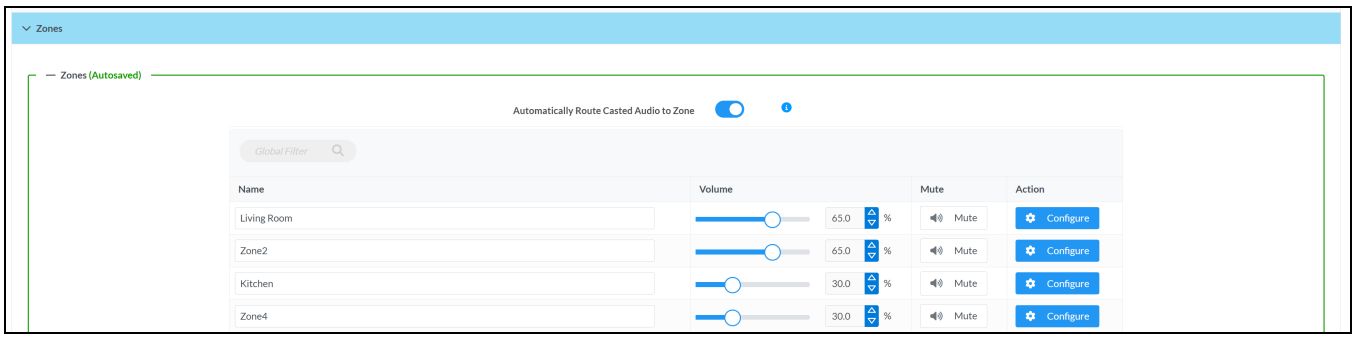
2. Set the **Do Not Disturb** toggle to the right to mute all chimes for the zone. Set the **Do Not Disturb** toggle to the left to unmute the chimes.
3. Set the volume by doing one of the following:
    - Move the **Volume** slider to the right to increase or to the left to decrease the chime volume.
    - Use the **%** arrows to increase or decrease the chime volume. Values range from 0 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Volume** field.

    > **NOTE:** The chime volume is independent of the zone volume control.

4. Select **OK** to apply the new settings.

Zones

The **Zones** accordion contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a **Configure** option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

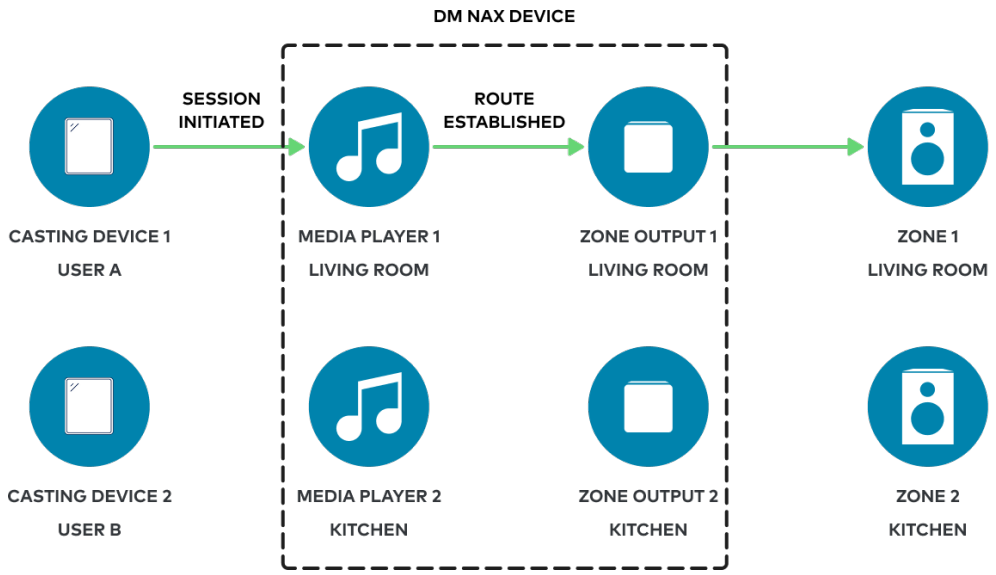
Cast Audio Automatic Routing

The **Automatically Route Casted Audio to Zone** toggle provides two ways to handle the routing of audio from Apple AirPlay® or Spotify Connect™ casting sessions.

Automatic Routing Enabled

When the toggle is in the right position, initiating a casting session will route the receiving media player to an output zone automatically.

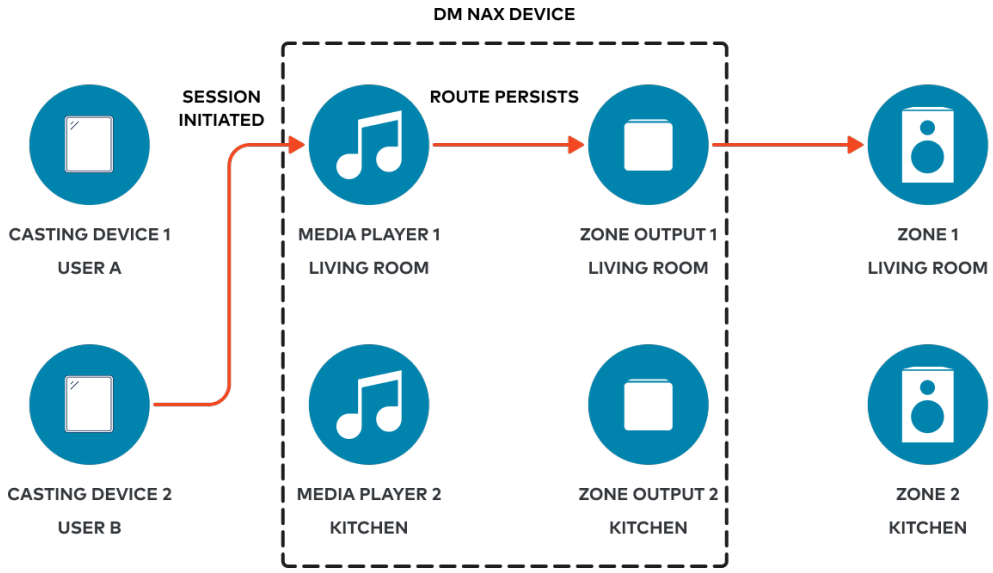
Use this option with Crestron Home® OS or when the media players are named after rooms in custom programming. The following diagram shows an example workflow for this option.



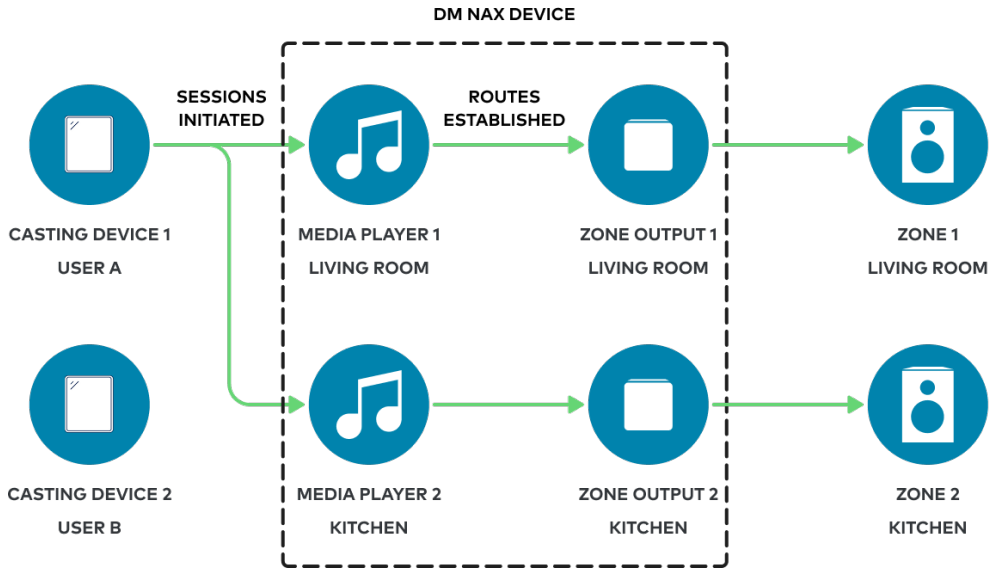
In the diagram above:

- Media Player 1 is named **Living Room** and Zone 1 is wired to the living room speakers.
- Media Player 2 is named **Kitchen** and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **Living Room** and **Kitchen** available as casting destinations.
- Selecting **Living Room** initiates a casting session with Media Player 1 and routes Media Player 1 to Zone 1.

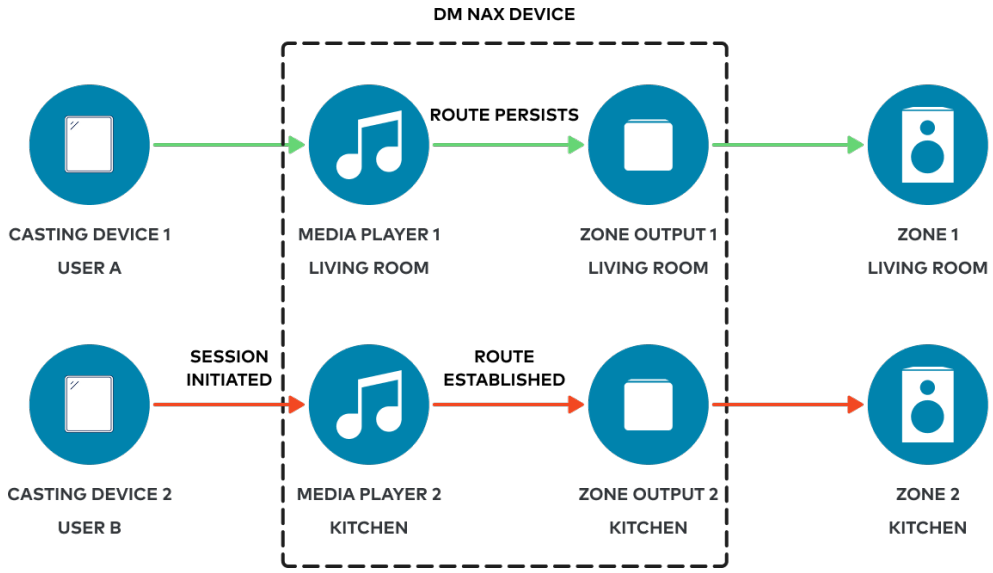
If User B then selects **Living Room**, they take over the casting session on Media Player 1 and their audio is heard in the living room.



If User A casts to both destinations, they initiate a session on both media players and playback begins in both zones.

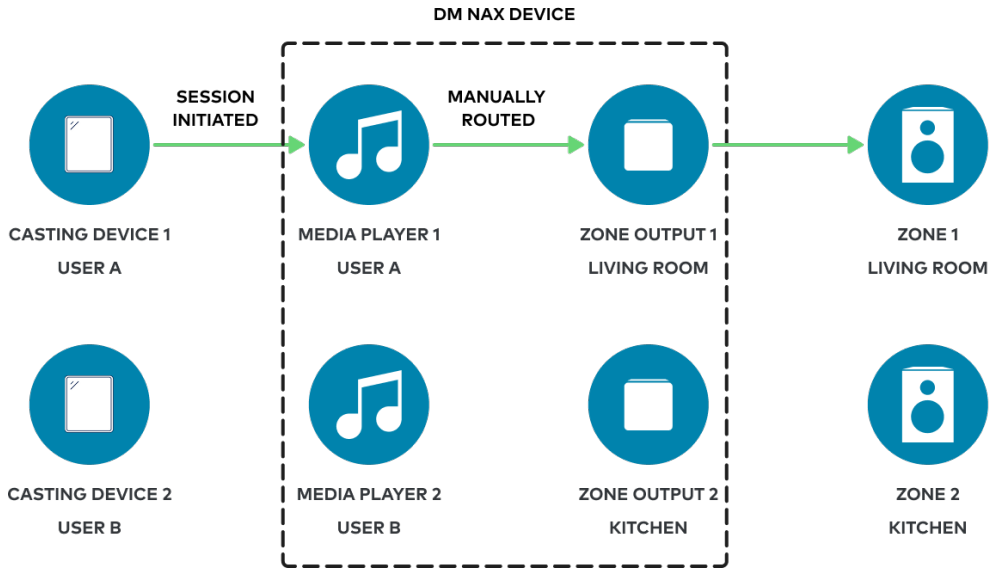


If User B then selects **Kitchen**, they take over the casting session on Media Player 2 and their audio is heard in the living room, but User A remains connected in the living room.



Automatic Routing Disabled

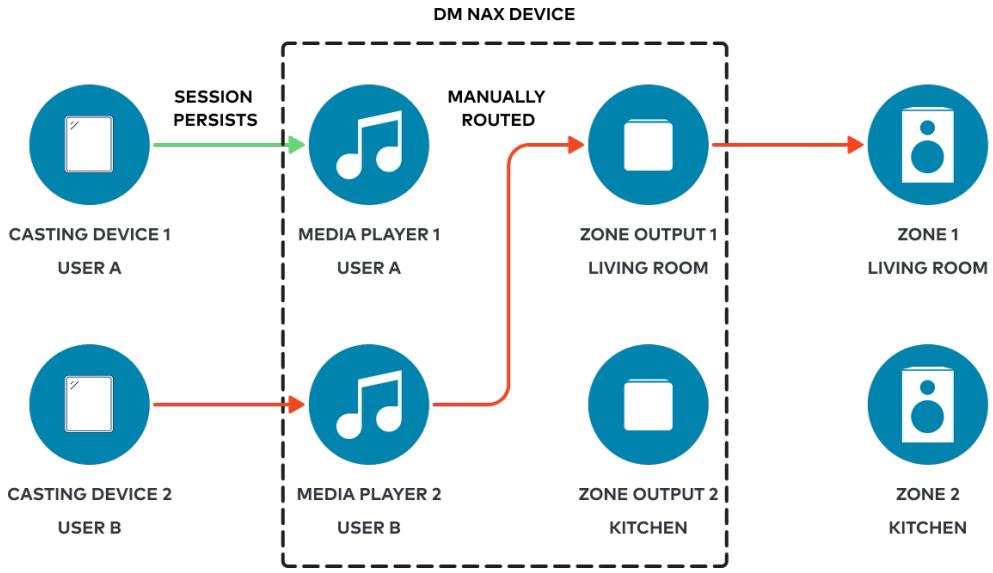
When the toggle is in the left position, initiating a casting session does not route the receiving media player to a zone. The route must be established via programming or the **Routing** table. Use this option when associating media players with specific users in custom programming. The following diagram shows an example workflow for this option.



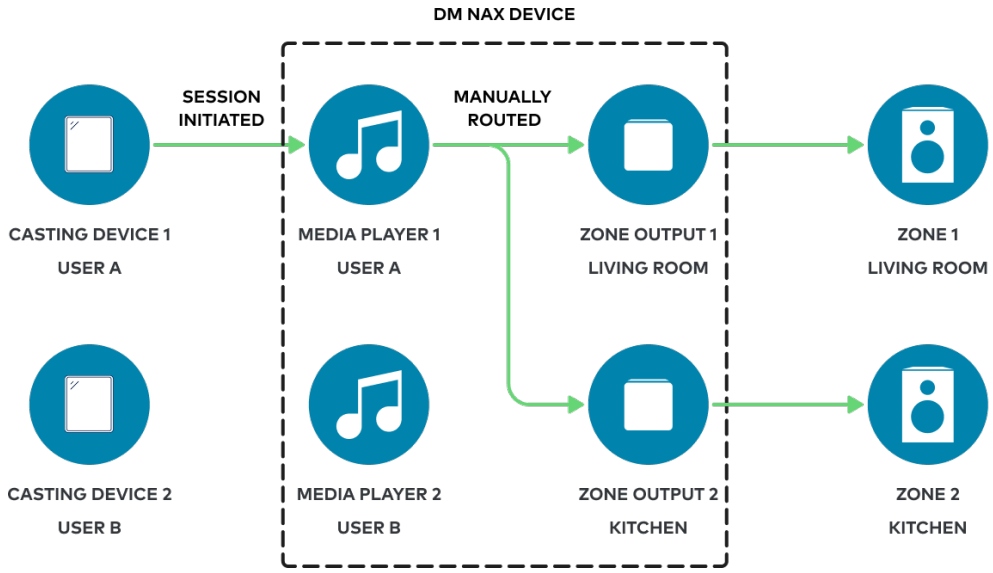
In the diagram above:

- Media Player 1 is named **User A** and Media Player 2 is named **User B**.
- Zone 1 is wired to the living room speakers and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **User A** and **User B** available as casting destinations.
- Selecting **User A** initiates a casting session with Media Player 1. Media Player 1 must then be manually routed to the living room and kitchen.

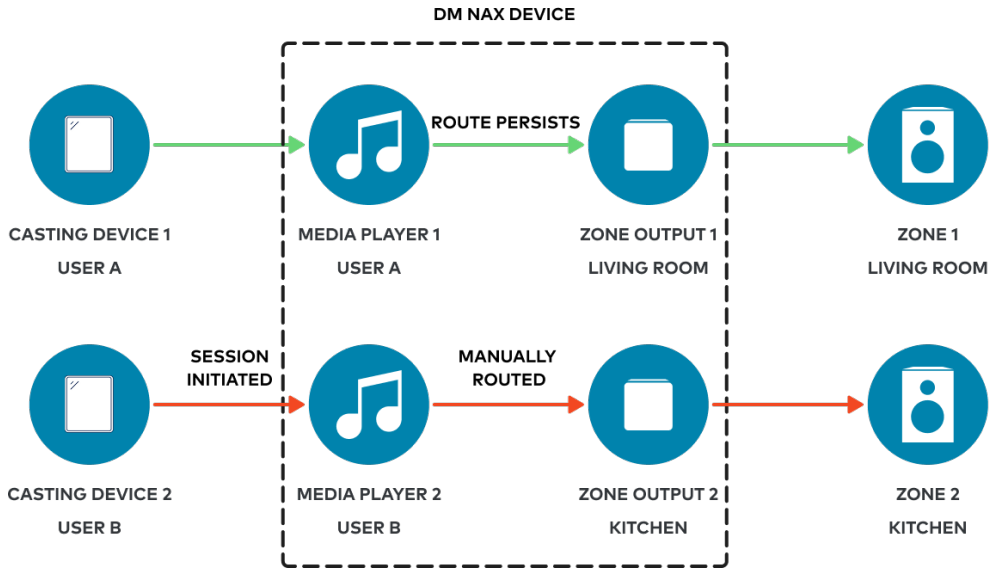
If User B selects the casting destination named **User B**, a casting session with Media Player 2 is initiated. Manually routing Media Player 2 to the living room zone will unroute Media Player 1, but User A's casting session will continue. Media Player 1 can still be routed to other zones.



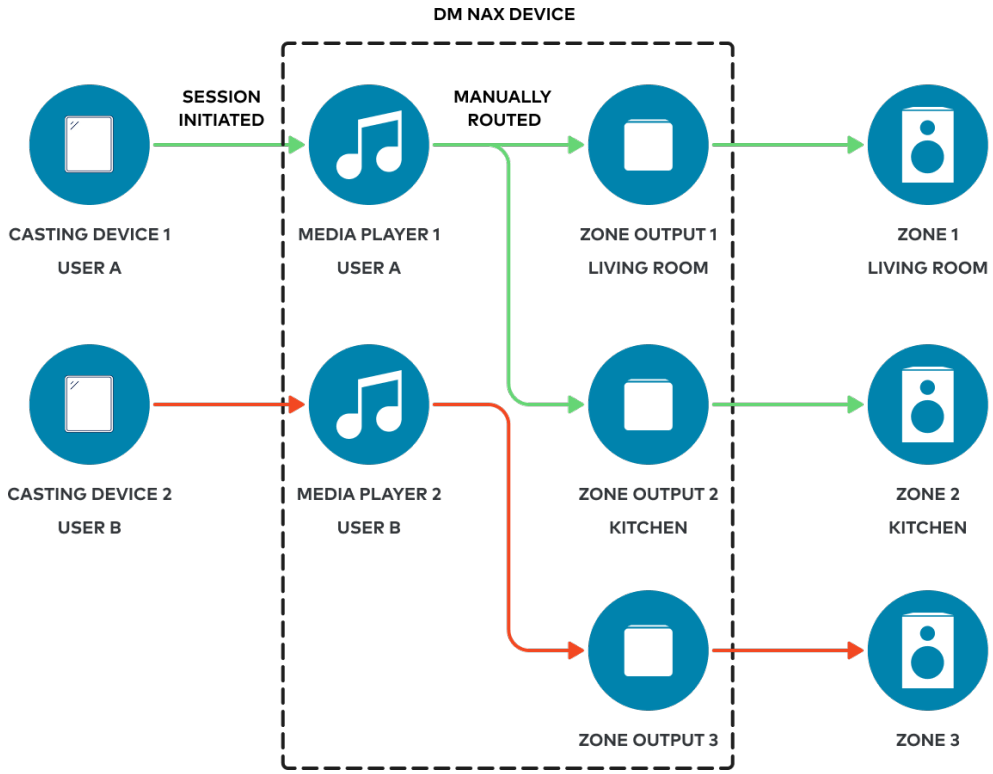
If User A casts to Media Player 1 and routes the player to both destinations, playback begins in both zones while Media Player 2 remains available.



If User B casts to Media Player 2 and routes it to Zone Output 2, their audio is heard in the kitchen, but User A remains connected in the living room.

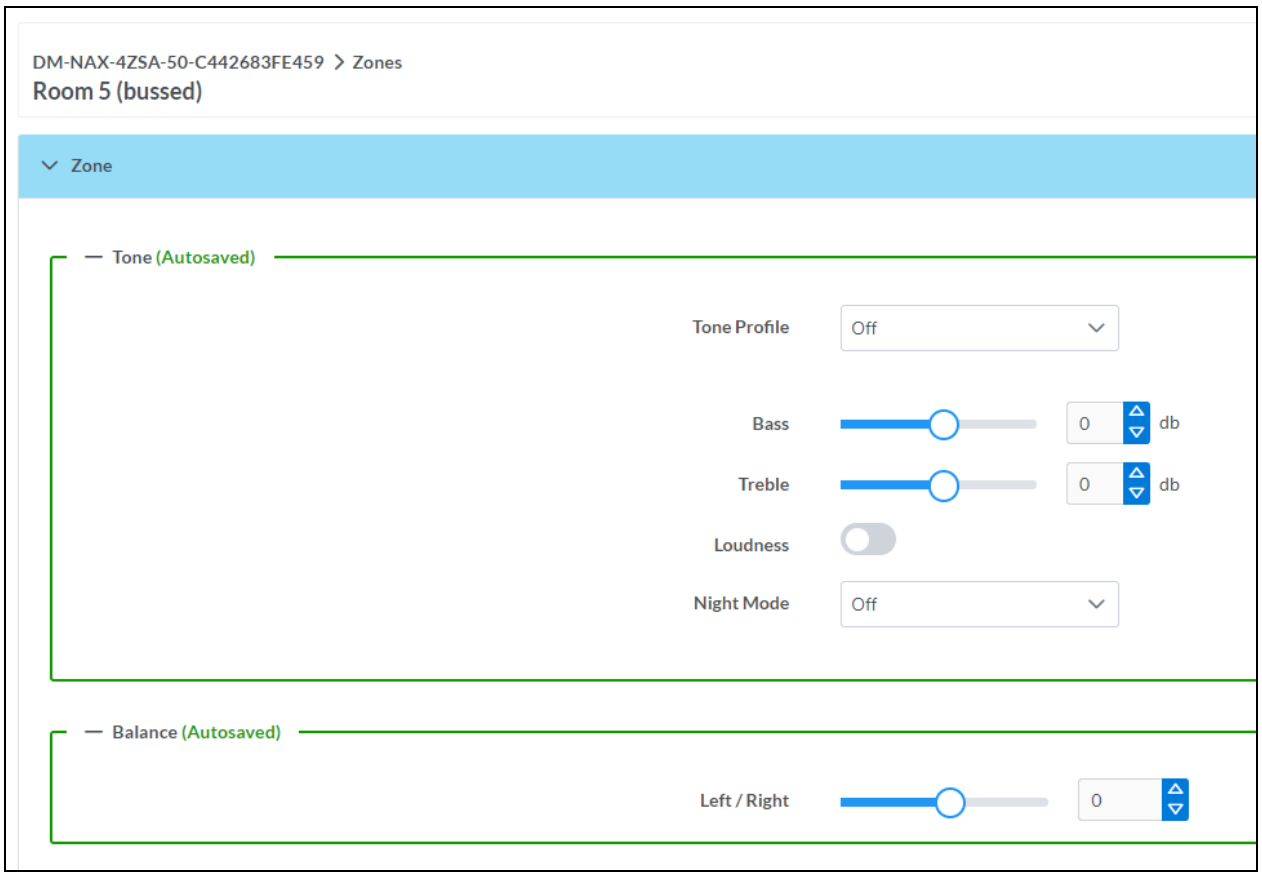


User B can also cast to Media Player 2 and route it to any of the other zones on the DM NAX device without interfering with User A's playback in the living room and kitchen.



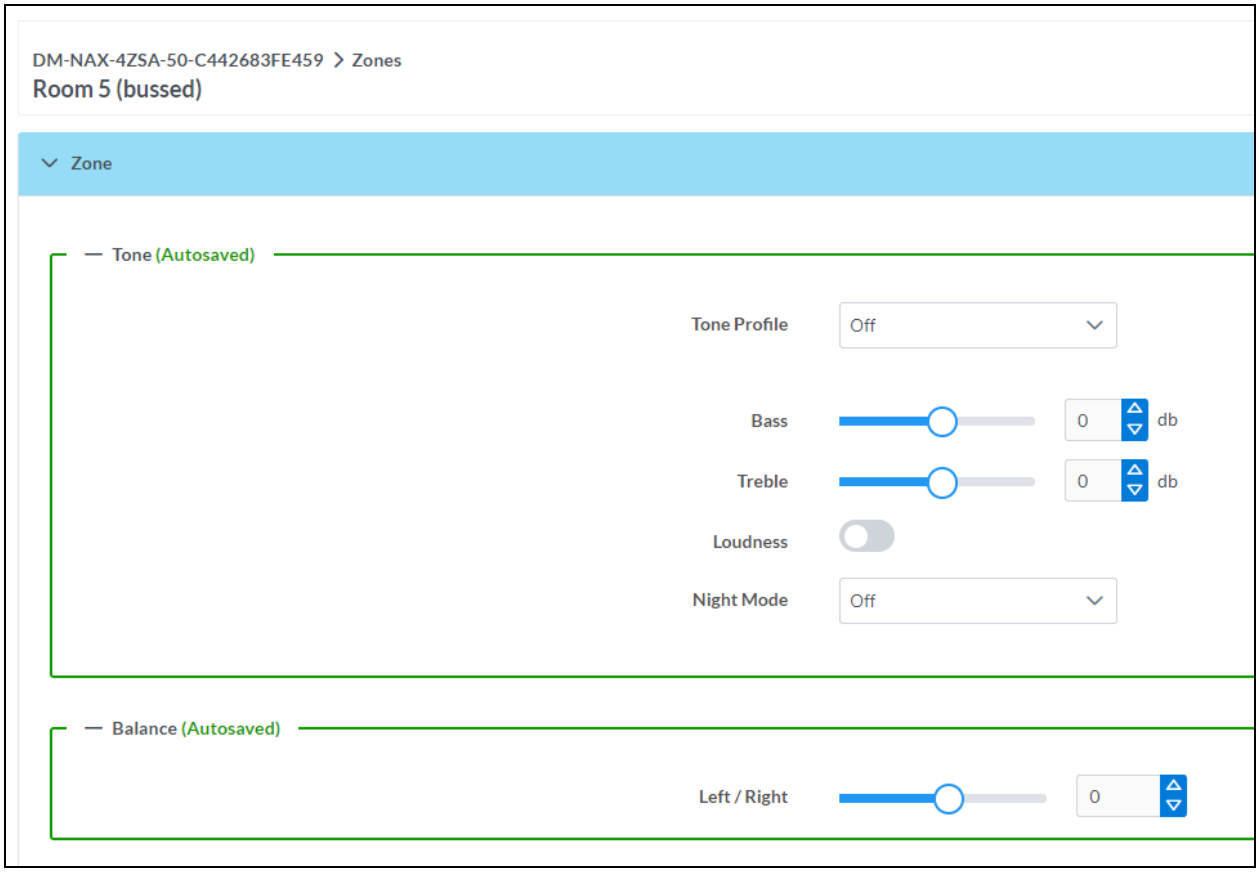
Zone Settings

To configure zone settings, select **Configure**. The **Edit Zone** window is displayed.

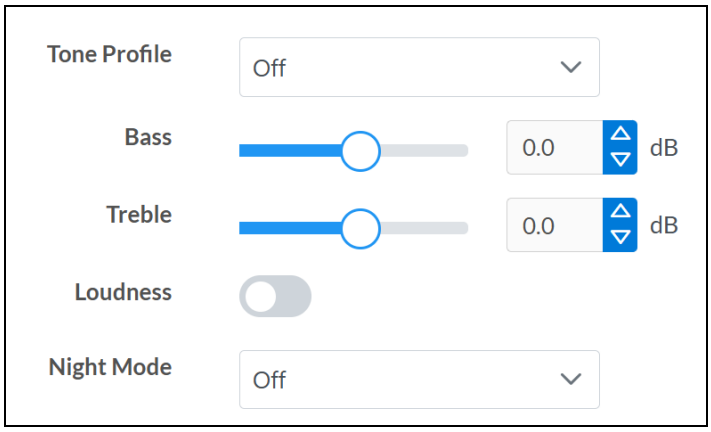


Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



Tone

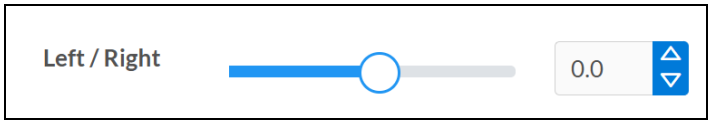


The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

> **NOTE:** The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

- To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down list. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Treble** field.
- To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.
- The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down list. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

Balance



To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay

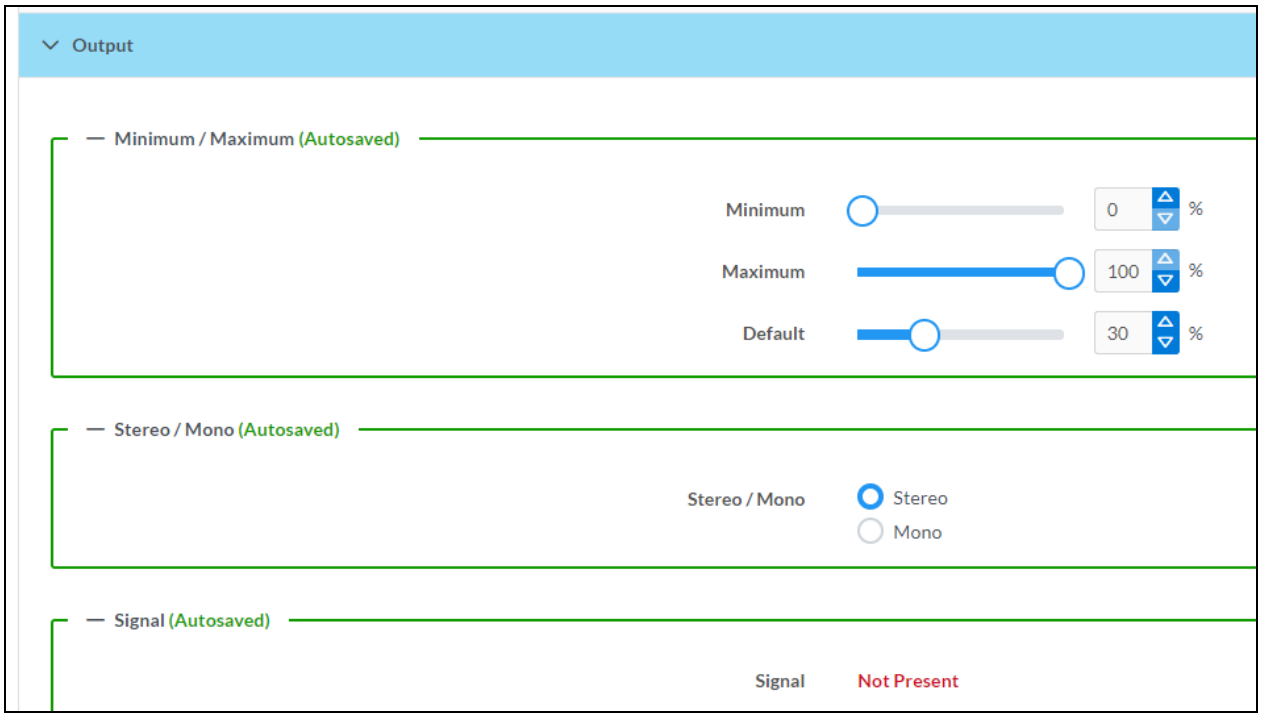


To add a delay to the audio output, do one of the following:

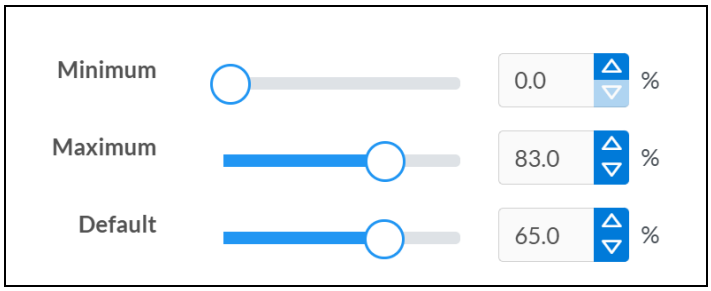
- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Configure Speaker Profile**, **Speaker Configuration**, **Casting**, **Speaker/Faults**, **Line Out**, **Signal Generator**, **Advanced Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



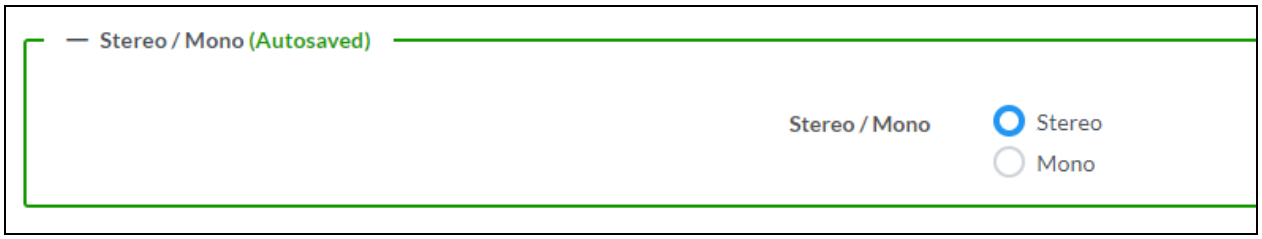
Set **Minimum**, **Maximum**, and **Default** volume values by doing one of the following:

- Move each slider to the right to increase or to the left to decrease the associated volume value.
- Use the **%** arrows to increase or decrease the volume.
- Manually enter a value in the field.

NOTES:

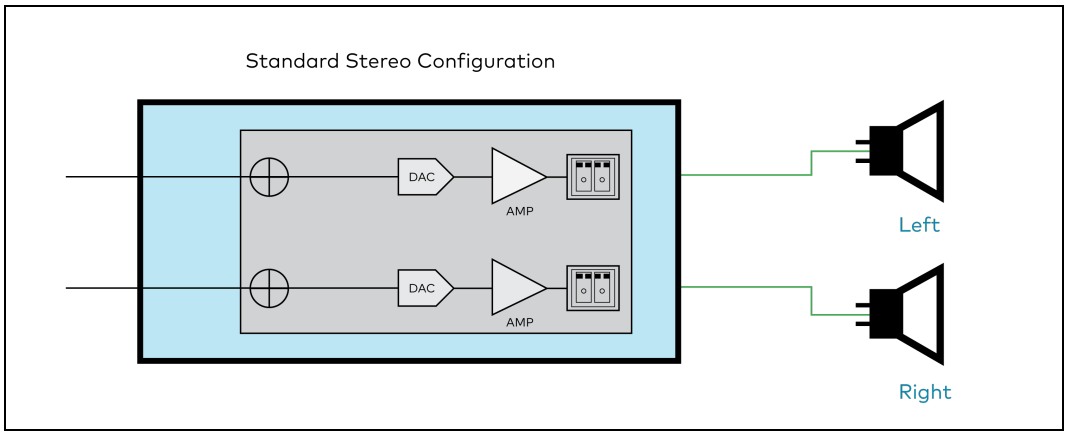
- The range for **Minimum** is 1-50%. The range for **Maximum** is 51-100%.
- When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to that range. For example, with a 10% **Minimum** and 80% **Maximum** set for a zone, the 1-100% range of the **Zone** volume control is scaled to 10%-80%.
- The **Default** volume is applied as the **Zone** volume whenever the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono

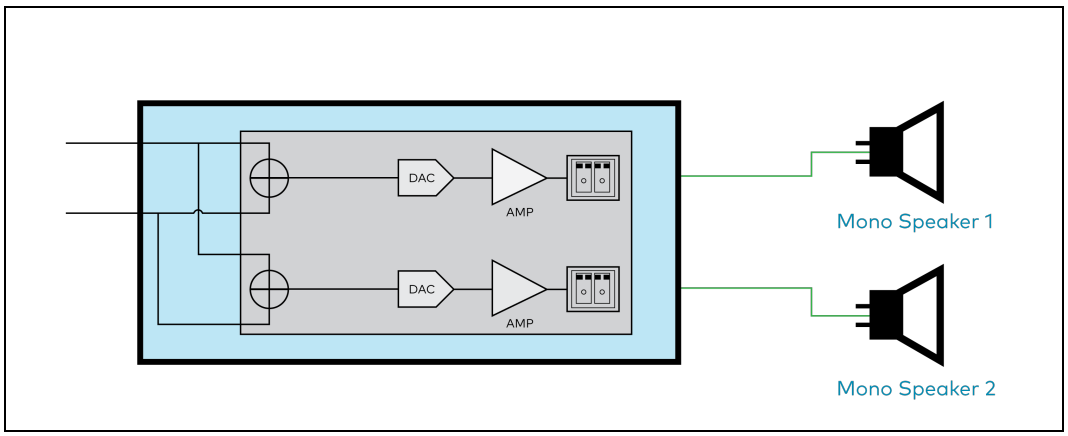


Select either **Stereo** or **Mono** from the **Stereo/Mono** field.

Stereo

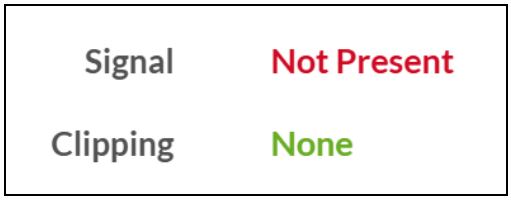


Mono



NOTE: The signal flow diagrams above are specifically for the speaker output zones (Zones 1 through 4). The diagrams still apply for Zone 5 with the exception of the amplifiers shown in the path of each output channel.

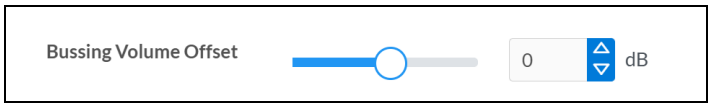
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset



Bussing Volume Offset provides a per-zone volume adjustment relative to the other zones assigned to the same bus.

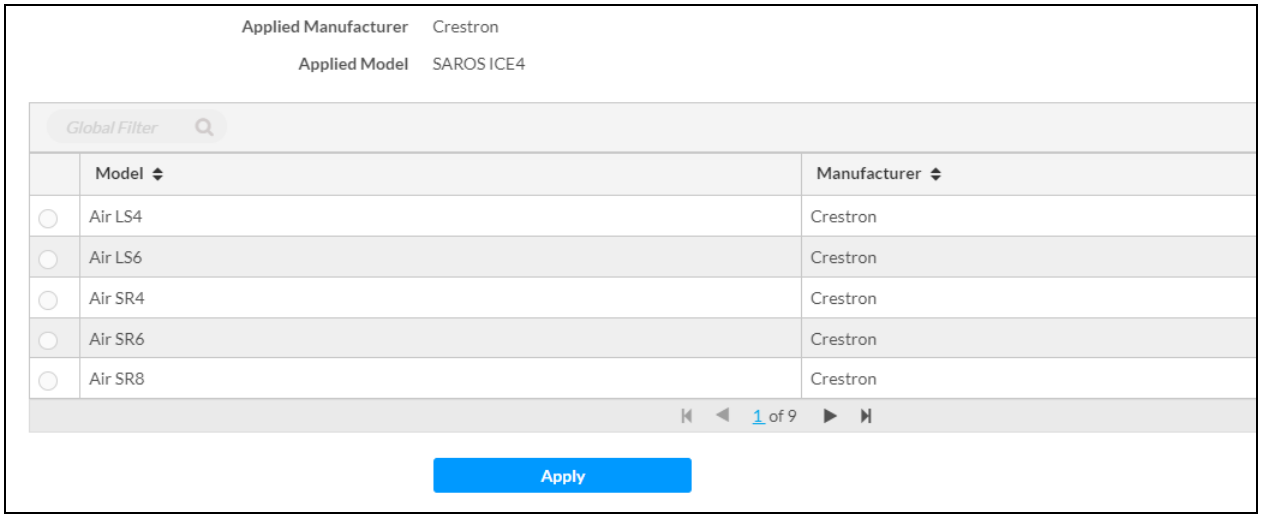
To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

Configure Speaker Profile

The DM-NAX-4ZSA-50 has a library of built-in speaker profiles that contain equalizer, speaker protection, and impedance settings specific to Crestron and third-party speaker models. Custom speaker profiles can also be generated and loaded to the DM-NAX-4ZSA-50. The **Configure Speaker Profile** field is used to apply these speaker profiles to a given zone of the DM NAX device.

CAUTION: Applying a speaker profile on a zone will overwrite the current **Speaker Configuration** and **Equalizer** settings.



In the **Global Filter** field, enter the speaker's model name to search for its associated profile. Any speaker profiles matching the search criteria are displayed.

To apply a speaker profile:

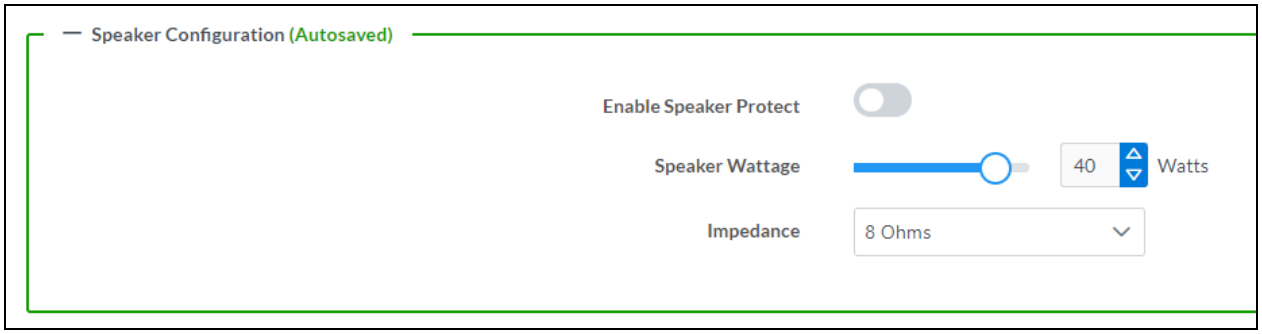
1. Select a speaker profile.
2. Select **Apply**.

   The equalizer, impedance, and speaker protection settings of the zone are updated as per the applied speaker profile.

   > **NOTE:** Zone 5 does not have impedance or speaker protection settings, but speaker profiles can still be applied to the zone output. Only the equalizer settings are effected when a speaker profile is applied to Zone 5.

After applying a speaker profile, the **Speaker Configuration** and **Equalizer** settings for the zone can still be edited. The **Configure Speaker Profile** section will display a notification if these settings were altered after the speaker profile was applied.

Speaker Configuration (Zones 1 - 4 Only)



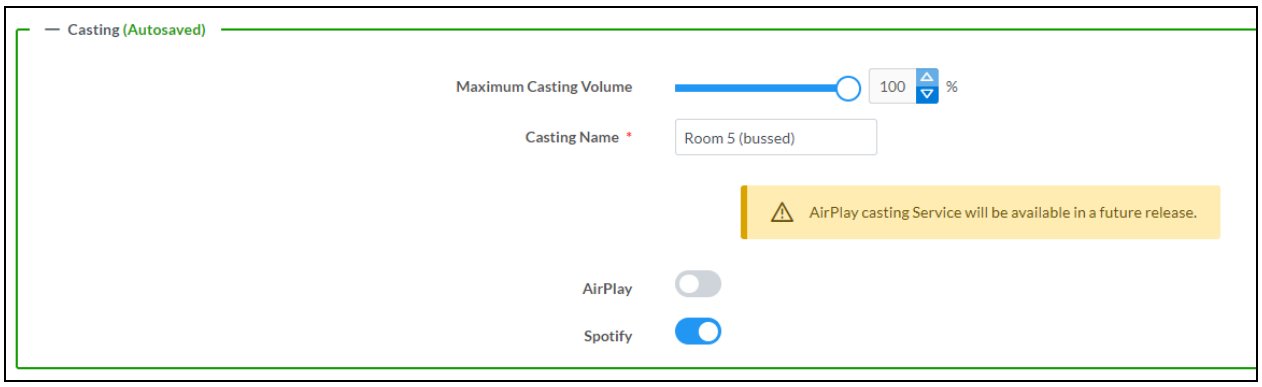
Use the **Speaker Configuration** section to limit the output power of the amplifier for the zone:

1. Set the **Enable Speaker Protect** toggle to the right position to enable speaker protection for the zone output. Set the toggle to the left position to disable speaker protection. By default, **Enable Speaker Protect** is set to the left position.
2. Set the maximum output wattage by doing one of the following:
   - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the maximum peak amplifier wattage that can be output to the speaker.
   - Use the **Watts** arrows to increase or decrease the maximum peak amplifier wattage that can be output to the speaker. Values range from 5 W to 50 W, adjustable in increments of 1 W.
   - Manually enter a value in the **Speaker Wattage** field.
3. Select the impedance of the speaker on a selected zone from the **Impedance** drop-down. Values are **4 Ohms** and **8 Ohms**.

   > **NOTE:** The DM-NAX-4ZSA-50 does not support output bridging.

Casting

Use the **Casting** section to enable or disable Apple AirPlay® and Spotify Connect™ casting, as well as set a maximum casting volume and friendly name for the zone.



Configure the available settings:

- **Maximum Casting Volume** is an alternate value for the **Maximum** volume set under Minimum/Maximum Volume on page 255. This maximum is applied to the zone only when a casting service is routed to it. Set the maximum casting volume by doing one of the following:
  - Move the **Maximum Casting Volume** slider right to increase or left to decrease the maximum volume.
  - Use the arrows to increase or decrease the maximum casting volume. Values range from 51% to 100%, adjustable in increments of 1%.
  - Manually enter a value in the **Maximum Casting Volume** field.

  > **NOTE**: If the regular **Maximum** volume value is lower than the **Maximum Casting Volume** value, the lower value will be applied instead.

- Enter a friendly name in the **Casting Name** field. Once AirPlay and/or Spotify Connect are enabled, this name will be displayed as an available destination on the casting device.

The DM-NAX-4ZSA-50 supports Apple AirPlay 2 casting.

To stream media from an iOS® device to a zone on the DM-NAX-4ZSA-50 via AirPlay casting:

1. Ensure that the iOS device and DM-NAX-4ZSA-50 are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-4ZSA-50, AirPlay will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 239 for more information.

2. Set the **AirPlay** toggle to the right position to enable AirPlay casting to the zone's associated media player.
3. On your iOS device:
   a. Enable AirPlay. Refer to this support article for information on enabling AirPlay on an iOS device.
   b. From the list of available AirPlay destinations, select the DM-NAX-4ZSA-50 media player you would like to stream to. The iOS device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-5 route to their respectively numbered output zones 1-5 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if an AirPlay casting session on media player 5 starts and it is not already routed to another zone.

   c. After the AirPlay stream begins, control the volume of the streaming DM-NAX-4ZSA-50 output zone directly from your iOS device.

Set the **AirPlay** toggle to the left to disable AirPlay casting for a DM-NAX-4ZSA-50 media player.

The DM-NAX-4ZSA-50 supports Spotify Connect™ casting.

To stream media to a zone on the DM-NAX-4ZSA-50 via Spotify Connect casting:

1. Ensure that the casting device and DM-NAX-4ZSA-50 are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-4ZSA-50, Spotify Connect will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 239 for more information.

2. Set the **Spotify Connect** toggle to the right position to enable Spotify Connect casting to the zone's associated media player.
3. On the casting device:
   a. Open the Spotify application.
   b. Enable Spotify Connect casting. Refer to this support article for information on enabling Spotify Connect casting.
   c. From the list of available casting destinations, select the DM-NAX-4ZSA-50 media player you would like to stream to. The device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-5 route to their respectively numbered output zones 1-5 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if a Spotify Connect casting session on media player 5 starts and it is not already routed to another zone.

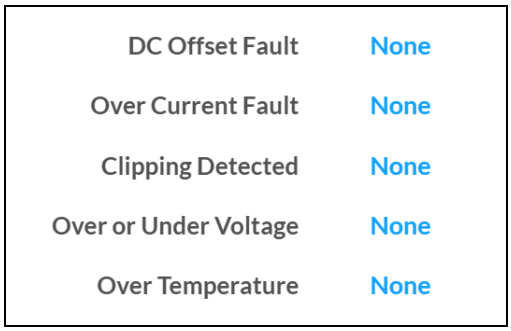
   d. After the Spotify Connect stream begins, control the volume of the streaming DM-NAX-4ZSA-50 output zone directly from the Spotify application on the casting device.

Set the **Spotify Connect** toggle to the left to disable Spotify Connect casting for a DM-NAX-4ZSA-50 media player.

To stream media from a Roon® streaming device to a zone in your distributed audio system:

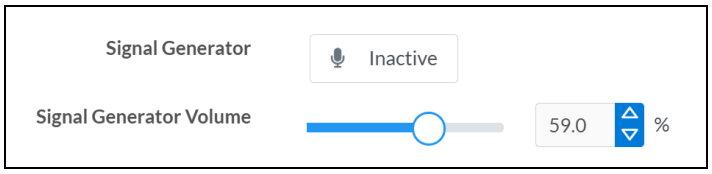
1. Enable Apple AirPlay casting on the DM NAX device by setting the AirPlay toggle to the right.
2. Launch the Roon desktop app.
3. Open the Roon app menu and navigate to the **Settings** submenu, then select **Audio**. A table of discovered network devices that the Roon device can stream to will be displayed. Any devices that previously have been enabled for Roon casting are listed under the **Connected to Core** section, and the rest of the discovered devices are listed under **Other network devices**.
4. Find each of the DM NAX zones in the **Other network devices** list, then select **Enable** for each zone to connect it to the Roon Core® for casting.
5. Return to the Roon app home page and select the speaker icon at the bottom right, then select a DM NAX zone from the list of available casting destinations.
6. Start a media stream, and the Roon device will cast the streaming audio to the zone.

Speaker/Faults



The **Speaker/Faults** section displays read-only status messages for the zone's **DC Offset Fault**, **Over Current Fault**, **Clipping**, **Over or Under Voltage**, and **Over Temperature** detectors. When clipping or a fault is detected, its corresponding readout displays **Fault Detected** in red. Otherwise, it displays **None** in blue.

Signal Generator



The DM-NAX-4ZSA-50 has a built-in signal generator that sends an audio test signal to the output zone.

- To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue.
- To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey.

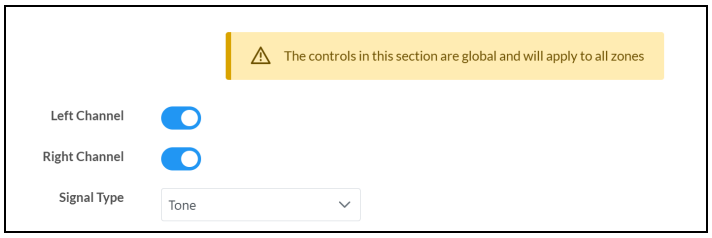
By default, the signal generator is inactive.

> **NOTES:**
>
> - There is only one signal generator built in to the DM NAX device. Each zone has its own option to enable or disable the signal generator on that output. Setting the signal generator to **Inactive** on a given zone output does not stop it from outputting to other zones.
> - The **Signal Generator Volume** control is a local control that does not affect the signal generator's volume on other zone outputs. Only the settings under **Advanced Signal Generator** are applied universally to all zones of the DM NAX device.

To adjust the signal generator's volume, do one of the following:

- Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
- Manually enter a value in the **Signal Generator Volume** field.

Advanced Signal Generator

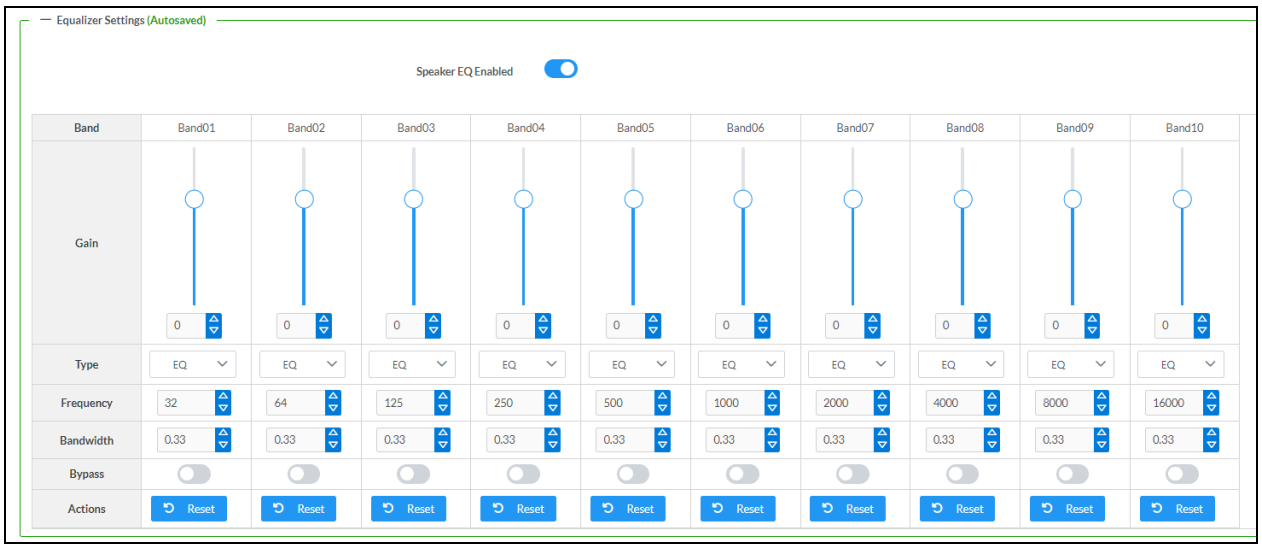


The advanced signal generator settings control the built-in signal generator directly and are applied universally to all output zones of the DM NAX device.

Configure the available settings:

- Set the **Left Channel** toggle to the right to enable the left channel of the generator. Set the toggle to the left to disable the left channel. By default, **Left Channel** is enabled.
- Set the **Right Channel** toggle to the right to enable the right channel of the generator. Set the toggle to the left to disable the right channel. By default, **Right Channel** is enabled.
- Select an audio test signal type from the **Signal Type** drop-down list. The available signal types are:
    - **Tone**: Generates a 1 kHz sine wave tone.
    - **Pink Noise**: Generates pink noise.
    - **White Noise**: Generates white noise.

Equalizer Settings



Each zone output of the DM-NAX-4ZSA-50 has a dedicated ten-band equalizer that tunes the output signal. Each band has a discrete gain, filter type, center frequency, bandwidth, and bypass.

Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

> **NOTE:** When **Speaker EQ Enabled** is set to the left, all equalizer bands are bypassed. Use this toggle to perform A/B comparison of the entire EQ curve.

With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands:

- Set the band's gain by doing one of the following:
  - Move the **Gain** slider up to increase or down to decrease the gain.
  - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
  - Manually enter a value in the **Gain** field.
- Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type.

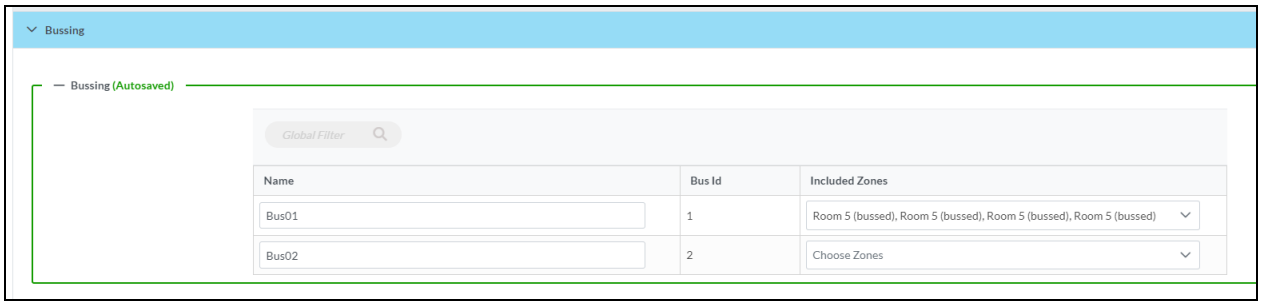
  > **NOTE:** Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings because the **LowPass** filter applies a fixed roll-off slope at a set frequency.

  The available filter types are:
  - **EQ:** Fully parametric filter, boosts or cuts a specified range of frequencies.
  - **Notch:** Parametric filter, cuts a specified frequency; achieves a narrower bandwidth than the standard **EQ** filter type.
  - **TrebleShelf:** Boosts or cuts all frequencies above a specified frequency by a specified gain.
  - **BassShelf:** Boosts or cuts everything below a specified frequency by a specified gain.
  - **LowPass:** Cuts everything above a specified frequency by -12 dB per octave.
  - **HighPass:** Cuts everything below a specified frequency by -12 dB per octave.
- Set a center frequency for the band by doing one of the following:
  - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
  - Manually enter a value in the **Frequency** field.
- Set the bandwidth by doing one of the following (**EQ** and **Notch** filters only):
  - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
  - Manually enter a value in the **Bandwidth** field.
- The individual **Bypass** controls bypass a single band for more granular A/B comparison. Set a band's **Bypass** toggle to the right position to bypass that band or to the left position to disable the bypass. Each **Bypass** is disabled by default.
- Select **Reset** to reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Bussing

The bussing feature on DM NAX devices assigns any number of selected zones to a fixed group of zones (called a bus). Zones in a bus share volume and routing controls. The DM-NAX-4ZSA-50 supports up to two buses.



To create a bus:

1. Enter a friendly in the **Name** field.
2. Select any number of zones from the **Included Zones** drop-down list.

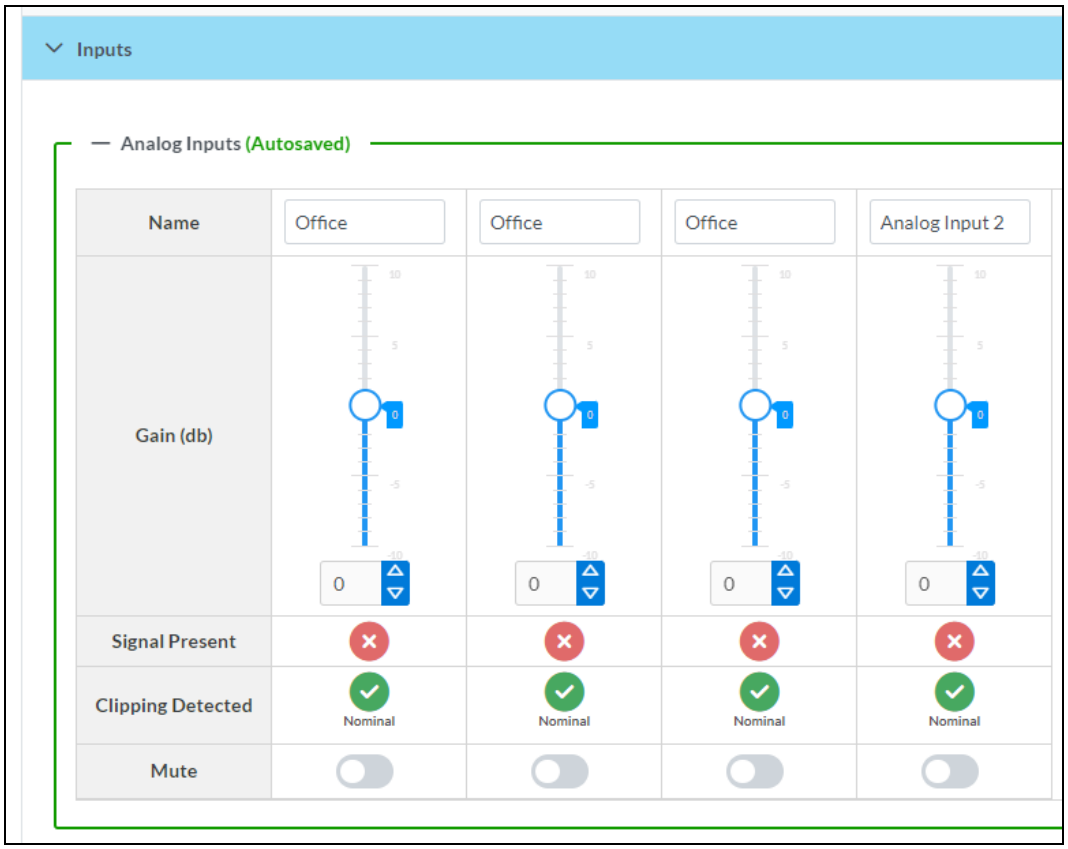
   > **NOTE:** Each zone can only be a member of one bus. Zones that are already a member of another bus will not be available in the **Included Zones** drop-down list.

3. Select **Save Changes**.

Inputs

Use the **Inputs** accordion to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-4ZSA-50.

A total of nine inputs are available on the DM-NAX-4ZSA-50, including the four physical input connectors on the device's rear panel and the five internal media players used for media streaming services. Only the attributes of the four physical inputs can be adjusted in the **Inputs** accordion.



Configure the available settings for each input:

- Enter a friendly name in the **Name** field.
- Set a level compensation adjustment by doing one of the following:
    - Move the **Gain (db)** slider up to increase or down to decrease the compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel. Compensation is not available for any of the internal media players.
    - Use the up and down arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Gain (db)** field.
- Select **Mute** to mute the input. Select **Muted** to unmute the input. The inputs are unmuted by default.

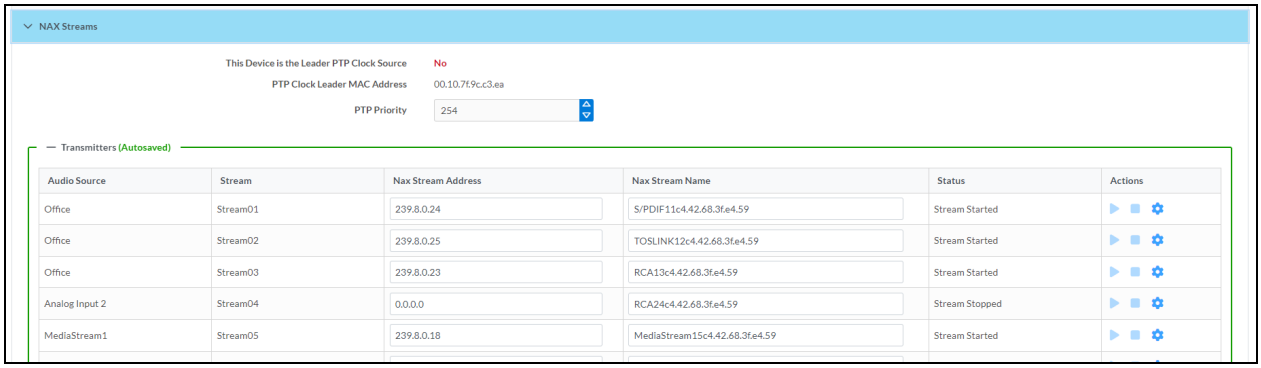
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected on that input.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (nonclipping).

DM NAX Streams

Each local input of the DM-NAX-4ZSA-50 can be made available as a DM NAX audio-over-IP stream. This includes the physical inputs on the rear panel of the device and the internal media players.

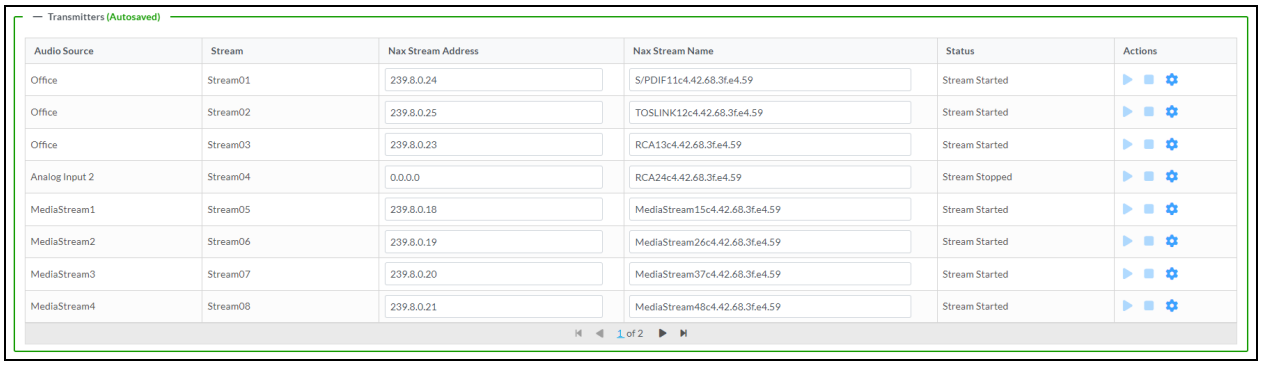
Select **NAX Streams** to expand the tab and display the following information.



Select **NAX Streams** to expand the accordion and display the following information:

- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-4ZSA-50 clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-4ZSA-50 will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

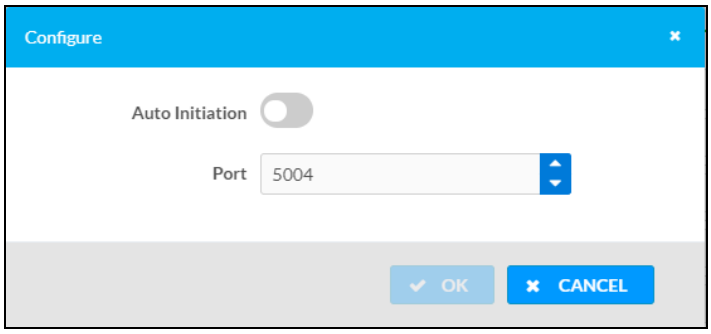
Configure Transmitters



NOTE: To configure transmitters not shown on the current page of the table, select the right arrow ▶ to display the next page of transmitters.

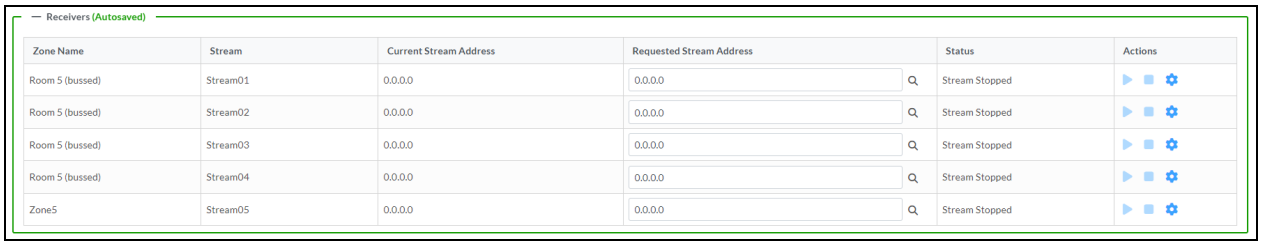
To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices (similar to a device hostname resolving to an IP address).
3. Select the gear icon ⚙ in the **Actions** column. The **Configure** dialog is displayed:



4. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
5. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
6. Select **OK** to save the changes.

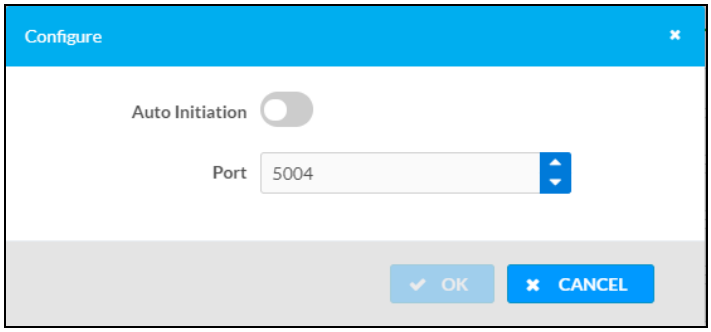
Configure Receivers



To configure a DM NAX receiver:

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.

2. Select the gear icon in the **Actions** column. The **Configure** window is displayed:

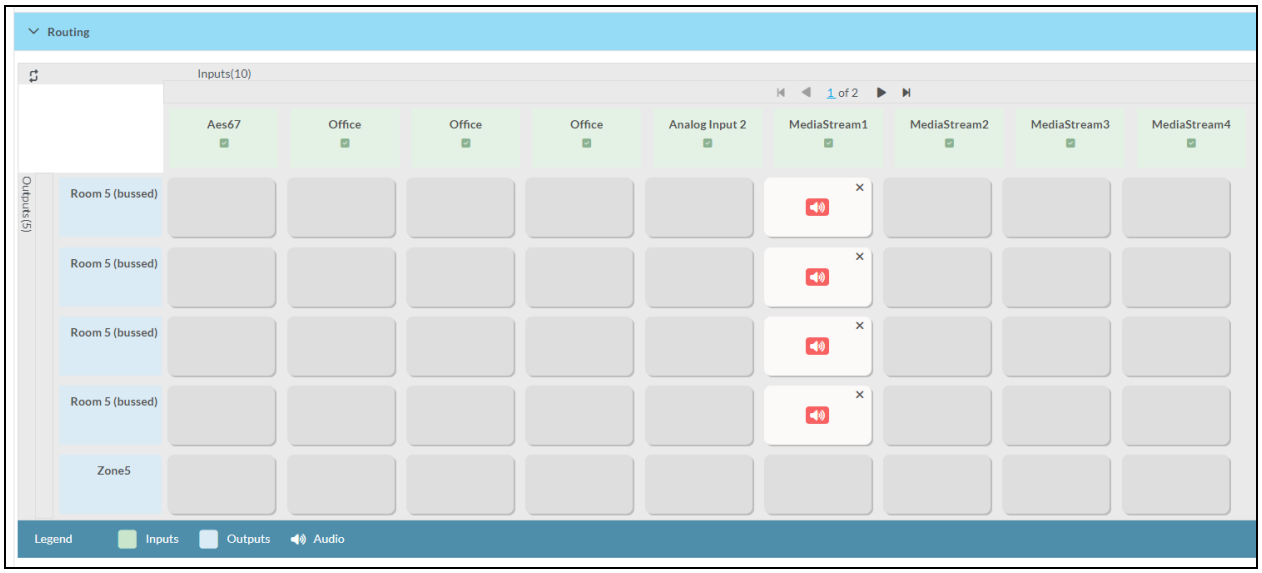


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. Set the port number, by doing do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save the changes.

Routing

Use the **Routing** accordion to route a local input, media player, or AES67 stream to a zone on the DM-NAX-4ZSA-50.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



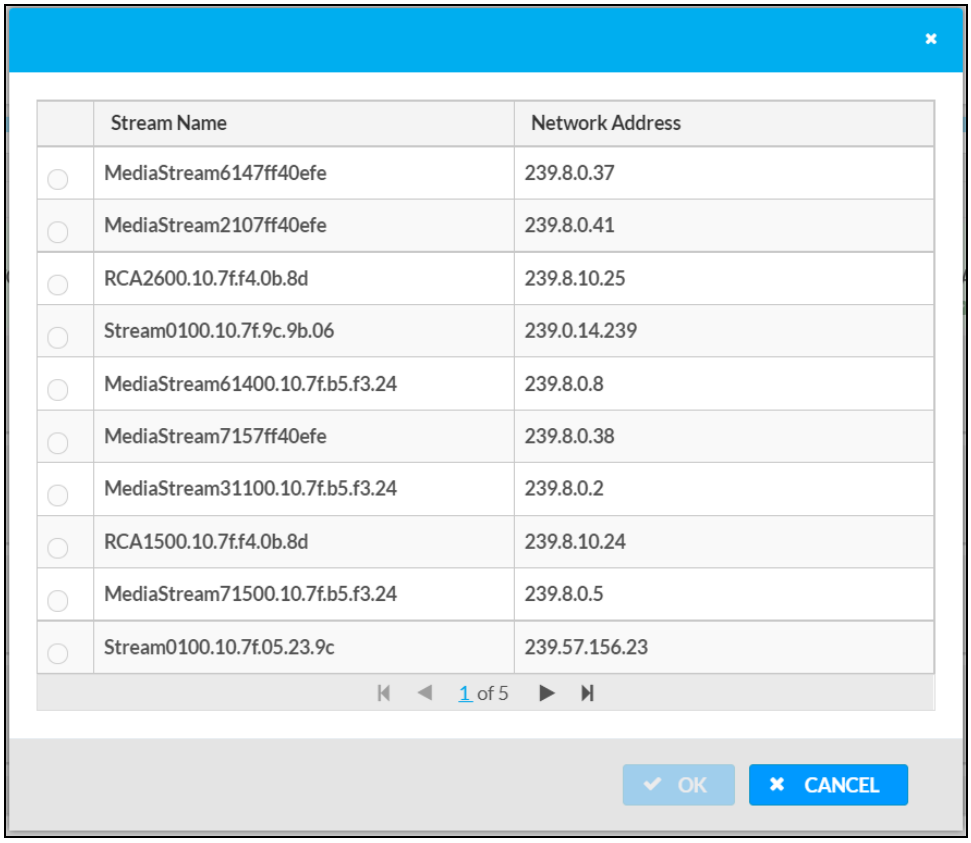
Use the matrix to configure routes:

- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed in the box.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the check icon under the input's name.

Use the left and right arrows at the top of the matrix to change pages to view all available inputs.

To select a specific DM NAX or AES67 stream when AES67 is selected as the source for a zone:

- Select the gear icon to display the list of all DM NAX and AES67 streams discovered on the network, then select the corresponding stream to be routed to the zone.

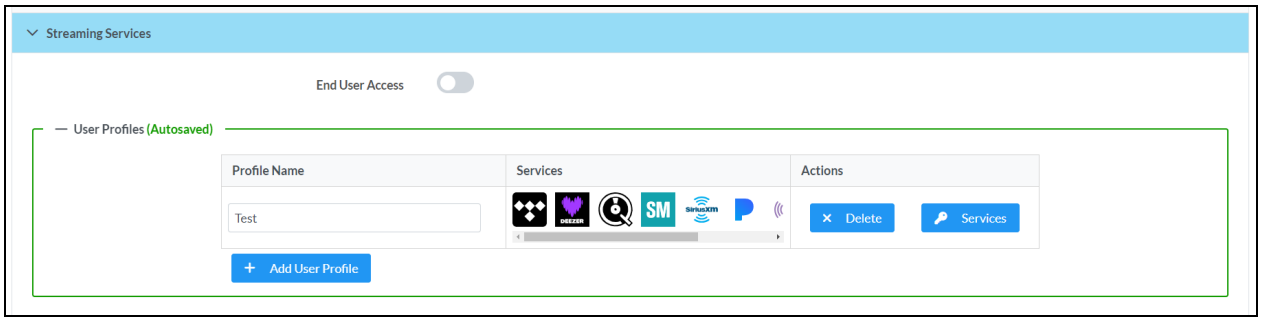


- Select **OK** to save the changes.

Streaming Services

The DM-NAX-4ZSA-50 features five built-in media streaming players, each of which can play back a discrete media stream from a cloud-based service or local casting device. User profiles can be created for each user of the DM NAX device with discrete credentials, enabling multiple users to access streaming services without interfering with each other's recommendations, favorites, or playlists.

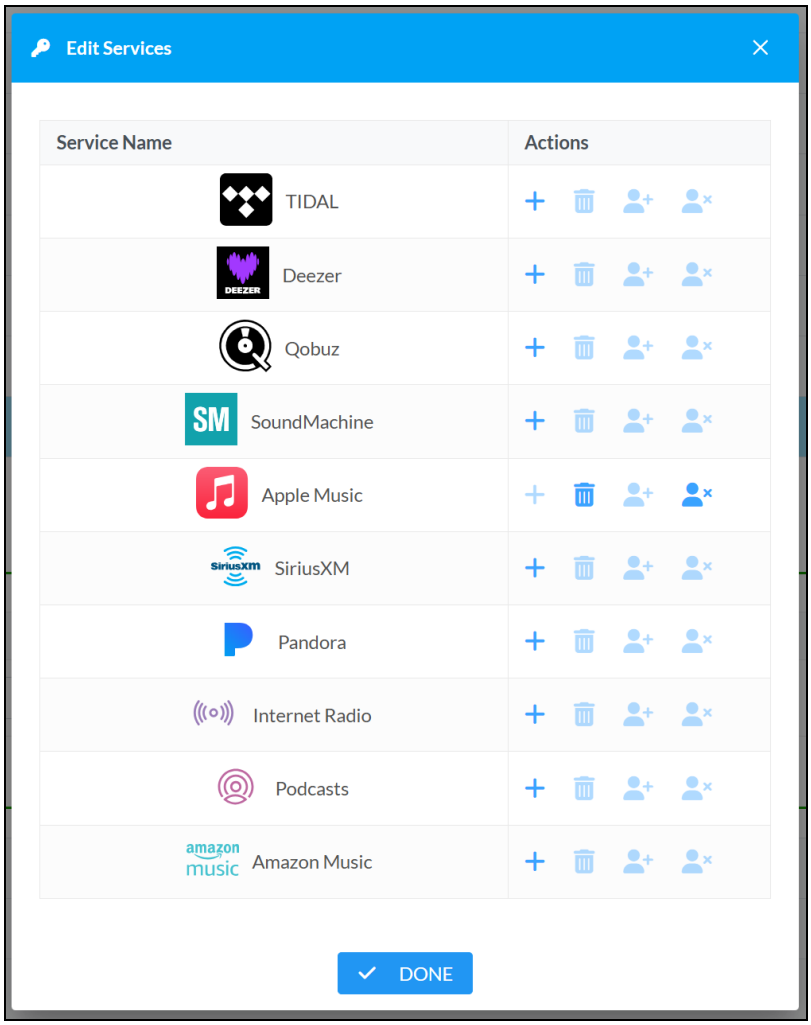
Set the **End User Access** toggle to the right position to enable end user access. With **End User Access** enabled, any account on the device can access the **Streaming Services** settings to add or remove streaming service accounts. Set the toggle to the left position to disable end user access. By default, **End User Access** is disabled.



To configure streaming services:

1. Select **+ Add User Profile** to create a new user profile. Each user profile can contain a unique set streaming service accounts.
2. Enter a name in the **Profile Name** field. Select **Save** to create the **User Profile**. Once the profile is created, you have the option to either **Delete** the profile or add **Services** to it.

3. Select **Services** in the **Action** column and an **Edit Services** window is displayed.



4. Select from the available streaming services: **TIDAL™**, **Deezer®**, **Qobuz®**, **SOUNDMACHINE®**, **Apple Music®**, **SiriusXM®**, **Pandora®**, **Internet Radio**, **Podcasts**, and **Amazon Music®**. Select + or 🗑 to add or delete the desired streaming services for each user profile.

User Authentication

User authentication is required for Amazon Music, Apple Music, Deezer, Pandora, Qobuz, SiriusXM, SOUNDMACHINE, and TIDAL.

Amazon Music

To authenticate an Amazon Music account:

1. Select the add user icon in the **Amazon Music** row of the table.
2. Select the link to log in via the Amazon Music portal.

> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - An Amazon Music Unlimited subscription is required for this feature.



3. Select **DONE** to return to **Streaming Services**.

Apple Music

To authenticate an Apple Music account:

1. Select the add user icon in the **Apple Music** row of the table.
2. Select the link to log in via the Apple Music portal.



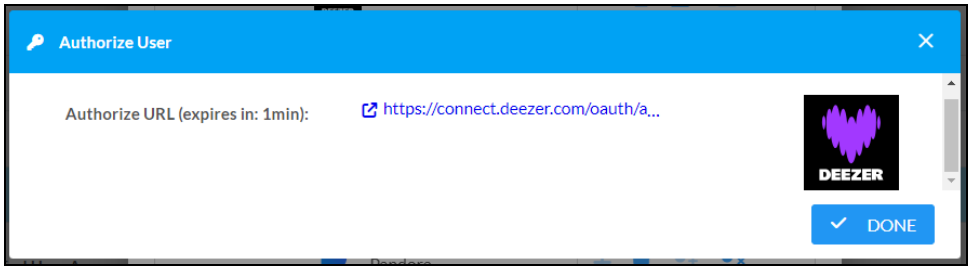
3. Select **DONE** to return to **Streaming Services**.

Deezer

To authenticate a Deezer account:

1. Select the add user icon in the **Deezer** row of the table.
2. Select the link to log in via the Deezer portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.

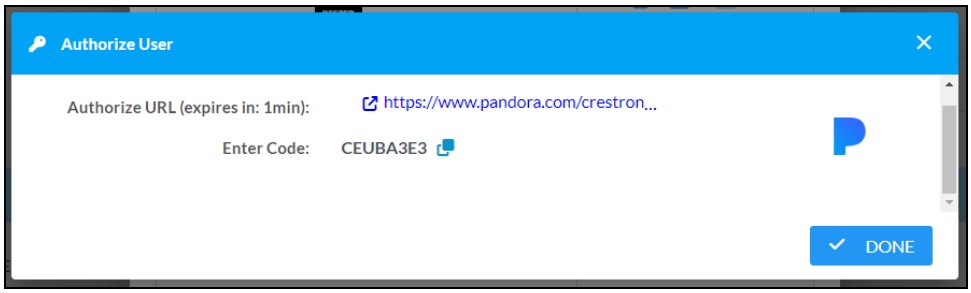


3. Select **DONE** to return to **Streaming Services**.

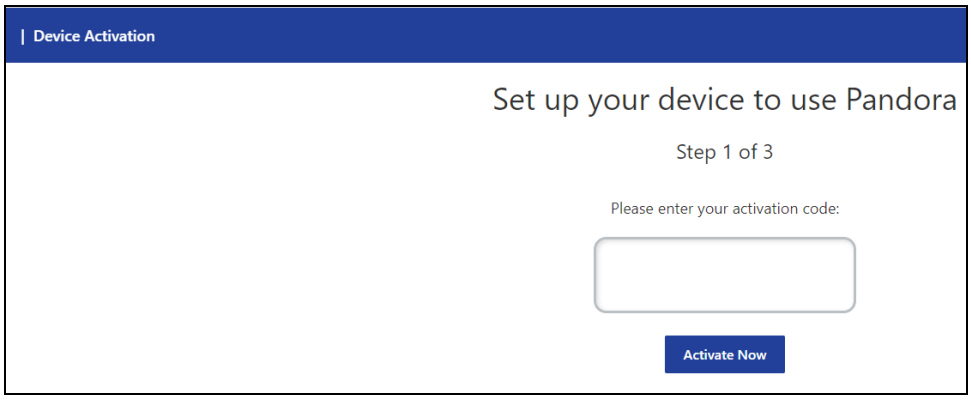
Pandora

To authenticate a Pandora account:

1. Select the add user icon in the **Pandora** row of the table.
2. Select the icon to copy the activation code.



3. Select the link to register the device. The **Device Activation** page is displayed.



> **NOTE:** The link is valid for one minute. After one minute, the link expires, and both the **Authorize URL** and **Enter Code** fields are cleared. The **Authorize User** dialog will need to be closed and reopened.

4. Paste the activation code in the **Please enter your activation code** field and select **Activate Now**.
5. Log in to the Pandora account.
6. Select **DONE** to return to **Streaming Services**.

Qobuz

To authenticate a Qobuz account:

1. Select the add user icon in the **Qobuz** row of the table.
2. Select the link to log in via the Qobuz portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Select **DONE** to return to **Streaming Services**.

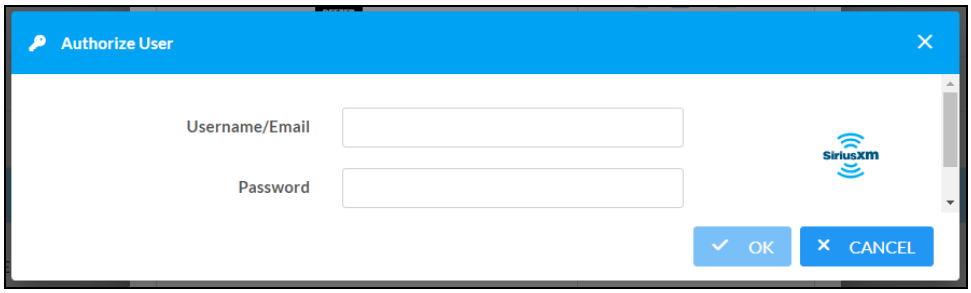
SiriusXM

Both consumer and commercial SiriusXM streaming accounts are supported on the DM-NAX-4ZSA-50.

> **NOTE:** To determine whether to use commercial accounts, refer to the streaming service license agreement or FAQs on their respective portals. Refer to this link for SiriusXM documentation.

To authenticate a SiriusXM account:

1. Select the add user icon in the **SiriusXM** row of the table.
2. Enter the user credentials and select **OK**



SOUNDMACHINE

SOUNDMACHINE commercial streaming accounts are supported on the DM-NAX-4ZSA-50. A single SOUNDMACHINE account supports streaming multiple stations across DM NAX devices and/or zones.

> **NOTE:** To determine when to use a commercial streaming account, refer to this link for SOUNDMACHINE documentation.

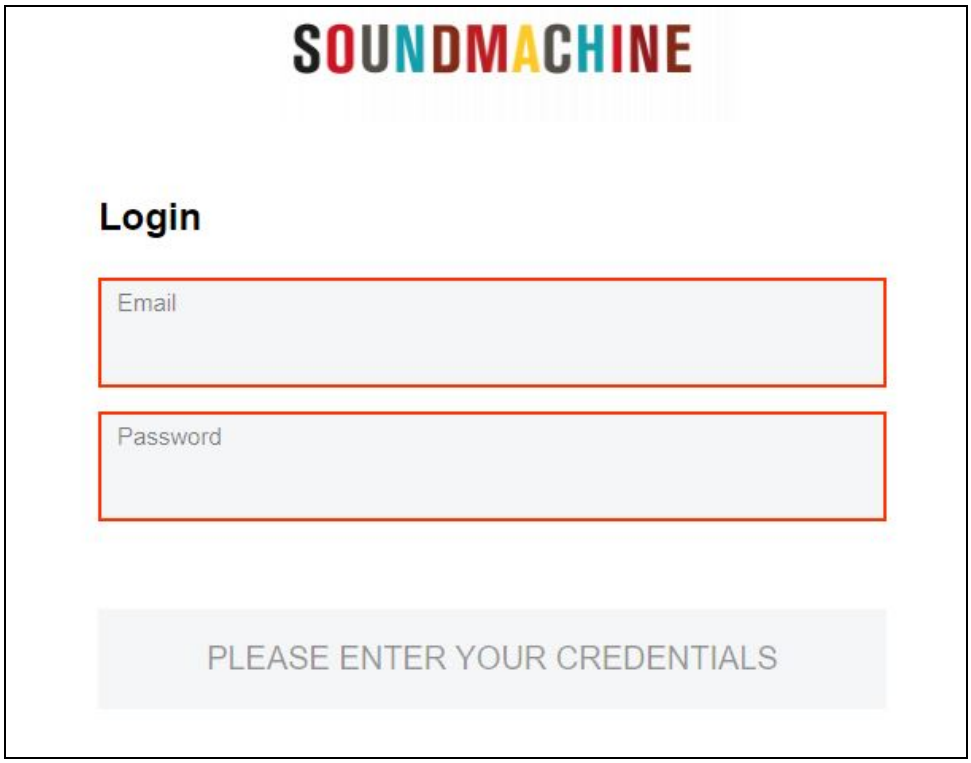
To authenticate a SOUNDMACHINE account:

1. Select the add user icon in the **SOUNDMACHINE** row of the table.
2. Select the link to log in via the SOUNDMACHINE portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Log in to the SOUNDMACHINE account.



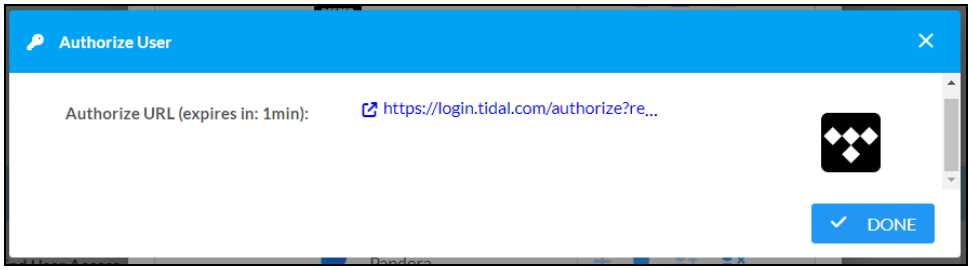
4. Select **DONE** to return to **Streaming Services**.

TIDAL

To authenticate a TIDAL account:

1. Select the add user icon in the **TIDAL** row of the table.
2. Select the link to log in via the TIDAL portal.

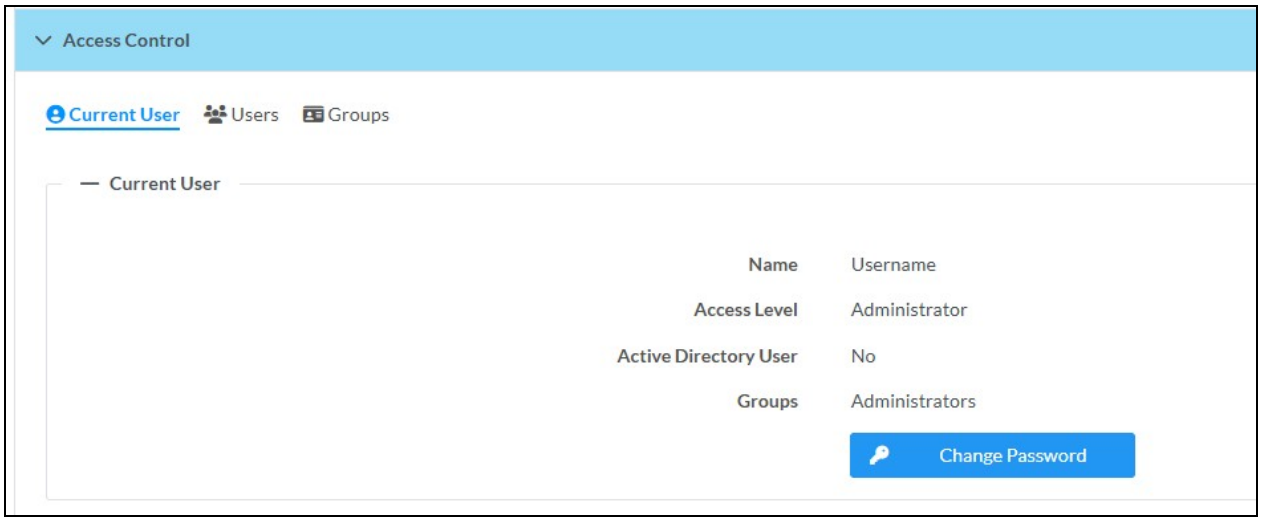
> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - TIDAL free accounts are not supported on the DM NAX audio-over-IP platform.



3. Select **DONE** to return to **Streaming Services**.

Access Control

Use the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-4ZSA-50 functions.



The **Access Control** accordion is divided into different tabs:

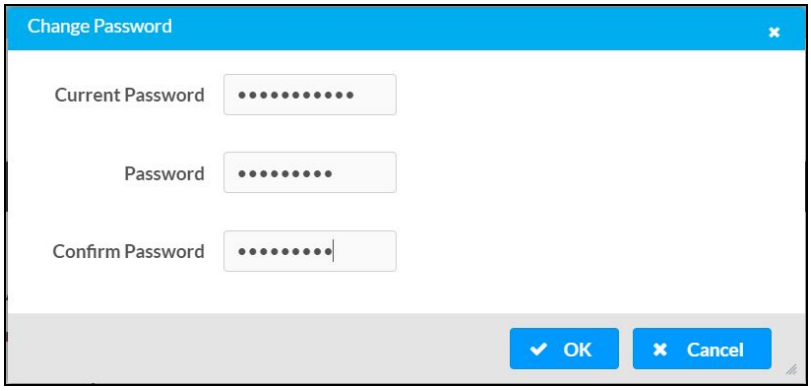
- Current User on page 278
- Users on page 279
- Groups on page 281

Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

To change the password for the current user:

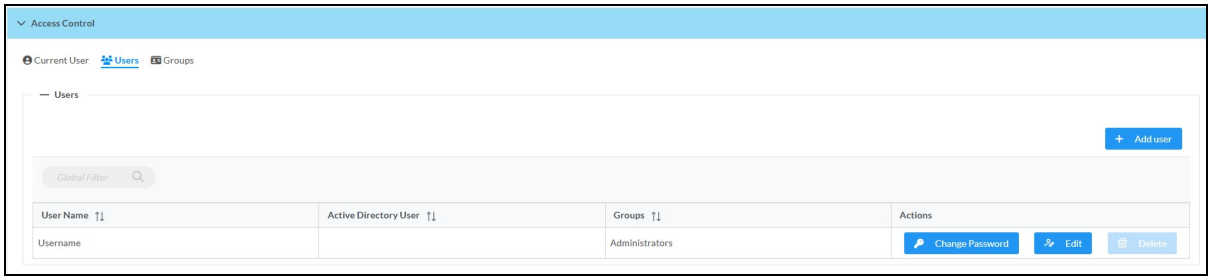
1. Select **Change Password**. The **Change Password** window is displayed.
2. Enter the current password in the **Current Password** field, the new password in the **Password** field, and re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

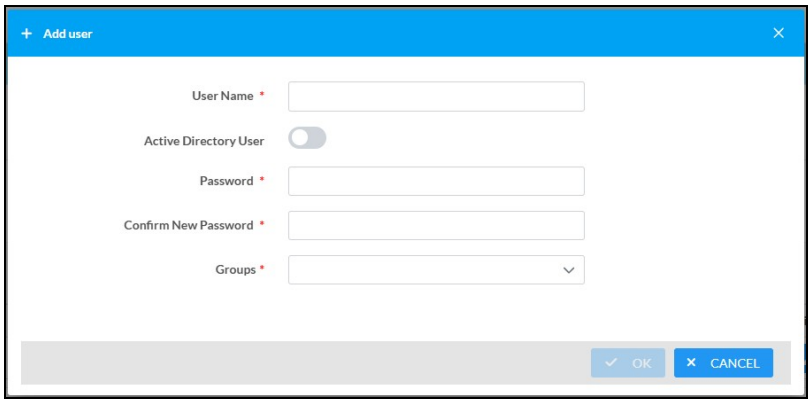
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-4ZSA-50:

1. Select **Add user** in the **Users** tab. The Add user dialog box is displayed.



2. Enter the following:

- Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
- Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
- Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

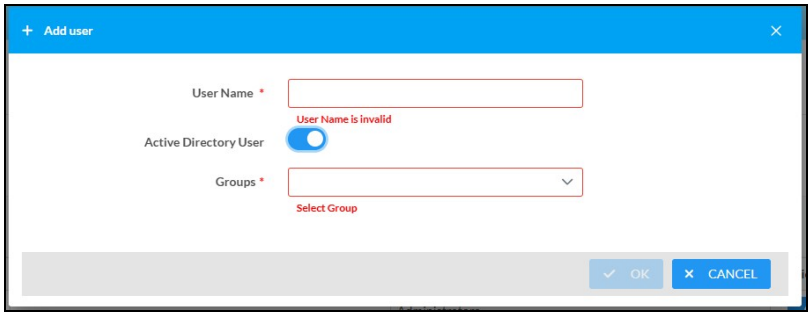
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-4ZSA-50, or add the Active Directory group(s) that contain the user to the DM-NAX-4ZSA-50.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Add User** dialog box, enter the following.



   a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

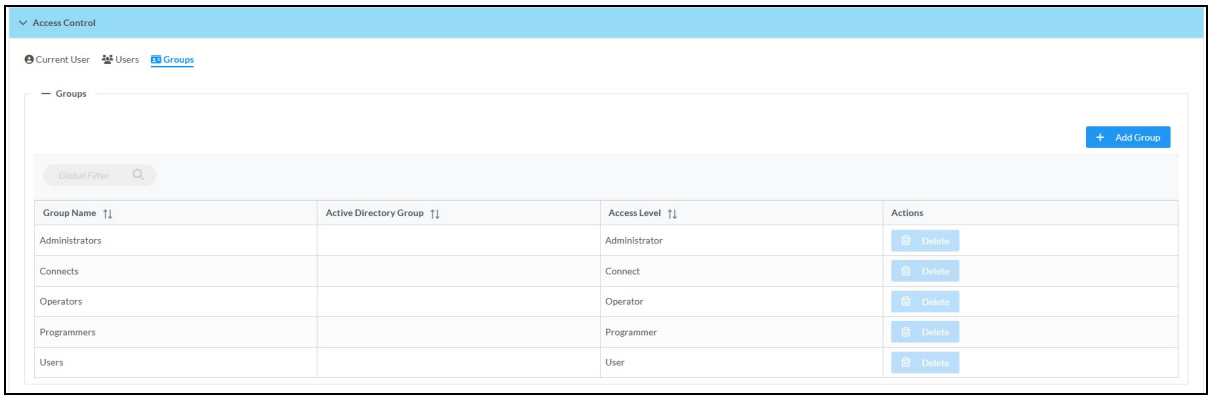
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create a Local Group

To create a local group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** box is displayed.
2. Enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

    > **NOTE:** Ensure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to add the new group.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.

Once the group is added, all members of that group will have access to the DM-NAX-4ZSA-50.

To add an Active Directory group:

1. Select **Add group**.
2. In the **Add group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

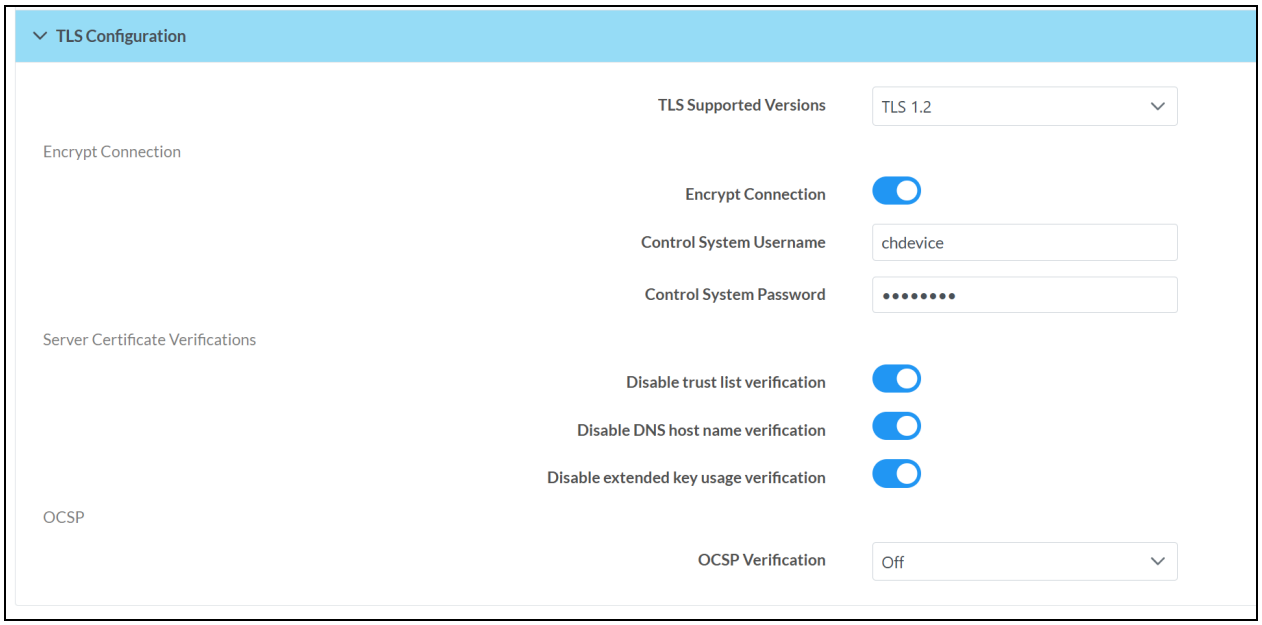
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Use the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-4ZSA-50.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the **TLS Supported Versions** drop-down list from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

DM-NAX-4ZSP

This section describes how to configure DM-NAX-4ZSP.

Web Interface Configuration

The DM-NAX-4ZSP web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 285
- Access the Web Interface With Crestron Toolbox™ Software on page 287

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

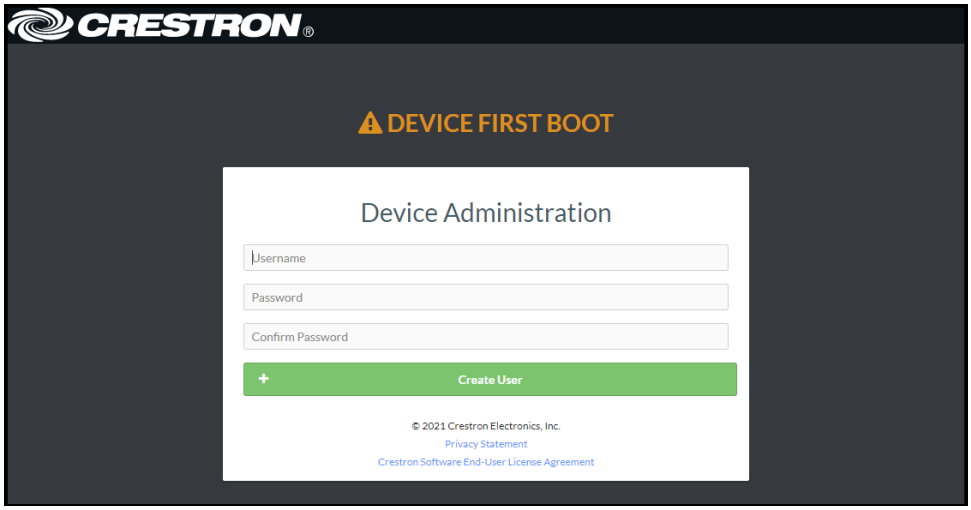
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

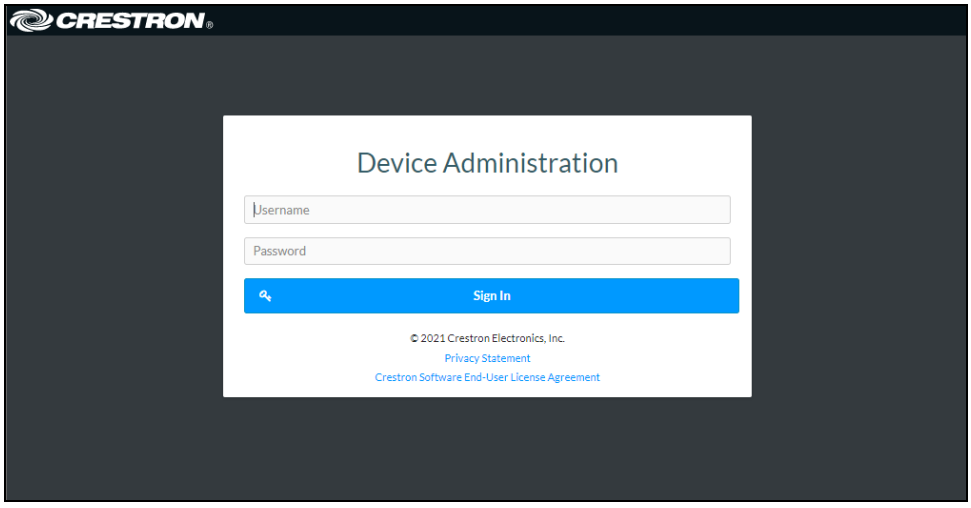
1. Enter the IP address of the DM-NAX-4ZSP into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser from Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-4ZSP is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

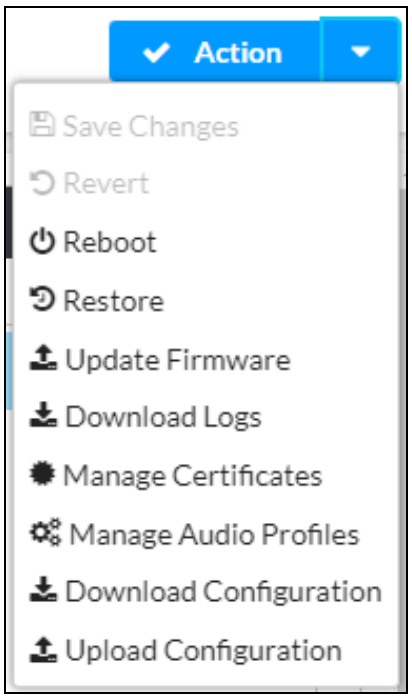
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 288
- Revert on page 288
- Reboot on page 289
- Restore to Factory Default Settings on page 289
- Update Firmware on page 290
- Download Logs on page 290
- Manage Certificates on page 291
- Manage Audio Profiles on page 292
- Download Configuration on page 293
- Upload Configuration on page 294



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

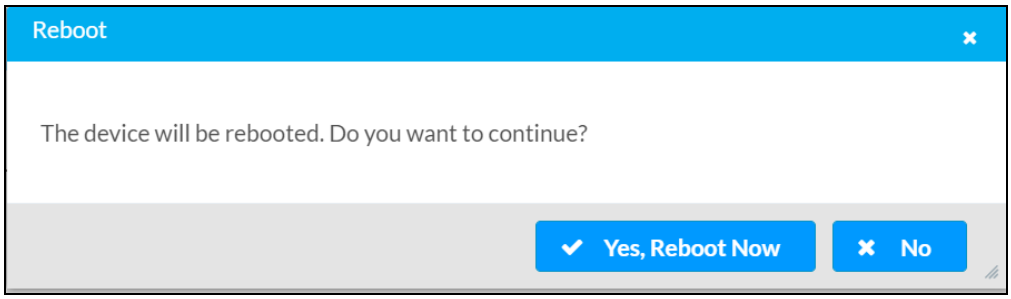
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-4ZSP to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



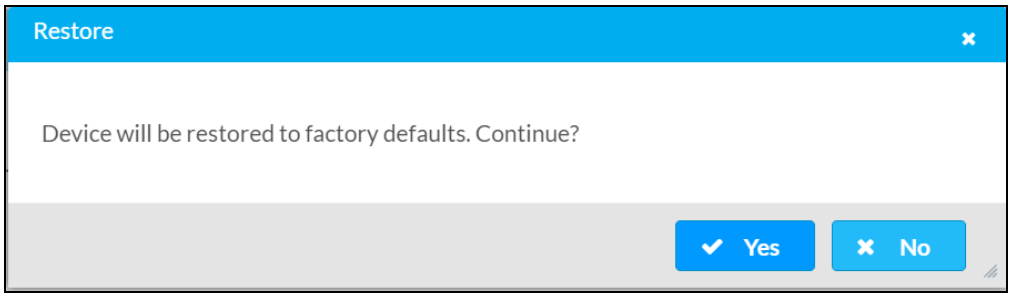
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-4ZSP to factory defaults.

NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



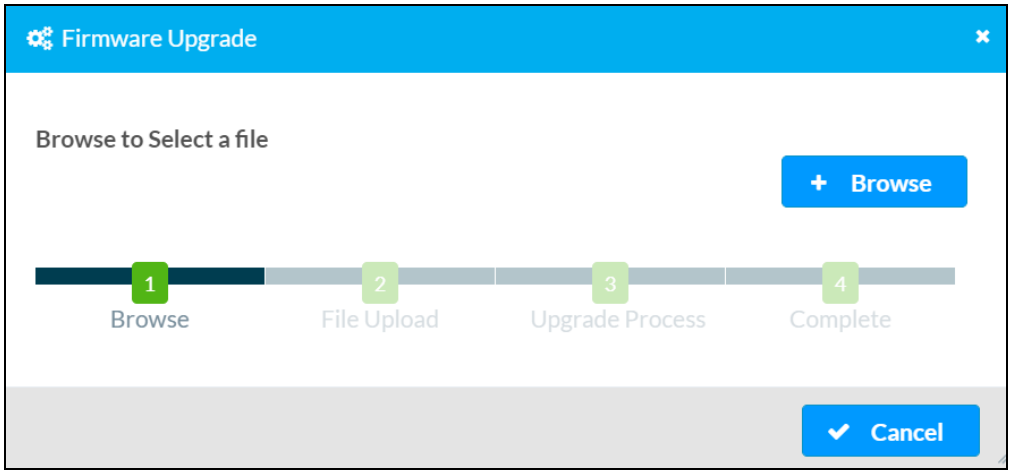
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-4ZSP to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

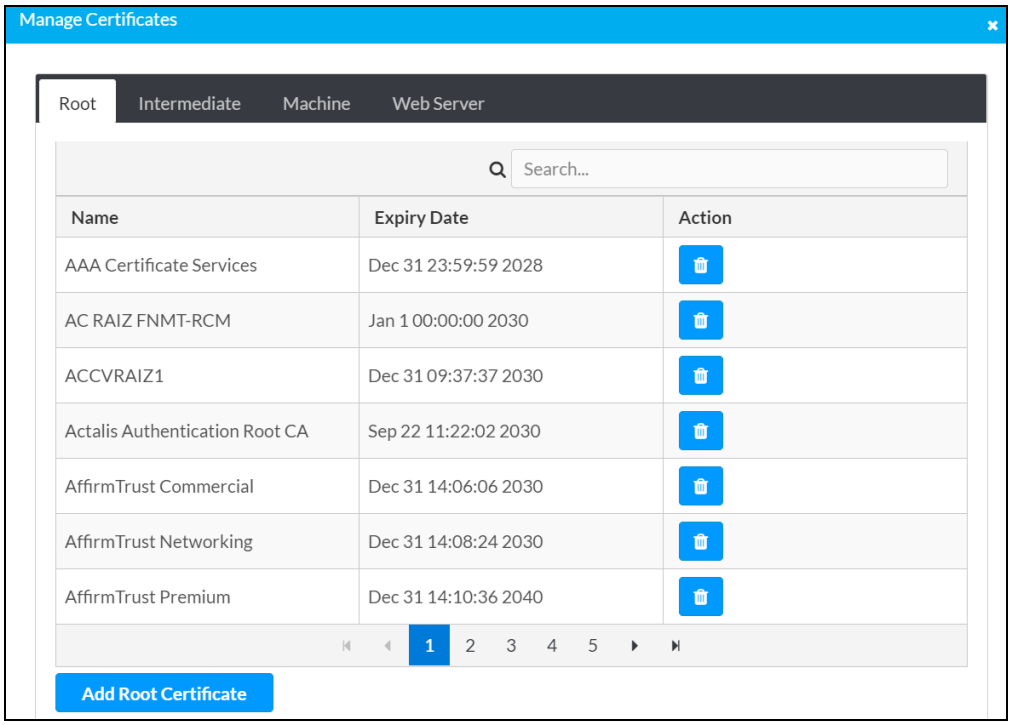
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-4ZSP to validate the network's authentication server. The DM-NAX-4ZSP has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-4ZSP. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, and then select **Open**.

> **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

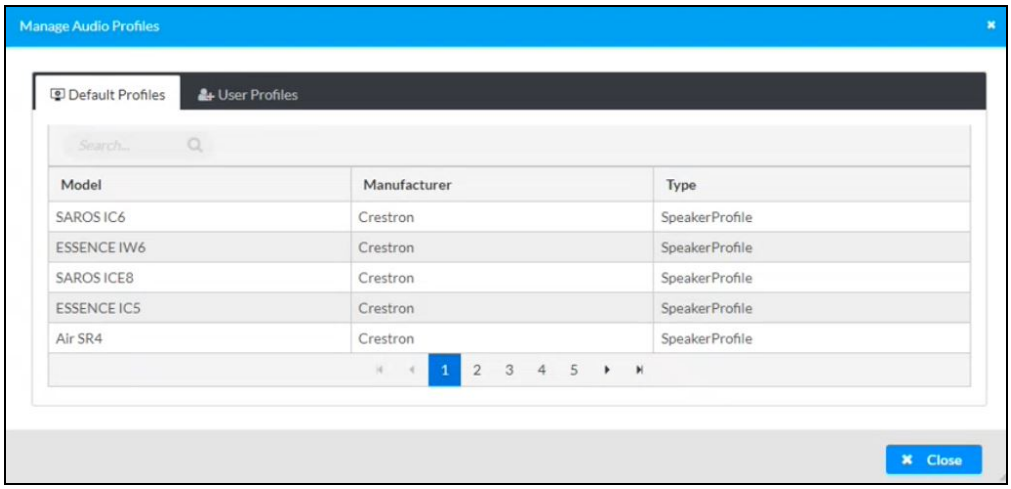
5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Manage Audio Profiles

Use the **Manage Audio Profiles** dialog to add, remove, and manage the audio profiles of speakers.



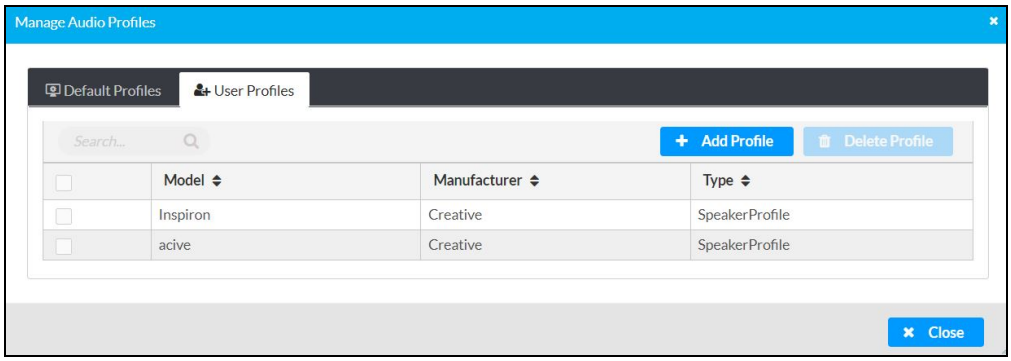
Select **Manage Audio Profiles** in the **Action** menu. The following audio profiles tabs are displayed, providing information such as **Model**, **Manufacturer**, and **Type** of the audio profiles:

- **Default Profiles**: Lists the default library of included audio profiles.
- **User Profiles**: Lists the custom, user loaded profiles, and allows them to be loaded and removed.

In the **Search** field, enter a name to search for a profile. The profile matching the search criteria is displayed.

> **NOTE**: To create a custom audio profile, refer to Knowledge Article 1001820.

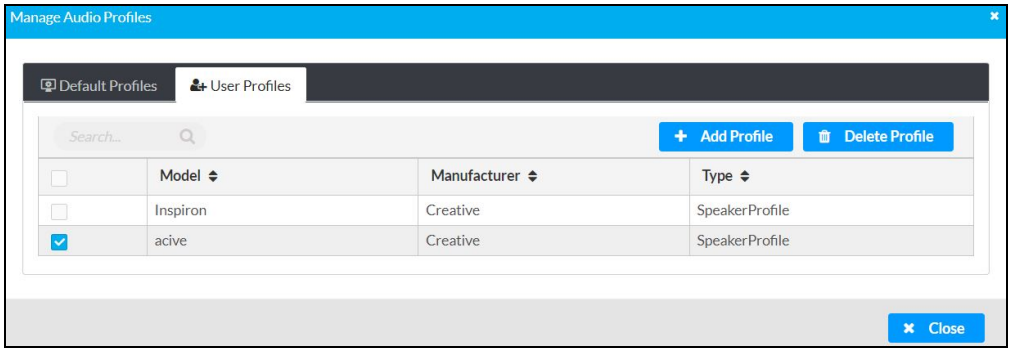
To Add an Audio Profile



1. Select the **User Profiles** tab.
2. Select **+ Add Profiles**.
3. Select **+ Browse**.
4. Locate and select the .prof file, then select **Open**.
5. Select **Upload**.
6. Select **OK**. This will add the profile to the list box.

   The audio profile is now available for selection and can be applied.

To Delete an Audio Profile



1. Select the **User Profiles** tab.
2. Select the checkbox corresponding to the audio profile that needs to be deleted.
3. Select **Delete Profile**.

   The audio profile is deleted.

Download Configuration

Select **Download Configuration** to download a TGZ file containing the settings data for the DM NAX device.

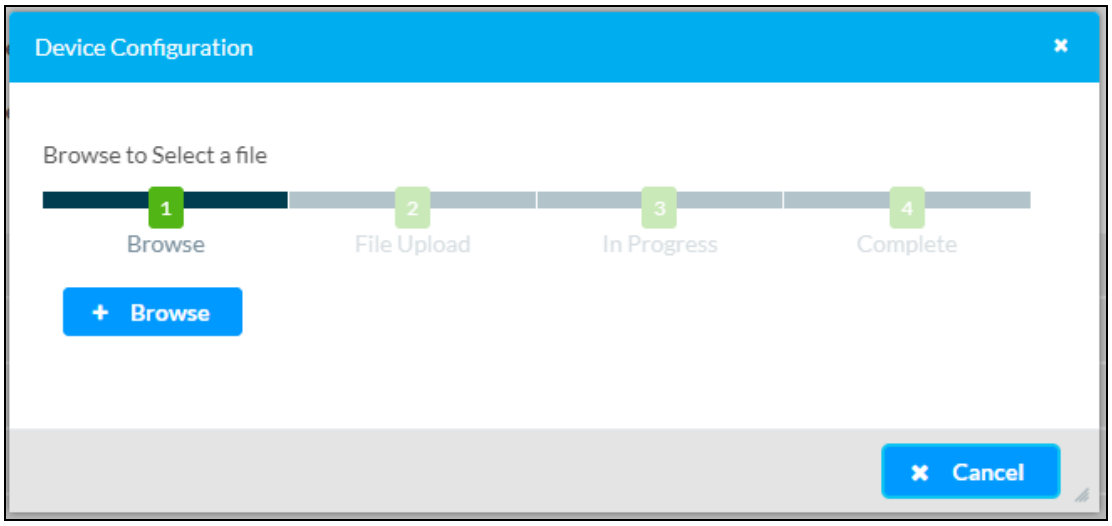
> **NOTE:** User accounts for accessing the device, streaming service accounts, multicast addresses, and stream names are not saved in this configuration file.

Upload Configuration

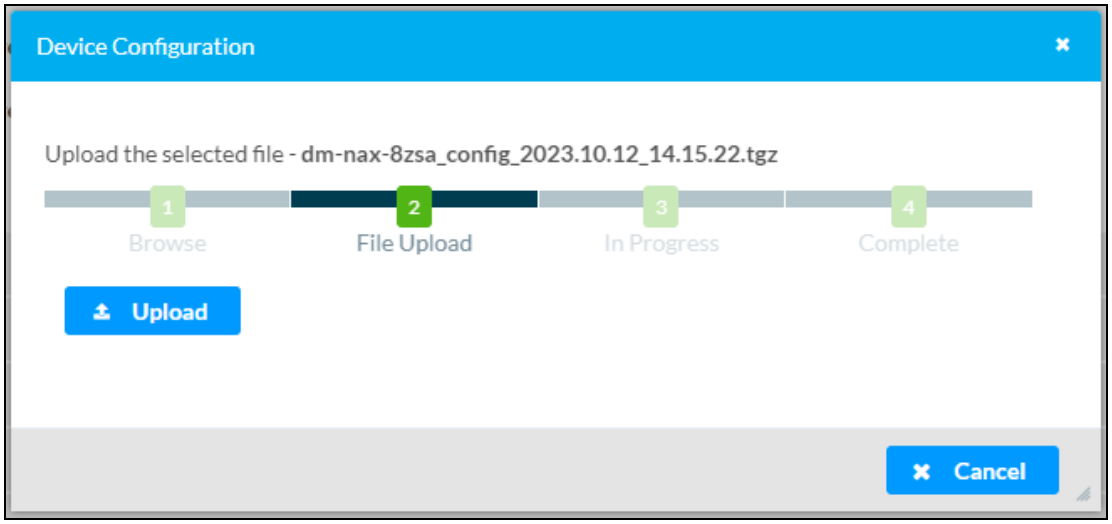
1. Select **Upload Configuration** to upload a TGZ file that will overwrite the current settings of the DM NAX device with a saved configuration.

   CAUTION: Be sure to load a TGZ file for the same DM NAX device type while using the Load Configuration feature. For example, if loading a TGZ file to a DM-NAX-16AIN, be sure that the TGZ file originated from a DM-NAX-16AIN.

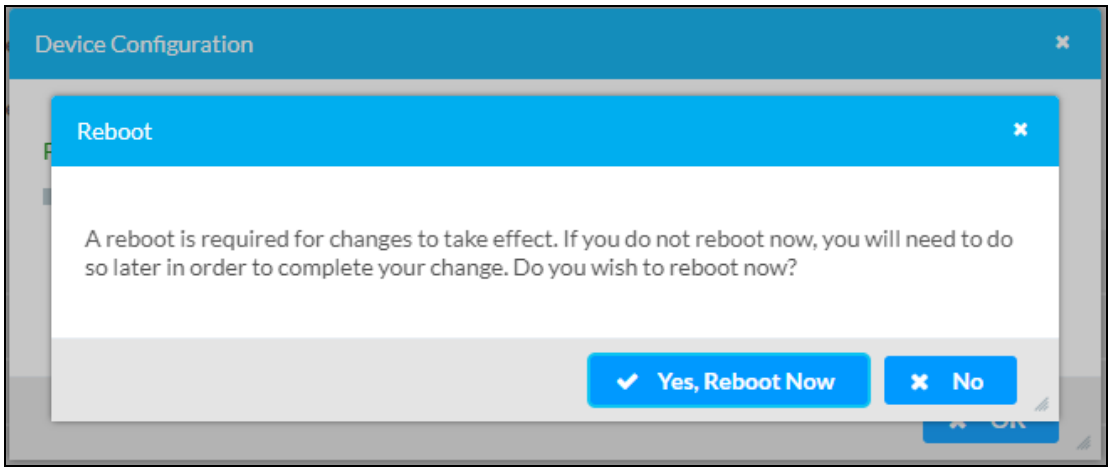
2. Select **Browse** to navigate to the desired TGZ file in your file browser. Select the file. then select **Open**.



3. Select **Upload** to begin the file upload process. A progress bar will indicate the status of the configuration file upload.



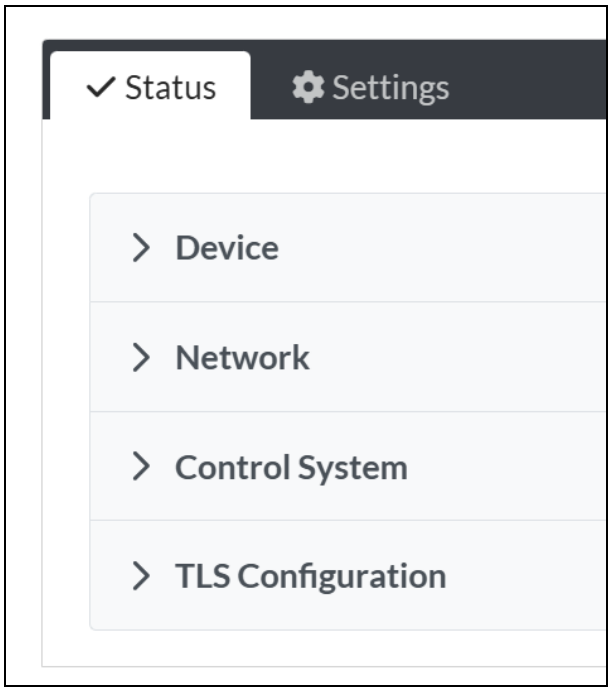
4. Once the upload is complete, the device will require a restart. Select **Yes, Reboot Now** to restart the device, or select **No** to return to the web interface.



> **NOTE:** Any changes made after the configuration file upload, but before a device restart, may be overwritten when the device is restarted.

Status

When the DM-NAX-4ZSP web interface is opened, the **Status** page is displayed by default. It provides information about the DM-NAX-4ZSP configuration and can be accessed at any time by selecting the **Status** tab of the DM-NAX-4ZSP web interface.

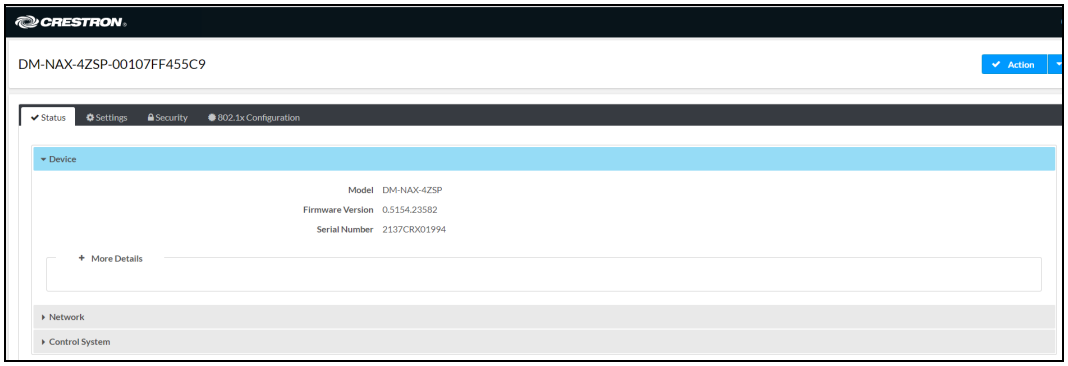


Information displayed on the **Status** page is organized into different collapsible accordions:

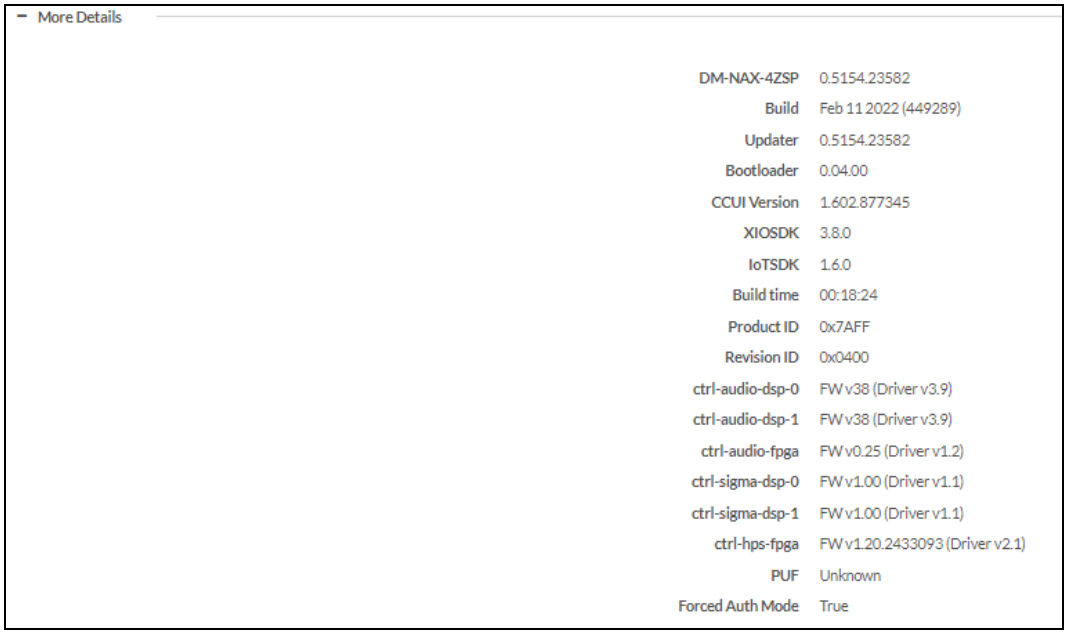
- Device on page 296
- Network on page 297
- Control System on page 298
- TLS Configuration on page 298

Device

The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-4ZSP.

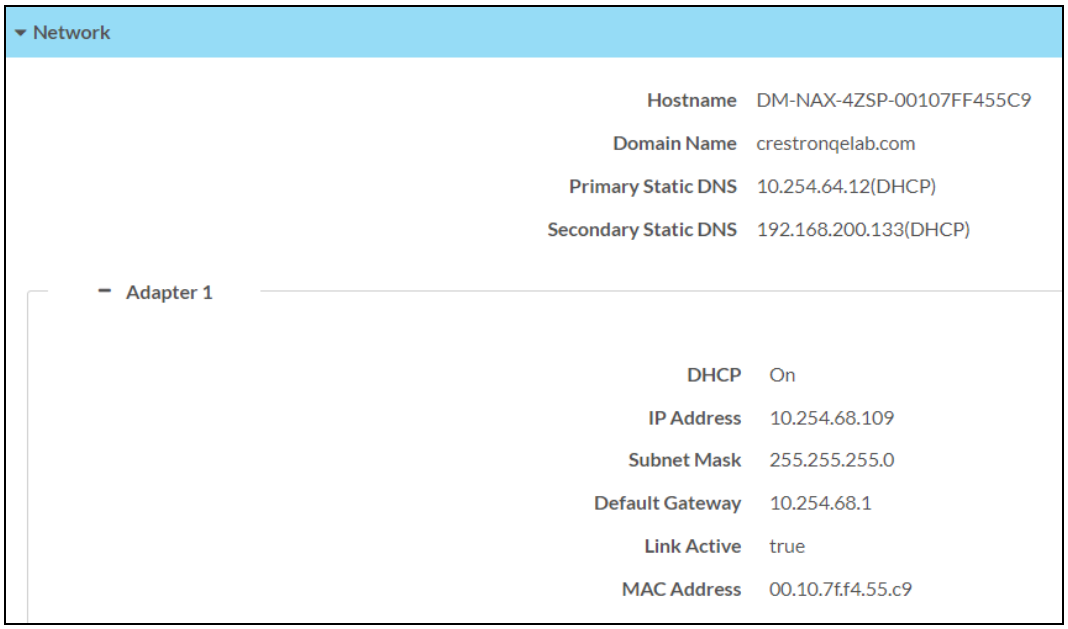


Select **+ More Details** to review additional information about the DM-NAX-4ZSP.



Network

The **Network** accordion displays network-related information about the DM-NAX-4ZSP, including the **Hostname**, **Domain Name**, and **DNS Servers**.



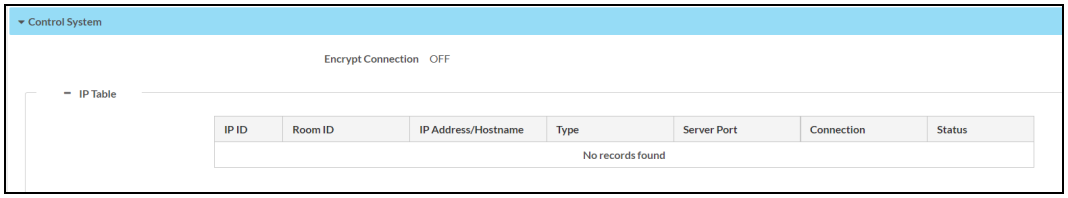
NOTE: By default, the host name of the DM-NAX-4ZSP consists of the model name followed by the MAC address of the device. For example: DM-NAX-4ZSP-00107FF455C9.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** details to collapse the section.

NOTE: The **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-4ZSP are set to isolate traffic using the **Port Selection** feature.

Control System

The **Control System** accordion displays information for connections to Crestron control systems.

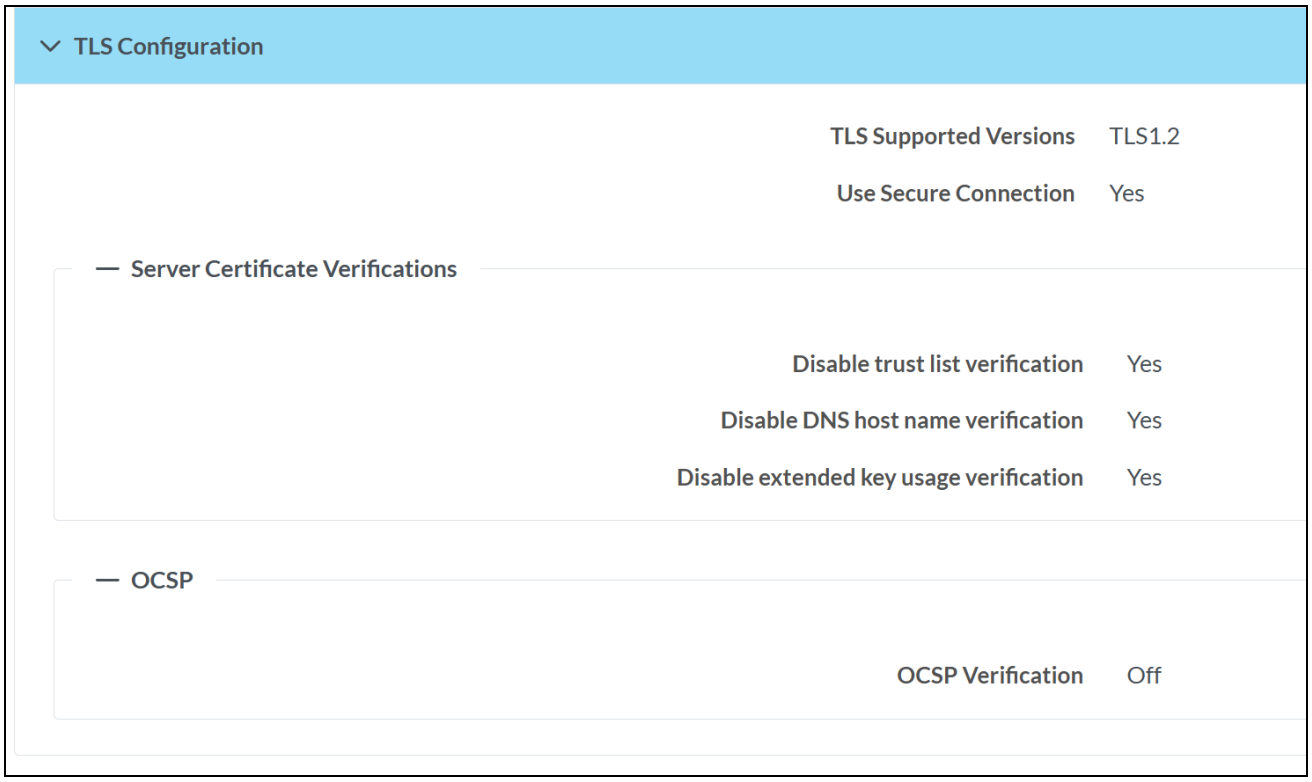


The following information is provided:

- **Encrypt Connection**: Displays **ON** or **OFF** depending on whether the control system connection is encrypted or not.
- **IP ID**: Displays the current IP ID of the DM-NAX-4ZSP.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE** to indicate the control system connection status.

TLS Configuration

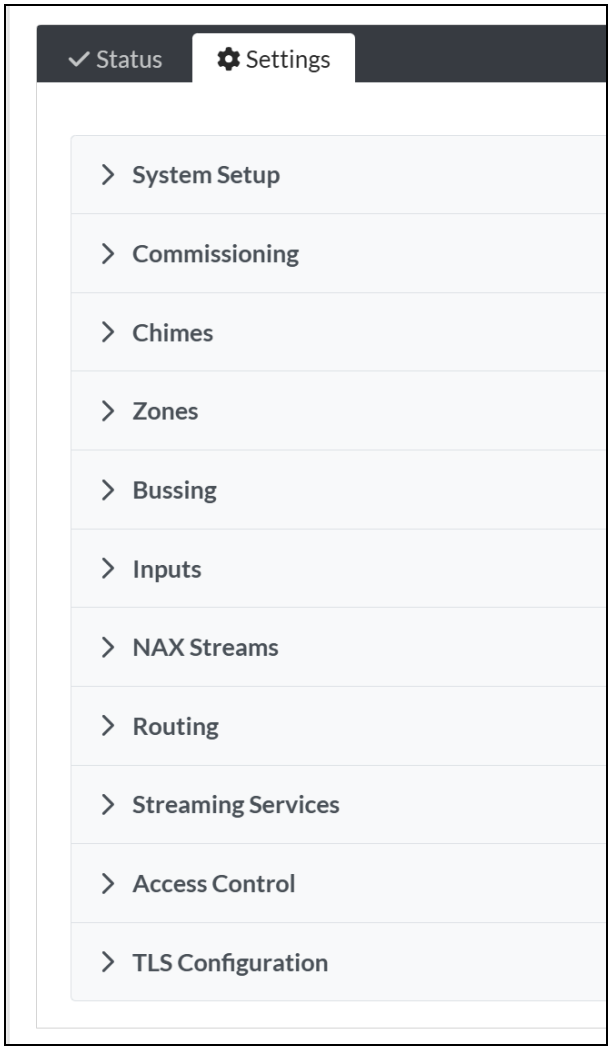
The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-4ZSP.



TLS settings can be adjusted in the **Settings** tab under the **TLS Configuration** accordion. Refer to TLS Configuration on page 348 for information.

Settings

The **Settings** page provides controls for configuring various DM-NAX-4ZSP settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-4ZSP web interface.



The settings available on the **Settings** page are divided into the following collapsible accordions:

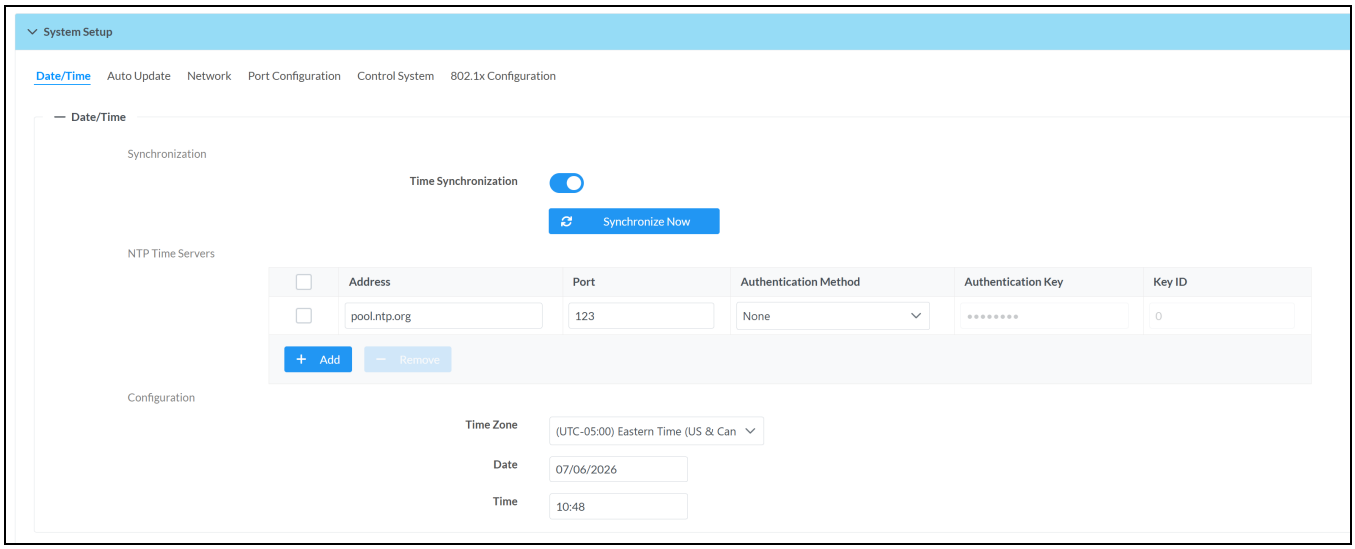
- System Setup on page 301
- Commissioning on page 308
- Chimes on page 309
- Zones on page 310
- Bussing on page 328
- Inputs on page 329
- DM NAX Streams on page 330
- Routing on page 333
- Streaming Services on page 335

- Access Control on page 342
- TLS Configuration on page 348

System Setup

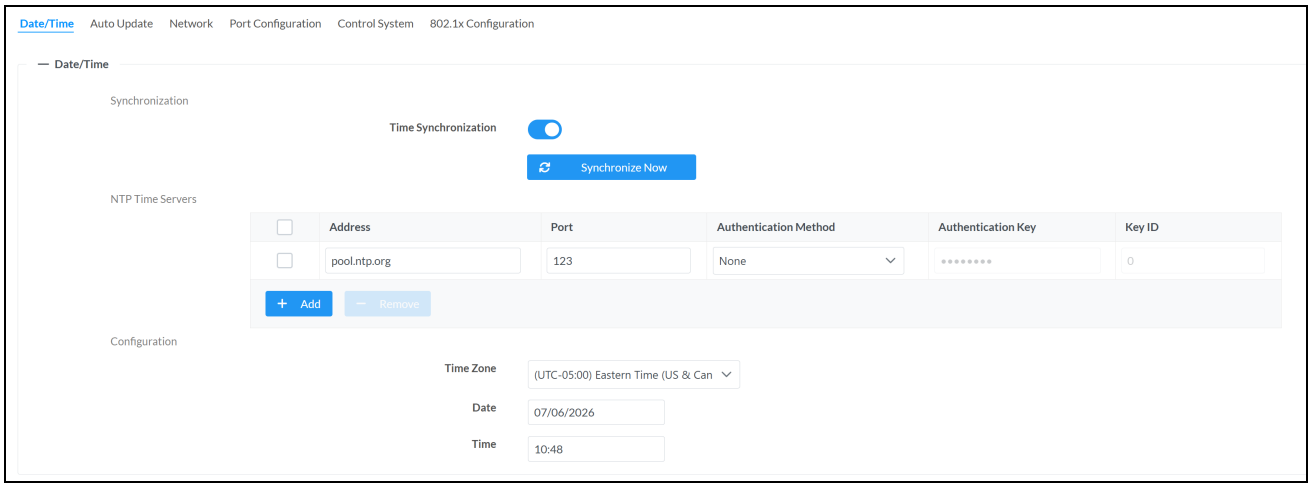
The **System Setup** accordion contains settings to configure the following system functions:

- Date/Time on page 301
- Auto Update on page 302
- Network on page 304
- Port Configuration on page 305
- Control System on page 306
- 802.1x Configuration on page 307



Date/Time

Select the **Date/Time** tab to configure the date and time settings of the DM-NAX-4ZSP.



Configure the available settings:

- Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
- In the **NTP Time Servers** table, enter the **Address** (URL) and **Port** of an NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server.

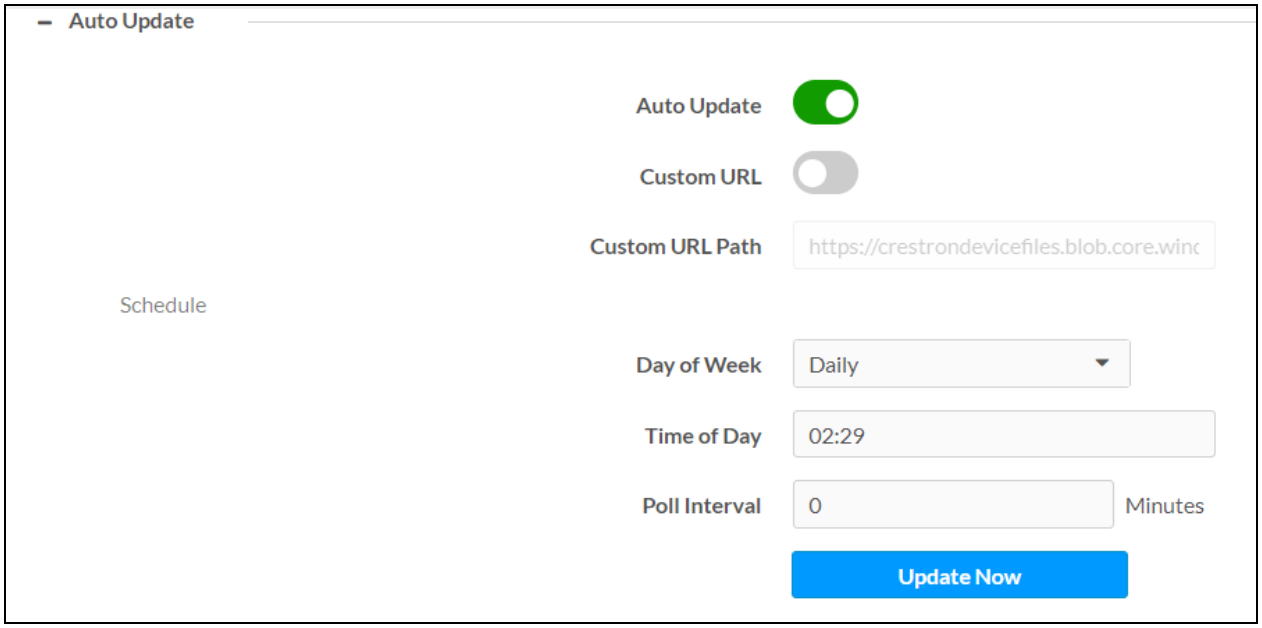
  If an **Authentication Method** other than **None** is selected (either **MD5**, **SHA1**, or **SHA256**), enter an **Authentication Key** and **Key ID** provided by the network administrator.

  > **NOTE:** Up to three time servers can be added on a device.

- Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.
- Select the correct time zone from the **Time Zone** drop-down list.
- Enter the current date in the **Date** field.
- Enter the current time in the **Time** field (in 24-hour format).

Auto Update

The DM-NAX-4ZSP can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



To configure the **Auto Update** feature:

1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the update server URL by doing either of the following:
   - Set the **Custom URL** toggle to the left to use the default URL to download the updates from the Crestron server.

- Use a custom URL:
    a. Set the **Custom URL** toggle to the right position.
    b. Enter the path to a custom manifest file in the **Custom URL Path** text box (in FTP or SFTP URL format).
    c. Use the Crestron Auto Update Tool within Crestron Toolbox software to generate a custom manifest file.
    d. Store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server at the address specified in step b.

3. Set a schedule for the automatic firmware update by doing either of the following:
    - Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    - Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the **Poll Interval**.
4. Select **Save Changes**.

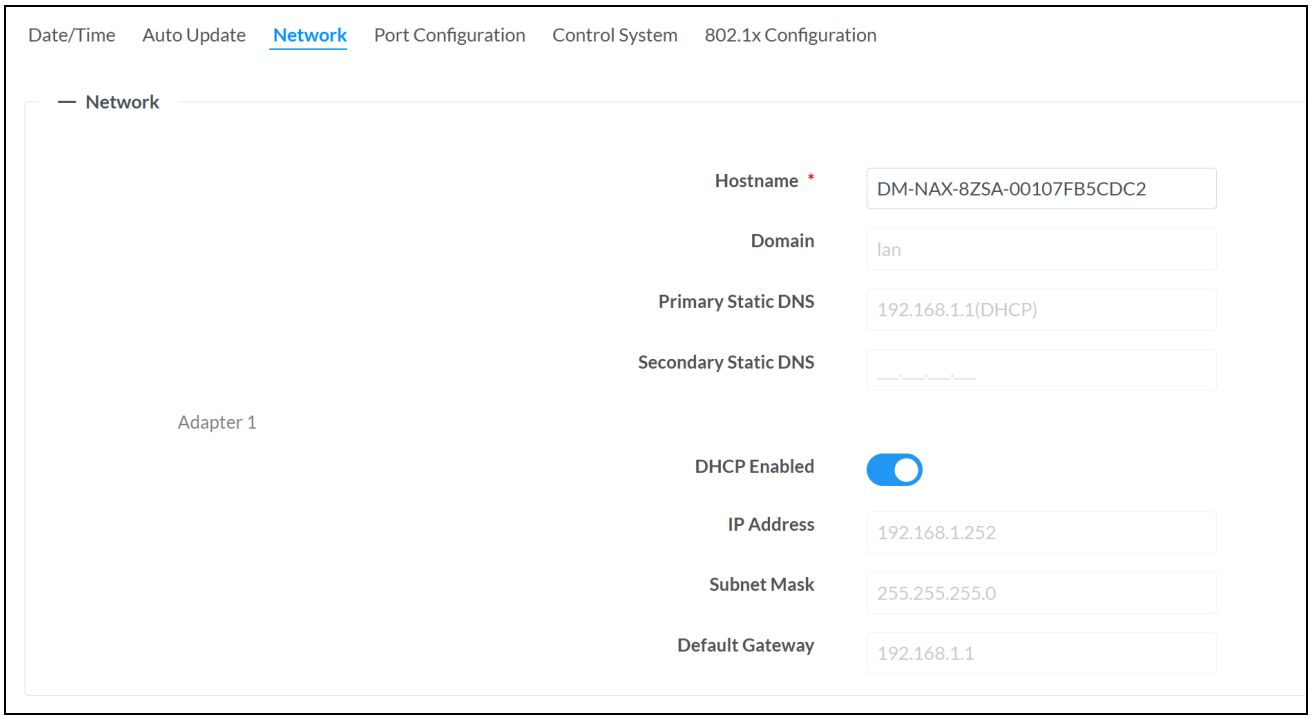
Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-4ZSP, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

NOTES:

- Most settings in this section are automatically assigned by a DHCP server. The DHCP toggle for all adapters must be set to the left position in order to manually configure the **Domain** and **DNS** settings.
- DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX device Ethernet ports to prevent conflicts.



Configure the available network settings:

- Enter a hostname for the device in the **Hostname** field.

  NOTE: By default, the hostname of the DM-NAX-4ZSP consists of the model name followed by the MAC address of the device. For example: DM-NAX-4ZSP-00107FB58088.

- Enter a network domain in the **Domain** field.
- Enter a primary DNS IP address in the **Primary Static DNS** field.
- Enter a secondary DNS IP address in the **Secondary Static DNS** field.

Adapter 1

The **Adapter 1** section contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-4ZSP is assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-4ZSP is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **IP Address**: Enter a unique IP address for the DM-NAX-4ZSP.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

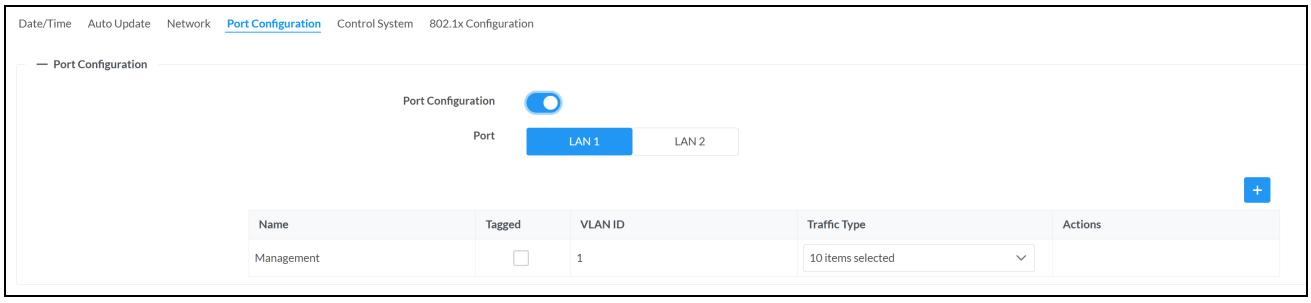
> **NOTE:** An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-4ZSP are set to isolate traffic using the **Port Configuration** feature (see Port Configuration on page 305). The settings for **Adapter 2** are identical to those available for **Adapter 1**.

Port Configuration

Use the **Port Configuration** tab to isolate and VLAN tag certain types of network traffic to each of the discrete LAN ports on the DM-NAX-4ZSP.

Set the **Port Configuration** toggle to the right position to enable this feature and display the rest of the settings. Set the toggle to the left to disable the feature and share all network traffic between both LAN ports. This feature is disabled by default.

When **Port Configuration** is enabled, up to ten unique network interfaces can be created to handle and tag traffic across the two physical LAN ports on the DM-NAX-4ZSP. A generic **Management** interface is automatically created on **LAN 1** and cannot be deleted.



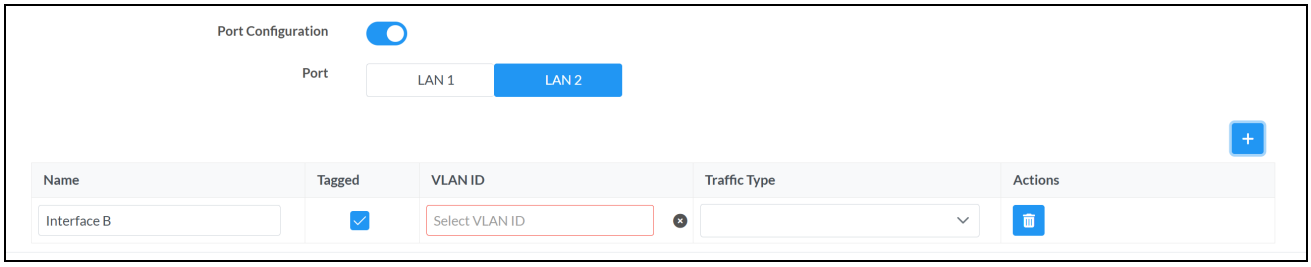
Select **LAN 1** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 1** on the DM-NAX-4ZSP:

- Use the **Traffic Type** drop-down list to select which traffic types will pass on the **Management** interface. By default, all traffic types are selected for the **Management** interface. Any selected types will be able to pass on LAN 1. Any unselected types will be dropped by the internal network switch.

- To add another interface to **LAN 1**, select **+** at the top-right of the table. Another row is added to the table.
- In each new row, configure the following:
  - Enter a name for the interface in the **Name** field.
  - Select the **Tagged** checkbox to VLAN tag the traffic associated with the interface.
  - Enter a unique **VLAN ID**.
  - Select one or more **Traffic Type** options from the drop-down list.
  - Select the delete icon to delete the interface.

Select **LAN 2** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 2**.

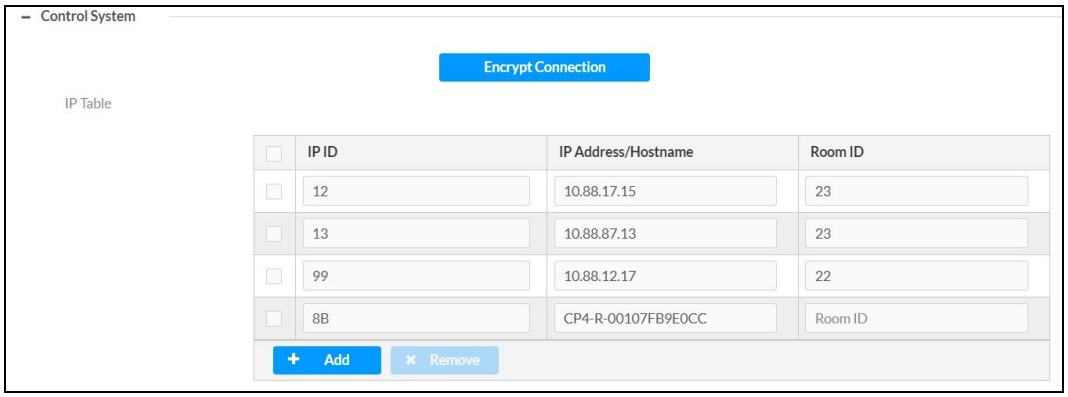
LAN 2 does not have any interfaces added by default. To add another interface to **LAN 2**, select the **+** icon at the top-right of the table. Another row will be added to the table. Interface configuration for **LAN 2** is the same as for **LAN 1**.



When the ports are configured as desired, select **Save Changes**. A restart confirmation window is displayed. Select **Yes, reboot now** to save the changes and restart the device or select **No** to cancel the restart.

Control System

Select the **Control System** tab to configure the connection from the DM-NAX-4ZSP to a control system.



Select **+ Add** to add a new row to the IP table. Up to 16 IP table entries can be added to the DM-NAX-4ZSP.

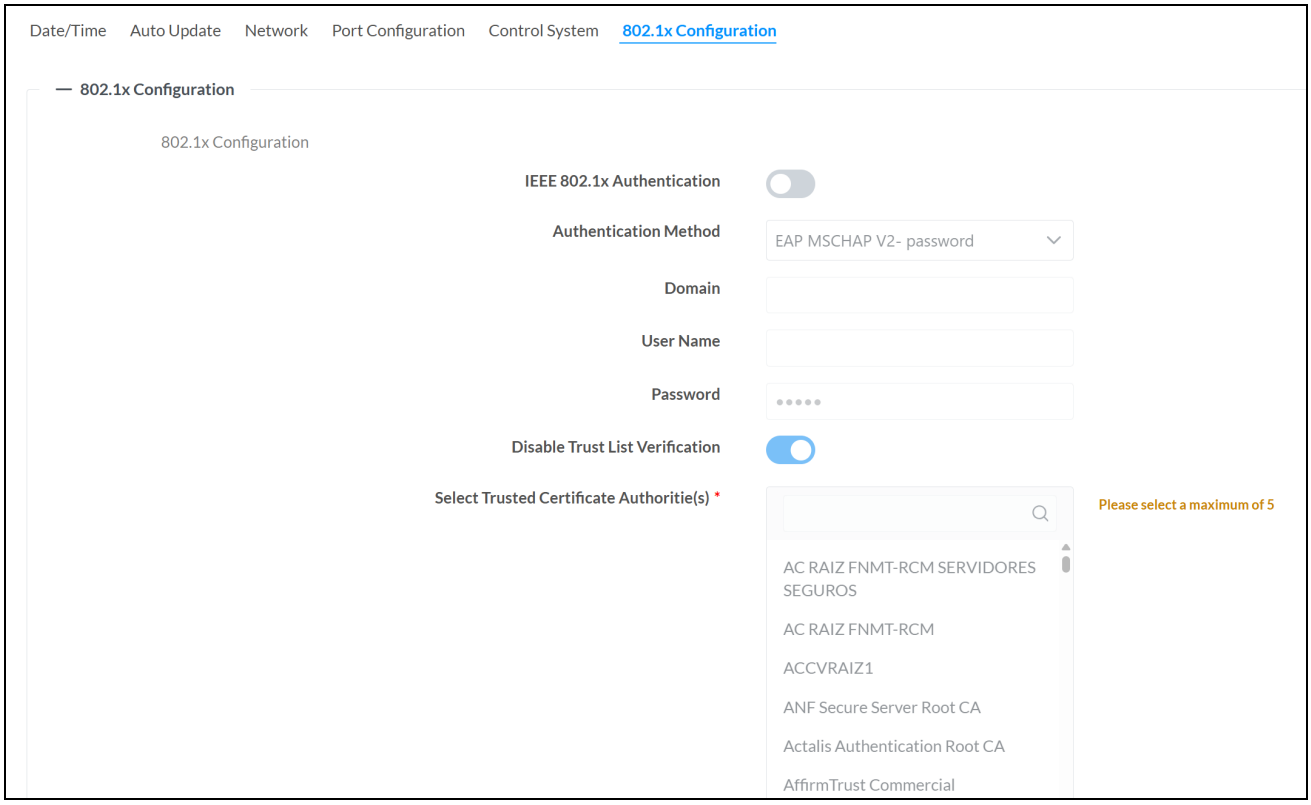
In each row, configure the following:

- Enter the IP ID of the DM-NAX-4ZSP in the **IP ID** field.
- Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
- Enter the Room ID in the **Room ID** field.

To remove an IP table entry, select the checkbox to the left of an entry's table row, and then select **X Remove**.

802.1x Configuration

The DM-NAX-4ZSP has built-in support for the 802.1x standard, allowing communication with the authentication server and access to protected corporate networks.



To configure 802.1x authentication on the amplifier:

1. Set the **IEEE 802.1x Authentication** toggle to the right to enable 802.1x. This will enable all remaining options in the **802.1x Configuration** tab.
2. Select an option from the **Authentication Method** drop-down, either **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.

3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate; it only requires credentials.
4. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

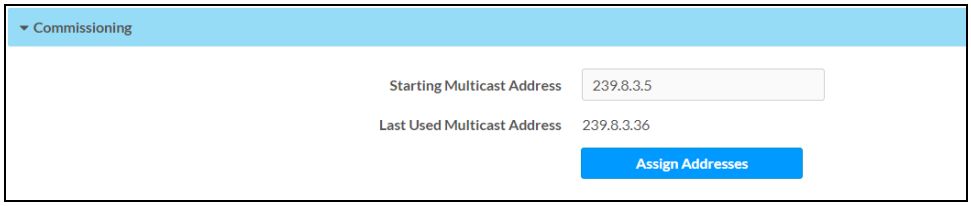
    The **Select Trusted Certificate Authoritie(s)** list contains signed trusted Certificate Authorities (CAs) preloaded into the audio processor. Select the check box next to each CA whose certificate can be used for server validation as specified by a network administrator.

    If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.

Once the 802.1x settings are configured as desired, select **Save Changes** to save the changes to the device and restart it.

Commissioning

Use the **Commissioning** accordion to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.



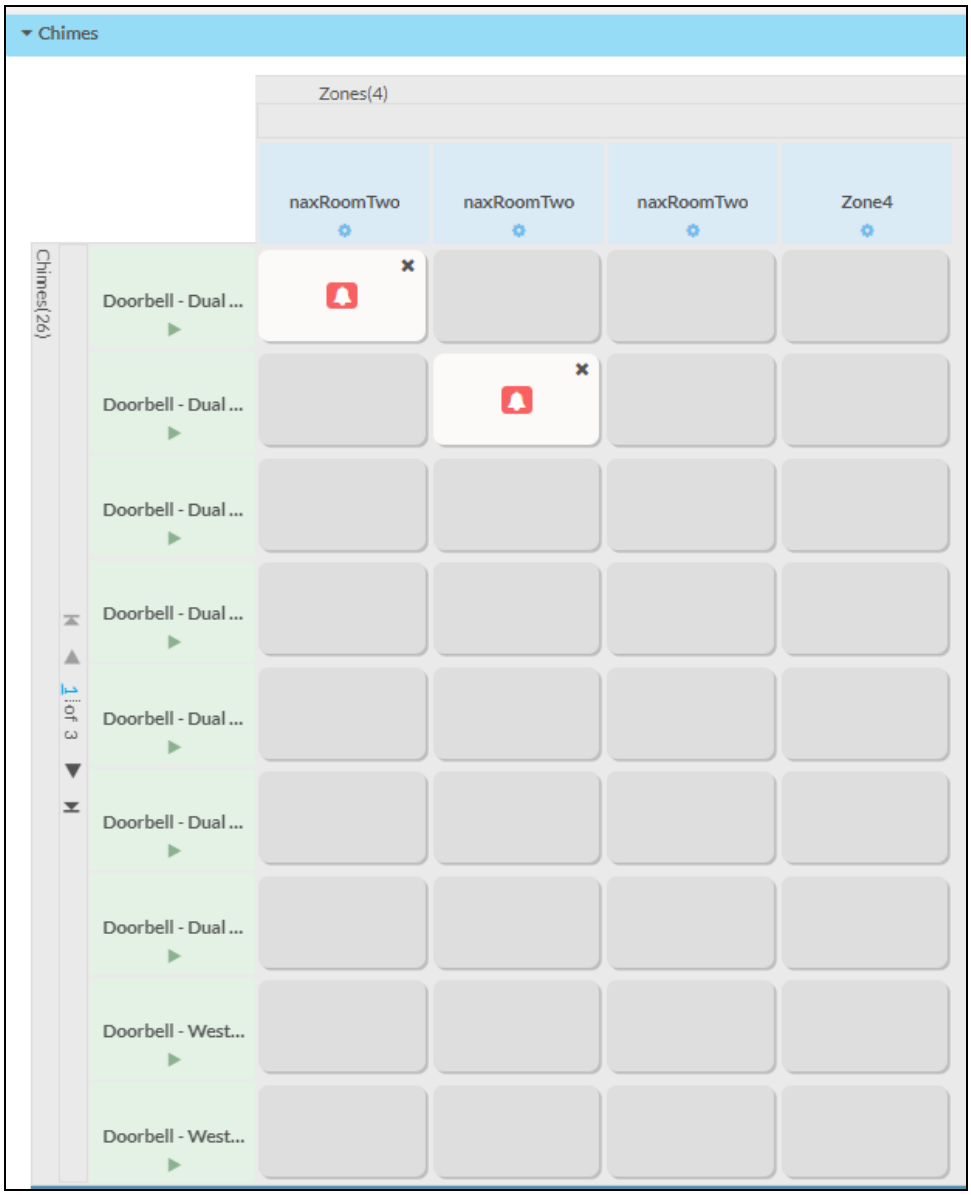
Specify the first multicast address for the amplifier to assign in the **Starting Multicast Address** field. The **Last Used Multicast Address** field displays the final address in the range that the amplifier will assign.

Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-4ZSP a unique multicast address in the specified range. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.239.

> **NOTE:** Selecting **Assign Addresses** will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Chimes

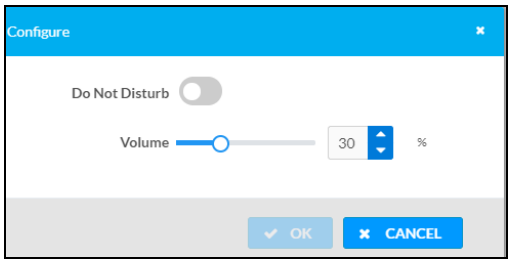
The DM-NAX-4ZSP features a library of built-in chime audio files to use as doorbells or alerts. Each chime file can be assigned to one or more zones on the amplifier, then triggered via a custom program to play back over those zones. Use the **Chimes** accordion to assign the chimes to the zones.



For each chime file, select the cells that correspond to the **Zones** designated to play that specific chime. You can assign multiple chimes to the same zone. To view all available chimes, use the up ▲ or down ▼ arrows at the left of the matrix to change pages.

To configure the chime volume of a zone:

1. Select the gear icon corresponding to the zone. A **Configure** window is displayed.

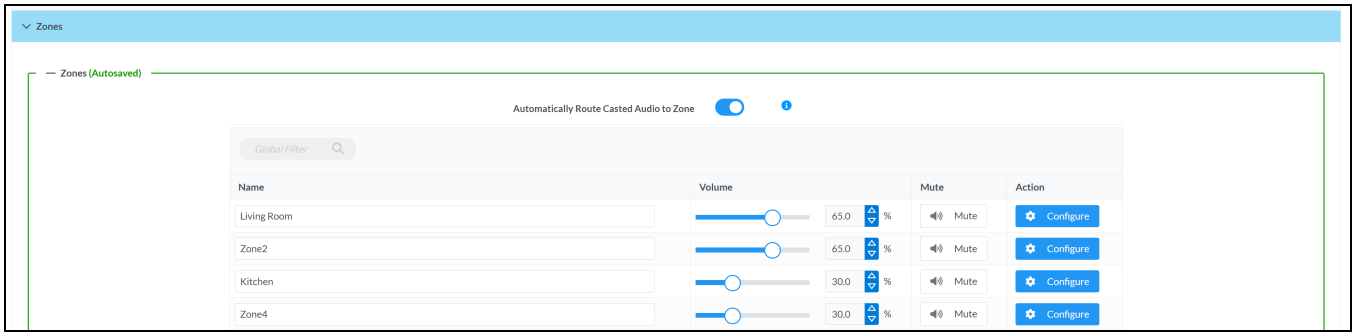


2. Set the **Do Not Disturb** toggle to the right to mute all chimes for the zone. Set the **Do Not Disturb** toggle to the left to unmute the chimes.
3. Set the volume by doing one of the following:
    - Move the **Volume** slider to the right to increase or to the left to decrease the chime volume.
    - Use the **%** arrows to increase or decrease the chime volume. Values range from 0 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Volume** field.

    NOTE: The chime volume is independent of the zone volume control.
4. Select **OK** to apply the new settings.

Zones

The **Zones** accordion contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a **Configure** option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

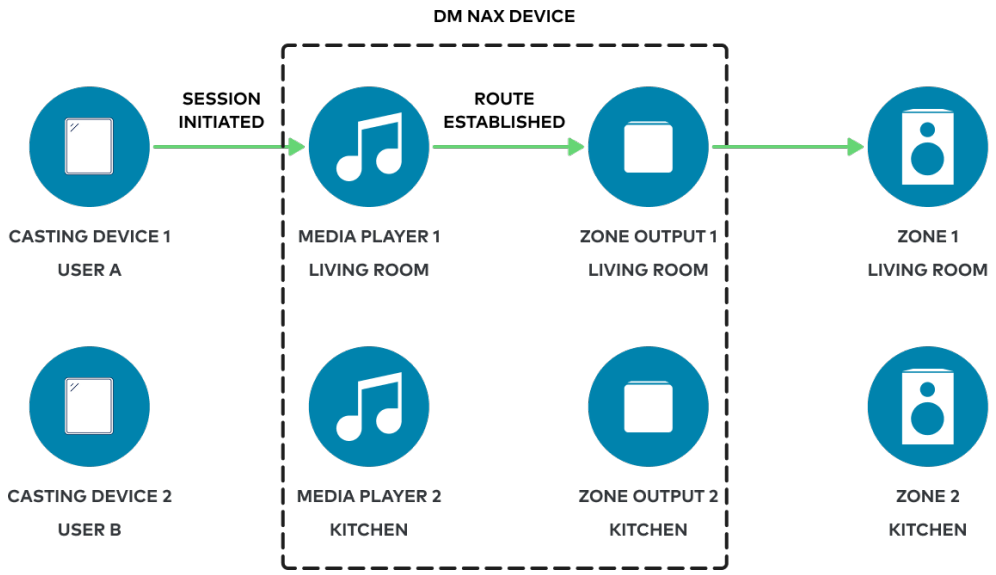
Cast Audio Automatic Routing

The **Automatically Route Casted Audio to Zone** toggle provides two ways to handle the routing of audio from Apple AirPlay® or Spotify Connect™ casting sessions.

Automatic Routing Enabled

When the toggle is in the right position, initiating a casting session will route the receiving media player to an output zone automatically.

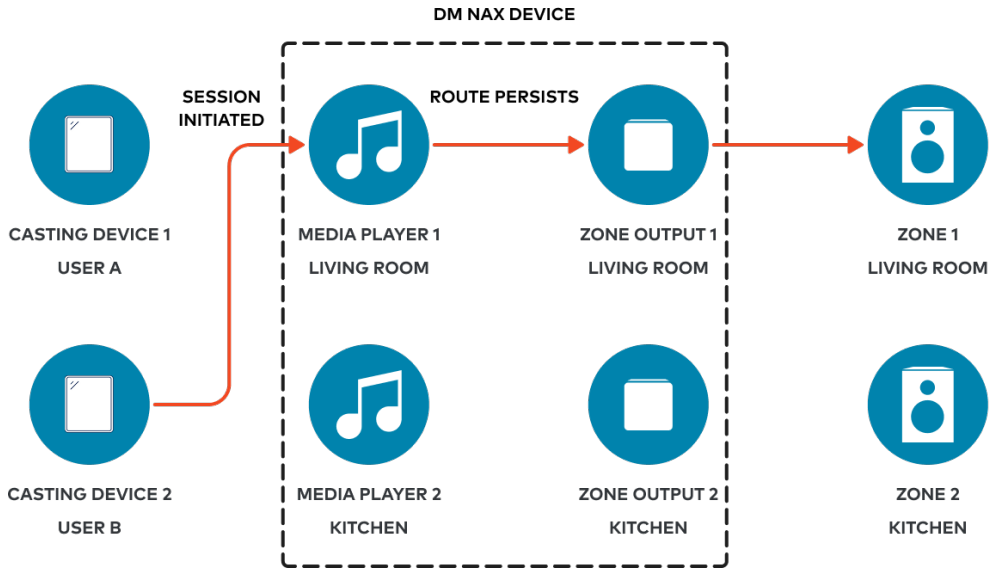
Use this option with Crestron Home® OS or when the media players are named after rooms in custom programming.



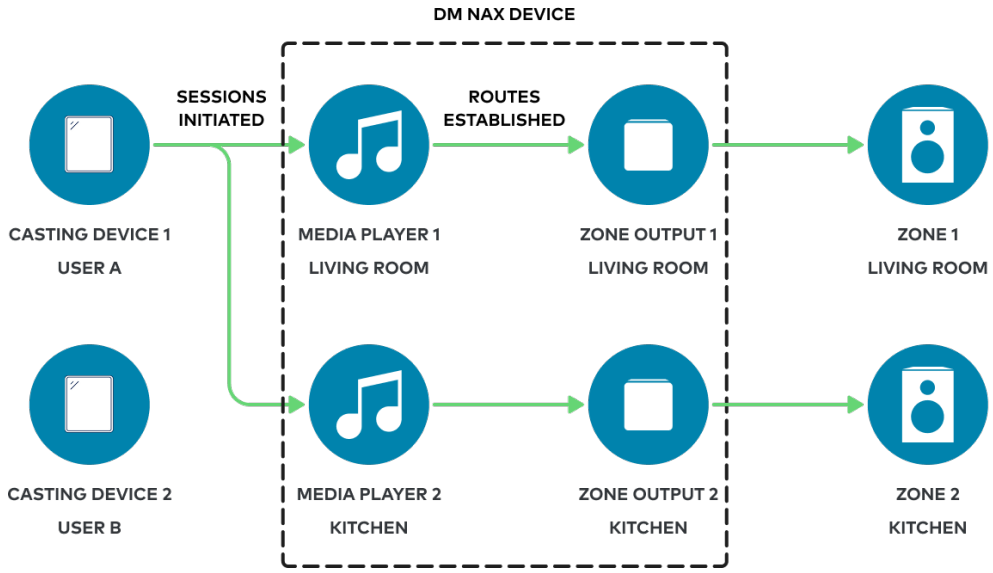
In the diagram above:

- Media Player 1 is named **Living Room** and Zone 1 is wired to the living room speakers.
- Media Player 2 is named **Kitchen** and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **Living Room** and **Kitchen** available as casting destinations.
- Selecting **Living Room** initiates a casting session with Media Player 1 and routes Media Player 1 to Zone 1.

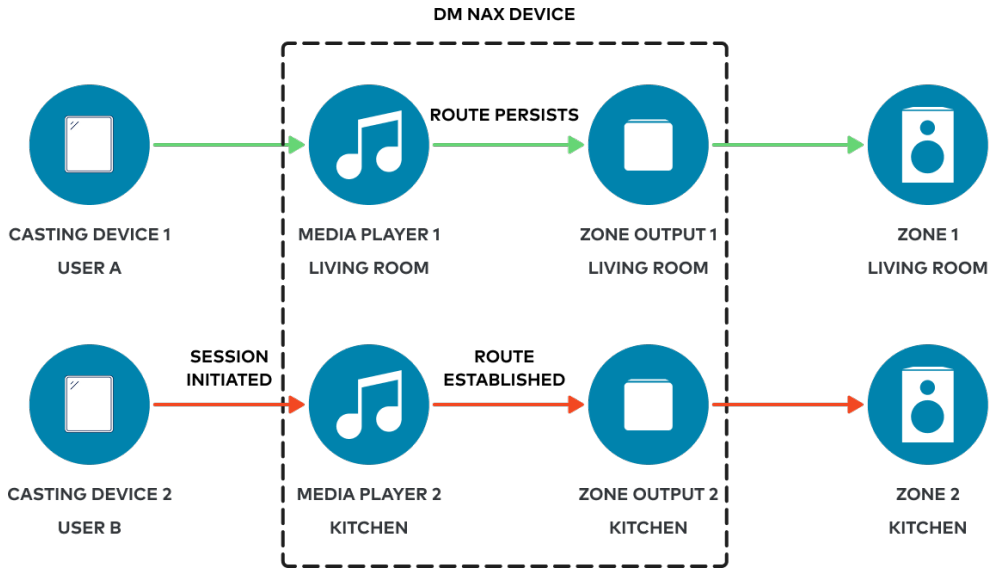
If User B then selects Living Room, they take over the casting session on Media Player 1 and their audio is heard in the living room.



If User A casts to both destinations, they initiate a session on both media players and playback begins in both zones.

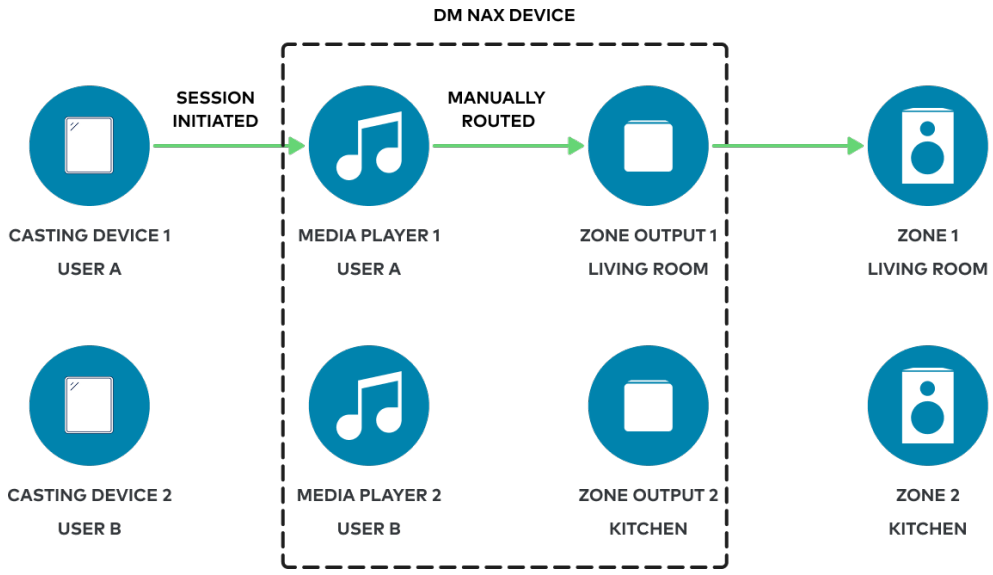


If User B then selects Kitchen, they take over the casting session on Media Player 2 and their audio is heard in the living room, but User A remains connected in the living room.



Automatic Routing Disabled

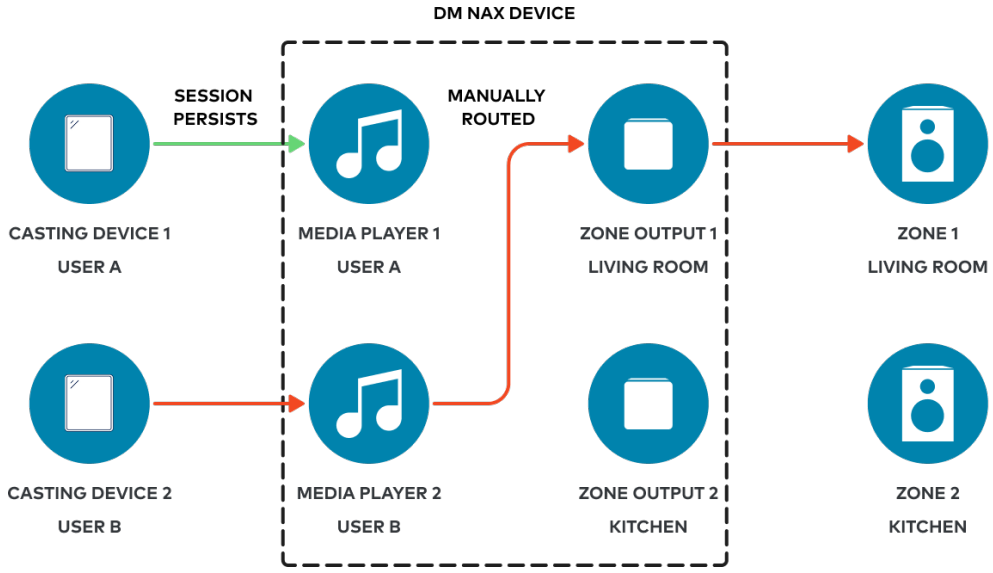
When the toggle is in the left position, initiating a casting session does not route the receiving media player to a zone. The route must be established via programming or the **Routing** table. Use this option when associating media players with specific users in custom programming. The following diagram shows an example workflow for this option.



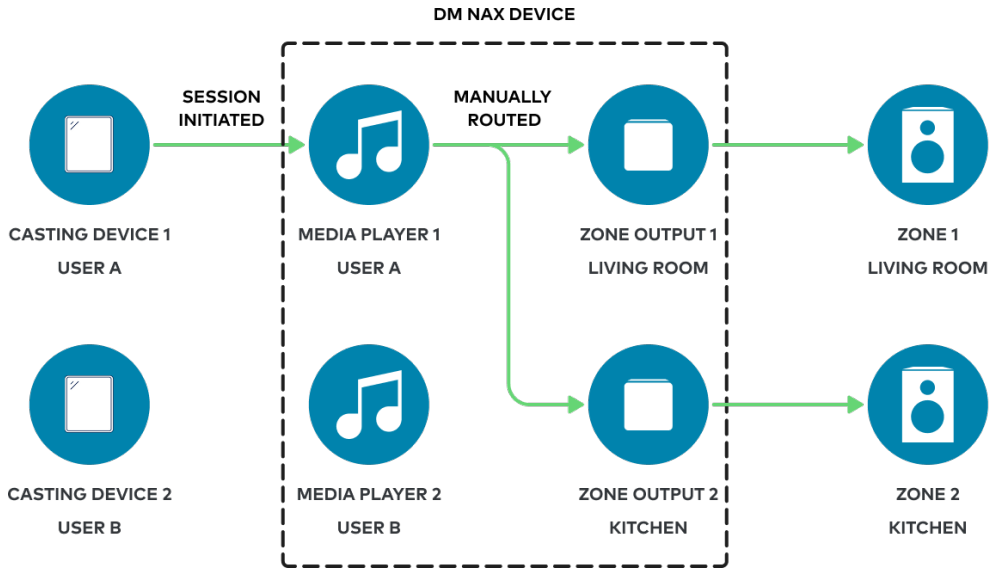
In the diagram above:

- Media Player 1 is named **User A** and Media Player 2 is named **User B**.
- Zone 1 is wired to the living room speakers and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **User A** and **User B** available as casting destinations.
- Selecting **User A** initiates a casting session with Media Player 1. Media Player 1 must then be manually routed to the living room and kitchen.

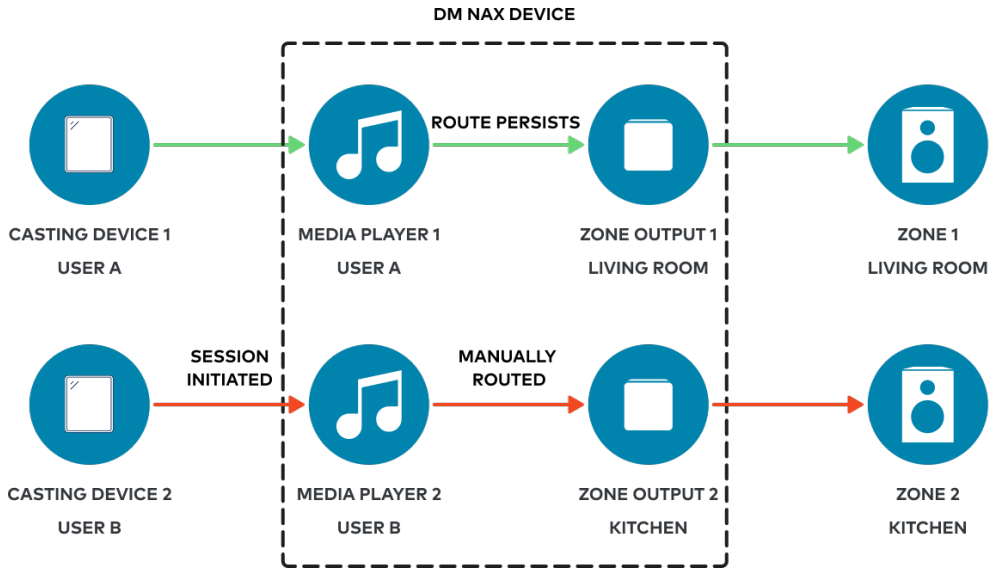
If User B selects the casting destination named **User B**, a casting session with Media Player 2 is initiated. Manually routing Media Player 2 to the living room zone will unroute Media Player 1, but User A's casting session will continue. Media Player 1 can still be routed to other zones.



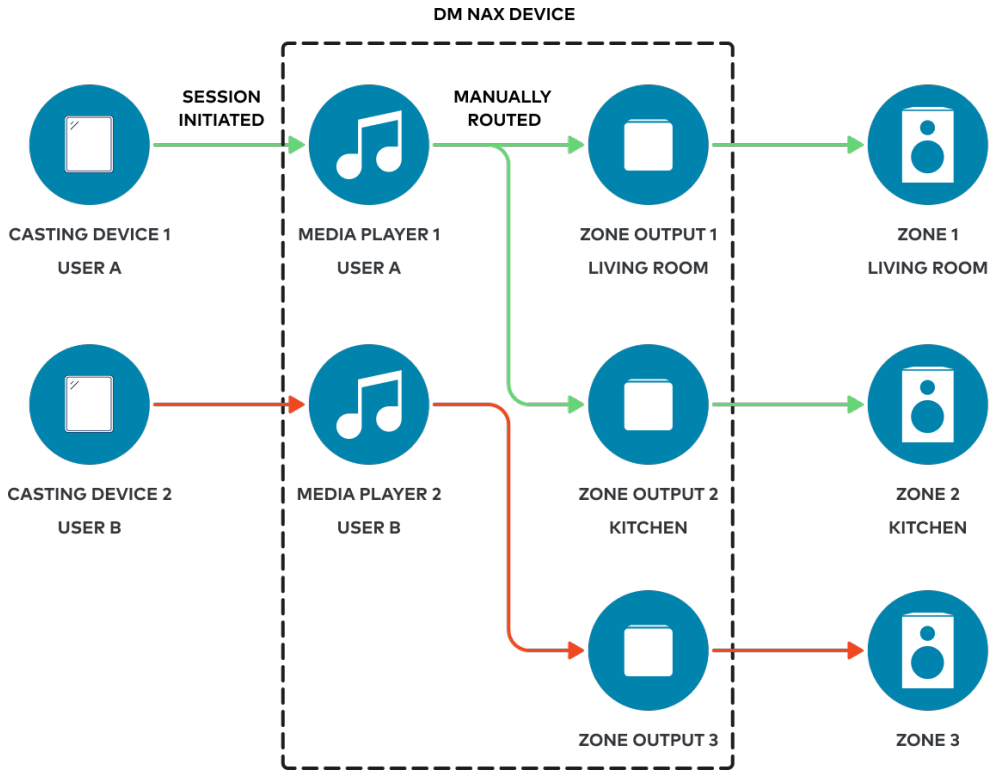
If User A casts to Media Player 1 and routes the player to both destinations, playback begins in both zones while Media Player 2 remains available.



If User B casts to Media Player 2 and routes it to Zone Output 2, their audio is heard in the kitchen, but User A remains connected in the living room.



User B can also cast to Media Player 2 and route it to any of the other zones on the DM NAX device without interfering with User A's playback in the living room and kitchen.



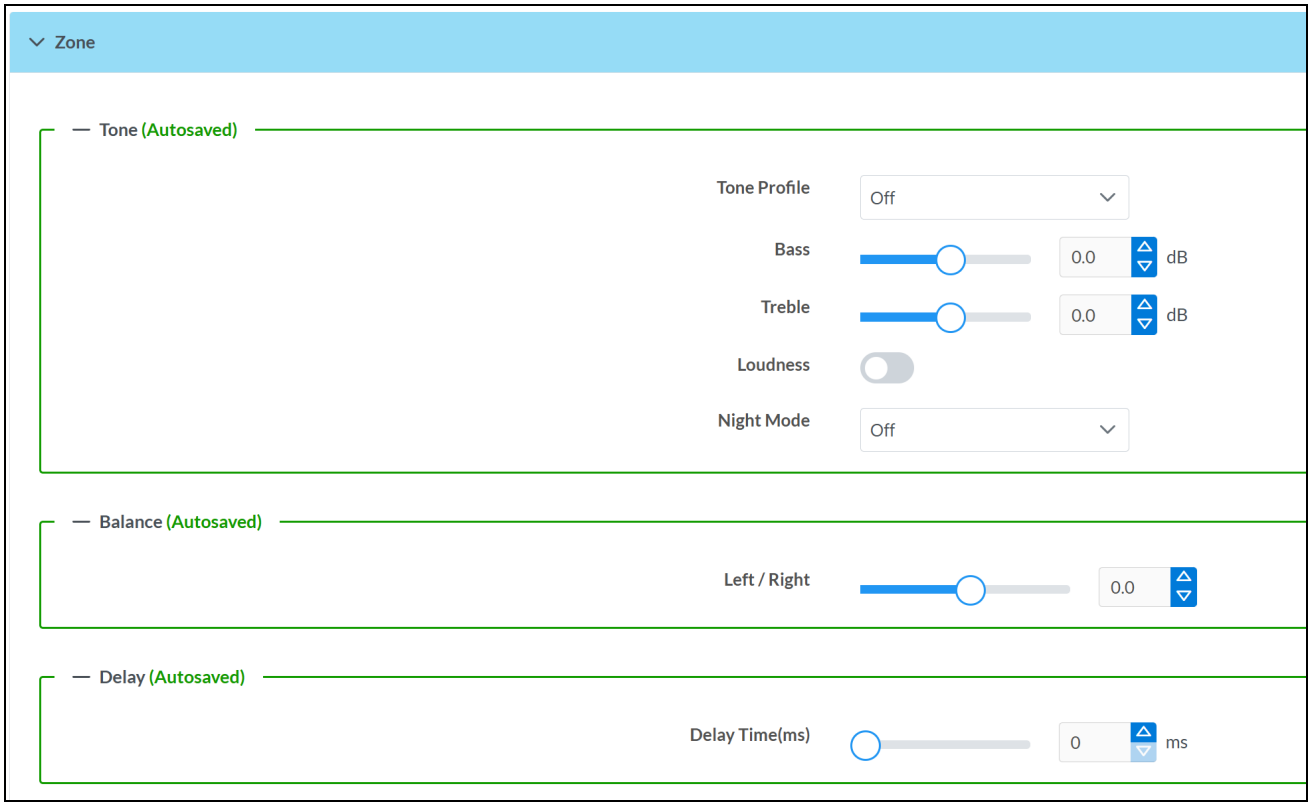
Zone Settings

To configure zone settings, select **Configure**. The **Edit Zone** window is displayed.

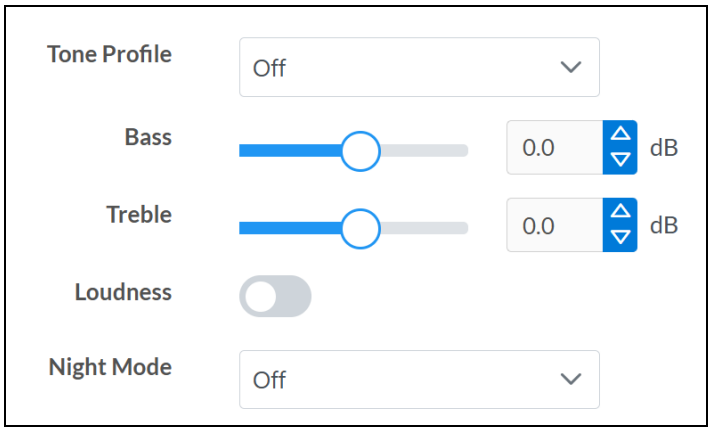


Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



Tone

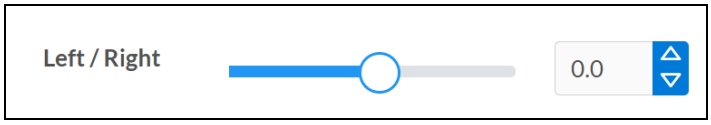


The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

> **NOTE:** The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

- To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down list. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Treble** field.
- To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.
- The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down list. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

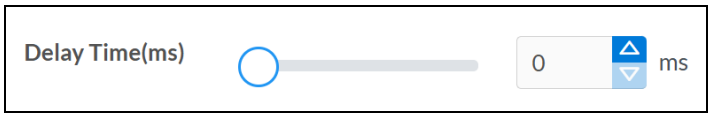
Balance



To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay

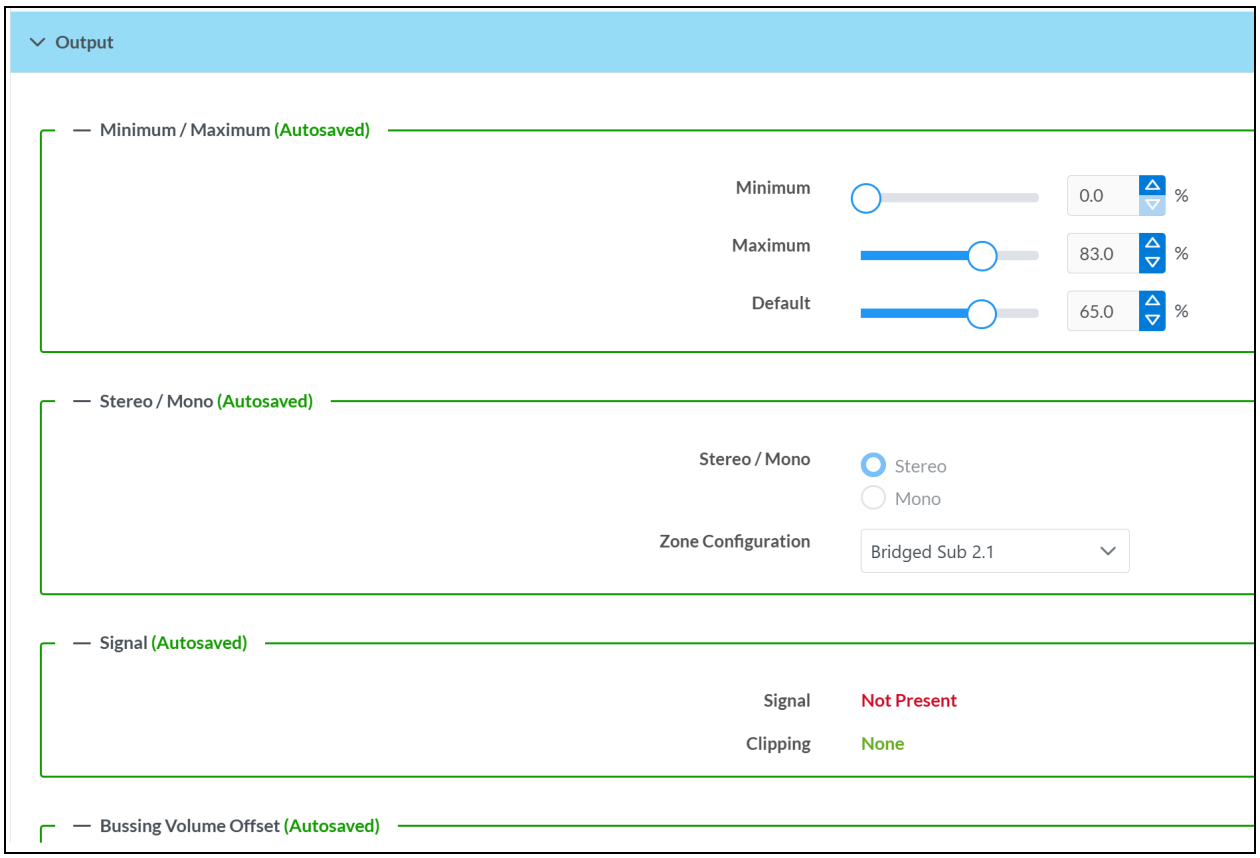


To add a delay to the audio output, do one of the following:

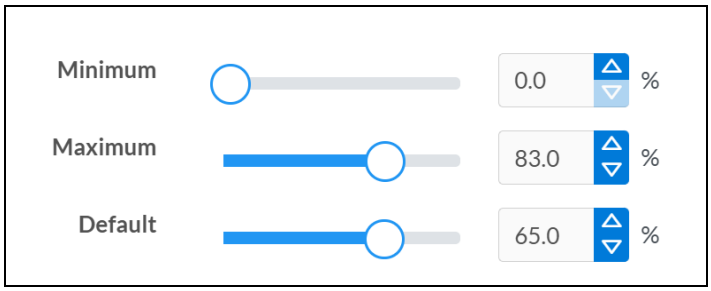
- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Configure Speaker Profile**, **Speaker Configuration**, **Casting**, **Line Out**, **Signal Generator**, **Advanced Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



Set **Minimum**, **Maximum**, and **Default** volume values by doing one of the following:

- Move each slider to the right to increase or to the left to decrease the associated volume value.
- Use the **%** arrows to increase or decrease the volume.
- Manually enter a value in the field.

NOTES:

- The range for **Minimum** is 1-50%. The range for **Maximum** is 51-100%.
- When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to that range. For example, with a 10% **Minimum** and 80% **Maximum** set for a zone, the 1-100% range of the **Zone** volume control is scaled to 10%-80%.
- The **Default** volume is applied as the **Zone** volume when a source is assigned to a zone with no previously routed source.

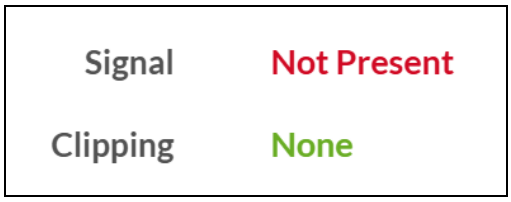
Stereo/Mono



Select either **Stereo** or **Mono** from the **Stereo/Mono** field.

NOTE: The **Zone Configuration** field is reserved for future use on the DM-NAX-4ZSP. Currently, the only available value is **Standard**.

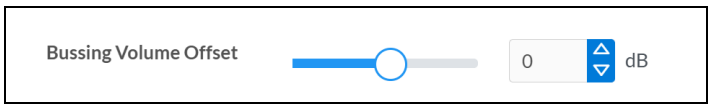
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset



Bussing Volume Offset provides a per-zone volume adjustment relative to the other zones assigned to the same bus.

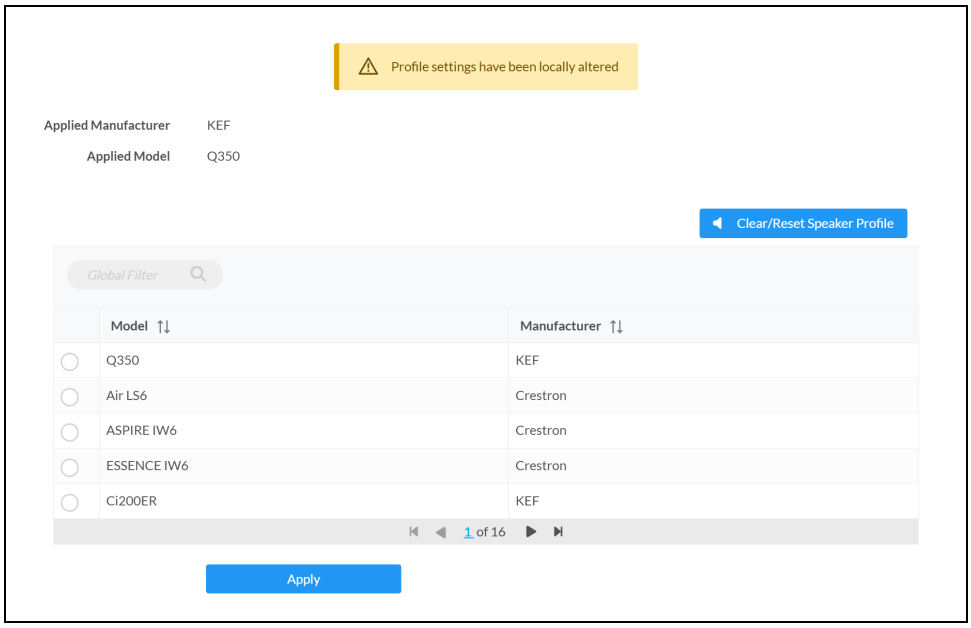
To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

Configure Speaker Profile

The DM-NAX-4ZSP has a library of built-in speaker profiles that contain equalizer and maximum output level settings specific to Crestron and third-party speaker models. Custom speaker profiles can also be generated and loaded to the DM-NAX-4ZSP. The **Configure Speaker Profile** field is used to apply these speaker profiles to a given zone of the DM NAX device.

CAUTION: Applying a speaker profile on a zone will overwrite the current **Speaker Configuration** and **Equalizer** settings.



Enter a speaker's model name in the **Global Filter** field to search for its associated profile. Any speaker profiles matching the search criteria are displayed.

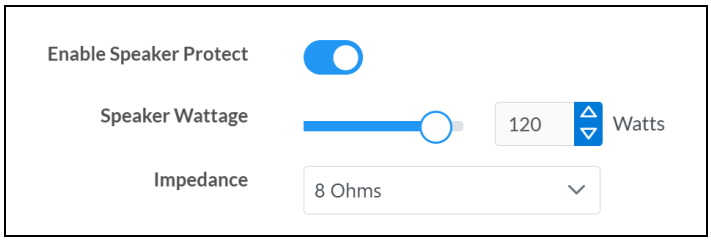
To apply a speaker profile:

1. Select a speaker profile.
2. Select **Apply**.

   The equalizer, impedance, and speaker protection settings of the zone are updated as per the applied speaker profile.

After applying a speaker profile, the **Speaker Configuration** and **Equalizer** settings for the zone can still be edited. The **Configure Speaker Profile** section will display a notification if these settings were altered after the speaker profile was applied.

Speaker Configuration

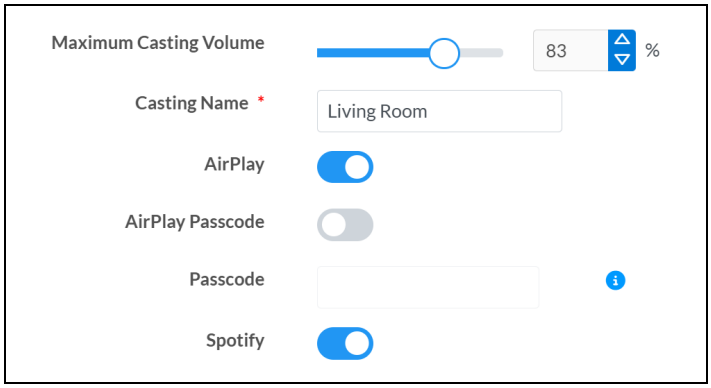


Use the **Speaker Configuration** section to limit the output power of the zone:

1. Set the **Enable Speaker Protect** toggle to the right position to enable speaker protection for the zone output. Set the toggle to the left position to disable speaker protection. By default, **Enable Speaker Protect** is set to the left position.
2. Set the maximum output wattage by doing one of the following:
    - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the maximum peak amplifier wattage that can be output to the speaker.
    - Use the **Watts** arrows to increase or decrease the maximum peak amplifier wattage that can be output to the speaker. Values range from 5 W to 150 W, adjustable in increments of 1 W.
    - Manually enter a value in the **Speaker Wattage** field.
3. Select the impedance of the speaker on a selected zone from the **Impedance** drop-down list. Values are **4 Ohms**, **8 Ohms**, and **Bridged**.

Casting

Use the **Casting** section to enable or disable Apple AirPlay® and Spotify Connect™ casting, as well as set a maximum casting volume and friendly name for the zone.



Configure the available settings:

- **Maximum Casting Volume** is an alternate value for the **Maximum** volume set under Minimum/Maximum Volume on page 320. This maximum is applied to the zone only when a casting service is routed to it. Set the maximum casting volume by doing one of the following:
  - Move the **Maximum Casting Volume** slider right to increase or left to decrease the maximum volume.
  - Use the arrows to increase or decrease the maximum casting volume. Values range from 51% to 100%, adjustable in increments of 1%.
  - Manually enter a value in the **Maximum Casting Volume** field.

  > **NOTE**: If the **Maximum Casting Volume** value is higher than the regular **Maximum** volume value, the **Maximum** value will be applied instead.

- Enter a friendly name in the **Casting Name** field. Once AirPlay and/or Spotify Connect are enabled, this name will be displayed as an available destination on the casting device.

The DM-NAX-4ZSP supports Apple AirPlay 2 casting.

To stream media from an iOS® device to a zone on the DM-NAX-4ZSP via AirPlay casting:

1. Ensure that the iOS device and DM-NAX-4ZSP are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-4ZSP, the zone will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 305 for more information.

2. Set the **AirPlay** toggle to the right to enable AirPlay casting to the media player.
3. To use a passcode, set the **AirPlay Passcode** toggle to the right, then enter the desired four-digit passcode in the **Passcode** field.
4. On your iOS device:
   a. Enable AirPlay. Refer to this support article for information on enabling AirPlay on an iOS device.
   b. From the list of available AirPlay destinations, select the DM-NAX-4ZSP media player. If a passcode was enabled, enter it on the iOS device when prompted. The iOS device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-8 route to their respectively numbered output zones 1-8 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if an AirPlay casting session on media player 5 starts and it is not already routed to another zone. To disable this automatic routing, disable the **Automatically Route Casted Audio to Zone** toggle under the **Zones** accordion. Refer to Zones on page 310.

   c. After the AirPlay stream begins, control the volume of the streaming DM-NAX-4ZSP output zone directly from your iOS device.

Set the **AirPlay** toggle to the left to disable AirPlay casting for the media player.

The DM-NAX-4ZSP supports Spotify Connect™ casting.

To stream media to a zone on the DM-NAX-4ZSP via Spotify Connect casting:

1. Ensure that the casting device and DM-NAX-4ZSP are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-4ZSP, the zone will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 305 for more information.

2. Set the **Spotify Connect** toggle to the right to enable Spotify Connect casting to the media player.
3. On the casting device:
   a. Open the Spotify application.
   b. Enable Spotify Connect casting. Refer to this support article for information on enabling Spotify Connect casting.
   c. From the list of available casting destinations, select the DM-NAX-4ZSP media player you would like to stream to. The device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-8 route to their respectively numbered output zones 1-8 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if an Spotify Connect casting session on media player 5 starts and it is not already routed to another zone. To disable this automatic routing, disable the **Automatically Route Casted Audio to Zone** toggle under the **Zones** accordion. Refer to Zones on page 310.

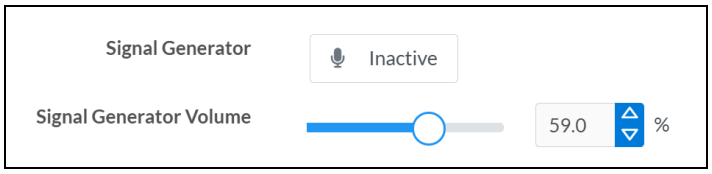
   d. After the Spotify Connect stream begins, control the volume of the streaming DM-NAX-4ZSP output zone directly from the Spotify application on the casting device.

Set the **Spotify Connect** toggle to the left to disable Spotify Connect casting for a DM-NAX-4ZSP media player.

To stream media from a Roon® streaming device to a zone in your distributed audio system:

1. Enable Apple AirPlay casting on the DM NAX device by setting the AirPlay toggle to the right.
2. Launch the Roon desktop app.
3. Open the Roon app menu and navigate to the **Settings** submenu, then select **Audio**. A table of discovered network devices that the Roon device can stream to will be displayed. Any devices that previously have been enabled for Roon casting are listed under the **Connected to Core** section, and the rest of the discovered devices are listed under **Other network devices**.
4. Find each of the DM NAX zones in the **Other network devices** list, then select **Enable** for each zone to connect it to the Roon Core® for casting.
5. Return to the Roon app home page and select the speaker icon at the bottom right, then select a DM NAX zone from the list of available casting destinations.
6. Start a media stream, and the Roon device will cast the streaming audio to the zone.

Signal Generator



The DM-NAX-4ZSP has a built-in signal generator that sends an audio test signal to the output zone.

- To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue.
- To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey.

By default, the signal generator is inactive.

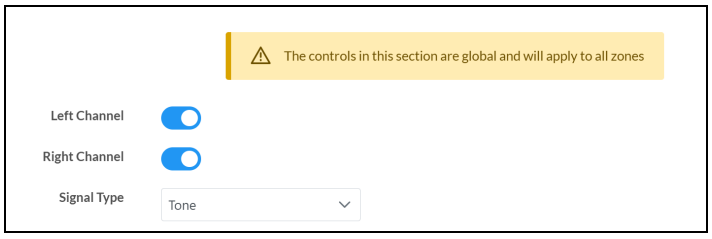
NOTES:

- There is only one signal generator built in to the DM NAX device. Each zone has its own option to enable or disable the signal generator on that output. Setting the signal generator to **Inactive** on a given zone output does not stop it from outputting to other zones.
- The **Signal Generator Volume** control is a local control that does not affect the signal generator's volume on other zone outputs. Only the settings under **Advanced Signal Generator** are applied universally to all zones of the DM NAX device.

To adjust the signal generator's volume, do one of the following:

- Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
- Manually enter a value in the **Signal Generator Volume** field.

Advanced Signal Generator



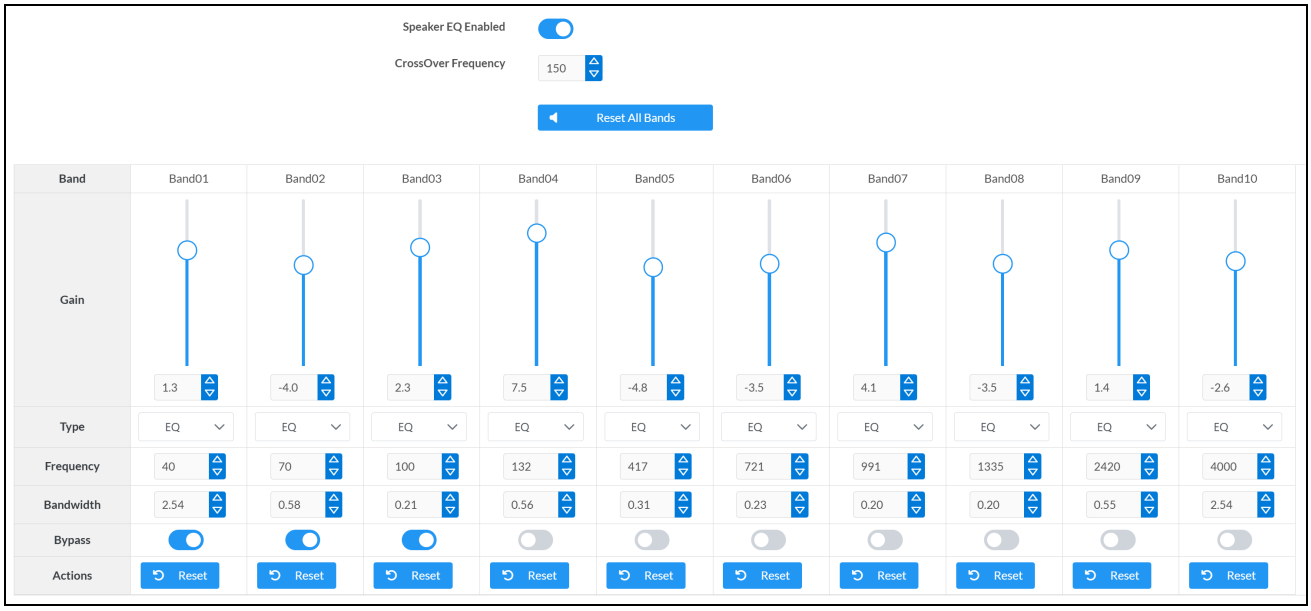
The advanced signal generator settings control the built-in signal generator directly and are applied universally to all output zones of the DM NAX device.

Configure the available settings:

- Set the **Left Channel** toggle to the right to enable the left channel of the generator. Set the toggle to the left to disable the left channel. By default, **Left Channel** is enabled.
- Set the **Right Channel** toggle to the right to enable the right channel of the generator. Set the toggle to the left to disable the right channel. By default, **Right Channel** is enabled.

- Select an audio test signal type from the **Signal Type** drop-down list. The available signal types are:
    - **Tone**: Generates a 1 kHz sine wave tone.
    - **Pink Noise**: Generates pink noise.
    - **White Noise**: Generates white noise.

Equalizer Settings



Each zone of the DM-NAX-4ZSP has a dedicated ten-band equalizer that tunes the output signal. Each band has a discrete gain, filter type, center frequency, bandwidth, and bypass.

Use the settings above the equalizer table:

- Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

    > **NOTE:** When **Speaker EQ Enabled** is set to the left, all equalizer bands are bypassed. Use this toggle to perform A/B comparison of the entire EQ curve.

- Select **Reset All Bands** to set all ten bands of the equalizer back to default settings.

With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands:

- Set the band's gain by doing one of the following:
    - Move the **Gain** slider up to increase or down to decrease the gain.
    - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
    - Manually enter a value in the **Gain** field.

- Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type.

  > **NOTE:** Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings because the **LowPass** filter applies a fixed roll-off slope at a set frequency.

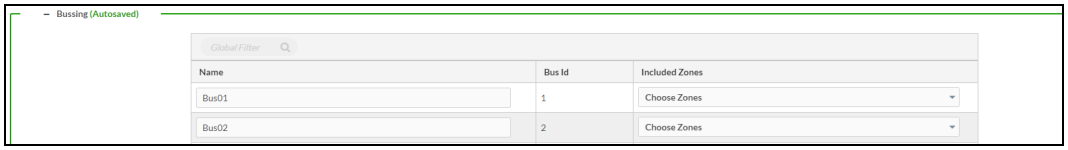
  The available filter types are:

  - **EQ:** Fully parametric filter, boosts or cuts a specified range of frequencies.
  - **Notch:** Parametric filter, cuts a specified frequency; achieves a narrower bandwidth than the standard **EQ** filter type.
  - **TrebleShelf:** Boosts or cuts all frequencies above a specified frequency by a specified gain.
  - **BassShelf:** Boosts or cuts everything below a specified frequency by a specified gain.
  - **LowPass:** Cuts everything above a specified frequency by -12 dB per octave.
  - **HighPass:** Cuts everything below a specified frequency by -12 dB per octave.
- Set a center frequency for the band by doing one of the following:
  - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
  - Manually enter a value in the **Frequency** field.
- Set the bandwidth by doing one of the following (**EQ** and **Notch** filters only):
  - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
  - Manually enter a value in the **Bandwidth** field.
- The individual **Bypass** controls bypass a single band for more granular A/B comparison. Set a band's **Bypass** toggle to the right position to bypass that band or to the left position to disable the bypass. Each **Bypass** is disabled by default.
- Select **Reset** to reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Bussing

The bussing feature on DM NAX devices assigns any number of selected zones to a fixed group of zones (called a bus). Zones in a bus share volume and routing controls. The DM-NAX-4ZSP supports two buses.



To create a bus:

1. Enter a friendly in the **Name** field.
2. Select any number of zones from the **Included Zones** drop-down list.

   > **NOTE:** Each zone can only be a member of one bus. Zones that are already a member of another bus will not be available in the **Included Zones** drop-down list.

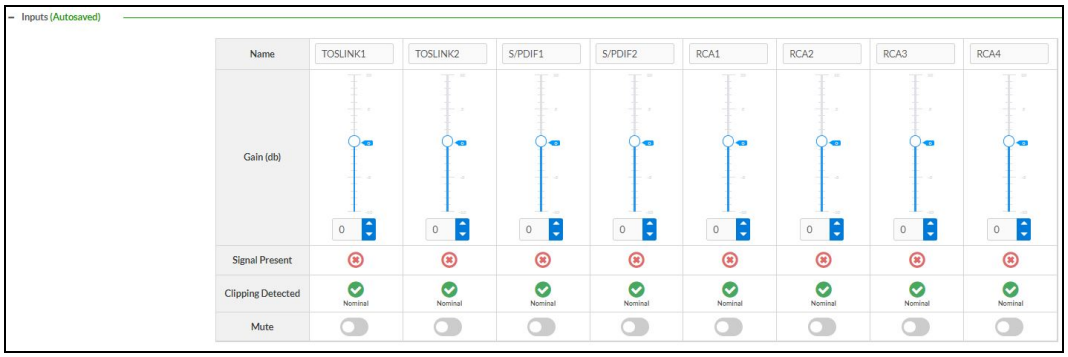
3. Select **Save Changes**.

Inputs

Use the **Inputs** accordion to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-4ZSP.

Up to 16 inputs are available on the DM-NAX-4ZSP, including the eight physical stereo input connectors on the device's rear panel and the eight internal media players used for media streaming services.

> **NOTE:** Four media players are enabled by default. To enable the remaining four media players, connect to the DM NAX streaming device using an SSH console (or the **Text Console** tool in Crestron Toolbox™ software), and then issue the `AudioExtendedSupport on` command.



Configure the available settings for each input:

- Enter a friendly name in the **Name** field.
- Set a level compensation adjustment by doing one of the following:
  - Move the **Gain (db)** slider up to increase or down to decrease the compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel. Compensation is not available for any of the internal media players.
  - Use the up and down arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Gain (db)** field.
- Select **Mute** to mute the input. Select **Muted** to unmute the input. The inputs are unmuted by default.

Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (nonclipping).

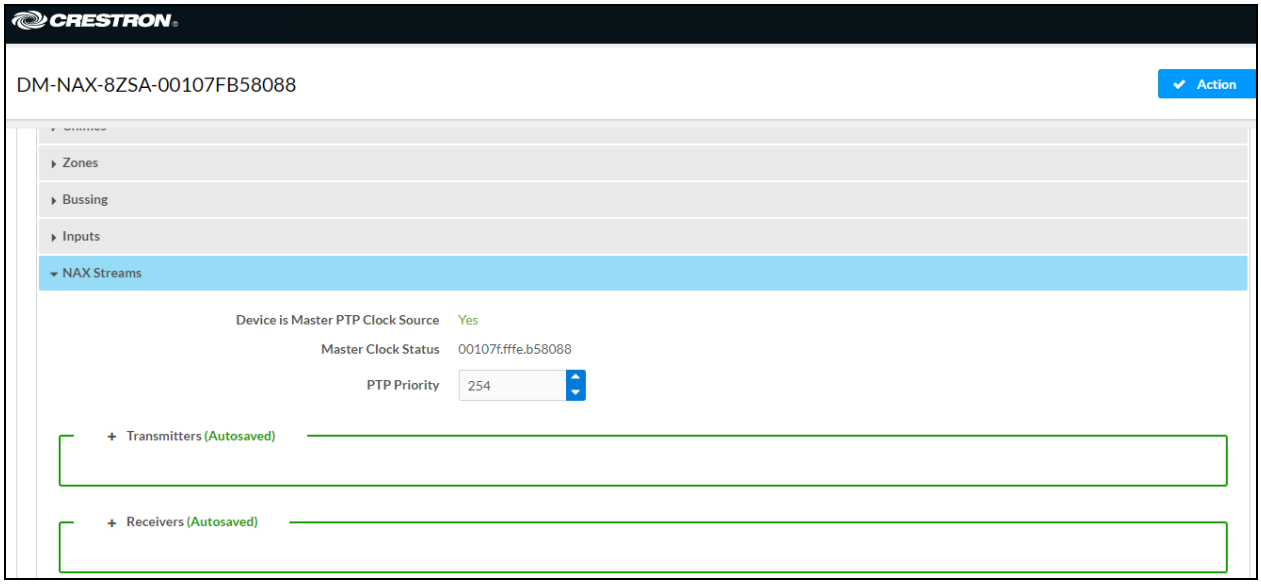
DM NAX Streams

Each local input of the DM-NAX-4ZSP can be made available as a DM NAX audio-over-IP stream. This includes the physical inputs on the rear panel of the device and the internal media players.

The DM-NAX-4ZSP also generates streams for each zone output using all of the routing and signal processing settings of its respective zone. These parallel streams enable control of an audio-over-IP signal to otherwise uncontrolled AES67 devices on the network.

NOTES:

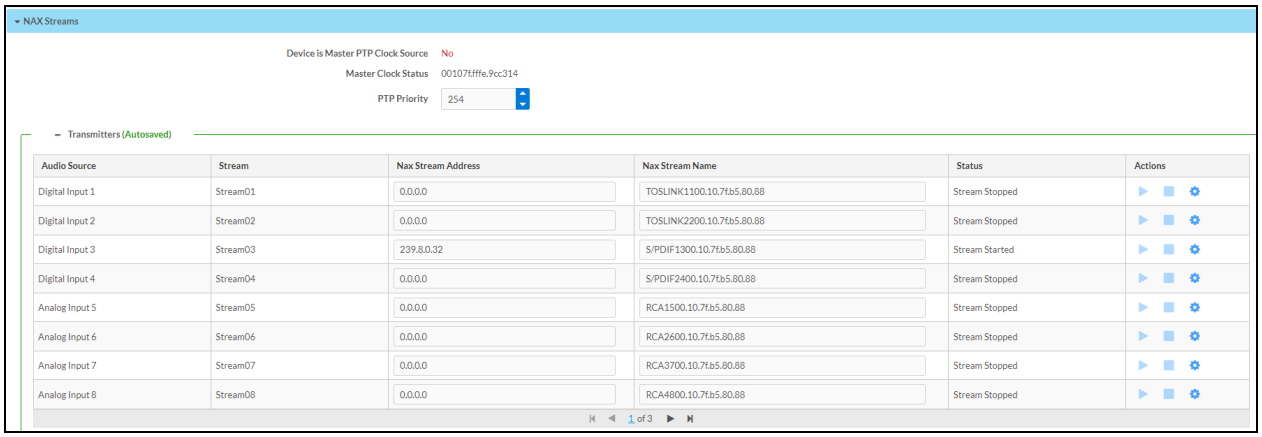
- Under the **Transmitters** section (see Configure Transmitters on page 331), the last four listed transmitters are dedicated to parallel zone outputs.
- To configure the DSP settings, refer to Zone Settings on page 316.



Select **NAX Streams** to expand the accordion and display the following information:

- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-4ZSP is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-4ZSP will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

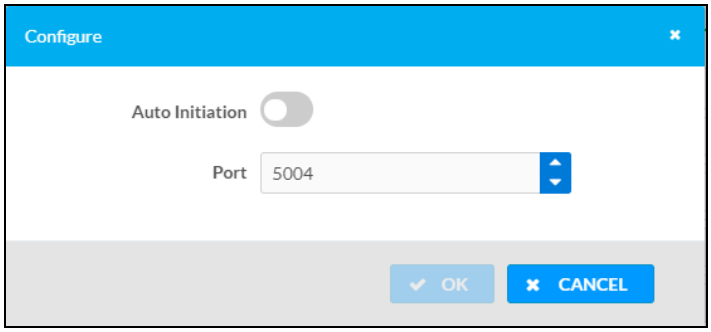
Configure Transmitters



NOTE: To configure transmitters not shown on the current page of the table, select the right arrow ▶ to display the next page of eight transmitters.

To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices (similar to a device hostname resolving to an IP address).
3. Select the gear icon in the **Actions** column. The **Configure** dialog is displayed:



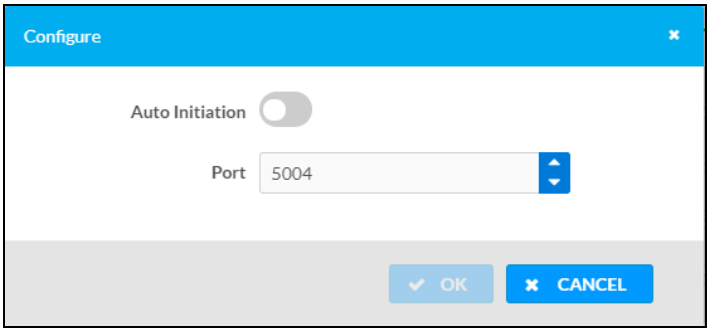
4. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
5. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
6. Select **OK** to save the changes.

Configure Receivers



To configure a DM NAX receiver:

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the gear icon in the **Actions** column. The **Configure** window is displayed:

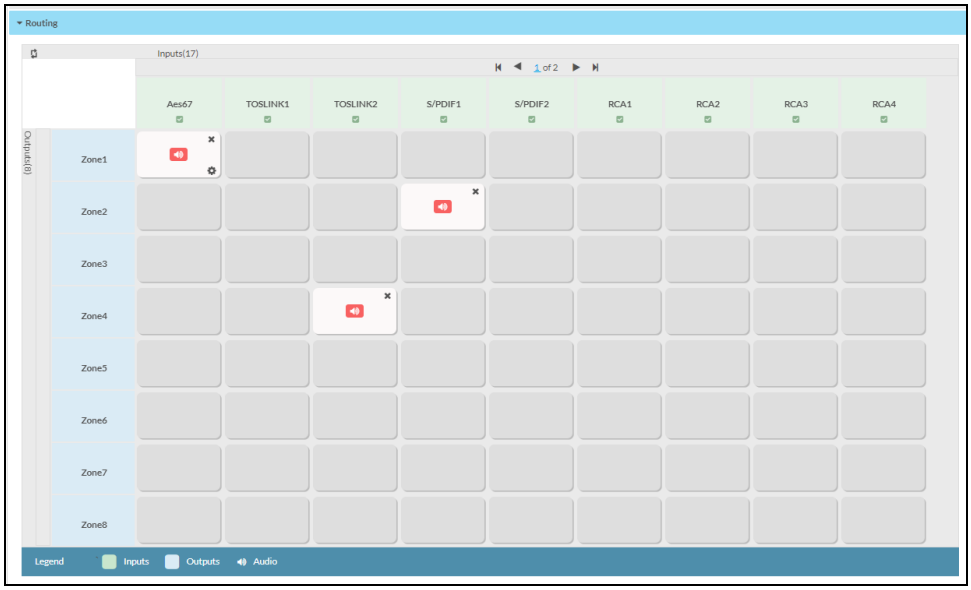


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. Set the port number, by doing do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save the changes.

Routing

Use the **Routing** accordion to route a local input, media player, or AES67 stream to a zone on the DM-NAX-4ZSP.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



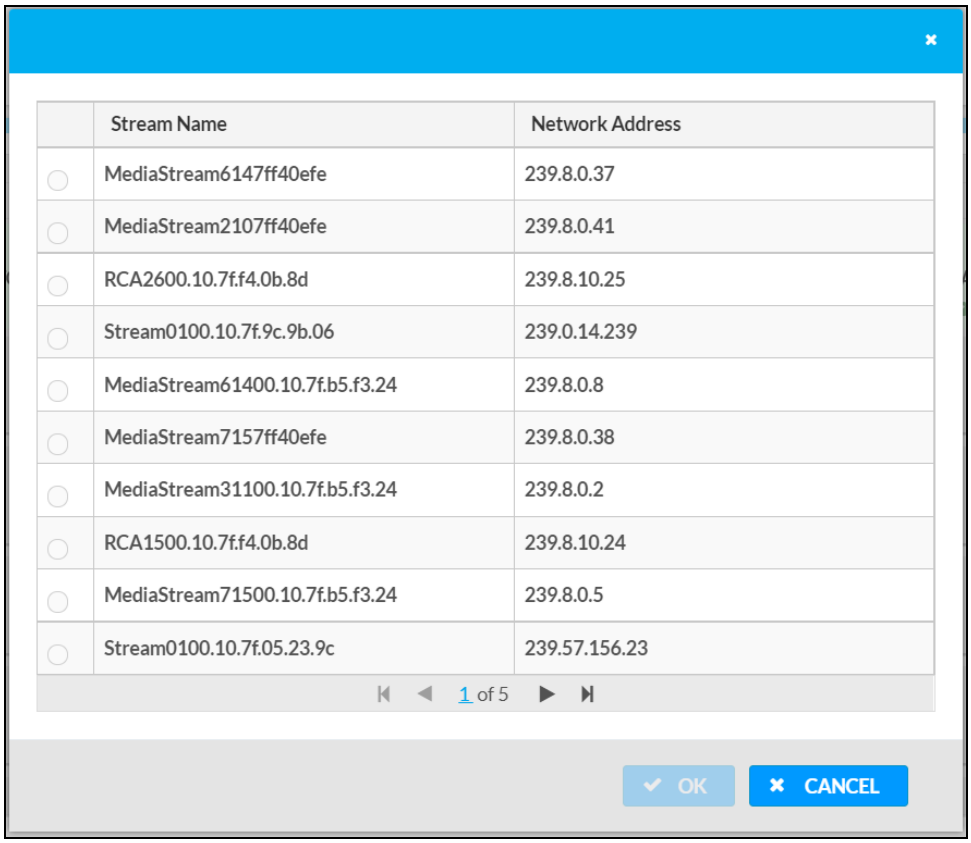
Use the matrix to configure routes:

- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed.
- To break a given route, select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the check icon under the input's name.

Use the left and right arrows at the top of the matrix to change pages to view all available inputs.

To select a specific DM NAX or AES67 stream when AES67 is selected as the source for a zone:

- Select the gear icon ⚙ to display the list of all DM NAX and AES67 streams discovered on the network, then select the corresponding stream to be routed to the zone.



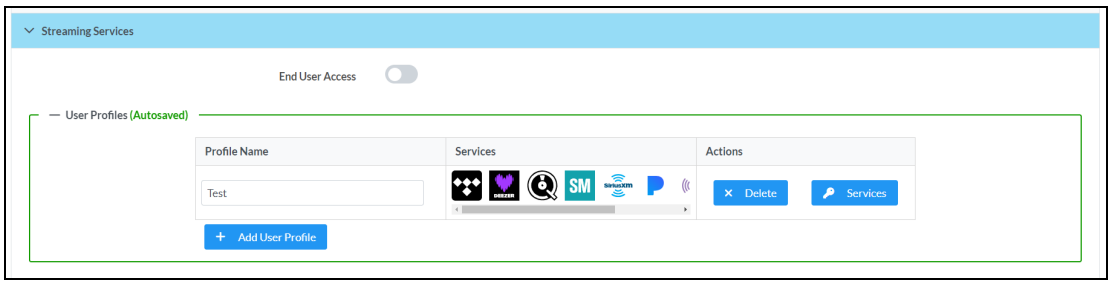
- Select **OK** to save the changes.

Streaming Services

The DM-NAX-4ZSP features four built-in media streaming players, each of which can play back a discrete media stream from a cloud-based service or local casting device. User profiles can be created for each user of the DM NAX device with discrete credentials, enabling multiple users to access streaming services without interfering with each other's recommendations, favorites, or playlists.

> **NOTE:** Levels for each streaming service provider can be adjusted individually via console commands. Refer to Knowledge Article 3144 for more information.

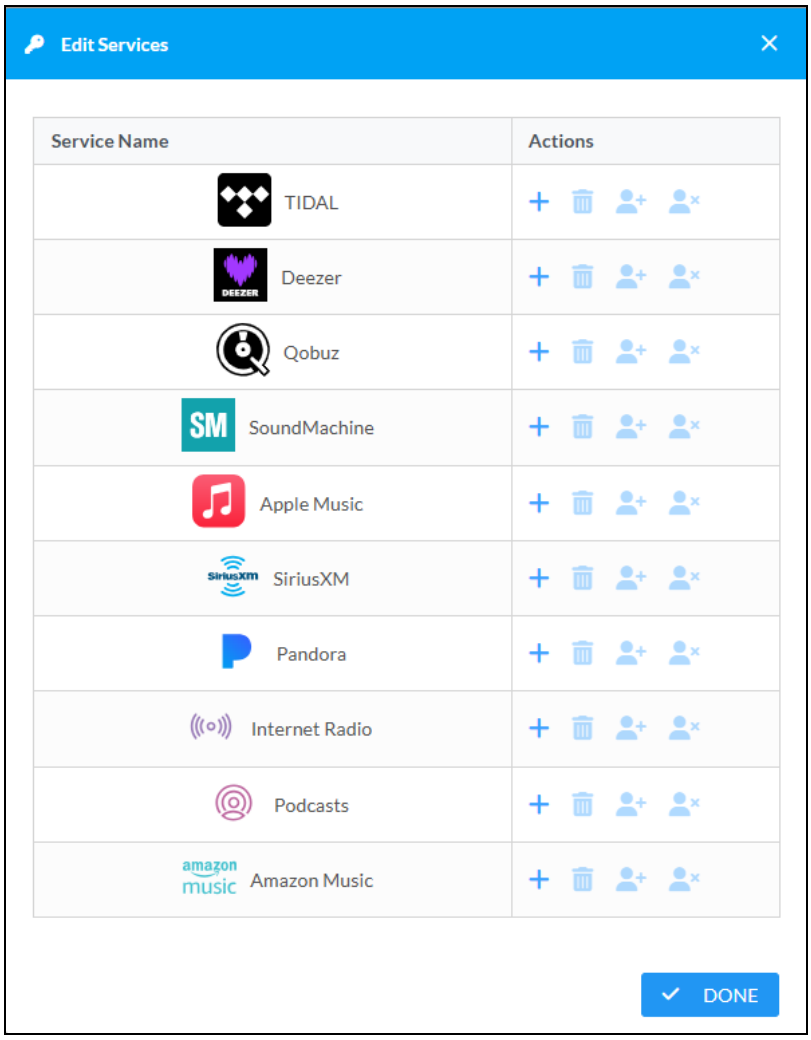
Set the **End User Access** toggle to the right position to enable **End User Access**. With **End User Access** enabled, any account on the device can access the **Streaming Services** accordion to add or remove streaming service accounts. Set the toggle to the left position to disable end user access. By default, **End User Access** is disabled.



To configure streaming service providers:

1. Select **+ Add User Profile** to create a new user profile. Each user profile can contain a unique set of streaming service accounts.
2. Enter a name in the **Profile Name** field. Select **Save** to create the **User Profile**. Once the profile is created, you have the option to either **Delete** the profile or add **Services** to it.

3. Select **Services** in the **Action** column and an **Edit Services** window is displayed.



4. Select from the available streaming services: **TIDAL™**, **Deezer®**, **Qobuz®**, **SOUNDMACHINE®**, **SiriusXM®**, **Pandora®**, **Internet Radio**, **Podcasts**, and **Amazon Music®**. Select + or 🗑 to add or delete the desired streaming services for each user profile.

User Authentication

User authentication is required for Amazon Music, Apple Music, Deezer, Pandora, Qobuz, SiriusXM, SOUNDMACHINE, and TIDAL.

Amazon Music

To authenticate an Amazon Music account:

1. Select the add user icon in the **Amazon Music** row of the table.
2. Select the link to log in via the Amazon Music portal.

> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - An Amazon Music Unlimited subscription is required for this feature.

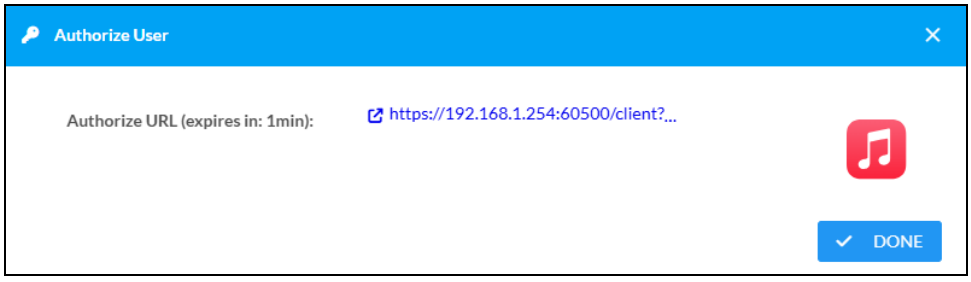


3. Select **DONE** to return to **Streaming Services**.

Apple Music

To authenticate an Apple Music account:

1. Select the add user icon in the **Apple Music** row of the table.
2. Select the link to log in via the Apple Music portal.



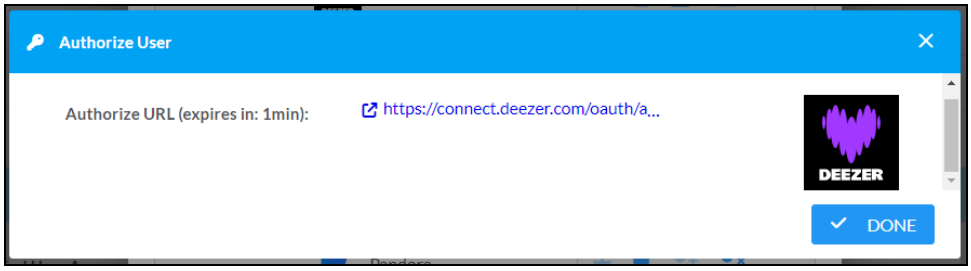
3. Select **DONE** to return to **Streaming Services**.

Deezer

To authenticate a Deezer account:

1. Select the add user icon in the **Deezer** row of the table.
2. Select the link to log in via the Deezer portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.

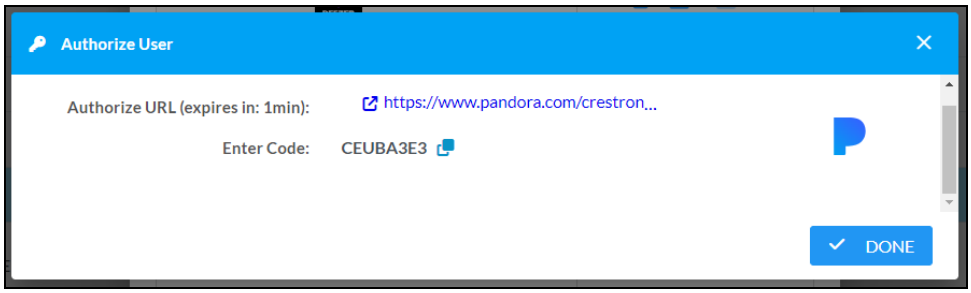


3. Select **DONE** to return to **Streaming Services**.

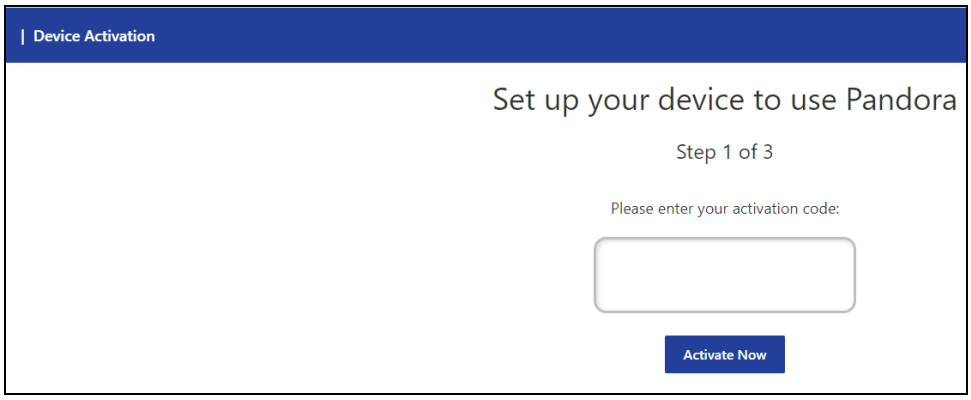
Pandora

To authenticate a Pandora account:

1. Select the add user icon in the **Pandora** row of the table.
2. Select the icon to copy the activation code.



3. Select the link to register the device. The **Device Activation** page is displayed.



> **NOTE:** The link is valid for one minute. After one minute, the link expires, and both the **Authorize URL** and **Enter Code** fields are cleared. The **Authorize User** dialog will need to be closed and reopened.

4. Paste the activation code in the **Please enter your activation code** field and select **Activate Now**.
5. Log in to the Pandora account.
6. Select **DONE** to return to **Streaming Services**.

Qobuz

To authenticate a Qobuz account:

1. Select the add user icon in the **Qobuz** row of the table.
2. Select the link to log in via the Qobuz portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Select **DONE** to return to **Streaming Services**.

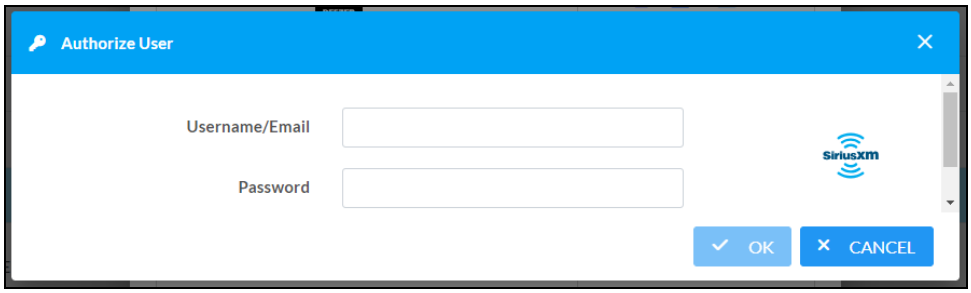
SiriusXM

Both consumer and commercial SiriusXM streaming accounts are supported on the DM-NAX-4ZSP.

> **NOTE:** To determine whether to use commercial accounts, refer to the streaming service license agreement or FAQs on their respective portals. Refer to this link for SiriusXM documentation.

To authenticate a SiriusXM account:

1. Select the add user icon in the **SiriusXM** row of the table.
2. Enter the user credentials and select **OK**



SOUNDMACHINE

SOUNDMACHINE commercial streaming accounts are supported on the DM-NAX-4ZSA-50. A single SOUNDMACHINE account supports streaming multiple stations across DM NAX devices and/or zones.

> **NOTE:** To determine when to use a commercial streaming account, refer to this link for SOUNDMACHINE documentation.

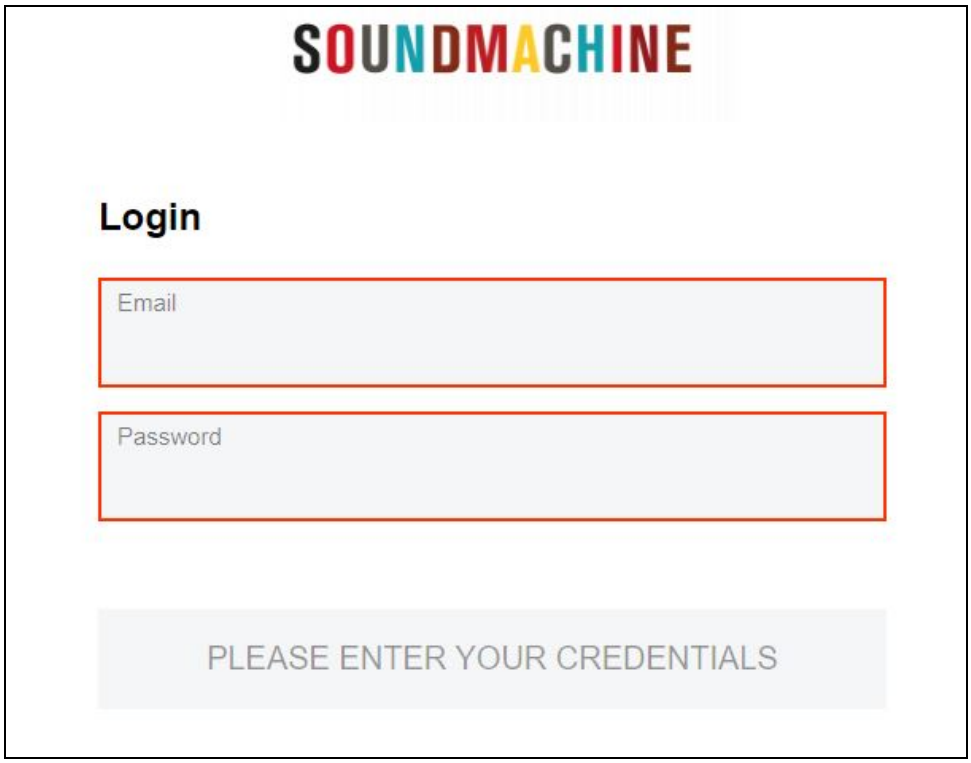
To authenticate a SOUNDMACHINE account:

1. Select the add user icon in the **SOUNDMACHINE** row of the table.
2. Select the link to log in via the SOUNDMACHINE portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Log in to the SOUNDMACHINE account.



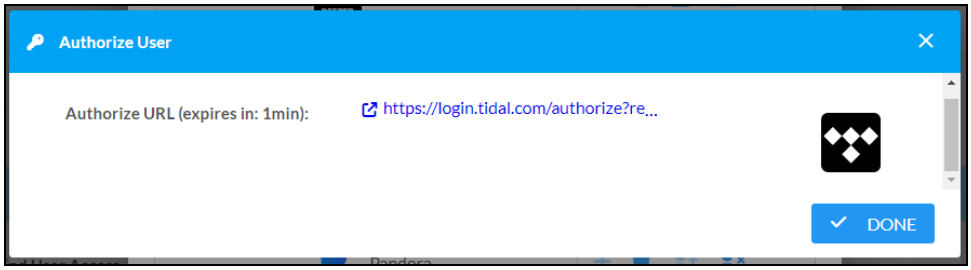
4. Select **DONE** to return to **Streaming Services**.

TIDAL

To authenticate a TIDAL account:

1. Select the add user icon in the **TIDAL** row of the table.
2. Select the link to log in via the TIDAL portal.

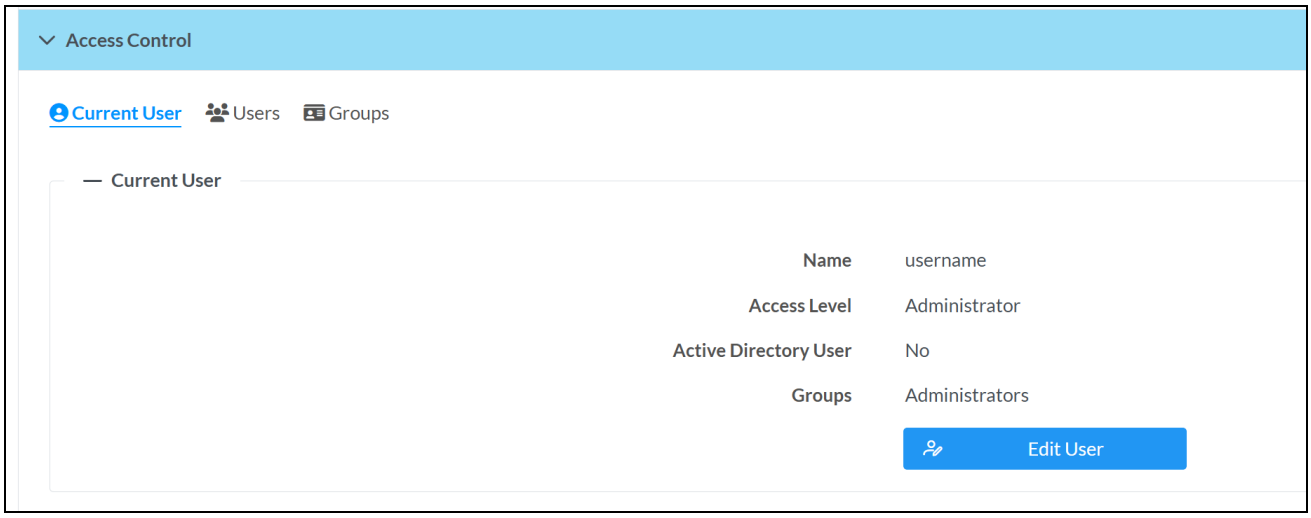
> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - TIDAL free accounts are not supported on the DM NAX audio-over-IP platform.



3. Select **DONE** to return to **Streaming Services**.

Access Control

Use the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the amplifier's functions.



The **Access Control** accordion is divided into different tabs:

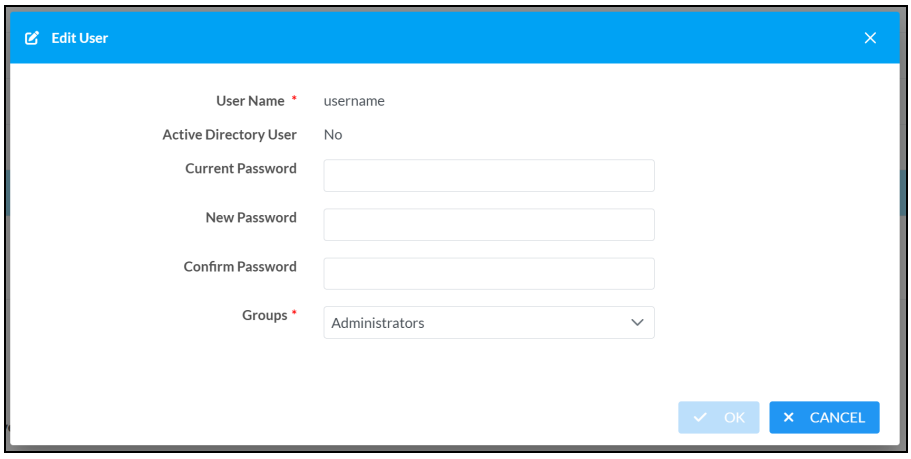
- Current User on page 342
- Users on page 343
- Groups on page 345

Current User

Select the **Current User** tab to view read-only information or to edit the password and access level of the current user.

To edit the current user details:

1. Select **Edit User**. The **Edit User** dialog box is displayed.

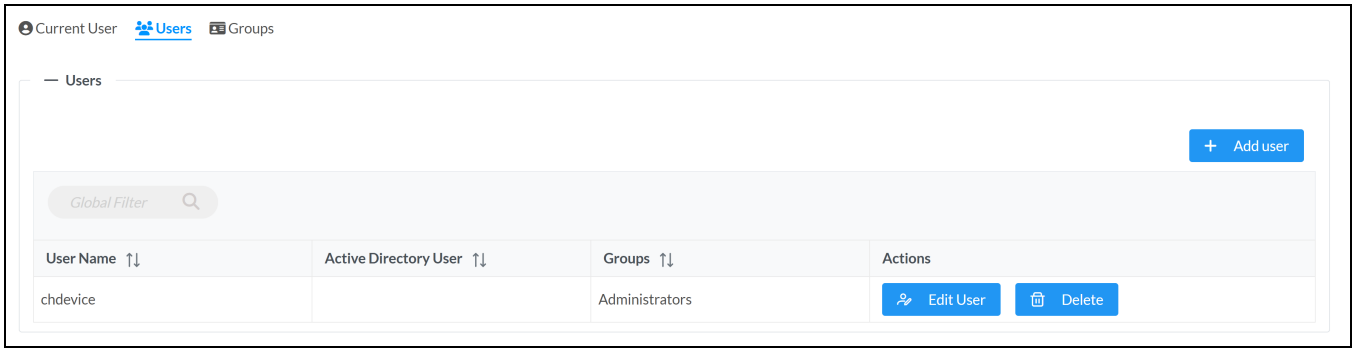


2. Enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.

3. Select an access level from the **Groups** drop-down list.
4. Select **OK** to save the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory® software users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Each page can be set to display **5**, **10**, or **20** users by using the drop-down menu to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username:** Displays the name of the user.
- **Active Directory User:** Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

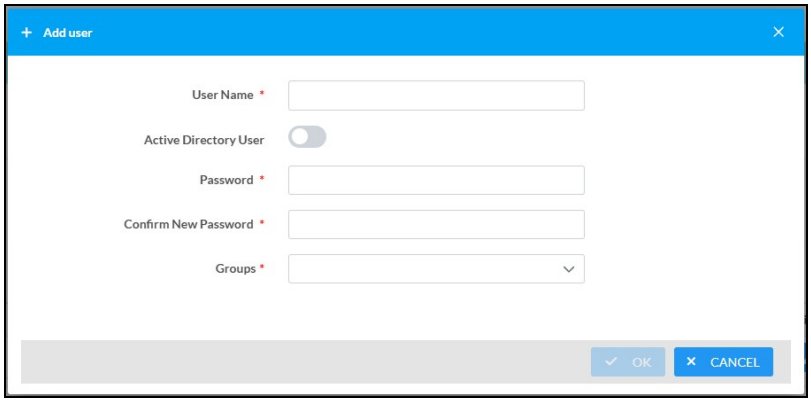
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **+ Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-4ZSP:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed.



2. Enter the following:
   - Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   - Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   - Assign the access level by selecting one or more groups from the **Groups** drop-down list.

   > **NOTE:** Ensure that the **Active Directory User** toggle is disabled.

3. Select **OK** to add the new user.

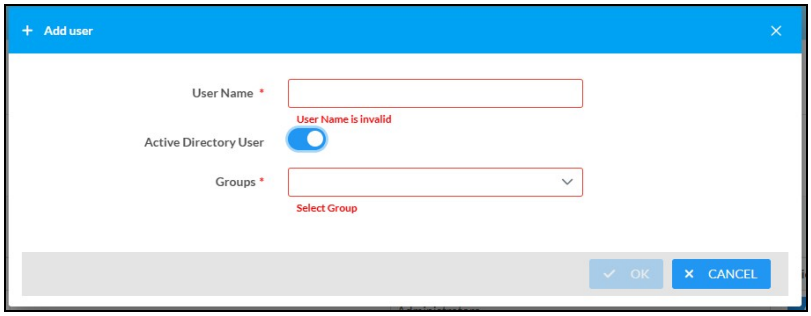
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-4ZSP, or add the Active Directory group(s) that contain the user the DM-NAX-4ZSP.

To add an Active Directory user:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed



2. Enter the following:
    - Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
    - Select one or more groups from the **Groups** drop-down list.

      > **NOTE:** Ensure that the **Active Directory User** toggle is enabled.

3. Select **OK** to add the new user.

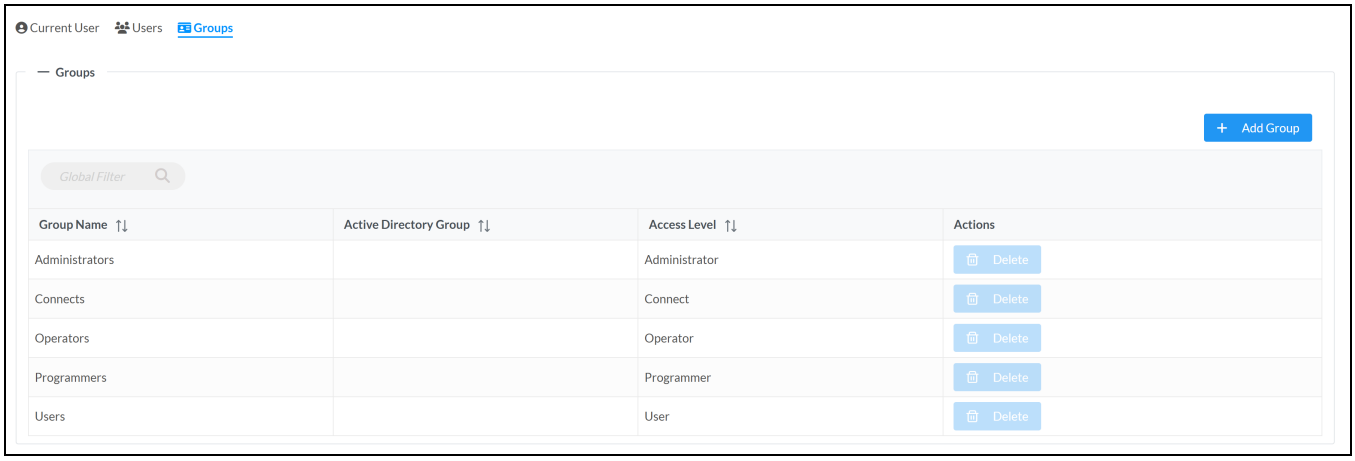
Delete a User

Select the delete icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user.

After a user is removed from a group, they lose any access rights associated with that group. Deleting a user from a group does not delete the user account from the device.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.



Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Additionally, each page can be set to display **5**, **10**, or **20** groups by using the drop-down menu to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **Active Directory Group:** Displays whether the group requires authentication using Active Directory.

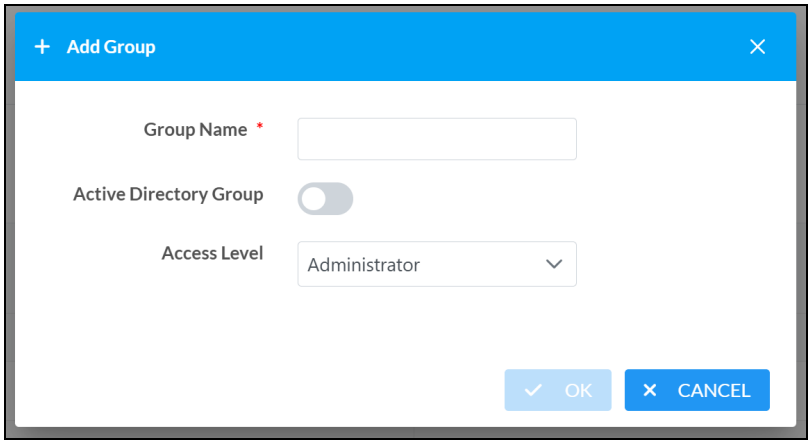
- **Access Level:** Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **+ Add Group** to create a new group.

Create a Local Group

To create a local group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** dialog box is displayed.



2. Enter the following:
   - Enter the group name in the **Name** field.
   - Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

     > **NOTE:** Ensure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to add the new group.

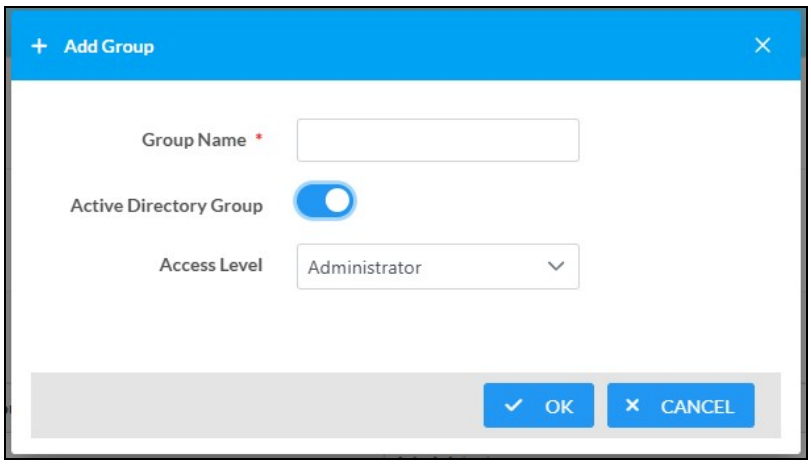
Add an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.

Once the group is added, all members of that group will have access to the DM-NAX-4ZSP.

To add an Active Directory group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** dialog box is displayed.



2. Enter the following:
   - Enter the group name in the **Name** field (for example "Engineering Group"). Note that group names are case sensitive; a space is a valid character that can be used in group names.
   - Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

     > **NOTE:** Ensure that the Active Directory Group toggle is enabled.

3. Select **OK** to add the new group.

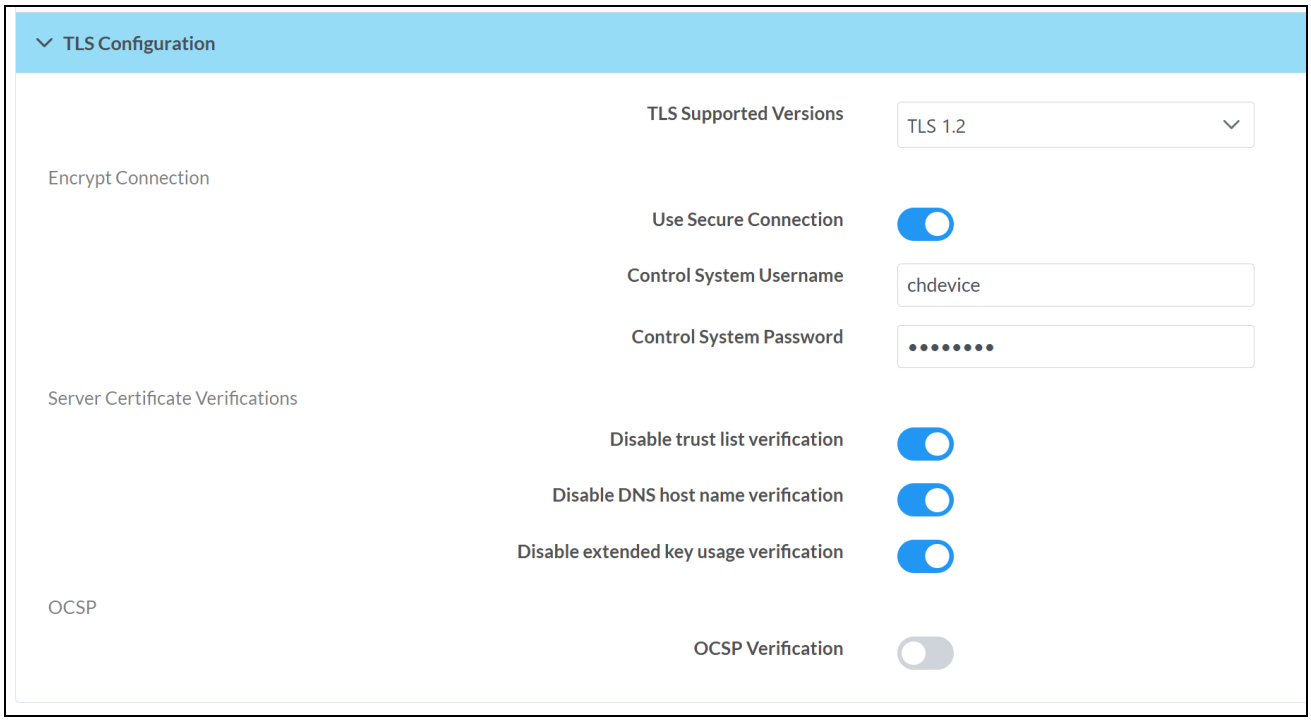
Delete a Group

Select the delete icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Use the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the audio processor.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the **TLS Supported Versions** drop-down list from among **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the processor and a Crestron control system. Set the toggle to the left to keep this connection unencrypted.
    - With this setting enabled, enter the **Control System Username** and **Control System Password** in their respective fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.

Select **Save Changes** to save the new settings.

DM-NAX-8ZSA

This section describes how to configure the DM-NAX-8ZSA.

Web Interface Configuration

The DM-NAX-8ZSA web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 350
- Access the Web Interface With Crestron Toolbox™ Software on page 352

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

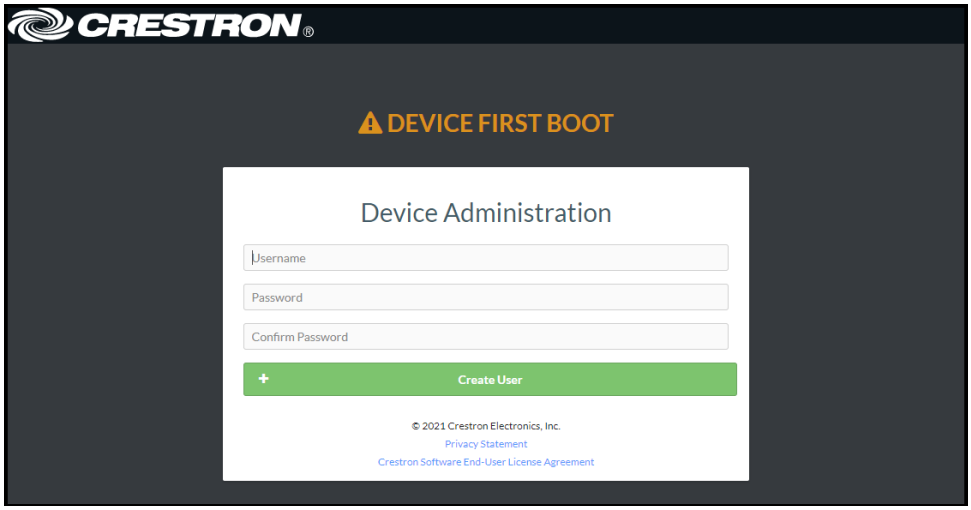
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

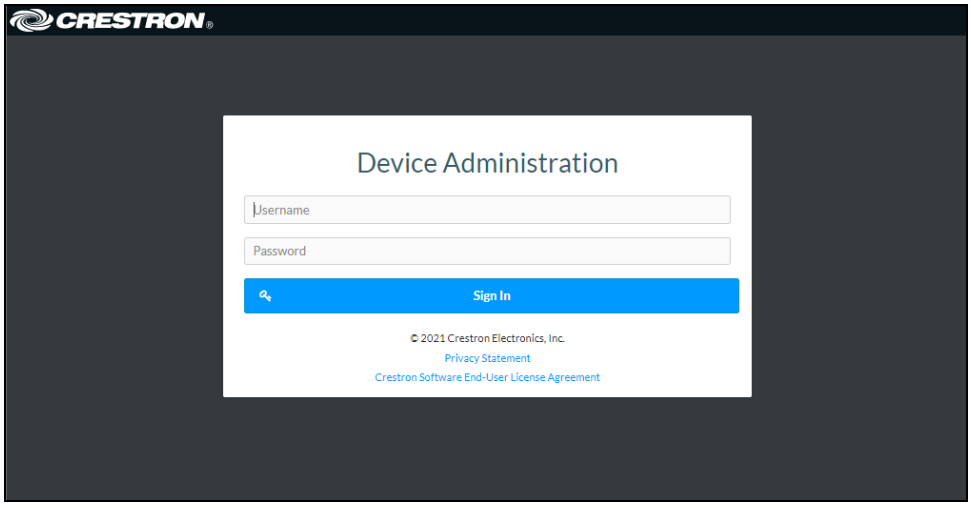
1. Enter the IP address of the DM-NAX-8ZSA into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser from Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-8ZSA is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

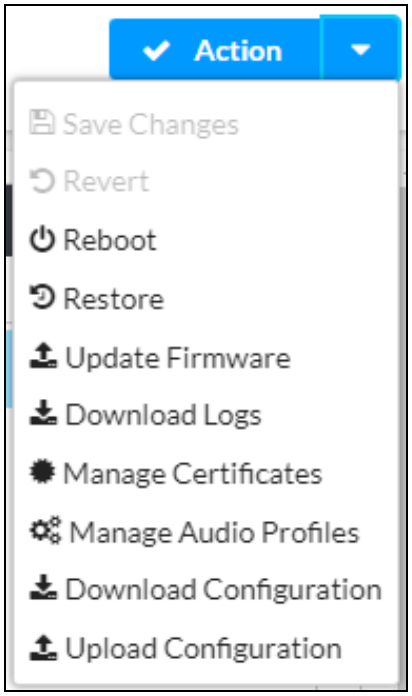
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 353
- Revert on page 353
- Reboot on page 354
- Restore to Factory Default Settings on page 354
- Update Firmware on page 355
- Download Logs on page 355
- Manage Certificates on page 355
- Manage Audio Profiles on page 357
- Download Configuration on page 358
- Upload Configuration on page 358



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

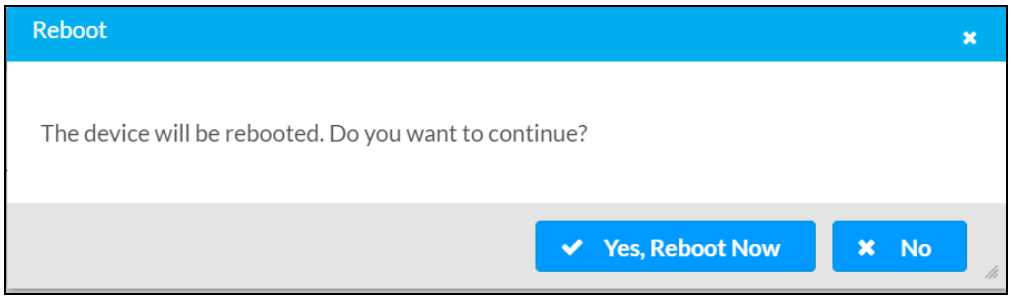
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-8ZSA to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



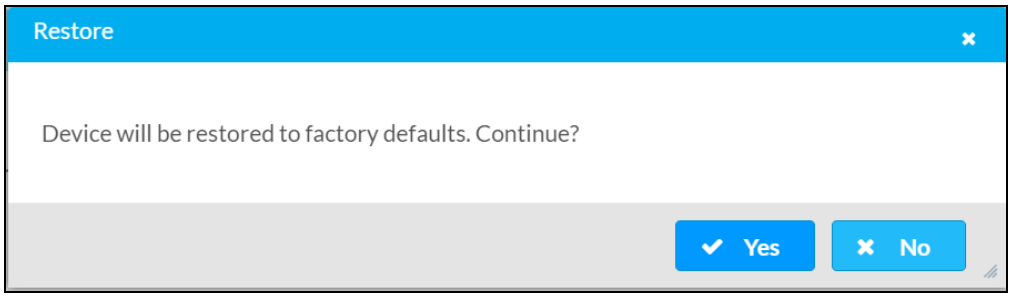
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-8ZSA to factory defaults.

NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



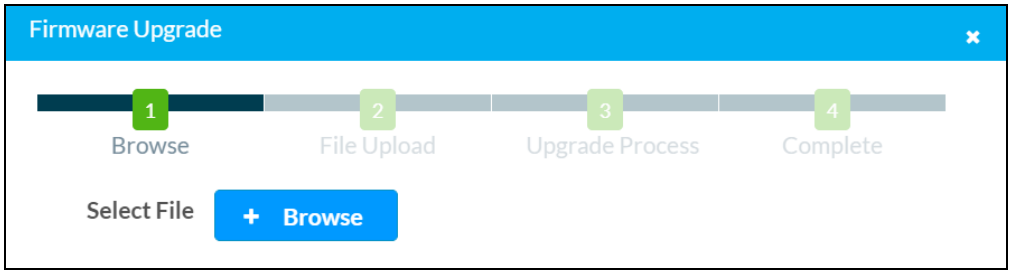
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-8ZSA to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, and then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

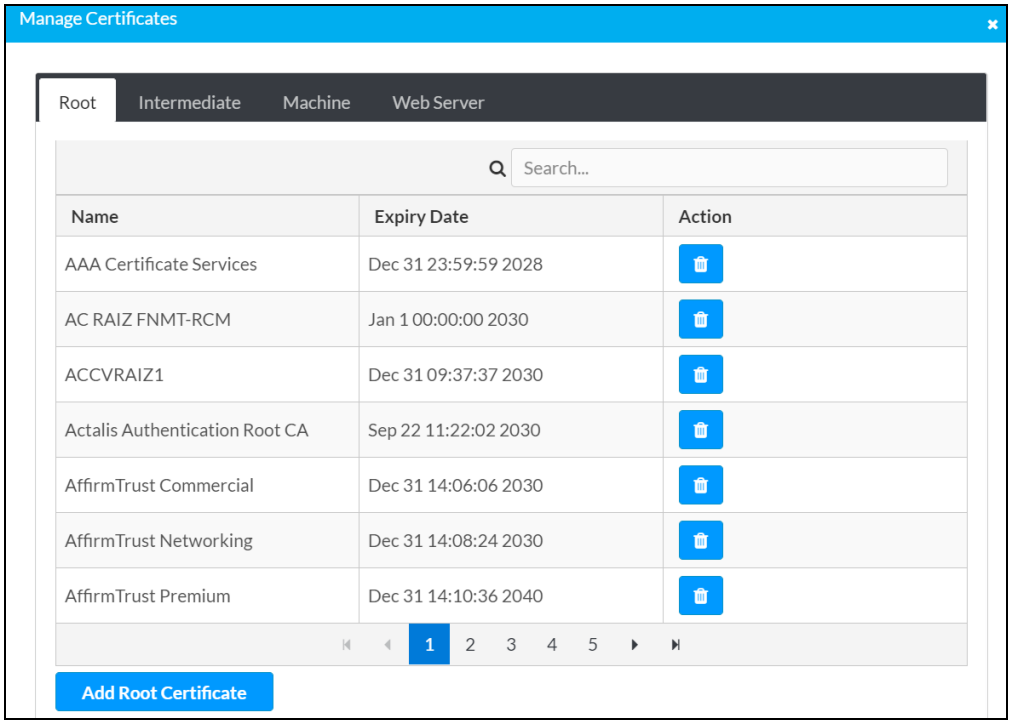
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-8ZSA to validate the network's authentication server. The DM-NAX-8ZSA has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-8ZSA. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date.

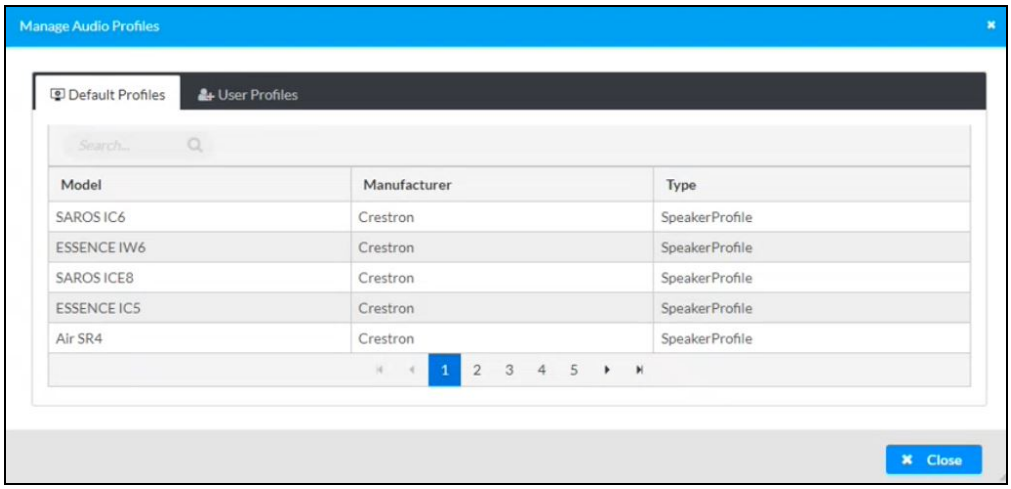
   The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Manage Audio Profiles

Use the **Manage Audio Profiles** dialog to add, remove, and manage output audio profiles on the DM-NAX-8ZSA.



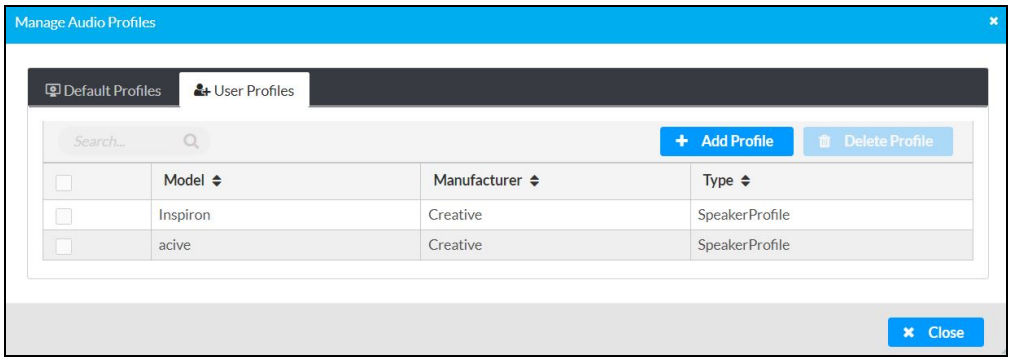
Select **Manage Audio Profiles** in the **Action** menu. The following audio profiles tabs are displayed, providing information such as **Model**, **Manufacturer**, and **Type** of the audio profiles:

- **Default Profiles**: Lists the default library of included audio profiles.
- **User Profiles**: Lists the custom, user loaded profiles, and allows them to be loaded and removed.

In the **Search** field, enter a name to search for the profile. The audio profile matching the search criteria is displayed.

> **NOTE**: To create a custom audio profile, refer to Knowledge Article 1001820.

To Add an Audio Profile

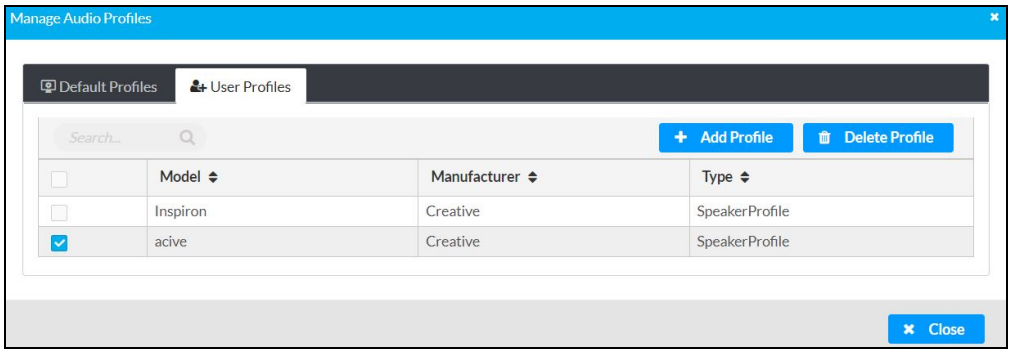


1. Select the **User Profiles** tab.
2. Select **+ Add Profiles**.
3. Select **+ Browse**.
4. Locate and select the .prof file, and then select **Open**.
5. Select **Upload**.

6. Select **OK**. This will add the profile to the list box.

   The audio profile is now available for selection and can be applied.

To Delete an Audio Profile



1. Select the **User Profiles** tab.
2. Select the checkbox corresponding to the audio profile that needs to be deleted.
3. Select **Delete Profile**.

   The audio profile is deleted.

Download Configuration

Select **Download Configuration** to download a TGZ file containing the settings data for the DM NAX device.

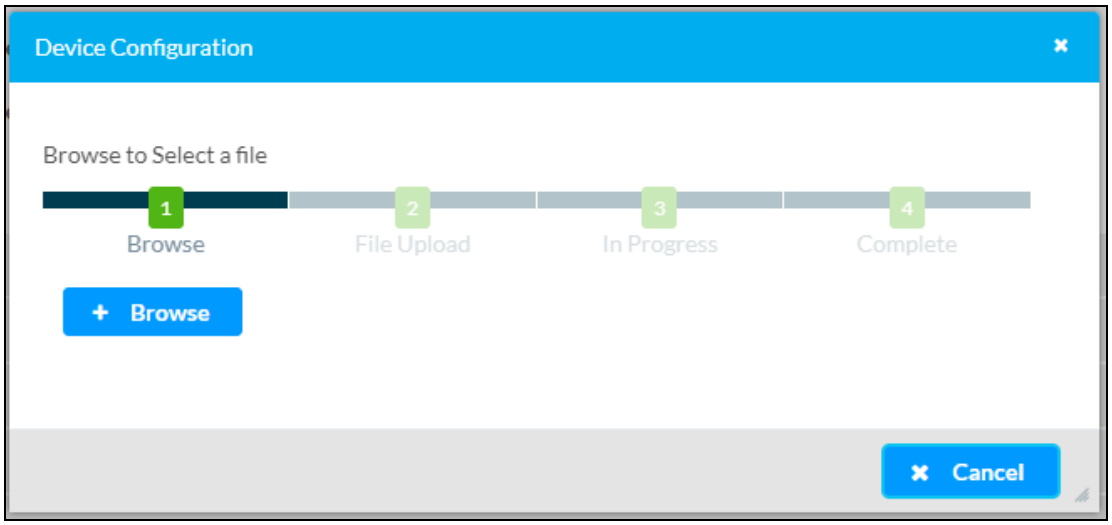
> **NOTE:** User accounts for accessing the device, streaming service accounts, multicast addresses, and stream names are not saved in this configuration file.

Upload Configuration

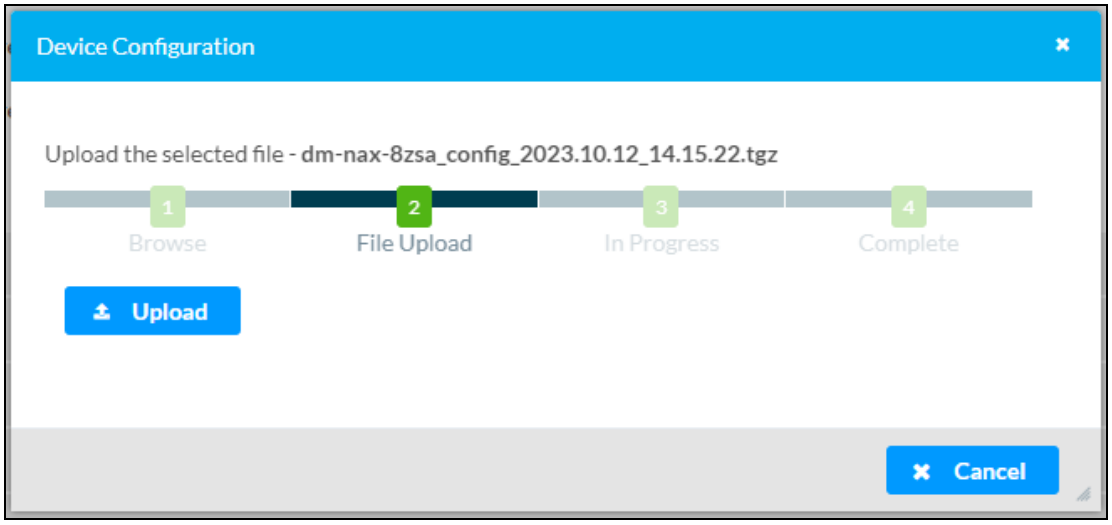
1. Select **Upload Configuration** to upload a TGZ file that will overwrite the current settings of the DM NAX device with a saved configuration.

   > **CAUTION:** Be sure to load a TGZ file for the same DM NAX device type while using the Load Configuration feature. For example, if loading a TGZ file to a DM-NAX-8ZSA, be sure that the TGZ file originated from a DM-NAX-8ZSA.

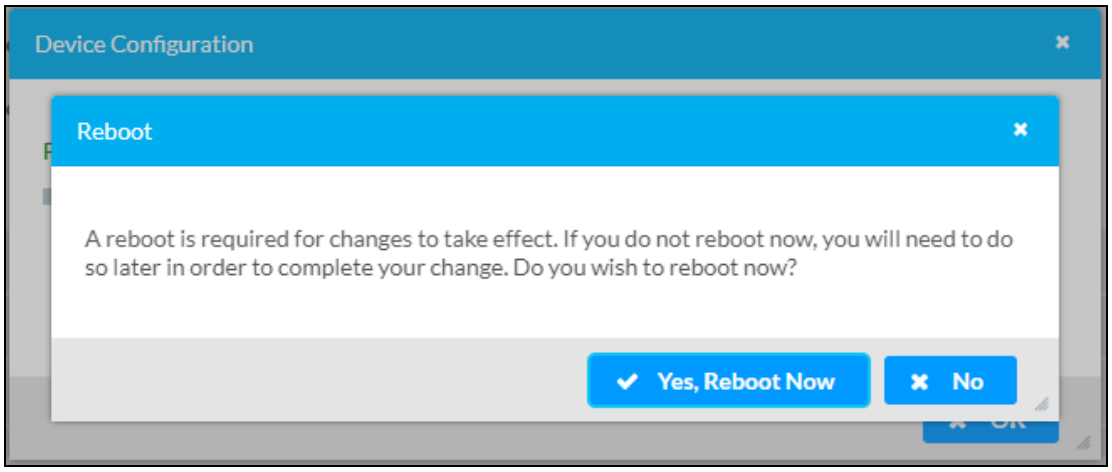
2. Select **Browse** to navigate to the desired TGZ file in your file browser. Select the file, then select **Open**.



3. Select **Upload** to begin the file upload process. A progress bar will indicate the status of the configuration file upload.



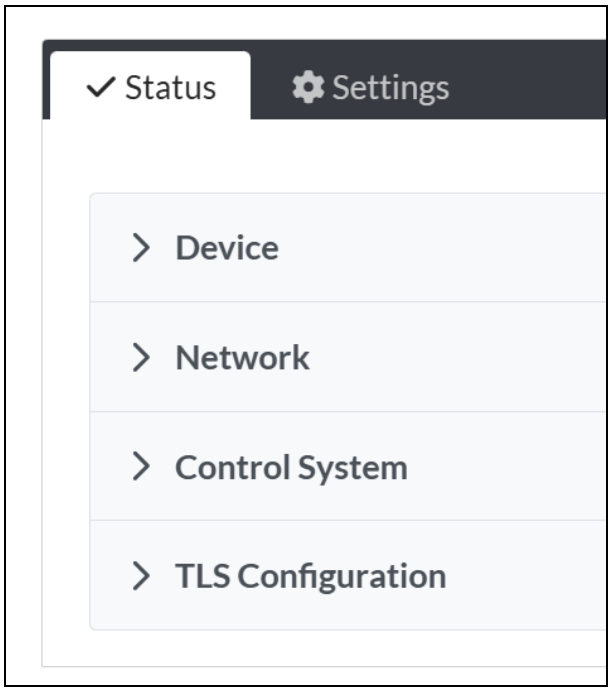
4. Once the upload is complete, the device will require a restart. Select **Yes, Reboot Now** to restart the device, or select **No** to return to the web interface.



> **NOTE:** Any changes made after the configuration file upload, but before a device restart, may be overwritten when the device is restarted.

Status

When the DM-NAX-8ZSA web interface is opened, the **Status** page is displayed by default. It provides information about the DM-NAX-8ZSA configuration and can be accessed at any time by selecting the **Status** tab of the DM-NAX-8ZSA web interface.



Information displayed on the **Status** page is organized into different collapsible accordions:

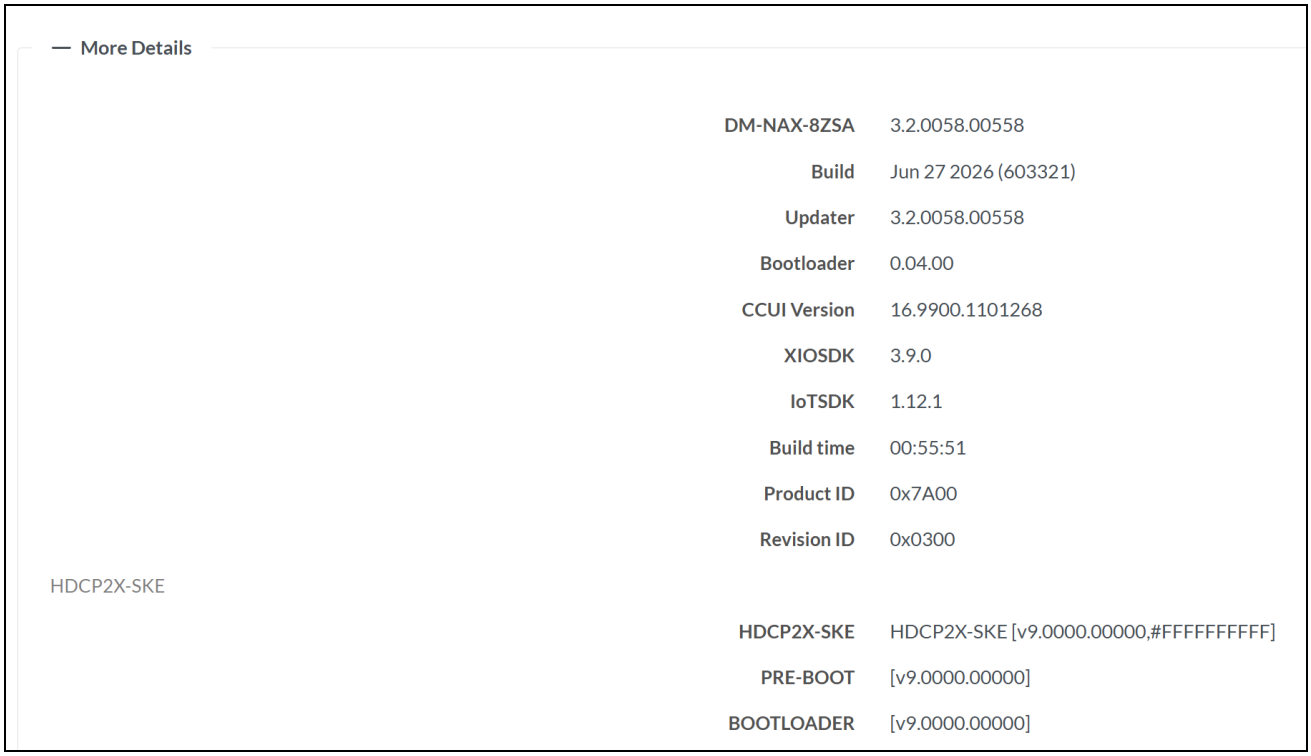
- Device on page 361
- Network on page 362
- Control System on page 363
- TLS Configuration on page 364

Device

The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-8ZSA.

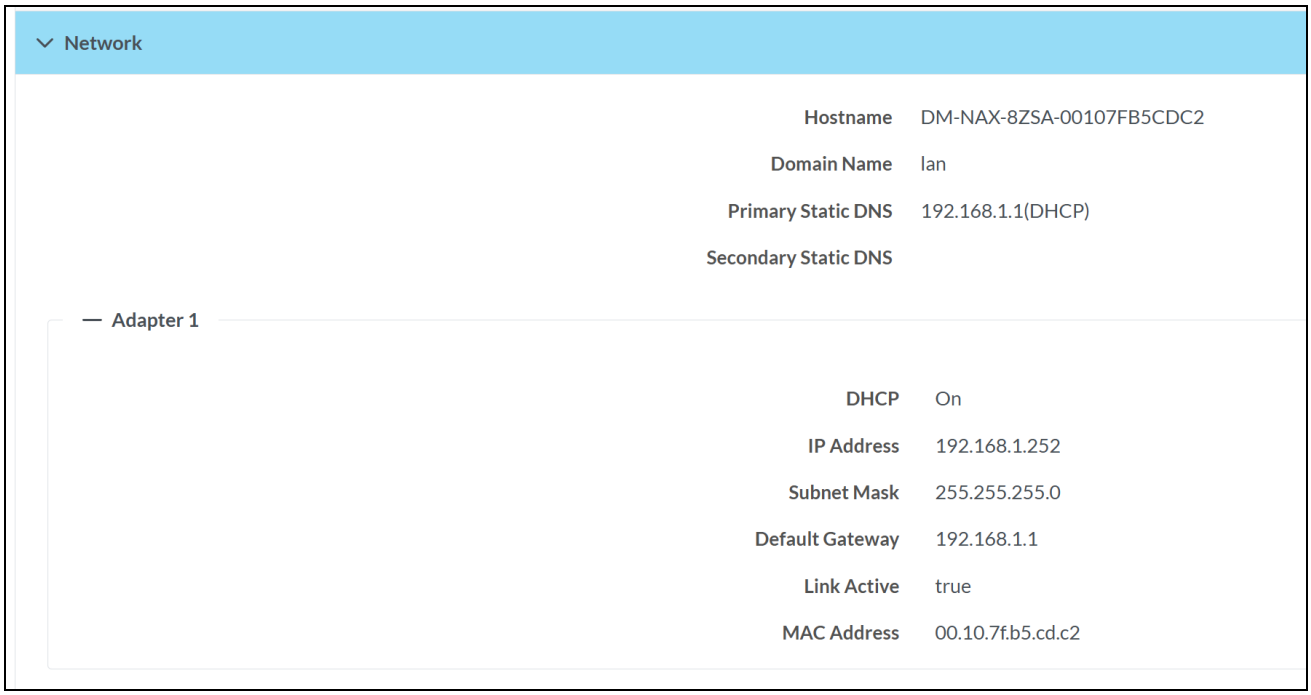


Select **+ More Details** to review additional information about the DM-NAX-8ZSA.



Network

The **Network** accordion displays network-related information about the DM-NAX-8ZSA, including the **Hostname**, **Domain Name**, and **DNS Servers**.



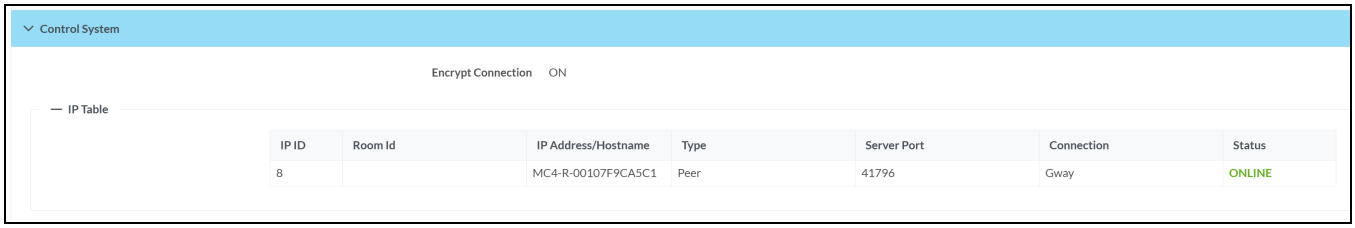
NOTE: By default, the host name of the DM-NAX-8ZSA consists of the model name followed by the MAC address of the device. For example: DM-NAX-8ZSA-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** to collapse the section.

NOTE: The **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-8ZSA are set to isolate traffic using the **Port Selection** feature. Refer to Settings on page 365 for details on configuring the **Port Selection** feature.

Control System

The **Control System** accordion displays information for connections to Crestron control systems.

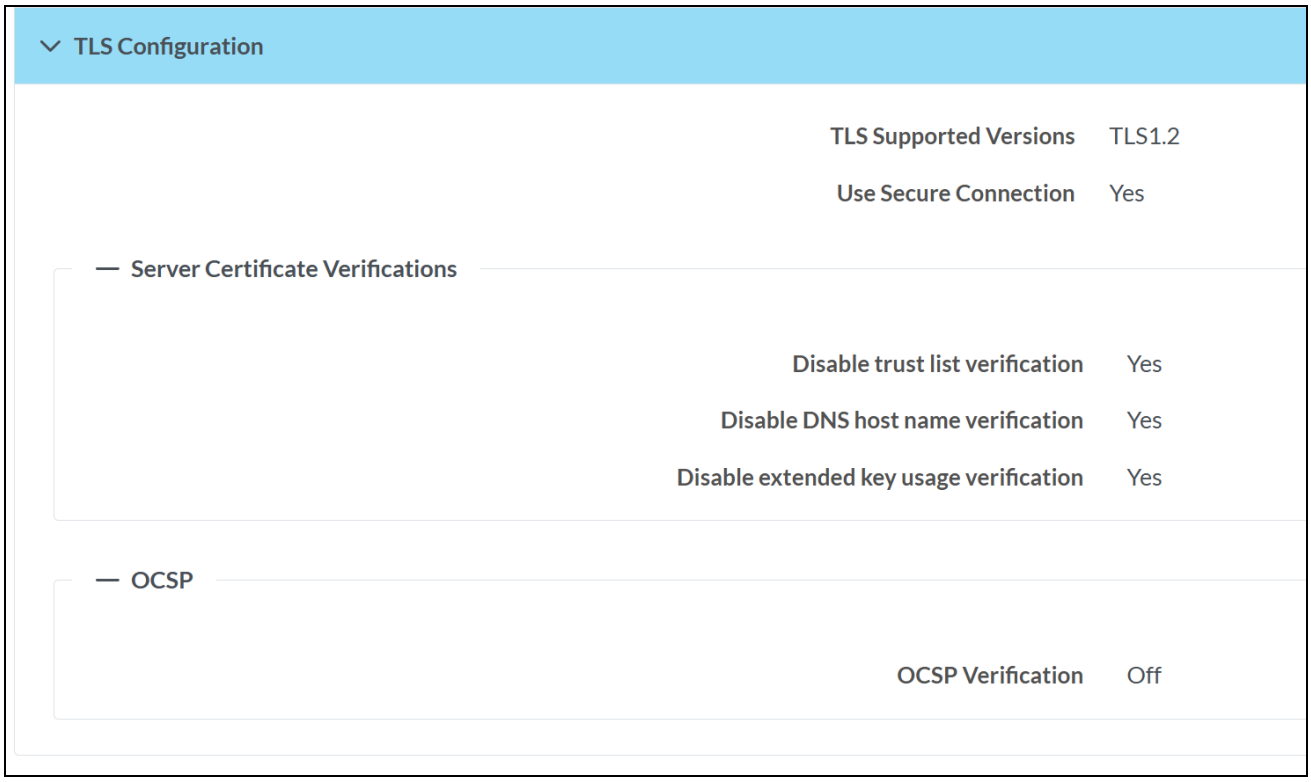


The following information is provided:

- **Encrypt Connection**: Displays **ON** or **OFF** depending on whether the control system connection is encrypted or not.
- **IP ID**: Displays the current IP ID of the DM-NAX-8ZSA.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE** to indicate the control system connection status.

TLS Configuration

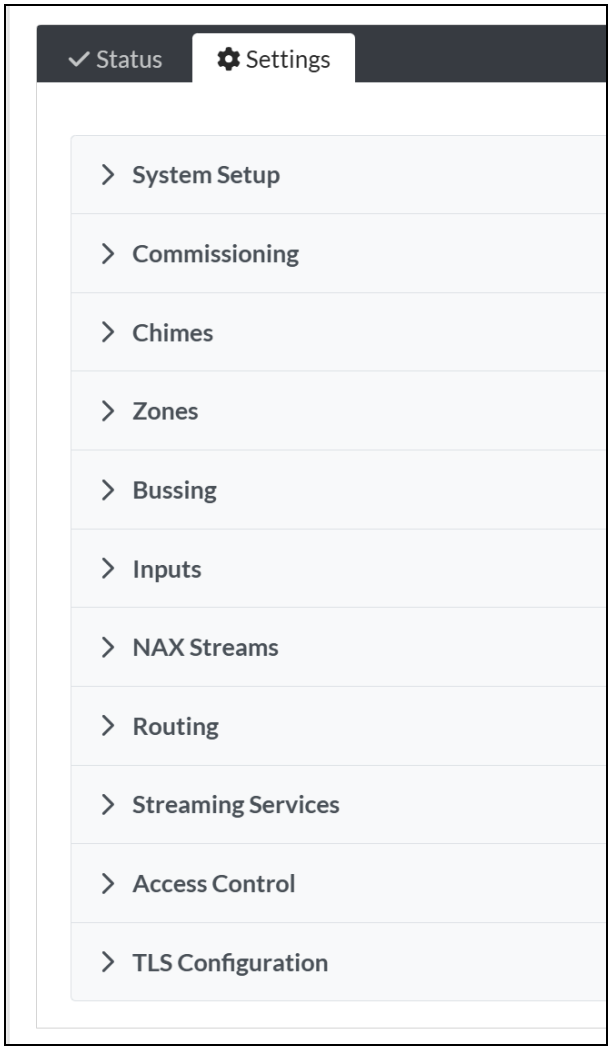
The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-8ZSA.



TLS settings can be adjusted in the **Settings** tab under the **TLS Configuration** accordion. Refer to TLS Configuration on page 418 for information.

Settings

The **Settings** page provides controls for configuring various DM-NAX-8ZSA settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-8ZSA web interface.



The settings available on the **Settings** page are divided into the following collapsible accordions:

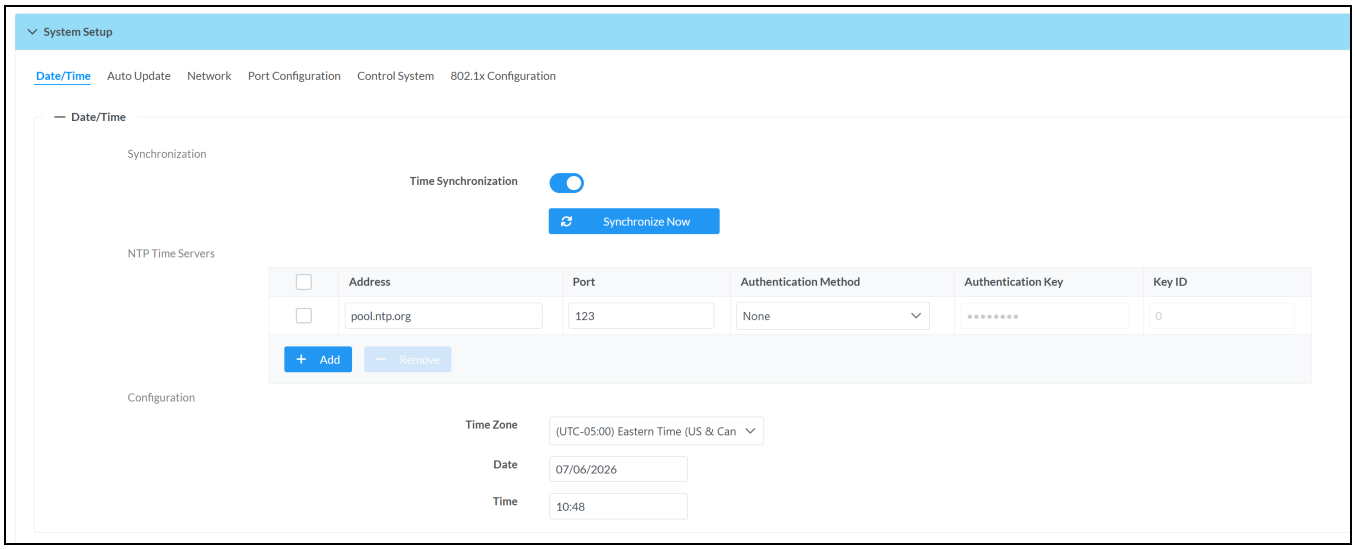
- System Setup on page 366
- Commissioning on page 373
- Chimes on page 374
- Zones on page 375
- Bussing on page 398
- Inputs on page 399
- DM NAX Streams on page 400
- Routing on page 403
- Streaming Services on page 405

- Access Control on page 412
- TLS Configuration on page 418

System Setup

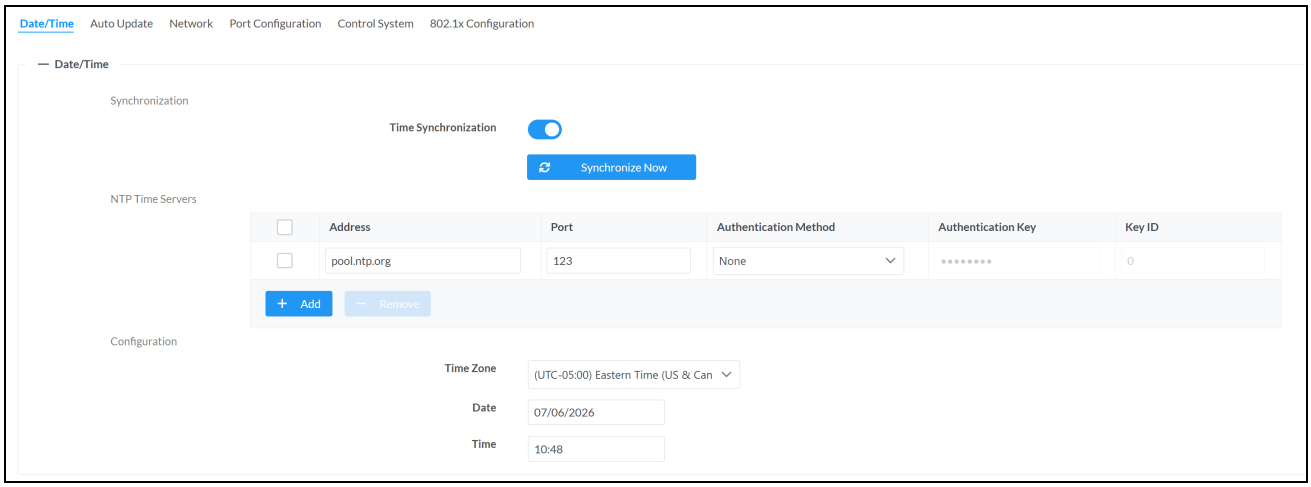
The **System Setup** accordion contains settings to configure the following system functions:

- Date/Time on page 366
- Auto Update on page 367
- Network on page 369
- Port Configuration on page 370
- Control System on page 371
- 802.1x Configuration on page 372



Date/Time

Select the **Date/Time** tab to configure the date and time settings of the DM-NAX-8ZSA.



Configure the available settings:

- Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
- In the **NTP Time Servers** table, enter the **Address** (URL) and **Port** of an NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server.

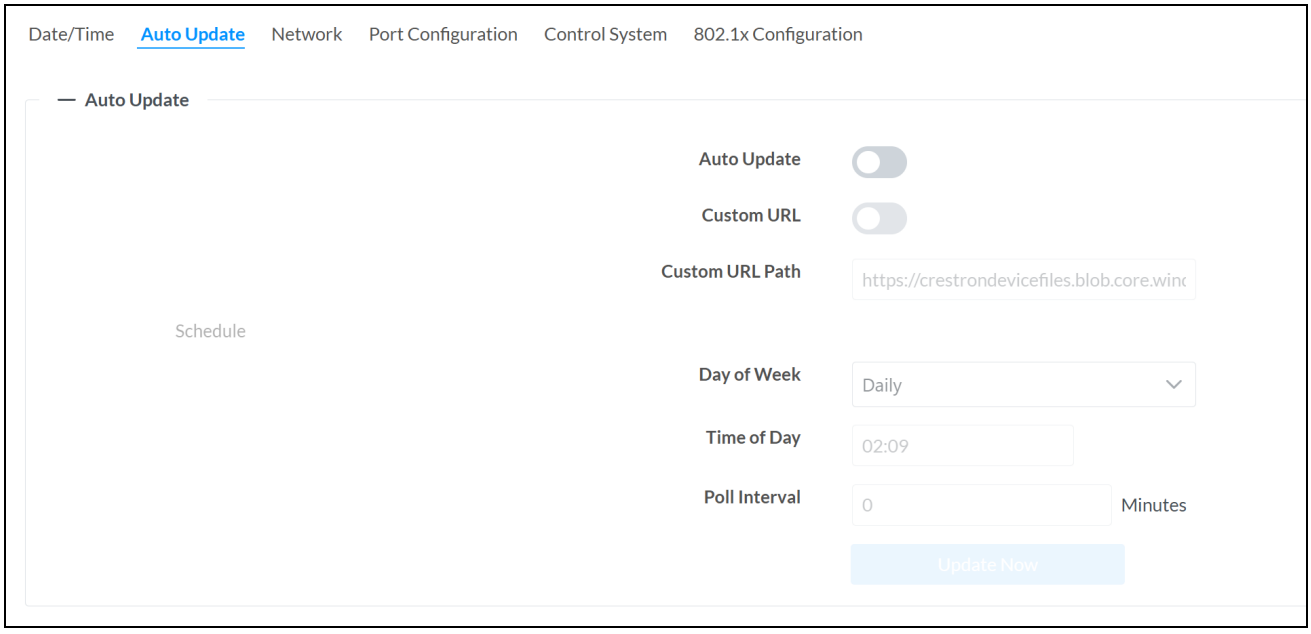
  If an **Authentication Method** other than **None** is selected (either **MD5**, **SHA1**, or **SHA256**), enter an **Authentication Key** and **Key ID** provided by the network administrator.

  > **NOTE:** Up to three time servers can be added on a device.

- Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.
- Select the correct time zone from the **Time Zone** drop-down list.
- Enter the current date in the **Date** field.
- Enter the current time in the **Time** field (in 24-hour format).

Auto Update

The DM-NAX-8ZSA can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



To configure the **Auto Update** feature:

1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the update server URL by doing either of the following:
   - Set the **Custom URL** toggle to the left to use the default URL to download the updates from the Crestron server.

- Use a custom URL:
    a. Set the **Custom URL** toggle to the right position.
    b. Enter the path to a custom manifest file in the **Custom URL Path** text box (in FTP or SFTP URL format).
    c. Use the Crestron Auto Update Tool within Crestron Toolbox software to generate a custom manifest file.
    d. Store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server at the address specified in step b.

3. Set a schedule for the automatic firmware update by doing either of the following:
    - Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    - Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the **Poll Interval**.
4. Select **Save Changes**.

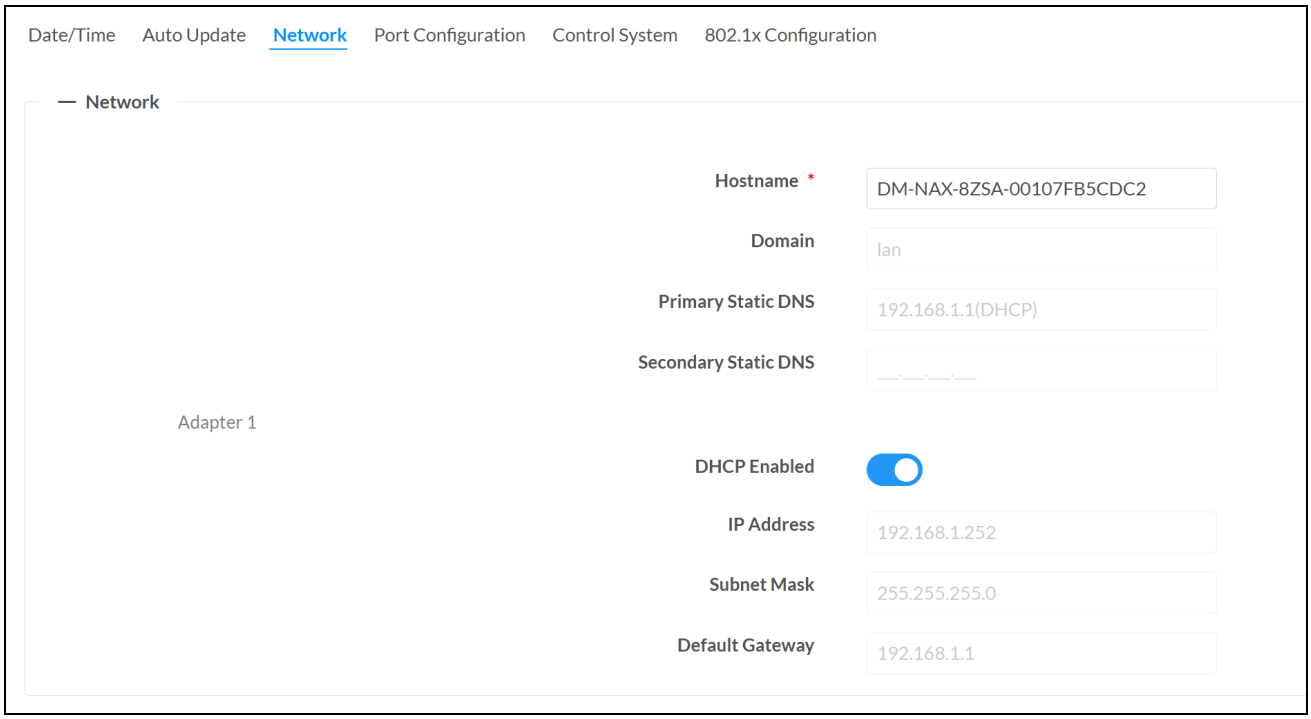
Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-8ZSA, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

NOTES:

- Most settings in this section are automatically assigned by a DHCP server. The DHCP toggle for all adapters must be set to the left position in order to manually configure the **Domain** and **DNS** settings.
- DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX device Ethernet ports to prevent conflicts.



Configure the available network settings:

- Enter a hostname for the device in the **Hostname** field.

  NOTE: By default, the hostname of the DM-NAX-8ZSA consists of the model name followed by the MAC address of the device. For example: DM-NAX-8ZSA-00107FB58088.

- Enter a network domain in the **Domain** field.
- Enter a primary DNS IP address in the **Primary Static DNS** field.
- Enter a secondary DNS IP address in the **Secondary Static DNS** field.

Adapter 1

The **Adapter 1** section contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-8ZSA is assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-8ZSA is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **IP Address**: Enter a unique IP address for the DM-NAX-8ZSA.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

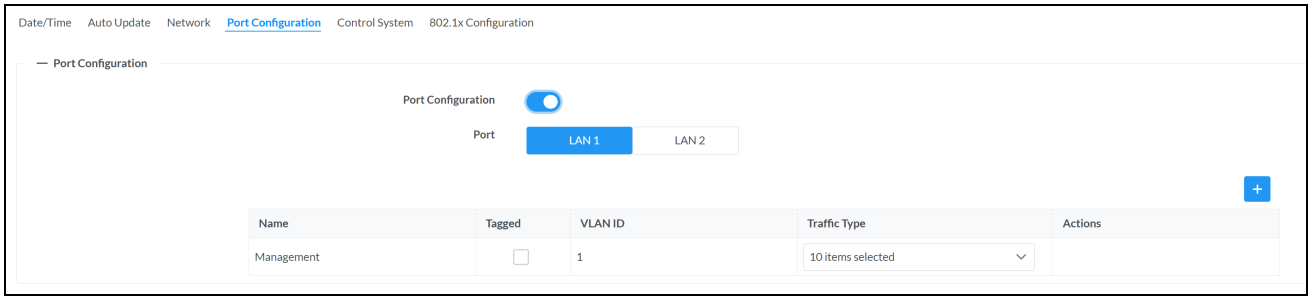
> **NOTE:** An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-8ZSA are set to isolate traffic using the **Port Configuration** feature (see Port Configuration on page 370). The settings for **Adapter 2** are identical to those available for **Adapter 1**.

Port Configuration

Use the **Port Configuration** tab to isolate and VLAN tag certain types of network traffic to each of the discrete LAN ports on the DM-NAX-8ZSA.

Set the **Port Configuration** toggle to the right position to enable this feature and display the rest of the settings. Set the toggle to the left to disable the feature and share all network traffic between both LAN ports. This feature is disabled by default.

When **Port Configuration** is enabled, up to ten unique network interfaces can be created to handle and tag traffic across the two physical LAN ports on the DM-NAX-8ZSA. A generic **Management** interface is automatically created on **LAN 1** and cannot be deleted.



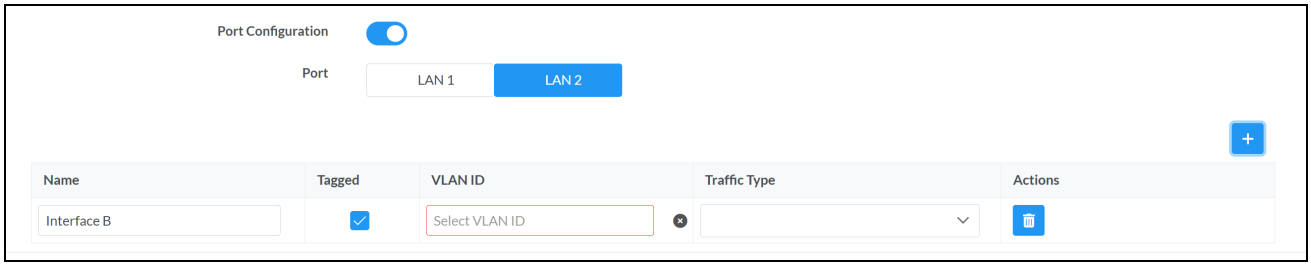
Select **LAN 1** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 1** on the DM-NAX-8ZSA:

- Use the **Traffic Type** drop-down list to select which traffic types will pass on the **Management** interface. By default, all traffic types are selected for the **Management** interface. Any selected types will be able to pass on LAN 1. Any unselected types will be dropped by the internal network switch.
- To add another interface to **LAN 1**, select **+** at the top-right of the table. Another row is added to the table.

- In each new row, configure the following:
  - Enter a name for the interface in the **Name** field.
  - Select the **Tagged** checkbox to VLAN tag the traffic associated with the interface.
  - Enter a unique **VLAN ID**.
  - Select one or more **Traffic Type** options from the drop-down list.
  - Select the delete icon to delete the interface.

Select **LAN 2** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 2**.

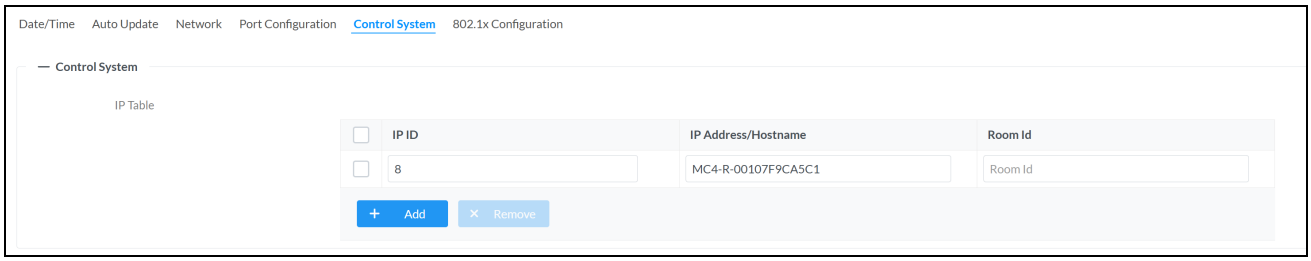
LAN 2 does not have any interfaces added by default. To add another interface to **LAN 2**, select the **+** icon at the top-right of the table. Another row will be added to the table. Interface configuration for **LAN 2** is the same as for **LAN 1**.



When the ports are configured as desired, select **Save Changes**. A restart confirmation window is displayed. Select **Yes, reboot now** to save the changes and restart the device or select **No** to cancel the restart.

Control System

Select the **Control System** tab to configure the connection from the DM-NAX-8ZSA to a control system.



Select **+ Add** to add a new row to the IP table. Up to 16 IP table entries can be added to the DM-NAX-8ZSA.

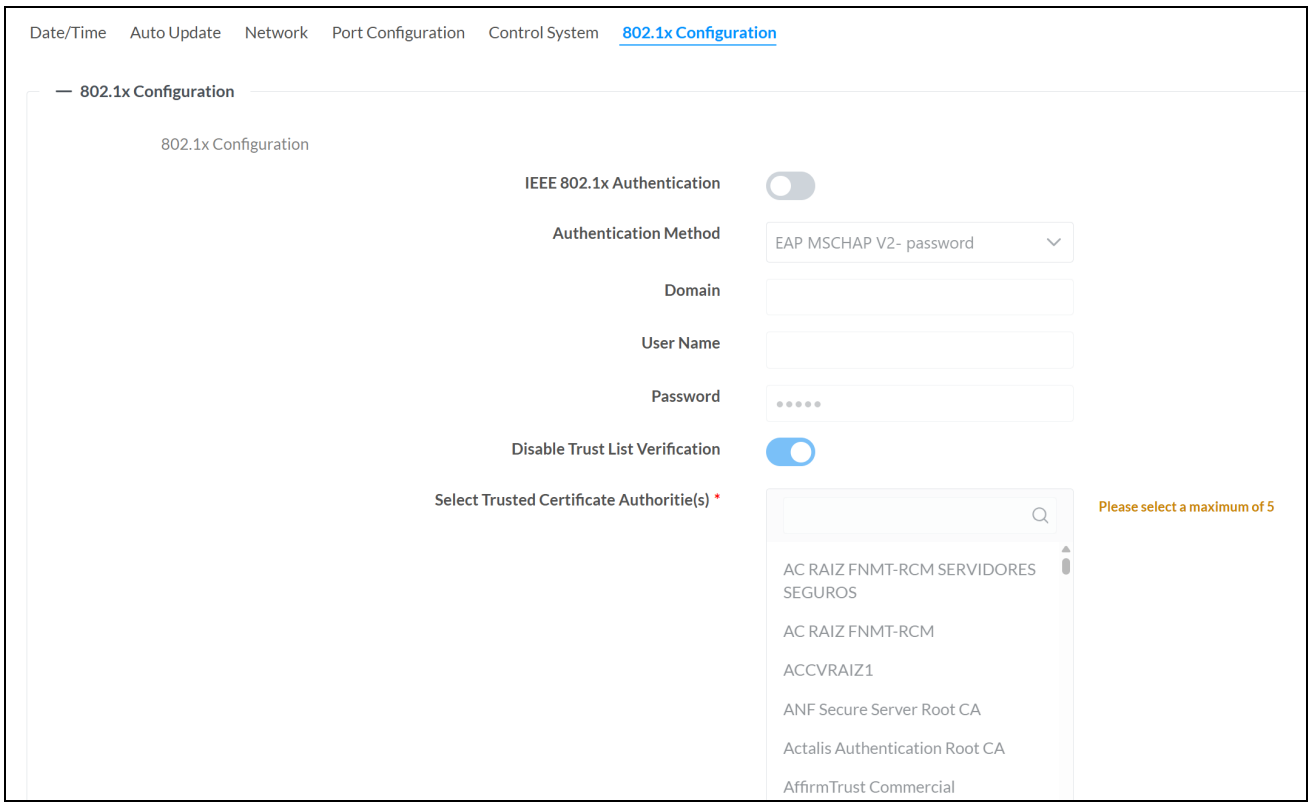
In each row, configure the following:

- Enter the IP ID of the DM-NAX-8ZSA in the **IP ID** field.
- Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
- Enter the Room ID in the **Room ID** field.

To remove an IP table entry, select the checkbox to the left of an entry's table row, and then select **X Remove**.

802.1x Configuration

The DM-NAX-8ZSA has built-in support for the 802.1x standard, allowing communication with the authentication server and access to protected corporate networks.



To configure 802.1x authentication on the amplifier:

1. Set the **IEEE 802.1x Authentication** toggle to the right to enable 802.1x. This will enable all remaining options in the **802.1x Configuration** tab.
2. Select an option from the **Authentication Method** drop-down, either **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate; it only requires credentials.

4. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

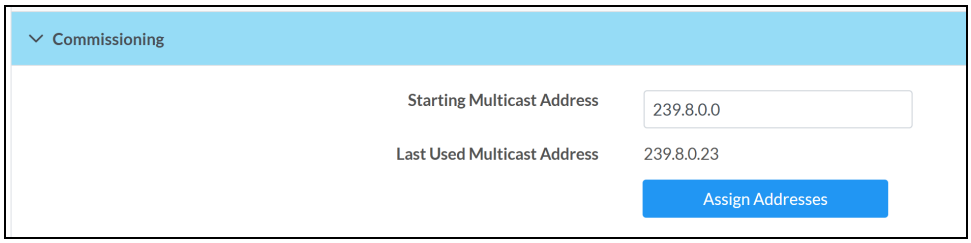
   The **Select Trusted Certificate Authoritie(s)** list contains signed trusted Certificate Authorities (CAs) preloaded into the audio processor. Select the check box next to each CA whose certificate can be used for server validation as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.

Once the 802.1x settings are configured as desired, select **Save Changes** to save the changes to the device and restart it.

Commissioning

Use the **Commissioning** accordion to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.



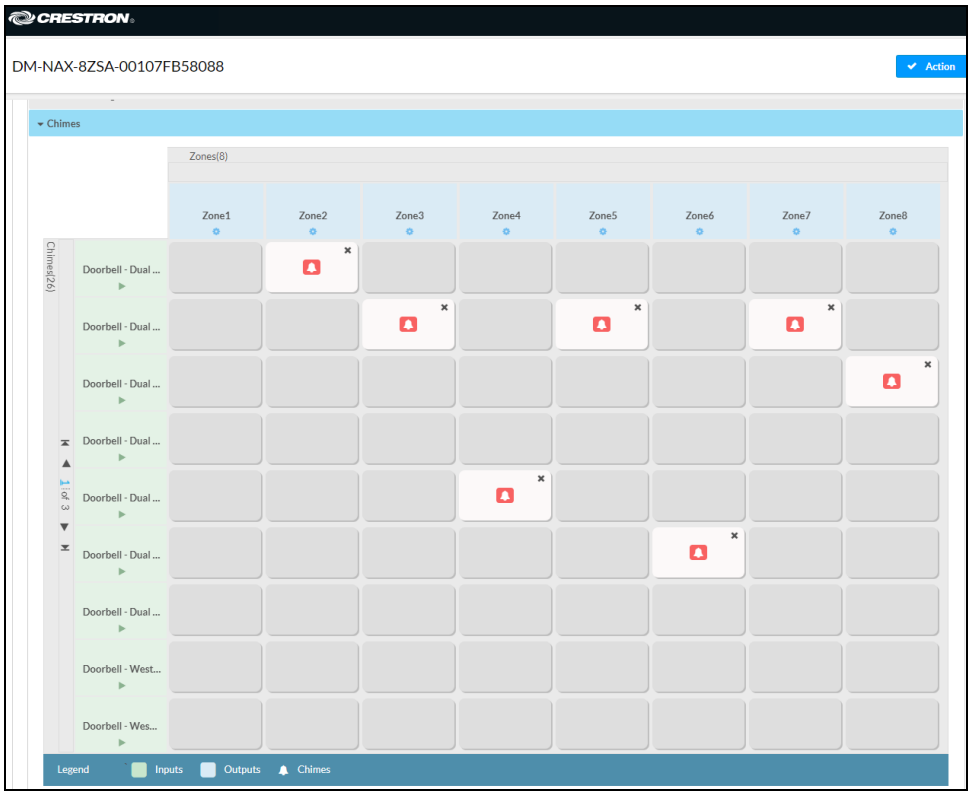
Specify the first multicast address for the amplifier to assign in the **Starting Multicast Address** field. The **Last Used Multicast Address** field displays the final address in the range that the amplifier will assign.

Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-8ZSA a unique multicast address in the specified range. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.231.

> **NOTE:** Selecting **Assign Addresses** will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Chimes

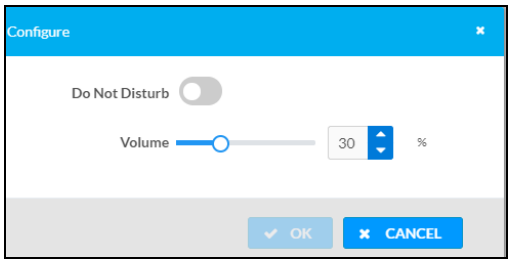
The DM-NAX-8ZSA features a library of built-in chime audio files to use as doorbells or alerts. Each chime file can be assigned to one or more zones on the amplifier, then triggered via a custom program to play back over those zones. Use the **Chimes** accordion to assign the chimes to the zones.



For each chime file, select the cells that correspond to the **Zones** designated to play that specific chime. You can assign multiple chimes to the same zone. To view all available chimes, use the up ▲ or down ▼ arrows at the left of the matrix to change pages.

To configure the chime volume of a zone:

1. Select the gear icon ⚙ corresponding to the zone. A **Configure** window is displayed.



2. Set the **Do Not Disturb** toggle to the right to mute all chimes for the zone. Set the **Do Not Disturb** toggle to the left to unmute the chimes.

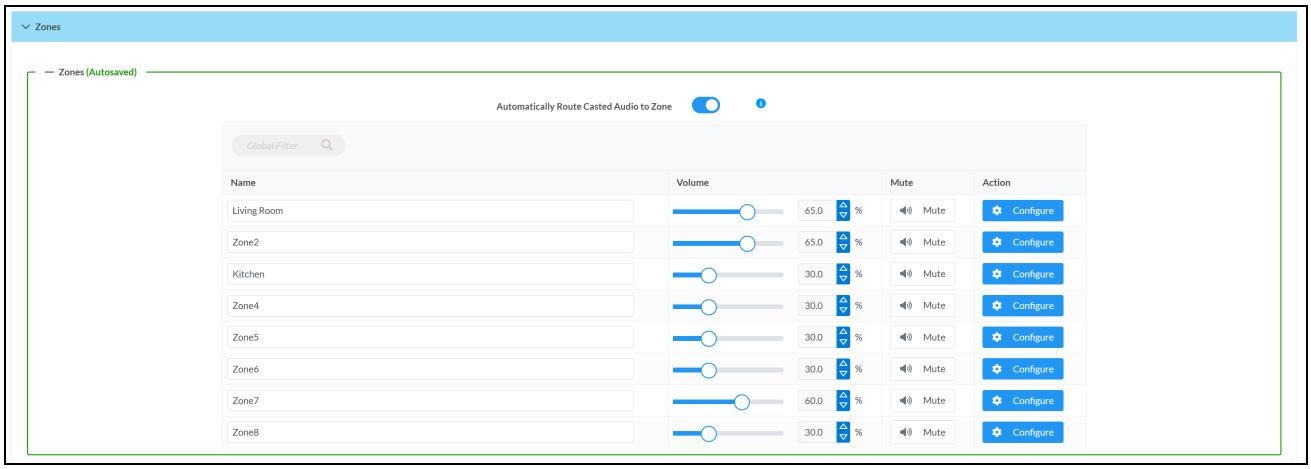
3. Set the volume by doing one of the following:
    - Move the **Volume** slider to the right to increase or to the left to decrease the chime volume.
    - Use the **%** arrows to increase or decrease the chime volume. Values range from 0 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Volume** field.

    > **NOTE:** The chime volume is independent of the zone volume control.

4. Select **OK** to apply the new settings.

Zones

The **Zones** accordion contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a **Configure** option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

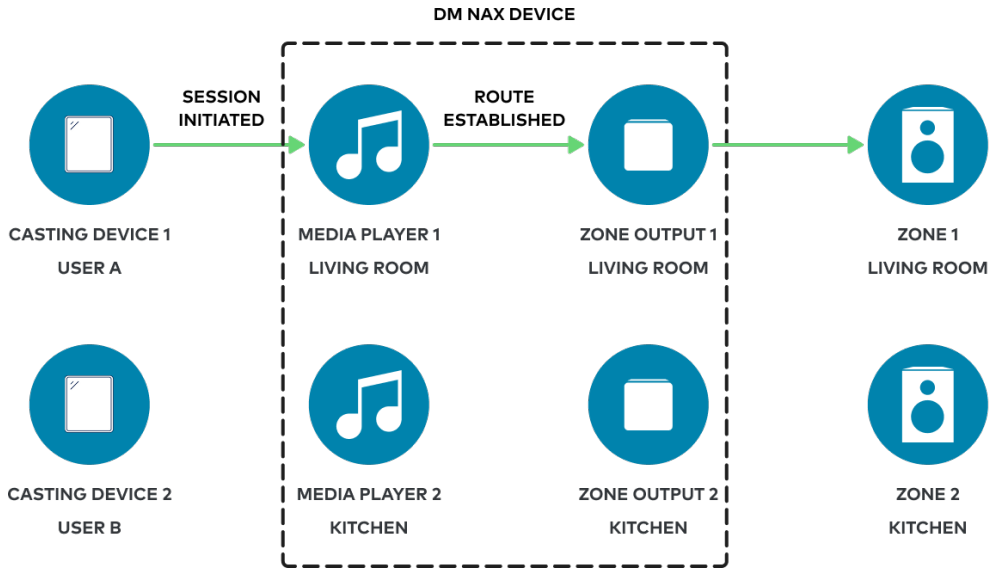
Cast Audio Automatic Routing

The **Automatically Route Casted Audio to Zone** toggle provides two ways to handle the routing of audio from Apple AirPlay® or Spotify Connect™ casting sessions.

Automatic Routing Enabled

When the toggle is in the right position, initiating a casting session will route the receiving media player to an output zone automatically.

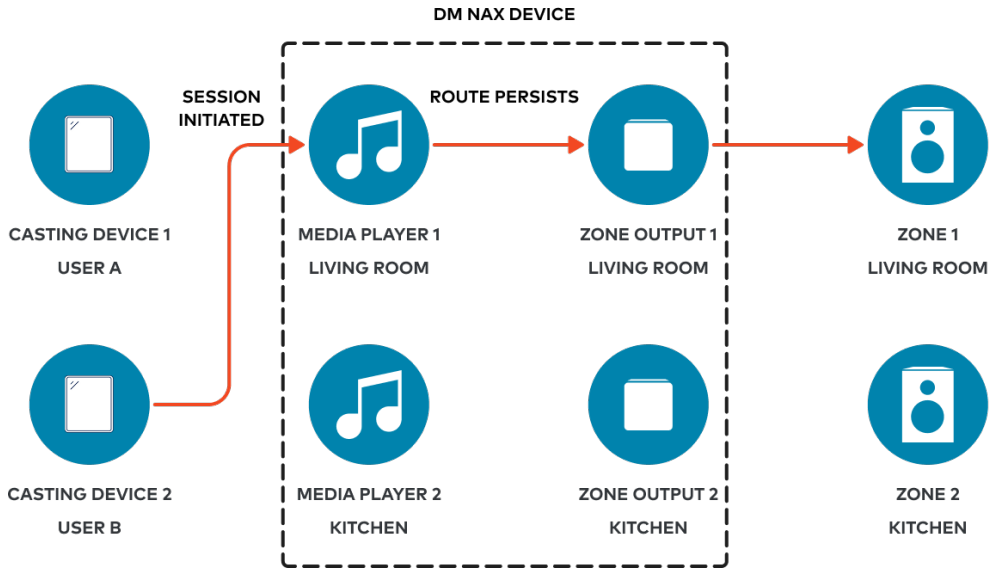
Use this option with Crestron Home® OS or when the media players are named after rooms in custom programming. The following diagram shows an example workflow for this option.



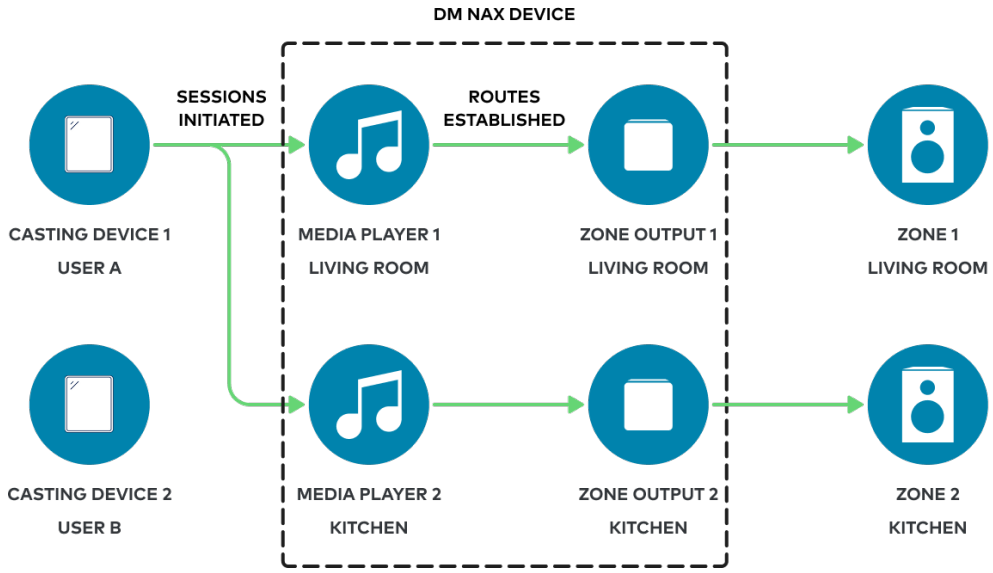
In the diagram above:

- Media Player 1 is named **Living Room** and Zone 1 is wired to the living room speakers.
- Media Player 2 is named **Kitchen** and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **Living Room** and **Kitchen** available as casting destinations.
- Selecting **Living Room** initiates a casting session with Media Player 1 and routes Media Player 1 to Zone 1.

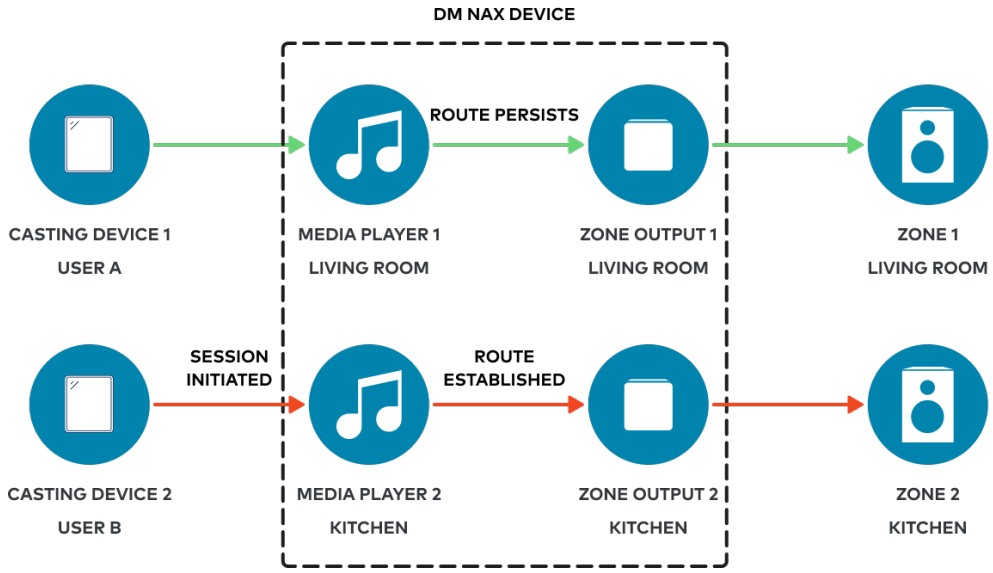
If User B then selects **Living Room**, they take over the casting session on Media Player 1 and their audio is heard in the living room.



If User A casts to both destinations, they initiate a session on both media players and playback begins in both zones.

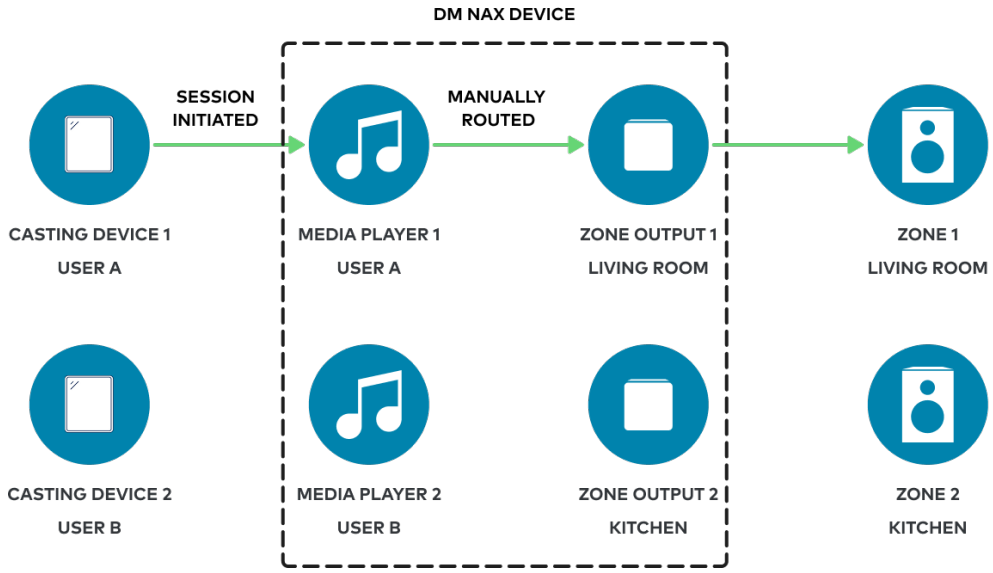


If User B then selects **Kitchen**, they take over the casting session on Media Player 2 and their audio is heard in the living room, but User A remains connected in the living room.



Automatic Routing Disabled

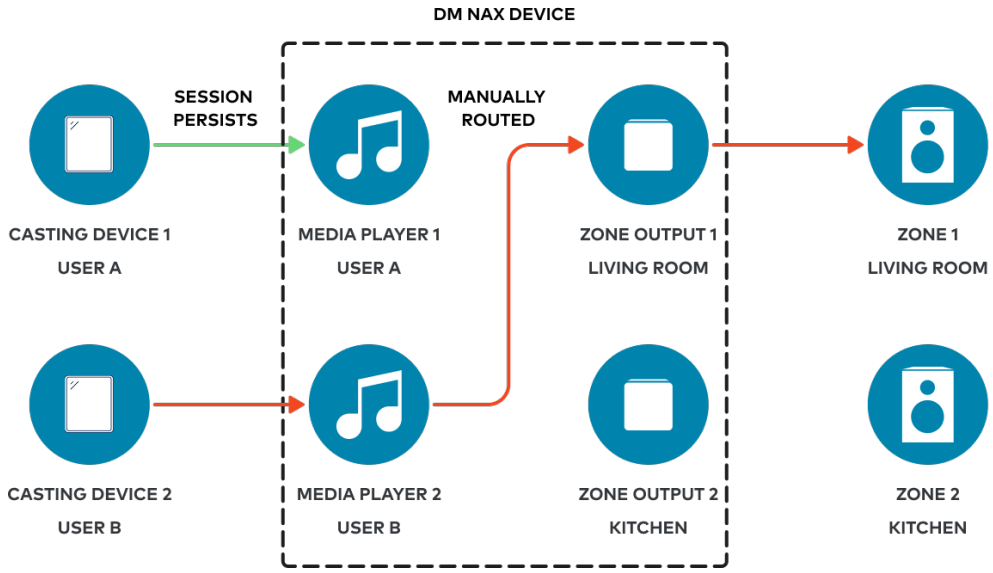
When the toggle is in the left position, initiating a casting session does not route the receiving media player to a zone. The route must be established via programming or the **Routing** table. Use this option when associating media players with specific users in custom programming. The following diagram shows an example workflow for this option.



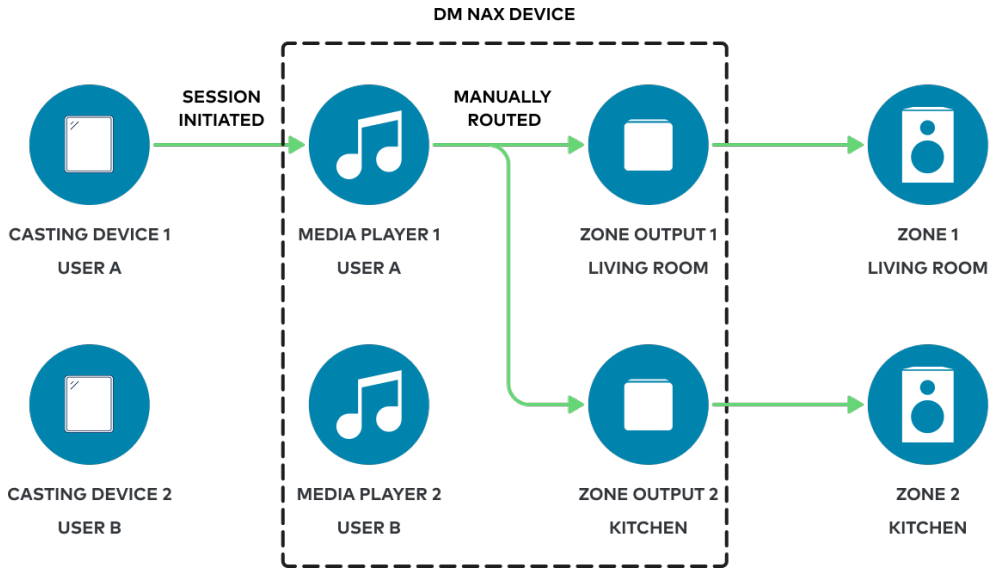
In the diagram above:

- Media Player 1 is named **User A** and Media Player 2 is named **User B**.
- Zone 1 is wired to the living room speakers and Zone 2 is wired to the kitchen speakers.
- User A opens their casting list and sees **User A** and **User B** available as casting destinations.
- Selecting **User A** initiates a casting session with Media Player 1. Media Player 1 must then be manually routed to the living room and kitchen.

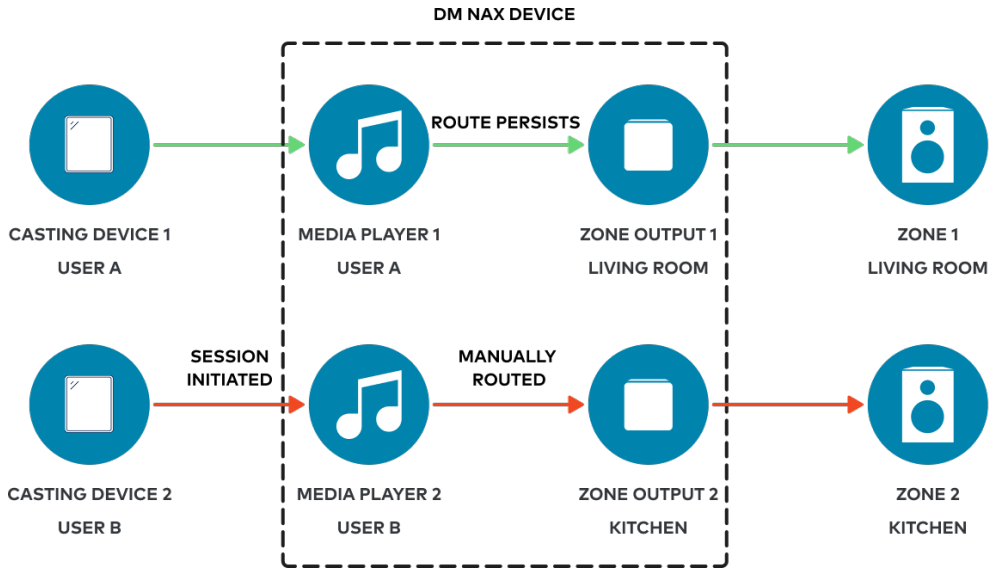
If User B selects the casting destination named **User B**, a casting session with Media Player 2 is initiated. Manually routing Media Player 2 to the living room zone will unroute Media Player 1, but User A's casting session will continue. Media Player 1 can still be routed to other zones.



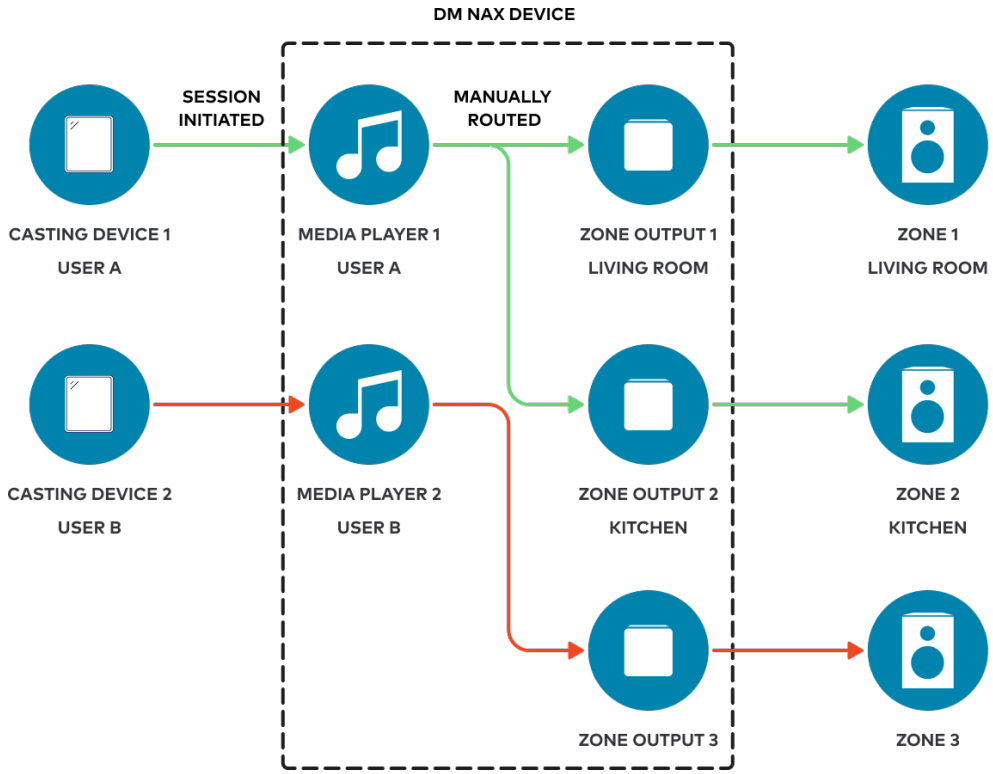
If User A casts to Media Player 1 and routes the player to both destinations, playback begins in both zones while Media Player 2 remains available.



If User B casts to Media Player 2 and routes it to Zone Output 2, their audio is heard in the kitchen, but User A remains connected in the living room.

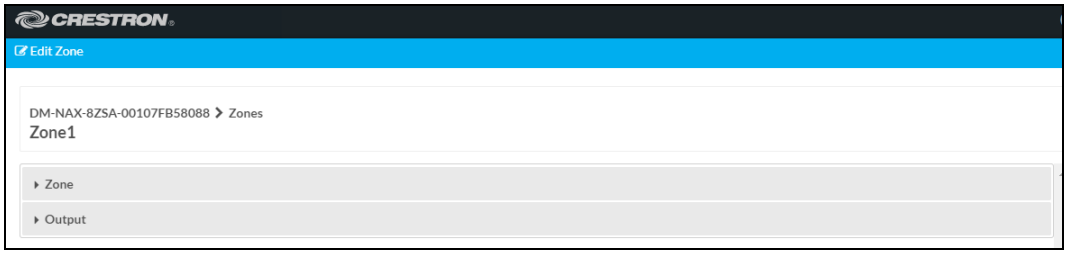


User B can also cast to Media Player 2 and route it to any of the other zones on the DM NAX device without interfering with User A's playback in the living room and kitchen.



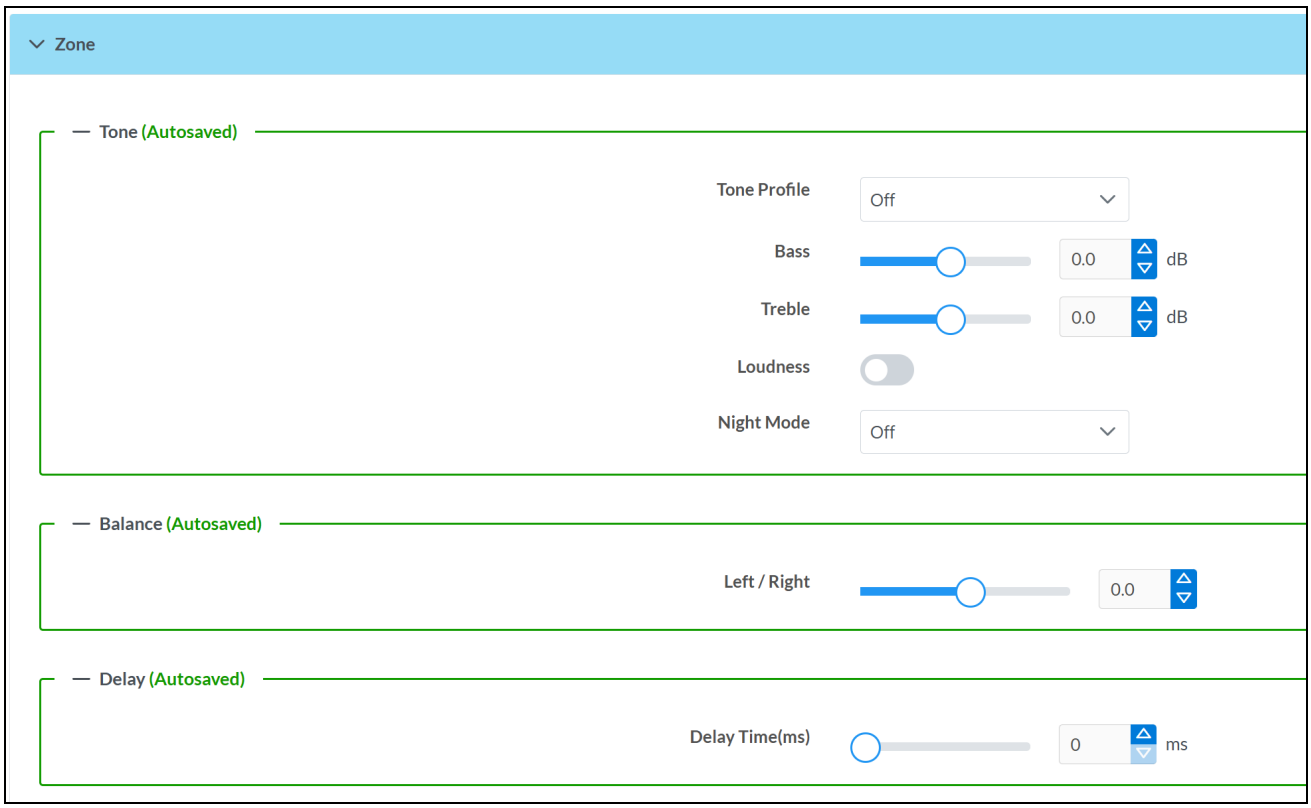
Zone Settings

To configure zone settings, select **Configure**. The **Edit Zone** window is displayed.

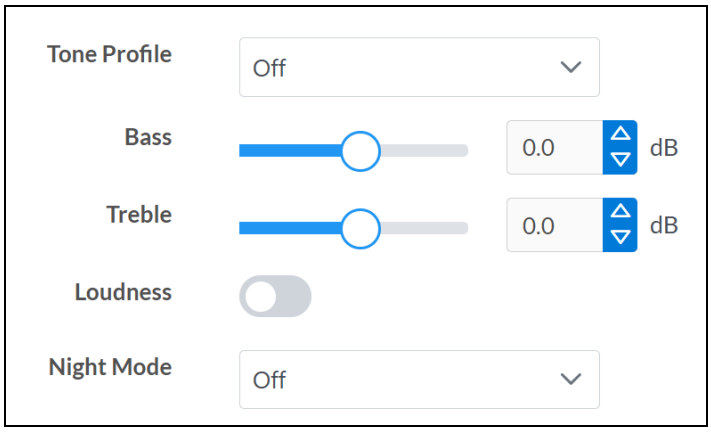


Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



Tone

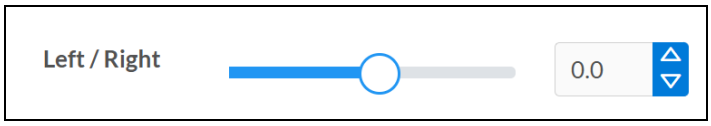


The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

> **NOTE:** The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

- To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down list. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
  - Manually enter a value in the **Treble** field.
- To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.
- The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down list. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

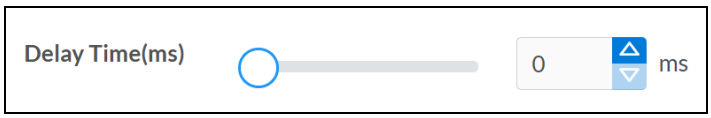
Balance



To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay

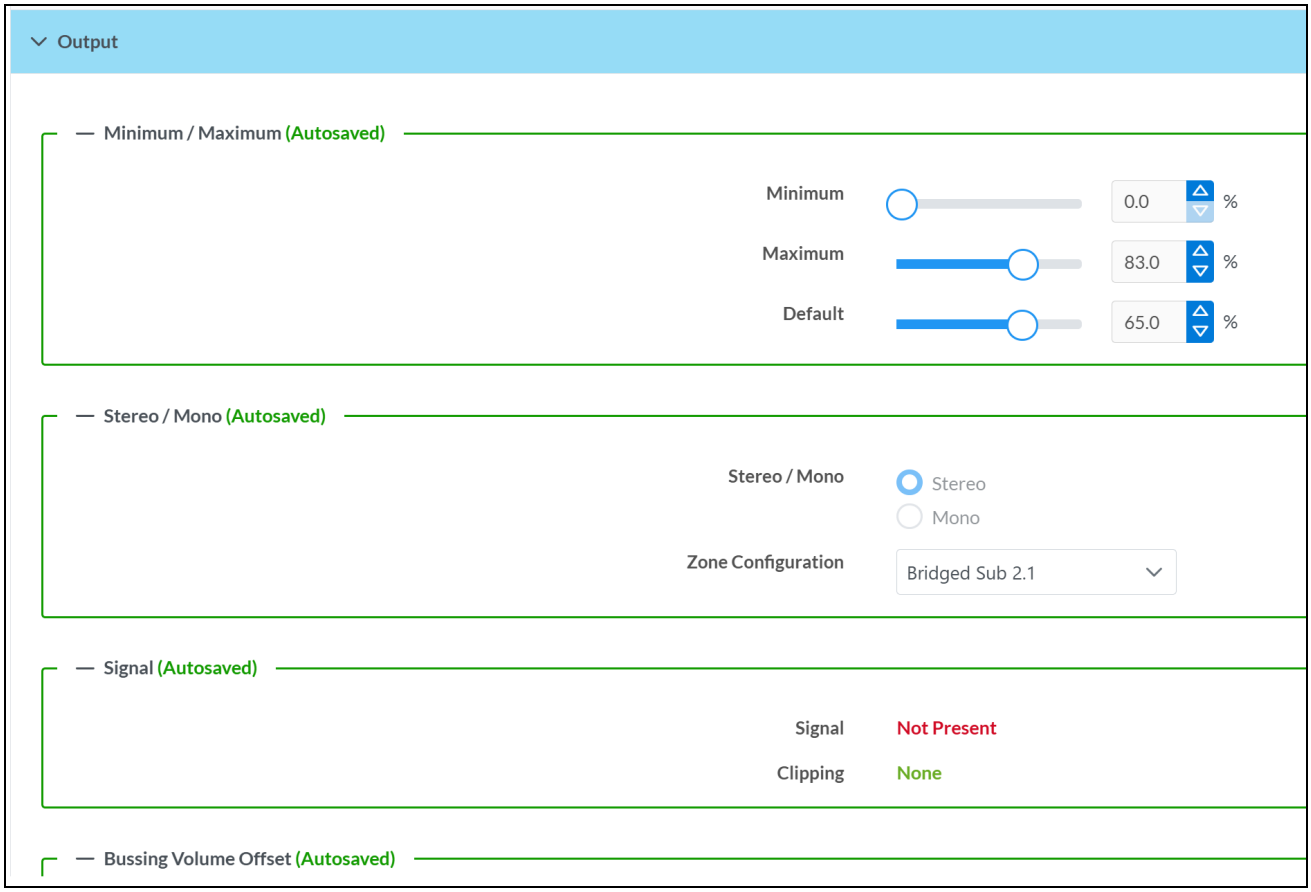


To add a delay to the audio output, do one of the following:

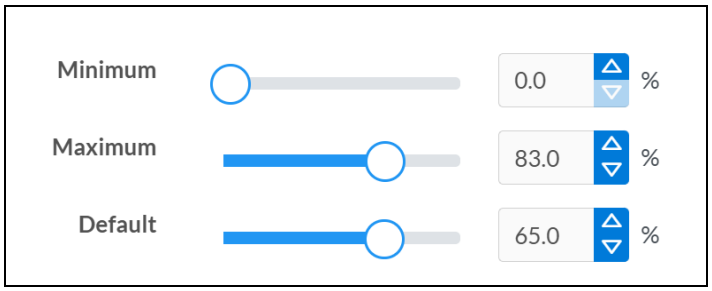
- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Configure Speaker Profile**, **Speaker Configuration**, **Casting**, **Speaker/Faults**, **Line Out**, **Signal Generator**, **Advanced Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



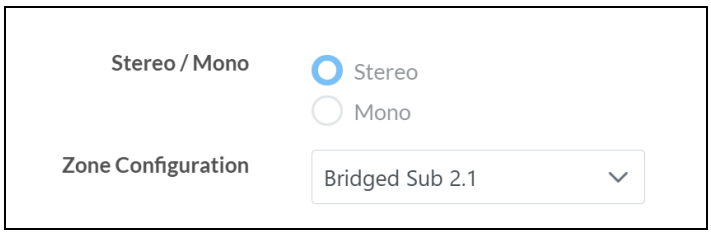
Set **Minimum**, **Maximum**, and **Default** volume values by doing one of the following:

- Move each slider to the right to increase or to the left to decrease the associated volume value.
- Use the **%** arrows to increase or decrease the volume.
- Manually enter a value in the field.

NOTES:

- The range for **Minimum** is 1-50%. The range for **Maximum** is 51-100%.
- When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to that range. For example, with a 10% **Minimum** and 80% **Maximum** set for a zone, the 1-100% range of the **Zone** volume control is scaled to 10%-80%.
- The **Default** volume is applied as the **Zone** volume whenever the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono



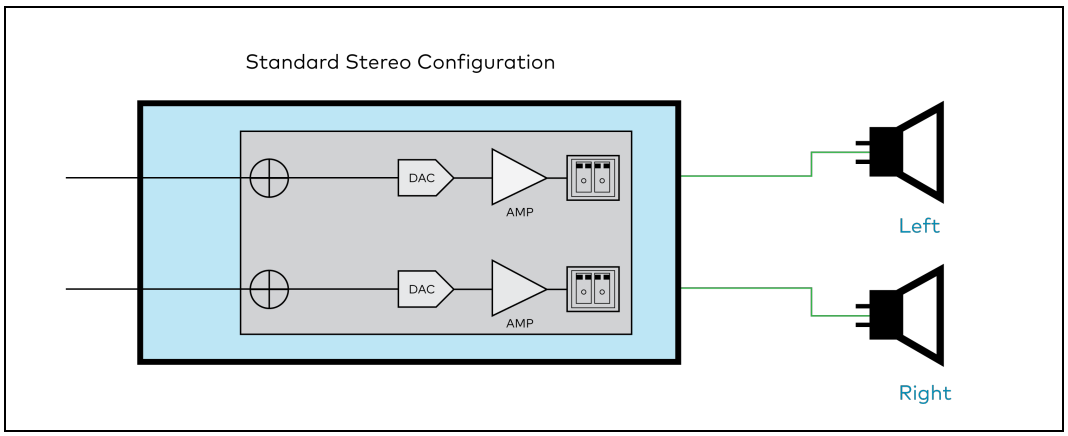
Use the **Stereo/Mono** section to set the output wiring configuration for the zone:

- Select either **Stereo** or **Mono** from the **Stereo/Mono** field.

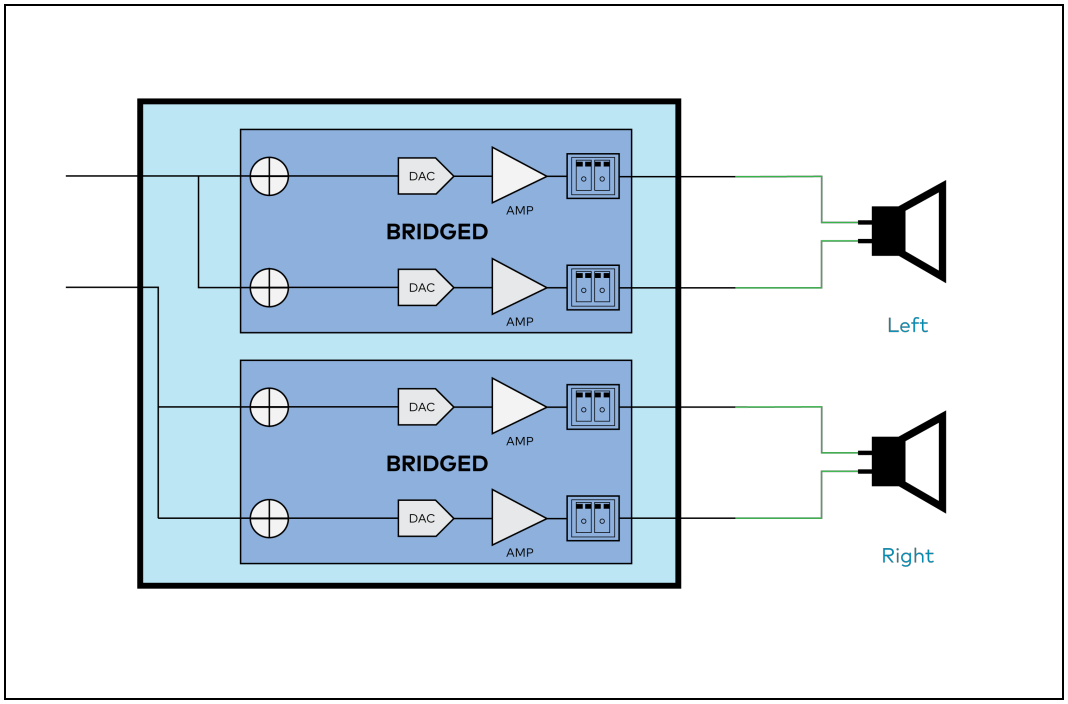
- Select an option from the **Zone Configuration** drop-down list. The available values are **Standard**, **Bridged**, **Bridged 2.1**, **Bridged Sub 2.1**, and **Bridged Mono**. Refer to the diagrams below for the output signal flow applied in each configuration.

> **NOTE:** The **Stereo/Mono** radio buttons are disabled for the **Bridged 2.1**, **Bridged Sub 2.1**, and **Bridged Mono** configurations.

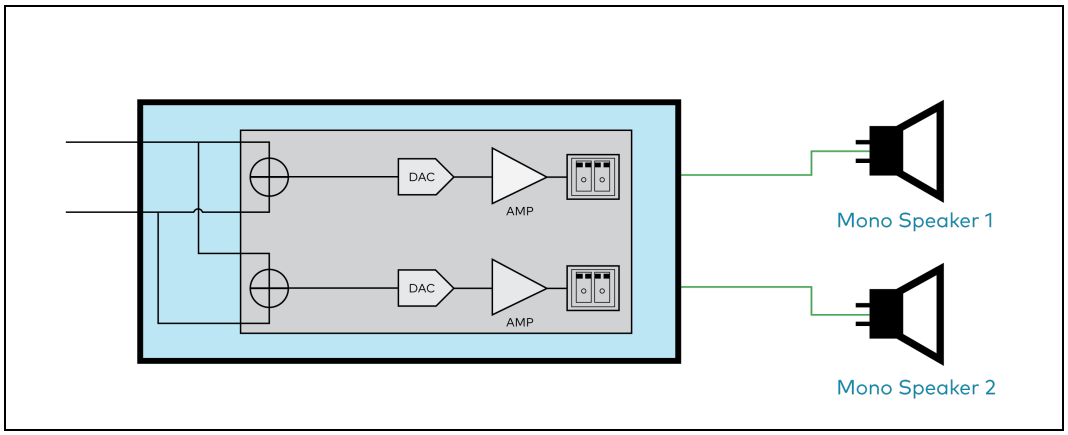
Stereo - Standard



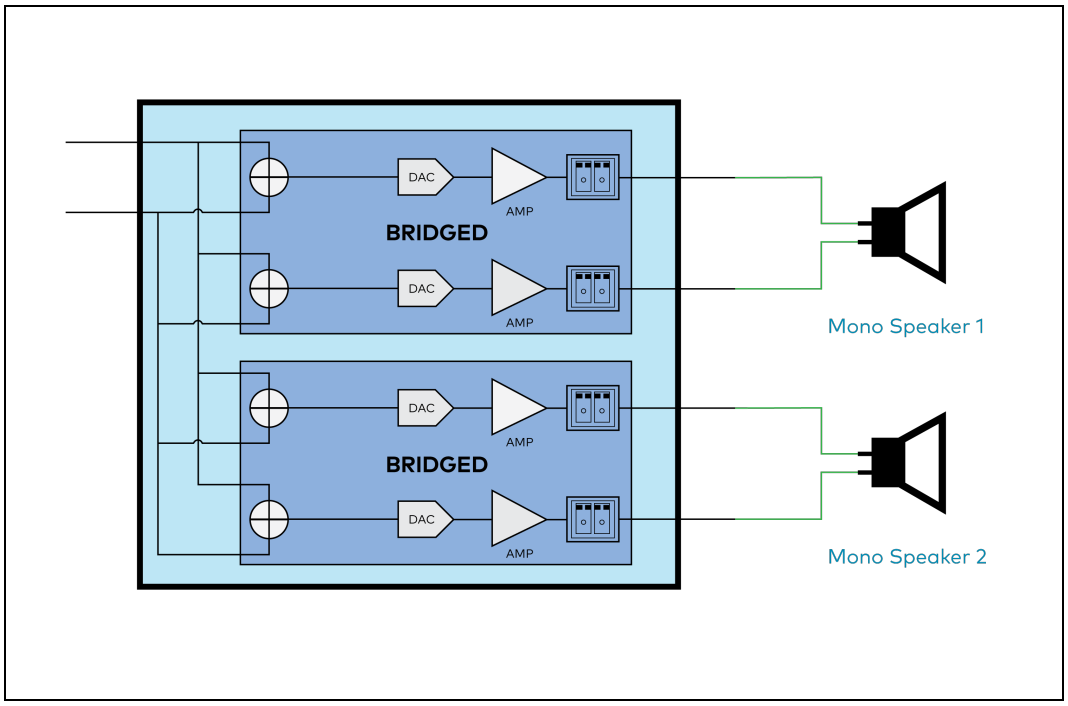
Stereo - Bridged



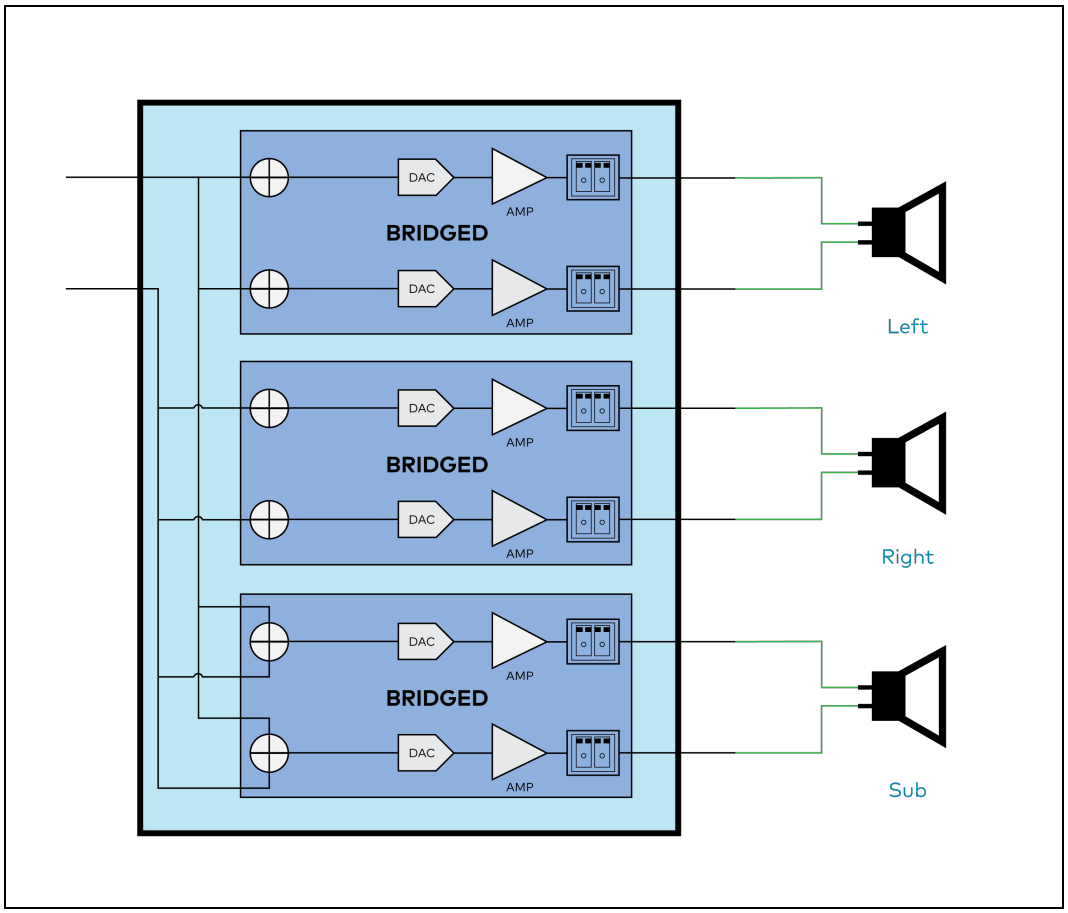
Mono - Standard



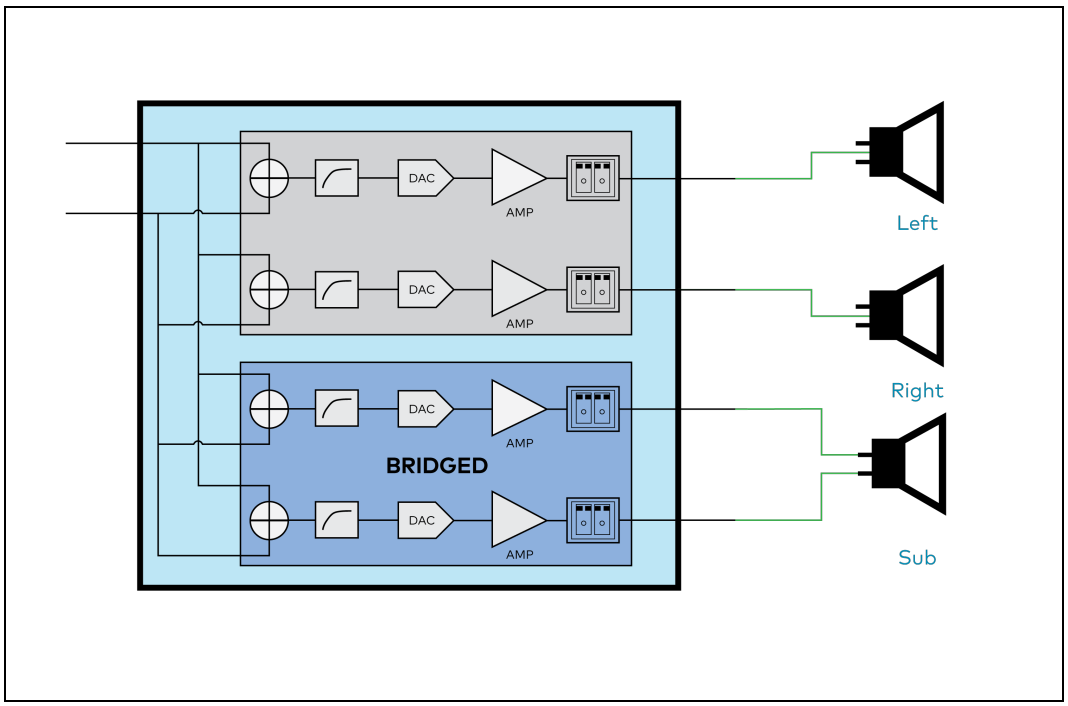
Mono - Bridged



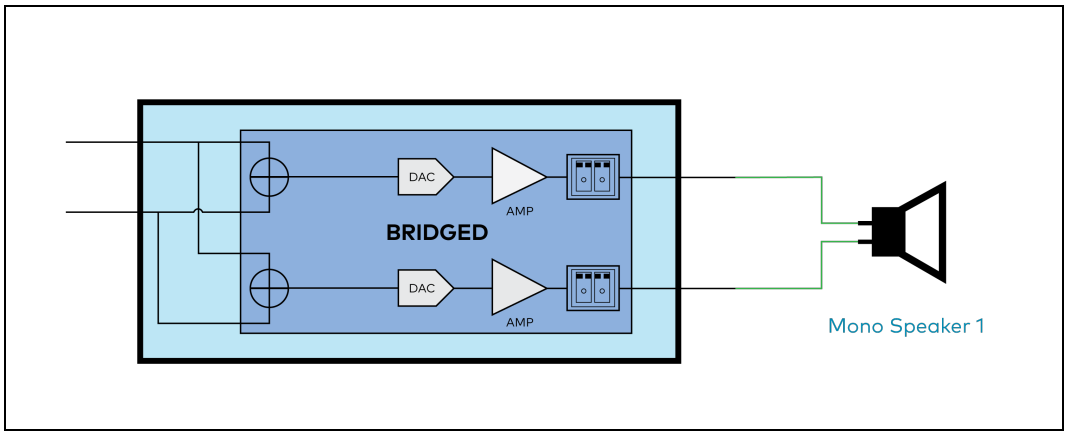
Bridged 2.1



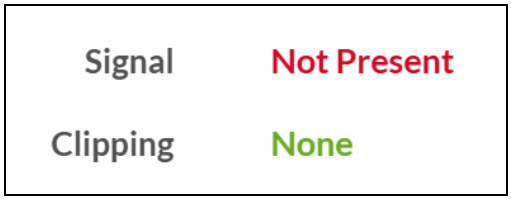
Bridged Sub 2.1



Bridged Mono



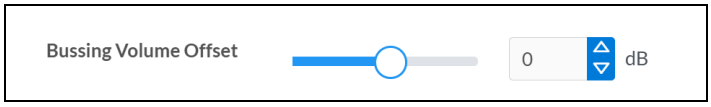
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset



Bussing Volume Offset provides a per-zone volume adjustment relative to the other zones assigned to the same bus.

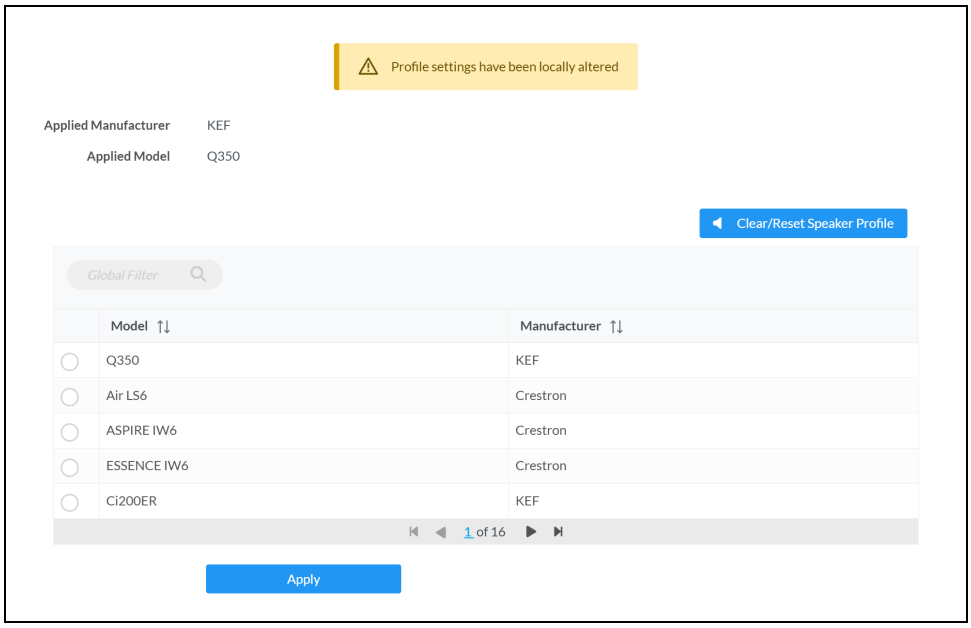
To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

Configure Speaker Profile

The DM-NAX-8ZSA has a library of built-in speaker profiles that contain equalizer, speaker protection, and impedance settings specific to Crestron and third-party speaker models. Custom speaker profiles can also be generated and loaded to the DM-NAX-8ZSA. The **Configure Speaker Profile** field is used to apply these speaker profiles to a given zone of the DM NAX device.

CAUTION: Applying a speaker profile on a zone will overwrite the current **Speaker Configuration** and **Equalizer** settings.



Enter a speaker's model name in the **Global Filter** field to search for its associated profile. Any speaker profiles matching the search criteria are displayed.

To apply a speaker profile:

1. Select a speaker profile.
2. Select **Apply**.

   The equalizer, impedance, and speaker protection settings of the zone are updated as per the applied speaker profile.

After applying a speaker profile, the **Speaker Configuration** and **Equalizer** settings for the zone can still be edited. The **Configure Speaker Profile** section will display a notification if these settings were altered after the speaker profile was applied.

Speaker Configuration

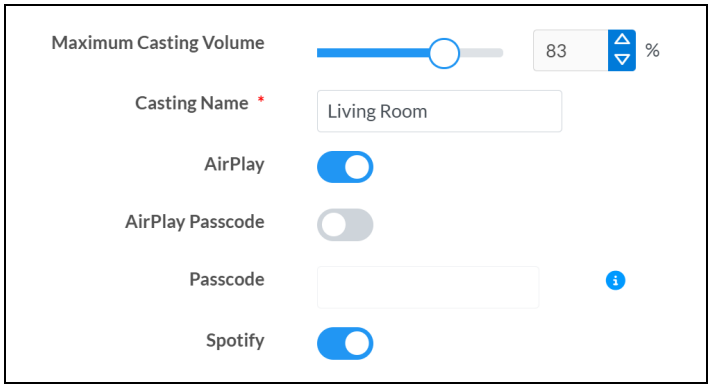


Use the **Speaker Configuration** section to limit the output power of the amplifier for the zone:

1. Set the **Enable Speaker Protect** toggle to the right position to enable speaker protection for the zone output. Set the toggle to the left position to disable speaker protection. By default, **Enable Speaker Protect** is set to the left position.
2. Set the maximum output wattage by doing one of the following:
    - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the maximum peak amplifier wattage that can be output to the speaker.
    - Use the **Watts** arrows to increase or decrease the maximum peak amplifier wattage that can be output to the speaker. Values range from 5 W to 150 W, adjustable in increments of 1 W.
    - Manually enter a value in the **Speaker Wattage** field.
3. Select the impedance of the speaker on a selected zone from the **Impedance** drop-down list. Values are **4 Ohms**, **8 Ohms**, and **Bridged**.

Casting

Use the **Casting** section to enable or disable Apple AirPlay® and Spotify Connect™ casting, as well as set a maximum casting volume and friendly name for the zone.



Configure the available settings:

- **Maximum Casting Volume** is an alternate value for the **Maximum** volume set under Minimum/Maximum Volume on page 384. This maximum is applied to the zone only when a casting service is routed to it. Set the maximum casting volume by doing one of the following:
    - Move the **Maximum Casting Volume** slider right to increase or left to decrease the maximum volume.
    - Use the arrows to increase or decrease the maximum casting volume. Values range from 51% to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum Casting Volume** field.

    > **NOTE**: If the regular **Maximum** volume value is lower than the **Maximum Casting Volume** value, the lower value will be applied instead.

- Enter a friendly name in the **Casting Name** field. Once AirPlay and/or Spotify Connect are enabled, this name will be displayed as an available destination on the casting device.

The DM-NAX-8ZSA supports Apple AirPlay 2 casting.

To stream media from an iOS® device to a zone on the DM-NAX-8ZSA via AirPlay casting:

1. Ensure that the iOS device and DM-NAX-8ZSA are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-8ZSA, the zone will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 370 for more information.

2. Set the **AirPlay** toggle to the right to enable AirPlay casting to the media player.
3. To use a passcode, set the **AirPlay Passcode** toggle to the right, then enter the desired four-digit passcode in the **Passcode** field.
4. On your iOS device:
   a. Enable AirPlay. Refer to this support article for information on enabling AirPlay on an iOS device.
   b. From the list of available AirPlay destinations, select the DM-NAX-8ZSA media player. If a passcode was enabled, enter it on the iOS device when prompted. The iOS device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-8 route to their respectively numbered output zones 1-8 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if an AirPlay casting session on media player 5 starts and it is not already routed to another zone. To disable this automatic routing, disable the **Automatically Route Casted Audio to Zone** toggle under the **Zones** accordion. Refer to Zones on page 375.

   c. After the AirPlay stream begins, control the volume of the streaming DM-NAX-8ZSA output zone directly from your iOS device.

Set the **AirPlay** toggle to the left to disable AirPlay casting for the media player.

The DM-NAX-8ZSA supports Spotify Connect™ casting.

To stream media to a zone on the DM-NAX-8ZSA via Spotify Connect casting:

1. Ensure that the casting device and DM-NAX-8ZSA are on the same network.

   > **NOTE:** If **Port Configuration** is enabled on the DM-NAX-8ZSA, the zone will appear on whichever adapter was assigned its **Casting Zone** from the **Traffic Type** drop-down list. Refer to Port Configuration on page 370 for more information.

2. Set the **Spotify Connect** toggle to the right to enable Spotify Connect casting to the media player.
3. On the casting device:
   a. Open the Spotify application.
   b. Enable Spotify Connect casting. Refer to this support article for information on enabling Spotify Connect casting.
   c. From the list of available casting destinations, select the DM-NAX-8ZSA media player you would like to stream to. The device will cast the streaming audio to the selected media player.

      > **NOTE:** By default, media players 1-8 route to their respectively numbered output zones 1-8 if they are not already routed to any other zones when casting playback begins. For example, the audio from the media player 5 will be routed to output zone 5 if an Spotify Connect casting session on media player 5 starts and it is not already routed to another zone. To disable this automatic routing, disable the **Automatically Route Casted Audio to Zone** toggle under the **Zones** accordion. Refer to Zones on page 375.

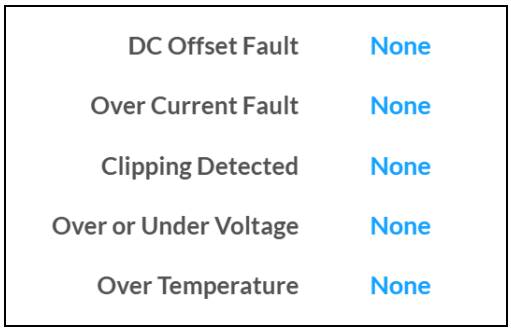
   d. After the Spotify Connect stream begins, control the volume of the streaming DM-NAX-8ZSA output zone directly from the Spotify application on the casting device.

Set the **Spotify Connect** toggle to the left to disable Spotify Connect casting for the media player.

To stream media from a Roon® streaming device to a zone in your distributed audio system:

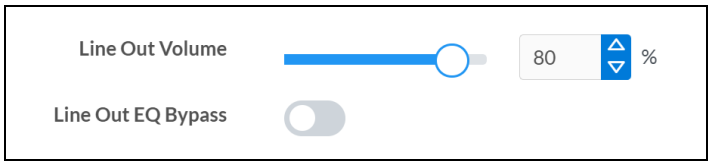
1. Enable Apple AirPlay casting on the DM NAX device by setting the AirPlay toggle to the right.
2. Launch the Roon desktop app.
3. Open the Roon app menu and navigate to the **Settings** submenu, then select **Audio**. A table of discovered network devices that the Roon device can stream to will be displayed. Any devices that previously have been enabled for Roon casting are listed under the **Connected to Core** section, and the rest of the discovered devices are listed under **Other network devices**.
4. Find each of the DM NAX zones in the **Other network devices** list, then select **Enable** for each zone to connect it to the Roon Core® for casting.
5. Return to the Roon app home page and select the speaker icon at the bottom right, then select a DM NAX zone from the list of available casting destinations.
6. Start a media stream, and the Roon device will cast the streaming audio to the zone.

Speaker/Faults



The **Speaker/Faults** section displays read-only status messages for the zone's **DC Offset Fault**, **Over Current Fault**, **Clipping**, **Over or Under Voltage**, and **Over Temperature** detectors. When clipping or a fault is detected, its corresponding readout displays **Fault Detected** in red. Otherwise, it displays **None** in blue.

Line Out



Line Out Volume controls the volume level of the corresponding line-level output on the DM NAX device.

> **NOTES:**
>
> - This setting is only available on zones 1 through 4 of the DM-NAX-8ZSA; zones 5 through 8 do not have a line-level output.
> - The **Line Out Volume** is only applied when **Line Out EQ Bypass** is enabled.

To set the line out volume, do one of the following:

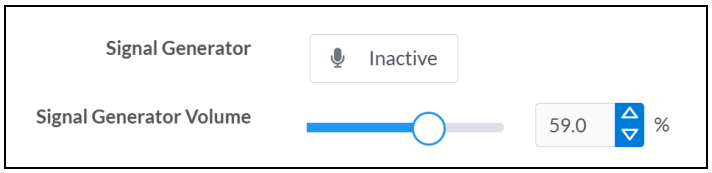
- Move the **Line Out Volume** slider to the right to increase or to the left to decrease the line out volume.
- Use the arrows to increase or decrease the line out volume. Values range from 0 to 100, adjustable in increments of 1. This range in dB is -80 dB to 20 dB.
- Manually enter a value in the **Line Out Volume** field.

Set the **Line Out EQ Bypass** toggle to the right to bypass the equalizer settings on the line-level output. Set the toggle to the left to use the equalizer on the line-level output. The toggle is set to the left by default.

NOTES:

- When the **Line Out EQ Bypass** setting is disabled, the line output's level will mirror the speaker output's **Zone** volume control. This allows for a variable signal level in applications where the line output is connected to an uncontrolled device such as powered speakers.
- When the **Line Out EQ Bypass** setting is enabled, the **Line Out Volume** slider can be used to set a fixed level for the line-level output. This level is not affected by the speaker output **Zone** volume controls, making this configuration better suited to applications where the line output is connected to a controlled external amplifier.

Signal Generator



The DM-NAX-8ZSA has a built-in signal generator that sends an audio test signal to the output zone.

- To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue.
- To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey.

By default, the signal generator is inactive.

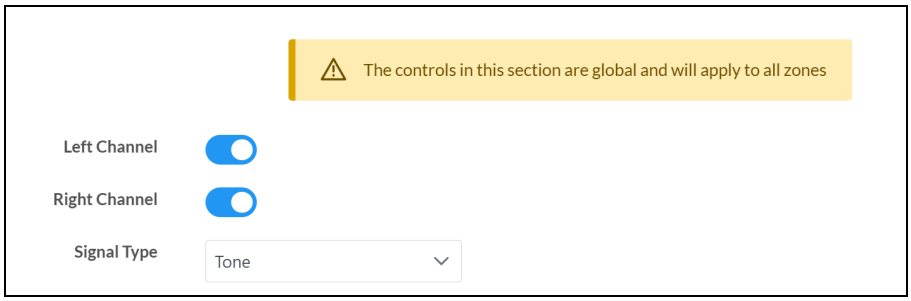
NOTES:

- There is only one signal generator built in to the DM NAX device. Each zone has its own option to enable or disable the signal generator on that output. Setting the signal generator to **Inactive** on a given zone output does not stop it from outputting to other zones.
- The **Signal Generator Volume** control is a local control that does not affect the signal generator's volume on other zone outputs. Only the settings under **Advanced Signal Generator** are applied universally to all zones of the DM NAX device.

To adjust the signal generator's volume, do one of the following:

- Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
- Manually enter a value in the **Signal Generator Volume** field.

Advanced Signal Generator

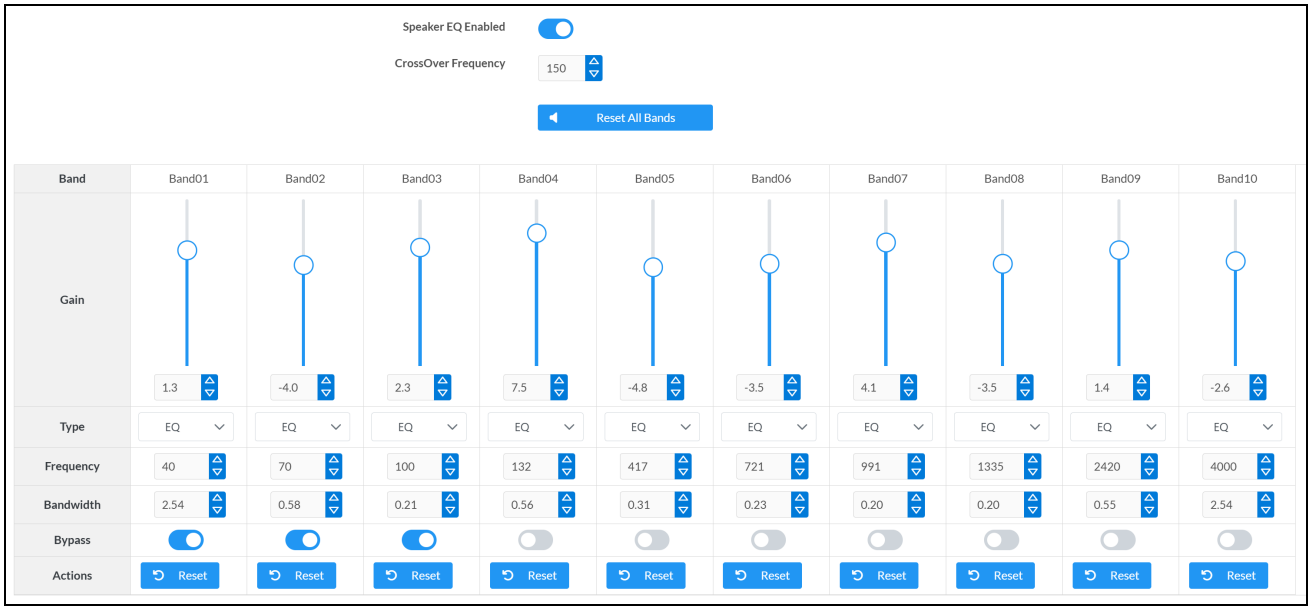


The advanced signal generator settings control the built-in signal generator directly and are applied universally to all output zones of the DM NAX device.

Configure the available settings:

- Set the **Left Channel** toggle to the right to enable the left channel of the generator. Set the toggle to the left to disable the left channel. By default, **Left Channel** is enabled.
- Set the **Right Channel** toggle to the right to enable the right channel of the generator. Set the toggle to the left to disable the right channel. By default, **Right Channel** is enabled.
- Select an audio test signal type from the **Signal Type** drop-down list. The available signal types are:
    - **Tone**: Generates a 1 kHz sine wave tone.
    - **Pink Noise**: Generates pink noise.
    - **White Noise**: Generates white noise.

Equalizer Settings



Each zone of the DM-NAX-8ZSA has a dedicated ten-band equalizer that tunes the output signal. Each band has a discrete gain, filter type, center frequency, bandwidth, and bypass.

Use the settings above the equalizer table:

- Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

  > **NOTE:** When **Speaker EQ Enabled** is set to the left, all equalizer bands are bypassed. Use this toggle to perform A/B comparison of the entire EQ curve.

- If a 2.1 (subwoofer) configuration was selected for **Zone Configuration**, enter a value in the **CrossOver Frequency** field. This is applies a high pass filter to the high frequency channels and a low pass filter to the subwoofer channel which cross over at the specified frequency. Values range from 40 Hz to 200 Hz, adjustable in increments of 1 Hz.
- Select **Reset All Bands** to set all ten bands of the equalizer back to default settings.

With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands:

- Set the band's gain by doing one of the following:
  - Move the **Gain** slider up to increase or down to decrease the gain.
  - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
  - Manually enter a value in the **Gain** field.
- Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type.

  > **NOTE:** Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings because the **LowPass** filter applies a fixed roll-off slope at a set frequency.

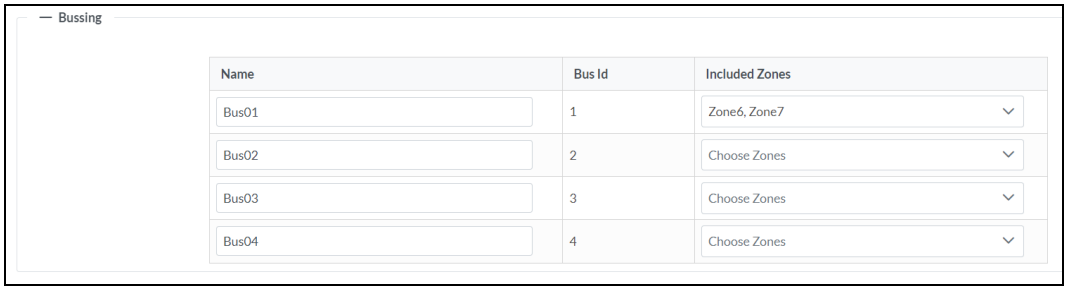
  The available filter types are:
  - **EQ:** Fully parametric filter, boosts or cuts a specified range of frequencies.
  - **Notch:** Parametric filter, cuts a specified frequency; achieves a narrower bandwidth than the standard **EQ** filter type.
  - **TrebleShelf:** Boosts or cuts all frequencies above a specified frequency by a specified gain.
  - **BassShelf:** Boosts or cuts everything below a specified frequency by a specified gain.
  - **LowPass:** Cuts everything above a specified frequency by -12 dB per octave.
  - **HighPass:** Cuts everything below a specified frequency by -12 dB per octave.
- Set a center frequency for the band by doing one of the following:
  - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
  - Manually enter a value in the **Frequency** field.

- Set the bandwidth by doing one of the following (**EQ** and **Notch** filters only):
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
- The individual **Bypass** controls bypass a single band for more granular A/B comparison. Set a band's **Bypass** toggle to the right position to bypass that band or to the left position to disable the bypass. Each **Bypass** is disabled by default.
- Select **Reset** to reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Bussing

The bussing feature on DM NAX devices assigns any number of selected zones to a fixed group of zones (called a bus). Zones in a bus share volume and routing controls. The DM-NAX-8ZSA supports up to four buses.



To create a bus:

1. Enter a friendly in the **Name** field.
2. Select any number of zones from the **Included Zones** drop-down list.

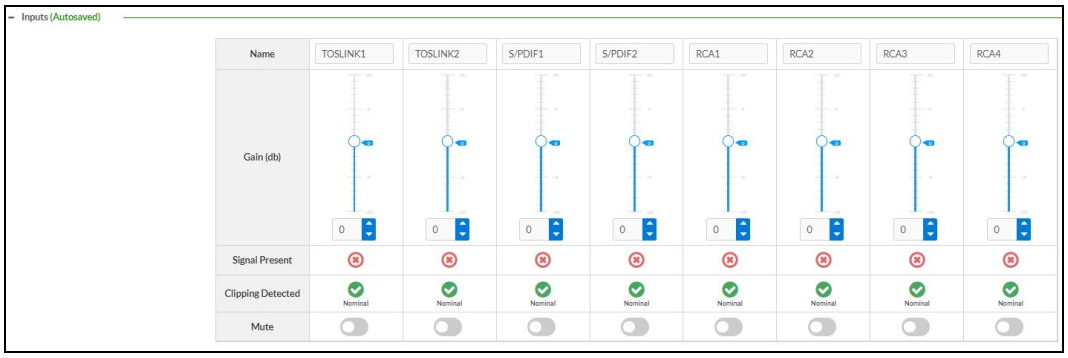
    > **NOTE:** Each zone can only be a member of one bus. Zones that are already a member of another bus will not be available in the **Included Zones** drop-down list.

3. Select **Save Changes**.

Inputs

Use the **Inputs** accordion to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-8ZSA.

A total of 16 inputs are available on the DM-NAX-8ZSA, including the eight physical stereo input connectors on the device's rear panel and the eight internal media players used for media streaming services.



Configure the available settings for each input:

- Enter a friendly name in the **Name** field.
- Set a level compensation adjustment by doing one of the following:
    - Move the **Gain (db)** slider up to increase or down to decrease the compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel. Compensation is not available for any of the internal media players.
    - Use the up and down arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Gain (db)** field.
- Select **Mute** to mute the input. Select **Muted** to unmute the input. The inputs are unmuted by default.

Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected on that input.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (nonclipping).

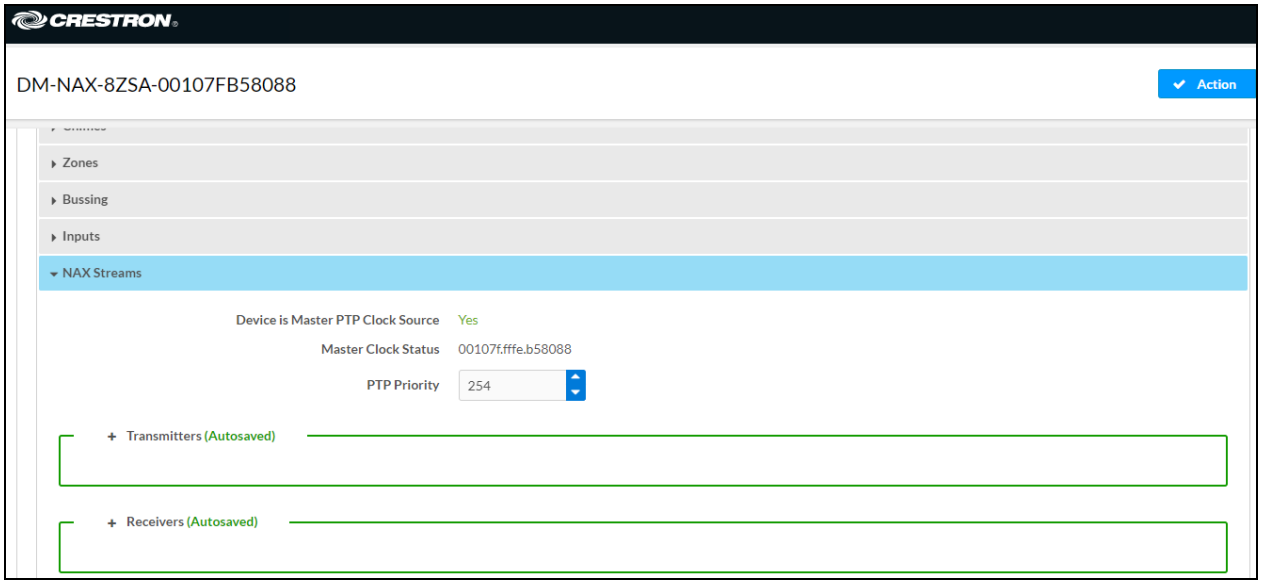
DM NAX Streams

Each local input of the DM-NAX-8ZSA can be made available as a DM NAX audio-over-IP stream. This includes the physical inputs on the rear panel of the device and the internal media players.

The DM-NAX-8ZSA also generates streams for each zone output using all of the routing and signal processing settings of its respective zone. These parallel streams enable control of an audio-over-IP signal to otherwise uncontrolled AES67 devices on the network.

NOTES:

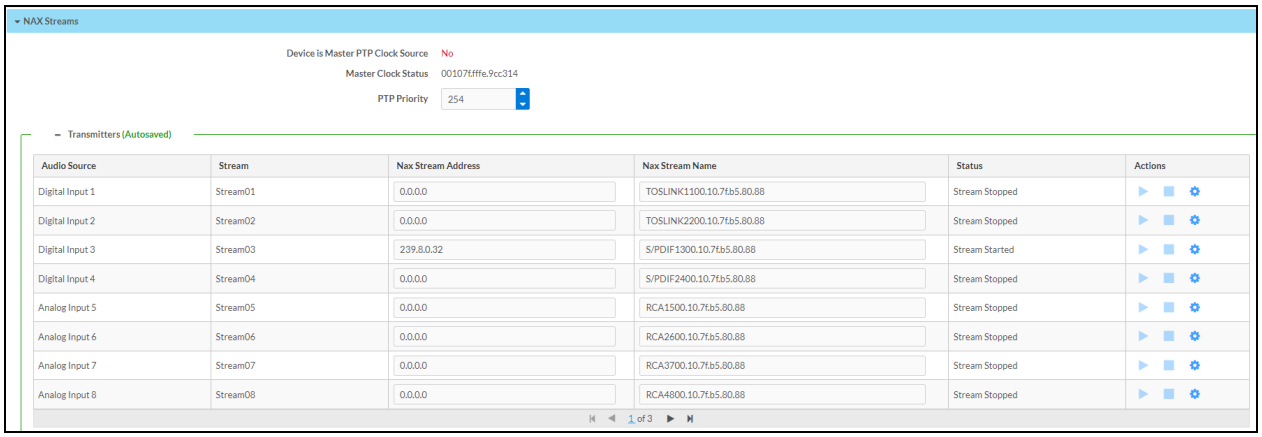
- Under the **Transmitters** section (see Configure Transmitters on page 401), the last eight listed transmitters are dedicated to parallel zone outputs.
- To configure signal processing settings, refer to Zone Settings on page 381.



Select **NAX Streams** to expand the accordion and display the following information:

- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-8ZSA's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-8ZSA will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

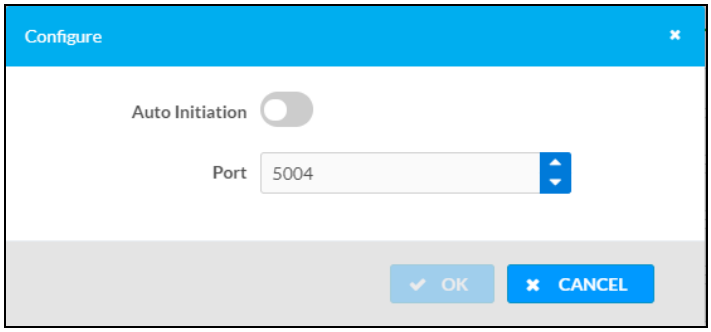
Configure Transmitters



> **NOTE:** To configure transmitters not shown on the current page of the table, select the ▶ icon to display the next page of eight transmitters.

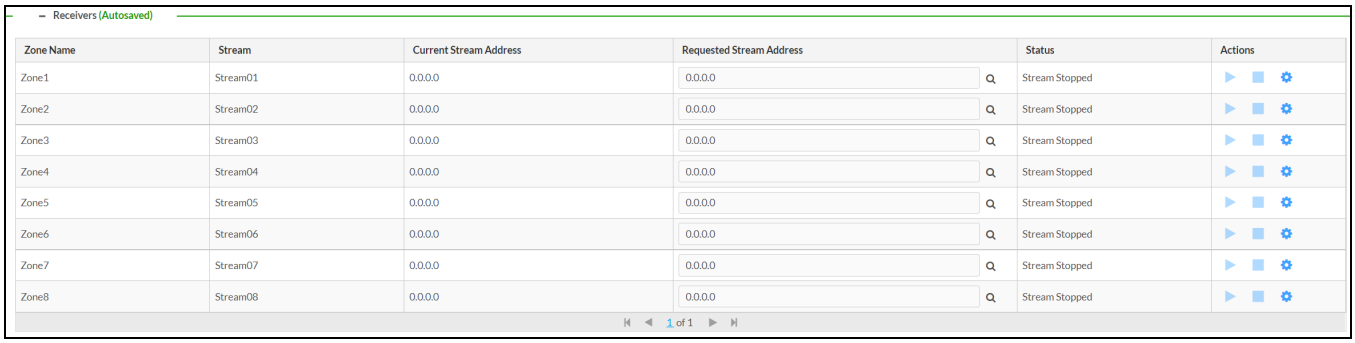
To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices (similar to a device hostname resolving to an IP address).
3. Select the gear icon ⚙ in the **Actions** column. The **Configure** dialog is displayed:



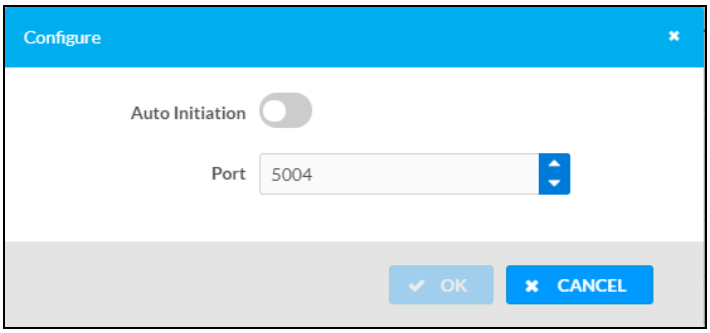
4. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
5. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
6. Select **OK** to save the changes.

Configure Receivers



To configure a DM NAX receiver:

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the gear icon in the **Actions** column. The **Configure** window is displayed:

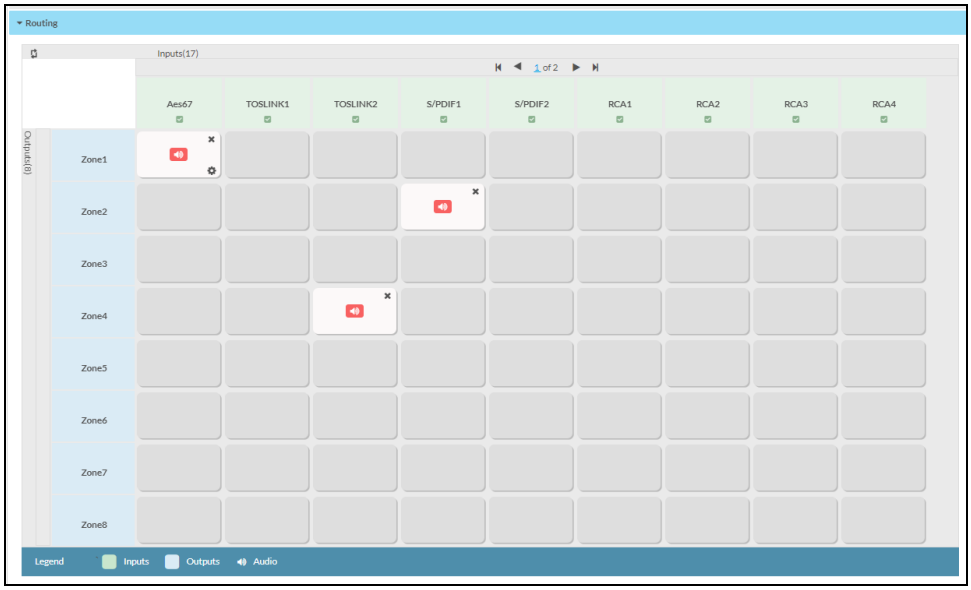


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. Set the port number, by doing do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save the changes.

Routing

Use the **Routing** accordion to route a local input, media player, or AES67 stream to a zone on the DM-NAX-8ZSA.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



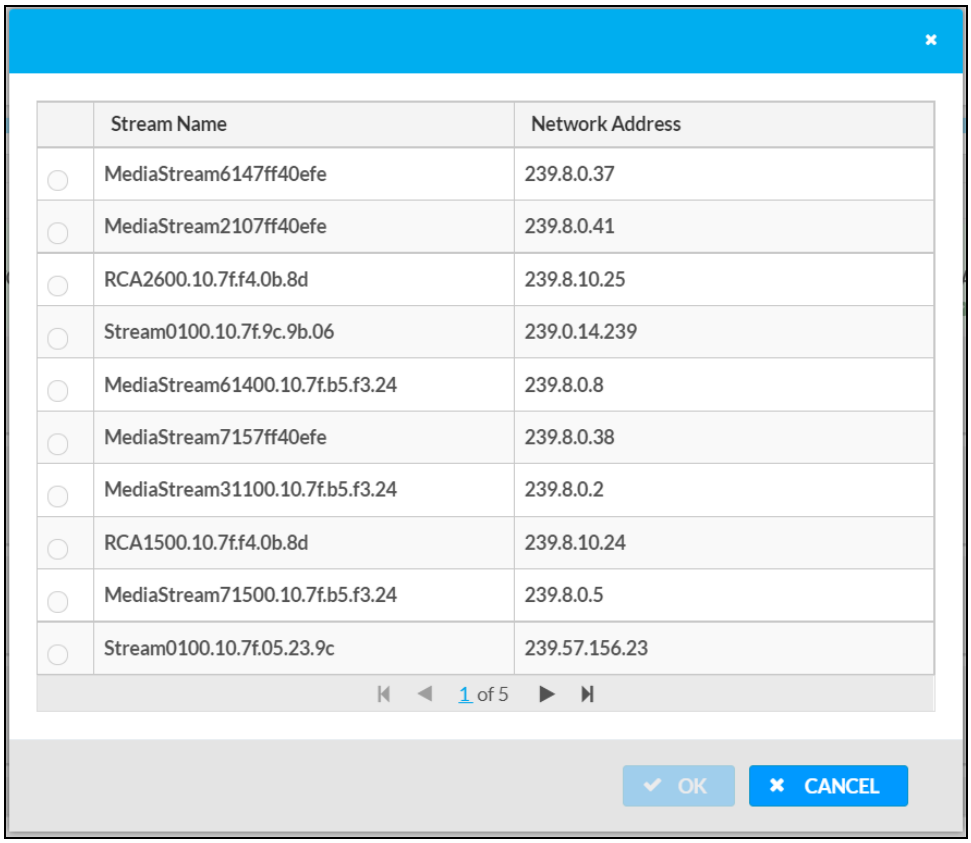
Use the matrix to configure routes:

- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed in the box.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the check icon under the input's name.

Use the left and right arrows at the top of the matrix to change pages to view all available inputs.

To select a specific DM NAX or AES67 stream when AES67 is selected as the source for a zone:

- Select the gear icon to display the list of all DM NAX and AES67 streams discovered on the network, then select the corresponding stream to be routed to the zone.



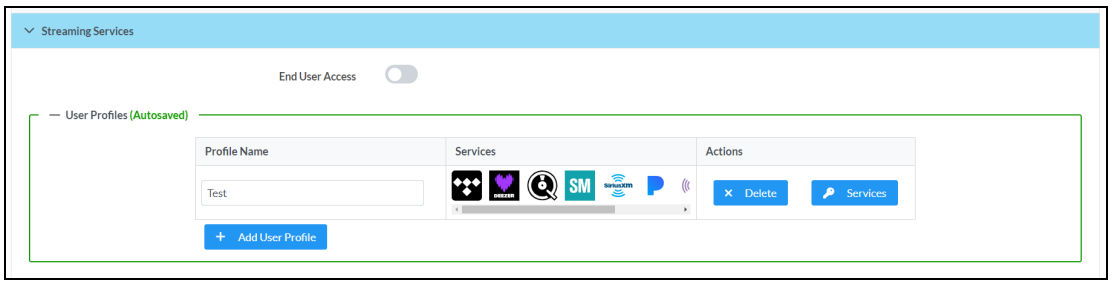
- Select **OK** to save the changes.

Streaming Services

The DM-NAX-8ZSA features eight built-in media streaming players, each of which can play back a discrete media stream from a cloud-based service or local casting device. User profiles can be created for each user of the DM NAX device with discrete credentials, enabling multiple users to access streaming services without interfering with each other's recommendations, favorites, or playlists.

> **NOTE:** Levels for each streaming service provider can be adjusted individually via console commands. Refer to Knowledge Article 3144 for more information.

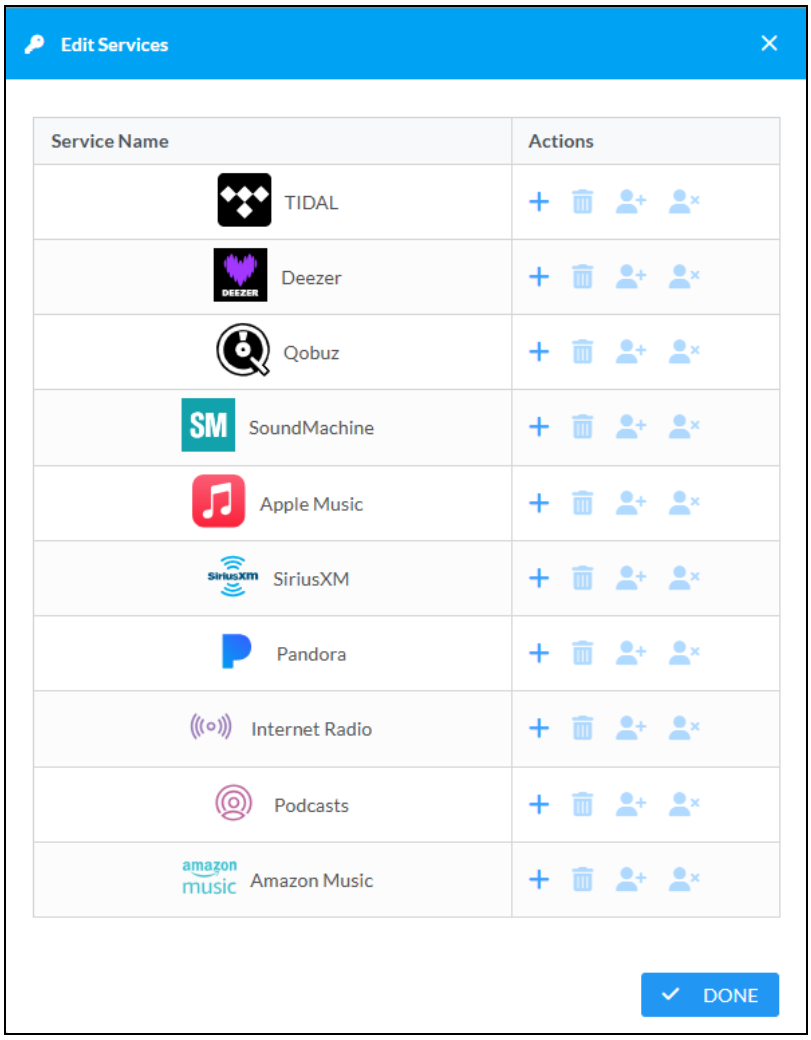
Set the **End User Access** toggle to the right position to enable end user access. With **End User Access** enabled, any account on the device can access the **Streaming Services** settings to add or remove streaming service accounts. Set the toggle to the left position to disable end user access. By default, **End User Access** is disabled.



To configure streaming services:

1. Select **+ Add User Profile** to create a new user profile. Each user profile can contain a unique set of streaming service accounts.
2. Enter a name in the **Profile Name** field. Select **Save** to create the **User Profile**. Once the profile is created, you have the option to either **Delete** the profile or add **Services** to it.

3. Select **Services** in the **Action** column and an **Edit Services** window is displayed.



4. Select from the available streaming services: **TIDAL™**, **Deezer®**, **Qobuz®**, **SOUNDMACHINE®**, **Apple Music®**, **SiriusXM®**, **Pandora®**, **Internet Radio**, **Podcasts**, and **Amazon Music®**. Select + or 🗑 to add or delete the desired streaming services for each user profile.

User Authentication

User authentication is required for Amazon Music, Apple Music, Deezer, Pandora, Qobuz, SiriusXM, SOUNDMACHINE, and TIDAL.

Amazon Music

To authenticate an Amazon Music account:

1. Select the add user icon in the **Amazon Music** row of the table.
2. Select the link to log in via the Amazon Music portal.

> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - An Amazon Music Unlimited subscription is required for this feature.

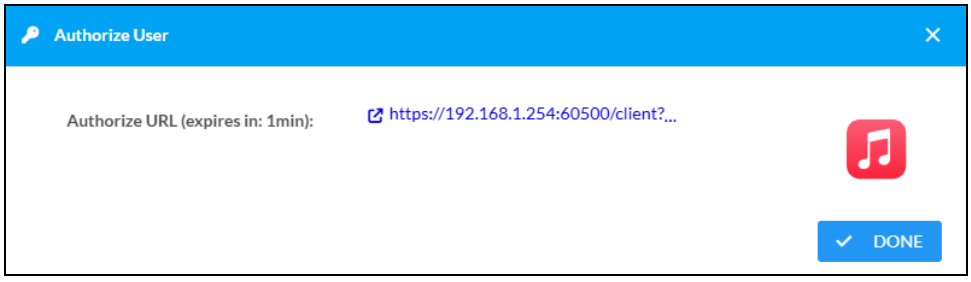


3. Select **DONE** to return to **Streaming Services**.

Apple Music

To authenticate an Apple Music account:

1. Select the add user icon in the **Apple Music** row of the table.
2. Select the link to log in via the Apple Music portal.



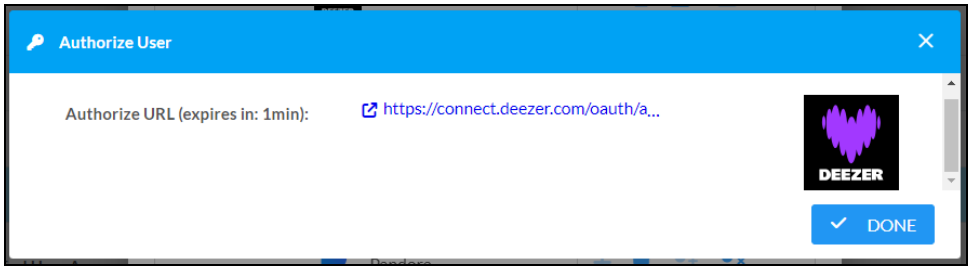
3. Select **DONE** to return to **Streaming Services**.

Deezer

To authenticate a Deezer account:

1. Select the add user icon in the **Deezer** row of the table.
2. Select the link to log in via the Deezer portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.

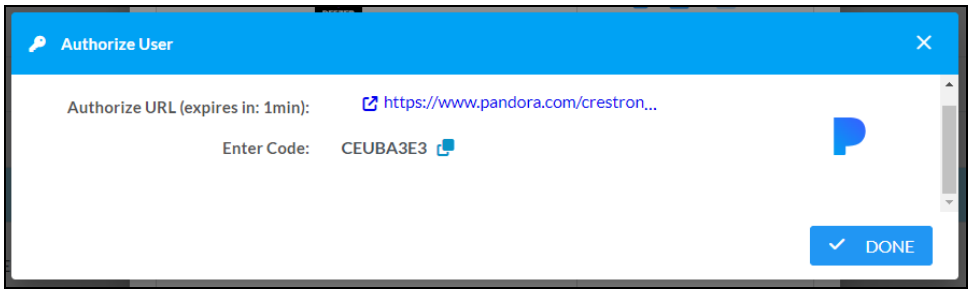


3. Select **DONE** to return to **Streaming Services**.

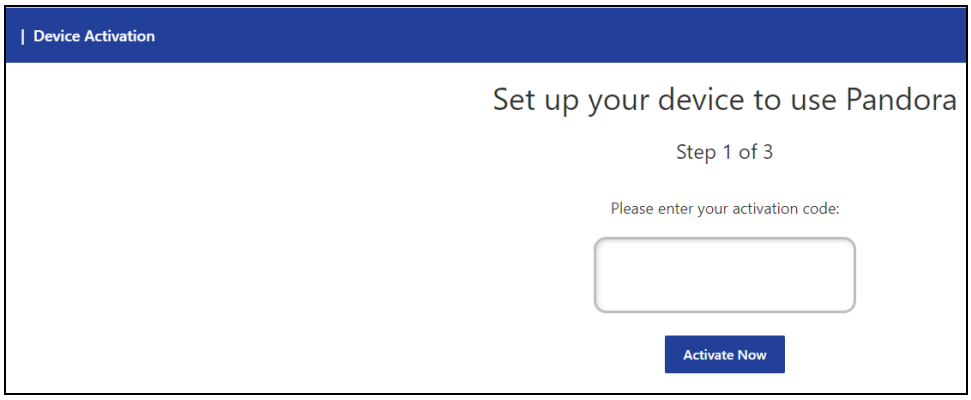
Pandora

To authenticate a Pandora account:

1. Select the add user icon in the **Pandora** row of the table.
2. Select the icon to copy the activation code.



3. Select the link to register the device. The **Device Activation** page is displayed.



> **NOTE:** The link is valid for one minute. After one minute, the link expires, and both the **Authorize URL** and **Enter Code** fields are cleared. The **Authorize User** dialog will need to be closed and reopened.

4. Paste the activation code in the **Please enter your activation code** field and select **Activate Now**.
5. Log in to the Pandora account.
6. Select **DONE** to return to **Streaming Services**.

Qobuz

To authenticate a Qobuz account:

1. Select the add user icon in the **Qobuz** row of the table.
2. Select the link to log in via the Qobuz portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Select **DONE** to return to **Streaming Services**.

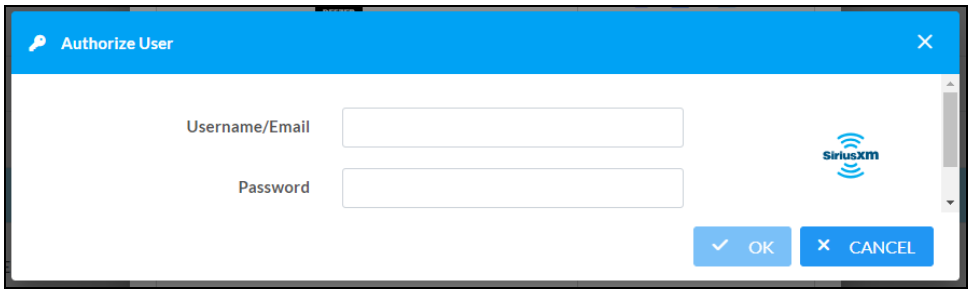
SiriusXM

Both consumer and commercial SiriusXM streaming accounts are supported on the DM-NAX-8ZSA.

> **NOTE:** To determine whether to use commercial accounts, refer to the streaming service license agreement or FAQs on their respective portals. Refer to this link for SiriusXM documentation.

To authenticate a SiriusXM account:

1. Select the add user icon in the **SiriusXM** row of the table.
2. Enter the user credentials and select **OK**



SOUNDMACHINE

SOUNDMACHINE commercial streaming accounts are supported on the DM-NAX-4ZSA-50. A single SOUNDMACHINE account supports streaming multiple stations across DM NAX devices and/or zones.

> **NOTE:** To determine when to use a commercial streaming account, refer to this link for SOUNDMACHINE documentation.

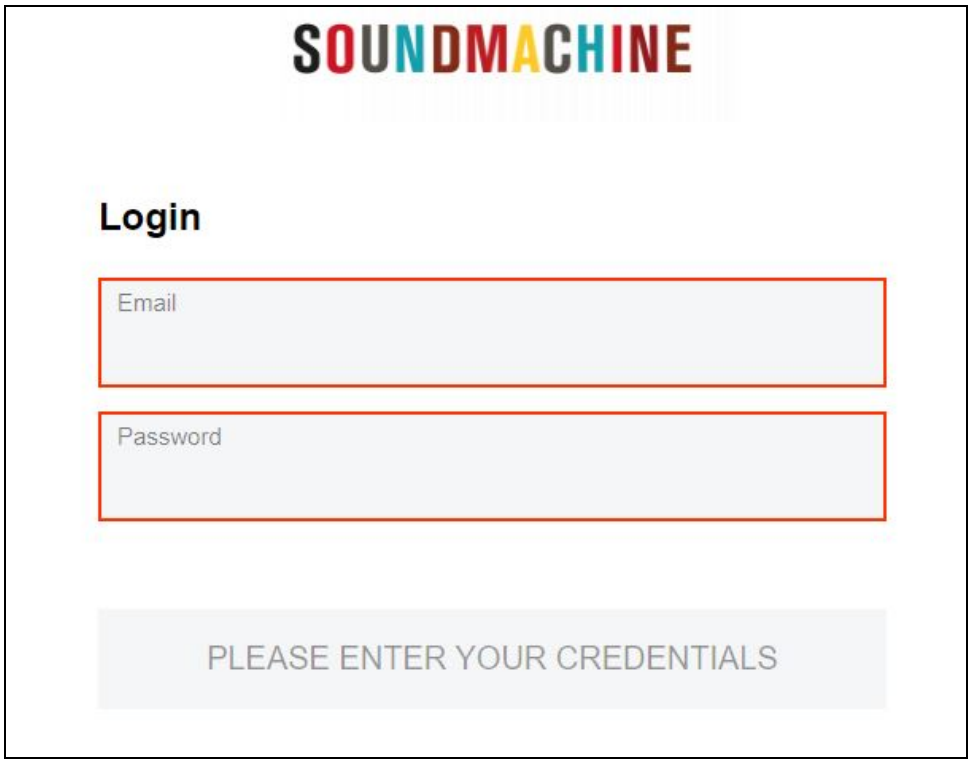
To authenticate a SOUNDMACHINE account:

1. Select the add user icon in the **SOUNDMACHINE** row of the table.
2. Select the link to log in via the SOUNDMACHINE portal.

> **NOTE:** The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.



3. Log in to the SOUNDMACHINE account.



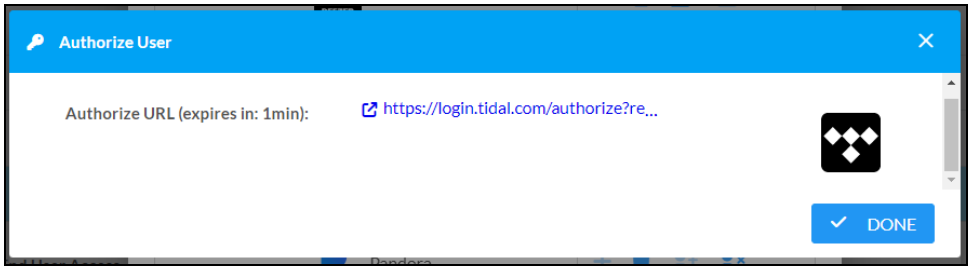
4. Select **DONE** to return to **Streaming Services**.

TIDAL

To authenticate a TIDAL account:

1. Select the add user icon in the **TIDAL** row of the table.
2. Select the link to log in via the TIDAL portal.

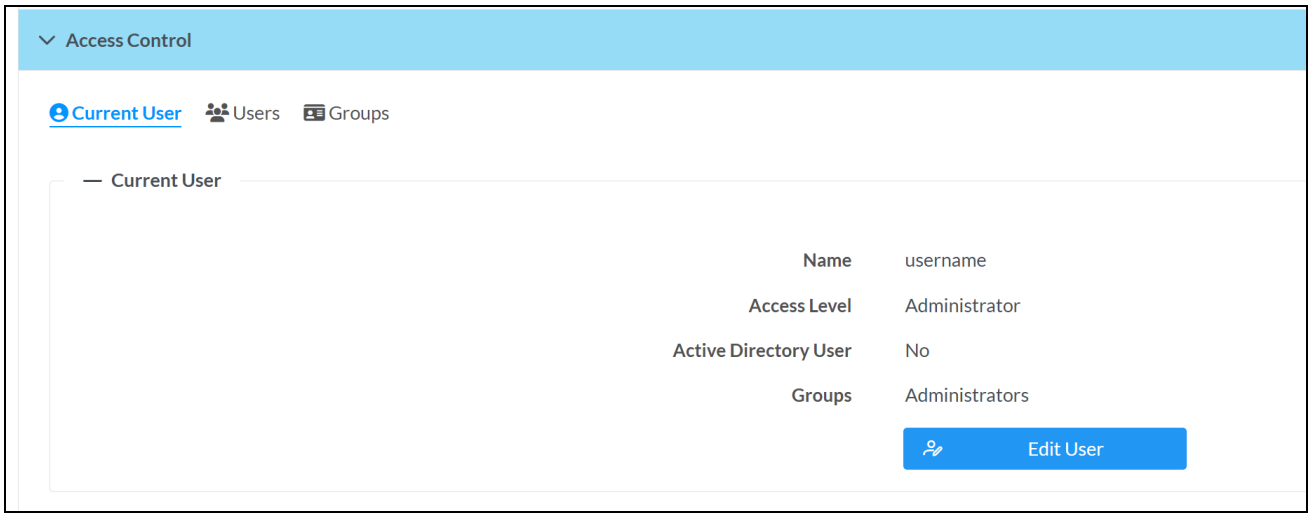
> **NOTES:**
>
> - The link is valid for one minute. After one minute, the link expires and is removed from the **Authorize URL** field. The **Authorize User** dialog will need to be closed and reopened.
> - TIDAL free accounts are not supported on the DM NAX audio-over-IP platform.



3. Select **DONE** to return to **Streaming Services**.

Access Control

Use the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the amplifier's functions.



The **Access Control** accordion is divided into different tabs:

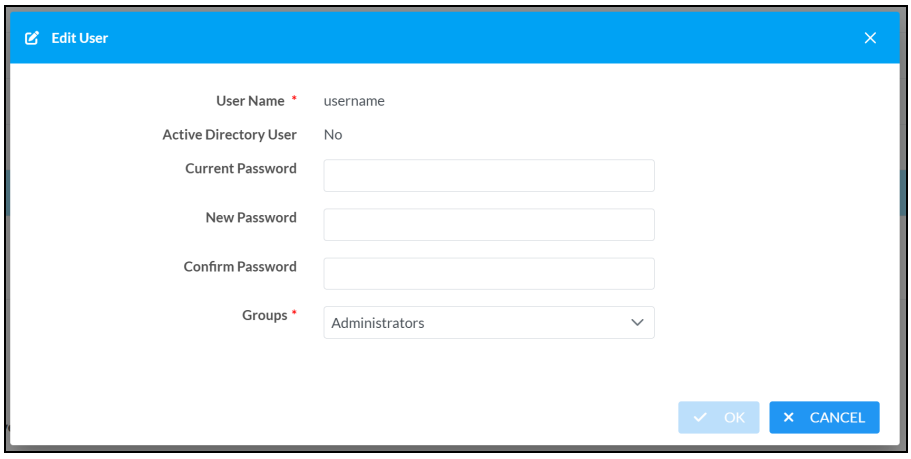
- Current User on page 412
- Users on page 413
- Groups on page 415

Current User

Select the **Current User** tab to view read-only information or to edit the password and access level of the current user.

To edit the current user details:

1. Select **Edit User**. The **Edit User** dialog box is displayed.

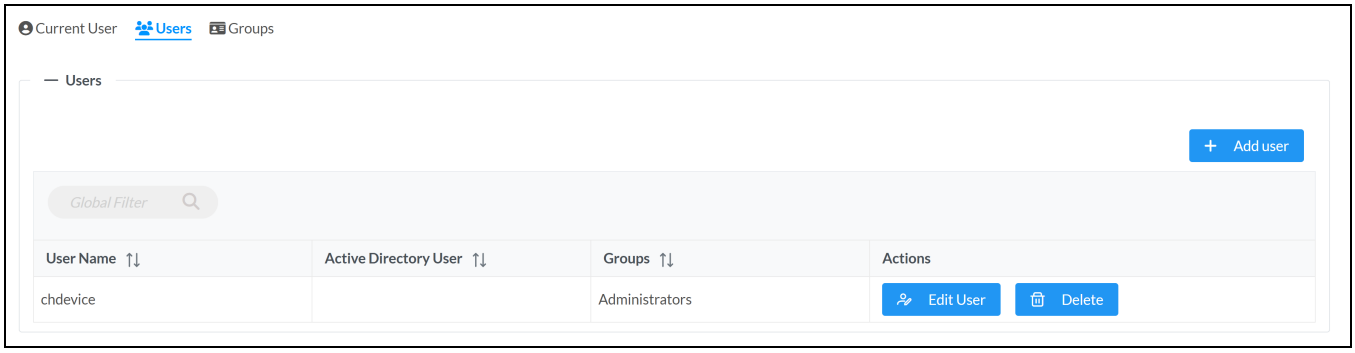


2. Enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.

3. Select an access level from the **Groups** drop-down list.
4. Select **OK** to save the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory® software users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Each page can be set to display **5**, **10**, or **20** users by using the drop-down menu to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username:** Displays the name of the user.
- **Active Directory User:** Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

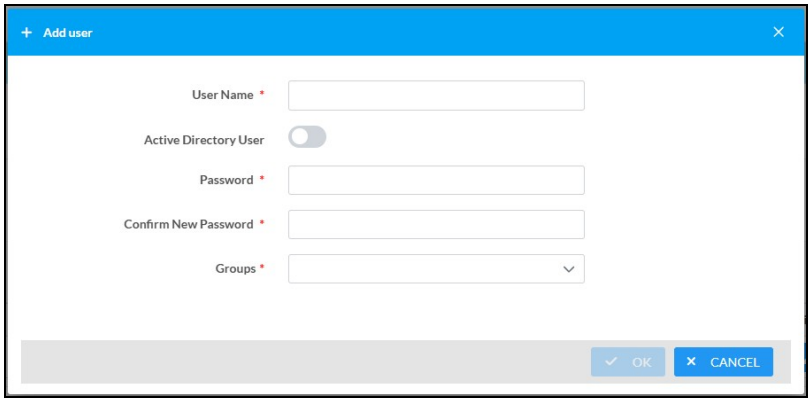
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **+ Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-8ZSA:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed.



2. Enter the following:
   - Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   - Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   - Assign the access level by selecting one or more groups from the **Groups** drop-down list.

   > **NOTE:** Ensure that the **Active Directory User** toggle is disabled.

3. Select **OK** to add the new user.

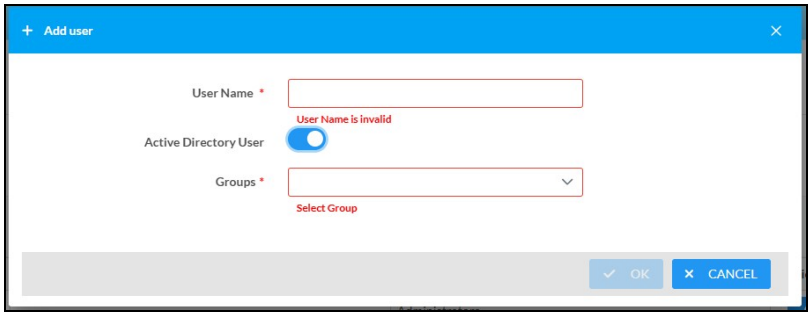
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-8ZSA, or add the Active Directory group(s) that contain the user to the DM-NAX-8ZSA.

To add an Active Directory user:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed.



2. Enter the following:
    - Enter a user name in the **User Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
    - Select one or more groups from the **Groups** drop-down list.

      > **NOTE:** Ensure that the **Active Directory User** toggle is enabled.

3. Select **OK** to add the new user.

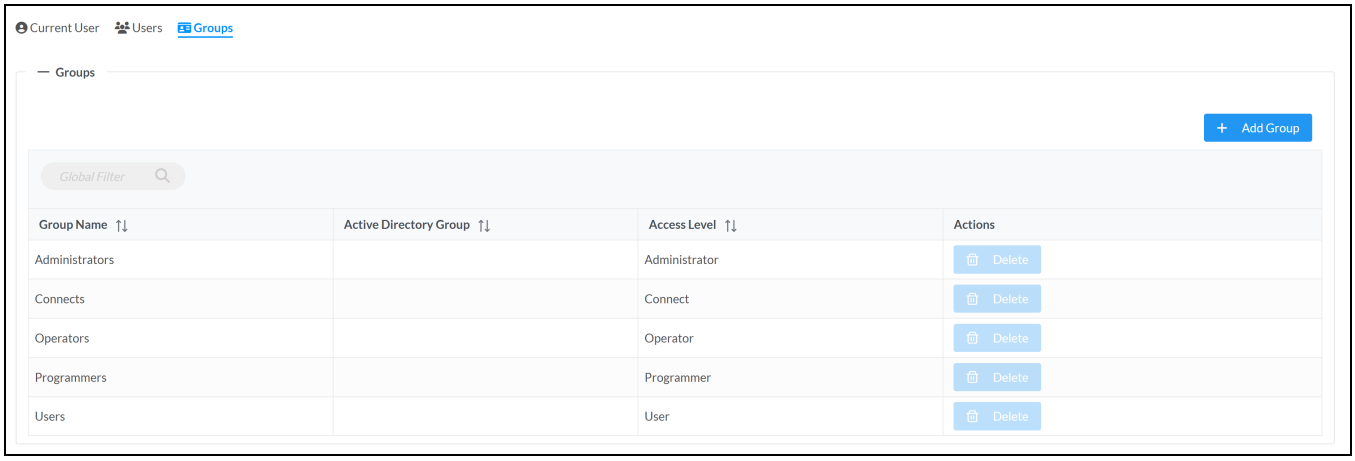
Delete a User

Select the delete icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user.

After a user is removed from a group, they lose any access rights associated with that group. Deleting a user from a group does not delete the user account from the device.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.



Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Additionally, each page can be set to display **5**, **10**, or **20** groups by using the drop-down menu to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **Active Directory Group:** Displays whether the group requires authentication using Active Directory.

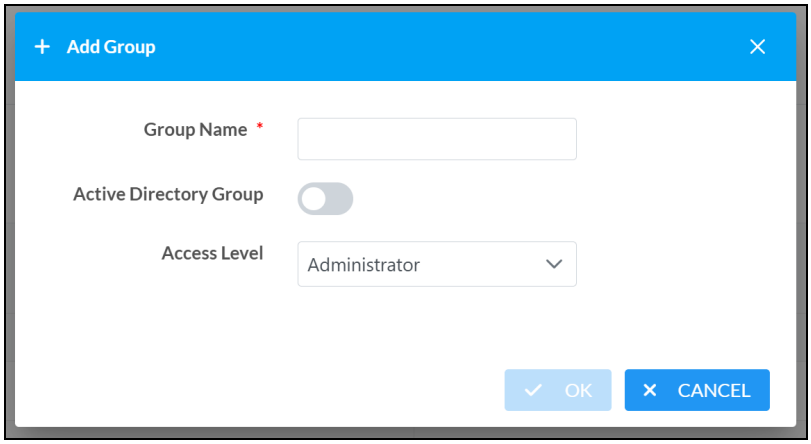
- **Access Level:** Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **+ Add Group** to create a new group.

Create a Local Group

To create a local group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** box is displayed.



2. Enter the following:
   a. Enter the group name in the **Name** field.
   b. Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

   > **NOTE:** Ensure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to add the new group.

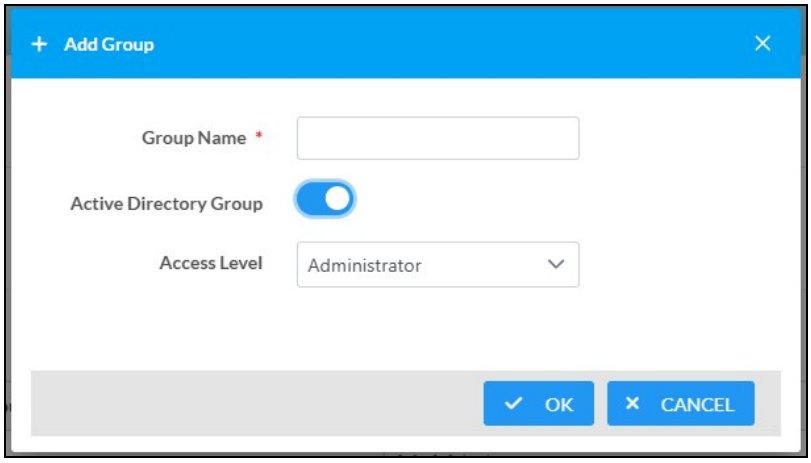
Add an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.

Once the group is added, all members of that group will have access to the DM-NAX-8ZSA.

To add an Active Directory group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** box is displayed.



2. Enter the following:
   a. Enter the group name in the **Name** field (for example "Engineering Group"). Note that group names are case sensitive; a space is a valid character that can be used in group names.
   b. Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

   > **NOTE:** Ensure that the Active Directory Group toggle is enabled.

3. Select **OK** to add the new group.

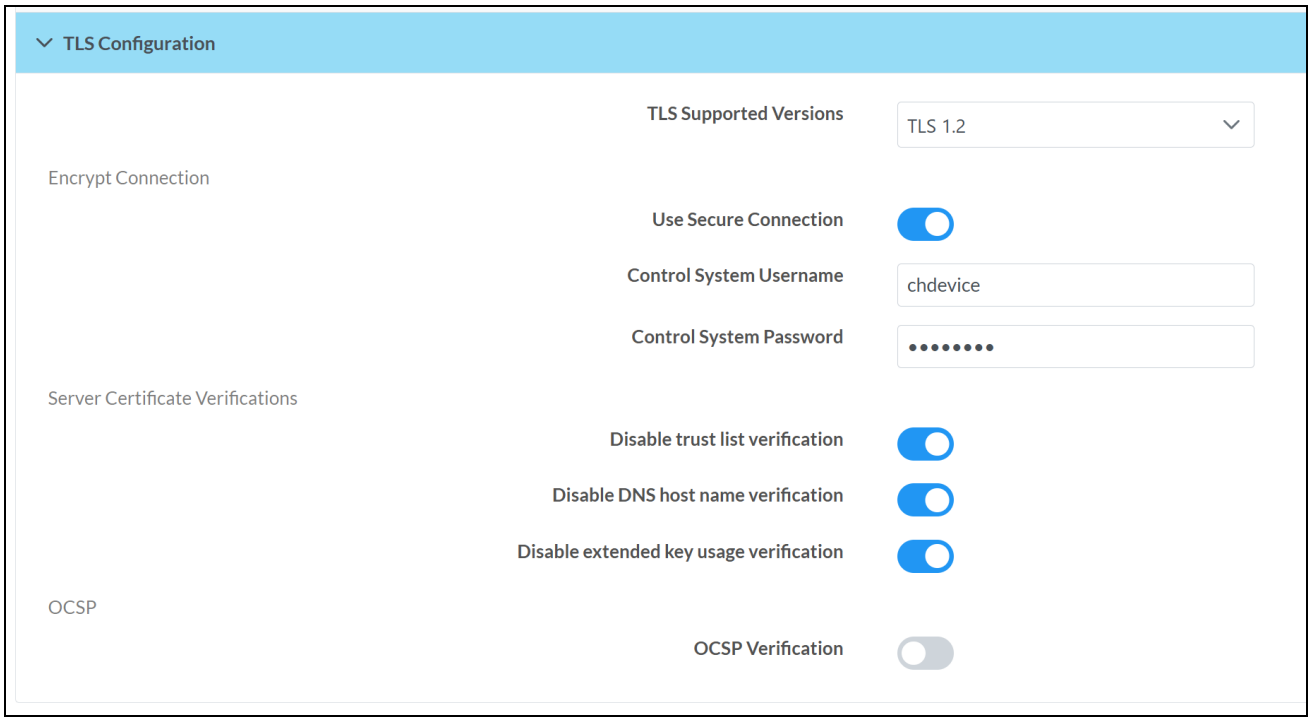
Delete a Group

Select the delete icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Use the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the audio processor.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the **TLS Supported Versions** drop-down list from among **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the processor and a Crestron control system. Set the toggle to the left to keep this connection unencrypted.
    - With this setting enabled, enter the **Control System Username** and **Control System Password** in their respective fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.

Select **Save Changes** to save the new settings.

DM-NAX-16AIN

This section describes how to configure DM-NAX-16AIN.

Web Interface Configuration

The DM-NAX-16AIN web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 420
- Access the Web Interface With Crestron Toolbox™ Software on page 422

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

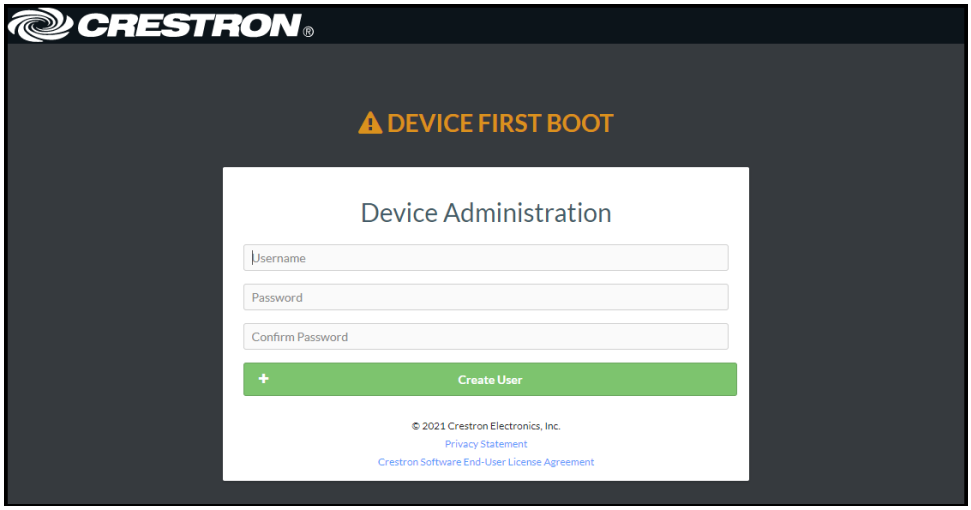
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

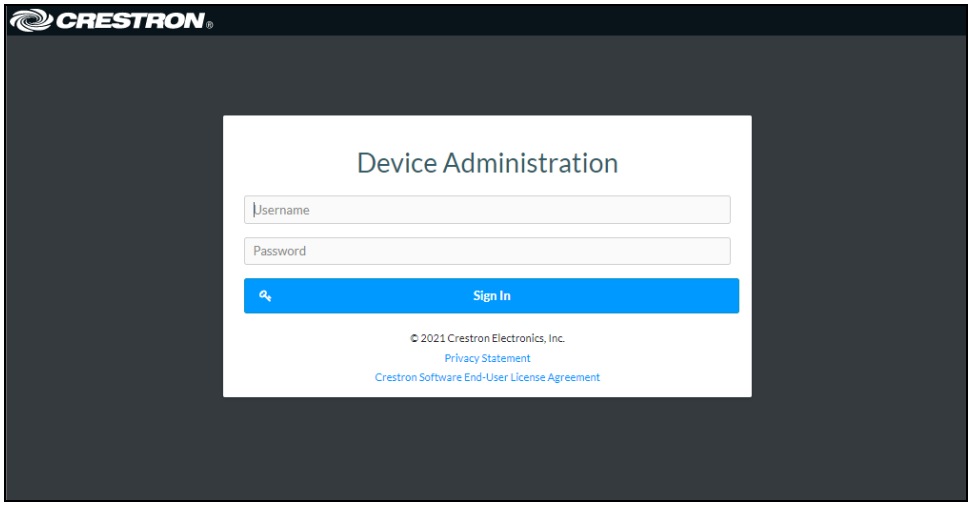
1. Enter the IP address of the DM-NAX-16AIN into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser from Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-16AIN is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

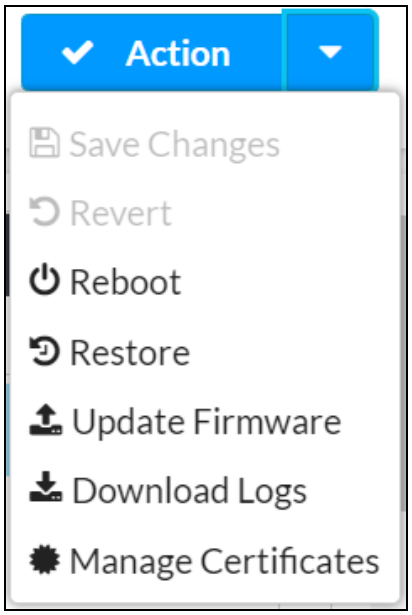
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 423
- Revert on page 423
- Reboot on page 424
- Restore to Factory Default Settings on page 424
- Update Firmware on page 425
- Download Logs on page 425
- Manage Certificates on page 425



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

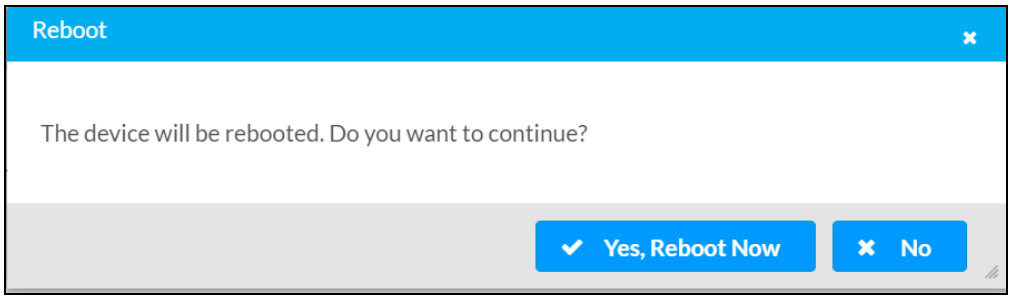
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-16AIN to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



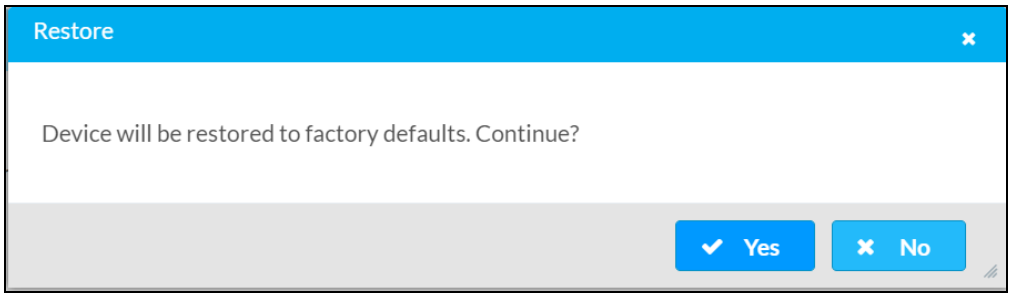
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-16AIN to factory defaults.

   NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



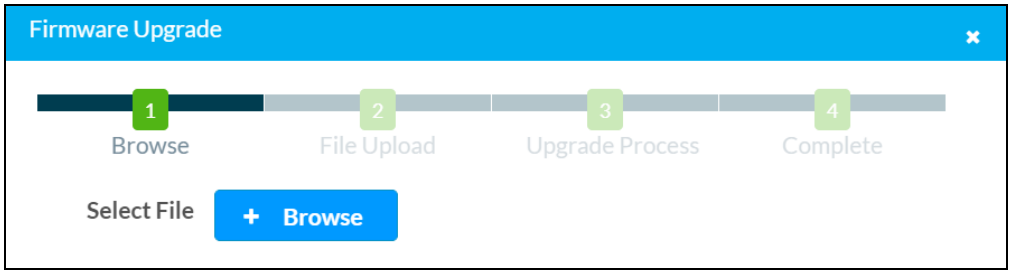
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-16AIN to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, and then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

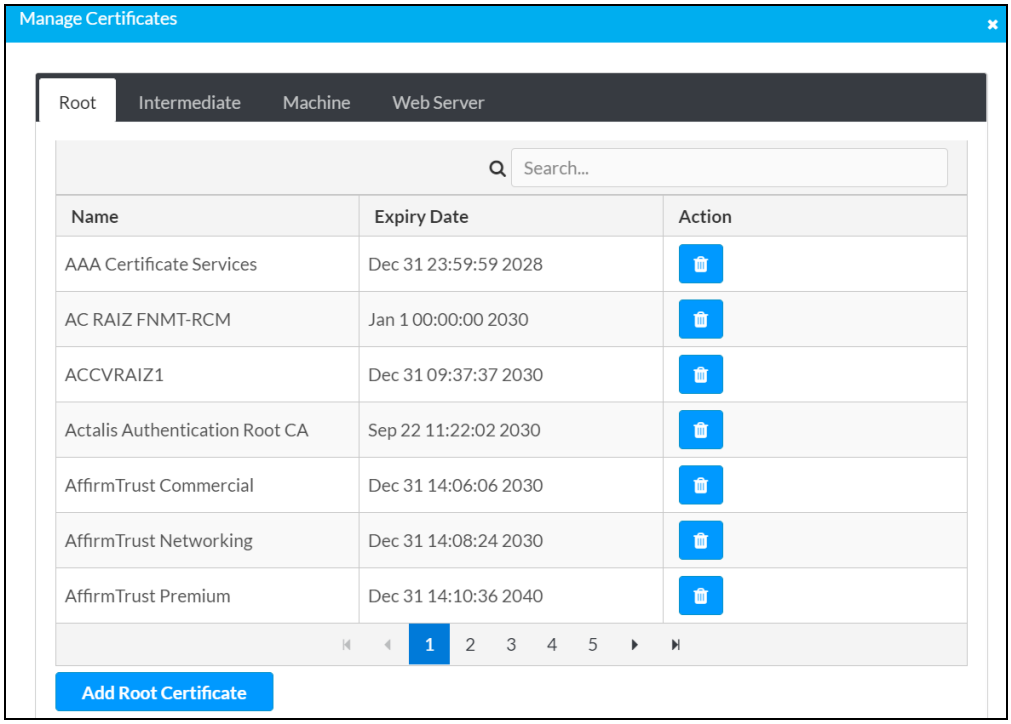
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-16AIN to validate the network's authentication server. The DM-NAX-16AIN has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-16AIN. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, and then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date.

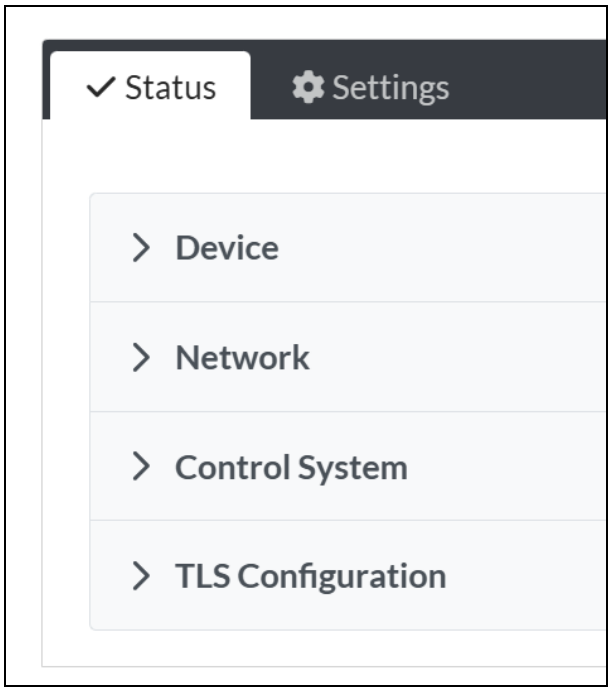
   The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Status

When the DM-NAX-16AIN web interface is opened, the **Status** page is displayed by default. It provides information about the DM-NAX-16AIN configuration and can be accessed at any time by selecting the **Status** tab of the DM-NAX-16AIN web interface.

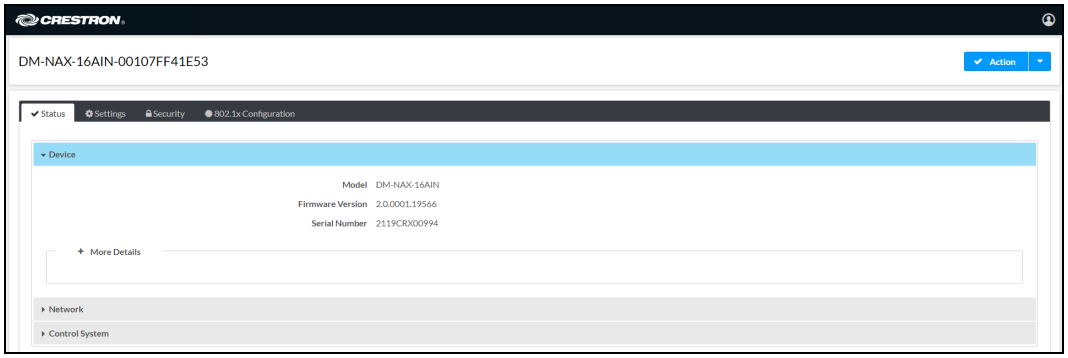


Information displayed on the **Status** page is organized into different collapsible accordions:

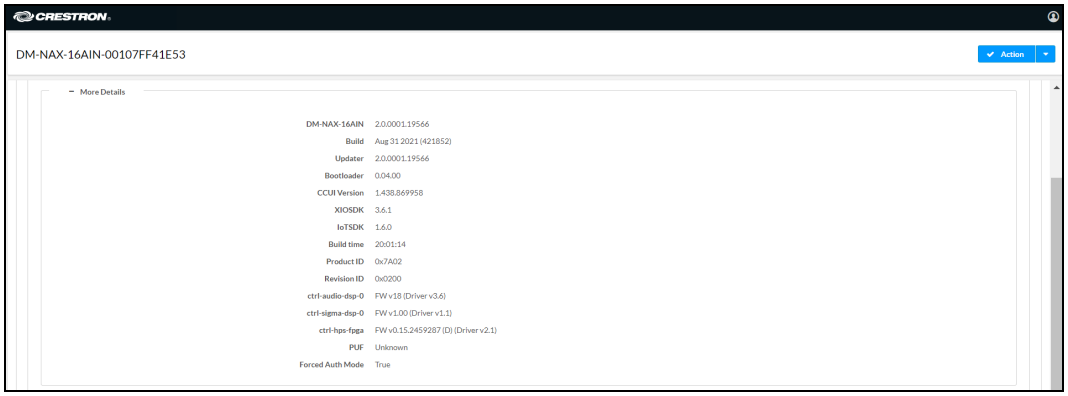
- Device on page 427
- Network on page 428
- Control System on page 428
- TLS Configuration on page 429

Device

The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-16AIN.

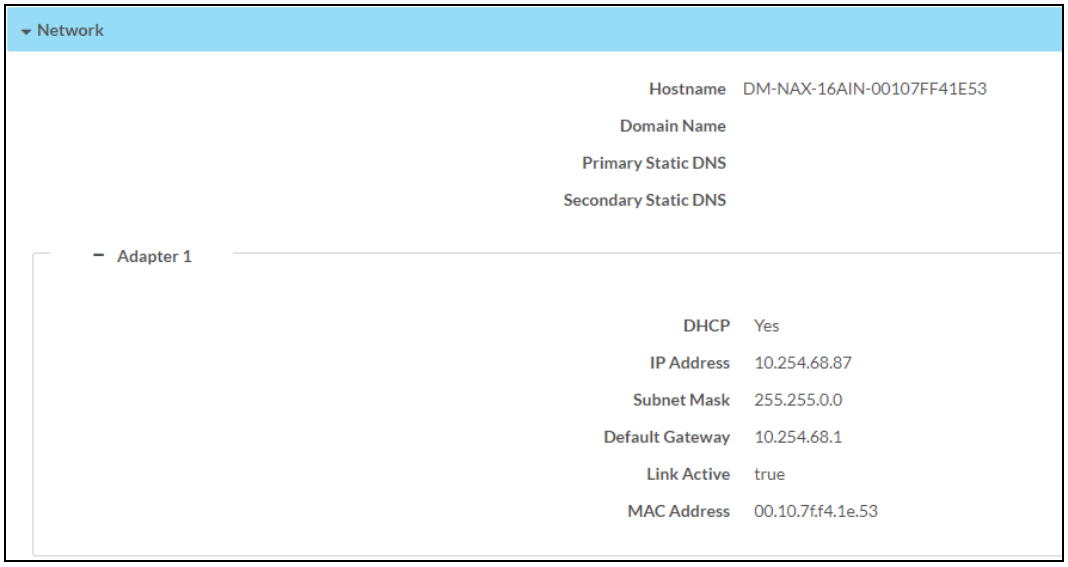


Select **+ More Details** to review additional information about the DM-NAX-16AIN.



Network

The **Network** accordion displays network-related information about the DM-NAX-16AIN, including the **Hostname**, **Domain Name**, and **DNS Servers**.



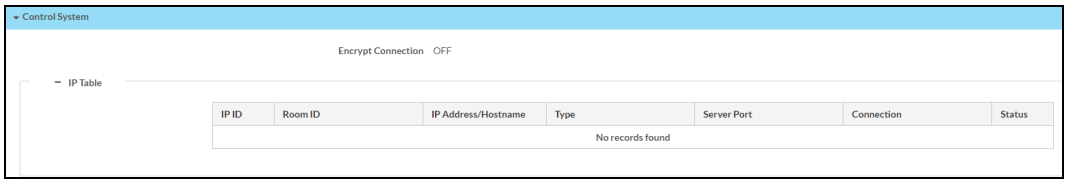
> **NOTE:** By default, the host name of the DM-NAX-16AIN consists of the model name followed by the MAC address of the device. For example: DM-NAX-16AIN-00107FF41E53.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** to collapse the section.

> **NOTE:** The **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-16AIN are set to isolate traffic using the **Port Selection** feature. Refer to Settings on page 430 for details on configuring the **Port Selection** feature.

Control System

The **Control System** accordion displays information for connections to Crestron control systems.

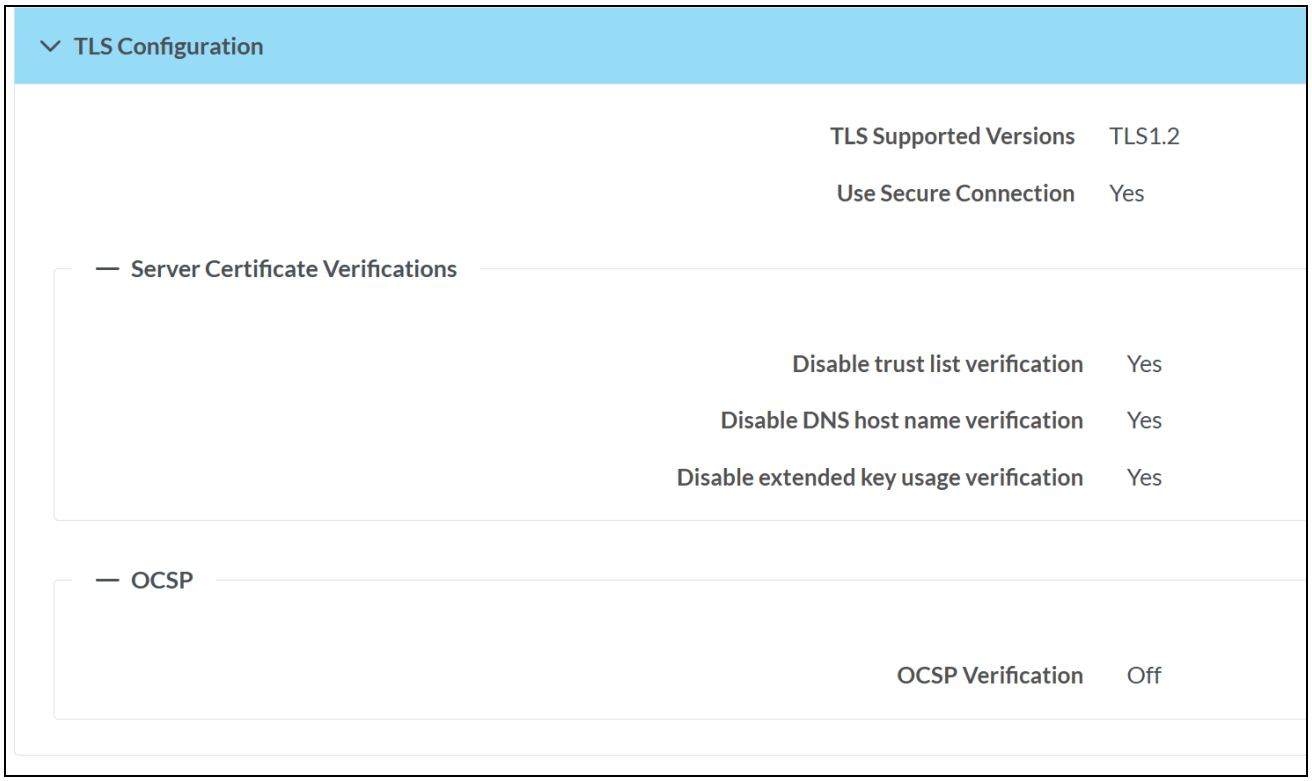


The following information is provided:

- **Encrypt Connection**: Displays **ON** or **OFF** depending on whether the control system connection is encrypted or not.
- **IP ID**: Displays the current IP ID of the DM-NAX-16AIN.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE** to indicate the control system connection status.

TLS Configuration

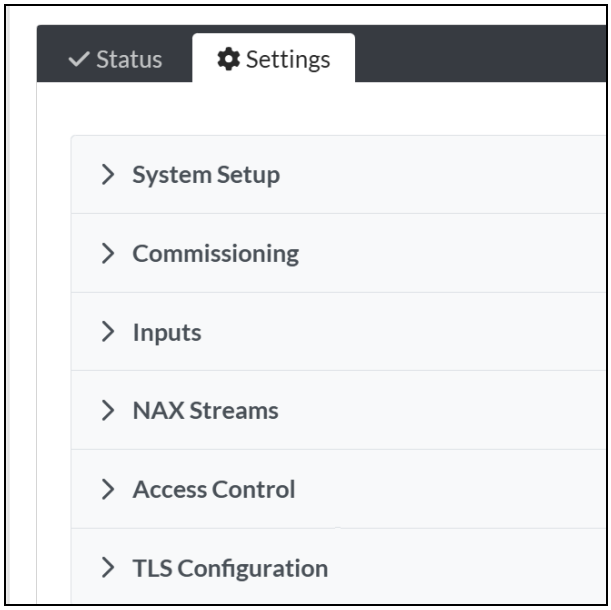
The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-16AIN.



TLS settings can be adjusted in the **Settings** tab under the **TLS Configuration** accordion. Refer to TLS Configuration on page 448 for information.

Settings

The **Settings** page provides controls for configuring various DM-NAX-16AIN settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-16AIN web interface.



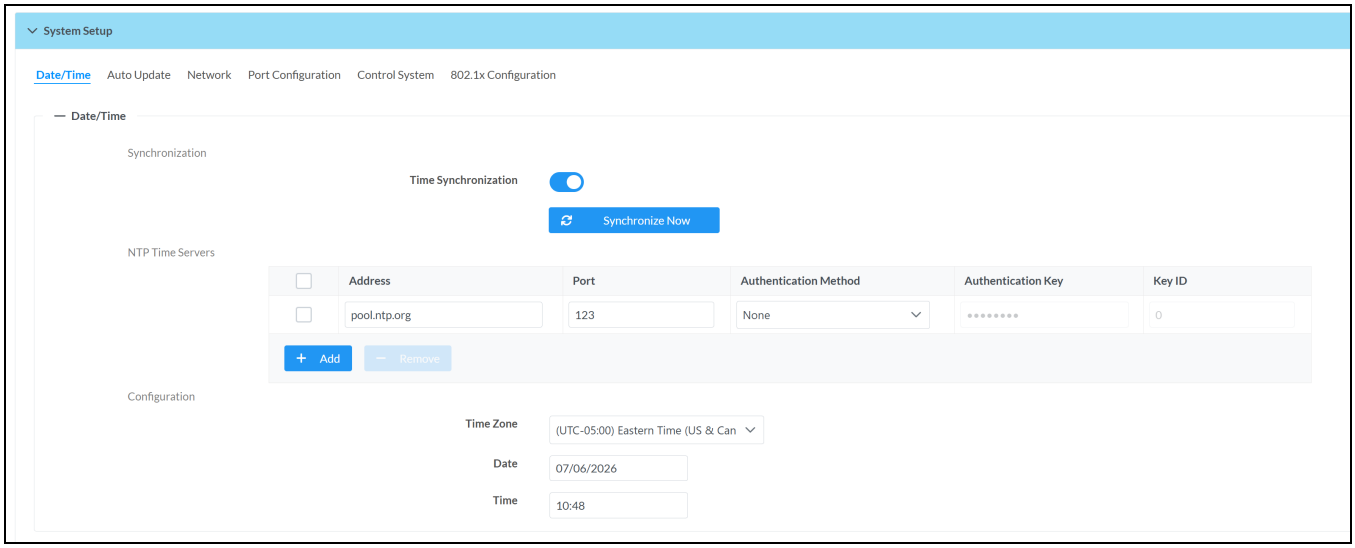
The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 431
- Commissioning on page 438
- Inputs on page 439
- DM NAX Streams on page 440
- Access Control on page 442
- TLS Configuration on page 448

System Setup

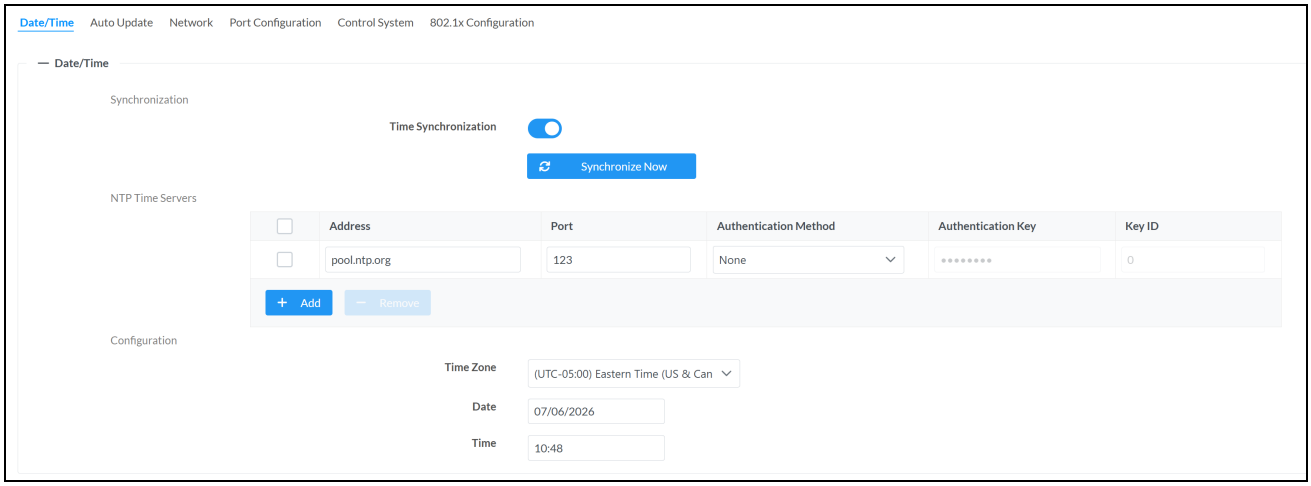
The **System Setup** accordion contains settings to configure the following system functions:

- Date/Time on page 431
- Auto Update on page 432
- Network on page 434
- Port Configuration on page 435
- Control System on page 436
- 802.1x Configuration on page 437



Date/Time

Select the **Date/Time** tab to configure the date and time settings of the DM-NAX-16AIN.



Configure the available settings:

- Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
- In the **NTP Time Servers** table, enter the **Address** (URL) and **Port** of an NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server.

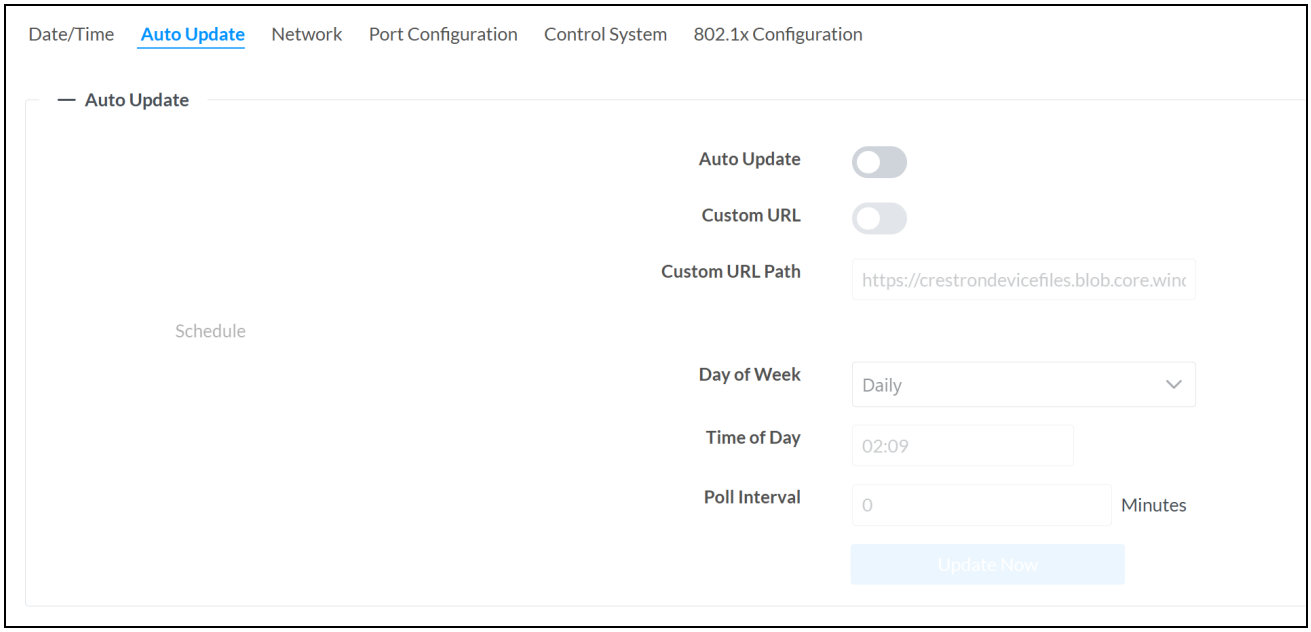
  If an **Authentication Method** other than **None** is selected (either **MD5**, **SHA1**, or **SHA256**), enter an **Authentication Key** and **Key ID** provided by the network administrator.

  > **NOTE:** Up to three time servers can be added on a device.

- Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.
- Select the correct time zone from the **Time Zone** drop-down list.
- Enter the current date in the **Date** field.
- Enter the current time in the **Time** field (in 24-hour format).

Auto Update

The DM-NAX-16AIN can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



To configure the **Auto Update** feature:

1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the update server URL by doing either of the following:
   - Set the **Custom URL** toggle to the left to use the default URL to download the updates from the Crestron server.

- Use a custom URL:
    a. Set the **Custom URL** toggle to the right position.
    b. Enter the path to a custom manifest file in the **Custom URL Path** text box (in FTP or SFTP URL format).
    c. Use the Crestron Auto Update Tool within Crestron Toolbox software to generate a custom manifest file.
    d. Store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server at the address specified in step b.

3. Set a schedule for the automatic firmware update by doing either of the following:
    - Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    - Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the **Poll Interval**.
4. Select **Save Changes**.

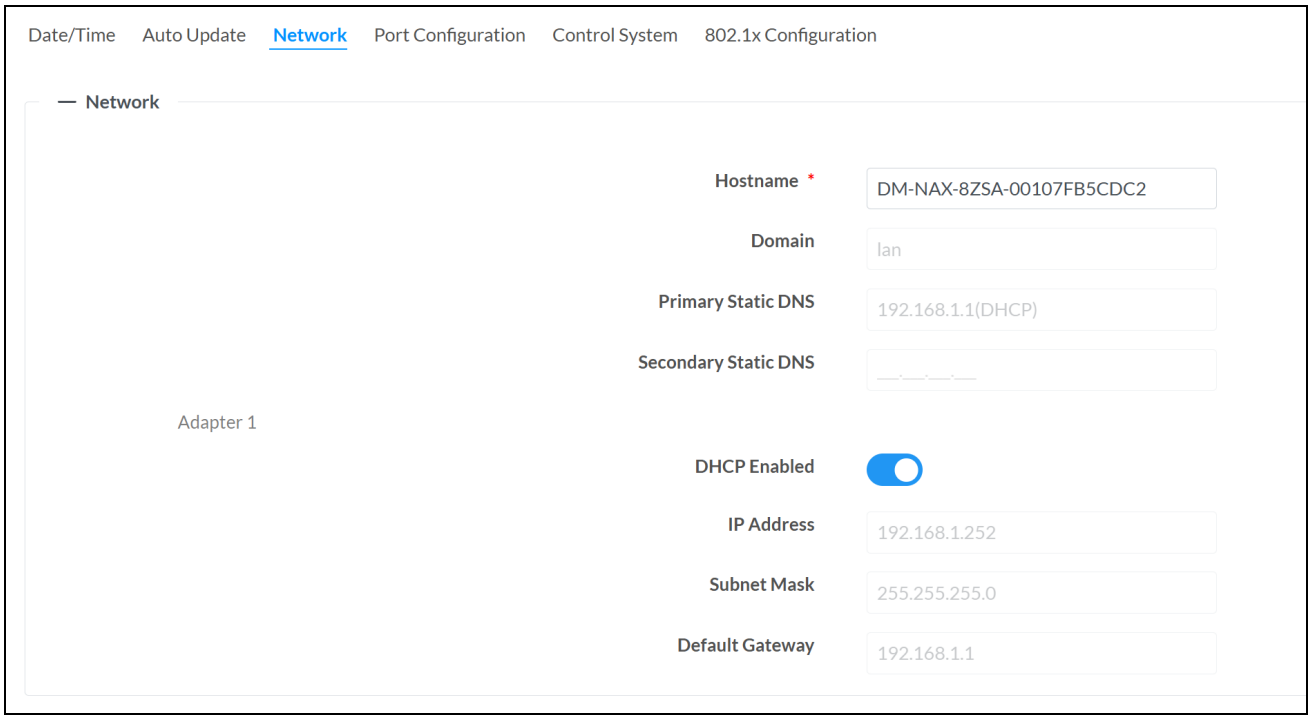
Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-16AIN, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

NOTES:

- Most settings in this section are automatically assigned by a DHCP server. The DHCP toggle for all adapters must be set to the left position in order to manually configure the **Domain** and **DNS** settings.
- DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX device Ethernet ports to prevent conflicts.



Configure the available network settings:

- Enter a hostname for the device in the **Hostname** field.

  NOTE: By default, the hostname of the DM-NAX-16AIN consists of the model name followed by the MAC address of the device. For example: DM-NAX-16AIN-00107FF41E53.

- Enter a network domain in the **Domain** field.
- Enter a primary DNS IP address in the **Primary Static DNS** field.
- Enter a secondary DNS IP address in the **Secondary Static DNS** field.

Adapter 1

The **Adapter 1** section contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-16AIN is assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-16AIN is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **IP Address**: Enter a unique IP address for the DM-NAX-16AIN.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

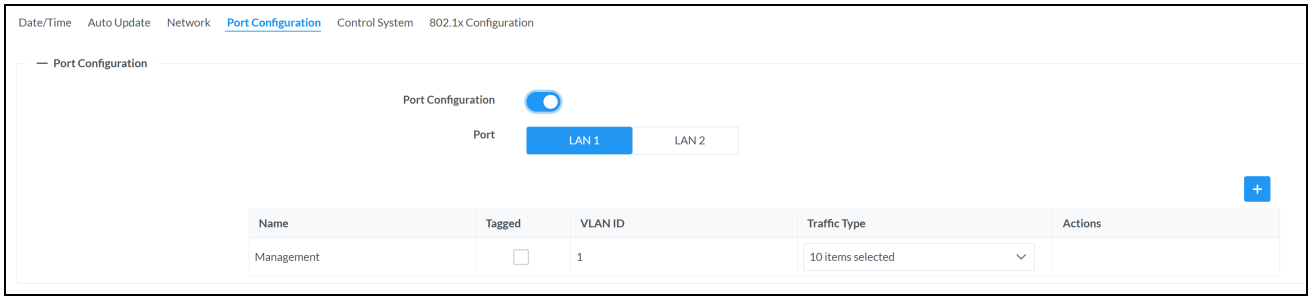
> **NOTE:** An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-16AIN are set to isolate traffic using the **Port Configuration** feature (see Port Configuration on page 435). The settings for **Adapter 2** are identical to those available for **Adapter 1**.

Port Configuration

Use the **Port Configuration** tab to isolate and VLAN tag certain types of network traffic to each of the discrete LAN ports on the DM-NAX-16AIN.

Set the **Port Configuration** toggle to the right position to enable this feature and display the rest of the settings. Set the toggle to the left to disable the feature and share all network traffic between both LAN ports. This feature is disabled by default.

When **Port Configuration** is enabled, up to ten unique network interfaces can be created to handle and tag traffic across the two physical LAN ports on the DM-NAX-16AIN. A generic **Management** interface is automatically created on **LAN 1** and cannot be deleted.



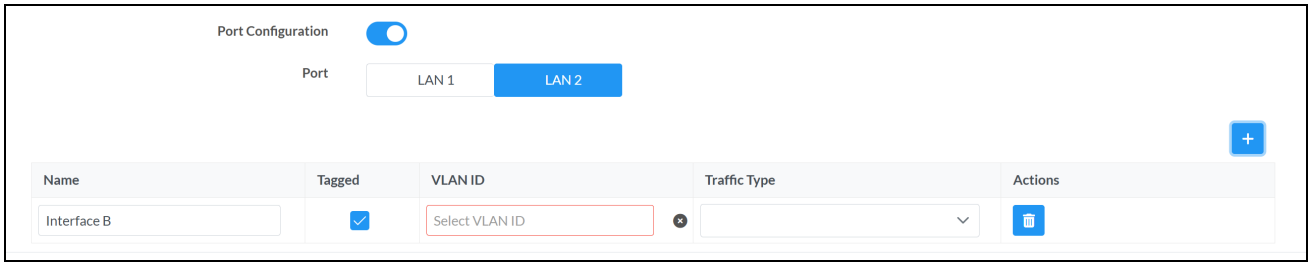
Select **LAN 1** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 1** on the DM-NAX-16AIN:

- Use the **Traffic Type** drop-down list to select which traffic types will pass on the **Management** interface. By default, all traffic types are selected for the **Management** interface. Any selected types will be able to pass on LAN 1. Any unselected types will be dropped by the internal network switch.
- To add another interface to **LAN 1**, select **+** at the top-right of the table. Another row is added to the table.

- In each new row, configure the following:
  - Enter a name for the interface in the **Name** field.
  - Select the **Tagged** checkbox to VLAN tag the traffic associated with the interface.
  - Enter a unique **VLAN ID**.
  - Select one or more **Traffic Type** options from the drop-down list.
  - Select the delete icon to delete the interface.

Select **LAN 2** in the **Port** field to manage the traffic that will pass to network interfaces via the physical port labeled **LAN 2**.

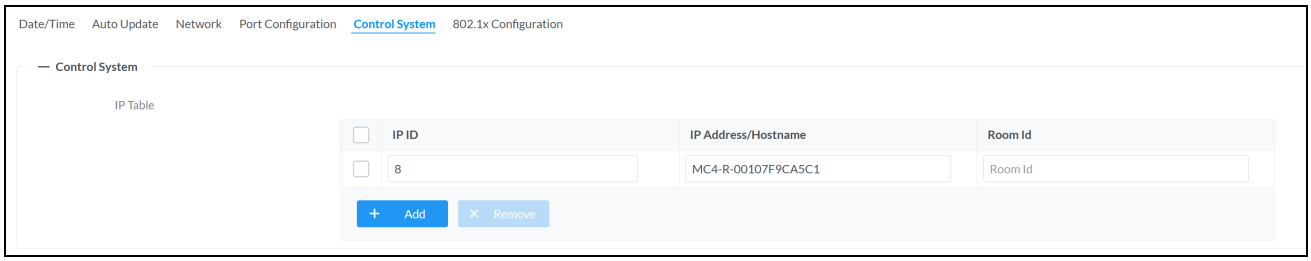
LAN 2 does not have any interfaces added by default. To add another interface to **LAN 2**, select the **+** icon at the top-right of the table. Another row will be added to the table. Interface configuration for **LAN 2** is the same as for **LAN 1**.



When the ports are configured as desired, select **Save Changes**. A restart confirmation window is displayed. Select **Yes, reboot now** to save the changes and restart the device or select **No** to cancel the restart.

Control System

Select the **Control System** tab to configure the connection from the DM-NAX-16AIN to a control system.



Select **+ Add** to add a new row to the IP table. Up to 16 IP table entries can be added to the DM-NAX-16AIN.

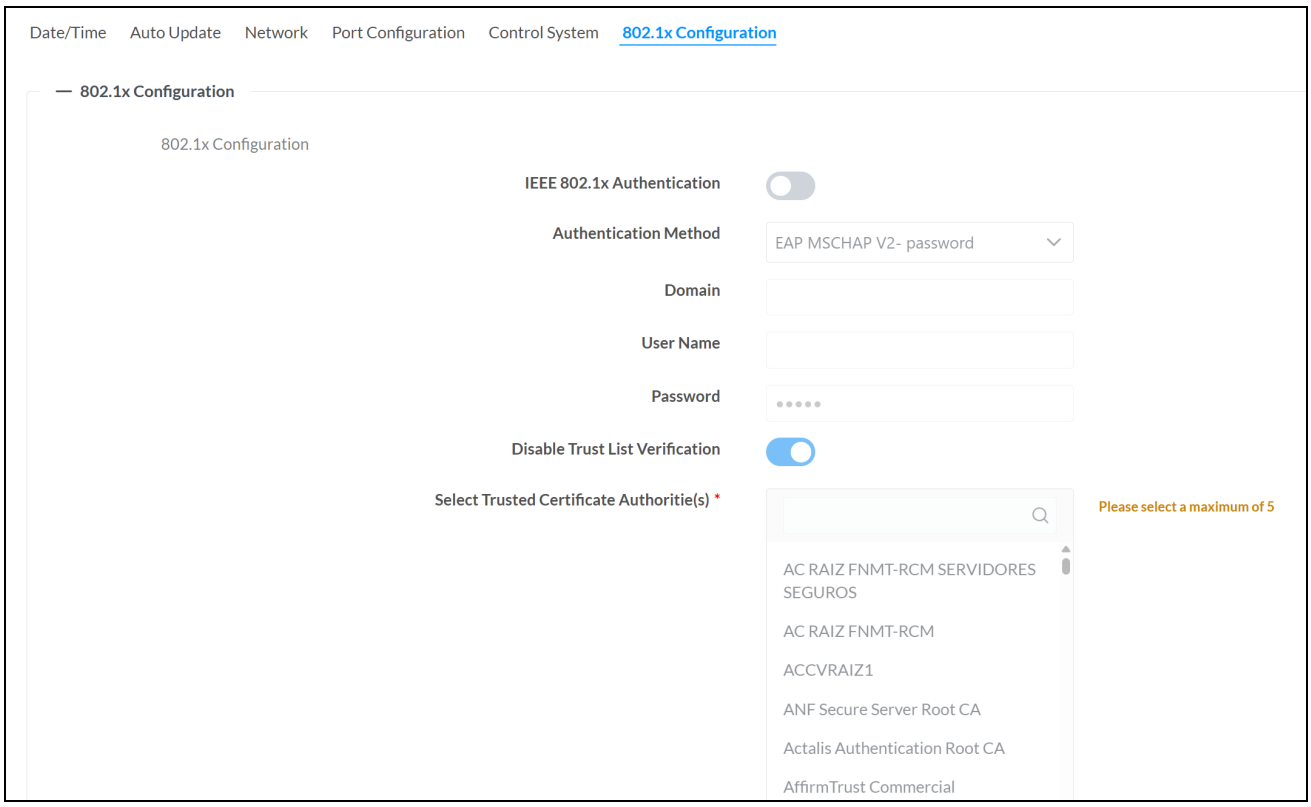
In each row, configure the following:

- Enter the IP ID of the DM-NAX-16AIN in the **IP ID** field.
- Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
- Enter the Room ID in the **Room ID** field.

To remove an IP table entry, select the checkbox to the left of an entry's table row, and then select **X Remove**.

802.1x Configuration

The DM-NAX-16AIN has built-in support for the 802.1x standard, allowing communication with the authentication server and access to protected corporate networks.



To configure 802.1x authentication on the amplifier:

1. Set the **IEEE 802.1x Authentication** toggle to the right to enable 802.1x. This will enable all remaining options in the **802.1x Configuration** tab.
2. Select an option from the **Authentication Method** drop-down, either **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate; it only requires credentials.

4. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

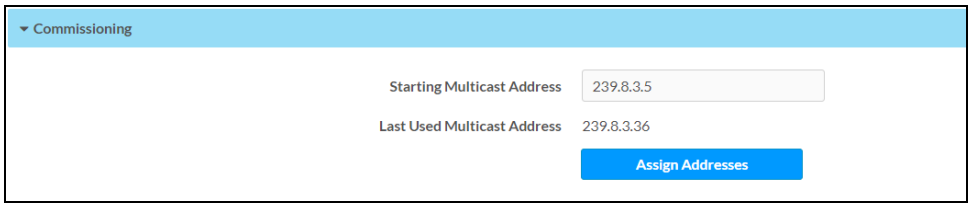
   The **Select Trusted Certificate Authoritie(s)** list contains signed trusted Certificate Authorities (CAs) preloaded into the audio processor. Select the check box next to each CA whose certificate can be used for server validation as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.

Once the 802.1x settings are configured as desired, select **Save Changes** to save the changes to the device and restart it.

Commissioning

Use the **Commissioning** accordion to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.



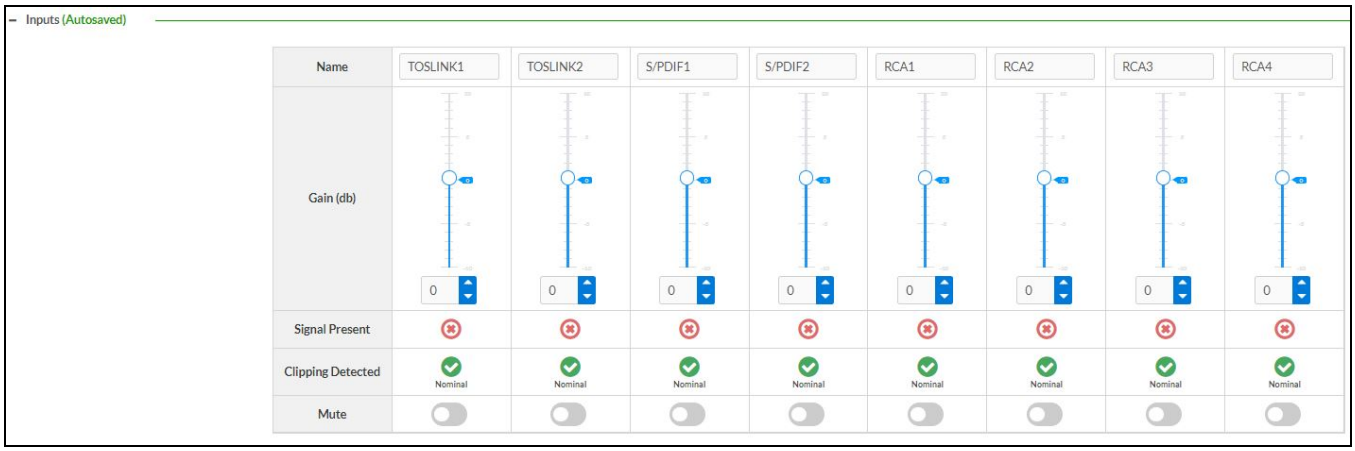
Specify the first multicast address for the device to assign in the **Starting Multicast Address** field. The **Last Used Multicast Address** field displays the final address in the range that the amplifier will assign.

Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-16AIN a unique multicast address in the specified range. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.239.

> **NOTE:** Selecting **Assign Addresses** will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Inputs

Use the **Inputs** accordion to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-16AIN.



Configure the available settings for each input:

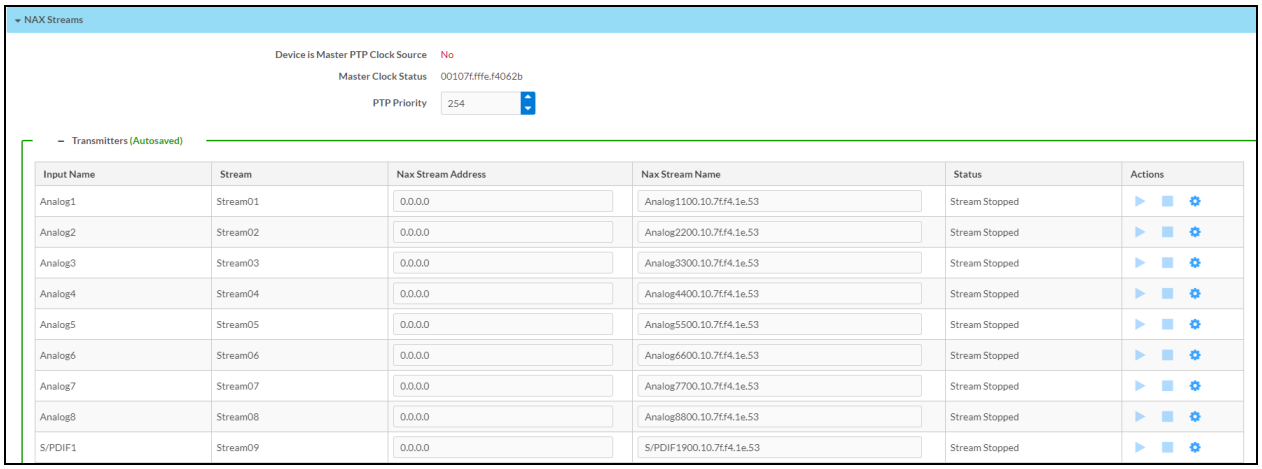
- Enter a friendly name in the **Name** field.
- Set a level compensation adjustment by doing one of the following:
    - Move the **Gain (db)** slider up to increase or down to decrease the compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel. Compensation is not available for any of the internal media players.
    - Use the up and down arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
- Select **Mute** to mute the input. Select **Muted** to unmute the input. The inputs are unmuted by default.

Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected on that input.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

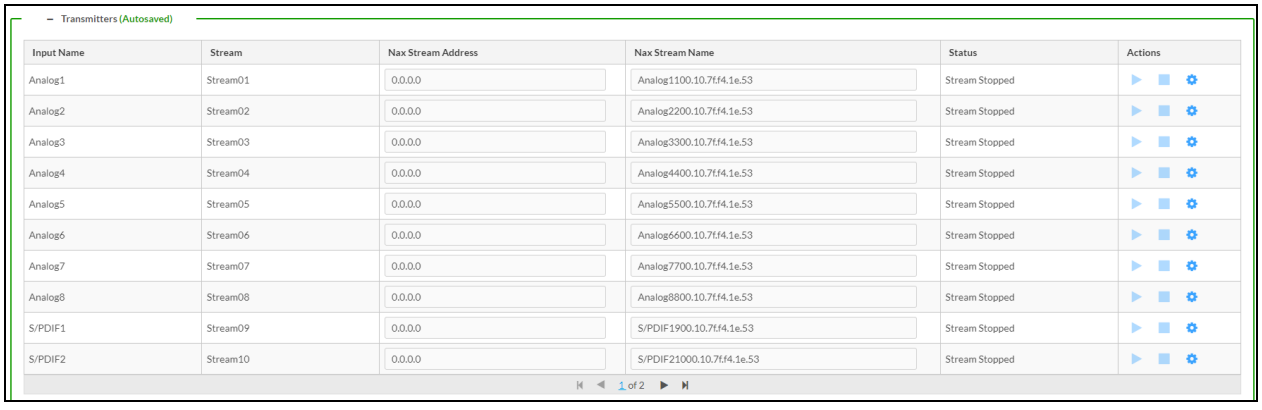
Each local input of the DM-NAX-16AIN can be made available as a DM NAX audio-over-IP stream.



Select **NAX Streams** to expand the accordion and display the following information:

- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-16AIN clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-16AIN will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

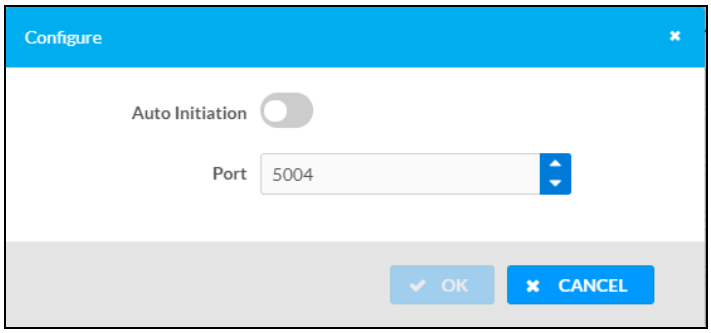
Configure Transmitters



NOTE: To configure transmitters not shown on the current page of the table, select the right arrow ▶ to display the next page of eight transmitters.

To configure a DM NAX transmit stream:

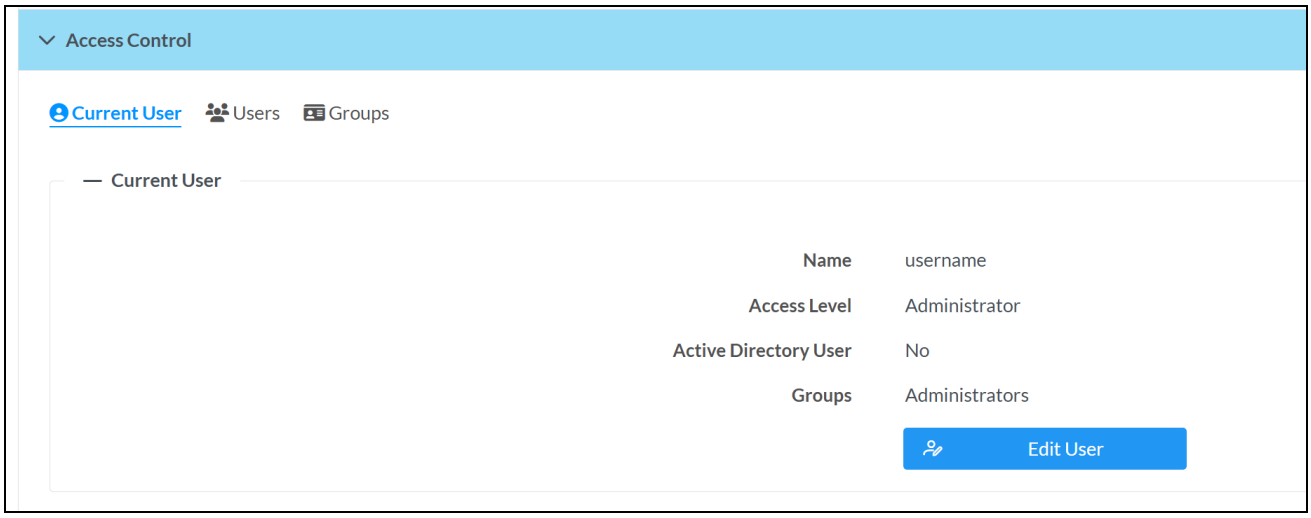
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices (similar to a device hostname resolving to an IP address).
3. Select the gear icon in the **Actions** column. The **Configure** dialog is displayed:



4. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
5. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
6. Select **OK** to save the changes.

Access Control

Use the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the amplifier's functions.



The **Access Control** accordion is divided into different tabs:

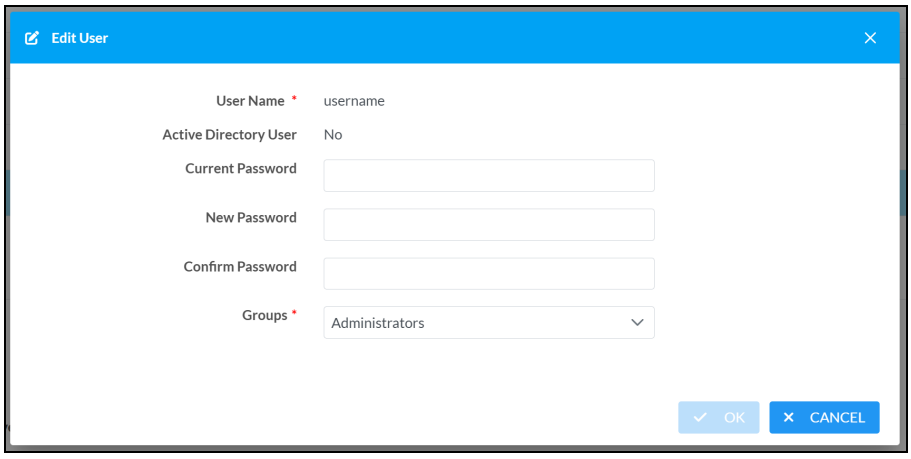
- Current User on page 442
- Users on page 443
- Groups on page 445

Current User

Select the **Current User** tab to view read-only information or to edit the password and access level of the current user.

To edit the current user details:

1. Select **Edit User**. The **Edit User** dialog box is displayed.

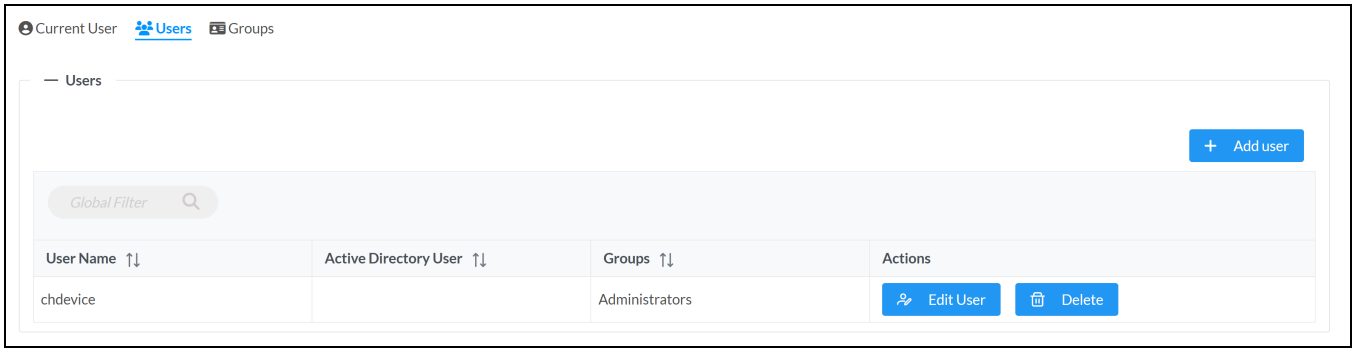


2. Enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.

3. Select an access level from the **Groups** drop-down list.
4. Select **OK** to save the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory® software users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Each page can be set to display **5**, **10**, or **20** users by using the drop-down menu to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username:** Displays the name of the user.
- **Active Directory User:** Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

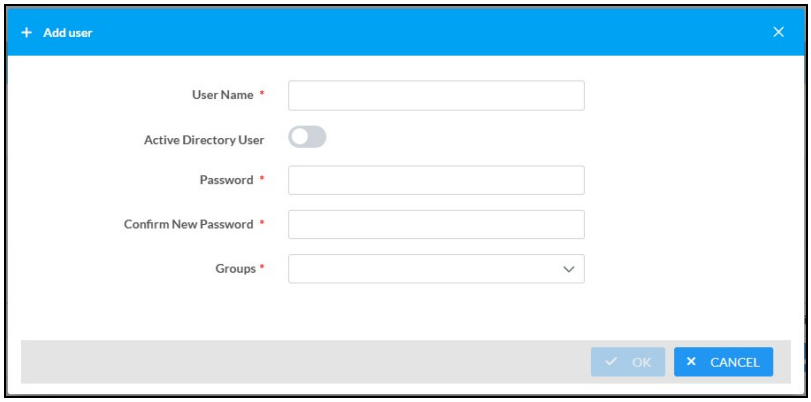
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **+ Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-16AIN:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed.



2. Enter the following:
   - Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   - Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   - Assign the access level by selecting one or more groups from the **Groups** drop-down list.

   > **NOTE:** Ensure that the **Active Directory User** toggle is disabled.

3. Select **OK** to add the new user.

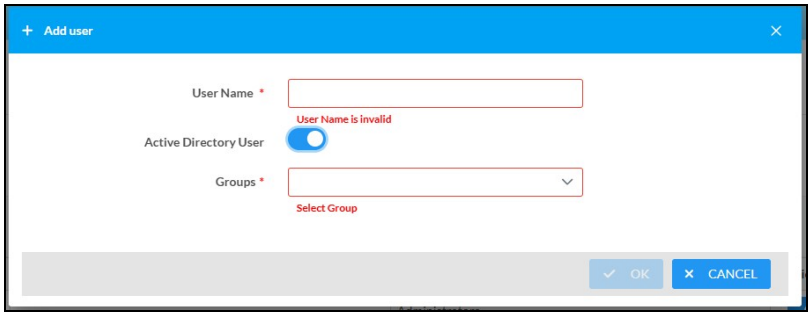
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-16AIN, or add the Active Directory group(s) that contain the user to the DM-NAX-16AIN.

To add an Active Directory user:

1. Select **+ Add user** in the **Users** tab. The **Add user** dialog box is displayed.



2. Enter the following:
    - Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
    - Select one or more groups from the **Groups** drop-down list.

      > **NOTE:** Ensure that the **Active Directory User** toggle is enabled.

3. Select **OK** to add the new user.

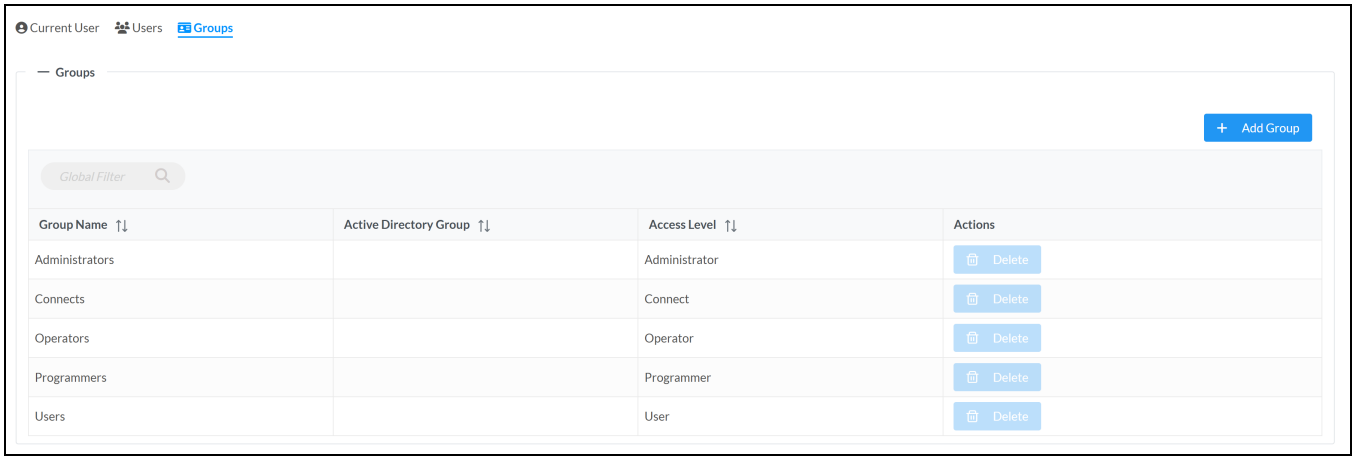
Delete a User

Select the delete icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user.

After a user is removed from a group, they lose any access rights associated with that group. Deleting a user from a group does not delete the user account from the device.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.



Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the table to move forward or backward through the pages.

Additionally, each page can be set to display **5**, **10**, or **20** groups by using the drop-down menu to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **Active Directory Group:** Displays whether the group requires authentication using Active Directory.

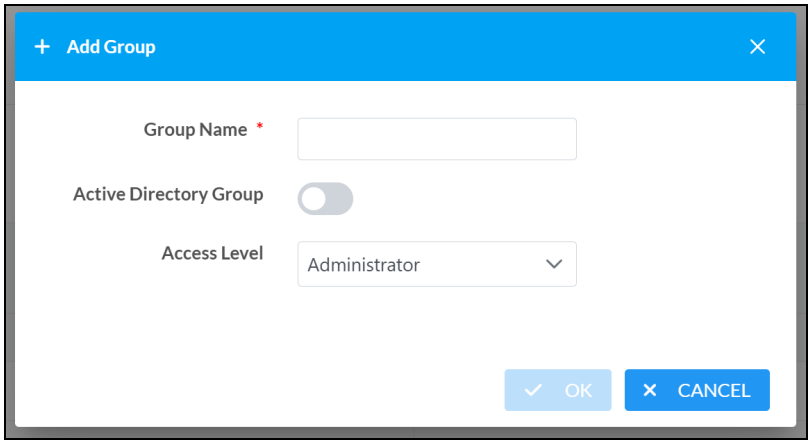
- **Access Level:** Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **+ Add Group** to create a new group.

Create a Local Group

To create a local group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** dialog box is displayed.



2. Enter the following:
   - Enter the group name in the **Name** field.
   - Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

     > **NOTE:** Ensure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to add the new group.

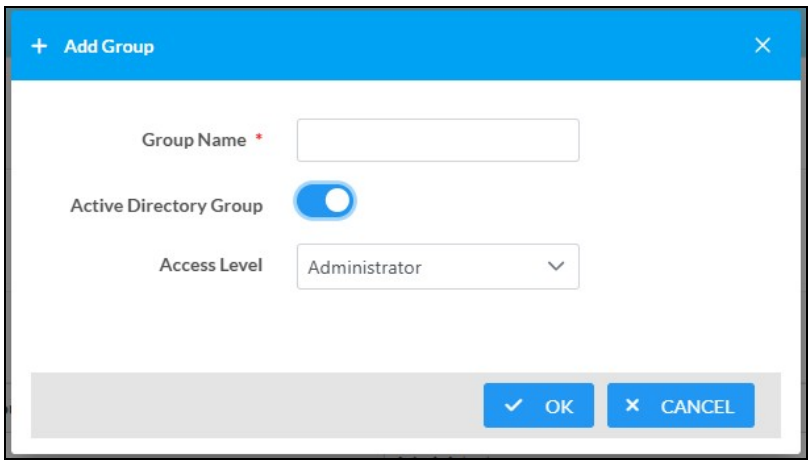
Add an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.

Once the group is added, all members of that group will have access to the DM-NAX-16AIN.

To add an Active Directory group:

1. Select **+ Add Group** in the **Groups** tab. The **Add Group** dialog box is displayed.



2. Enter the following:
   - Enter the group name in the **Name** field (for example "Engineering Group"). Note that group names are case sensitive; a space is a valid character that can be used in group names.
   - Assign the group access level by selecting a predefined access level (**Administrator**, **Connect**, **Operator**, **Programmer**, or **User**) from the **Access Level** drop-down list.

     > **NOTE:** Ensure that the Active Directory Group toggle is enabled.

3. Select **OK** to add the new group.

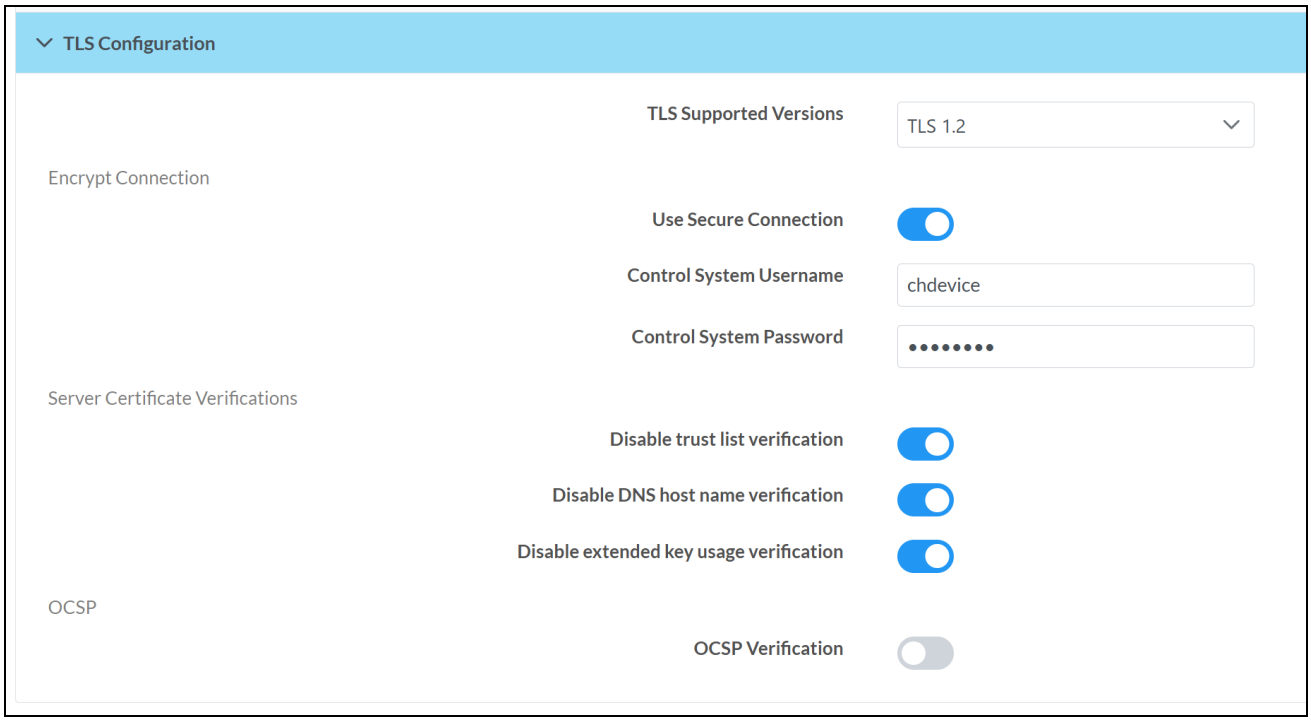
Delete a Group

Select the delete icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Use the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the audio processor.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the **TLS Supported Versions** drop-down list from among **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the processor and a Crestron control system. Set the toggle to the left to keep this connection unencrypted.
    - With this setting enabled, enter the **Control System Username** and **Control System Password** in their respective fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.

Select **Save Changes** to save the new settings.

DM-NAX-AMP-X300

This section describes how to configure the DM-NAX-AMP-X300.

Web Interface Configuration

The DM-NAX-AMP-X300 web interface allows you to view status information and configure network and device settings.

> **NOTE**: Throughout the web interface, values can be entered manually. When values entered manually fall out of the range, the value will be maximized or minimized or have no effect.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 450
- Access the Web Interface With Crestron Toolbox™ Software on page 451

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

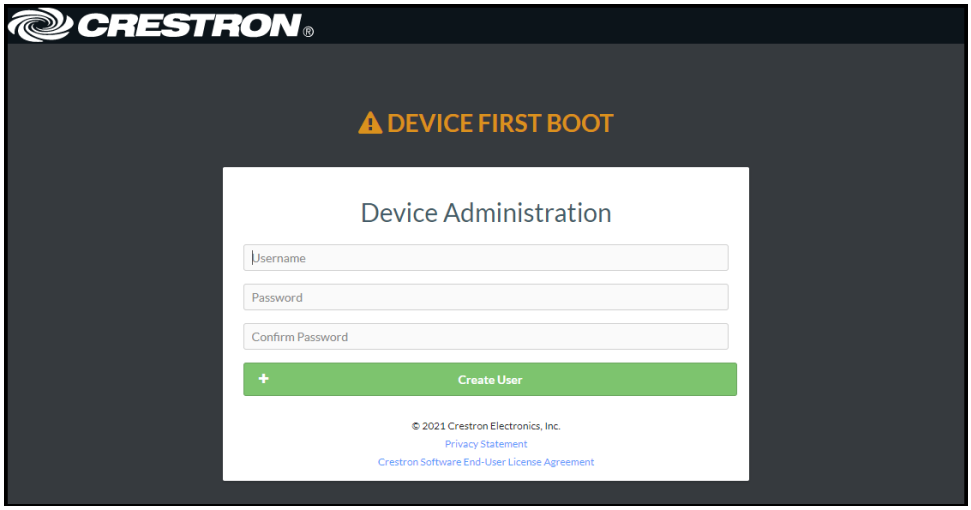
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

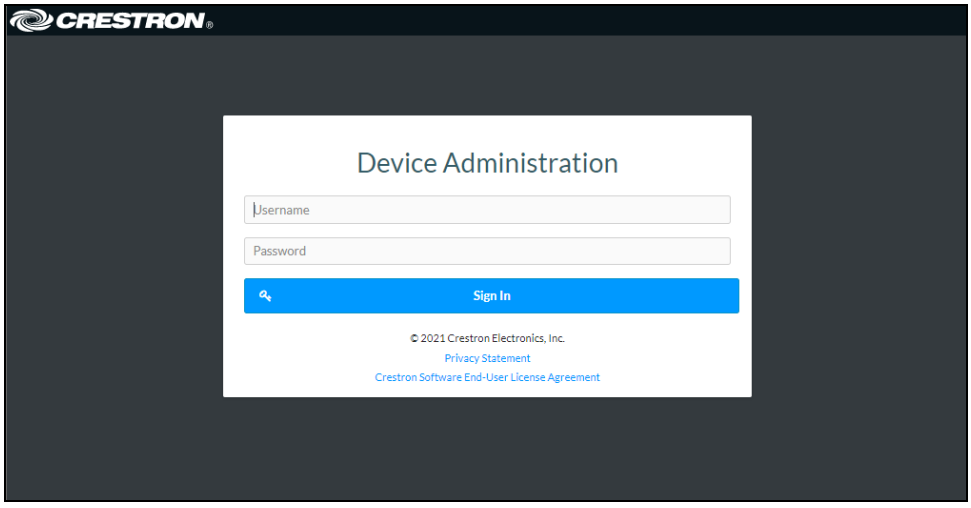
1. Enter the IP address of the DM-NAX-AMP-X300 into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser within Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-AMP-X300 is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

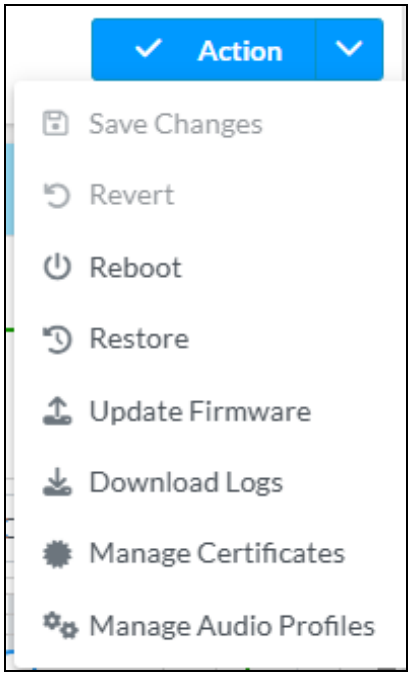
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 452
- Revert on page 452
- Reboot on page 453
- Restore to Factory Default Settings on page 453
- Update Firmware on page 454
- Download Logs on page 454
- Manage Certificates on page 454
- Manage Audio Profiles on page 456



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

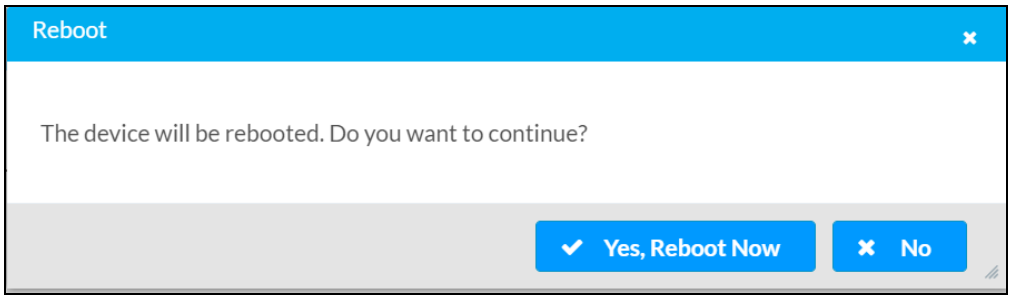
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-AMP-X300 to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed.

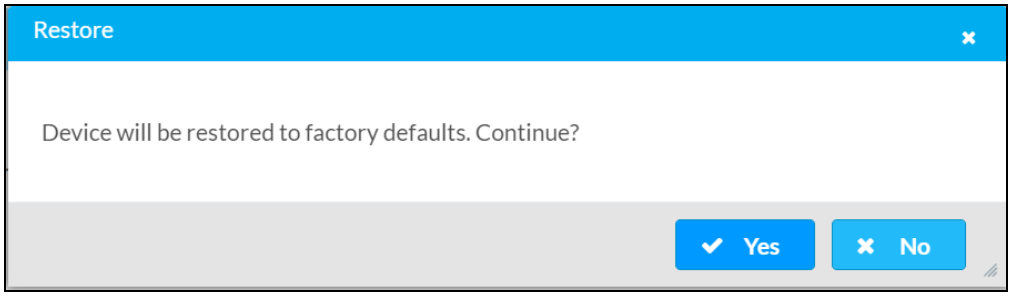
   Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-AMP-X300 to factory defaults.

   NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



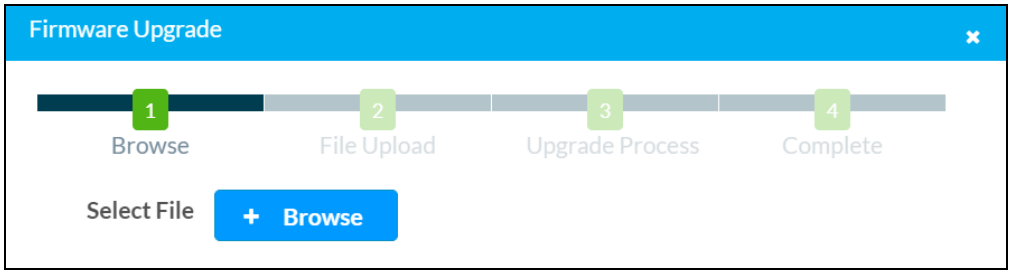
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-AMP-X300 to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore the device by following the **Reset** procedures covered in DM-NAX-AMP-X300 Installation on page 119.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, and then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

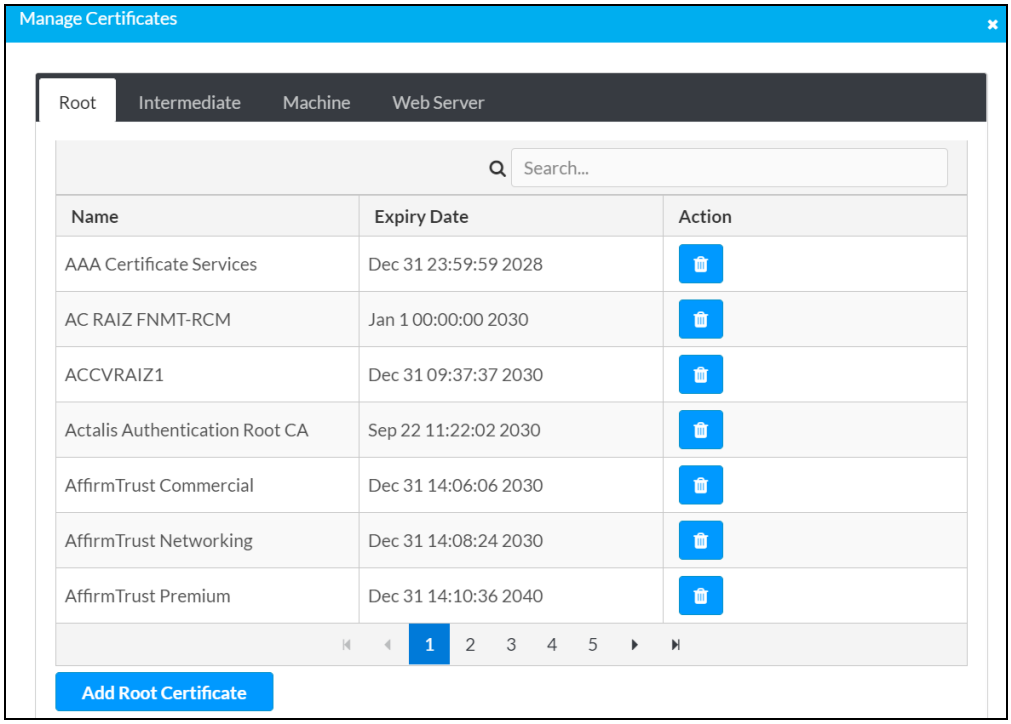
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-AMP-X300 to validate the network's authentication server. The DM-NAX-AMP-X300 has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-AMP-X300. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

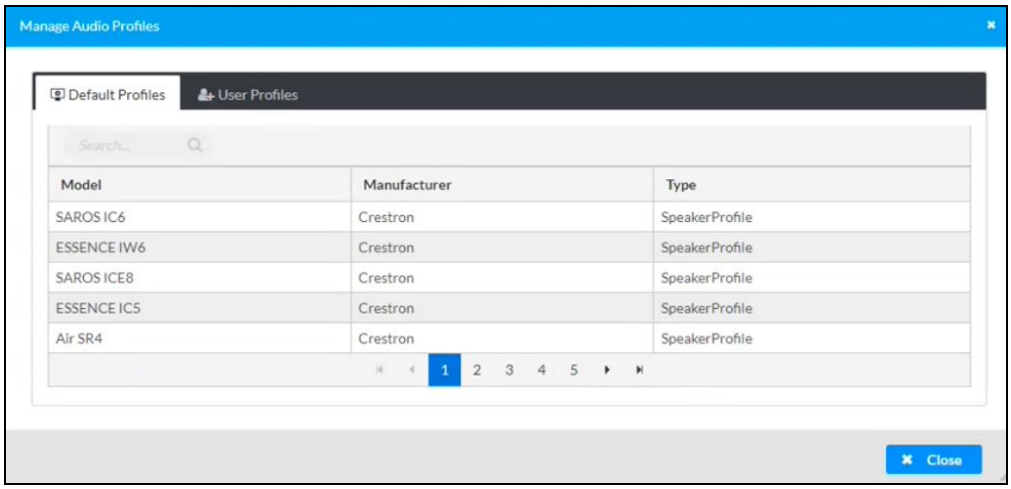
5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Manage Audio Profiles

Use the **Manage Audio Profiles** dialog to add, remove, and manage output audio profiles on the DM-NAX-AMP-X300.



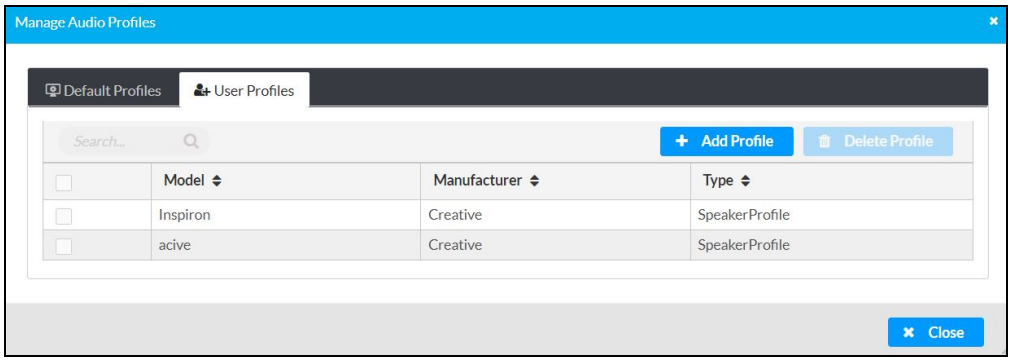
Select **Manage Audio Profiles** in the **Action** menu. The following audio profiles tabs are displayed, providing information such as **Model**, **Manufacturer**, and **Type** of the audio profiles:

- **Default Profiles**: Lists the default library of included audio profiles.
- **User Profiles**: Lists the custom, user loaded profiles, and allows them to be loaded and removed.

In the **Search** field, enter a name to search for the profile. The audio profile matching the search criteria is displayed.

> **NOTE**: To create a custom audio profile, refer to Knowledge Article 1001820.

To Add an Audio Profile

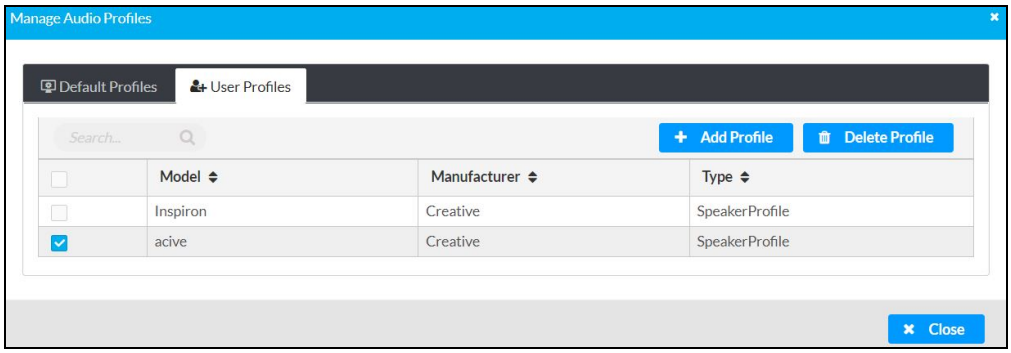


1. Select the **User Profiles** tab.
2. Select **+ Add Profiles**.
3. Select **+ Browse**.
4. Locate and select the .prof file, and then select **Open**.
5. Select **Upload**.

6. Select **OK**. This will add the profile to the list box.

   The audio profile is now available for selection and can be applied.

To Delete an Audio Profile



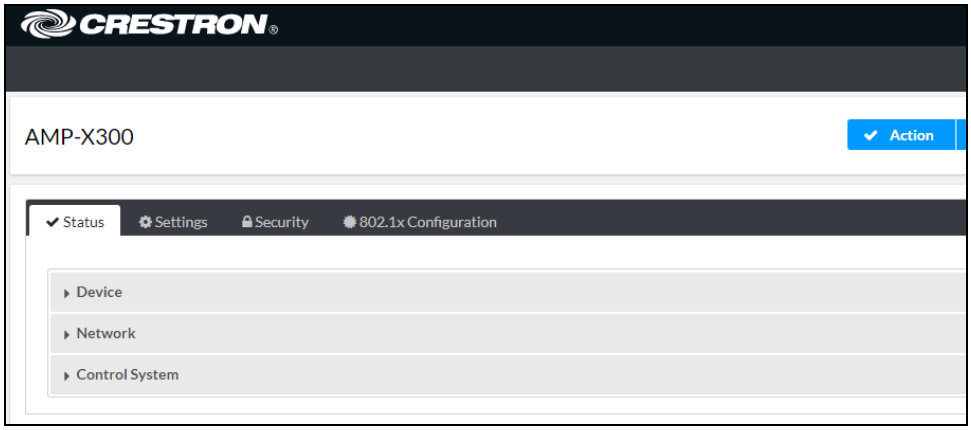
1. Select the **User Profiles** tab.
2. Select the checkbox corresponding to the audio profile that needs to be deleted.
3. Select **Delete Profile**.

   The audio profile is deleted.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-AMP-X300. It displays general information about the DM-NAX-AMP-X300 (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**, etc.), and input and output ports' current status.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-AMP-X300 web interface.

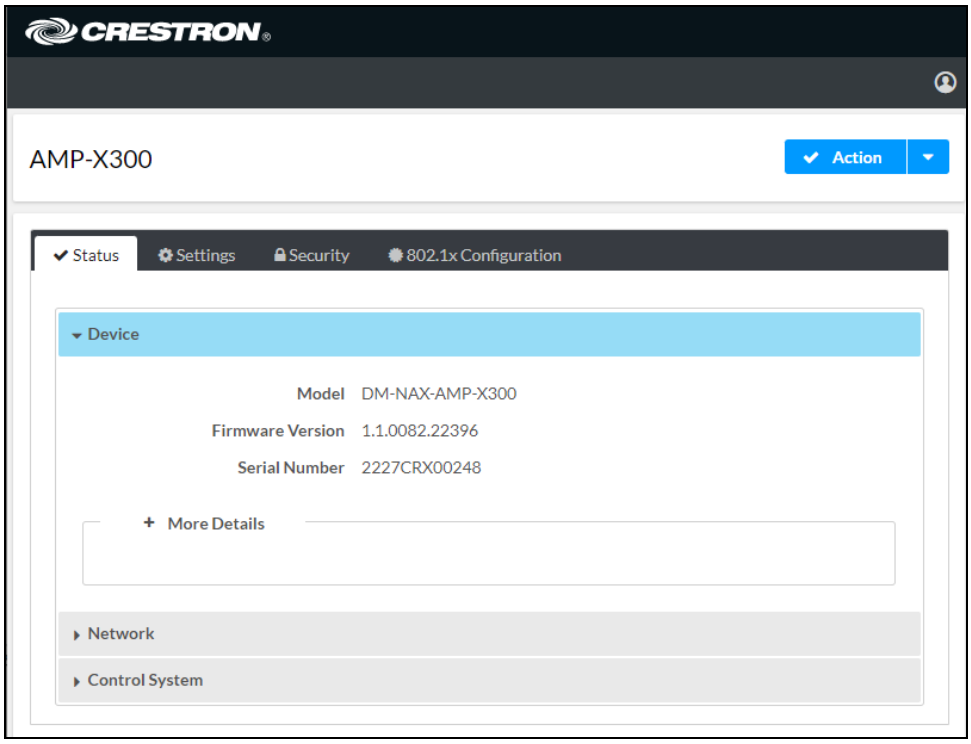


Information displayed on the **Status** page is organized into different collapsible accordions:

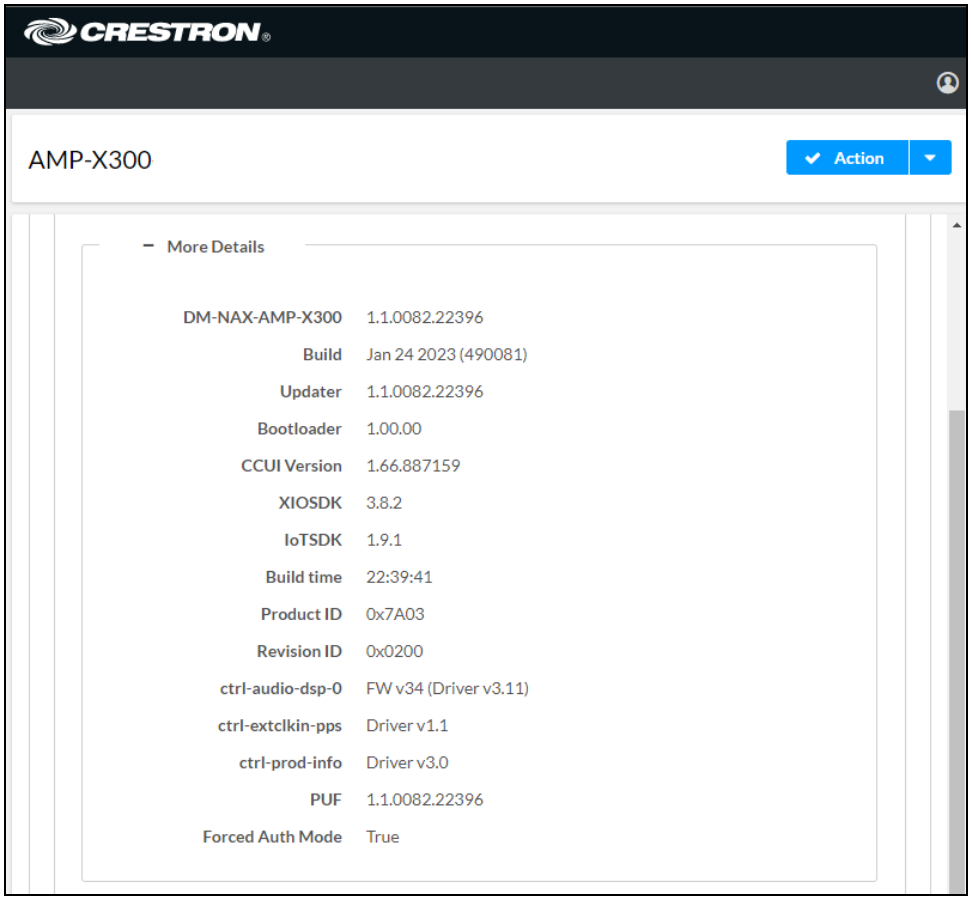
- Device on page 458
- Network on page 460
- Control System on page 460

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-AMP-X300.

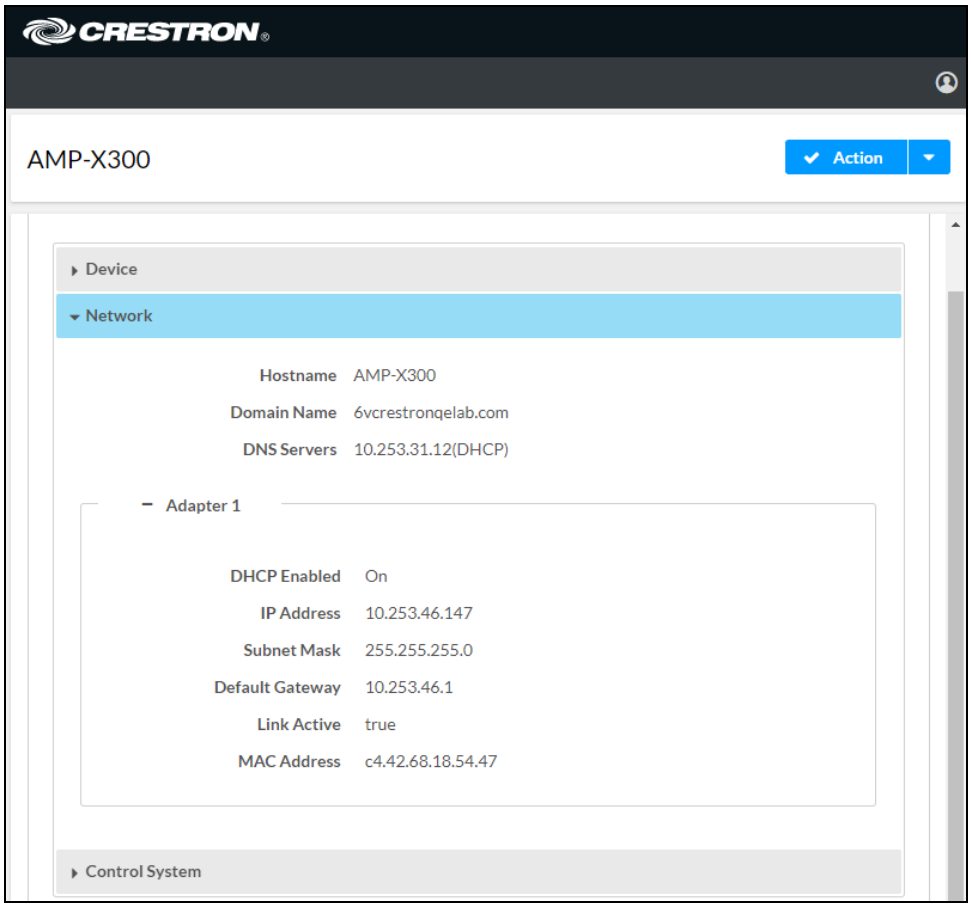


Select **+ More Details** to review additional information about the DM-NAX-AMP-X300.



Network

The **Network** section displays network-related information about the DM-NAX-AMP-X300, including the **Hostname**, **Domain Name**, and **DNS Servers**.



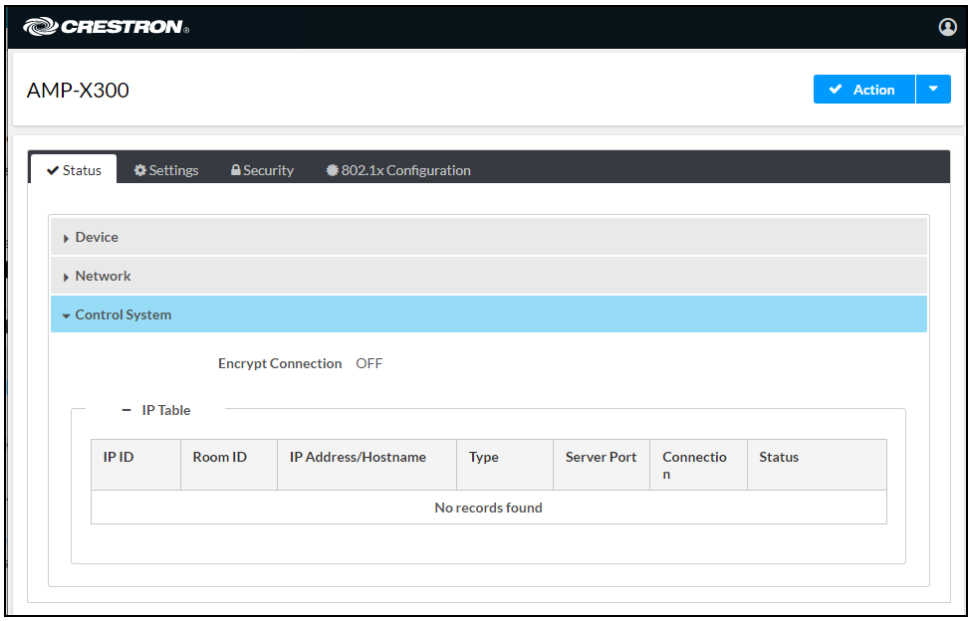
NOTE: By default, the host name of the DM-NAX-AMP-X300 consists of the model name followed by the MAC address of the device. For example, DM-NAX-AMP-X300-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** to collapse the section.

NOTE: The **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-AMP-X300 are set to isolate traffic using the **Port Selection** feature. Refer to Commercial Mode on page 463 or Residential Mode on page 487 for details on configuring the **Port Selection** feature.

Control System

The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-AMP-X300.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE**.

Settings

The **Settings** page enables configuration of the DM-NAX-AMP-X300 settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AMP-X300 web interface.

Many options in the **Settings** page are exclusive to a specific device mode: Residential or Commercial. The DM-NAX-AMP-X300 is in Commercial mode by default.

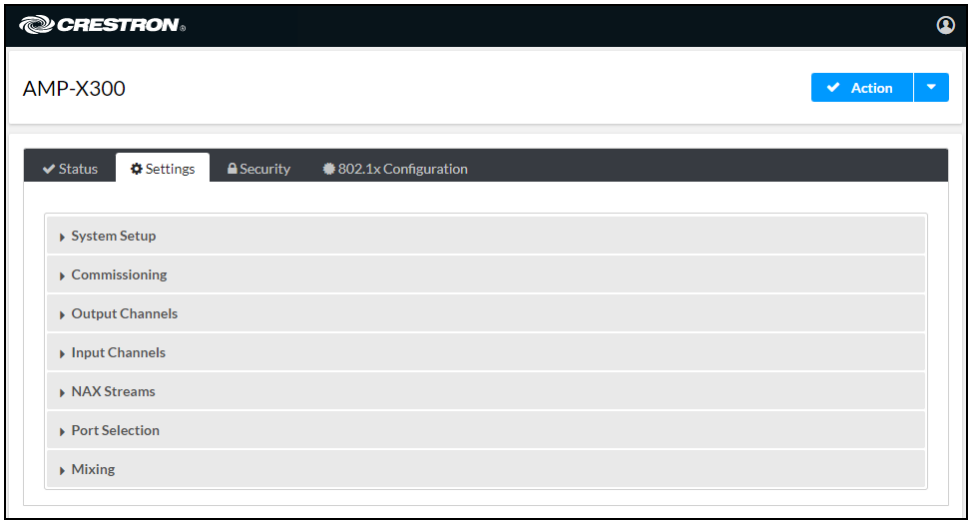
This section provides the following information:

- Commercial Mode on page 463
- Residential Mode on page 487

Commercial Mode

The **Settings** page enables you to configure the DM-NAX-AMP-X300 settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AMP-X300 web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 463
- Commissioning on page 469
- Output Channels on page 470
- Input Channels on page 476
- DM NAX Streams on page 479
- Port Selection on page 481
- Mixing on page 482

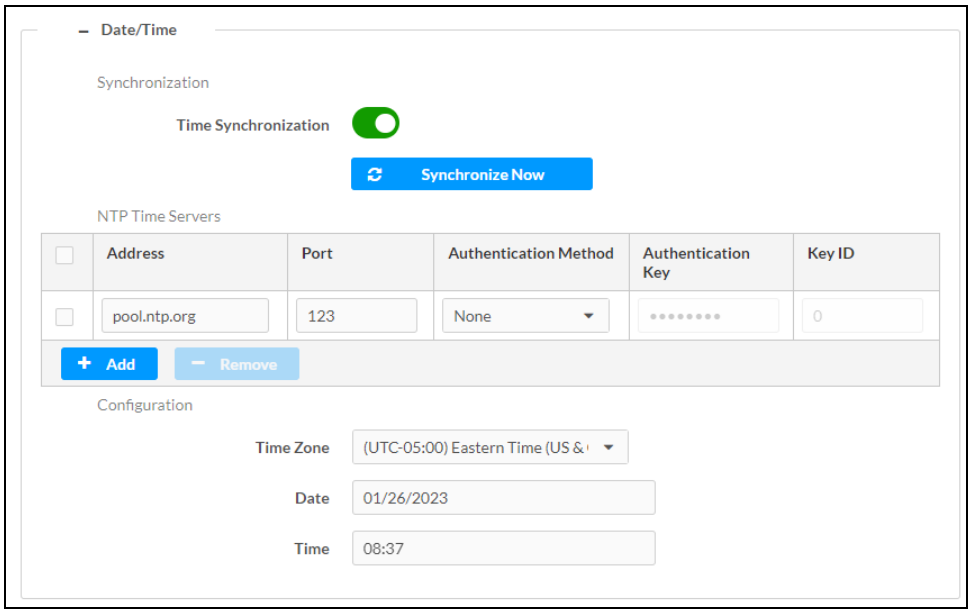


System Setup

The **System Setup** section contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, and **Device Modes**.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-AMP-X300.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

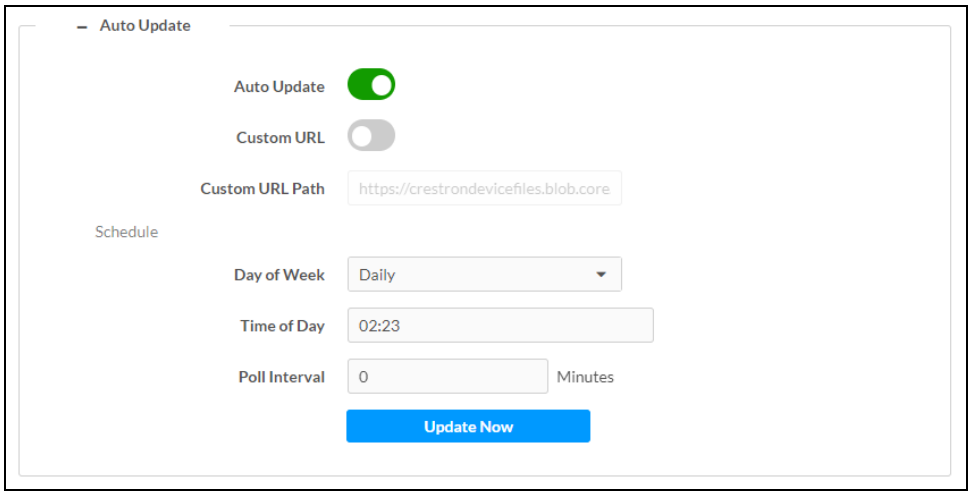
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AMP-X300 can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

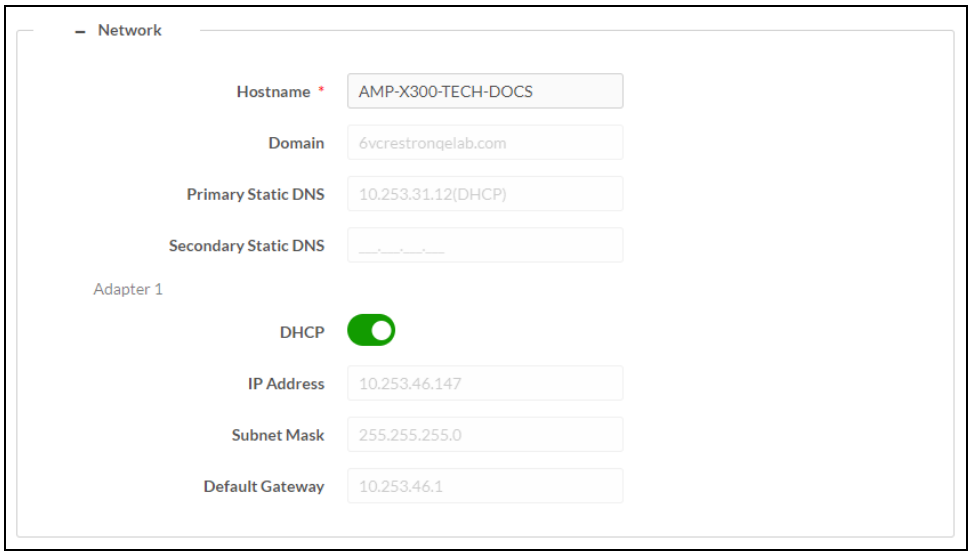


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-AMP-X300, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the hostname of the DM-NAX-AMP-X300 consists of the model name followed by the MAC address of the device. For example, DM-NAX-AMP-X300-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

NOTES:

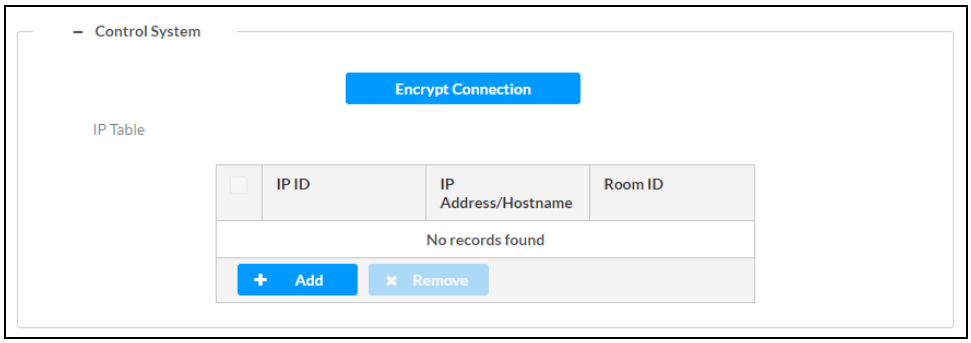
- An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-AMP-X300 are set to isolate traffic using the **Port Selection** feature. The settings for **Adapter 2** are identical to those available for **Adapter 1**.
- DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts with these internal addresses.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AMP-X300 is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-AMP-X300 is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AMP-X300.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter a username in the **Control System Username** field.
    b. Enter a password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AMP-X300 in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

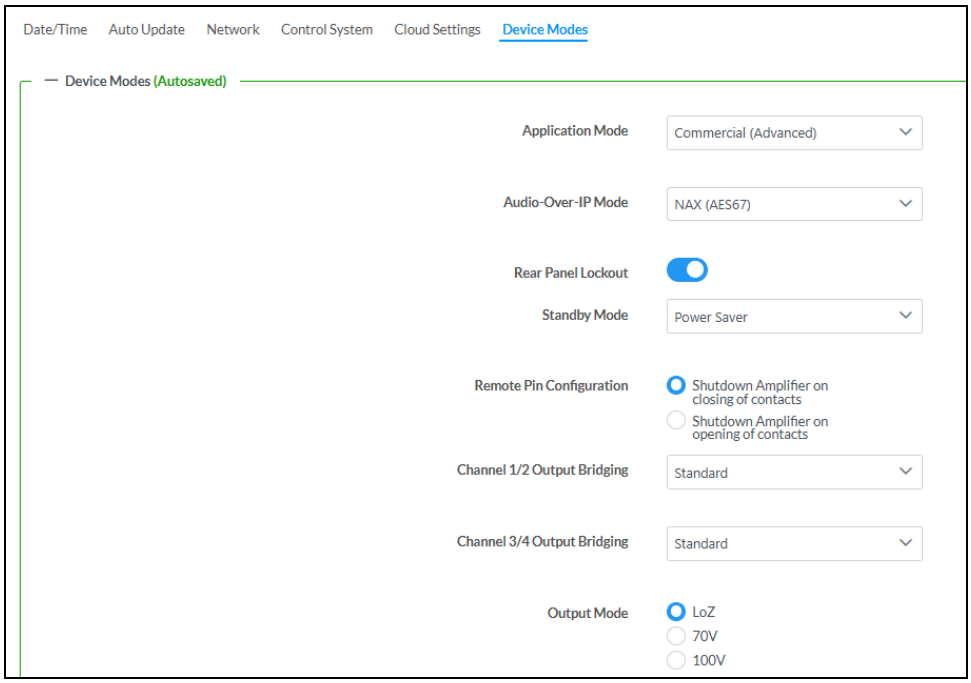
Cloud Settings



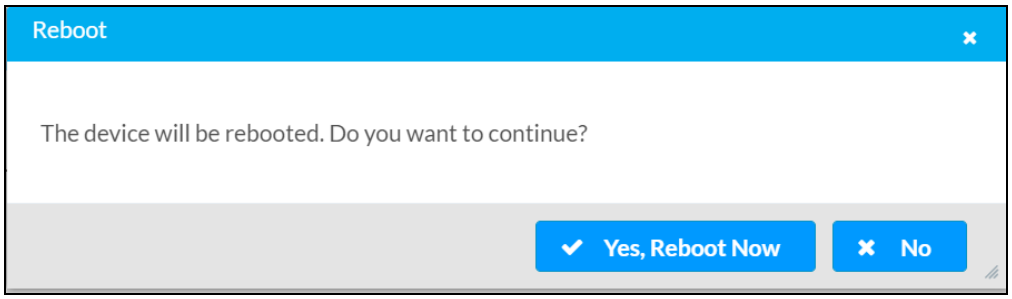
Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AMP-X300 can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode**, **Audio-Over-IP Mode**, and **Standby Mode**, as well as see a live status readout of the device's rear panel functionality.



- **Application Mode**: The Application Mode determines which options and controls are available.
    - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



    - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
    - Wait for the device restart to complete before attempting to reconnect to the device.
- **Audio Over IP Mode**: Select **NAX (AES67)** or **Dante** to specify what type of audio-over-IP streams the DM-NAX-AMP-X300 will accept and transmit.

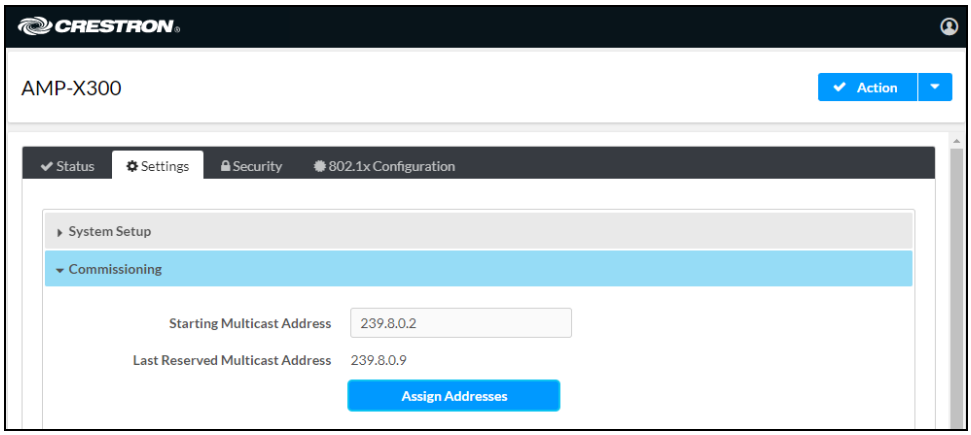
> **NOTE:** In NAX (AES67) mode, the DM-NAX-AMP-X300 can still accept streams from Dante devices by way of the AES67 Compatibility Mode feature, which can be enabled on most Dante devices.

- **Rear Panel Lockout**: Set the **Rear Panel Lockout** toggle to the right position to enable or to the left to disable the rear panel lockout. This specifies whether the physical controls on the rear panel are locked (toggle enabled) or functional (toggle disabled). When the rear panel lockout is enabled, all device controls are handled through the web interface or custom programming.

- **Standby Mode**: Select the DM-NAX-AMP-X300 standby behavior.
  - **Always On**: The device's amplifier remains powered on at all times.
  - **Power Saver**: If no signal is detected for 25 minutes, the device enters a low power state by turning off the amplifier board. Upon detecting an audio signal, the amplifier will be turned back on.
- **Remote Pin Configuration:** Select the behavior of the **REMOTE** connector on the rear panel of the DM-NAX-AMP-X300.
  - To have the amplifier turn off when a connected dry contact is closed, select **Shutdown Amplifier on closing of contacts**.
  - To have the amplifier turn off when a connected dry contact is opened, select **Shutdown Amplifier on opening of contacts**.
- **Channel 1/2 Output Drive**: Set Channel 1/2 to **Standard** or **Bridged**. This option is only selectable when the **Output Mode** is set to **Lo-Z**.
- **Channel 3/4 Output Drive**: Set Channel 3/4 to **Standard** or **Bridged**. This option is only selectable when the **Output Mode** is set to **Lo-Z**.
- **Output Mode**: The DM-NAX-AMP-X300 can be configured to work with 4 Ω and 8 Ω (low impedance or "Lo-Z") loads or a distributed audio (high impedance or "Hi-Z") 70/100V system.
  - **Lo-Z**: Select **Lo-Z** to use the amplifier with 4 Ω or 8 Ω low impedance loudspeakers.
  - **70V**: Select **70V** to use the amplifier in a 70V distributed audio system.
  - **100V**: Select **100V** to use the amplifier in a 100V distributed audio system.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.

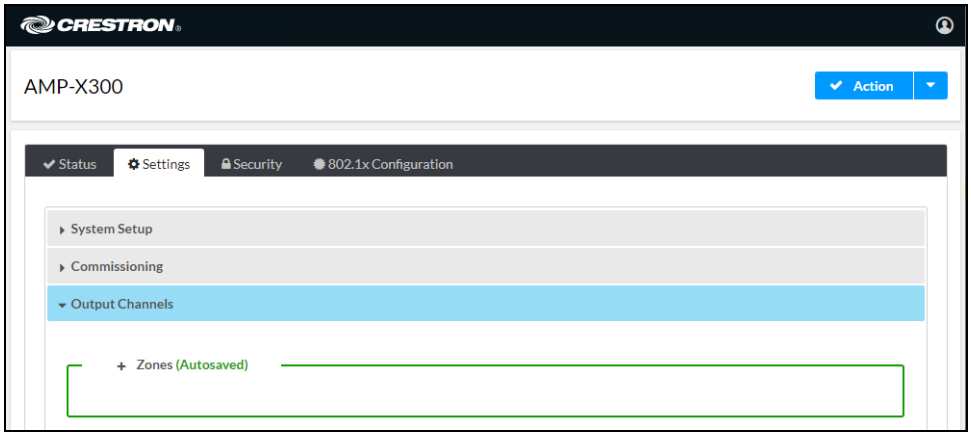


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AMP-X300 a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.255.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

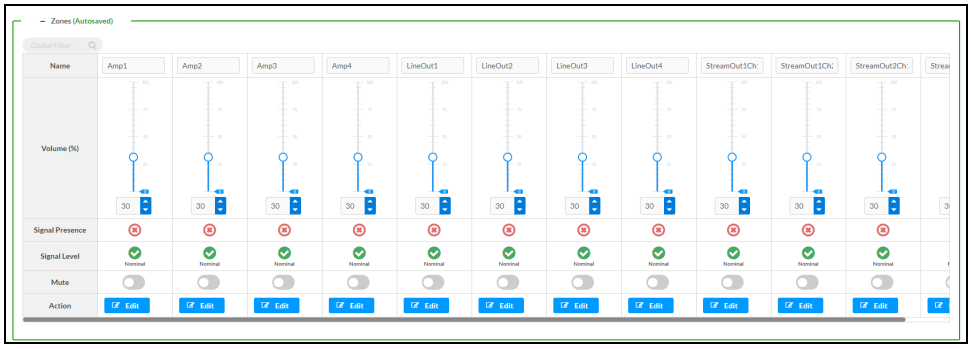
Output Channels

The **Output Channels** section enables the viewing and configuration of Zone outputs.



Zones

In the **Zones** section, the properties of each zone can be viewed and configured.



Signal Presence indicates whether or not an audio signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- **Nominal**: The signal level is within normal operating bounds and below the clipping threshold.
- **Clipping**: The signal level is clipping or above the -3 dB warning threshold and in danger of clipping.

Give each zone a friendly name using the **Name** row of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider up to increase or down to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

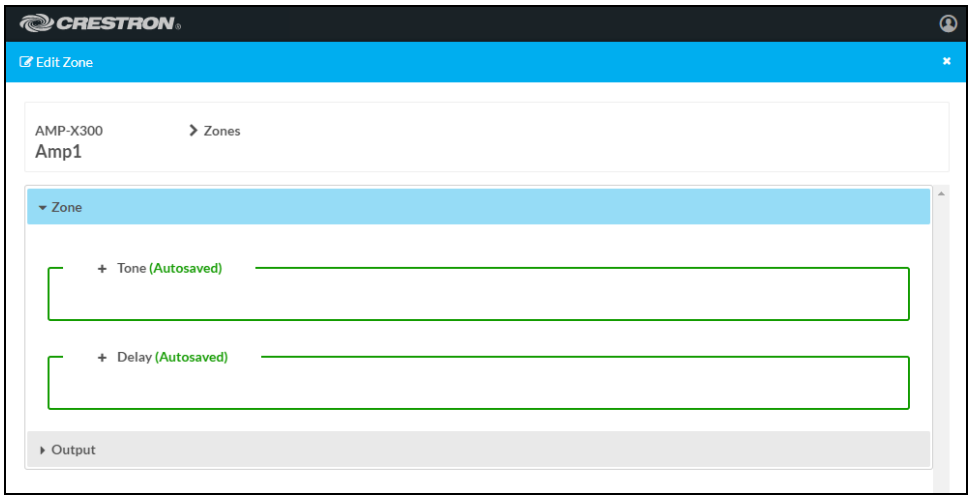
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Select **Edit** to view additional **Zone** and **Output** options.

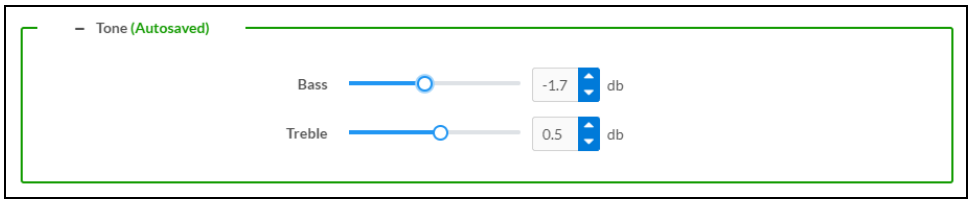
Zone

To configure additional zone settings, select **Edit**. The **Edit Zone** window is displayed.

Select **Zone** to access the settings for **Tone** and **Delay**.



Tone



- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Treble** field.

Delay



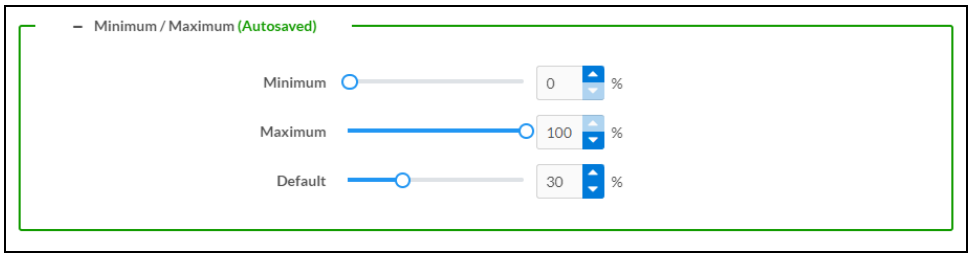
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum**, **Signal**, **Speaker Configuration**, **Configure Speaker Profile**, **Speaker/Faults**, and **Equalizer Settings**.

Minimum/Maximum Volume



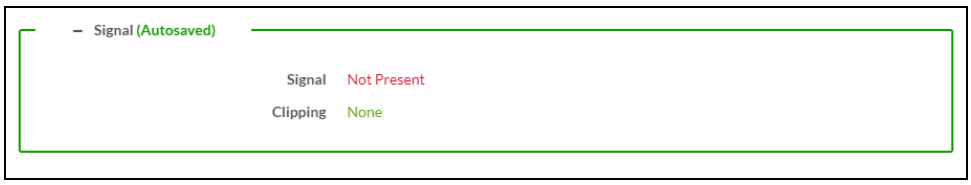
1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

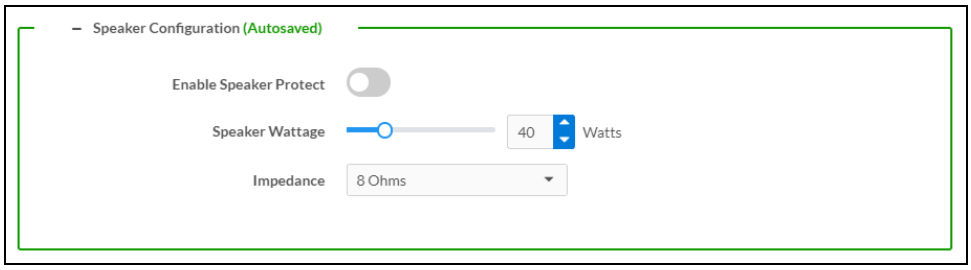
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Speaker Configuration



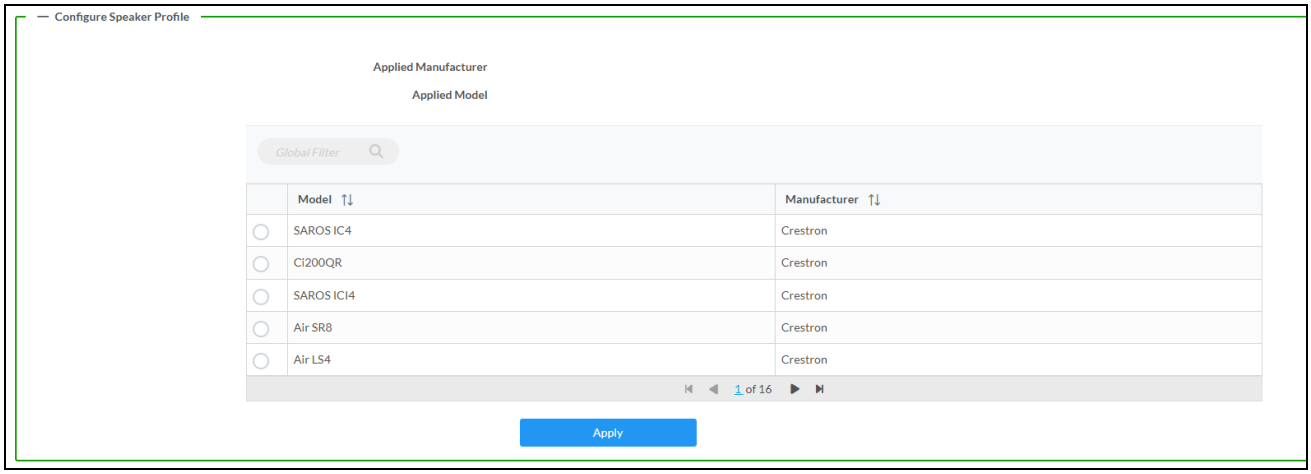
1. Set the **Enable Speaker Protect** toggle to the right position to enable speaker protection for the zone output. Set the toggle to the left position to disable speaker protection. By default, **Enable Speaker Protect** is set to the left position.
2. To set the maximum output wattage, do one of the following:
    - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the maximum peak amplifier wattage that can be output to the speaker.
    - Use the **Watts** arrows to increase or decrease the maximum peak amplifier wattage that can be output to the speaker. Values range from 5 W to 150 W, adjustable in increments of 1 W.
    - Manually enter a value in the **Speaker Wattage** field.

3. Select the impedance of the speaker on a selected zone from the **Impedance** drop-down. Values are **4 Ohms**, **8 Ohms**, and **Bridged**.

Configure Speaker Profile

The DM-NAX-AMP-X300 has a library of built-in speaker profiles that contain equalizer, speaker protection, and impedance settings specific to Crestron and third-party speaker models. Custom speaker profiles can also be generated and loaded to the DM-NAX-AMP-X300. The **Configure Speaker Profile** field is used to apply these speaker profiles to a given output of the DM NAX device.

> **NOTE:** Applying a speaker profile on an output will overwrite the existing **Speaker Configuration** and **Equalizer** settings for that output.



In the **Global Filter** field, enter the speaker's model name to search for its associated profile. Any speaker profiles matching the search criteria are displayed.

To apply a speaker profile:

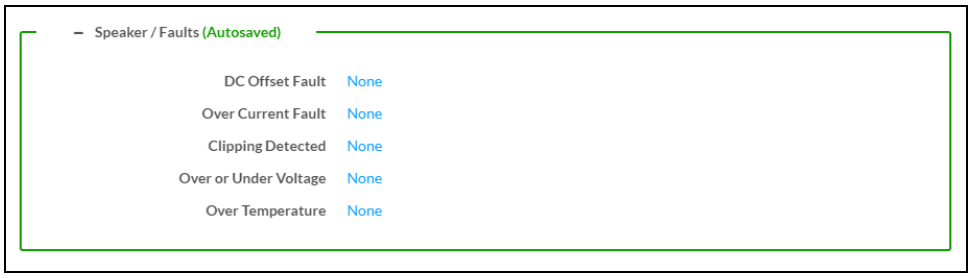
1. Select a speaker profile.
2. Select **Apply**.

   The equalizer, impedance, and speaker protection settings of the output are updated as per the applied speaker profile.

After applying a speaker profile, the **Speaker Configuration** and **Equalizer** settings for the output can still be edited. The **Configure Speaker Profile** section will display a notification if these settings were altered after the speaker profile was applied.

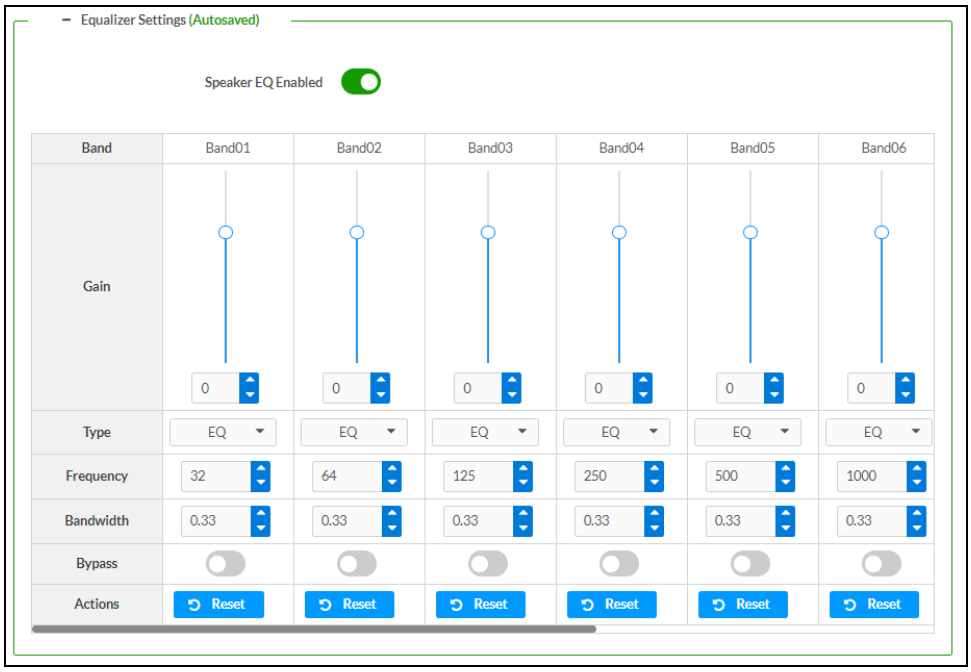


Speaker Faults



The Speaker/Faults section is a read-only field that displays the status of the **DC Offset Fault**, **Over Current Fault**, **Clipping Detected**, **Over or Under Voltage**, and **Over Temperature** detectors for the zone output. If clipping or a given fault type is detected, then its corresponding readout displays **Fault Detected** in red. Otherwise, it displays **None** in blue.

Equalizer Settings



Each zone output of the DM-NAX-AMP-X300 has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.

a. To set a band's gain, do one of the following:
    - Move the **Gain** slider up to increase or down to decrease the gain.
    - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
    - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.

c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.

d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.

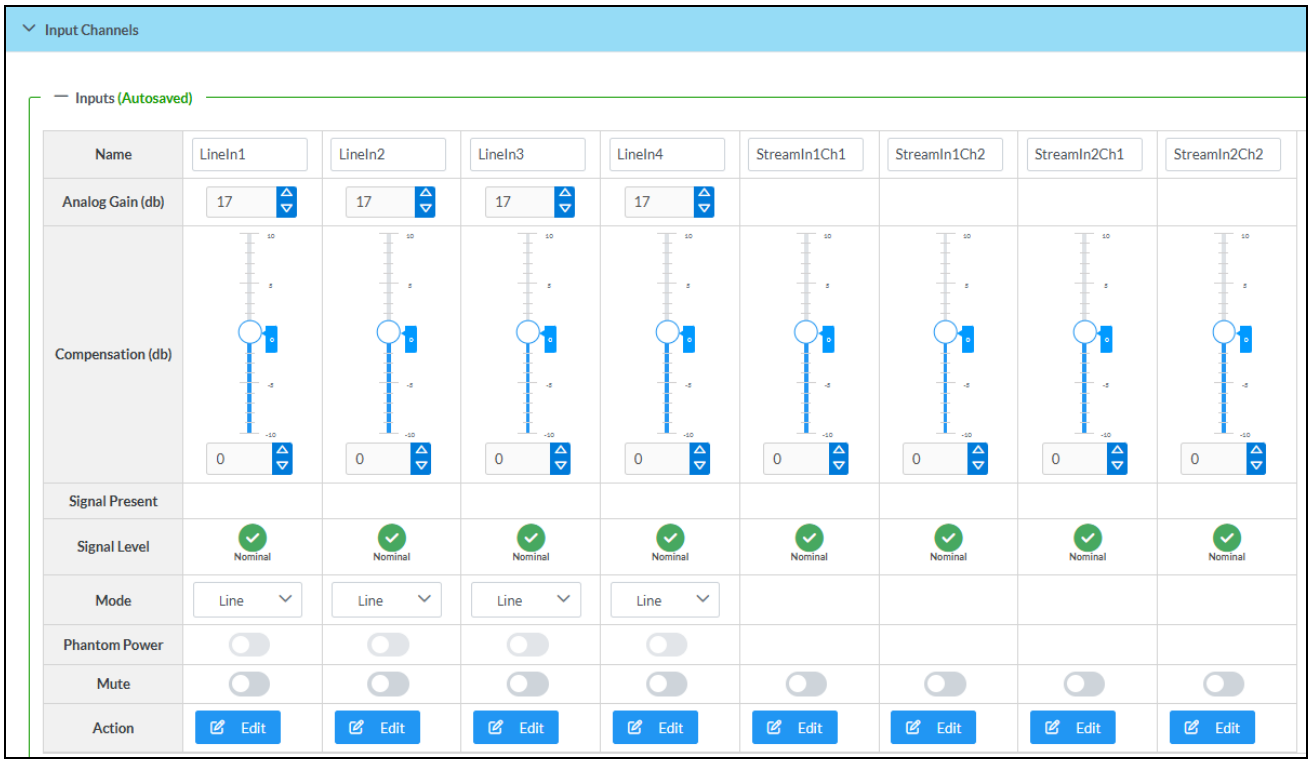
e. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.

f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Input Channels

The **Input Channels** section enables the viewing and configuration of **Analog Inputs**.



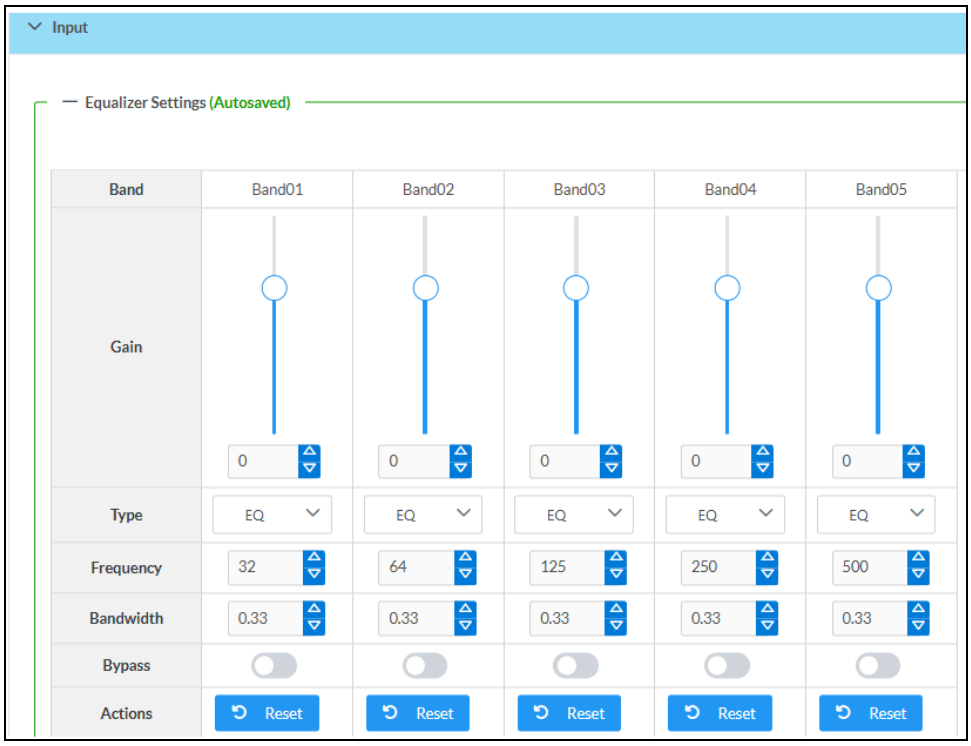
Signal Presence indicates whether or not a signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- If needed, enter a friendly name for each input in its **Name** field.
- To set a level compensation adjustment for a given input, do one of the following:
  - Slide the **Compensation** slider up to increase or down to decrease the compensation. Compensation increases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
  - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 0.1 dB.
  - Manually enter a value in the **Compensation** field.
- Use the Mode drop-down to select **Line** or **Mic**.
- If using **Mic Mode**, **Phantom Power** can be enabled by moving the **Phantom Power** toggle to the right. Disable **Phantom Power** by moving the toggle to the left.
- To mute the signal from the corresponding input, select **Mute**. To disable the mute, select **Muted**. By default, **Mute** is disabled.

Equalizer

To configure the equalizer settings for an input, select **Edit**. The **Edit Input** window is displayed.



Each input of the DM-NAX-AMP-X300 has a dedicated five-band equalizer that can be fully customized to tune the input signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. Configure each band individually:

1. To set a band's gain, do one of the following:
    - Move the **Gain** slider up to increase or down to decrease the gain.
    - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
    - Manually enter a value in the **Gain** field.
2. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.

a. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
b. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
c. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
d. Each equalizer band has a **Reset** that will reapply the default settings for that band.

DM NAX Streams

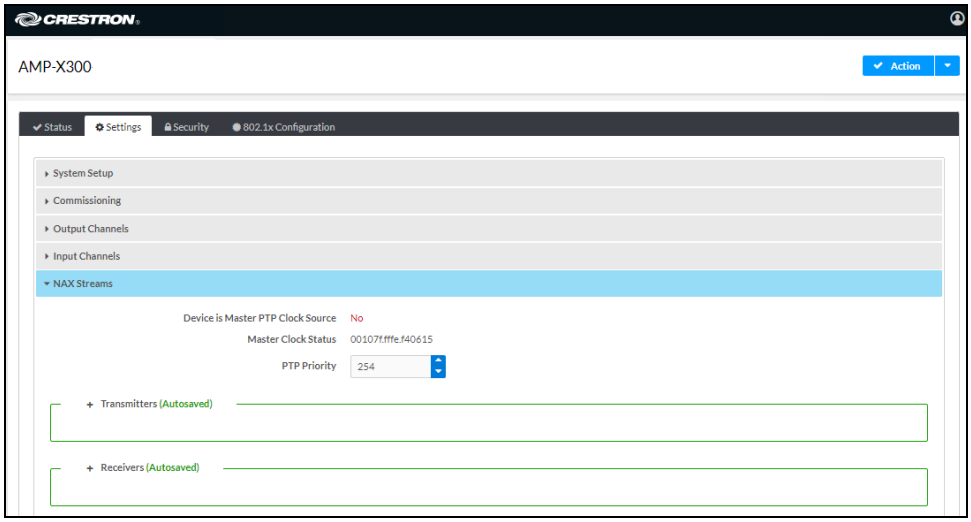
Each local input of the DM-NAX-AMP-X300 can be made available as a DM NAX audio-over-IP stream.

The DM-NAX-AMP-X300 also supports parallel DM NAX streams for each zone output, enabling an additional transmit stream per output to mirror all routes and DSP settings of its respective zone. These parallel streams enable control of the audio signal to third-party uncontrolled AES67 devices receiving audio from the DM-NAX-AMP-X300.

NOTES:

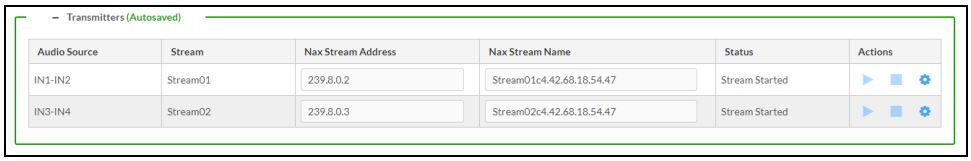
- Under the **Transmitters** section (see Configure Transmitters), the last two listed transmitters are dedicated to parallel zone outputs.
- To configure the DSP settings, refer to Zone Settings.

Select **NAX Streams** to display the following information.



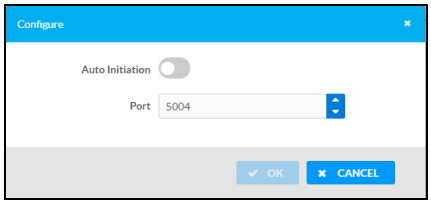
- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-AMP-X300 is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AMP-X300 will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters



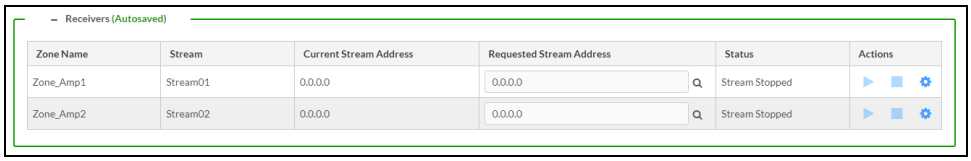
To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

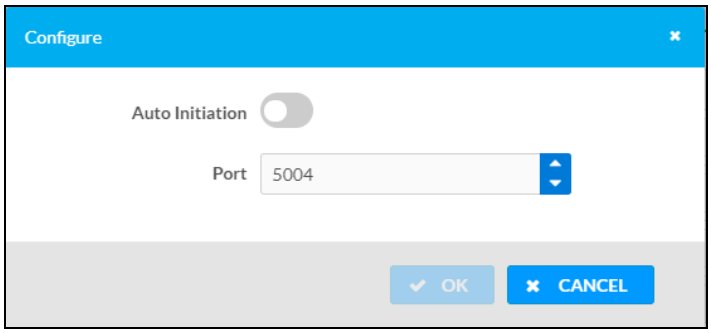


5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers



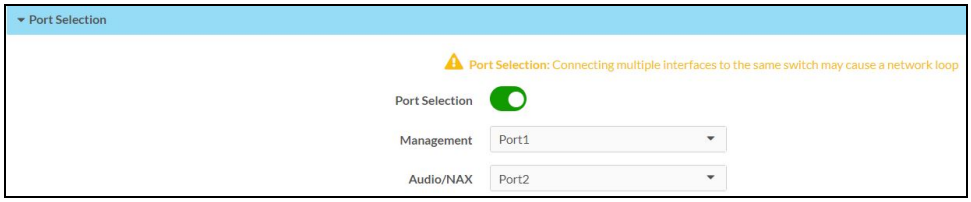
1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Port Selection

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment device management and streaming service traffic to a separate physical device Ethernet port than audio-over-IP streaming traffic. With **Port Selection** enabled on all DM NAX devices on a network, DM NAX and AES67 network traffic can be physically separated from the control network onto a dedicated audio network.



To configure **Port Selection**:

1. Set the **Port Selection** toggle to the right position to enable **Port Selection**. Set the toggle to the left position to disable **Port Selection**. By default, **Port Selection** is disabled.

   > **NOTE: Port1** and **Port2** correspond to the Ethernet adapters labeled **1** and **2** on the rear panel of the DM-NAX-AMP-X300, respectively.

2. With **Port Selection** enabled:
   a. Select an Ethernet port from the **Management** drop-down to designate which Ethernet port on the rear panel of the device will handle network traffic relating to device configuration and the device's connection to a control system.

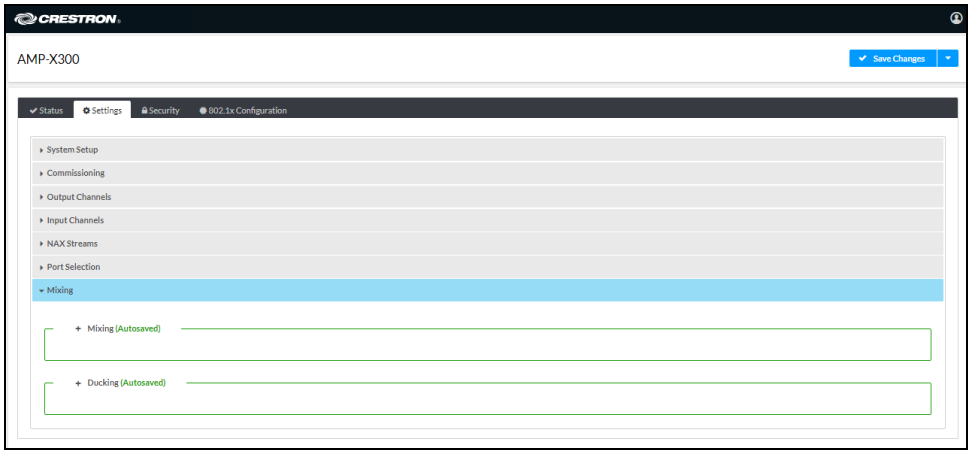
      > **NOTE:** The **Management** port determines your connection to the web interface. Changing the port value can result in losing your connection to the device via the web interface.

   b. Select an Ethernet port from the **Audio/NAX** drop-down to designate which Ethernet port on the rear panel of the device will handle audio-over-IP streaming network traffic.
3. Select **Save** changes to apply the new settings.

   > **NOTE:** Making changes to **Port Selection** settings will require a restart.

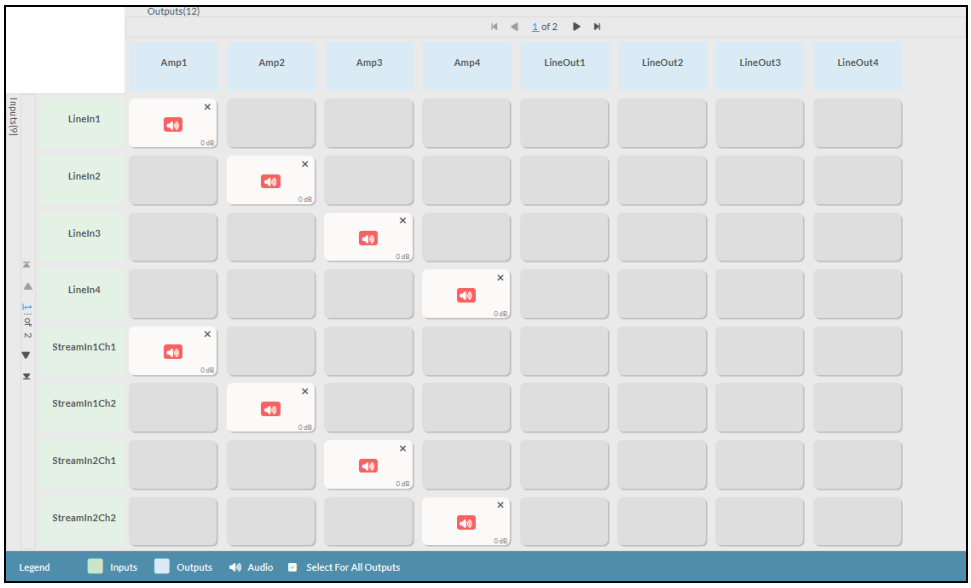
Mixing

This section contains the **Mixing** and **Ducking** matrices.



Mixing

The **Mixing** matrix is used to route a local input or AES67 stream to an output on the DM-NAX-AMP-X300.



To route inputs to outputs on the device:

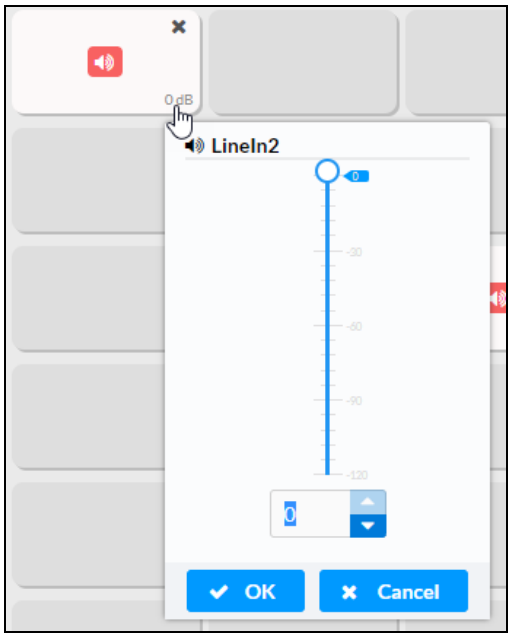
- Select the cells corresponding to the desired output that are to be paired for routing. Once a route is made, a speaker icon is displayed. The input that you have selected for a given row will route to the output corresponding to that row in the matrix.
- Use the left or right arrows at the top or side of the matrix to change pages to view all available inputs or outputs.

  > **NOTE:** The signal generator input is on the second page of inputs. The Commercial Mode signal generator is a 1 kHz sine tone that can be mixed into any number of output channels.

- To break a given route select the speaker icon or the **x** at the top right of the box.
- Lock icons are displayed on any routes that are already configured in the **Ducking** matrix.

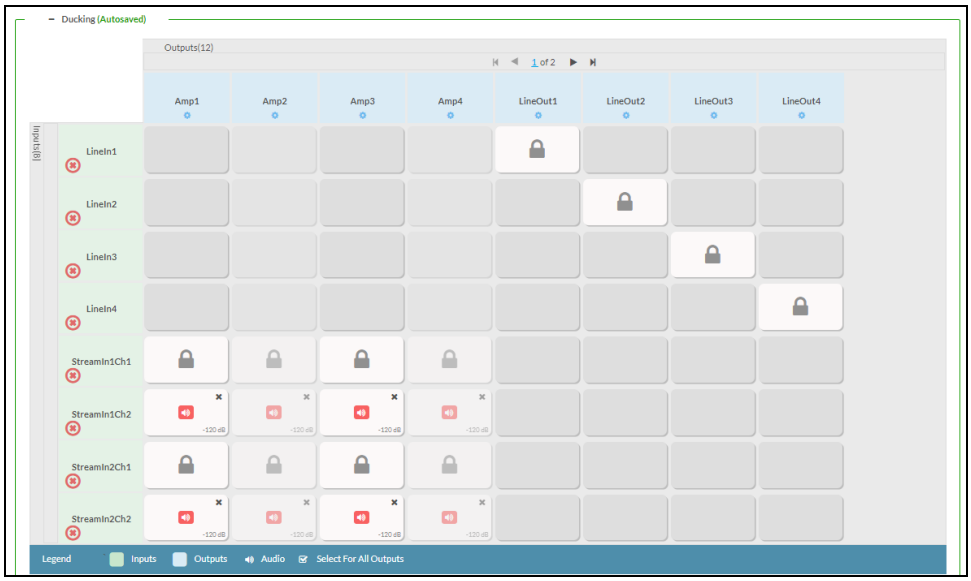
Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.
- Manually enter a value in the field.



Ducking

The **Ducking** matrix is used to configure ducking routes. Audio signals on these routes will duck audio signals on the **Mixing** routes for a given output whenever the ducking signal exceeds the ducking threshold.



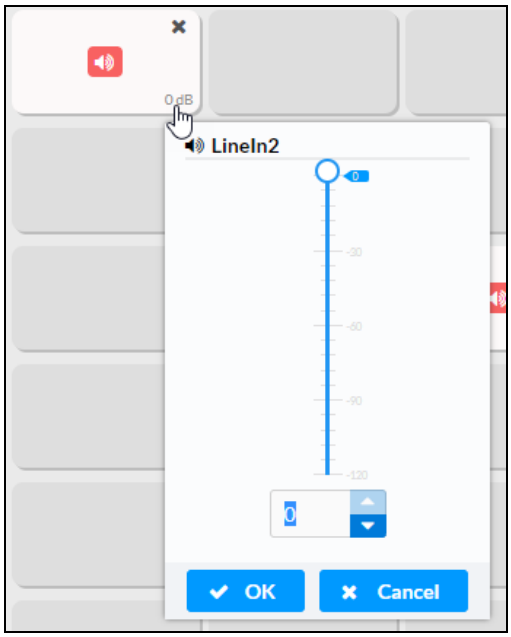
To assign inputs as ducking signals for zones on the device:

- Select the cells corresponding to the desired zone that are to be paired for ducking. Once a route is made, a speaker icon is displayed. The input that you have selected for a given row will route to the zone corresponding to that row in the matrix, and will duck any other signals routed to that zone in the **Mixing** matrix.
- Use the left ◀ or right ▶ arrows at the top of the matrix to change pages to view all available inputs.

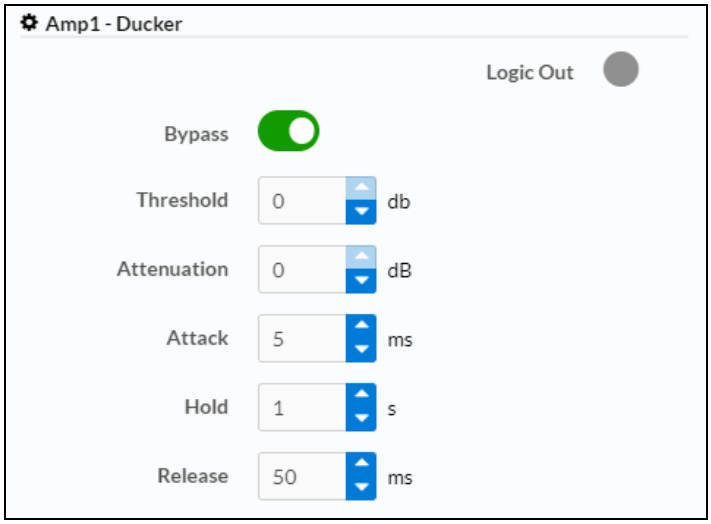
- To break a given route select the speaker icon or the **x** at the top right of the box.
- Lock icons are displayed on any routes that are already configured in the **Mixing** matrix.

Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.
- Manually enter a value in the field.



To configure the **Ducker** settings for a given output, select the configure icon below it.



Logic Out: This indicator turns blue when the ducker is active.

Bypass: Set the **Bypass** toggle to the right position to bypass the ducker. Set the toggle to the left to enable the ducker.

Threshold: Set the dB value at which the ducker engages. Use the arrows or enter a number to set the dB value for the **Threshold**. Values range from 0 dB to -60 dB.

Attenuation: Set the dB value by which the **Mixing** matrix output signals will be reduced when ducking is triggered. Use the arrows or enter a number to set the dB value for the **Attenuation**. Values range from 0 dB to -80 dB.

Attack: Set how quickly the ducking occurs once triggered. Use the arrows or enter a number to set value in ms for the **Attack**. Values range from 0.1 ms to 2000 ms.

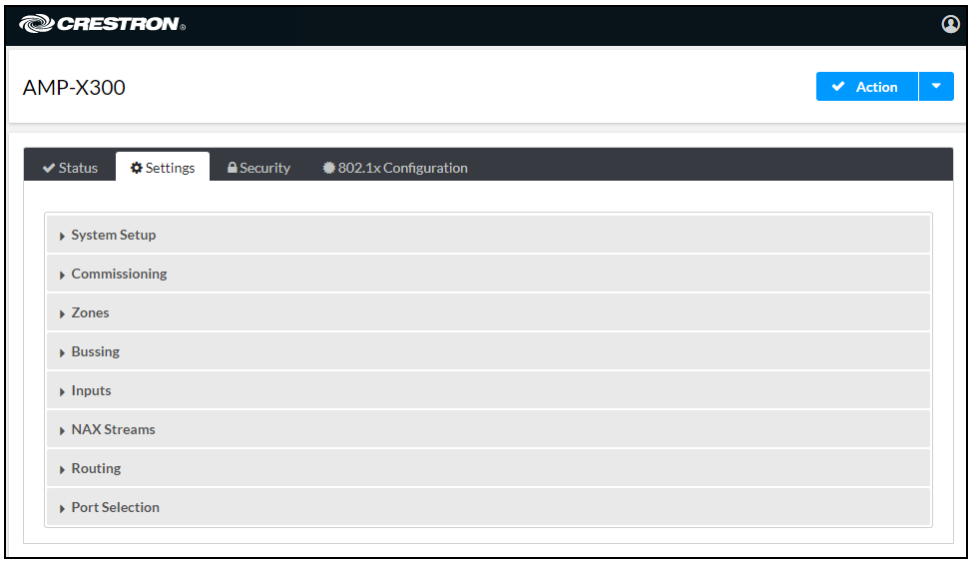
Hold: Set the length of time for which the ducker will stay at full attenuation once the ducking signal passes the **Threshold**. Use the arrows or enter a number to set a value in seconds for the **Hold**. Values range from 0.1 s to 20 s.

Release: Set the time for the **Mixing** matrix output signal to return to its full level after the ducking signal falls below the threshold and the **Hold** time ends. Use the arrows or enter a number to set the value in ms for the **Release**. Values range from 10 ms to 4000 ms.

Residential Mode

The **Settings** page enables you to configure the DM-NAX-AMP-X300 settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AMP-X300 web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 488
- Commissioning on page 492
- Zones on page 493
- Bussing on page 507
- Inputs on page 508
- DM NAX Streams on page 508
- Routing on page 511
- Port Selection on page 511

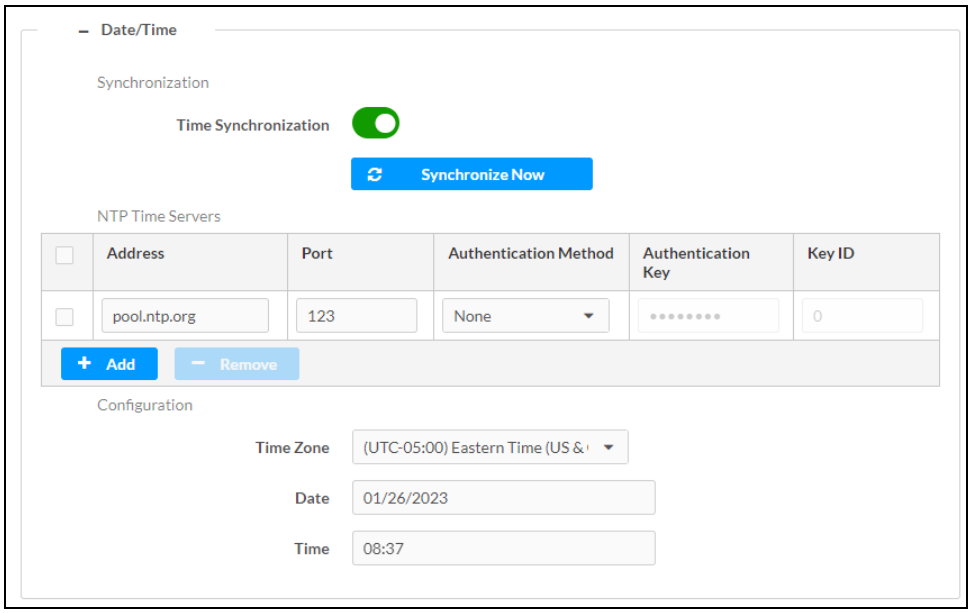


System Setup

The **System Setup** section displays information about the Date/Time, Auto Update, Network, Control System, Cloud Settings, and Device Modes.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-AMP-X300.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

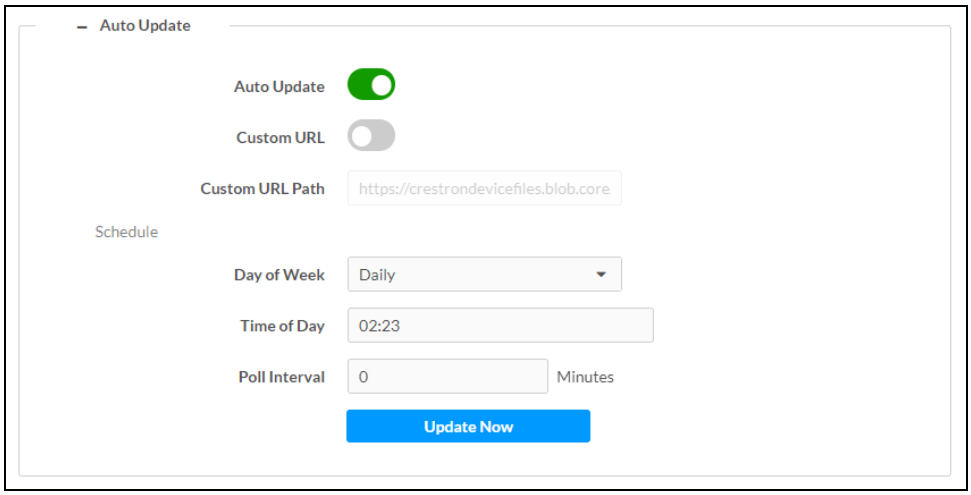
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AMP-X300 can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

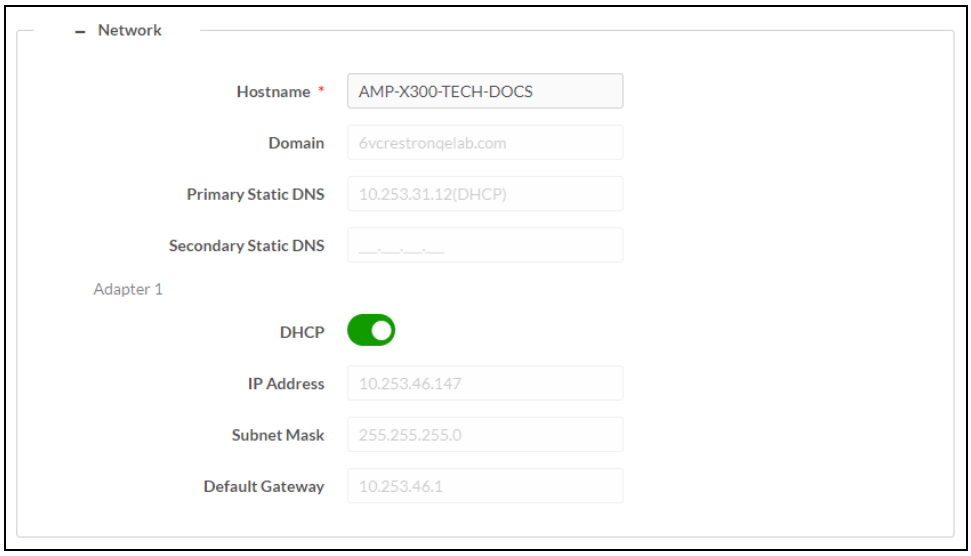


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-AMP-X300, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the host name of the DM-NAX-AMP-X300 consists of the model name followed by the MAC address of the device. For example, DM-NAX-AMP-X300-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

NOTES:

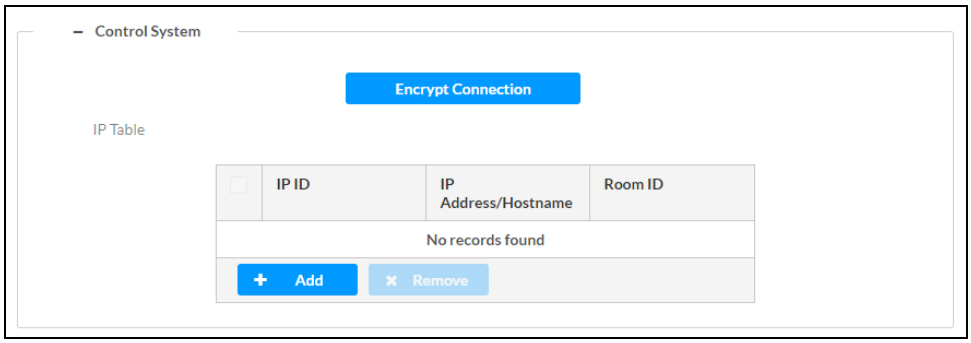
- An **+ Adapter 2** option is only displayed when the dual Ethernet ports on the DM-NAX-AMP-X300 are set to isolate traffic using the **Port Selection** feature. The settings for **Adapter 2** are identical to those available for **Adapter 1**.
- DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AMP-X300 is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When **DHCP** is enabled (default setting), the IP address of the DM-NAX-AMP-X300 is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When **DHCP** is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AMP-X300.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AMP-X300 in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

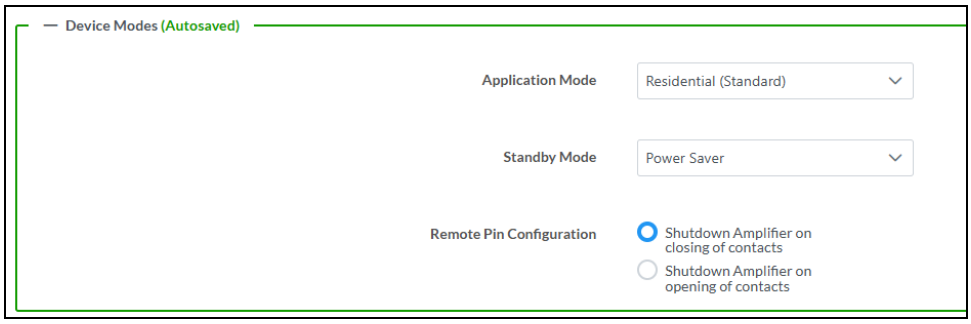
Cloud Settings



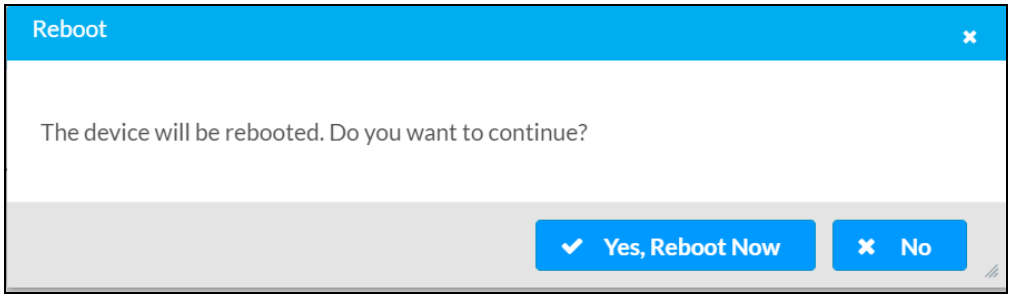
Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AMP-X300 can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode** and **Standby Mode**.



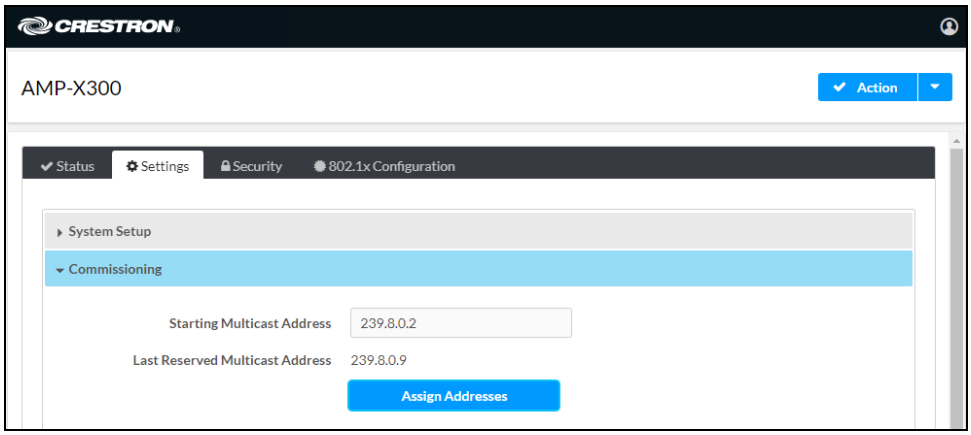
- **Application Mode**: The Application Mode determines which options and controls are available.
  - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



  - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
  - Wait for the device restart to complete before attempting to reconnect to the device.
- **Standby Mode**: Select the DM-NAX-AMP-X300's standby behavior.
  - **Always On**: The device's amplifier remains powered on at all times.
  - **Power Saver**: If no signal is detected for 25 minutes, the device enters a low power state by turning off the amplifier board. Upon detecting an audio signal, the amplifier will be turned back on.
- **Remote Pin Configuration:** Select the behavior of the **REMOTE** connector on the rear panel of the DM-NAX-AMP-X300.
  - To have the amplifier turn off when a connected dry contact is closed, select **Shutdown Amplifier on closing of contacts**.
  - To have the amplifier turn off when a connected dry contact is opened, select **Shutdown Amplifier on opening of contacts**.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to all of the device's internal audio-over-IP stream transmitters.

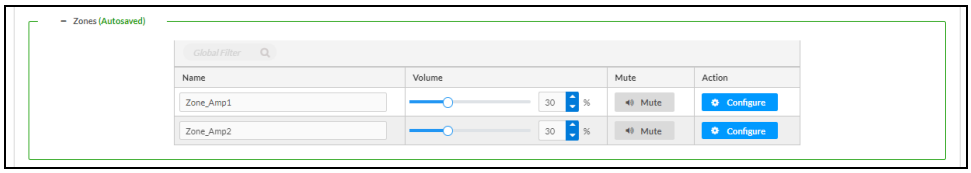


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AMP-X300 a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.255.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Zones

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a Configure option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

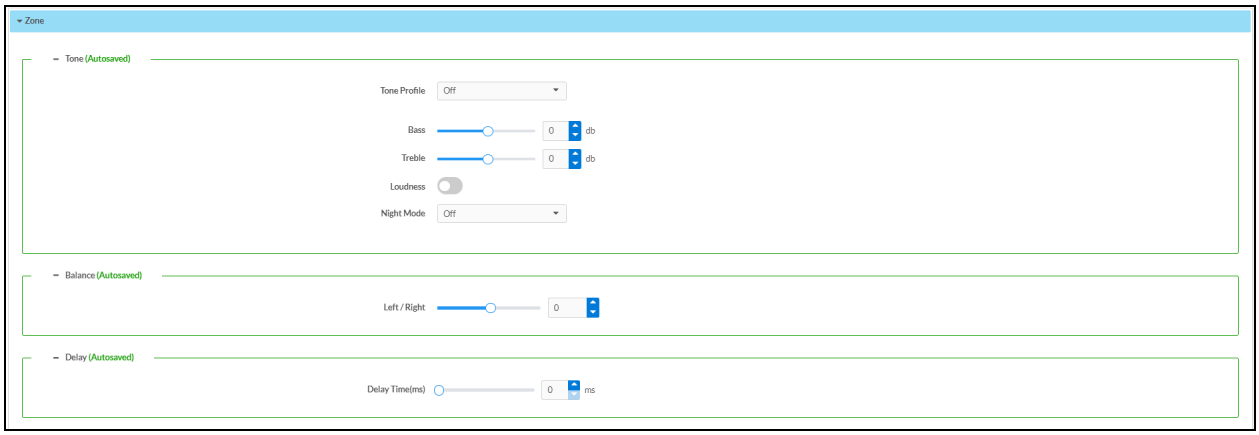
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Zone Settings

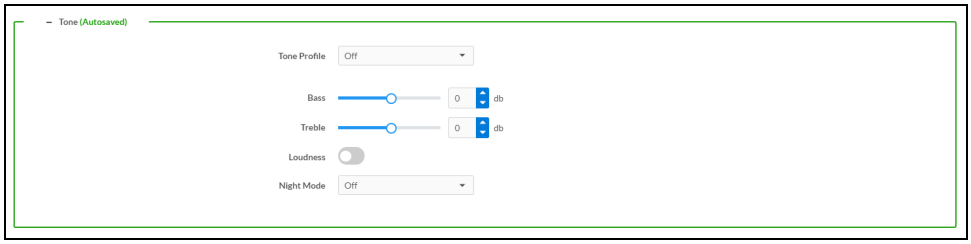
To configure zone settings, select **Configure** (Configure). The **Edit Zone** window is displayed.

Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



Tone



The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

> **NOTE:** The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

1. To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
2. **Bass**: To adjust the bass, do one of the following:
    - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
    - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Bass** field.
3. **Treble**: To adjust the treble, do one of the following:
    - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
    - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Treble** field.
4. To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.

5. The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

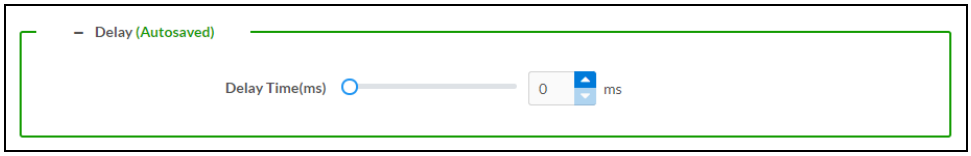
Balance



To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay

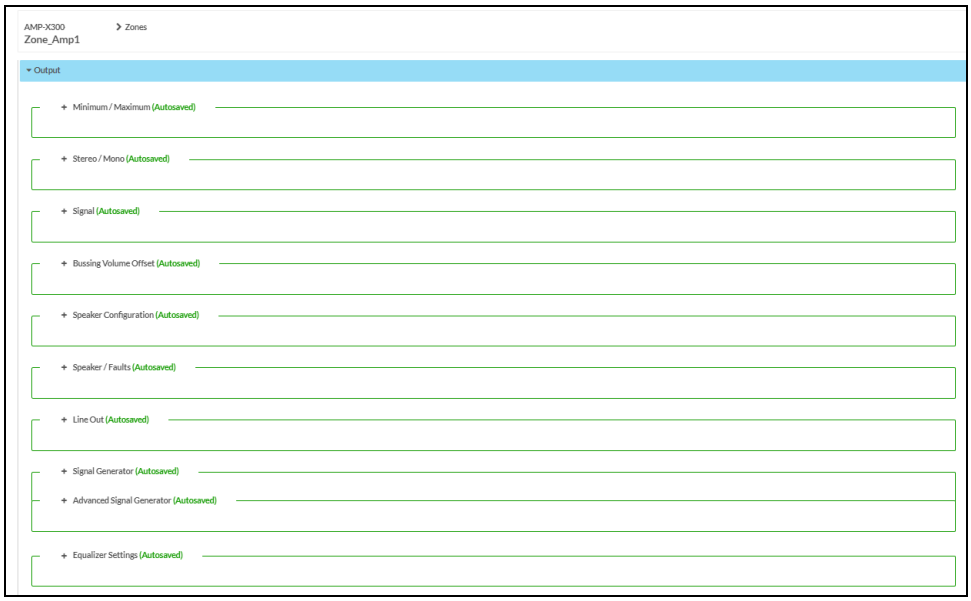


To set the delay, do one of the following:

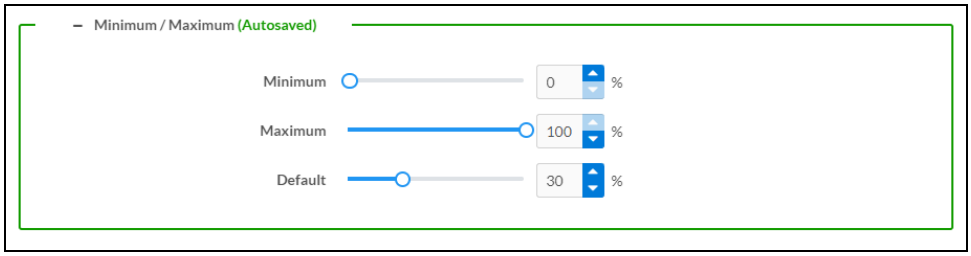
- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Speaker Configuration**, **Configure Speaker Profile**, **Speaker/Faults**, **Line Out**, **Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono

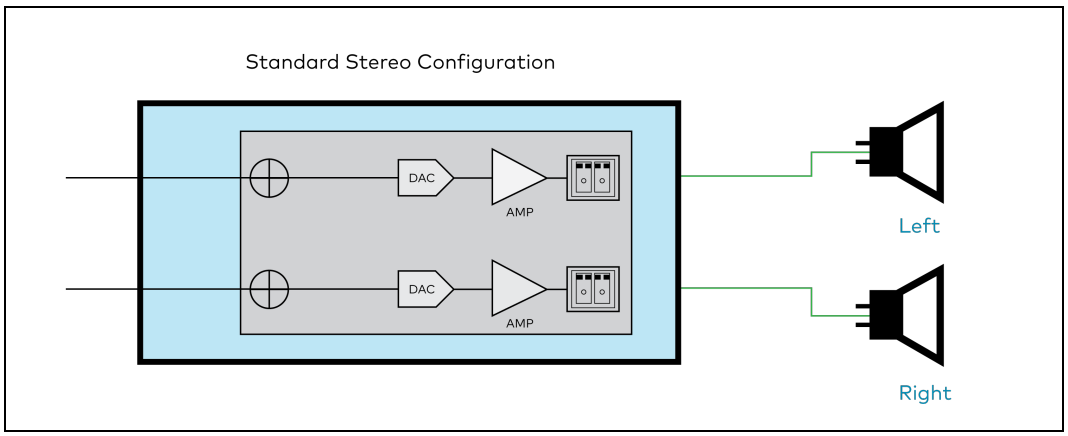


1. Select either **Stereo** or **Mono**.

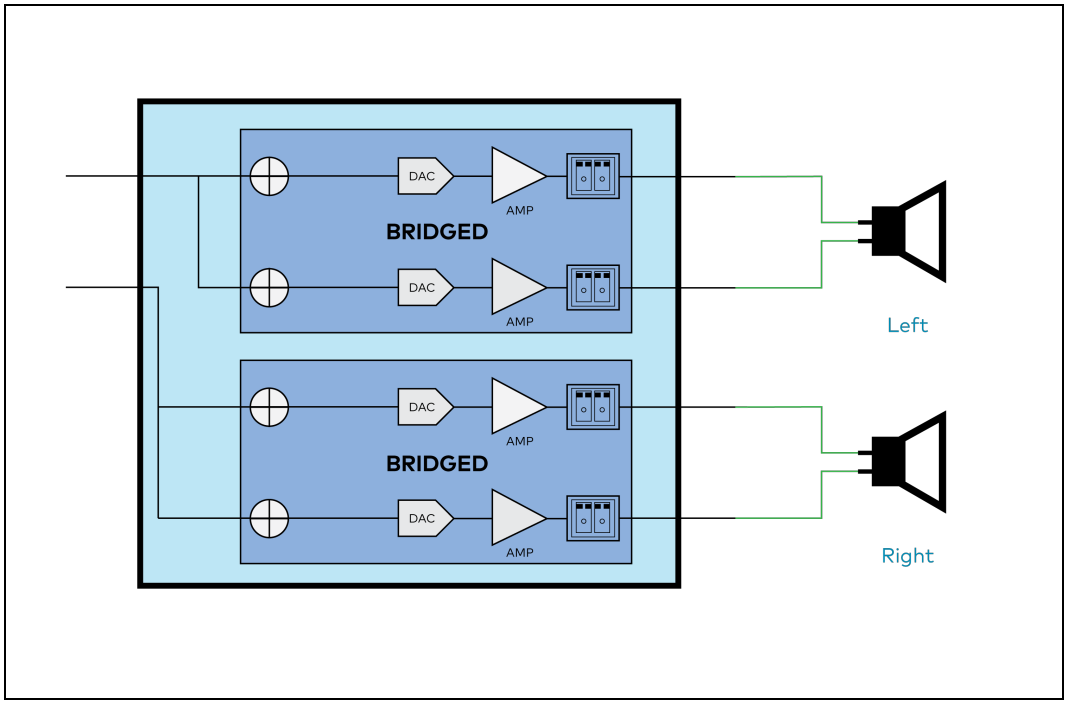
2. Select the zone configuration from the **Zone Configuration** drop-down. The available values are **Standard**, **Bridged**, **Bridged Sub 2.1**, and **Bridged Mono**. Refer to the diagrams below for the output signal flow applied in each configuration.

> **NOTE:** The **Stereo/Mono** field is disabled for the Bridge Mono, and Bridged Sub 2.1 zone configurations.

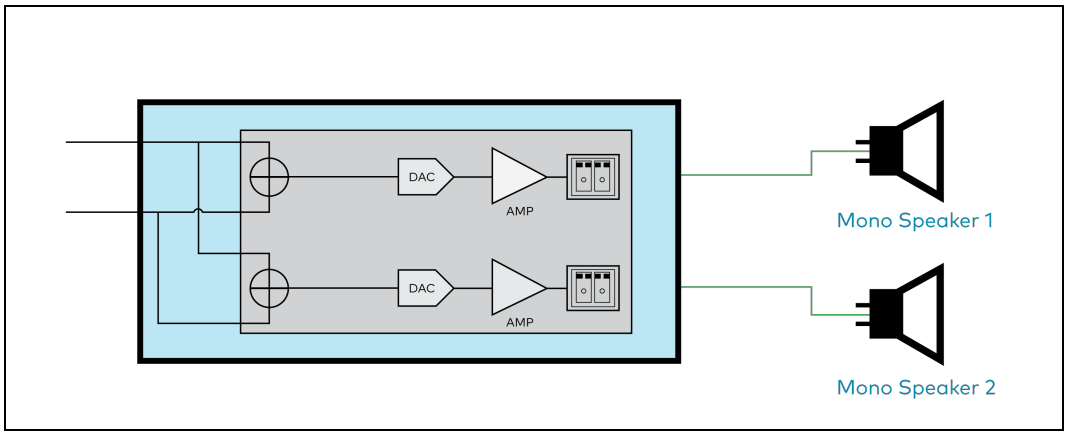
Stereo - Standard



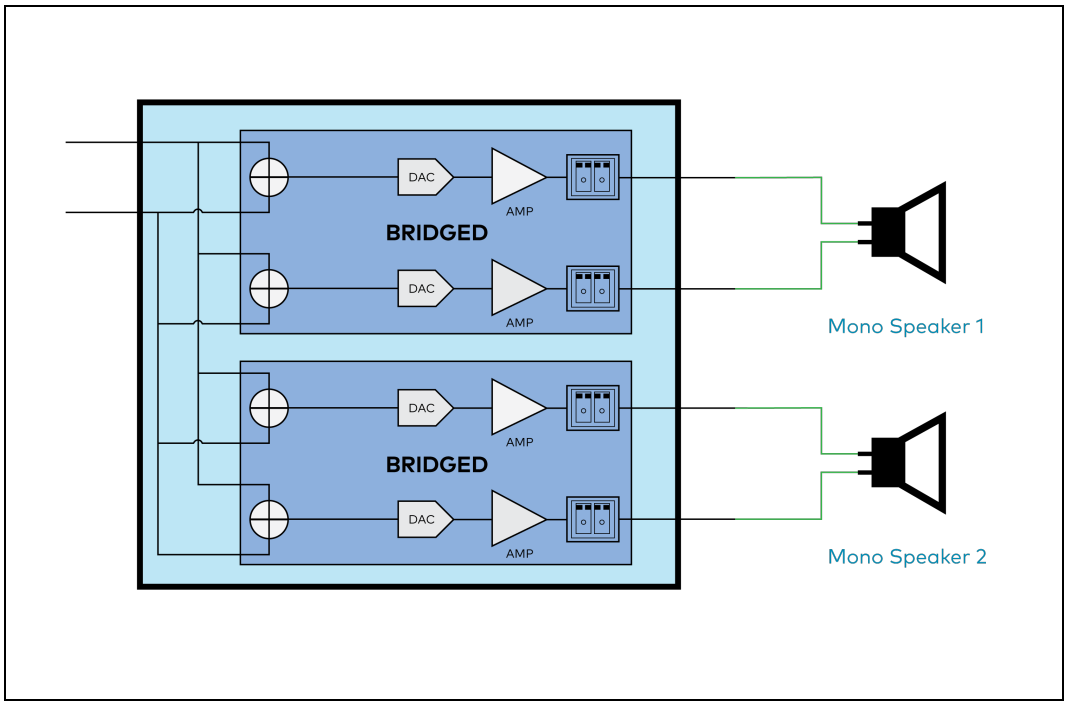
Stereo - Bridged



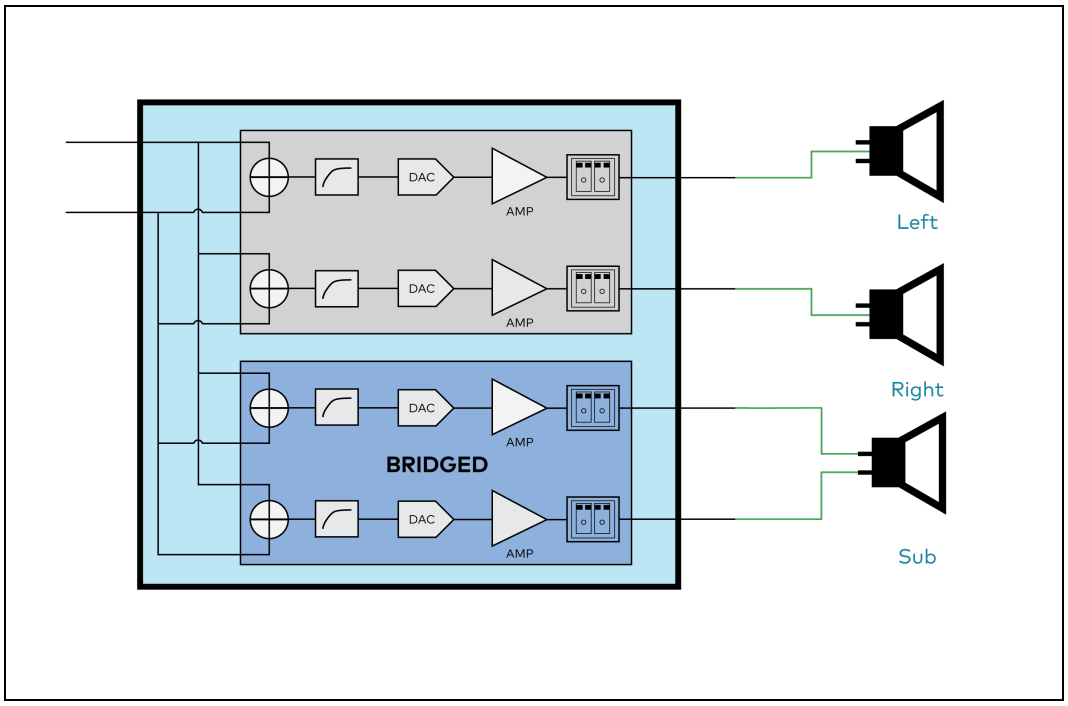
Mono - Standard



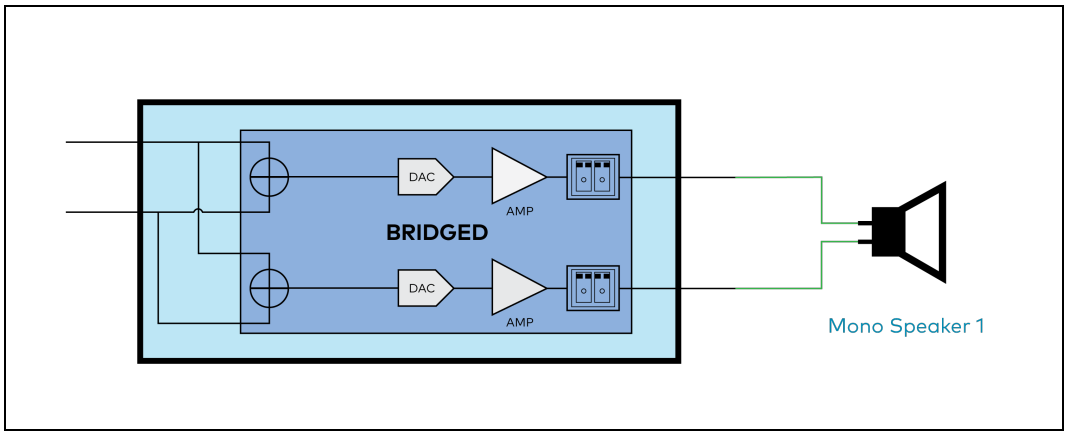
Mono - Bridged



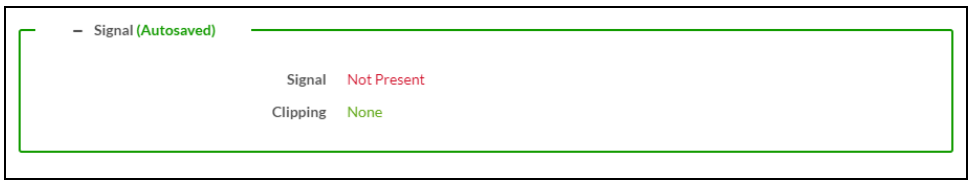
Bridged Sub 2.1



Bridged Mono



Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.

- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset

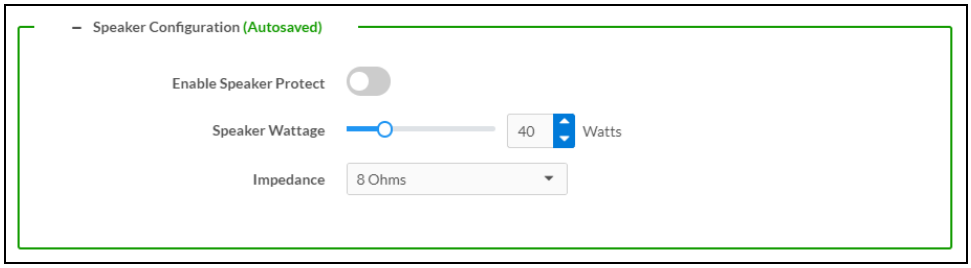


Bussing Volume Offset is an additional level compensation applied to the zone relative to any other zones it is grouped with via the **Bussing** feature.

To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

Speaker Configuration



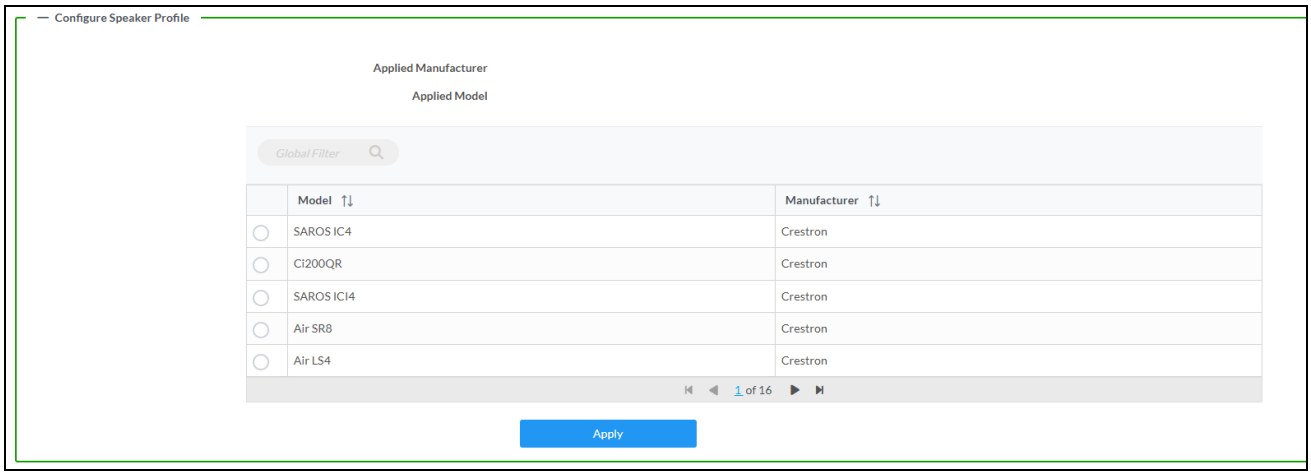
1. Set the **Enable Speaker Protect** toggle to the right position to enable speaker protection for the zone output. Set the toggle to the left position to disable speaker protection. By default, **Enable Speaker Protect** is set to the left position.
2. To set the maximum output wattage, do one of the following:
   - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the maximum peak amplifier wattage that can be output to the speaker.
   - Use the **Watts** arrows to increase or decrease the maximum peak amplifier wattage that can be output to the speaker. Values range from 5 W to 150 W, adjustable in increments of 1 W.
   - Manually enter a value in the **Speaker Wattage** field.
3. Select the impedance of the speaker on a selected zone from the **Impedance** drop-down. Values are **4 Ohms**, **8 Ohms**, and **Bridged**.

Configure Speaker Profile

The DM-NAX-AMP-X300 has a library of built-in speaker profiles that contain equalizer, speaker protection, and impedance settings specific to Crestron and third-party speaker models. Custom

speaker profiles can also be generated and loaded to the DM-NAX-AMP-X300. The **Configure Speaker Profile** field is used to apply these speaker profiles to a given zone of the DM NAX device.

> **NOTE:** Applying a speaker profile on a zone will overwrite the existing **Speaker Configuration** and **Equalizer** settings for that zone.



In the **Global Filter** field, enter the speaker's model name to search for its associated profile. Any speaker profiles matching the search criteria are displayed.

To apply a speaker profile:

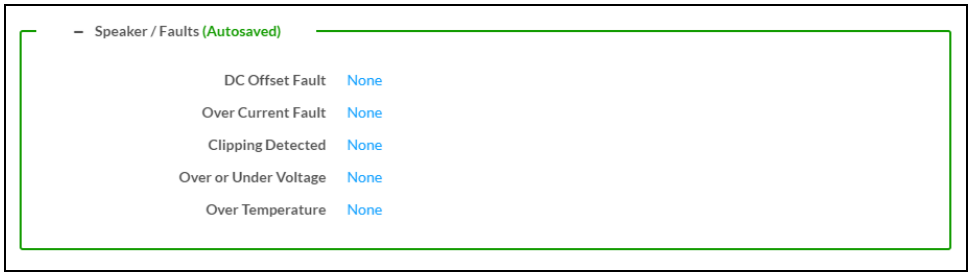
1. Select a speaker profile.
2. Select **Apply**.

   The equalizer, impedance, and speaker protection settings of the zone are updated as per the applied speaker profile.

After applying a speaker profile, the **Speaker Configuration** and **Equalizer** settings for the zone can still be edited. The **Configure Speaker Profile** section will display a notification if these settings were altered after the speaker profile was applied.



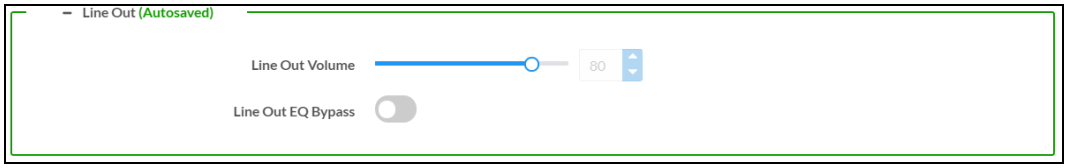
Speaker/Faults



The Speaker/Faults section is a read-only field that displays the status of the **DC Offset Fault**, **Over Current Fault**, **Clipping Detected**, **Over or Under Voltage**, and **Over Temperature** detectors for the zone

output. If clipping or a given fault type is detected, then its corresponding readout displays **Fault Detected** in red. Otherwise, it displays **None** in blue.

Line Out



Line Out Volume controls the volume level of the corresponding line-level output on the DM NAX device. The Line Out Volume is only applied when **Line Out EQ Bypass** is enabled.

1. To set the line out volume, do one of the following:
    - Move the **Line Out Volume** slider to the right to increase or to the left to decrease the line out volume.
    - Use the arrows to increase or decrease the line out volume. Values range from 0 to 100, adjustable in increments of 1. This range in dB is -80 dB to 20 dB.
    - Manually enter a value in the **Line Out Volume** field.
2. Set the **Line Out EQ Bypass** toggle to the right position to have the line-level output signal bypass the zone's equalizer settings. Set the toggle to the left position to have the line-level output signal pass through the zone's equalizer. By default, **Line Out EQ Bypass** is disabled.

> **NOTE:** When the **Line Out EQ Bypass** setting is disabled, the line-level output's level will mirror the speaker output's **Zone** volume control. This allows for a variable signal level in applications where the line-level output is connected to an uncontrolled device such as powered speakers. If the **Line Out EQ Bypass** setting is enabled, the **Line Out Volume** slider can be used to set a fixed level for the line-level output. This level will not be affected by the speaker output **Zone** volume controls, making this configuration better suited to applications where the line output is connected to a controlled amplifier with its own level adjustment.

Signal Generator



The DM-NAX-AMP-X300 has a built-in signal generator that allows an integrator to send an audio signal to any number of selected zones to test output functionality.

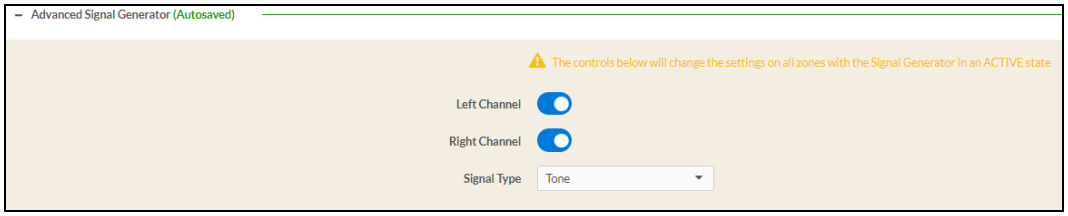
1. To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue. To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey. By default, the signal generator is not routed to the zone output.

   NOTES:

   - There is only one signal generator built-in to the DM NAX device. Each zone has its own button to enable or disable the signal generator from passing signal to that output. Setting the signal generator to **Inactive** on a given zone output only breaks the route for that output and does not stop it from playing back in other zones.
   - The **Signal Generator Volume** control is a local control that does not affect the signal generator's volume on other zone outputs. Only the settings under **Advanced Signal Generator** are applied universally to all zones of the DM NAX device.

2. To adjust the signal generator's volume, do one of the following:
   - Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
   - Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
   - Manually enter a value in the **Signal Generator Volume** field.

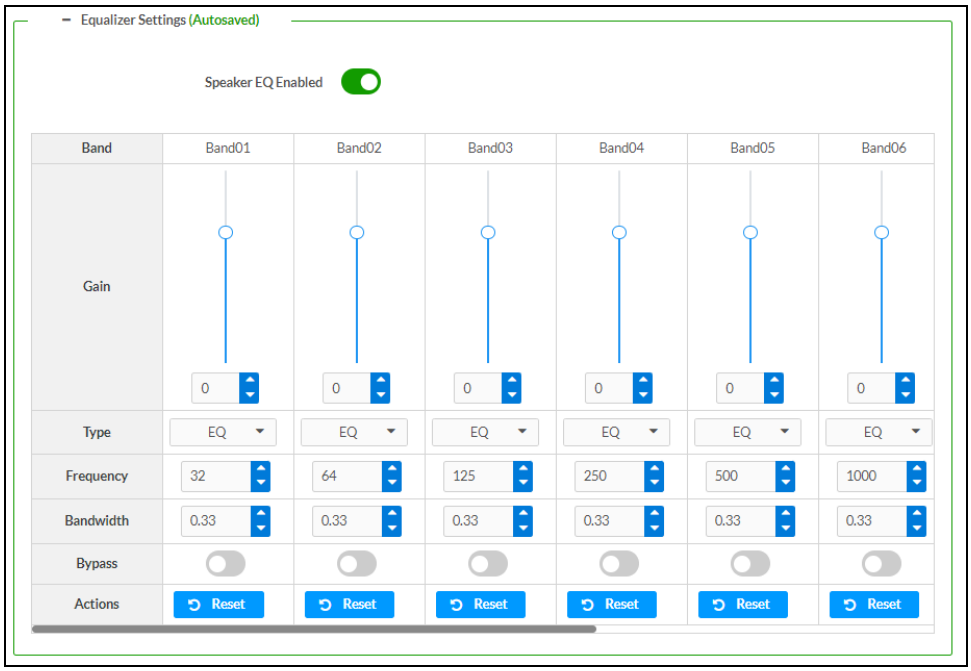
Advanced Signal Generator



The advanced signal generator settings control the built-in signal generator directly, and are applied universally to all output zones of the DM NAX device. The signal type for the generator can be set, and the left and right channels of the test signal can be individually enabled or disabled.

1. Set the **Left Channel** toggle to the right position to enable the left channel of the signal. Set the toggle to the left position to disable the left channel. By default, **Left Channel** is enabled.
2. Set the **Right Channel** toggle to the right position to enable the right channel of the signal. Set the toggle to the left position to disable the right channel. By default, **Right Channel** is enabled.
3. Select an audio test signal type from the **Signal Type** drop-down. The available signal types are:
   - **Tone**: Generates a 1 kHz sine wave tone.
   - **Pink Noise**: Generates pink noise.
   - **White Noise**: Generates white noise.

Equalizer Settings



Each zone output of the DM-NAX-AMP-X300 has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

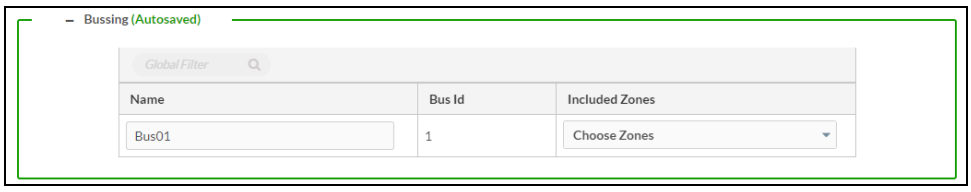
   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.
   a. To set a band's gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
      - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
e. The individual **Bypass** controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Bussing



The bussing feature on DM NAX devices allows an integrator to assign any number of selected zones to a fixed group of zones (bus). Zones in a bus track the other zones' volume and routing. For example,

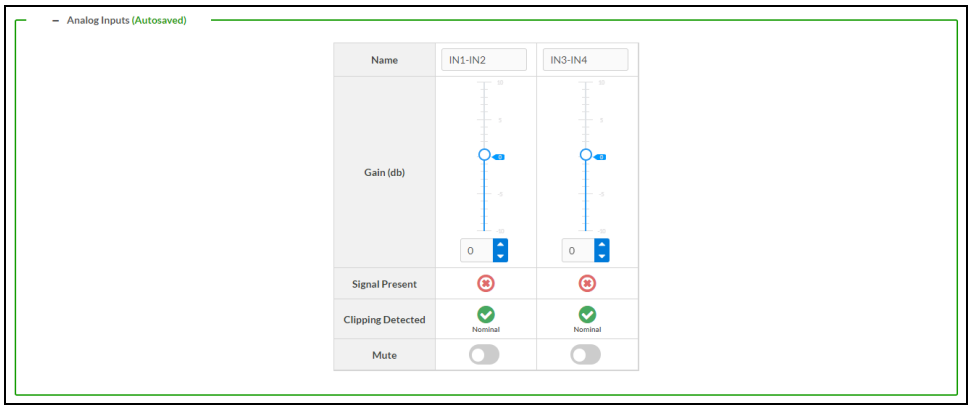
when the source or volume for one zone in the bus is adjusted, all other zones in that bus receive the same adjustment. You can create a single output bus on the DM-NAX-AMP-X300.

Configure Bussing

1. If needed, enter a friendly name for each bus in its **Name** field.
2. Select any number of zones from the **Included Zones** drop-down.

Inputs

The **Inputs** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-AMP-X300.



1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
   - Move the **Compensation** slider up to increase or down to decrease the compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
   - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
   - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, select **Mute**. To disable the mute, select **Muted**. By default, **Mute** is disabled.

Monitor the device's input signals using the indicators in the **Signal Present** and **Clipping Detected** rows:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

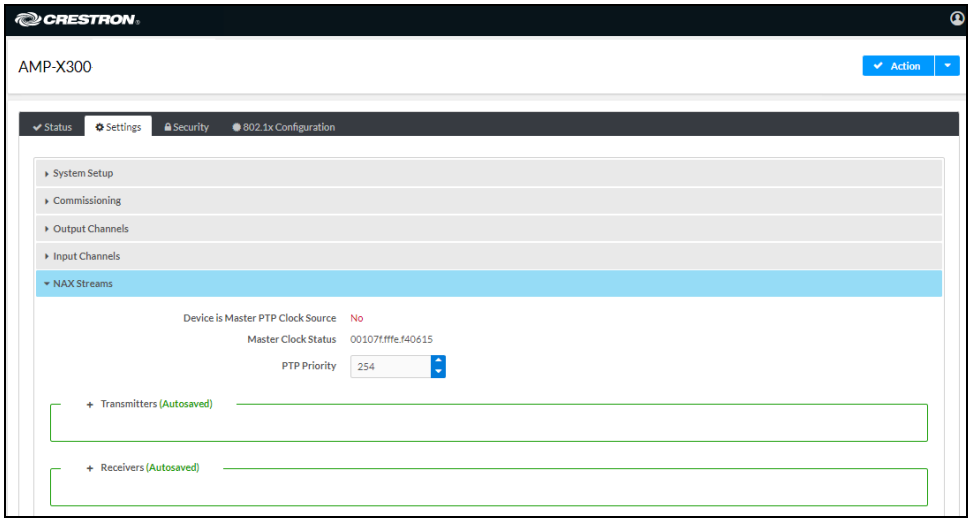
Each local input of the DM-NAX-AMP-X300 can be made available as a DM NAX audio-over-IP stream.

The DM-NAX-AMP-X300 also supports parallel DM NAX streams for each zone output, enabling an additional transmit stream per output to mirror all routes and DSP settings of its respective zone. These parallel streams enable control of the audio signal to third-party uncontrolled AES67 devices receiving audio from the DM-NAX-AMP-X300.

> **NOTES:**

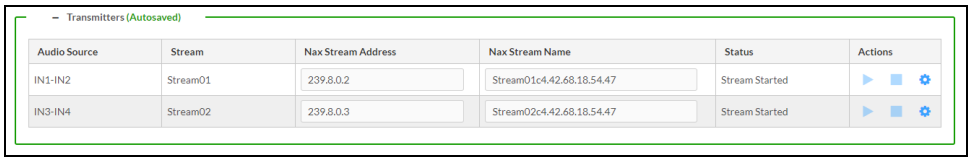
- Under the **Transmitters** section (see Configure Transmitters), the last two listed transmitters are dedicated to parallel zone outputs.
- To configure the DSP settings, refer to Zone Settings.

Select **NAX Streams** to display the following information.



- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-AMP-X300 is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AMP-X300 will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

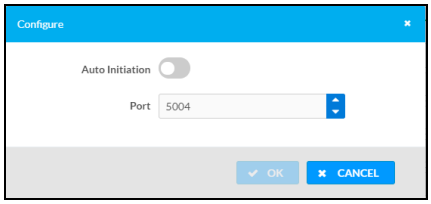
Configure Transmitters



To configure a DM NAX transmit stream:

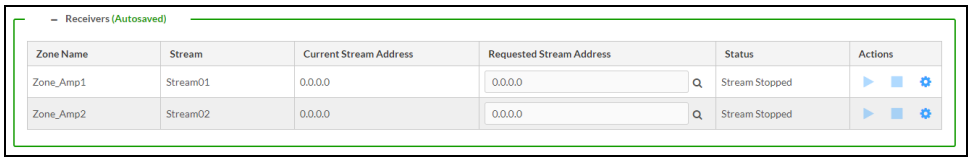
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.

3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

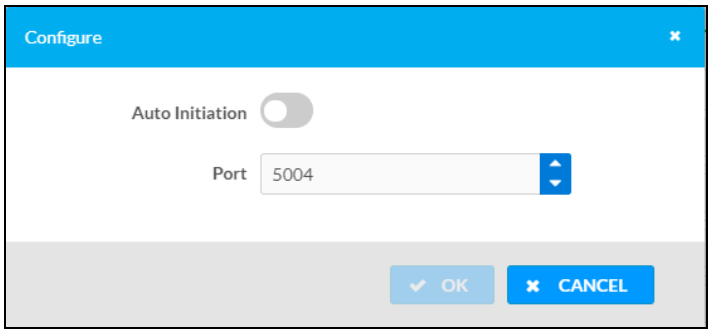


5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers



1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Routing

The **Routing** section is used to route a local input or AES67 stream to a zone on the DM-NAX-AMP-X300.

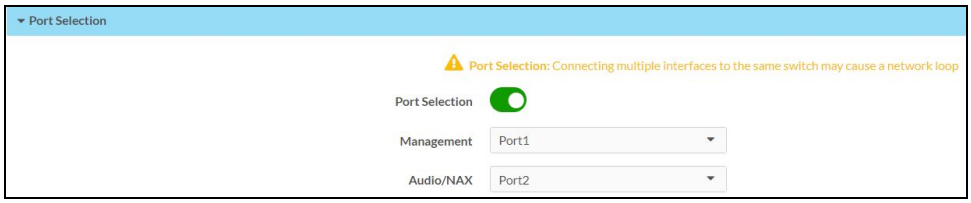
> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the checkbox icon under the input's name.

Port Selection

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment device management and streaming service traffic to a separate physical device Ethernet port than audio-over-IP streaming traffic. With **Port Selection** enabled on all DM NAX devices on a network, DM NAX and AES67 network traffic can be physically separated from the control network onto a dedicated audio network.



To configure **Port Selection**:

1. Set the **Port Selection** toggle to the right position to enable **Port Selection**. Set the toggle to the left position to disable **Port Selection**. By default, **Port Selection** is disabled.

   > **NOTE: Port1** and **Port2** correspond to the Ethernet adapters labeled **1** and **2** on the rear panel of the DM-NAX-AMP-X300, respectively.

2. With **Port Selection** enabled:
   a. Select an Ethernet port from the **Management** drop-down to designate which Ethernet port on the rear panel of the device will handle network traffic relating to device configuration and the device's connection to a control system.

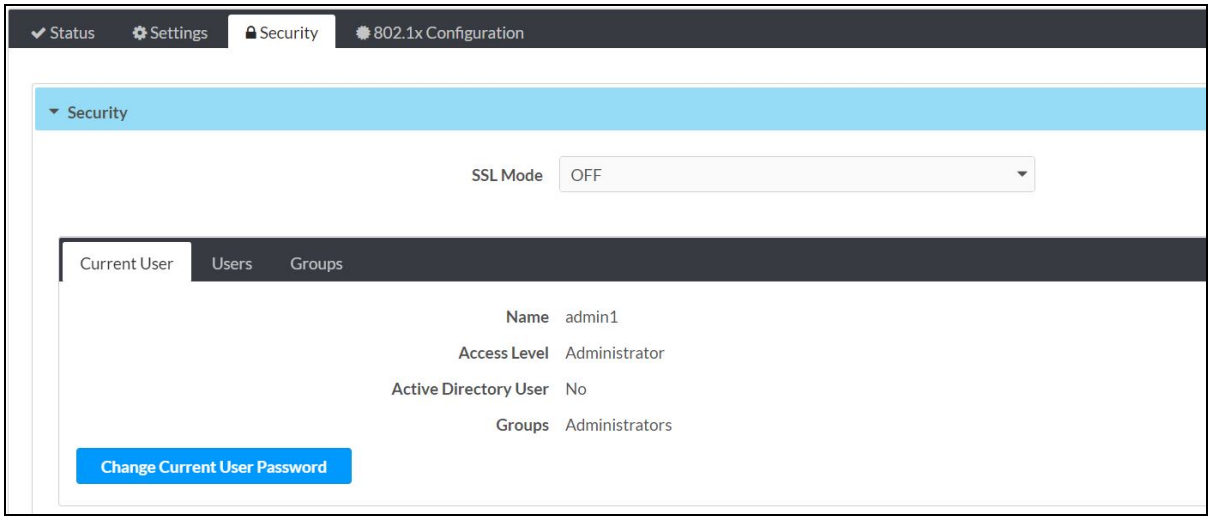
      > **NOTE:** The Management port determines your connection to the web interface. Changing the port value can result in losing your connection to the device via the web interface.

   b. Select an Ethernet port from the **Audio/NAX** drop-down to designate which Ethernet port on the rear panel of the device will handle audio-over-IP streaming network traffic.
3. Select **Save** changes to apply the new settings.

   > **NOTE:** Making changes to **Port Selection** settings will require a restart.

Security

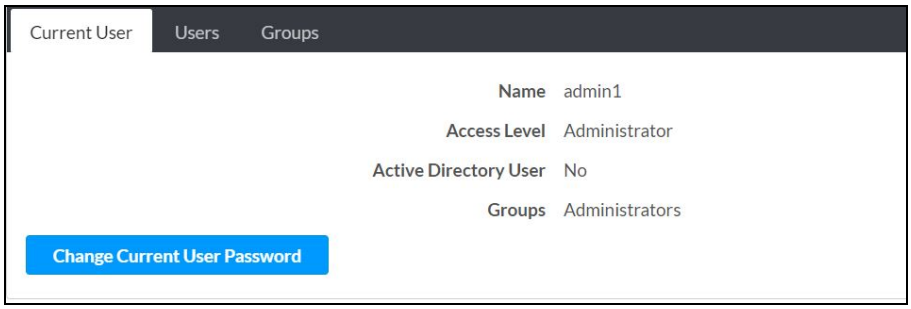
Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM-NAX-AMP-X300 functions. By default, security is disabled.



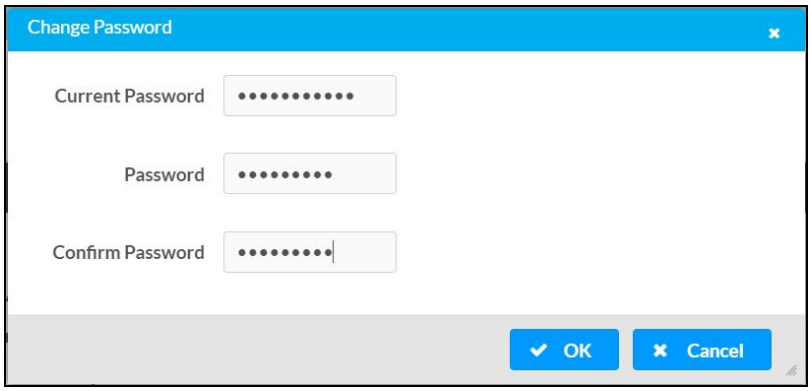
Select **Encrypt and Validate**, **Encrypt**, or **OFF** in the **SSL Mode** drop-down, to specify whether to use encryption. By default, SSL Mode is set to **OFF**.

Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



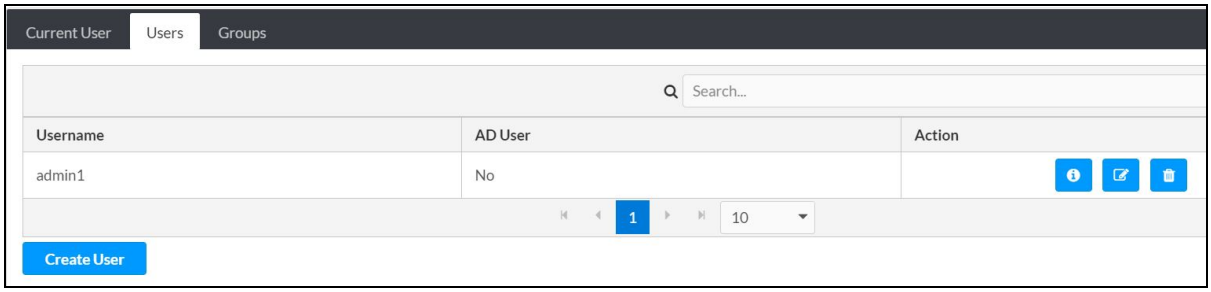
1. Select **Change Current User Password** to provide a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about users.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

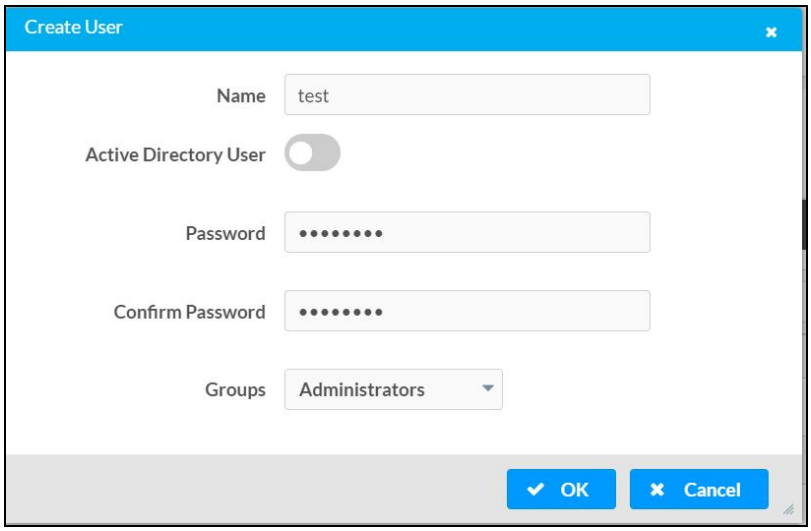
- **Username**: Displays the name of the user.
- **AD User**: Displays whether the user requires authentication using Active Directory.

  Select the corresponding icon in the **Actions** column to view detailed user information or to delete the user.

  To create a new user, select **Create User**.

Create a New Local User

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:



a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

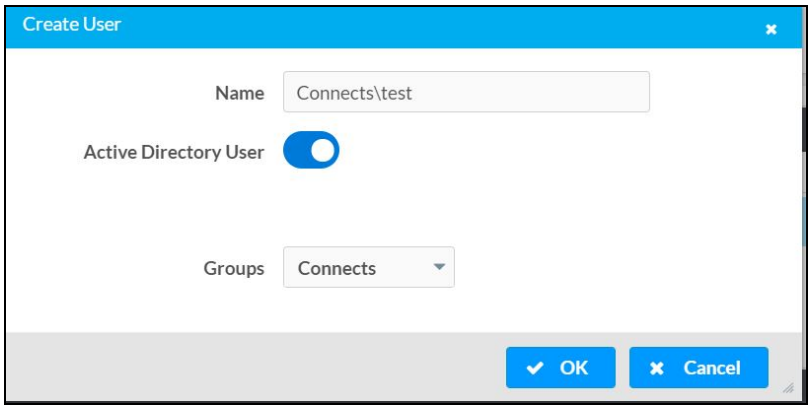
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-AMP-X300, or add the Active Directory group(s) that they are a member of to the DM-NAX-AMP-X300.

To add an Active Directory user.

1. Select **Create User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

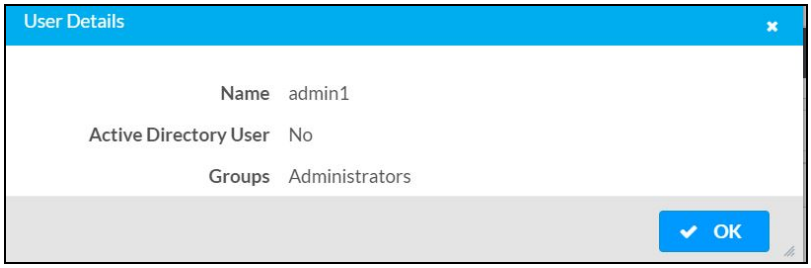
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

View User Details

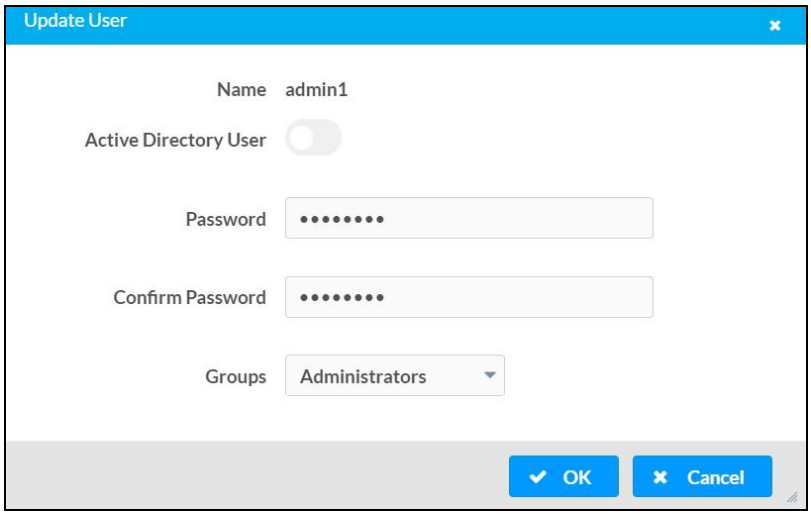
Select the information icon in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.

- **Name**: Displays the name of the selected user.
- **Active Directory User**: Displays whether the user is an Active Directory user.
- **Group**: Displays group(s) the selected user is part of.



Select **OK** to close the **User Details** dialog and to return to the **Users** tab.

Update User Details



1. Select the edit icon in the **Actions** column to update information for the selected user.
2. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
3. Select one or more groups to assign the user to from the **Groups** drop-down list.
4. Select **OK** to save or select **Cancel** to cancel the changes.

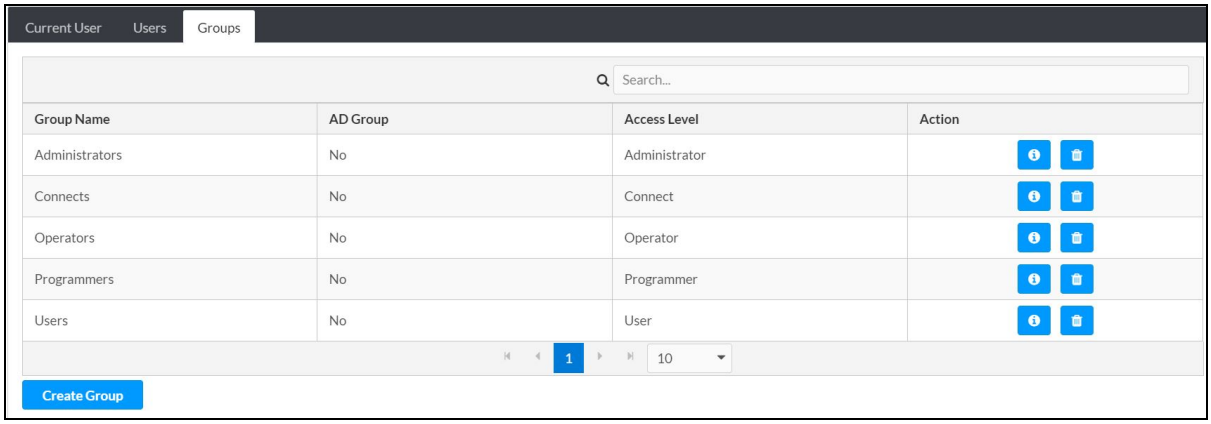
The **Update User** dialog also displays the following read-only information for the selected user.

- **Name**: Displays the name of the user.
- **Active Directory User**: Displays whether the user is an Active Directory user.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

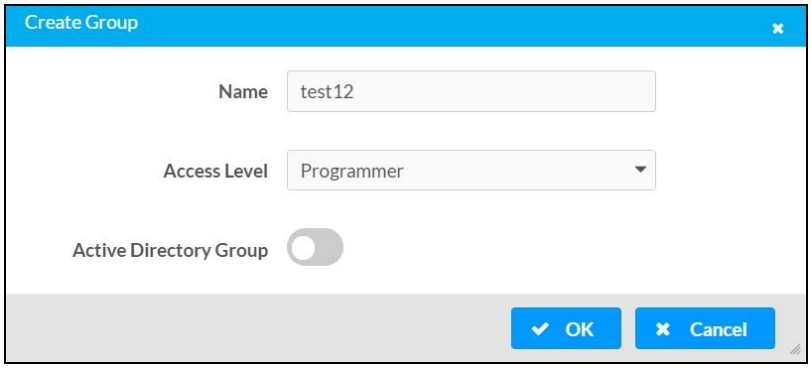
Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **AD Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the corresponding icon in the **Actions** column to view detailed group information or to delete selected group.

Select **Create Group** in the **Groups** tab to create new group.

Create Local Group



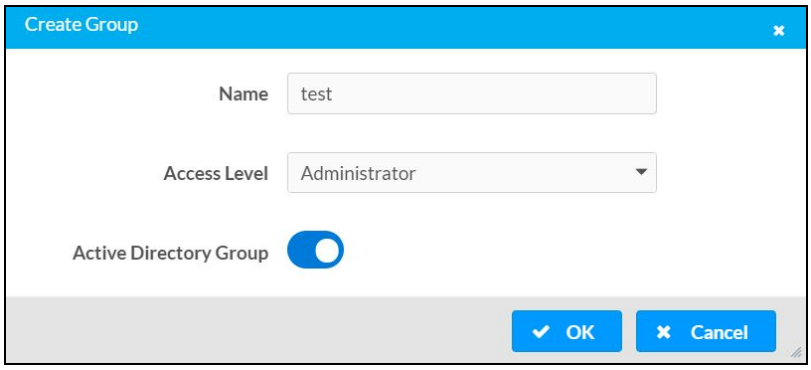
1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-AMP-X300.

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

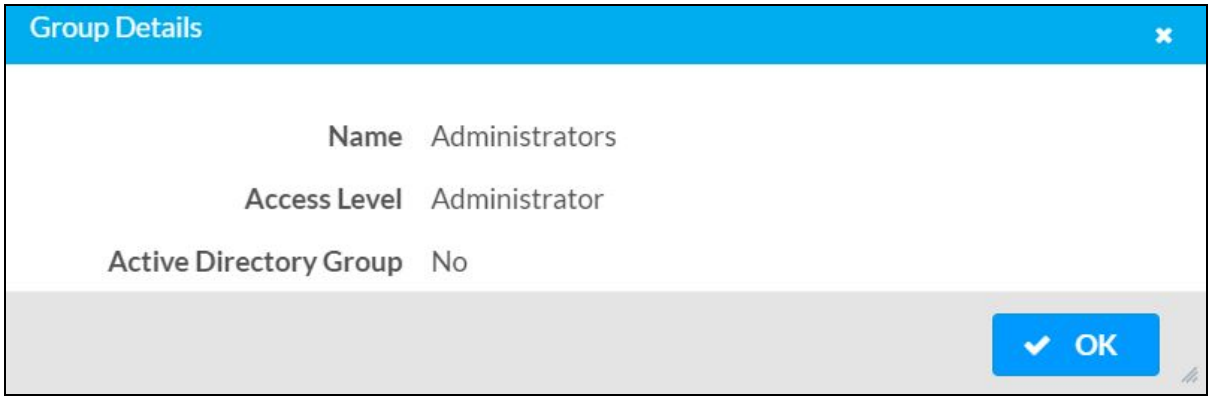
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

View Group Details

Select the information icon in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group.

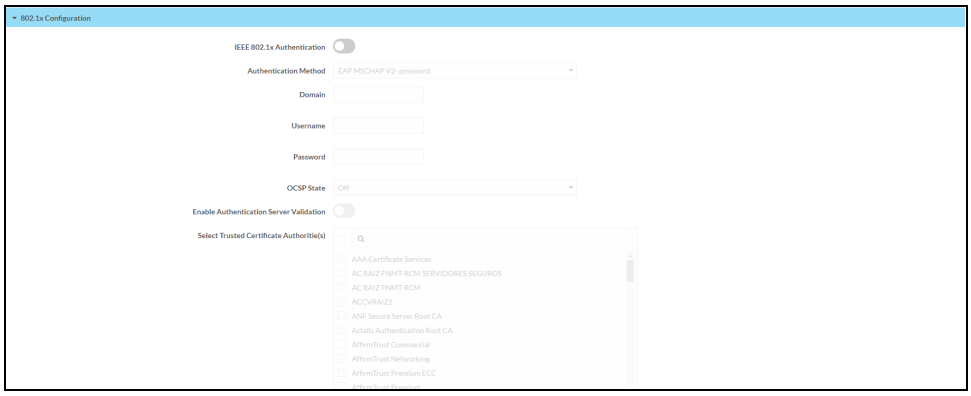


- **Name**: Displays the name of the group.
- **Access Level**: Displays the access level of the group and its users.
- **Active Directory Group**: Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and to return to the **Groups** tab.

802.1X Configuration

The DM-NAX-AMP-X300 has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.



Configure DM-NAX-AMP-X300 for 802.1X Authentication

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all options on the 802.1X dialog.
2. Select the **Authentication method**: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.
3. Do either one of the following:
    - Select **EAP-TLS Certificate**: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
    - Select **EAP-MSCHAP V2 Password**: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only the user name and password credentials.
4. Select the **OCSP State**: If using OCSP, select **All**, **Required**, or **Optional**. To disable OCSP, select **Off**.
5. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-AMP-X300.
   Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** functionality.
6. If required, type the domain name of the network in the **Domain** field.
7. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** to cancel any changes.

DM-NAX-AUD-IO

This section describes how to configure the DM-NAX-AUD-IO.

Web Interface Configuration

The DM-NAX-2XLRI-1G web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 523
- Access the Web Interface With Crestron Toolbox™ Software on page 525

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

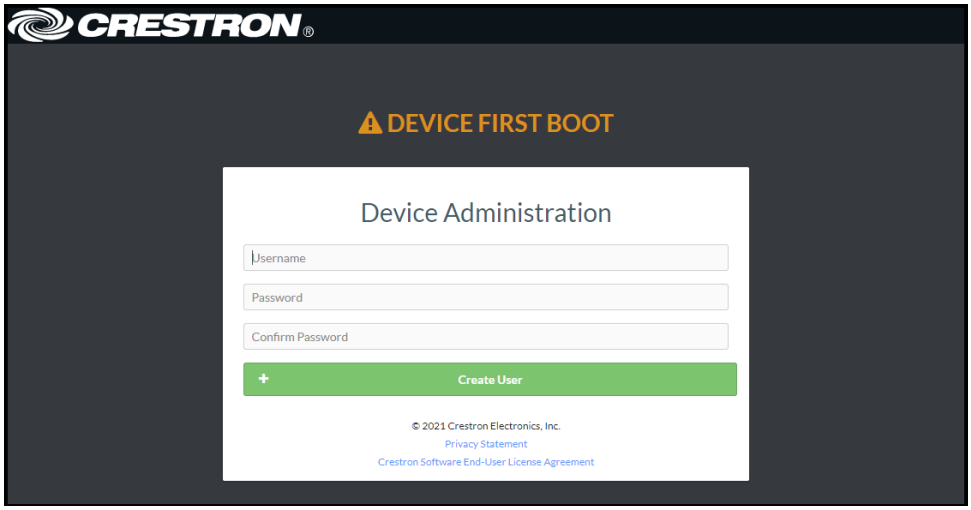
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

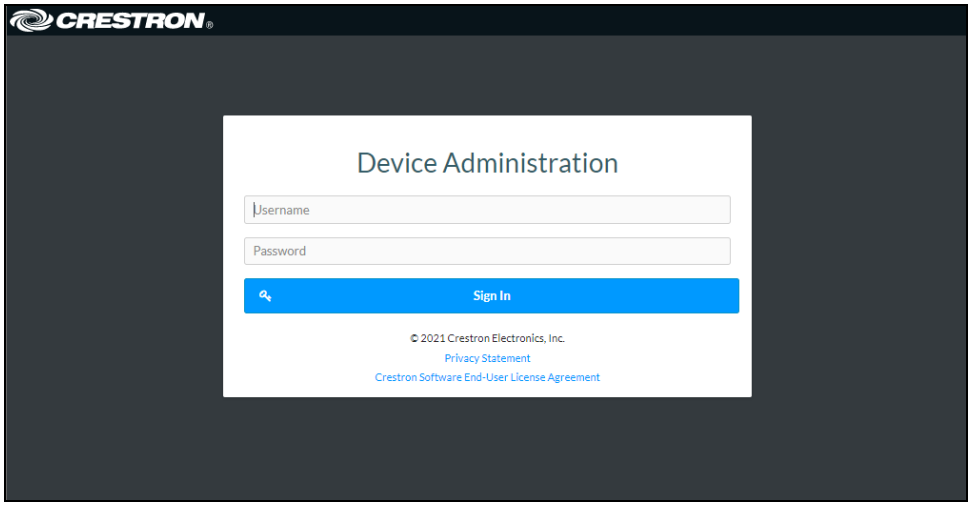
1. Enter the IP address of the DM-NAX-AUD-IO into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser within Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-AUD-IO is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

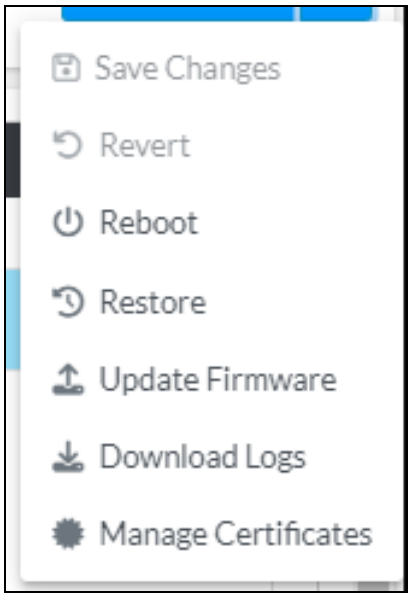
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 526
- Revert on page 526
- Reboot on page 527
- Restore to Factory Default Settings on page 527
- Update Firmware on page 528
- Download Logs on page 528
- Manage Certificates on page 529



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

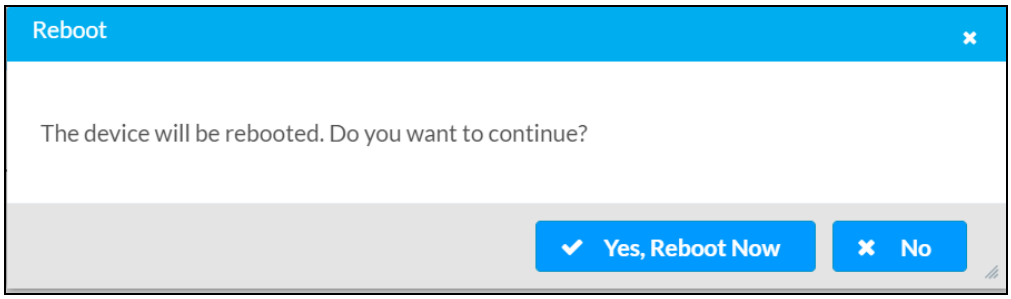
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-AUD-IO to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



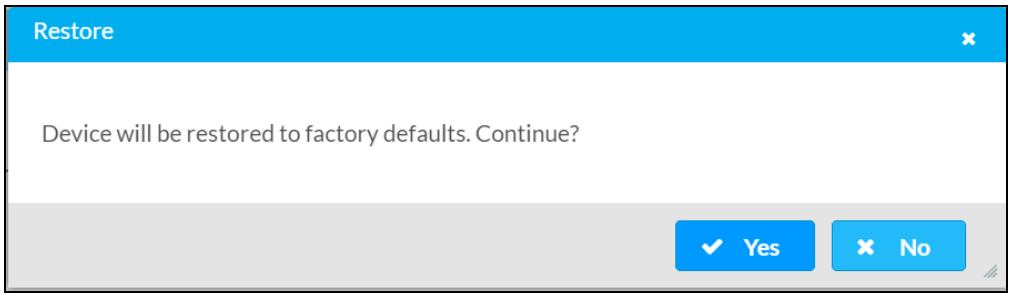
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-AUD-IO to factory defaults.

NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



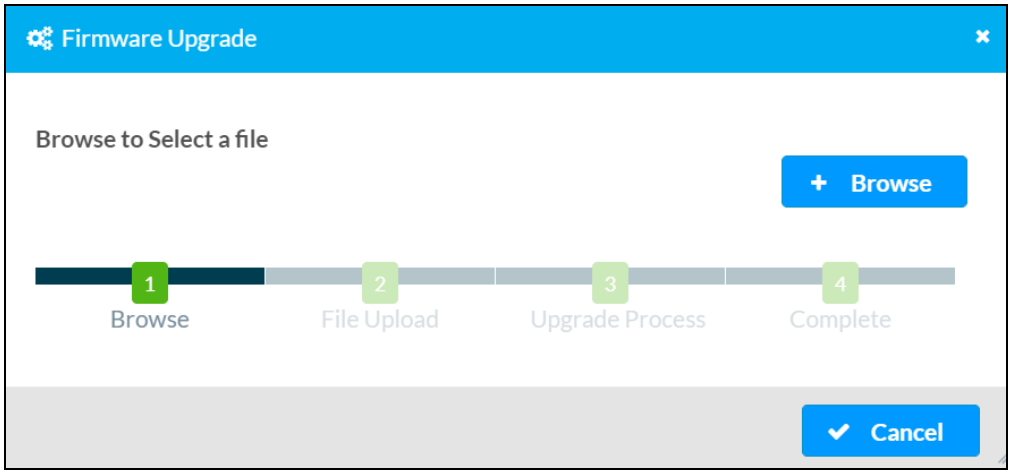
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-AUD-IO to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, and then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

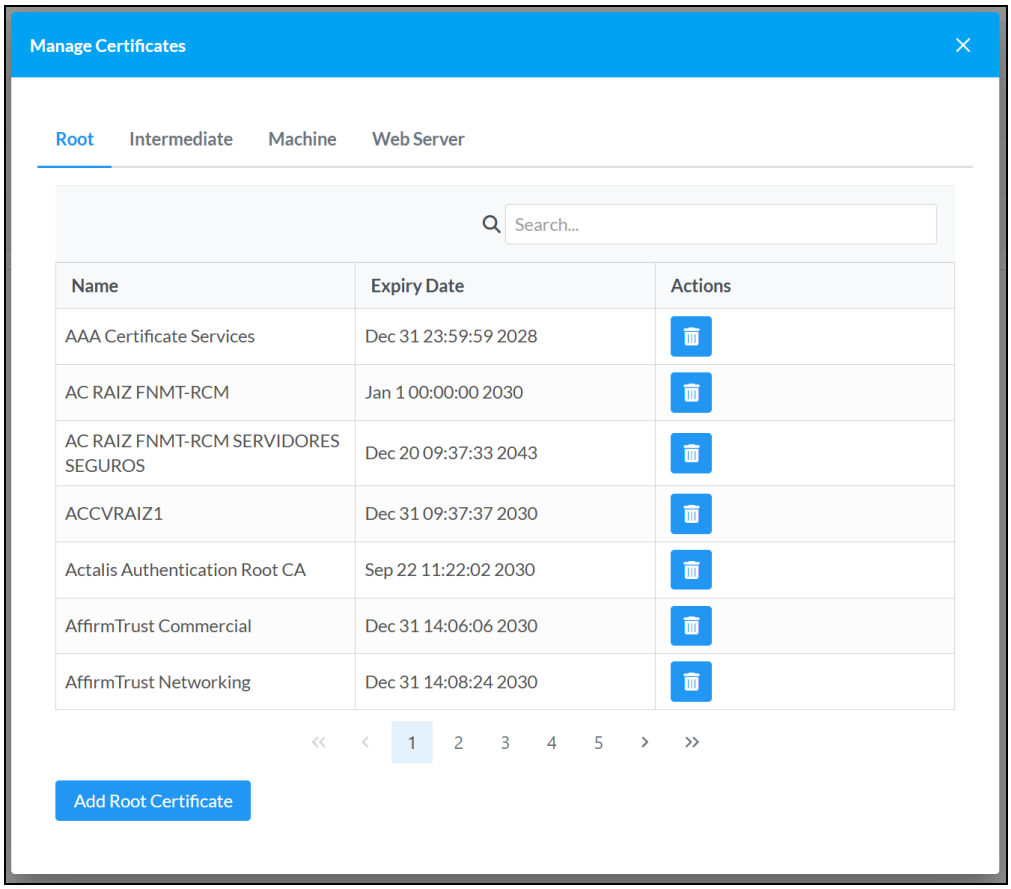
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-AUD-IO to validate the network's authentication server. The DM-NAX-AUD-IO has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-AUD-IO. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

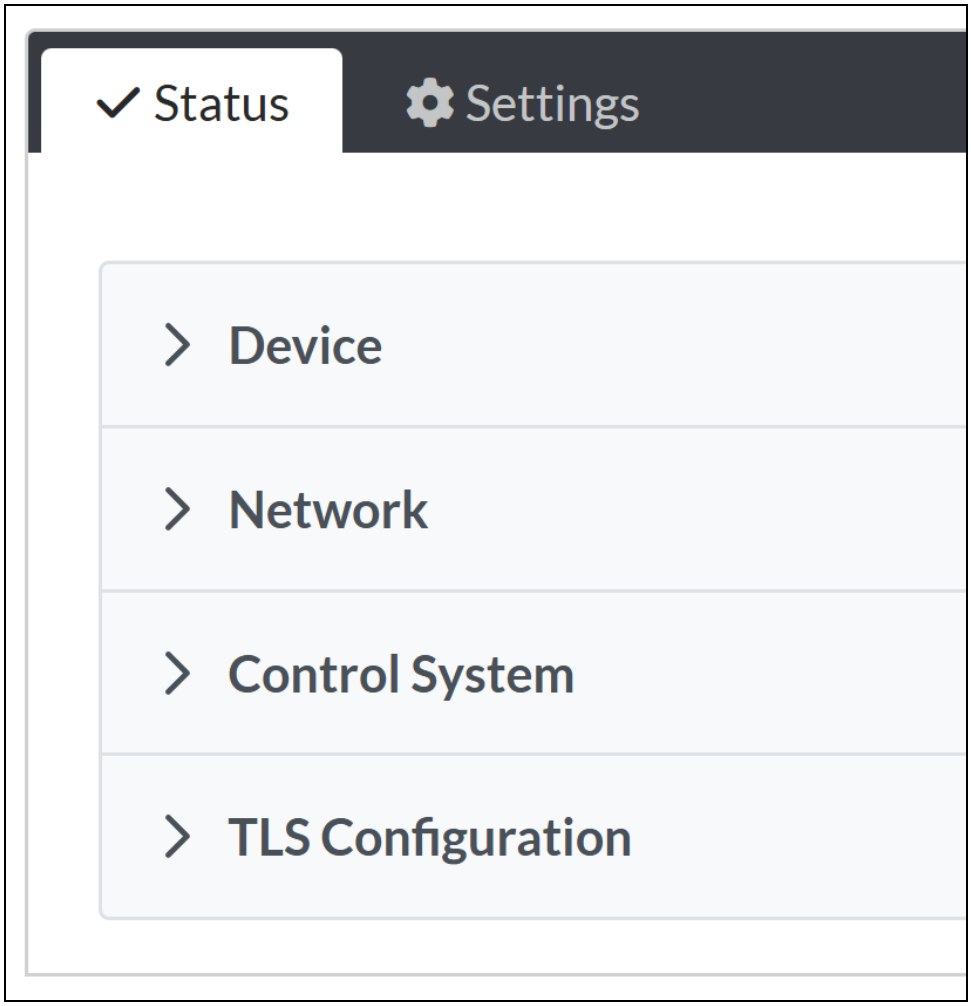
To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-AUD-IO. It displays general information about the DM-NAX-AUD-IO (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**, etc.), and input and output ports' current status.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-AUD-IO web interface.

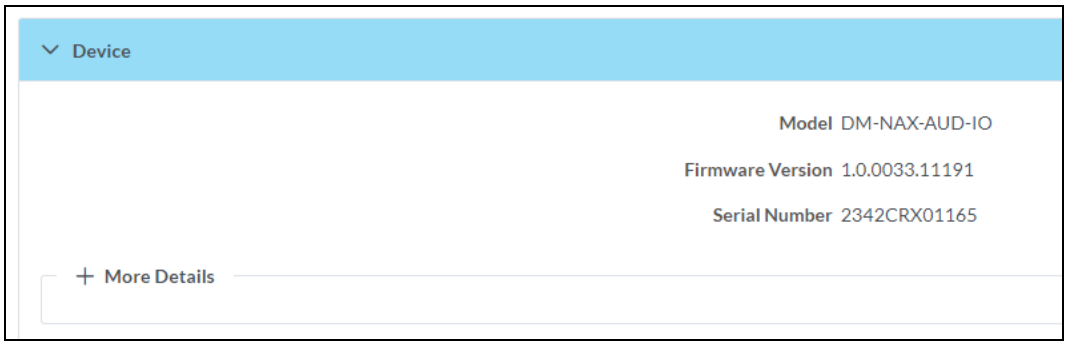


Information displayed on the **Status** page is organized into different collapsible accordions:

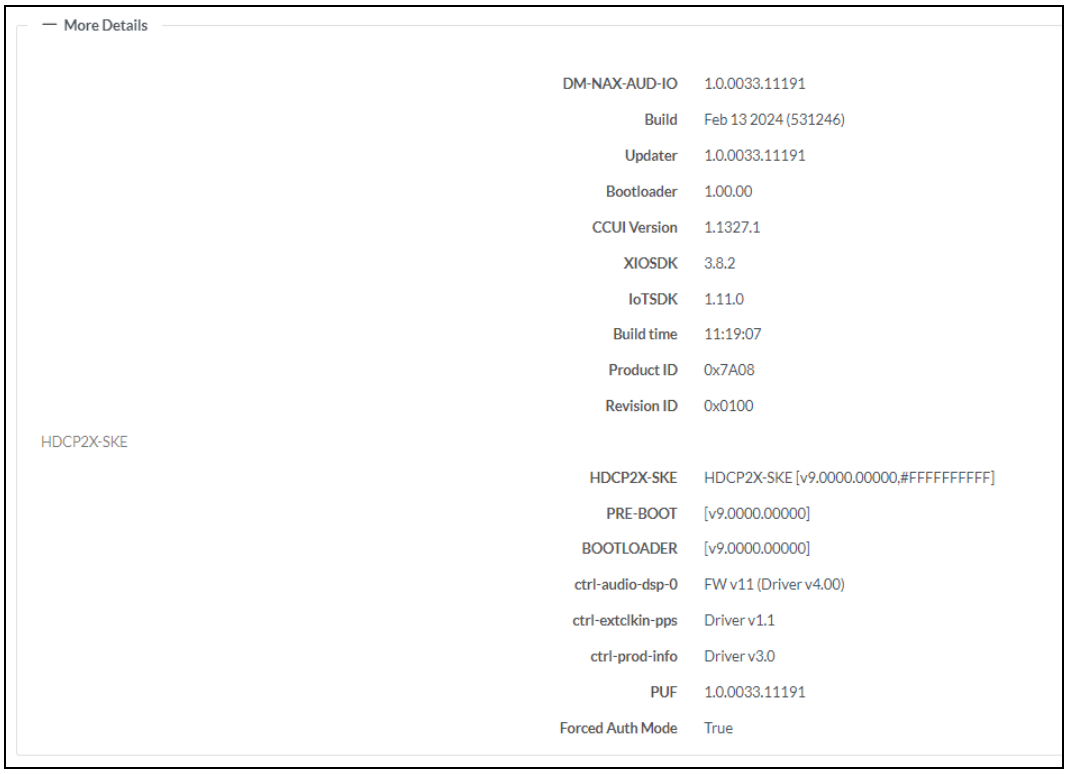
- Device on page 531
- Network on page 532
- Control System on page 533
- TLS Configuration on page 533

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-AUD-IO.

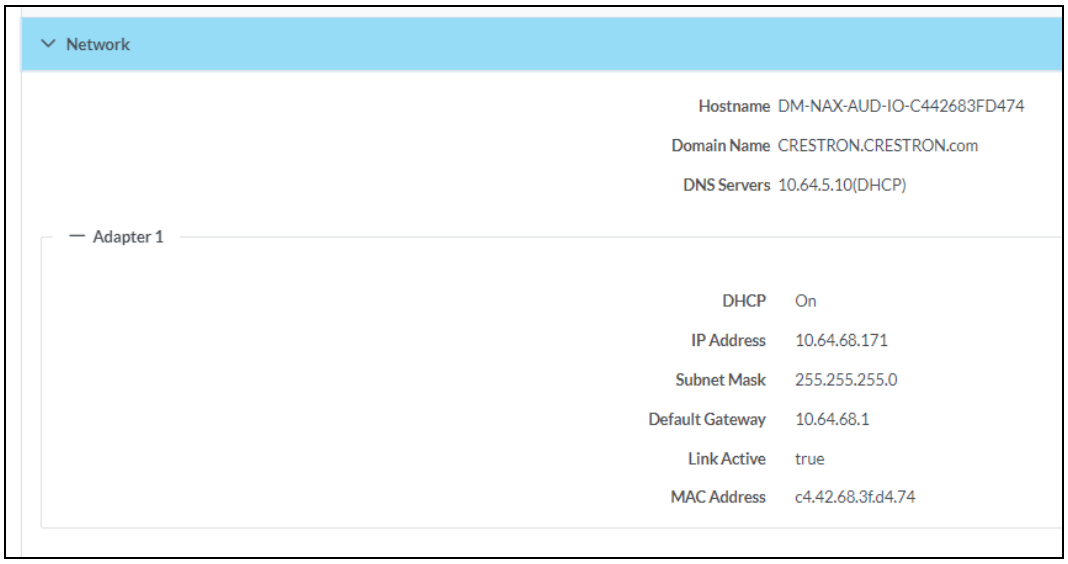


Select **+ More Details** to review additional information about the DM-NAX-AUD-IO.



Network

The **Network** section displays network-related information about the DM-NAX-AUD-IO, including the **Hostname**, **Domain Name**, and **DNS Servers**.

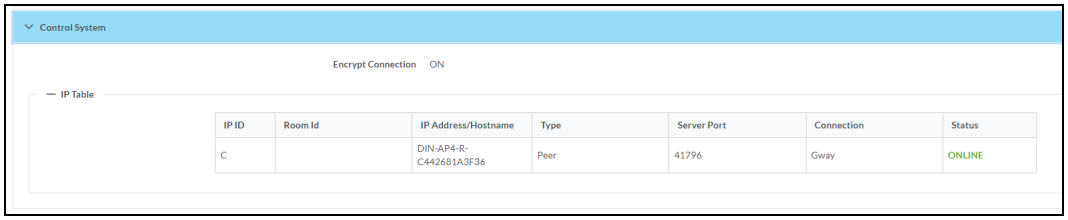


NOTE: By default, the host name of the DM-NAX-AUD-IO consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-IO-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** details to collapse the section.

Control System

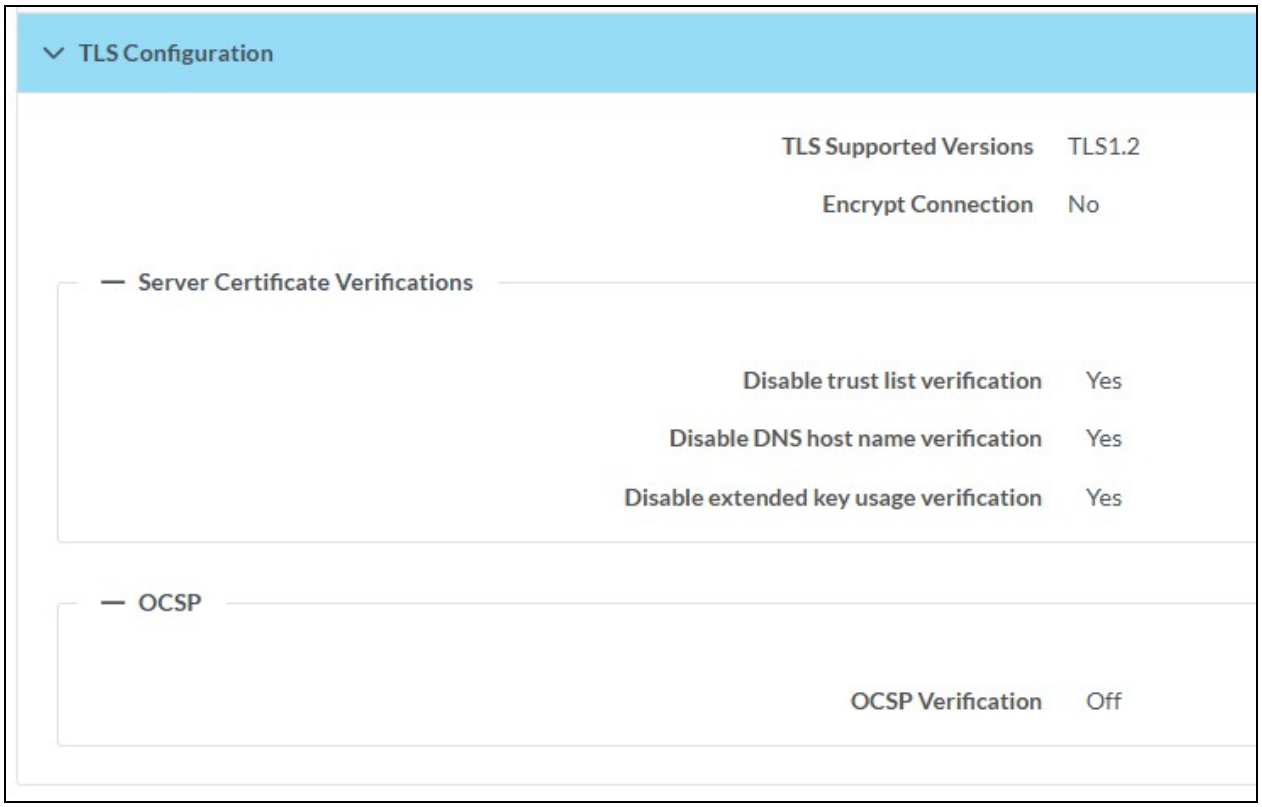
The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-AUD-IO.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE**.

TLS Configuration

The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-AUD-IO.



TLS settings can be adjusted in the **Settings** tab under the **System Setup** and **TLS Configuration** accordions. Depending on the device mode of the DM-NAX-AUD-IO, refer to either Commercial Mode on page 536 or Residential Mode on page 563 for information.

Settings

The **Settings** page enables configuration of the DM-NAX-AUD-IO settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-IO web interface.

Many options in the **Settings** page are exclusive to a specific device mode: Residential or Commercial. The DM-NAX-AUD-IO is in Commercial mode by default.

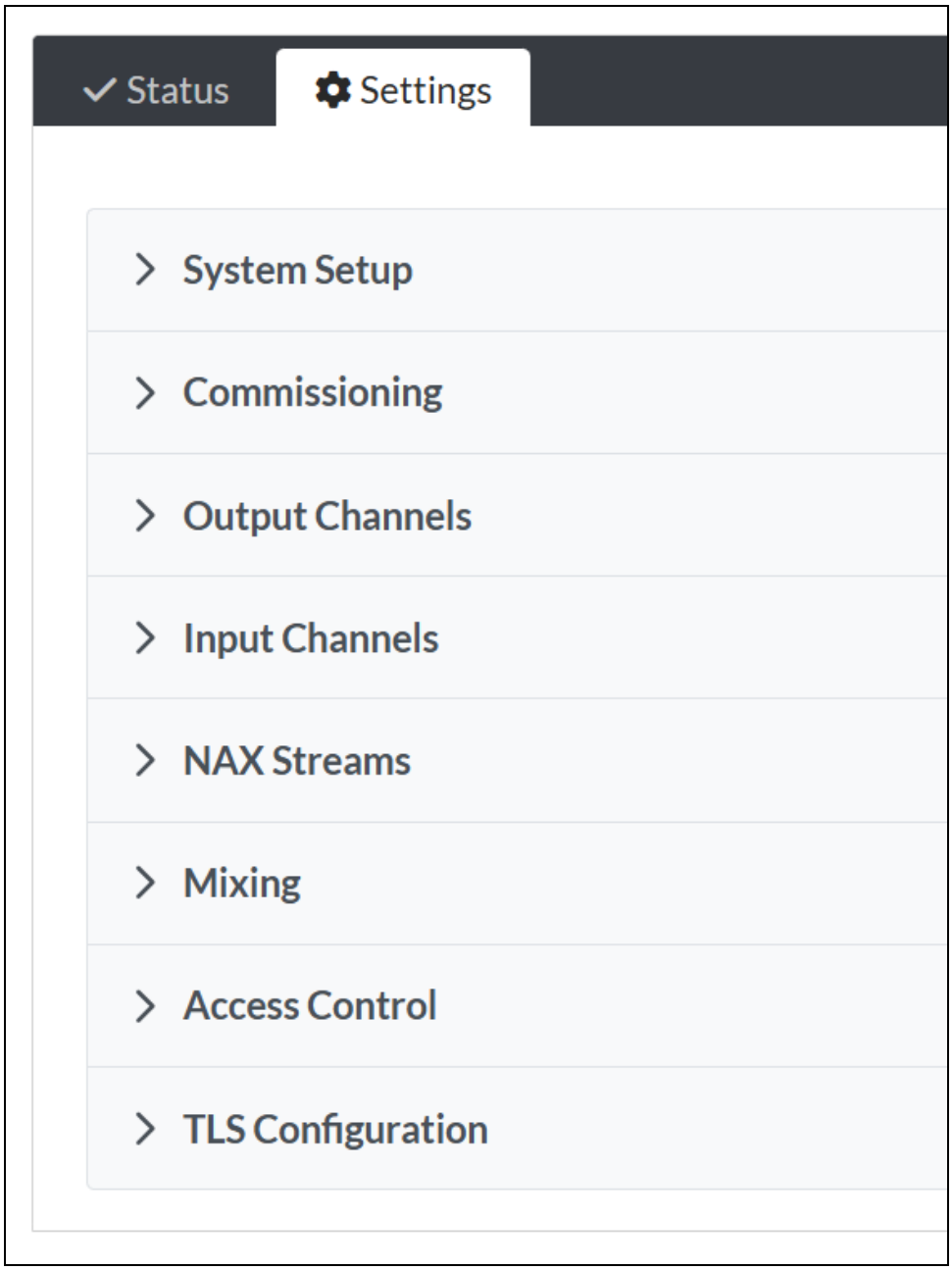
This section provides the following information:

- Commercial Mode on page 536
- Residential Mode on page 563

Commercial Mode

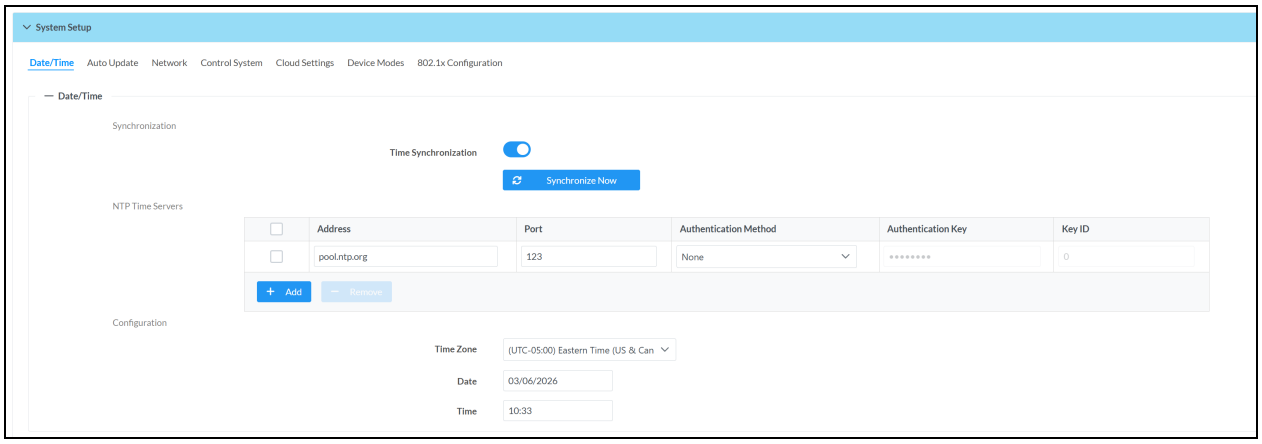
The **Settings** page enables you to configure the DM-NAX-AUD-IO settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-IO web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 537
- Commissioning on page 543
- Output Channels on page 544
- Input Channels on page 551
- DM NAX Streams on page 552
- Mixing on page 555
- Access Control on page 556
- TLS Configuration on page 561



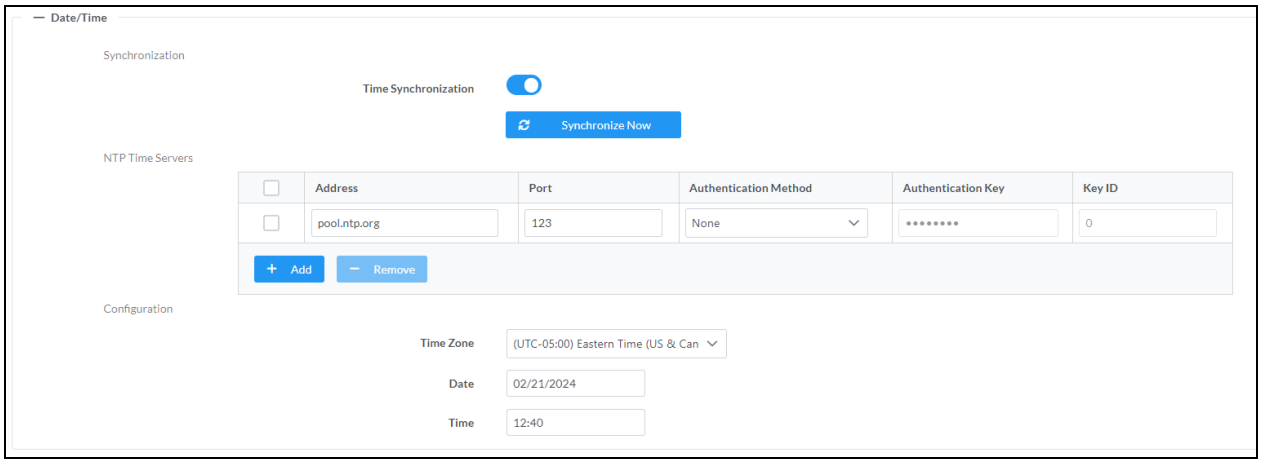
System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.



Date/Time

Use the **Date/Time** tab to configure the date and time settings of the DM-NAX-AUD-IO.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

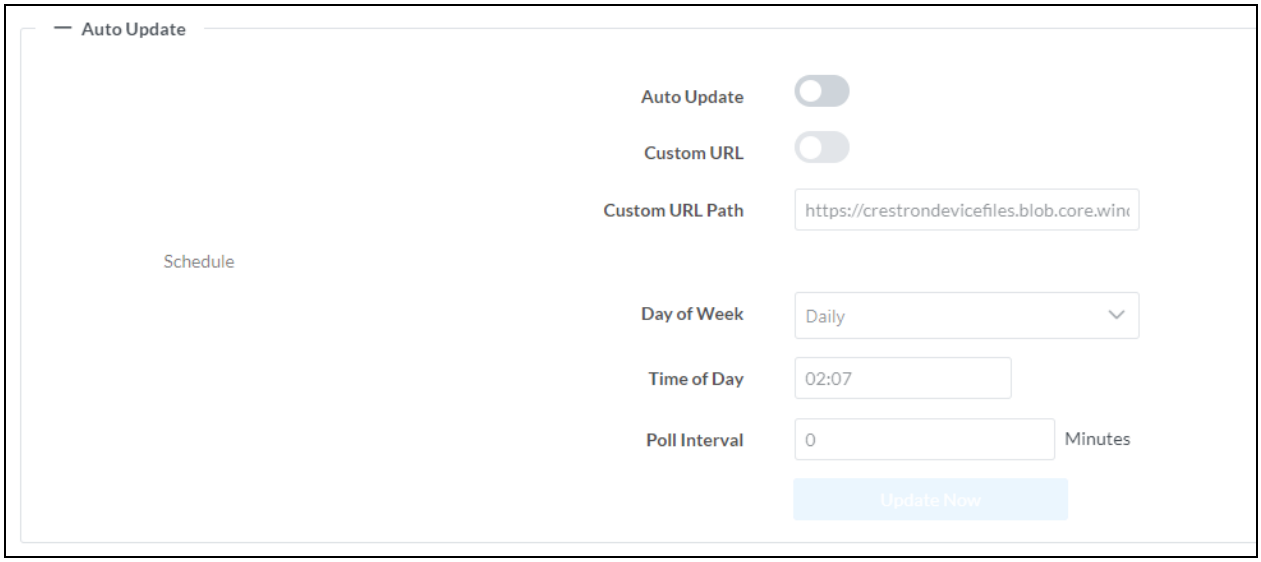
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AUD-IO can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

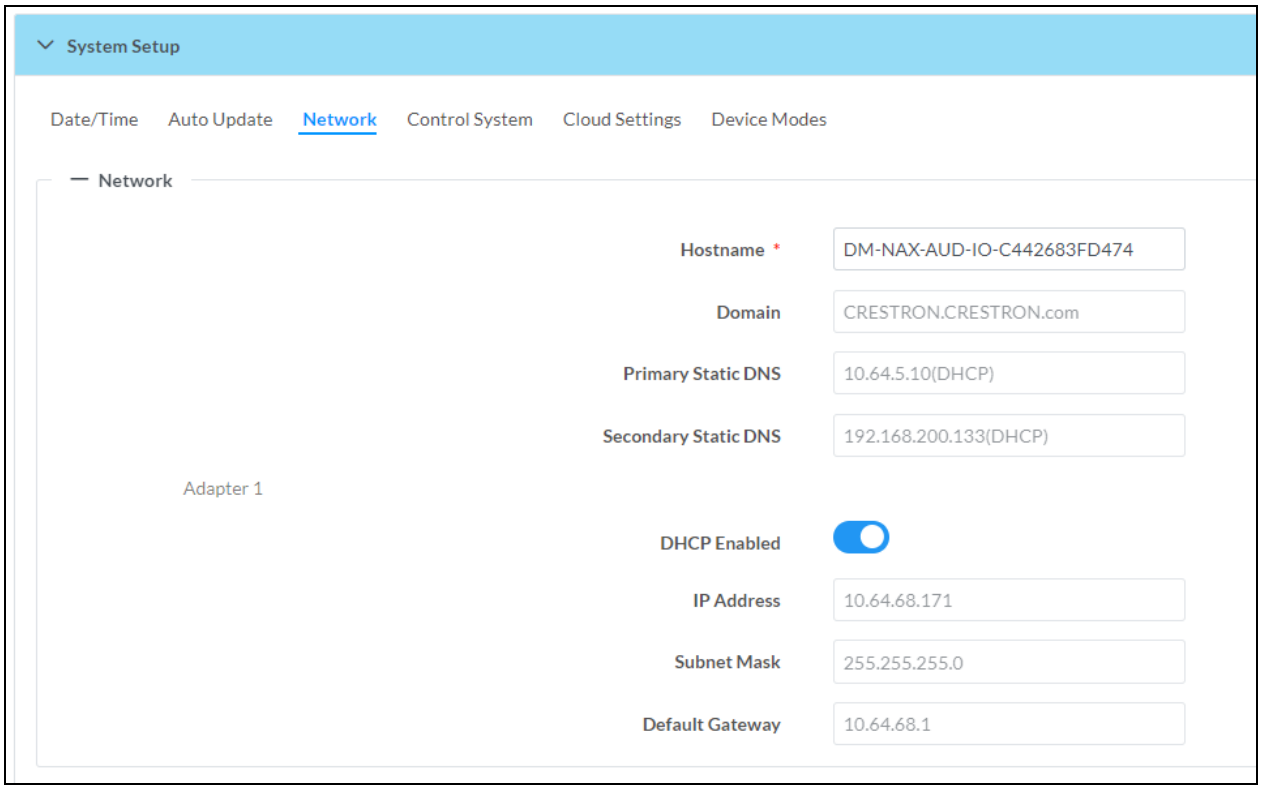


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** tab contains network-related settings for the DM-NAX-AUD-IO, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the hostname of the DM-NAX-AUD-IO consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-IO-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

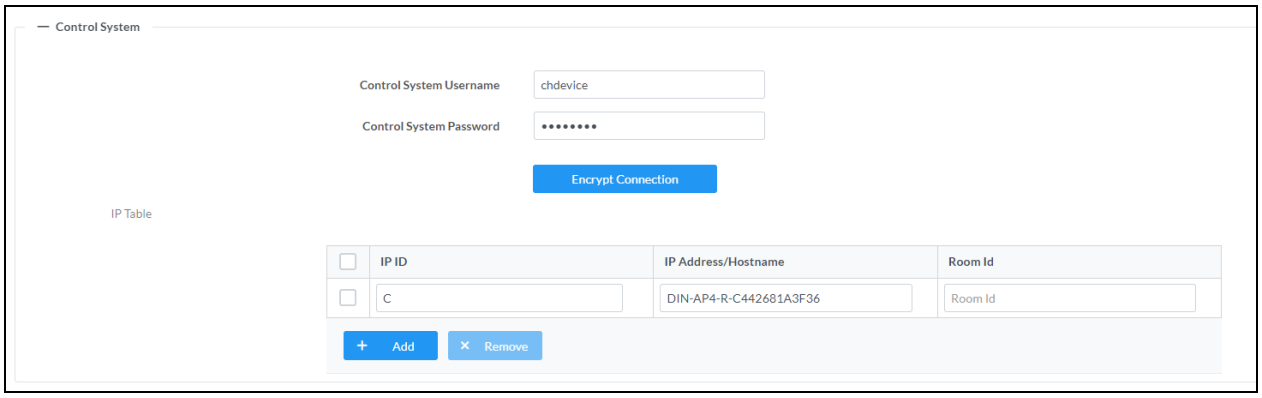
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AUD-IO is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When **DHCP** is enabled (default setting), the IP address of the DM-NAX-AUD-IO is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When **DHCP** is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AUD-IO.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

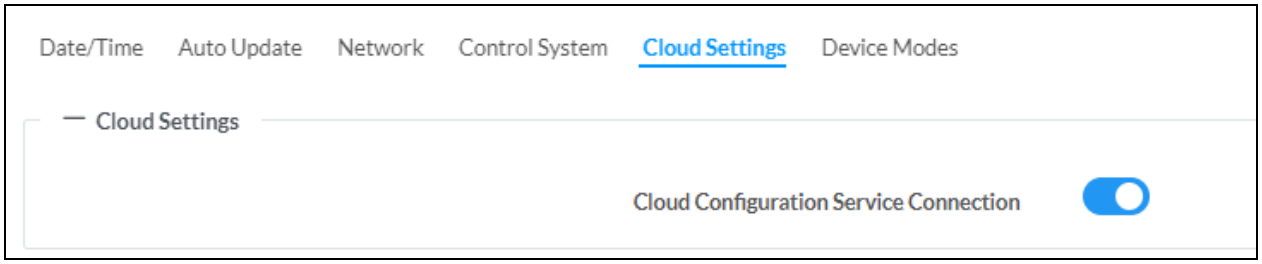
To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AUD-IO in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

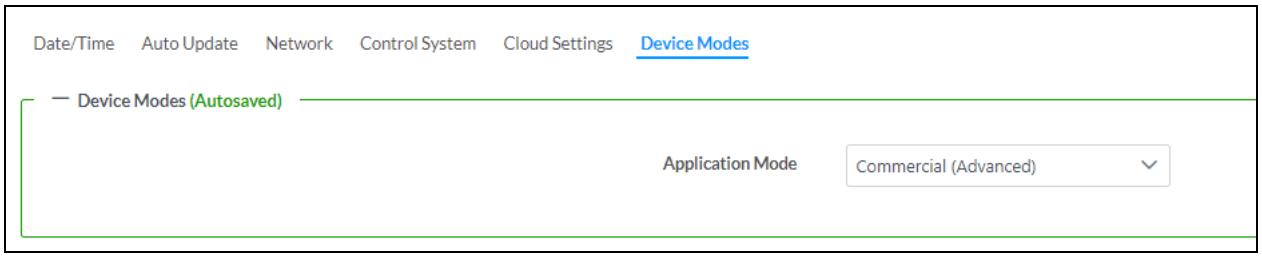
Cloud Settings



Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AUD-IO can communicate with the XiO Cloud® platform.

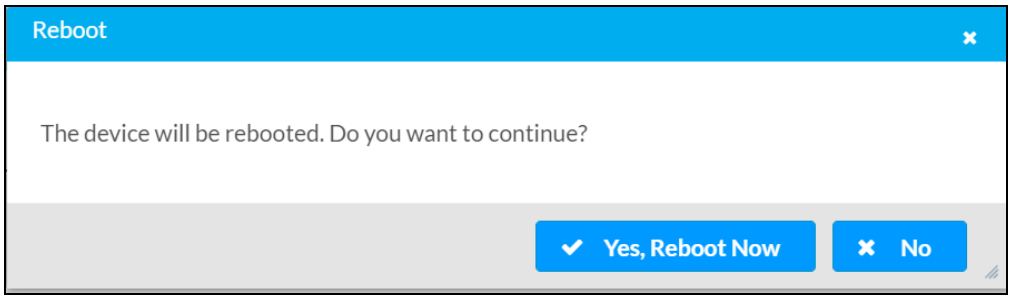
Device Modes

Use the **Device Modes** tab to configure the **Application Mode** of the DM-NAX-AUD-IO.



Application Mode determines which options and controls are available.

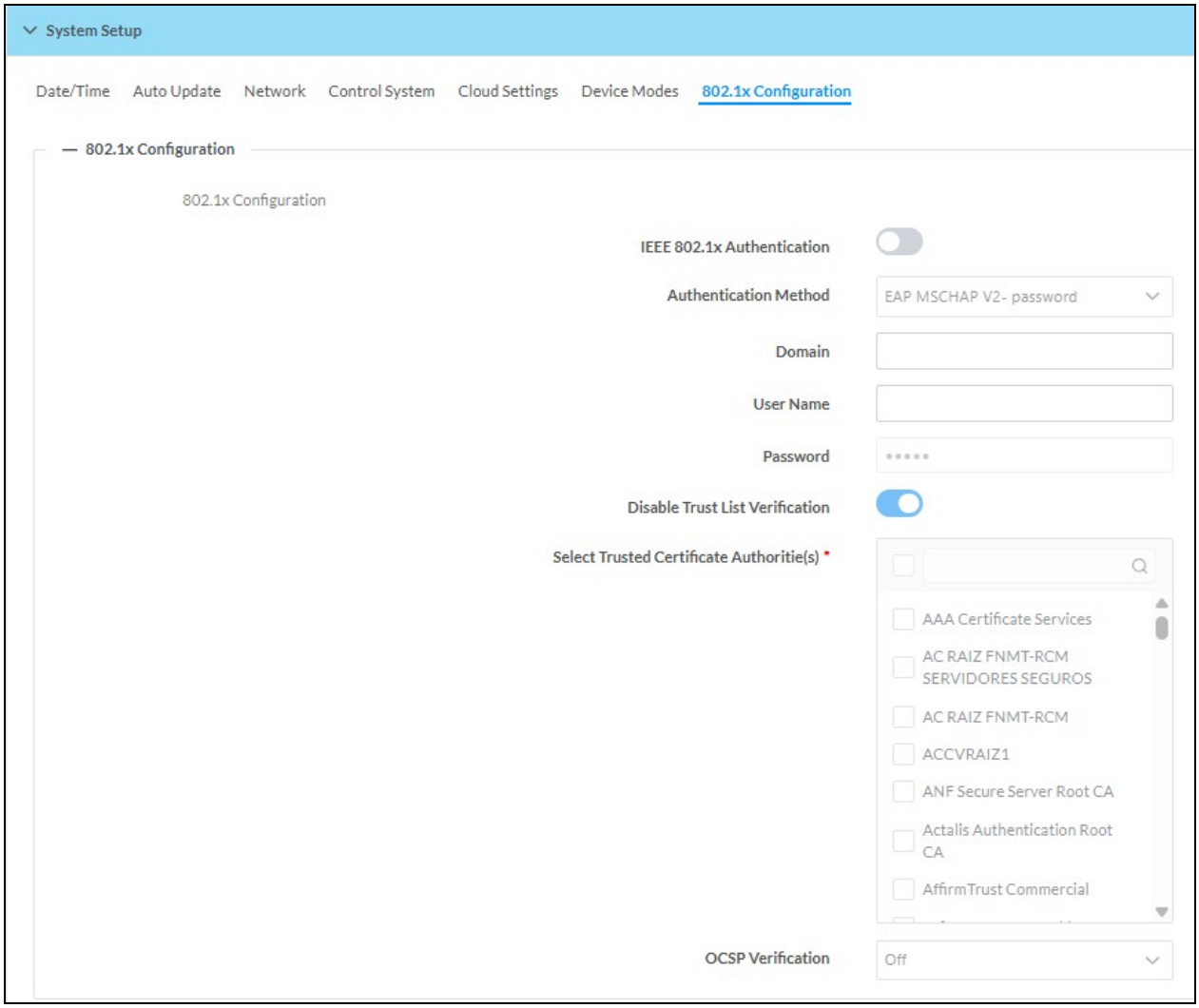
- Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



- Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
- Wait for the device restart to complete before attempting to reconnect to the device.

By default, the DM-NAX-AUD-IO is set to **Commercial (Advanced)** mode.

802.1X Configuration



The DM-NAX-AUD-IO has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-AUD-IO:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.
4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

    The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-AUD-IO. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

    If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

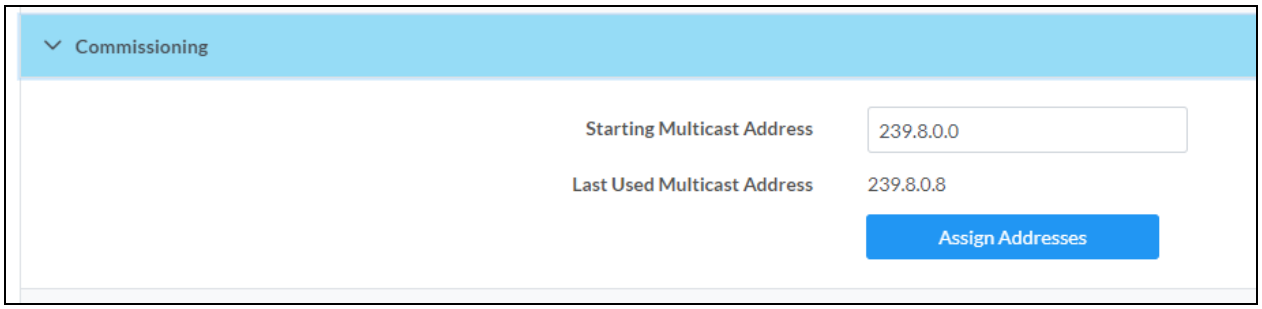
    When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

    > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

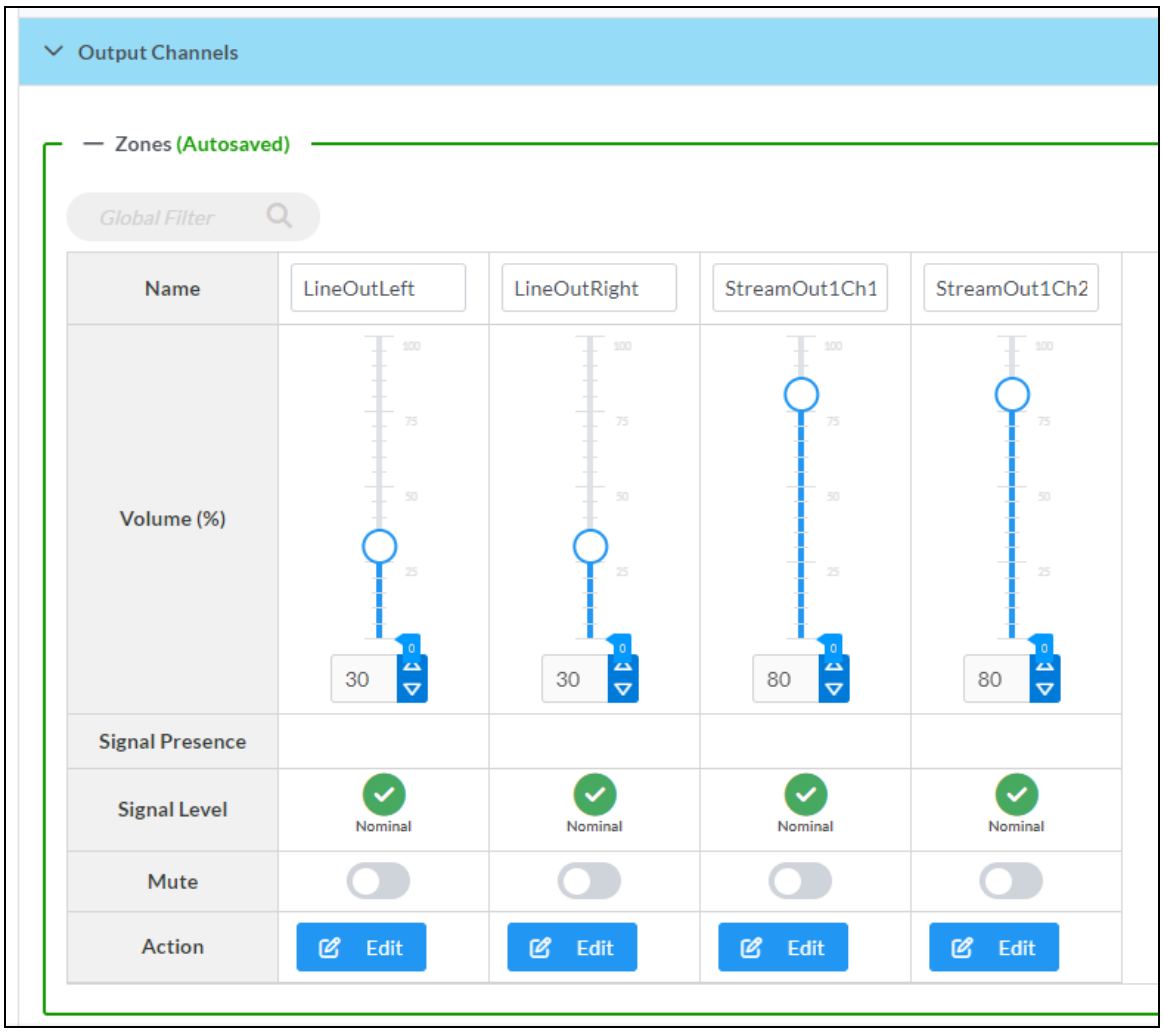


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AUD-IO a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Output Channels

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as an **Edit** option for more advanced settings within each zone.



Signal Presence indicates whether or not an audio signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- **Nominal**: The signal level is within normal operating bounds and below the clipping threshold.
- **Clipping**: The signal level is clipping or above the -3 dB warning threshold and in danger of clipping.

Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

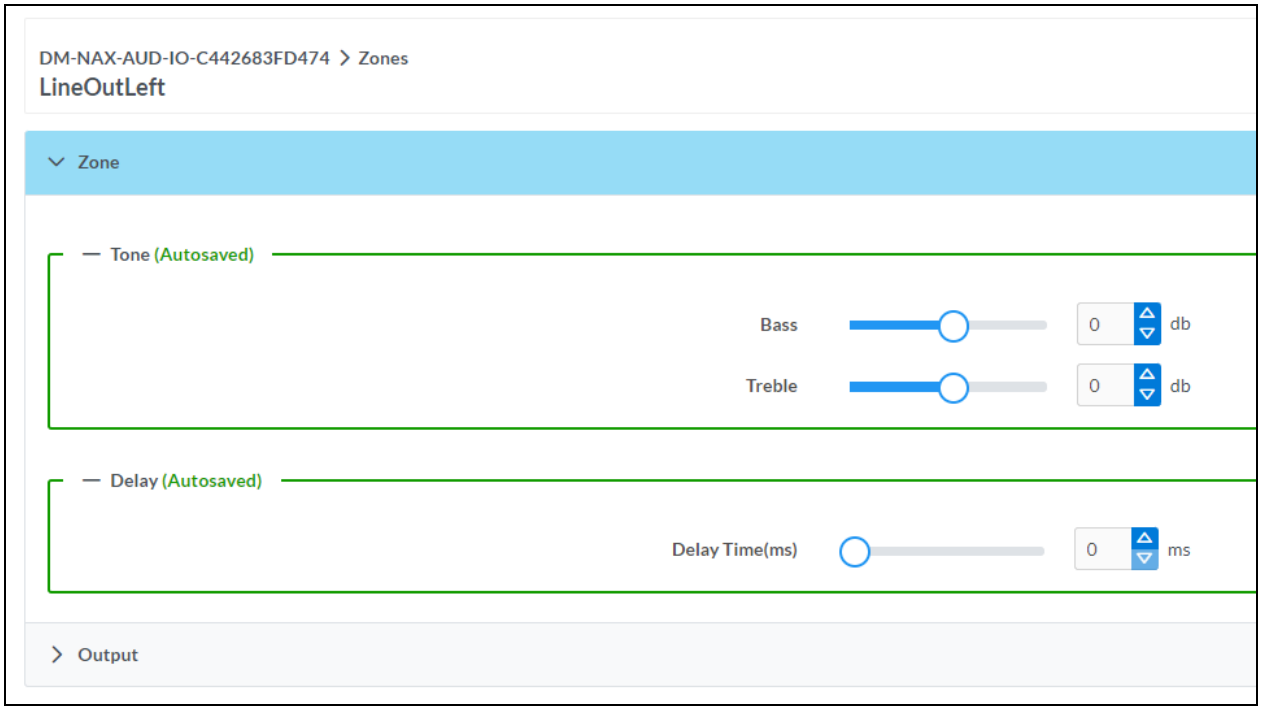
- Move the **Volume** slider up to increase or down to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Select **Edit** to view additional **Zone** and **Output** options.

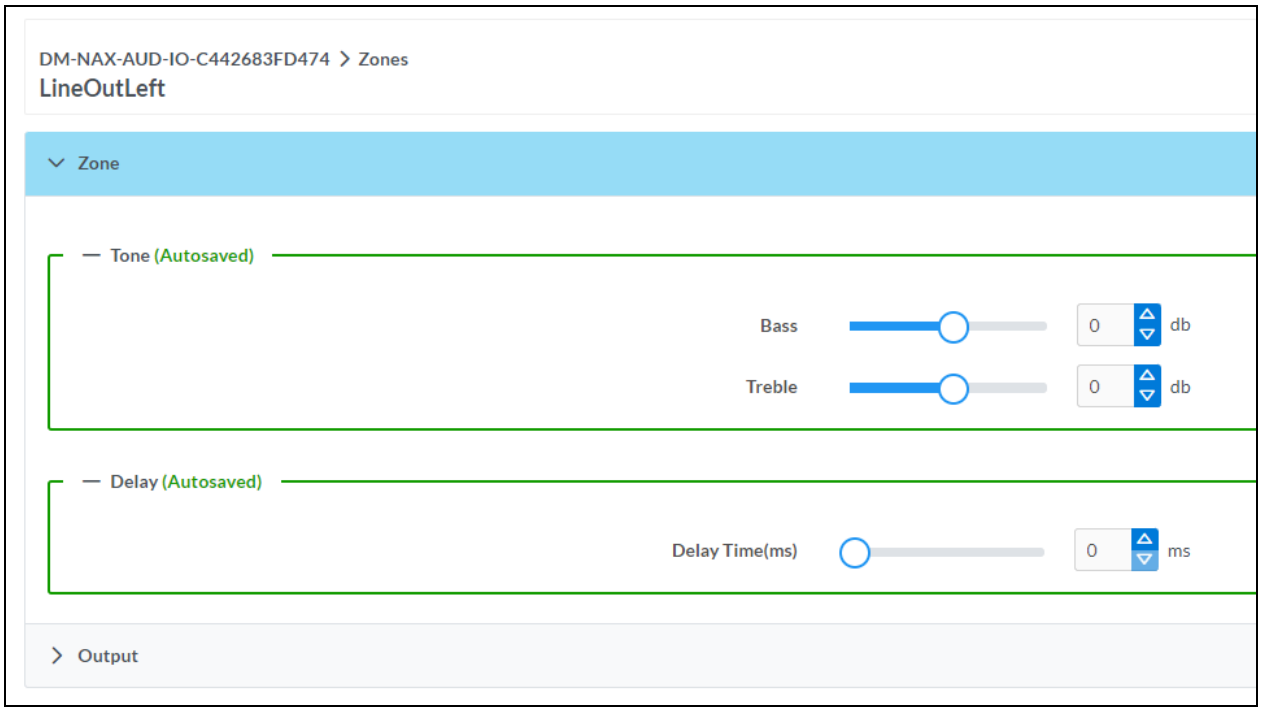
Zone Settings

To configure the settings for an output channel, select **Edit**. The **Edit Zone** window is displayed.

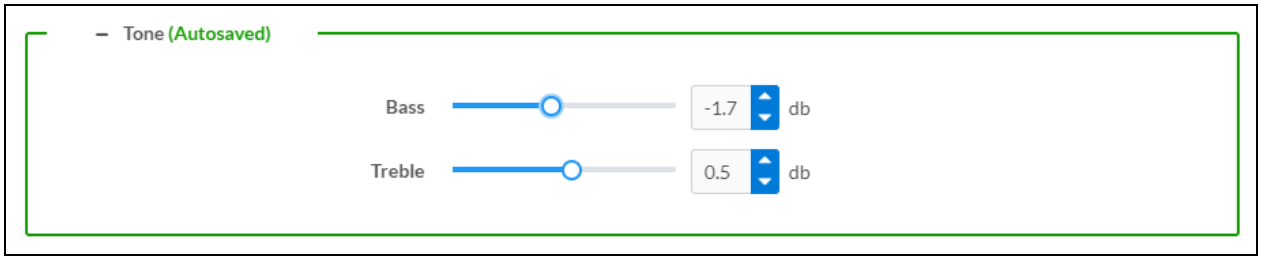


Zone

Select **Zone** to access the settings for **Tone** and **Delay**.

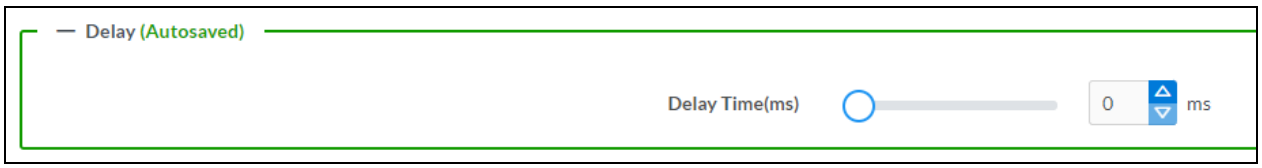


Tone



- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Treble** field.

Delay



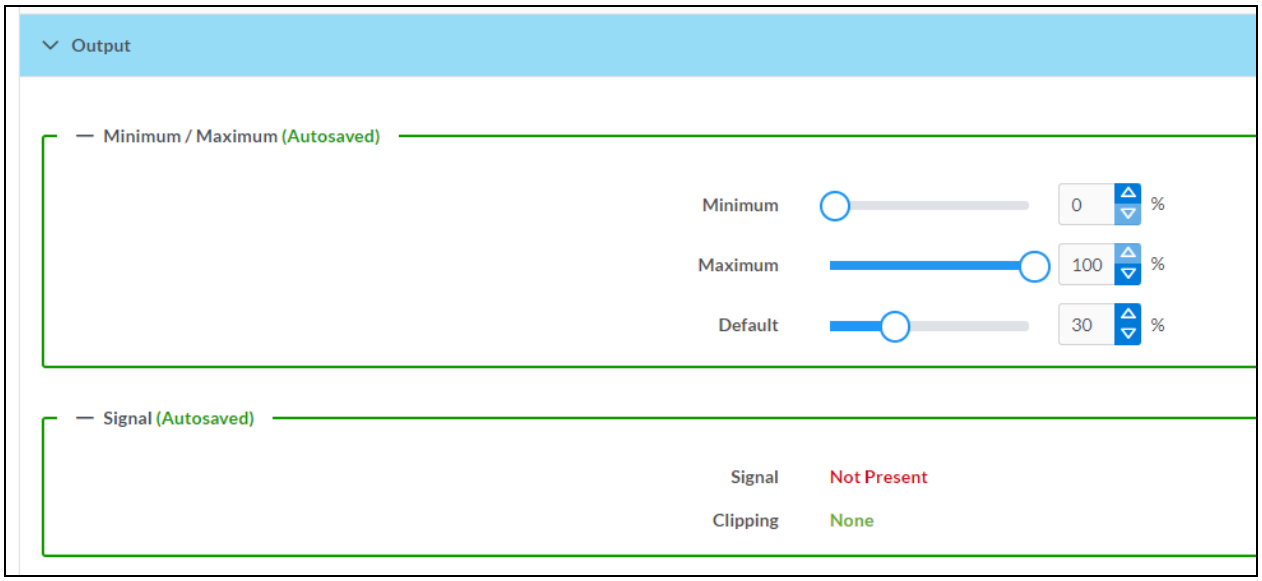
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

> **NOTE:** The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Signal**, and the output Equalizer.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

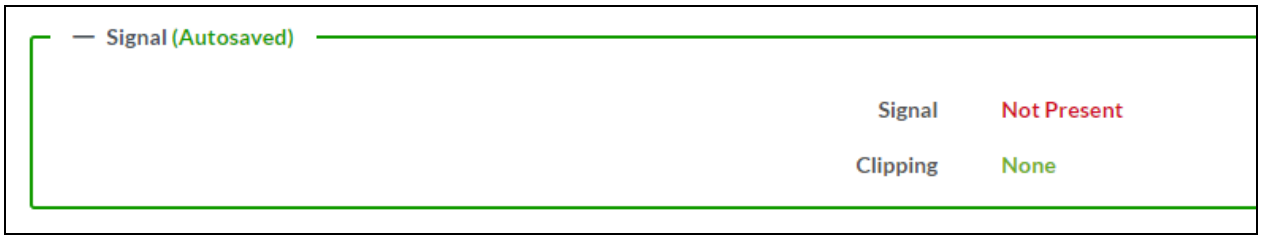
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

    > **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

    > **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

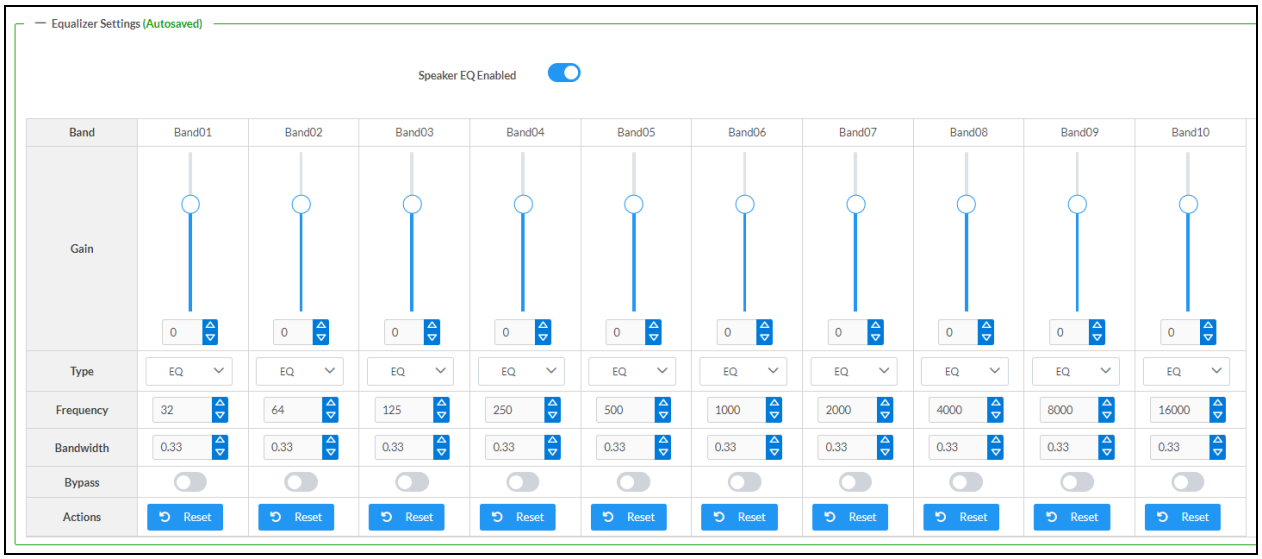
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Equalizer Settings



Each output channel of the DM-NAX-AUD-IO has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

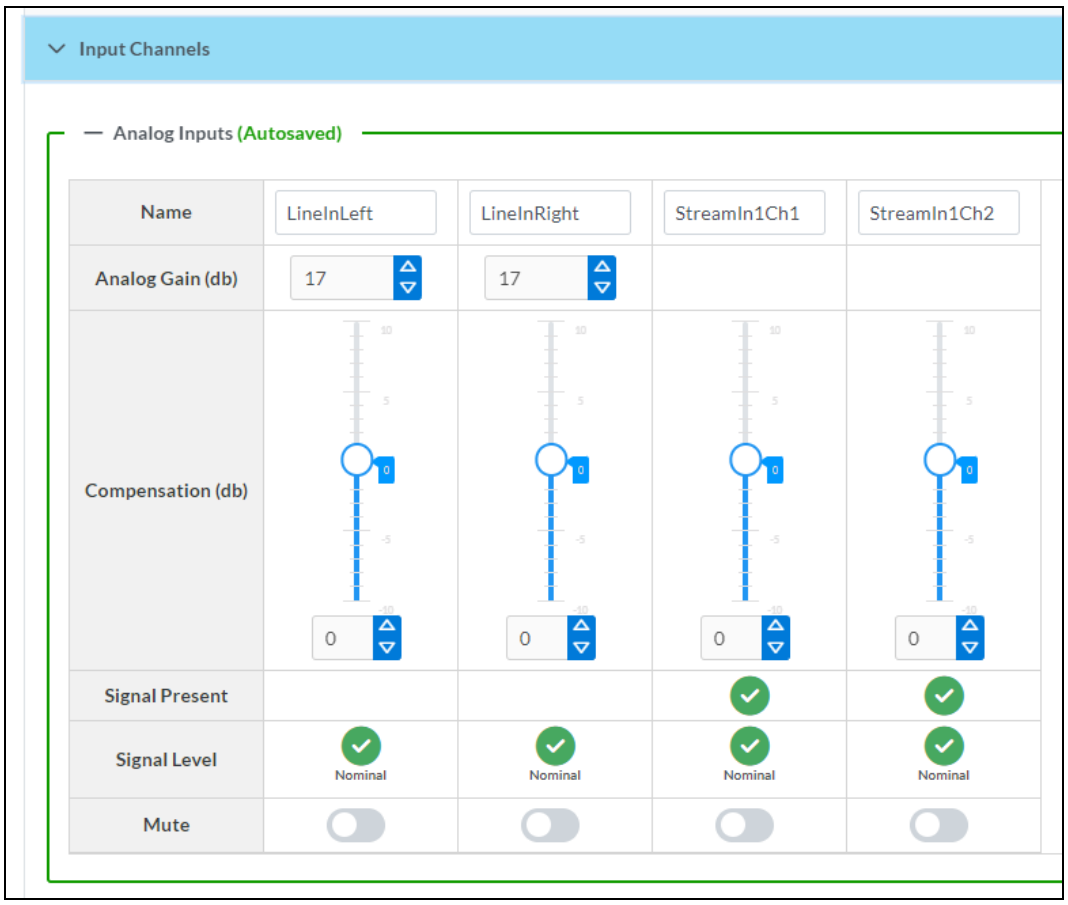
2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.
   a. To set a band's gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
      - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
e. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Input Channels

The **Input Channels** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the front panel line inputs on the DM-NAX-AUD-IO.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set an analog gain value for a given input, use the **db** arrows to increase or decrease the gain. Values range from 0 dB to 60 dB, adjustable in increments of 1 dB.
3. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
4. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

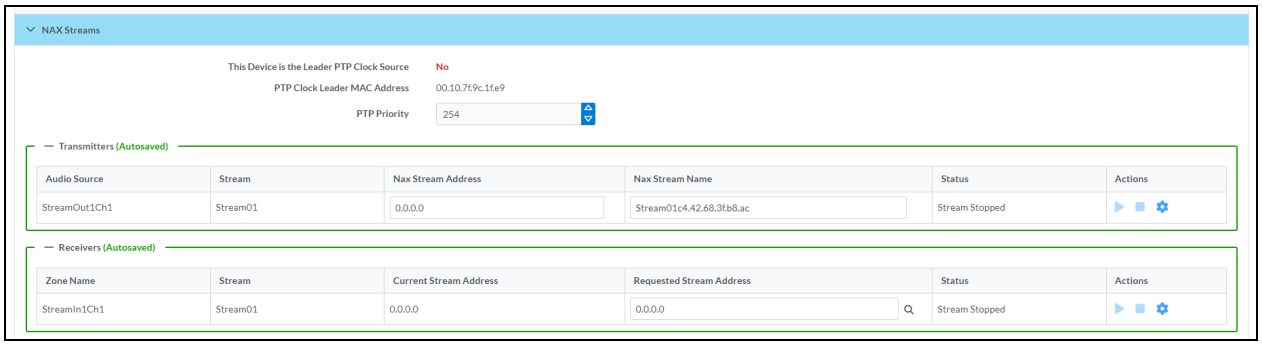
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

The local inputs of the DM-NAX-AUD-IO can be made available as a DM NAX audio-over-IP stream.

Select **NAX Streams** to expand the tab and display the following information.

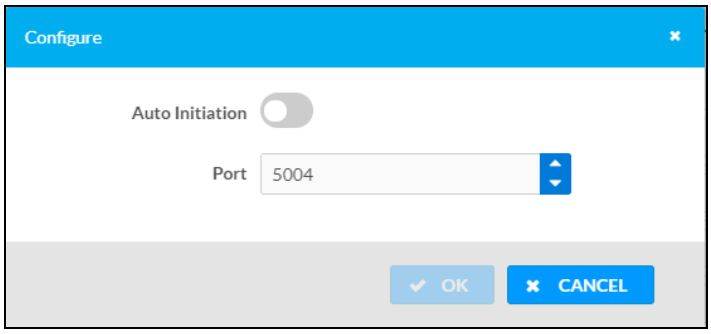


- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-AUD-IO's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AUD-IO will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure the DM NAX transmit stream:

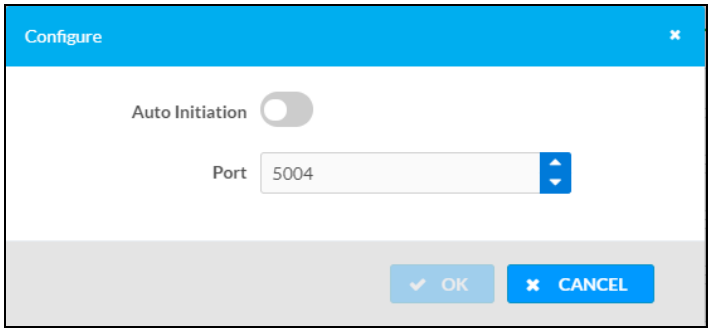
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



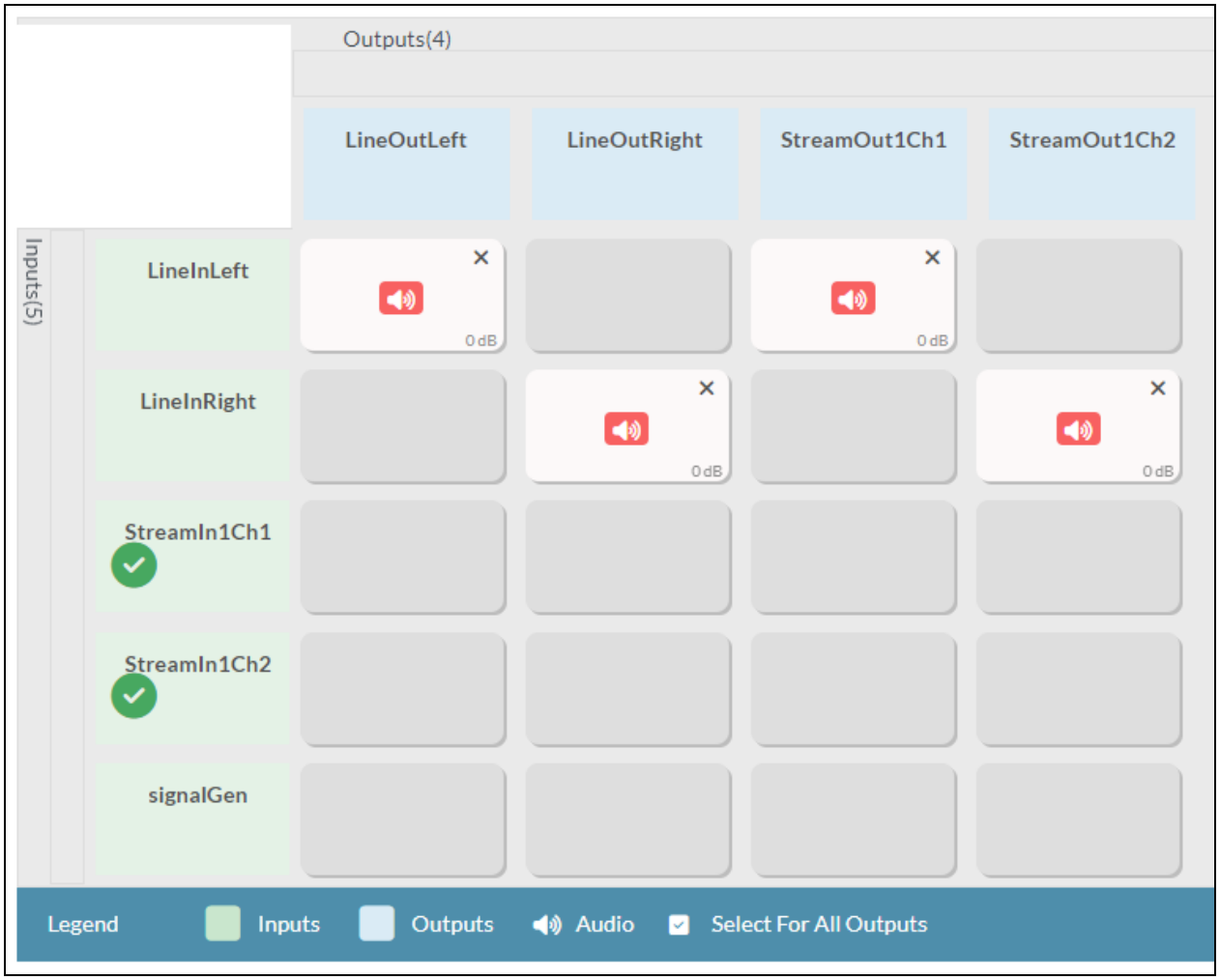
3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Mixing

The **Mixing** matrix is used to route a local input or AES67 stream to an output on the DM-NAX-AUD-IO.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.

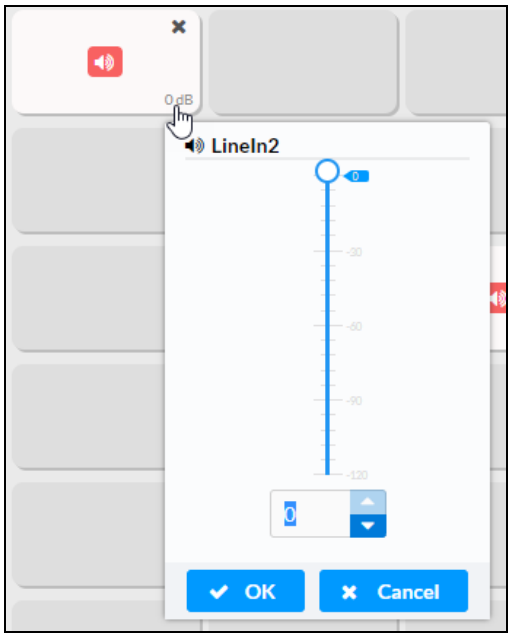


To route inputs to outputs on the device:

- Select the cells corresponding to the desired output that are to be paired for routing. Once a route is made, the speaker icon is displayed. The input that you have selected for a given row will route to the output corresponding to that row in the matrix.
- To break a given route select the speaker icon or the **x** at the top right of the box.

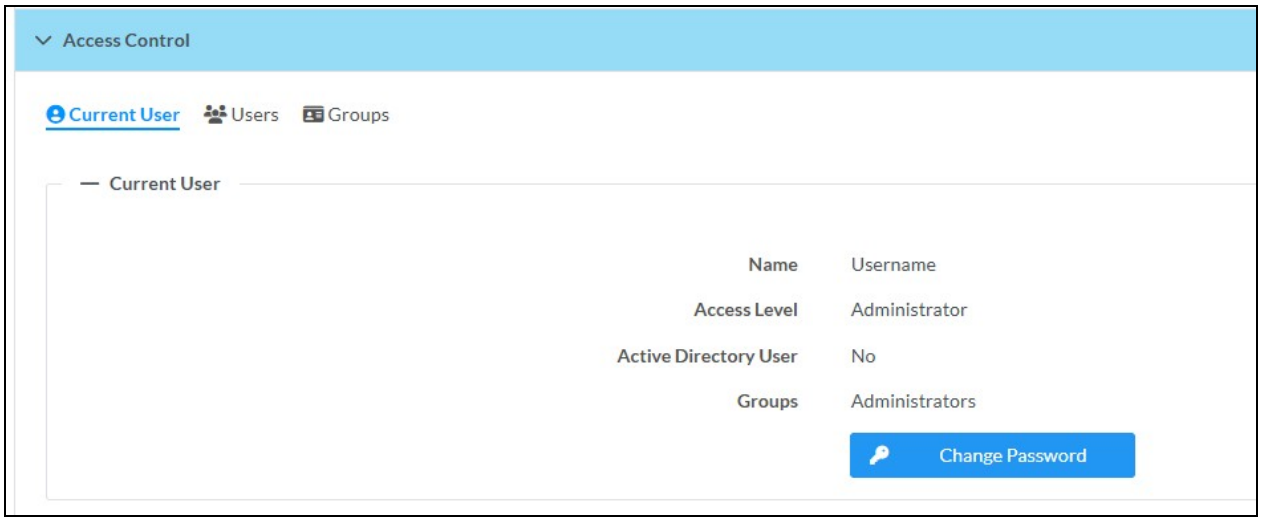
Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.
- Manually enter a value in the field.



Access Control

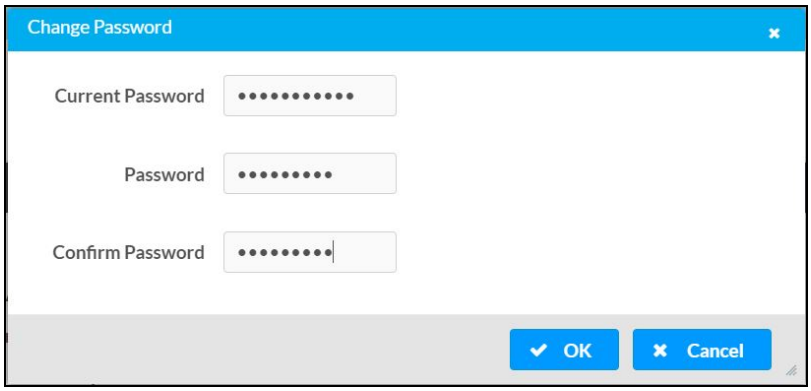
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-AUD-IO functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

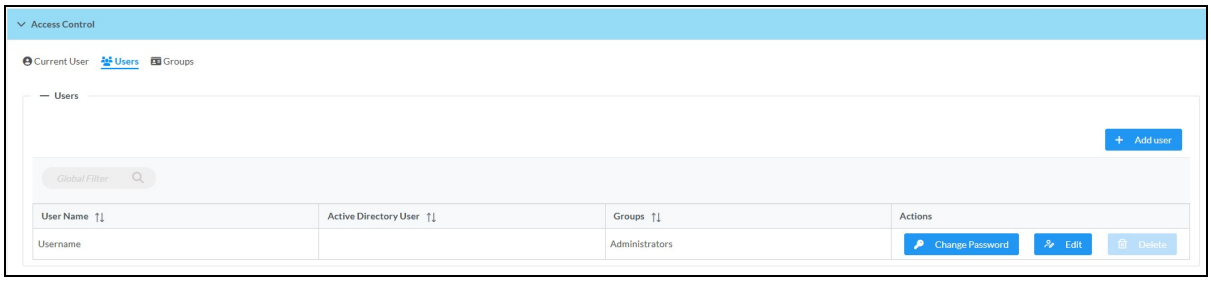
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

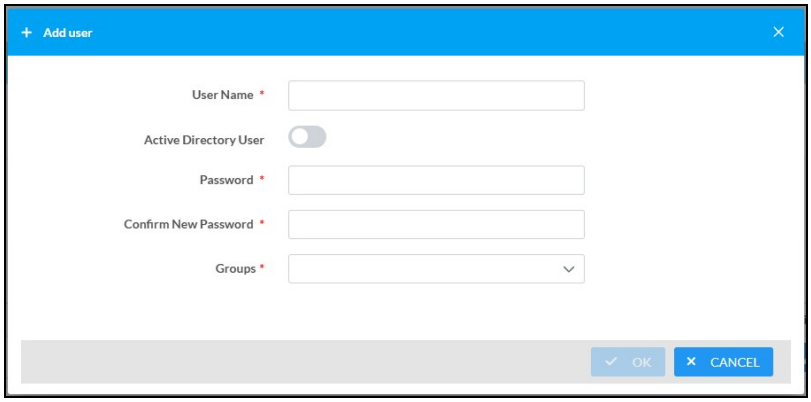
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-AUD-IO:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

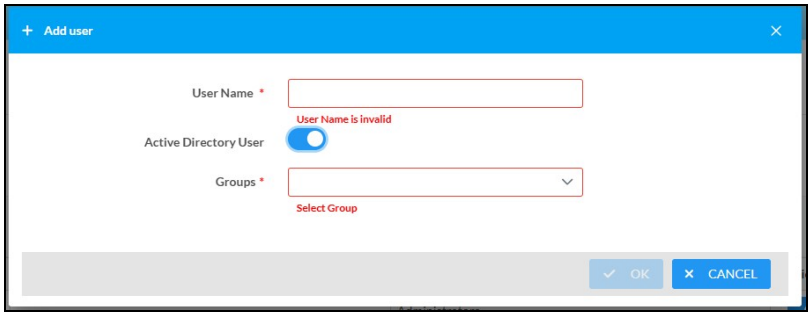
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-AUD-IO, or add the Active Directory group(s) that they are a member of to the DM-NAX-AUD-IO.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

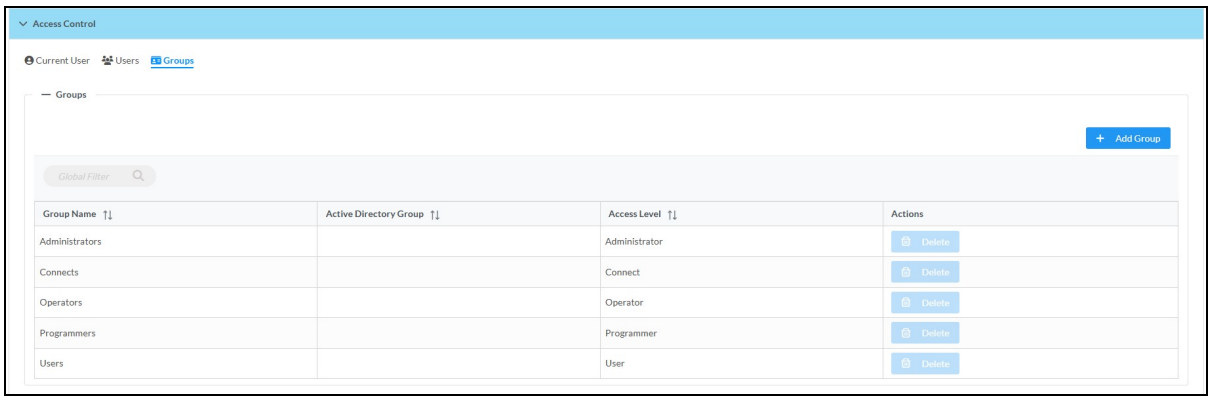
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

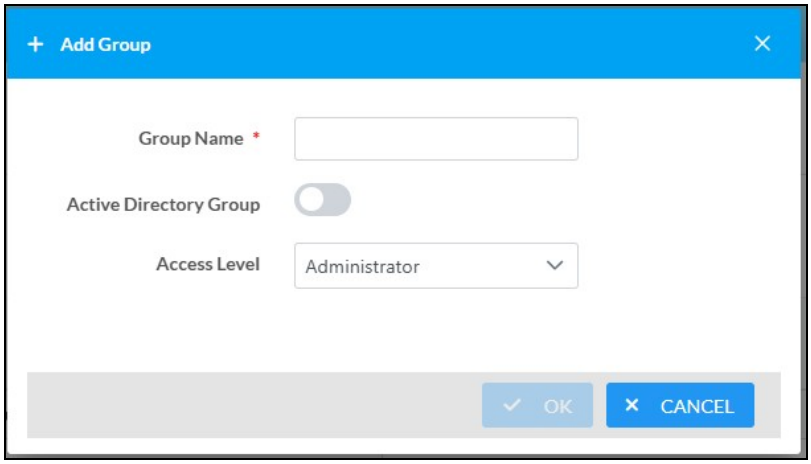
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



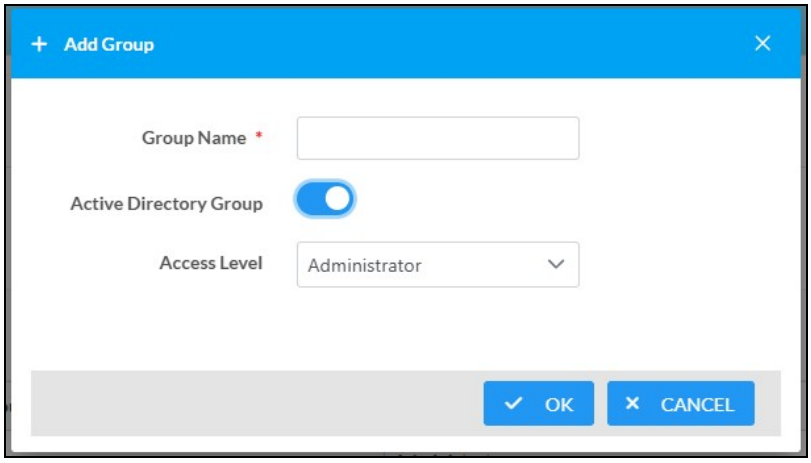
1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
   a. Enter the group name in the **Name** field.
   b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-AUD-IO.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:

a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

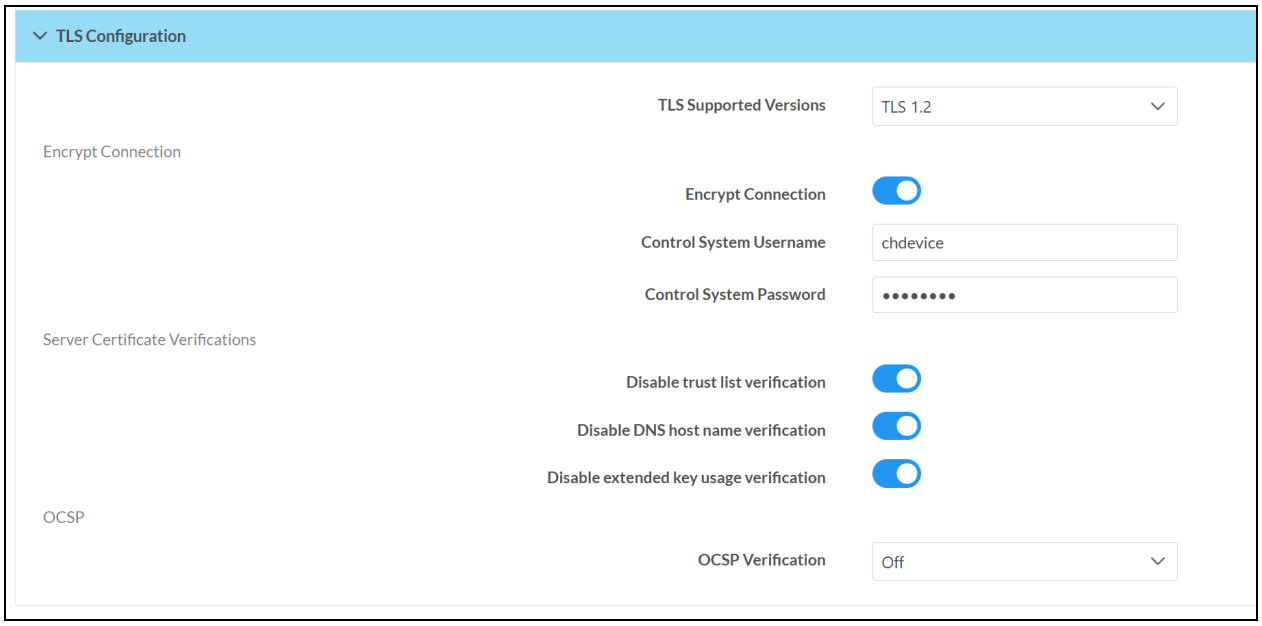
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-AUD-IO.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.

- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

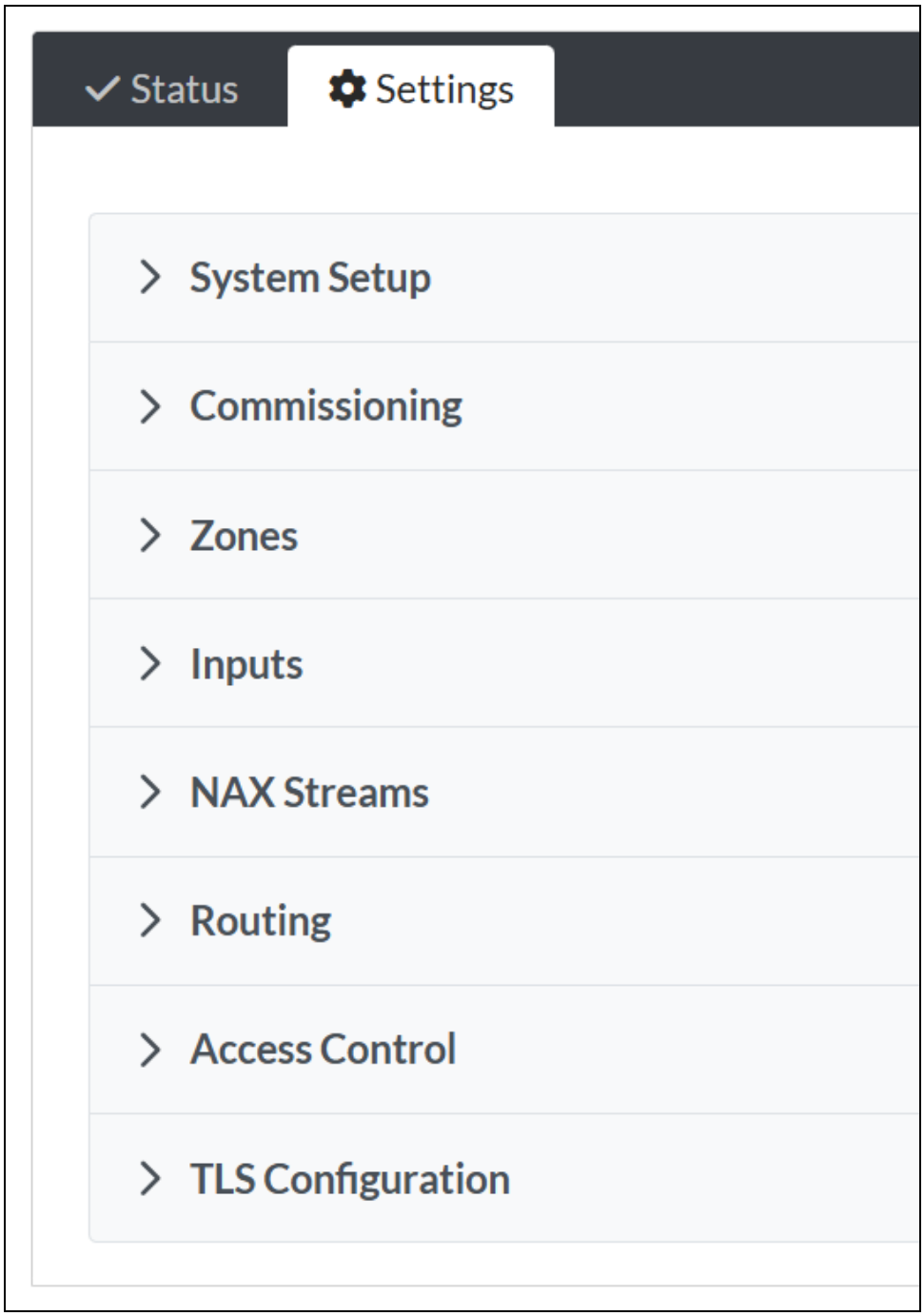
  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

Residential Mode

The **Settings** page enables you to configure the DM-NAX-AUD-IO settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-IO web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 564
- Commissioning on page 571
- Output Channels on page 571
- Inputs on page 578
- DM NAX Streams on page 579
- Routing on page 582
- Access Control on page 582
- TLS Configuration on page 587

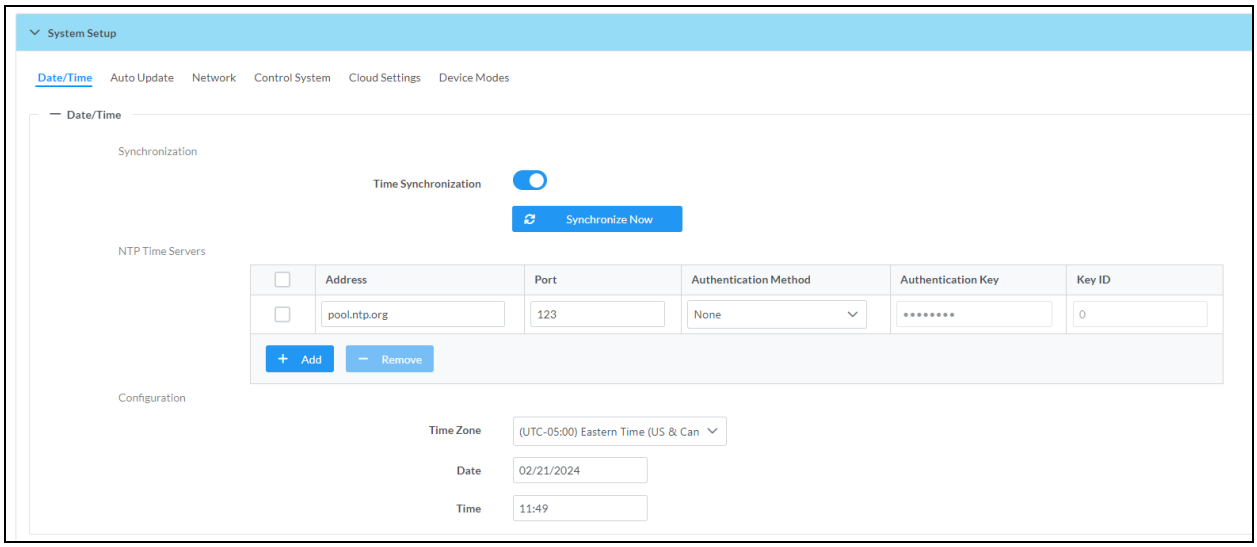


System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-AUD-IO.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

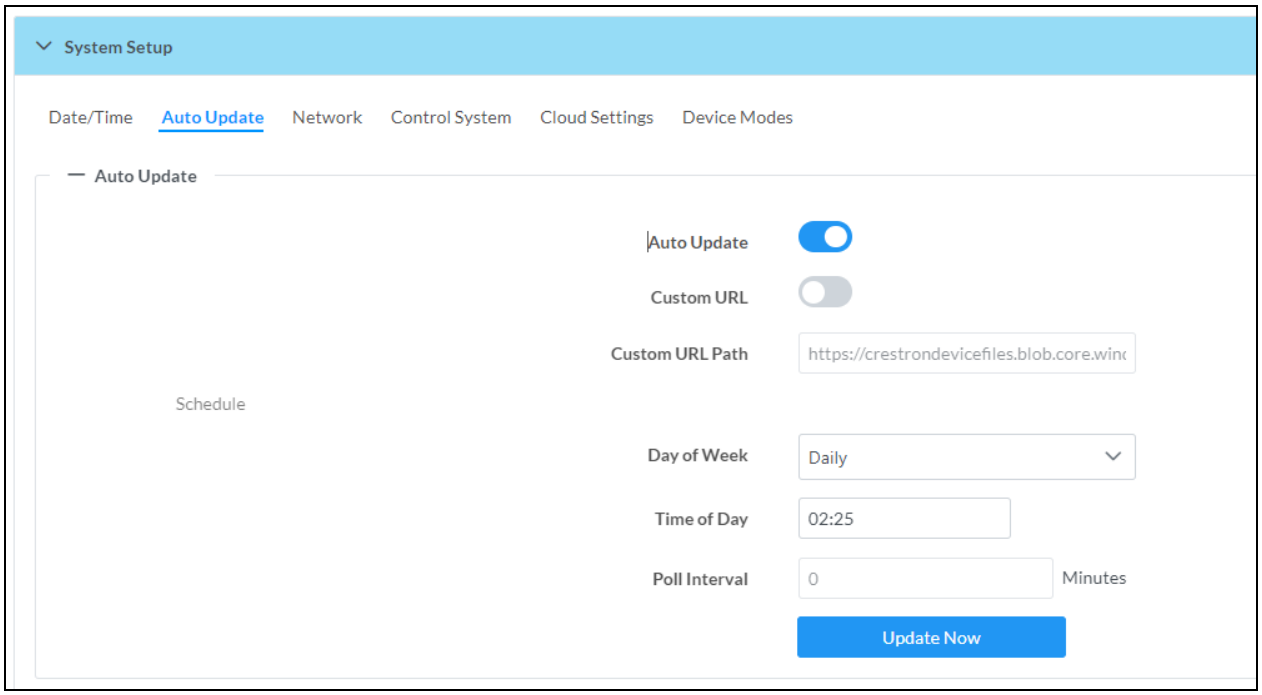
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AUD-IO can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

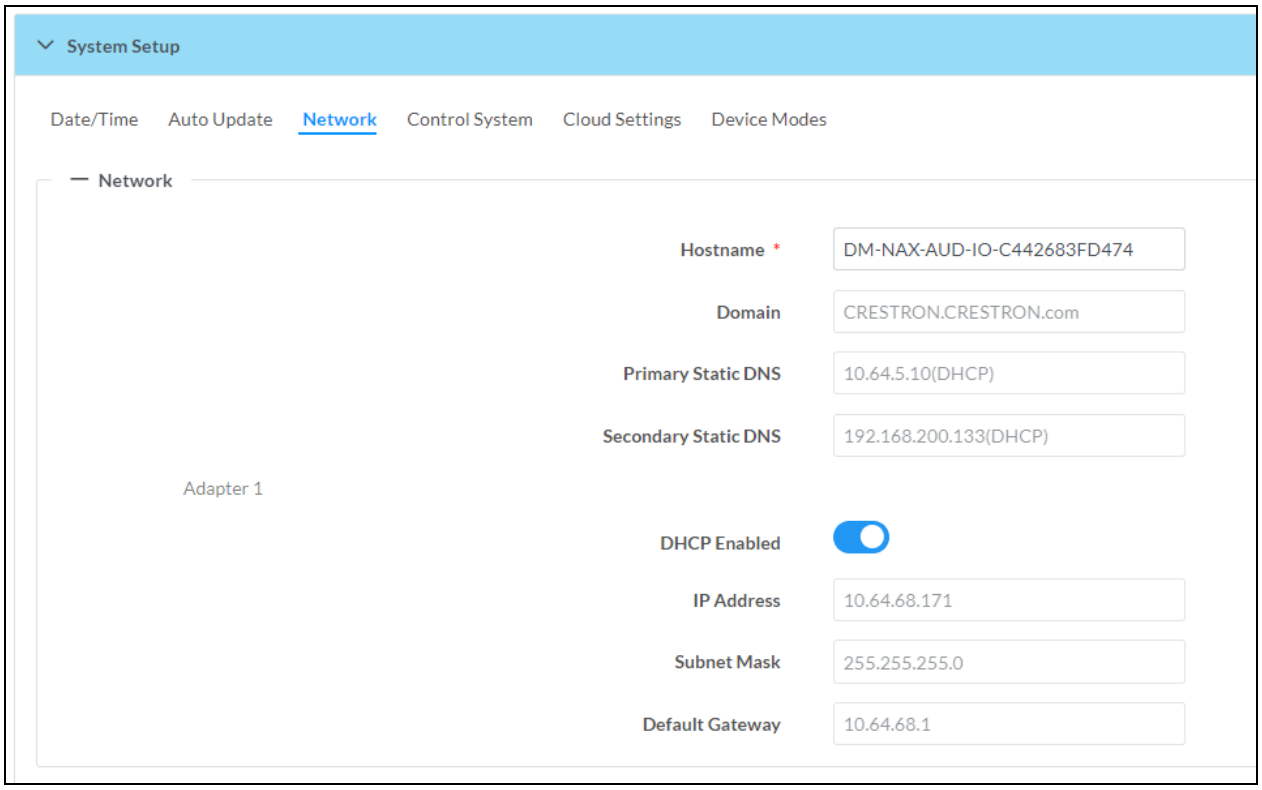


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-AUD-IO, including the Hostname, Domain, Primary Static DNS, and Secondary Static DNS.



NOTE: By default, the host name of the DM-NAX-AUD-IO consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-IO-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

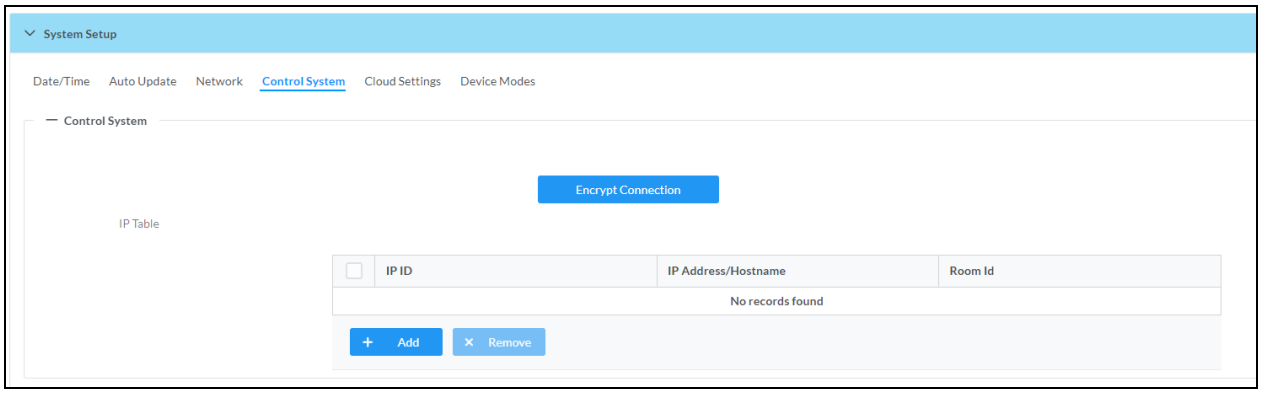
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AUD-IO is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-AUD-IO is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AUD-IO.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AUD-IO in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

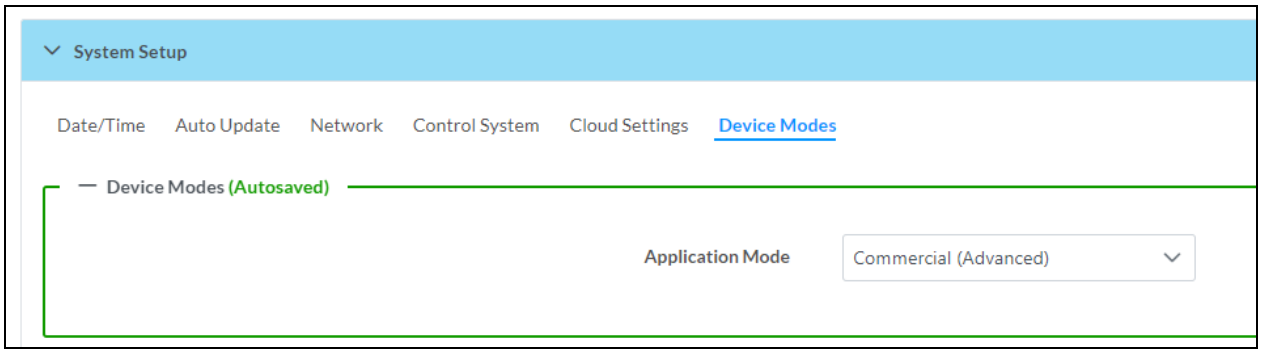
Cloud Settings



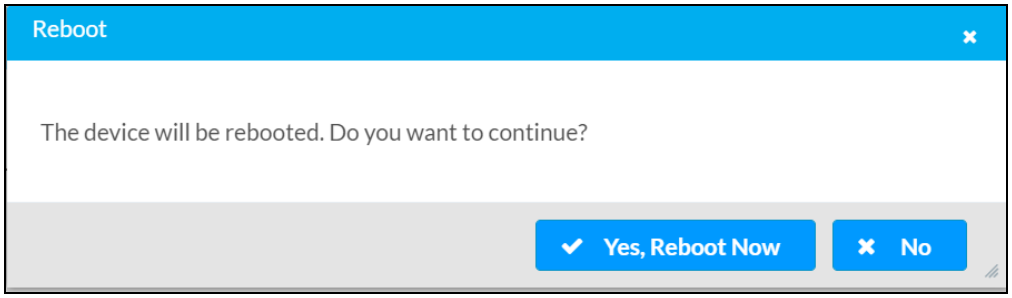
Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AUD-IO can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode**.

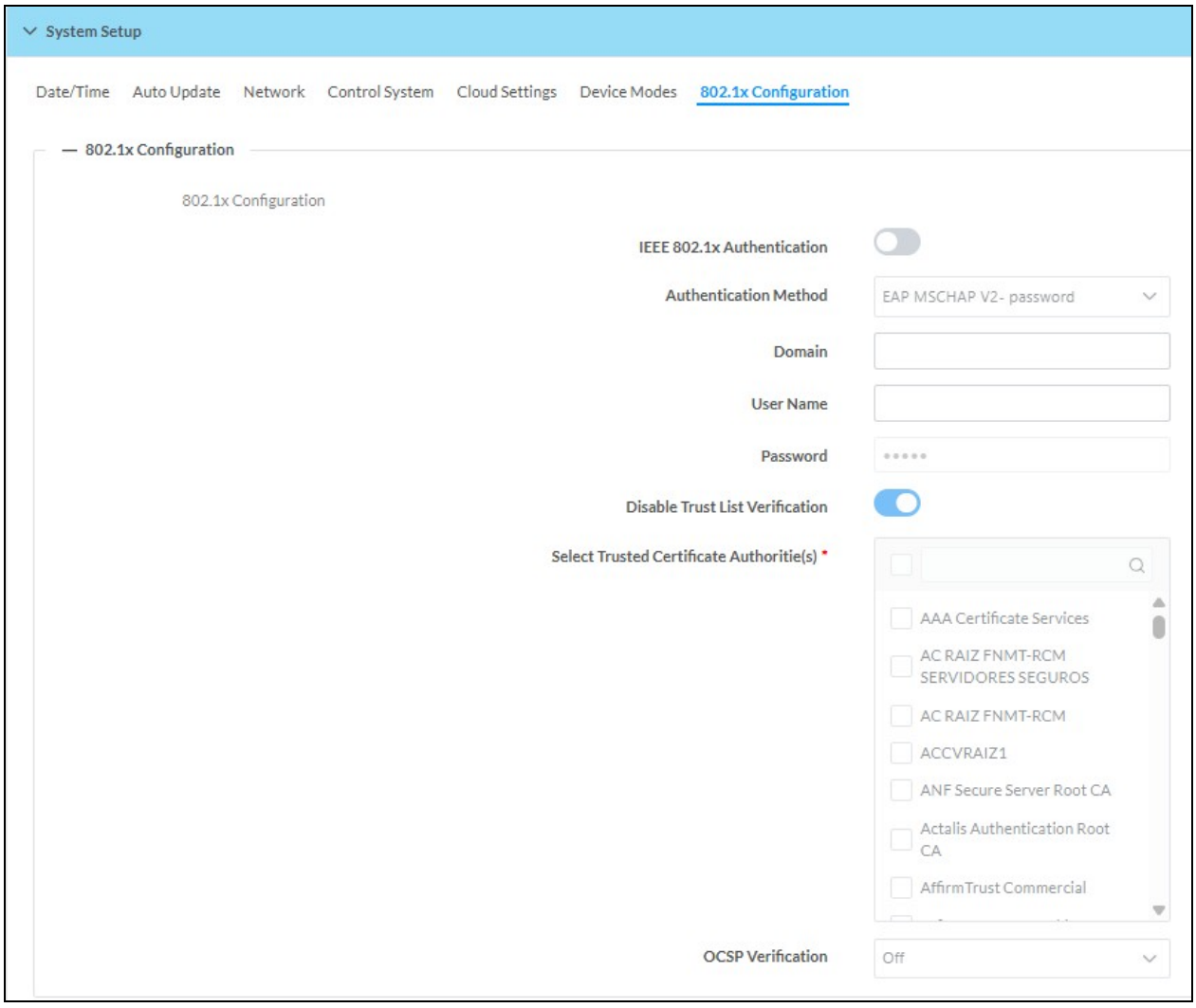


- **Application Mode**: The Application Mode determines which options and controls are available.
  - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



  - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
  - Wait for the device restart to complete before attempting to reconnect to the device.

802.1X Configuration



The DM-NAX-AUD-IO has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-AUD-IO:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.

- If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.

4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

   The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-AUD-IO. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

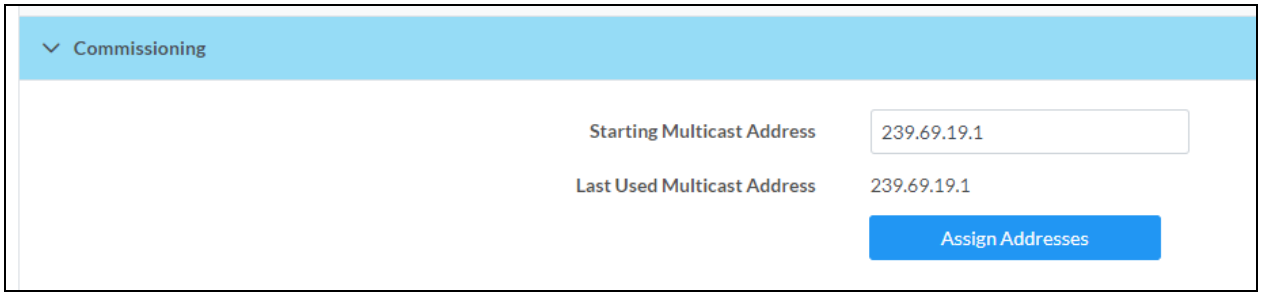
   When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

   > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

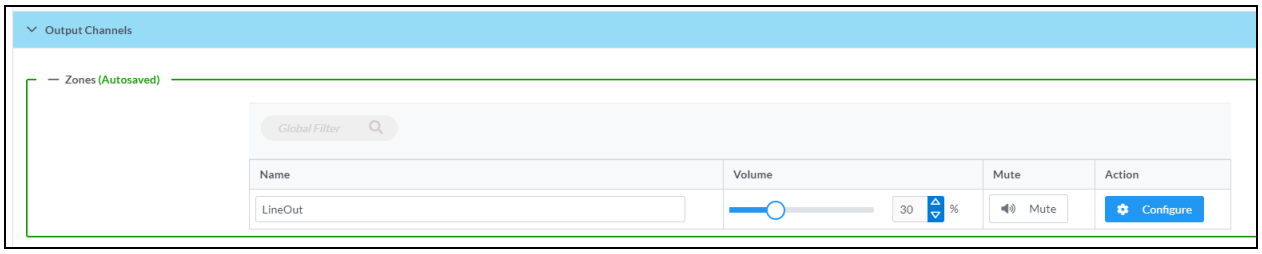


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AUD-IO a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Output Channels

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a Configure option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

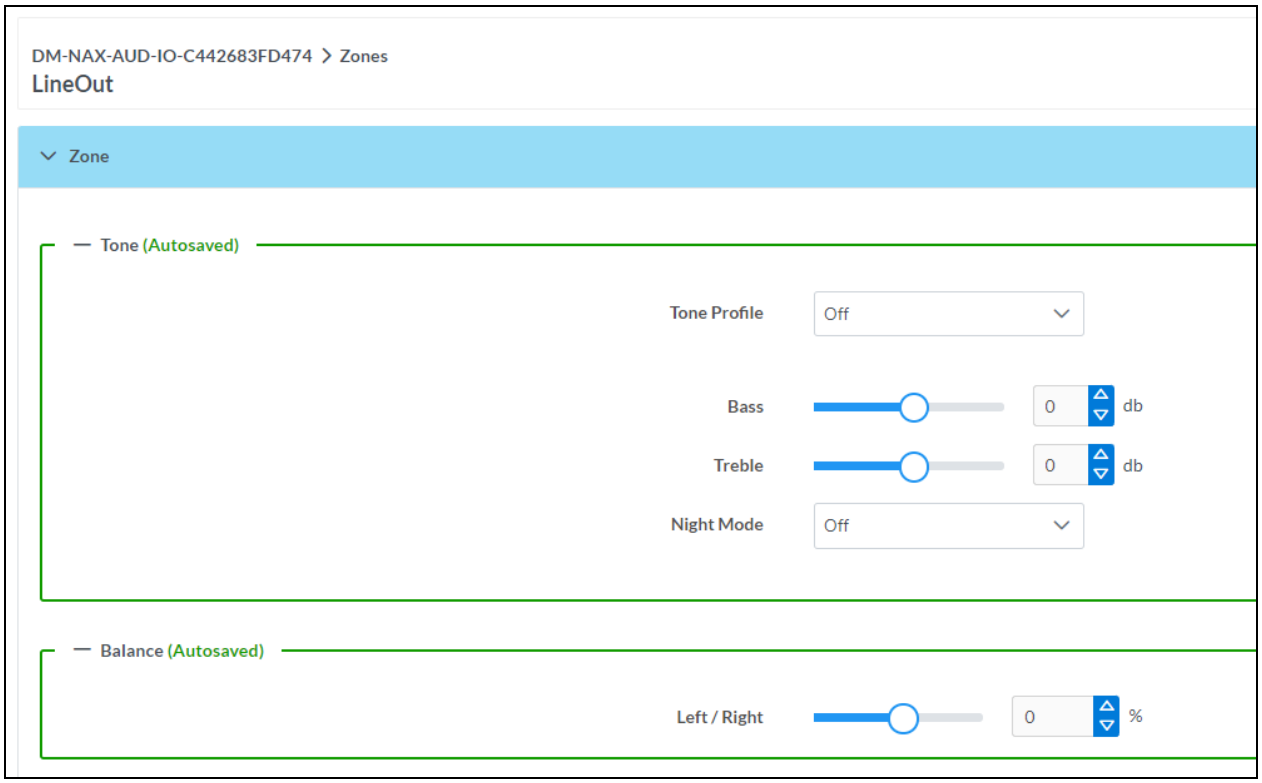
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Zone Settings

To configure zone settings, select **Configure** (Configure). The **Edit Zone** window is displayed.

Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

NOTE: The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

1. To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
2. **Bass**: To adjust the bass, do one of the following:
    - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
    - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Bass** field.
3. **Treble**: To adjust the treble, do one of the following:
    - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
    - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Treble** field.
4. To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.
5. The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

Balance

To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

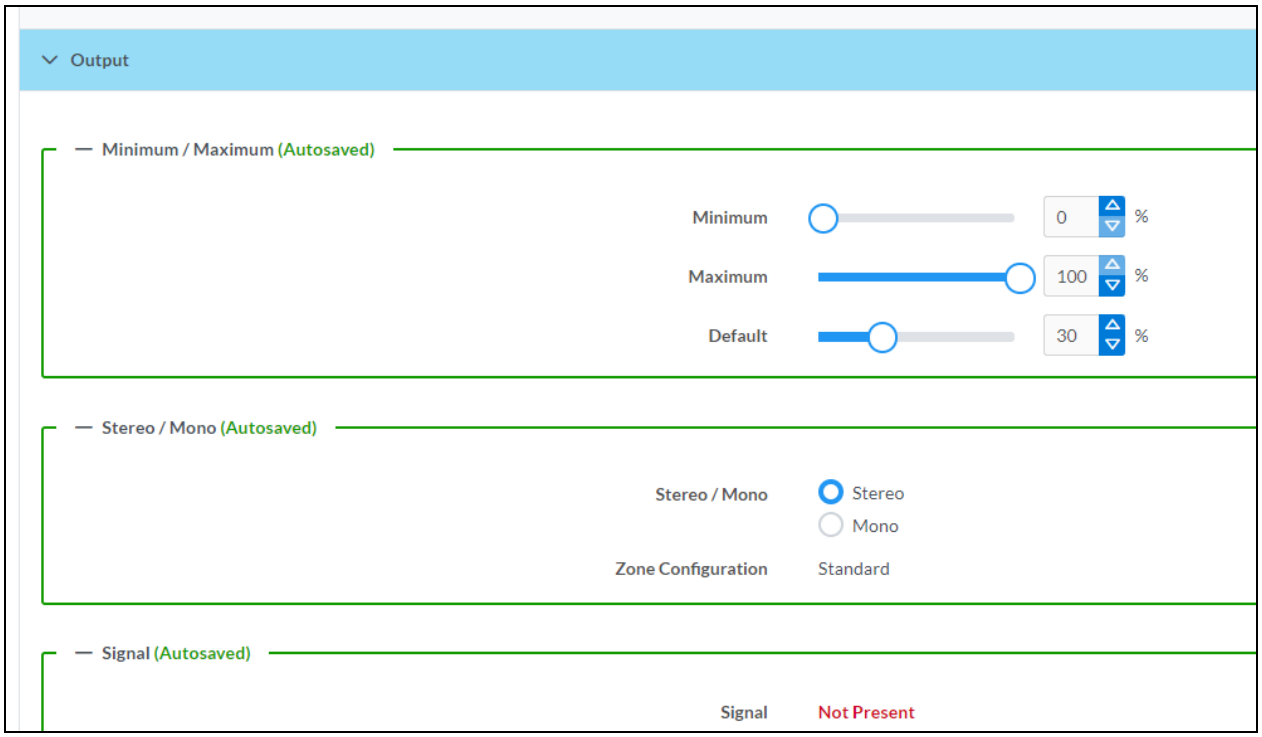
Delay

To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

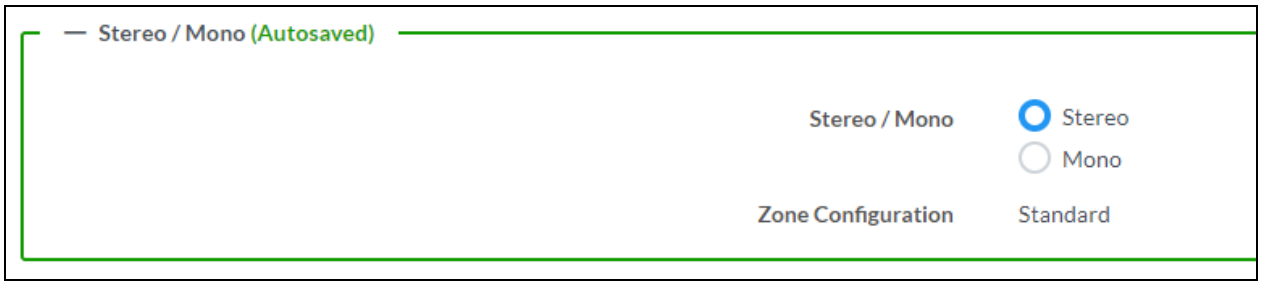
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

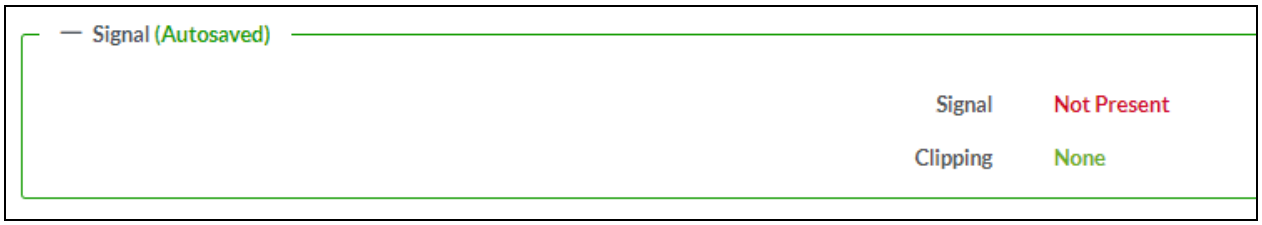
> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono



Select either **Stereo** or **Mono**. If **Stereo** is selected, both output channels can have independent audio content. If **Mono** is selected, both output channels receive the same audio content.

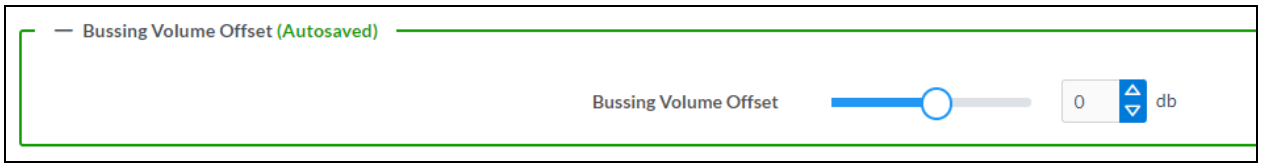
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset

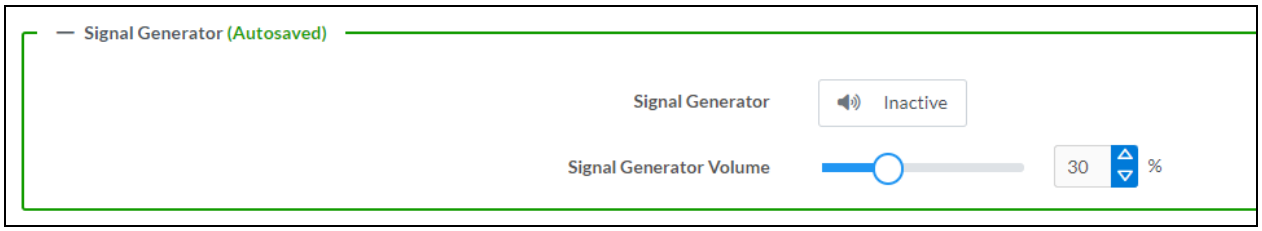


Bussing Volume Offset is an additional level compensation applied to the zone relative to any other zones it is grouped with via the **Bussing** feature.

To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

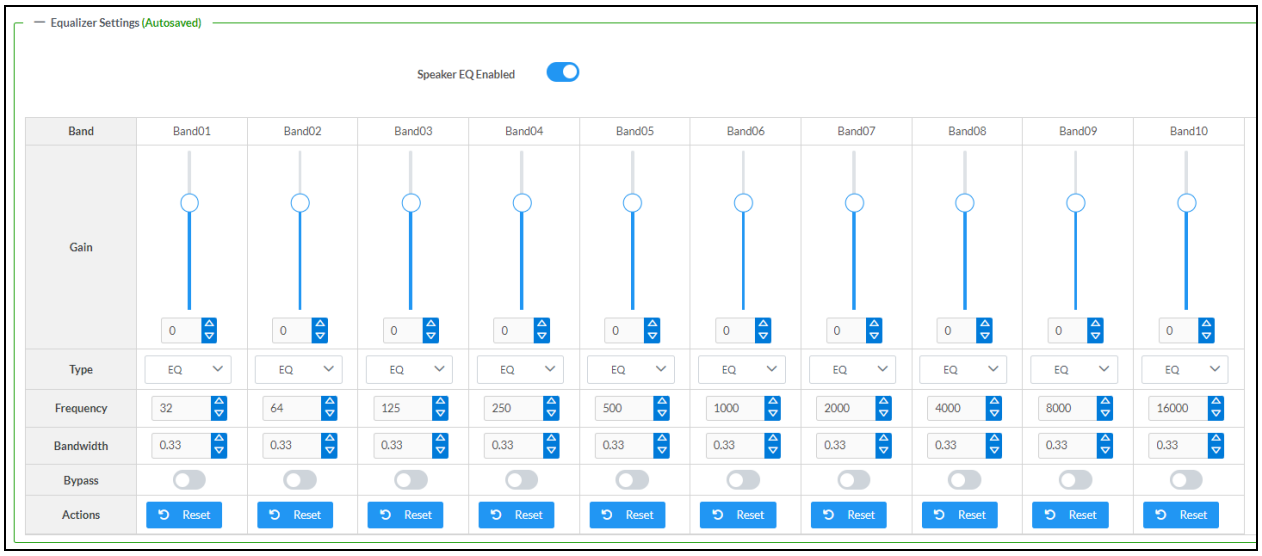
Signal Generator



The DM-NAX-AUD-IO has a built-in signal generator that allows an integrator to send an audio signal to the output for testing purposes.

1. To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue. To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey. By default, the signal generator is not routed to the zone output.
2. To adjust the signal generator's volume, do one of the following:
    - Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
    - Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
    - Manually enter a value in the **Signal Generator Volume** field.

Equalizer Settings



The zone output of the DM-NAX-AUD-IO has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

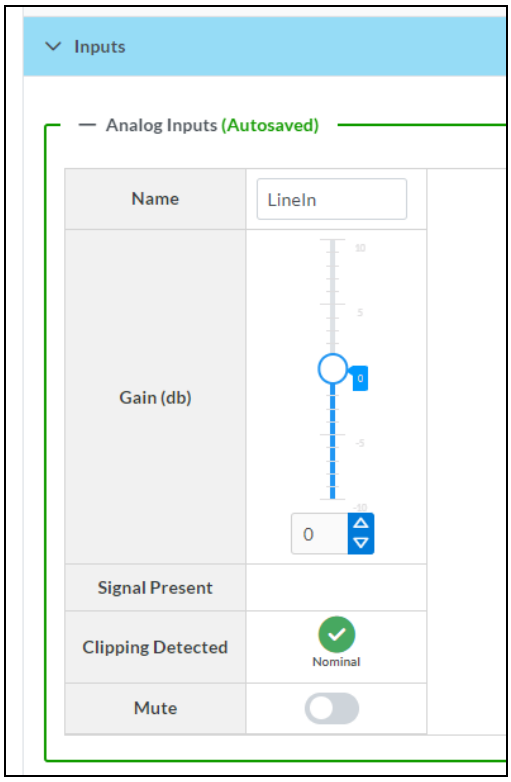
2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.
   a. To set a band's gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
      - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
e. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Inputs

The **Inputs** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-AUD-IO.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

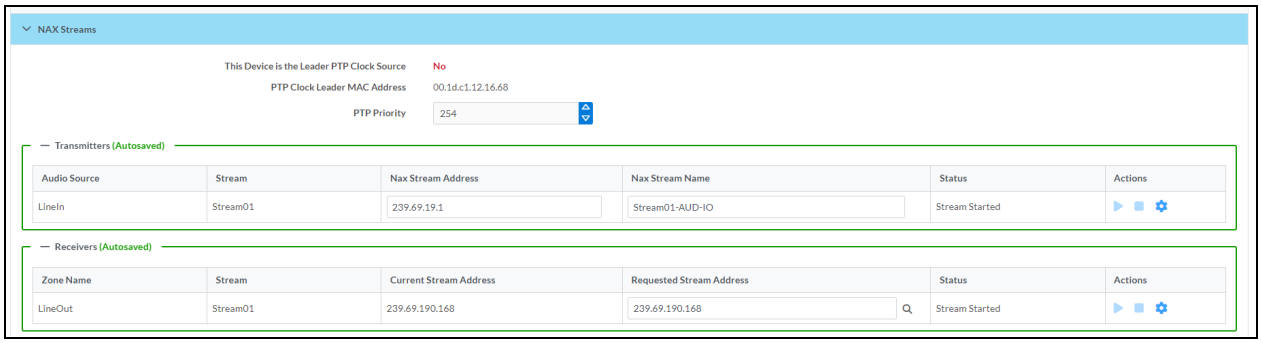
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

The two local line level input channels of the DM-NAX-AUD-IO can be made available as a DM NAX audio-over-IP stream.

Select **NAX Streams** to expand the tab and display the following information.

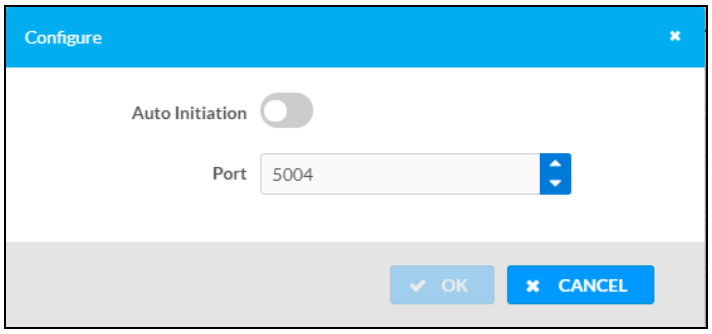


- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-AUD-IO is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AUD-IO will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure a DM NAX transmit stream:

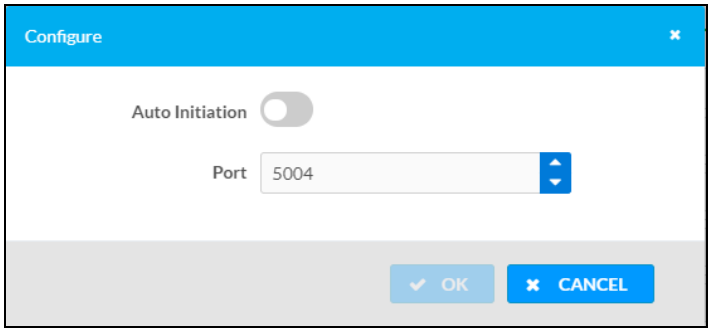
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



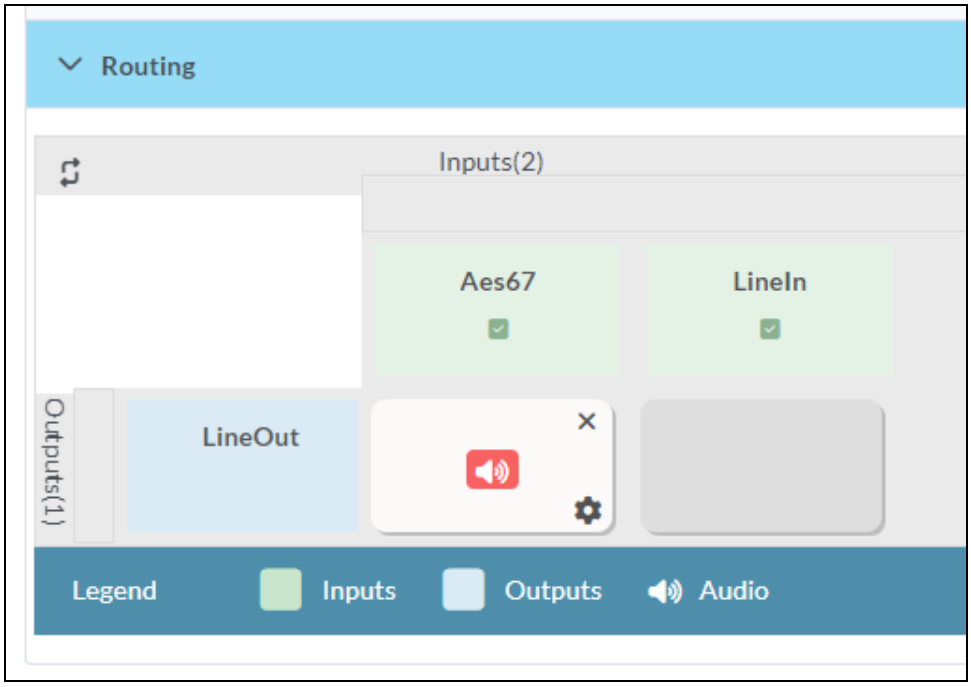
3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Routing

The **Routing** section is used to route a local input or AES67 stream to a Zone on the DM-NAX-AUD-IO.

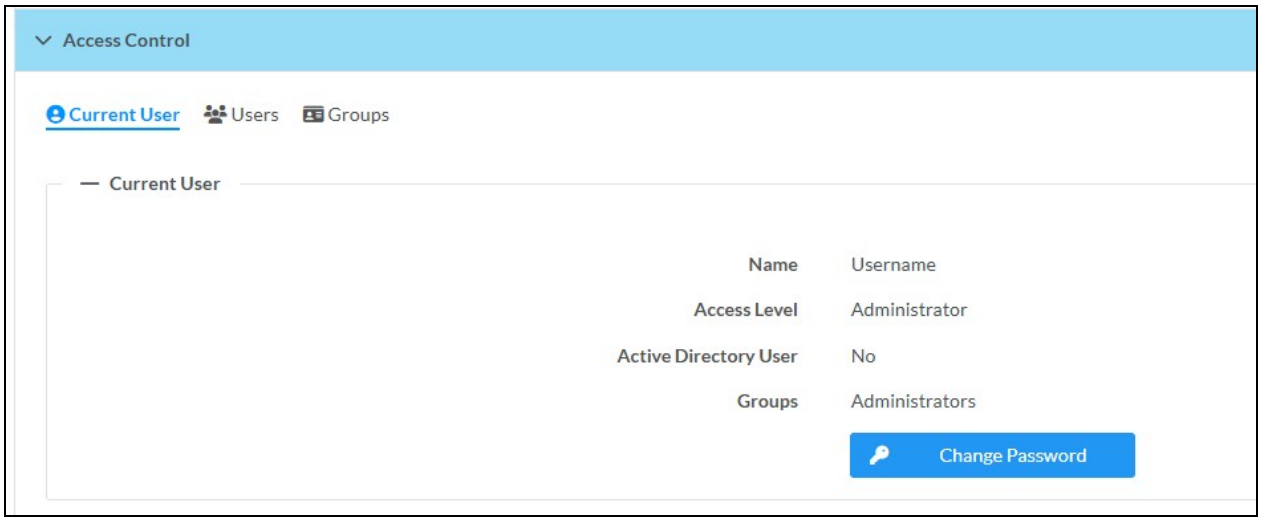
> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, the speaker icon is displayed.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the checkbox icon under the input's name.

Access Control

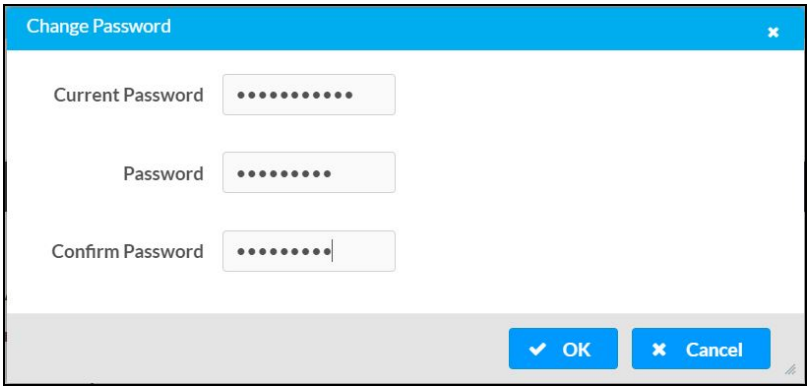
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-AUD-IO functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

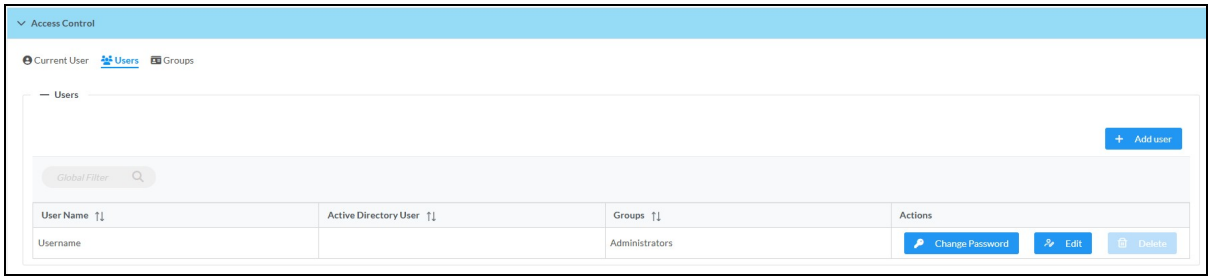
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

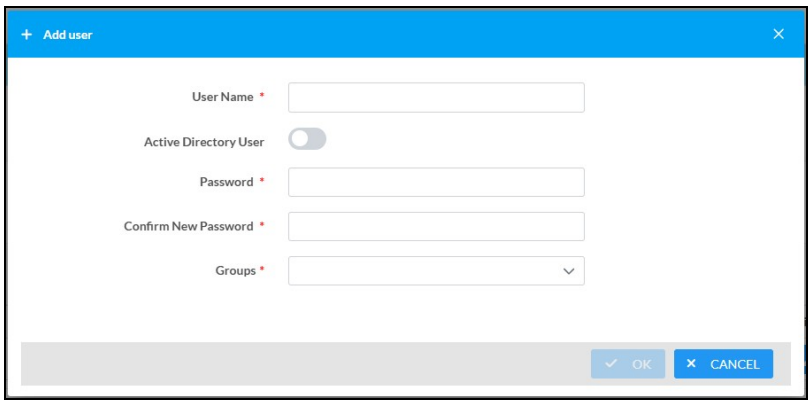
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-AUD-IO:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

   > **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

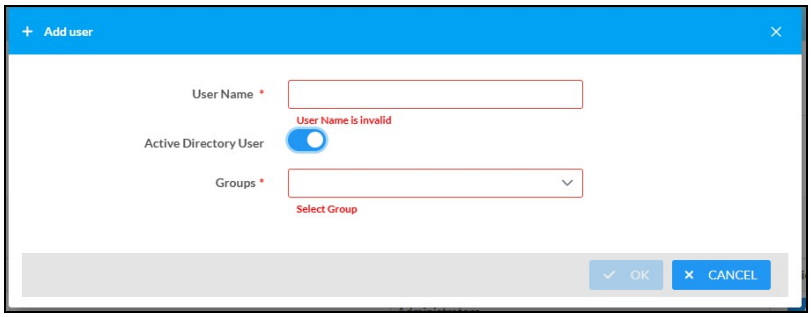
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-AUD-IO, or add the Active Directory group(s) that they are a member of to the DM-NAX-AUD-IO.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



   a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

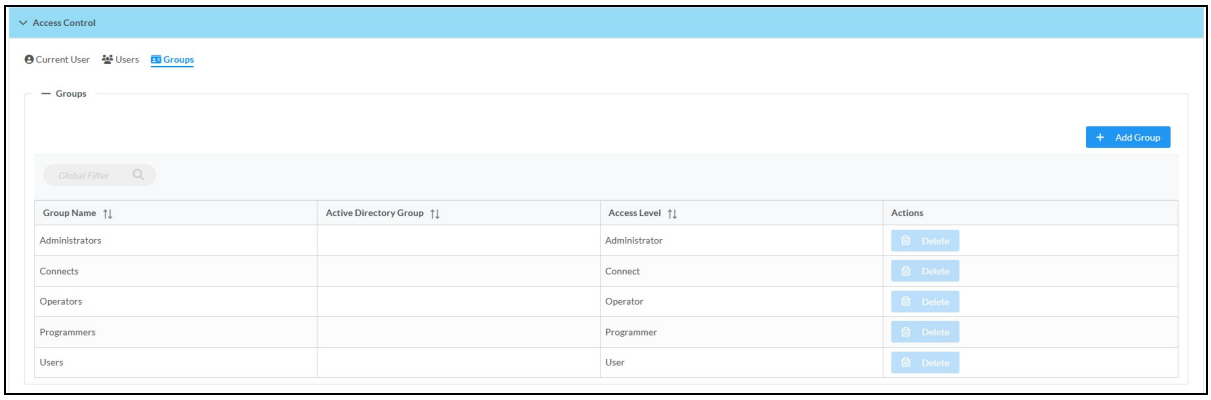
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

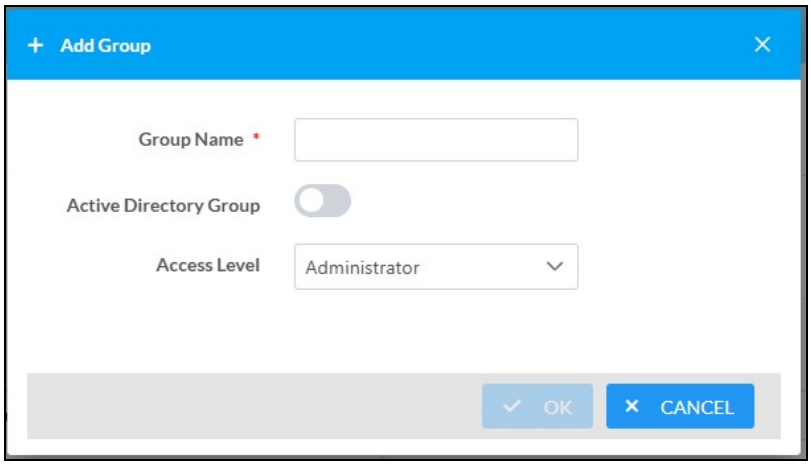
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator,

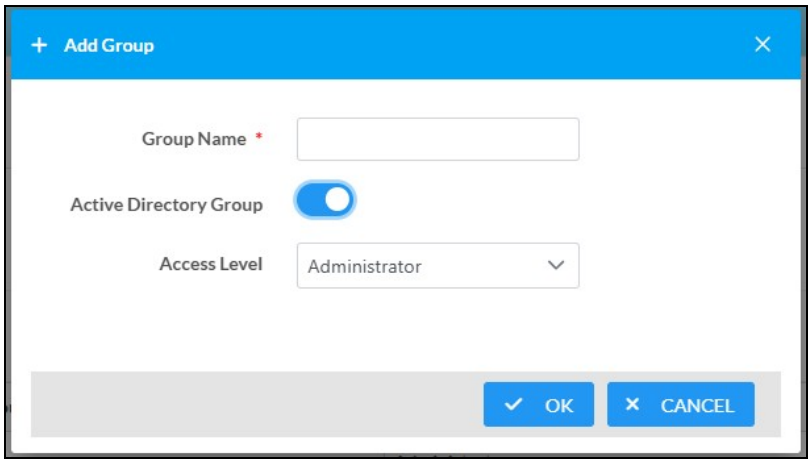
Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

> **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-AUD-IO.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

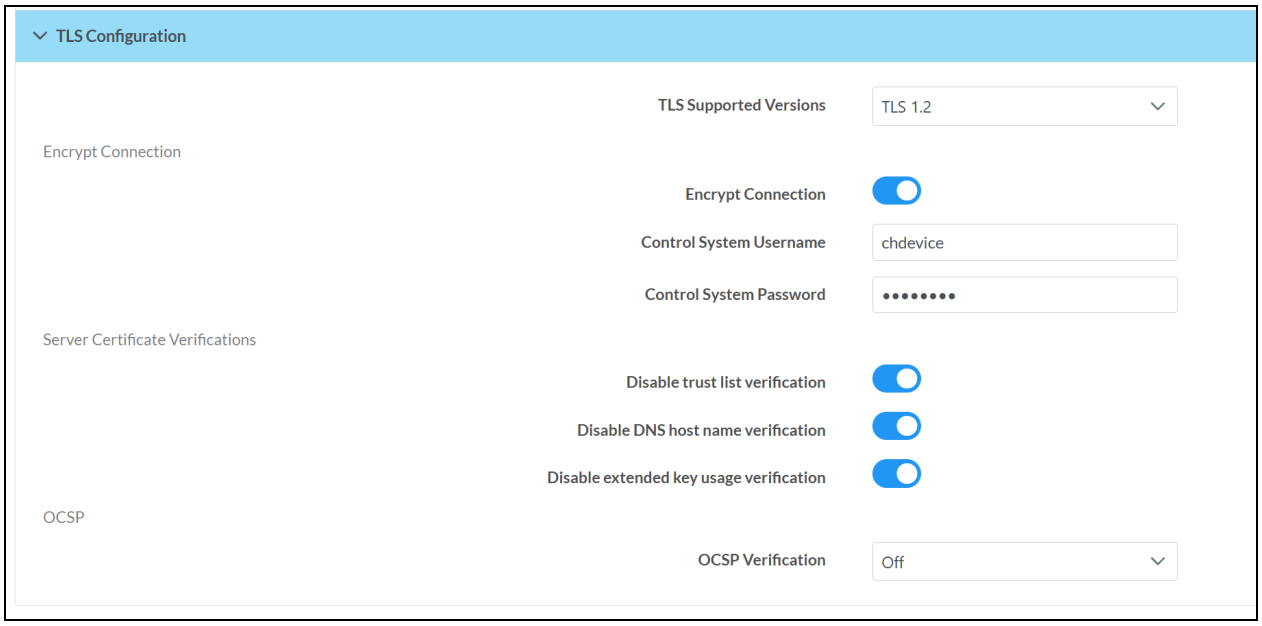
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-AUD-IO.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

DM-NAX-AUD-USB

This section describes how to configure the DM-NAX-AUD-USB.

Web Interface Configuration

The DM-NAX-2XLRI-1G web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 590
- Access the Web Interface With Crestron Toolbox™ Software on page 592

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

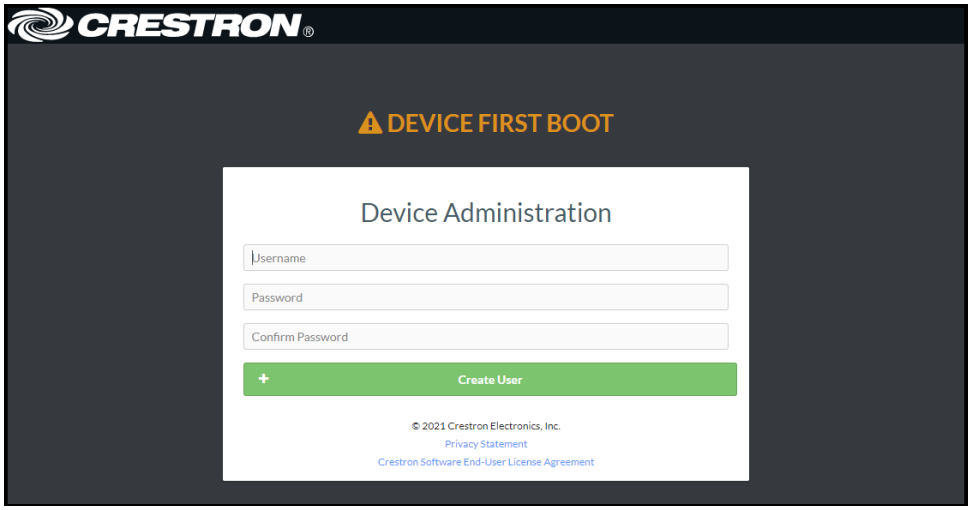
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

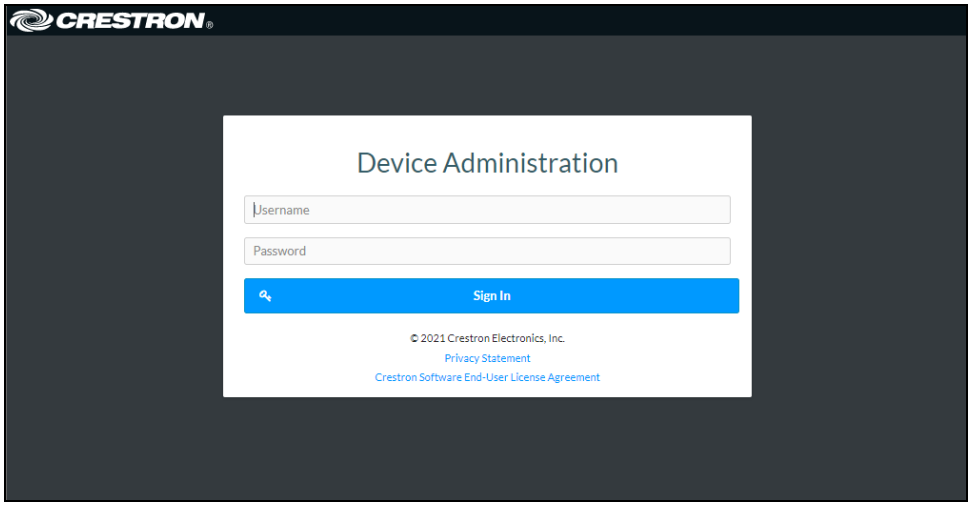
1. Enter the IP address of the DM-NAX-AUD-USB into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser within Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-AUD-USB is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

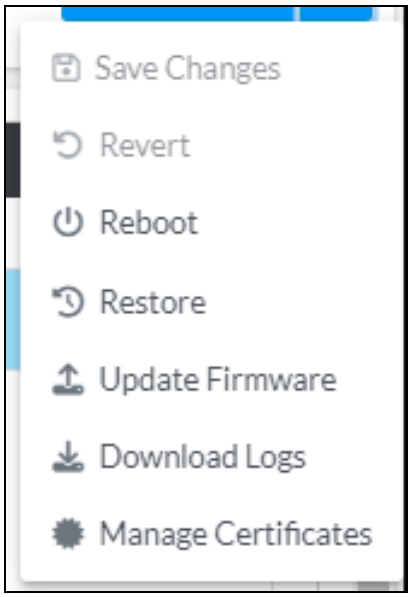
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 593
- Revert on page 593
- Reboot on page 594
- Restore to Factory Default Settings on page 594
- Update Firmware on page 595
- Download Logs on page 595
- Manage Certificates on page 596



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

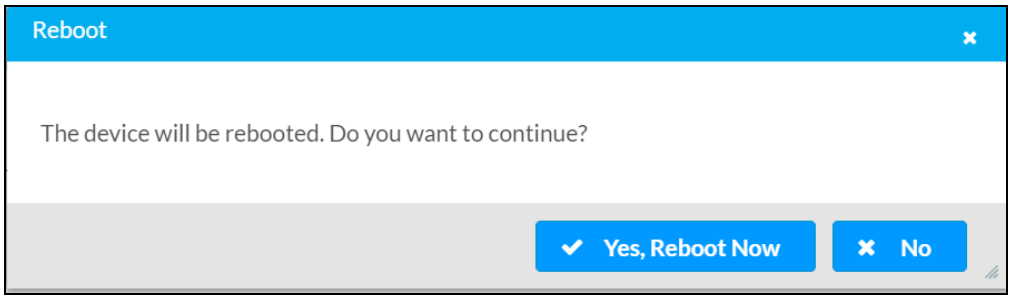
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-AUD-USB to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



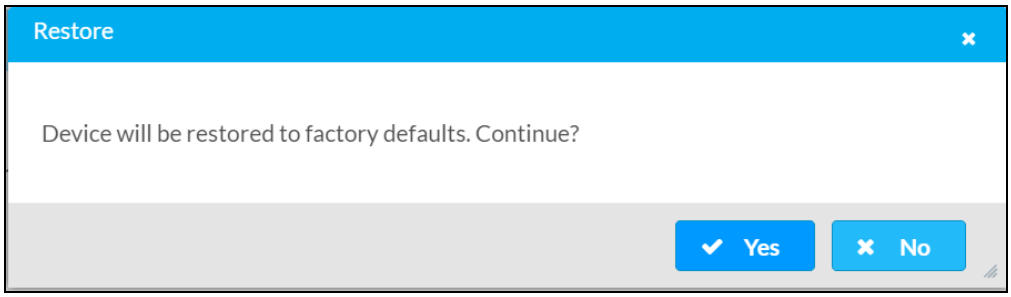
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-AUD-USB to factory defaults.

   NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



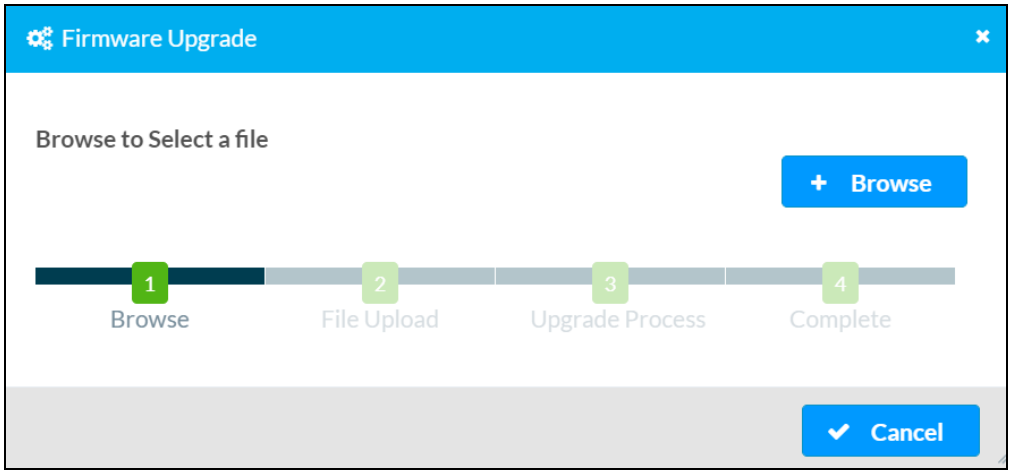
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-AUD-USB to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, and then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

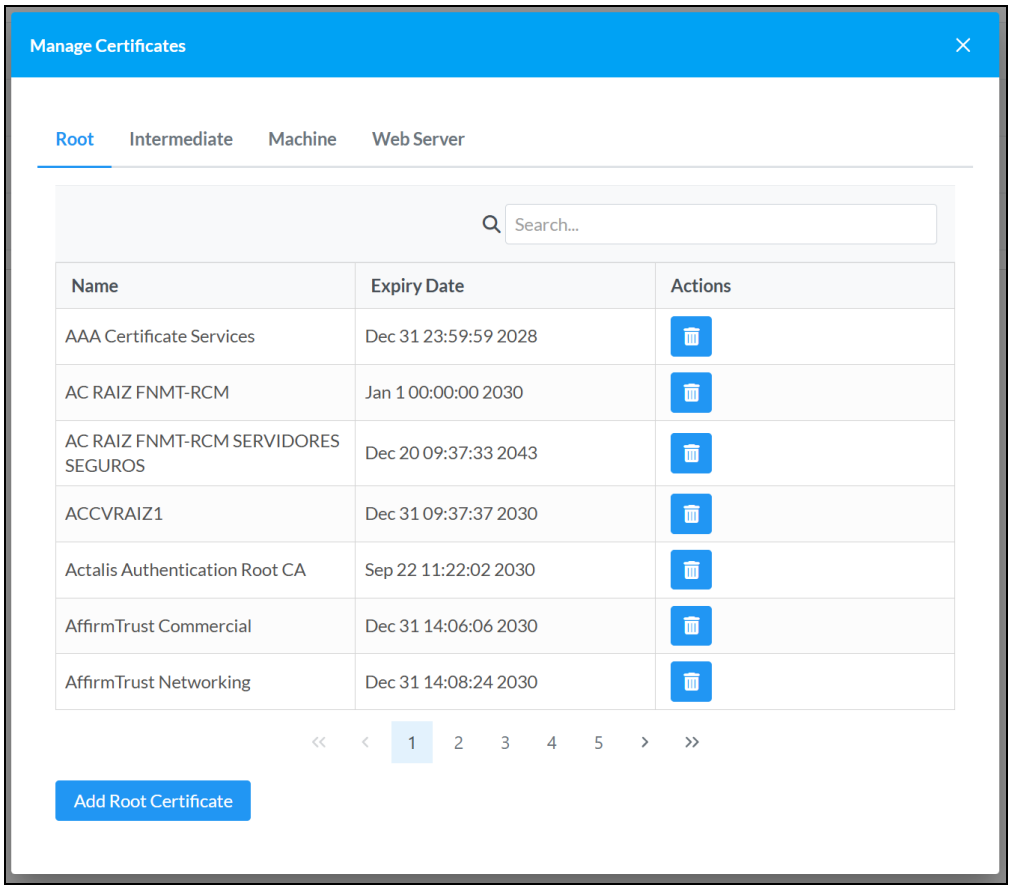
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-AUD-USB to validate the network's authentication server. The DM-NAX-AUD-USB has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-AUD-USB. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

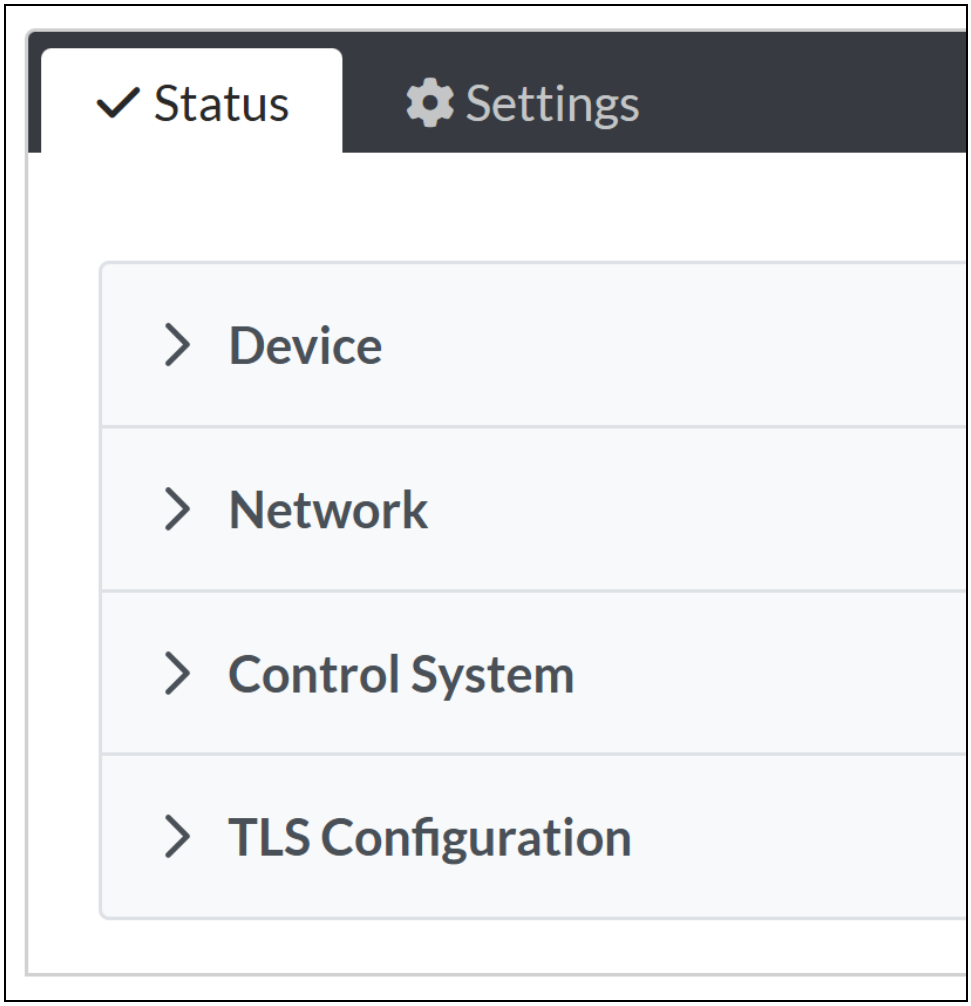
To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-AUD-USB. It displays general information about the DM-NAX-AUD-USB (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**, etc.), and input and output ports' current status.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-AUD-USB web interface.

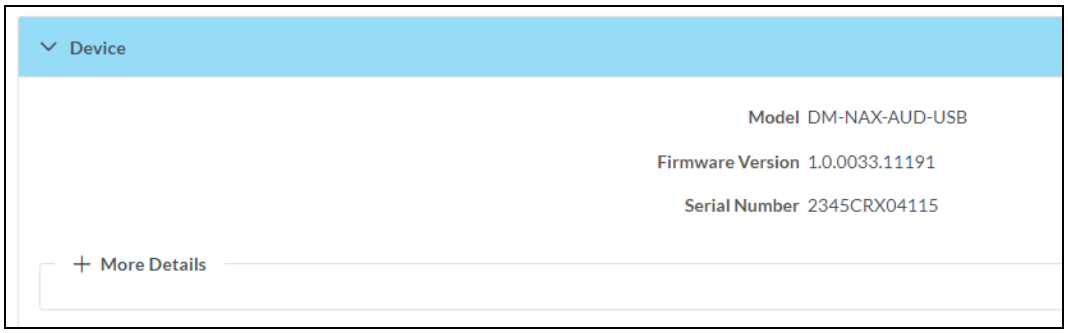


Information displayed on the **Status** tab is organized into different collapsible accordions:

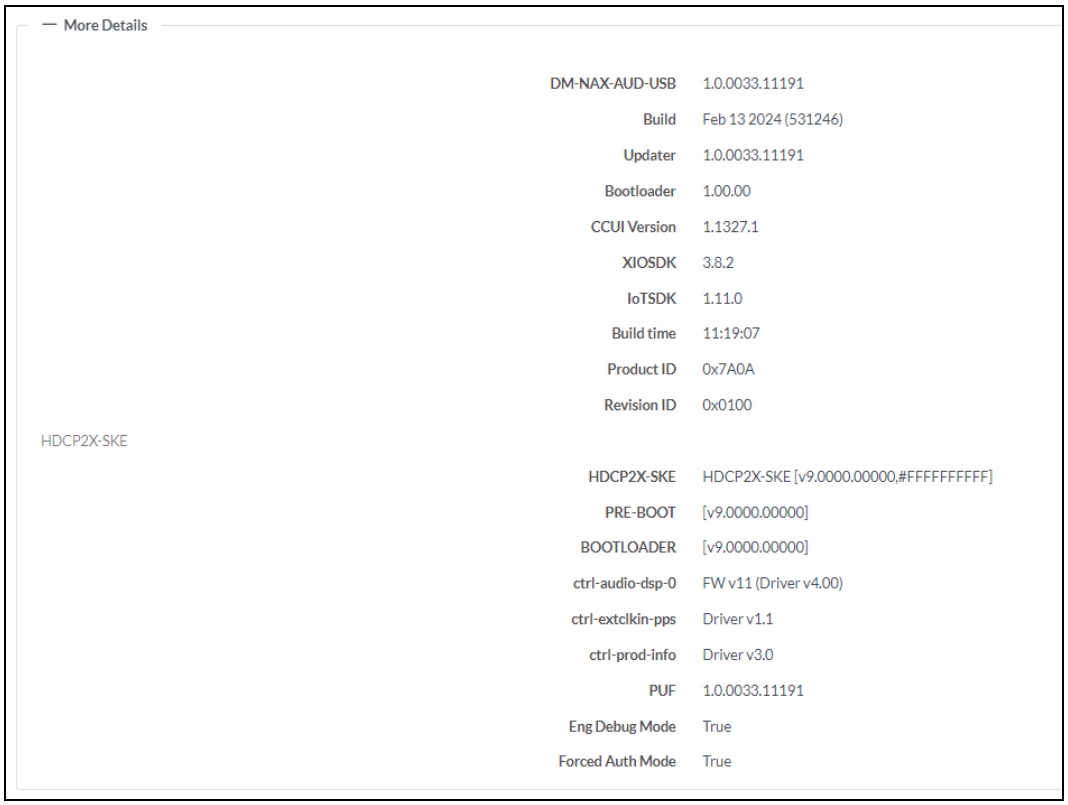
- Device on page 598
- Network on page 599
- Control System on page 600
- TLS Configuration on page 600

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-AUD-USB.

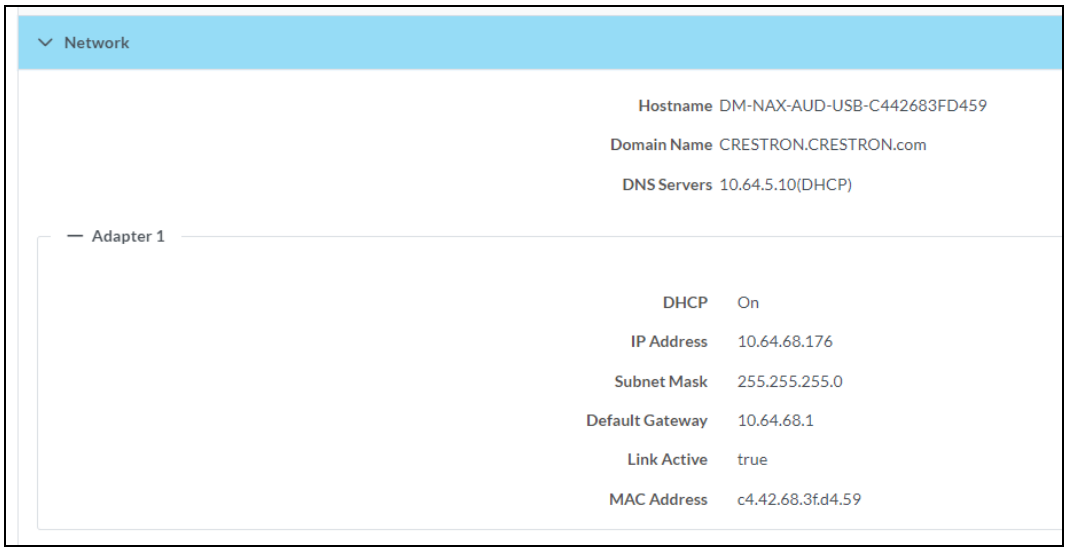


Select **+ More Details** to review additional information about the DM-NAX-AUD-USB.



Network

The **Network** section displays network-related information about the DM-NAX-AUD-USB, including the **Hostname**, **Domain Name**, and **DNS Servers**.

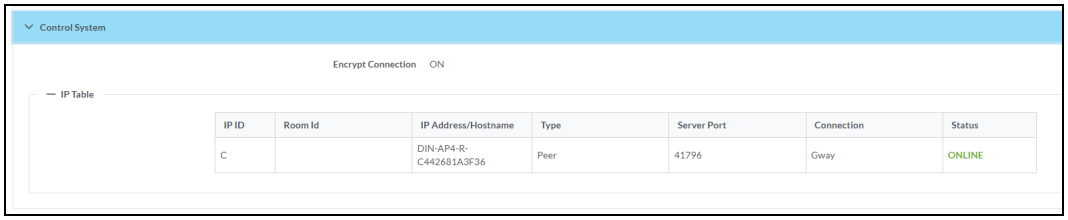


NOTE: By default, the host name of the DM-NAX-AUD-USB consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-USB-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** details to collapse the section.

Control System

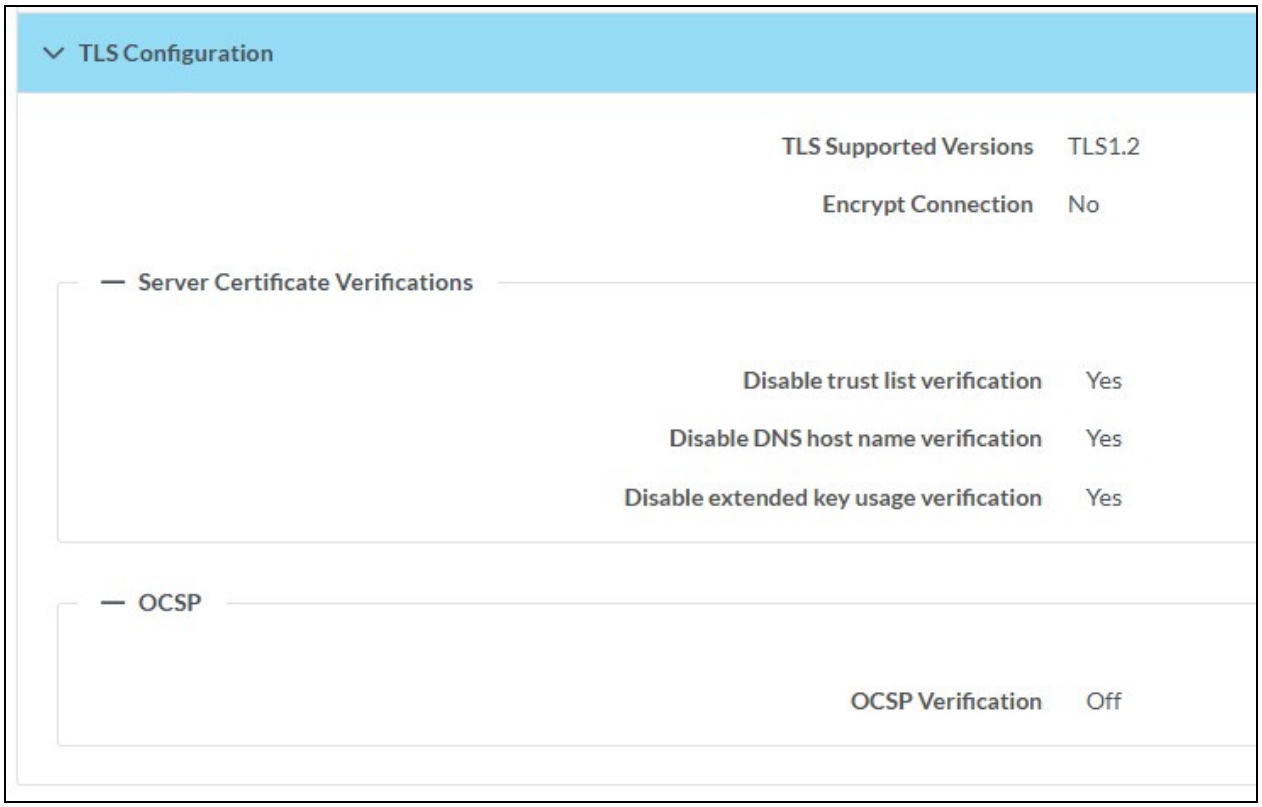
The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-AUD-USB.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE**.

TLS Configuration

The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-AUD-USB.



TLS settings can be adjusted in the **Settings** tab under the **System Setup** and **TLS Configuration** accordions. Depending on the device mode of the DM-NAX-AUD-USB, refer to either Commercial Mode on page 603 or Residential Mode on page 630 for information.

Settings

The **Settings** page enables configuration of the DM-NAX-AUD-USB settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-USB web interface.

Many options in the **Settings** page are exclusive to a specific device mode: Residential or Commercial. The DM-NAX-AUD-USB is in Commercial mode by default.

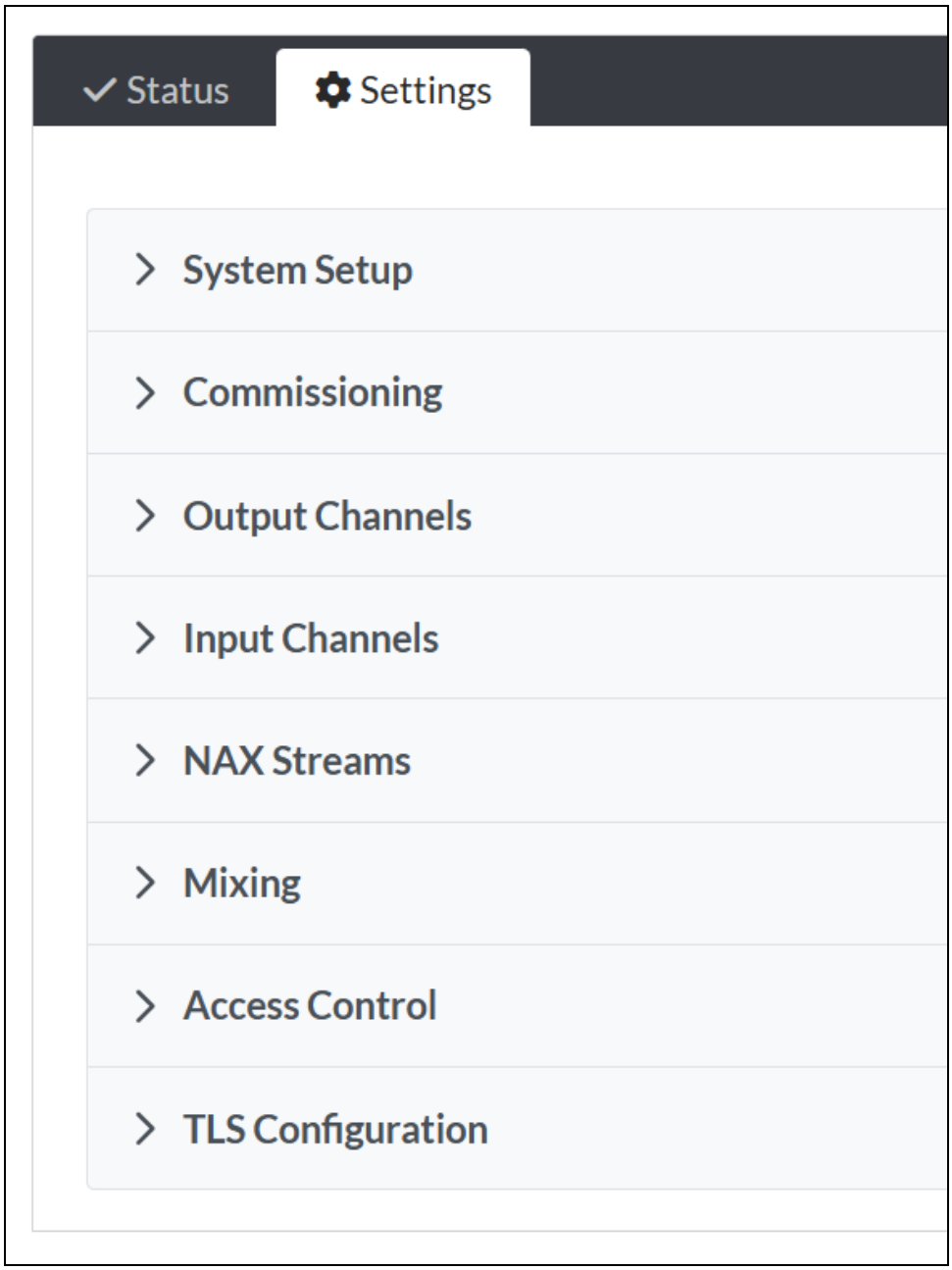
This section provides the following information:

- Commercial Mode on page 603
- Residential Mode on page 630

Commercial Mode

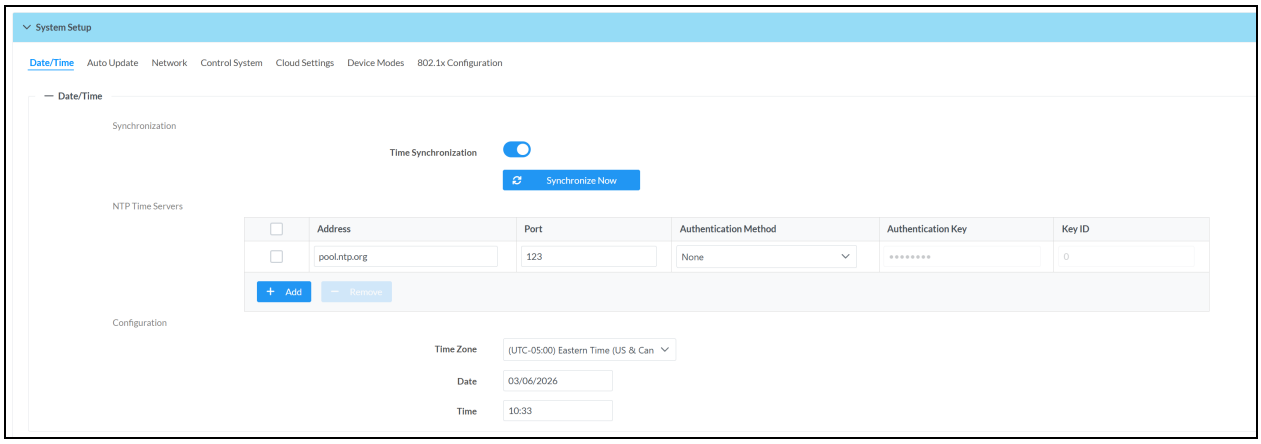
The **Settings** page enables you to configure the DM-NAX-AUD-USB settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-USB web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 604
- Commissioning on page 610
- Output Channels on page 611
- Input Channels on page 618
- DM NAX Streams on page 618
- Mixing on page 622
- Access Control on page 623
- TLS Configuration on page 628



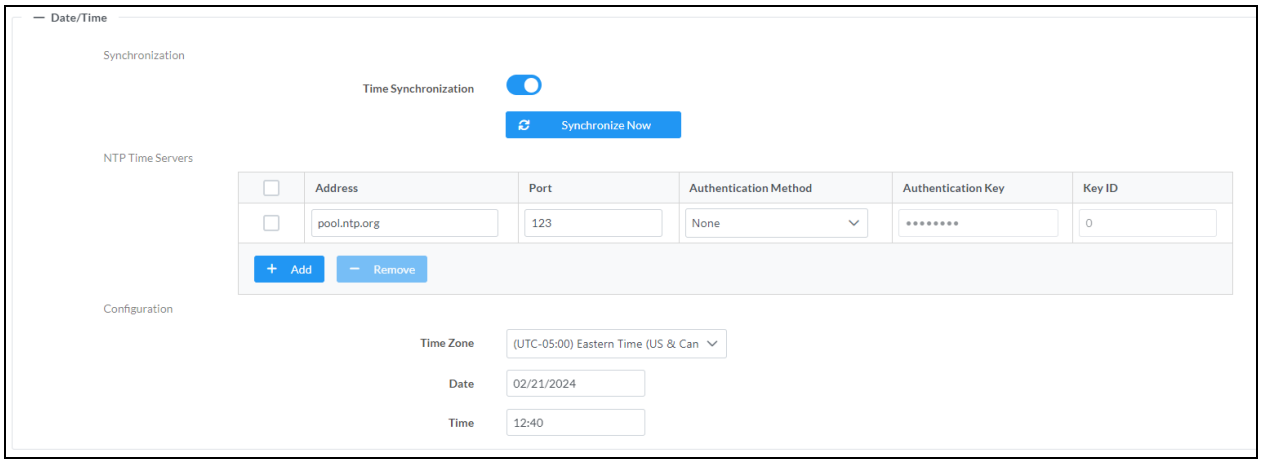
System Setup

The **System Setup** section displays information about the **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.



Date/Time

Use the **Date/Time** tab to configure the date and time settings of the DM-NAX-AUD-USB.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

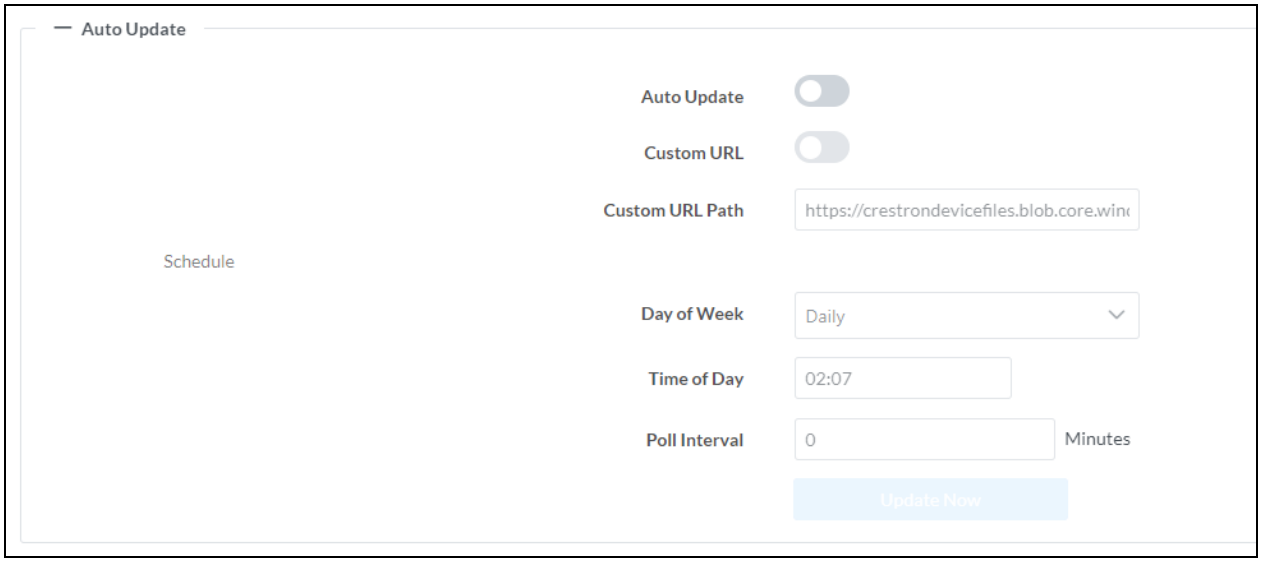
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AUD-USB can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

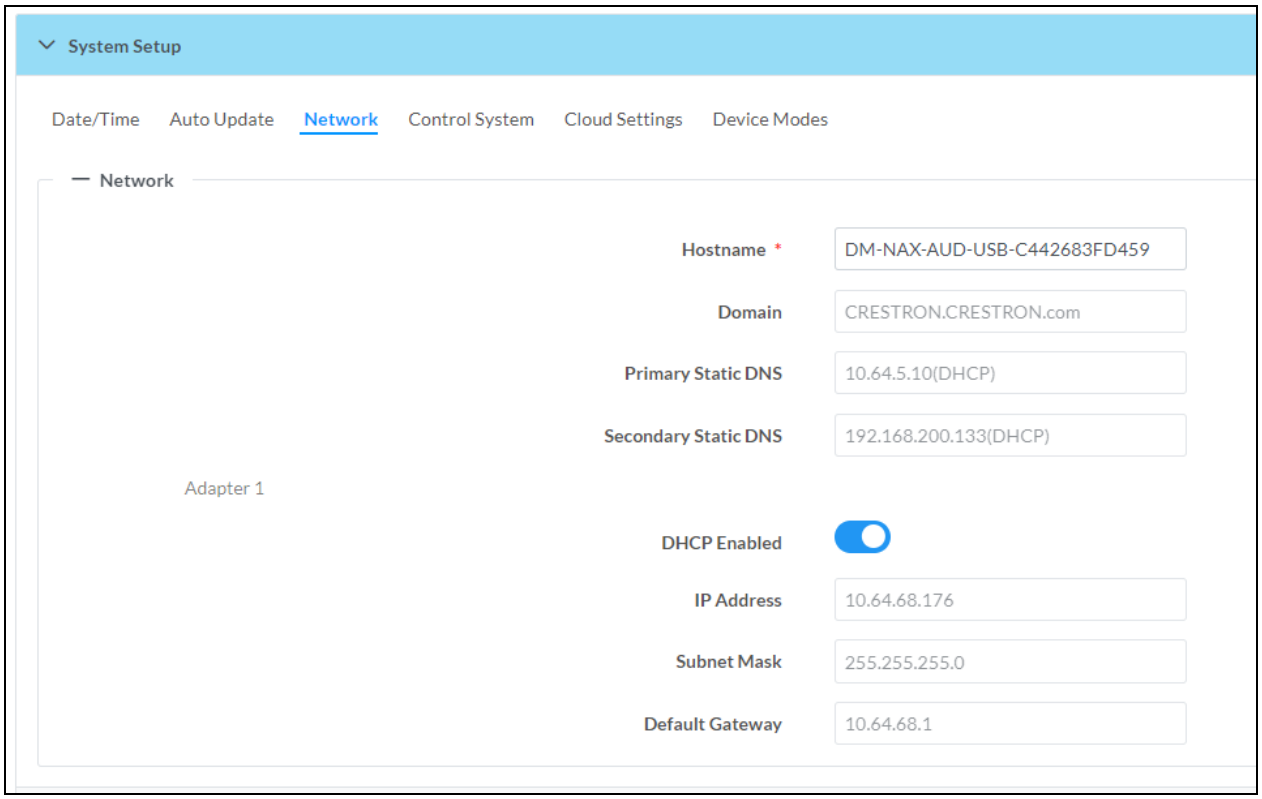


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** tab contains network-related settings for the DM-NAX-AUD-USB, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the hostname of the DM-NAX-AUD-USB consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-USB-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

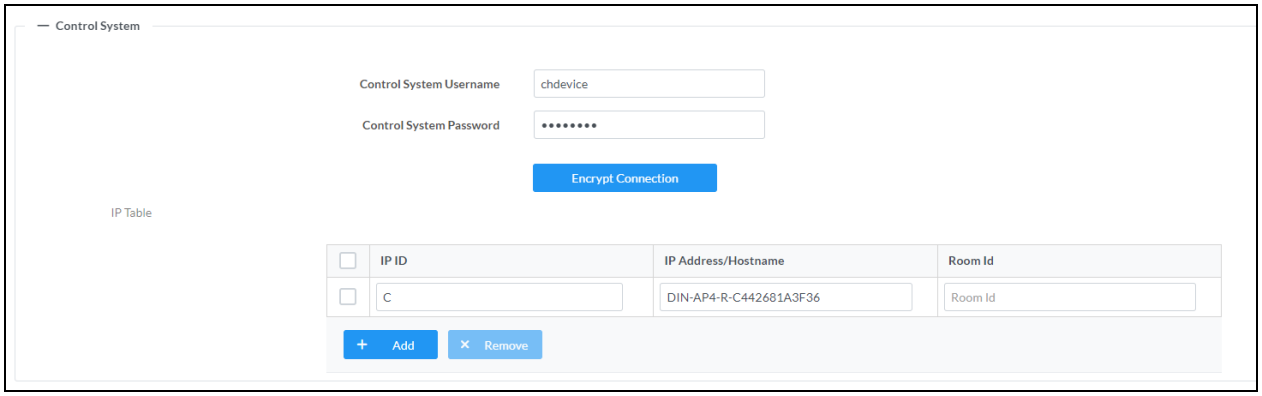
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AUD-USB is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When **DHCP** is enabled (default setting), the IP address of the DM-NAX-AUD-USB is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When **DHCP** is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AUD-USB.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

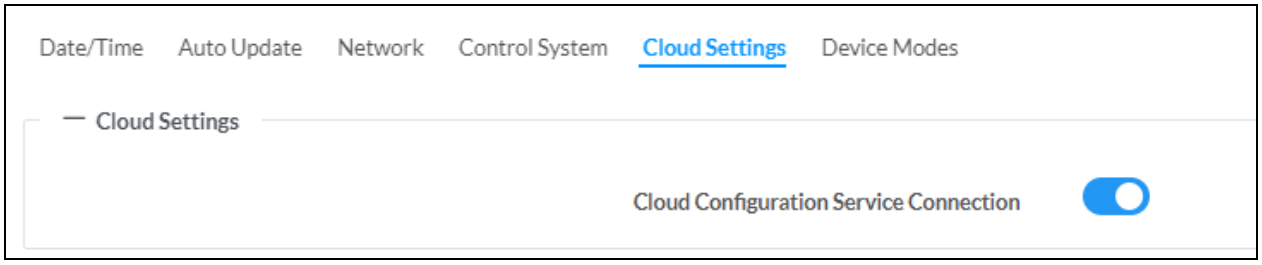
To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AUD-USB in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

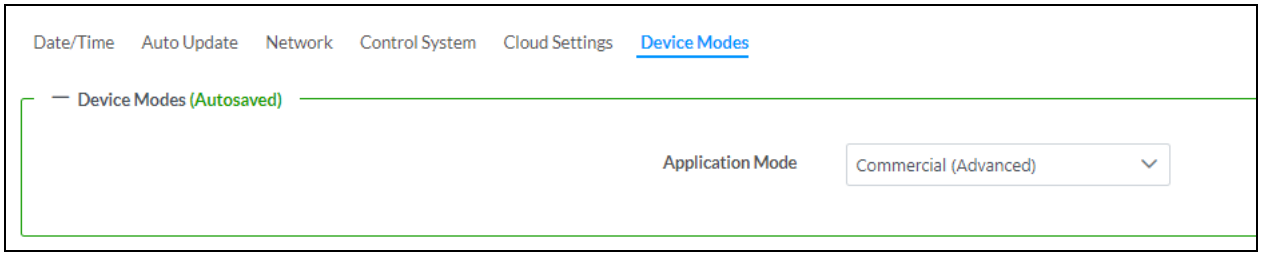
Cloud Settings



Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AUD-USB can communicate with the XiO Cloud® platform.

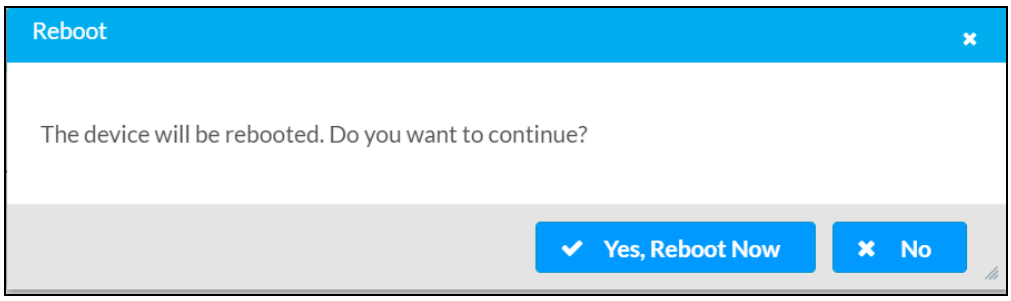
Device Modes

Use the **Device Modes** tab to configure the **Application Mode** of the DM-NAX-AUD-USB.



Application Mode determines which options and controls are available.

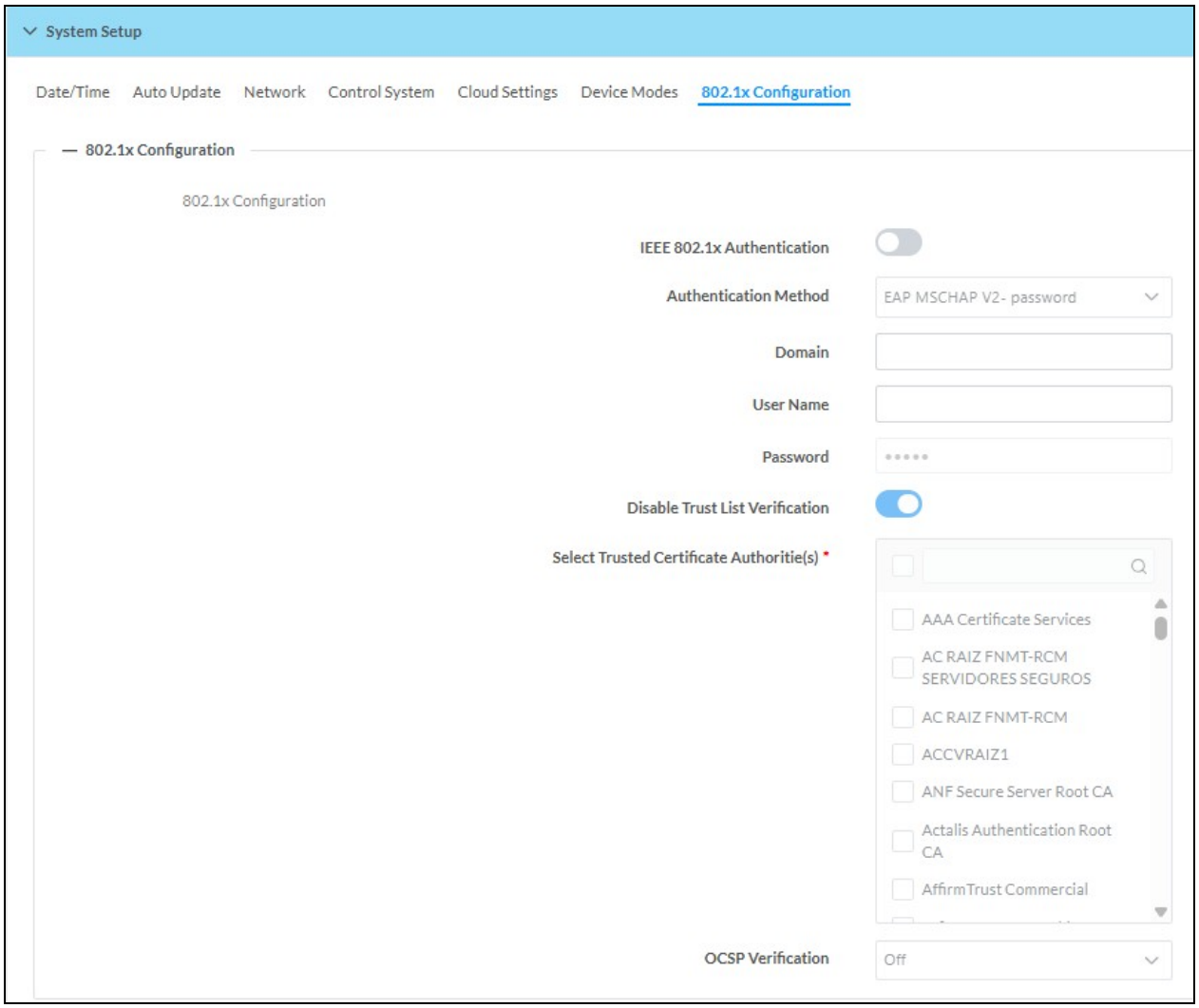
- Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



- Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
- Wait for the device restart to complete before attempting to reconnect to the device.

By default, the DM-NAX-AUD-USB is set to **Commercial (Advanced)** mode.

802.1X Configuration



The DM-NAX-AUD-USB has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-AUD-USB:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.
    - If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.
4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

    The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-AUD-USB. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

    If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

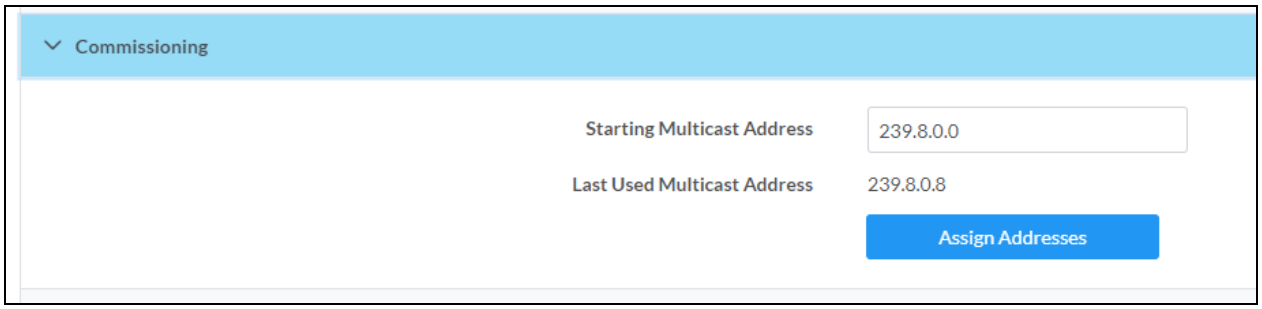
    When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

    > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

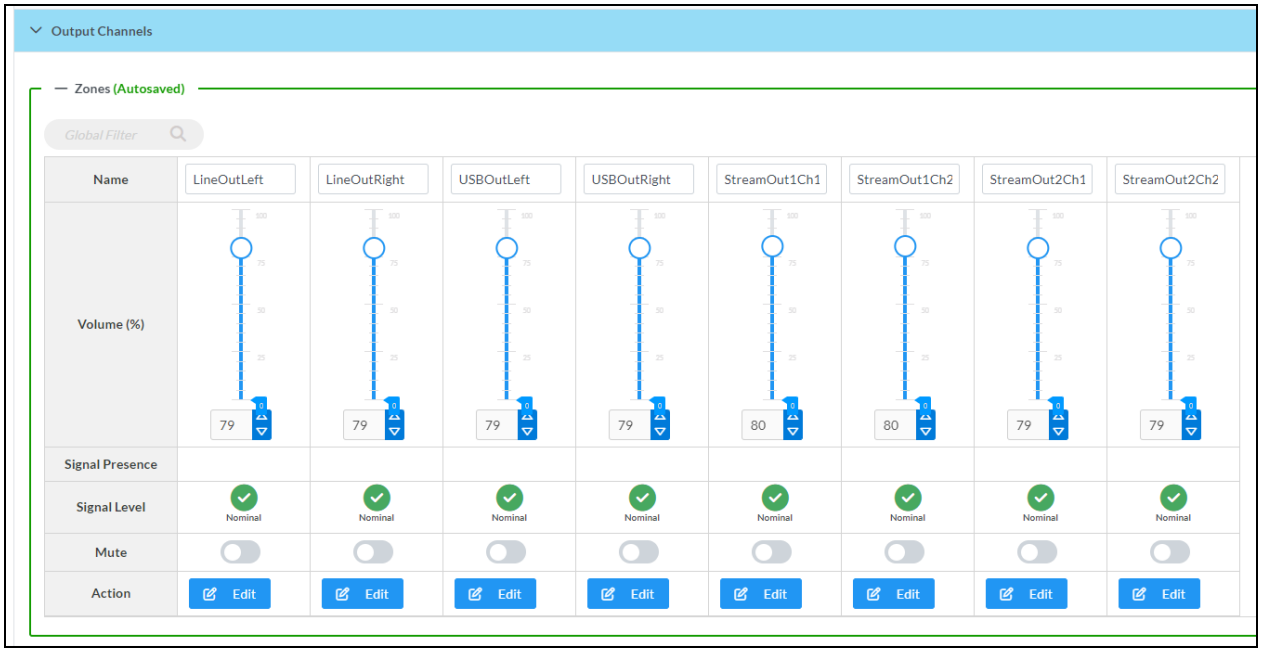


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AUD-USB a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Output Channels

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as an **Edit** option for more advanced settings within each zone.



Signal Presence indicates whether or not an audio signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- **Nominal**: The signal level is within normal operating bounds and below the clipping threshold.
- **Clipping**: The signal level is clipping or above the -3 dB warning threshold and in danger of clipping.

Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

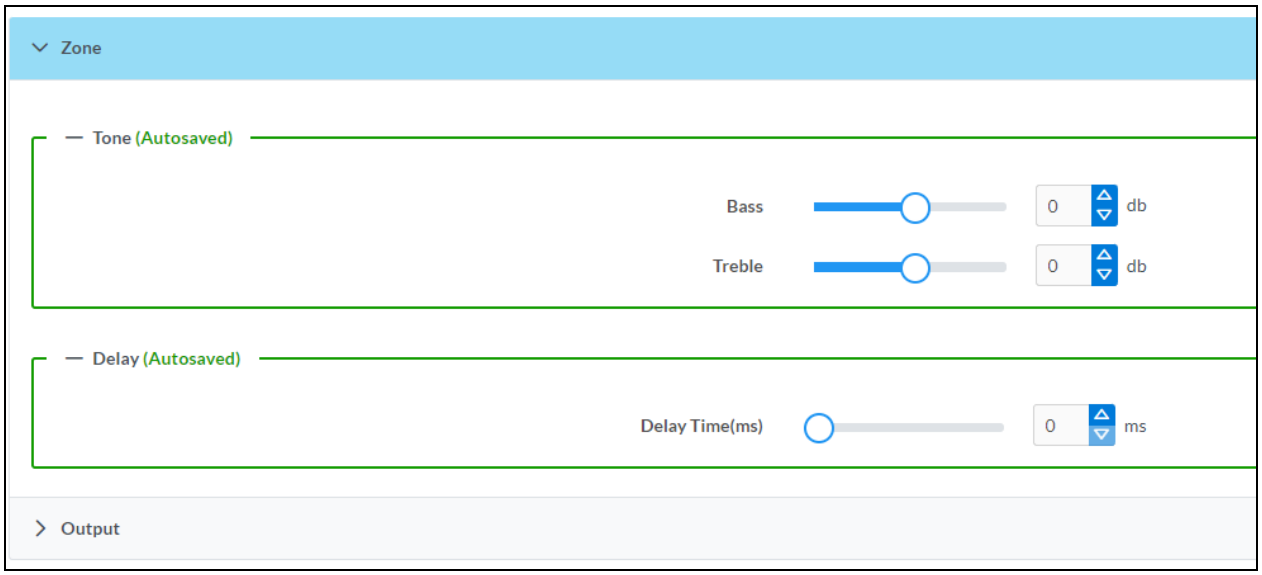
- Move the **Volume** slider up to increase or down to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Select **Edit** to view additional **Zone** and **Output** options.

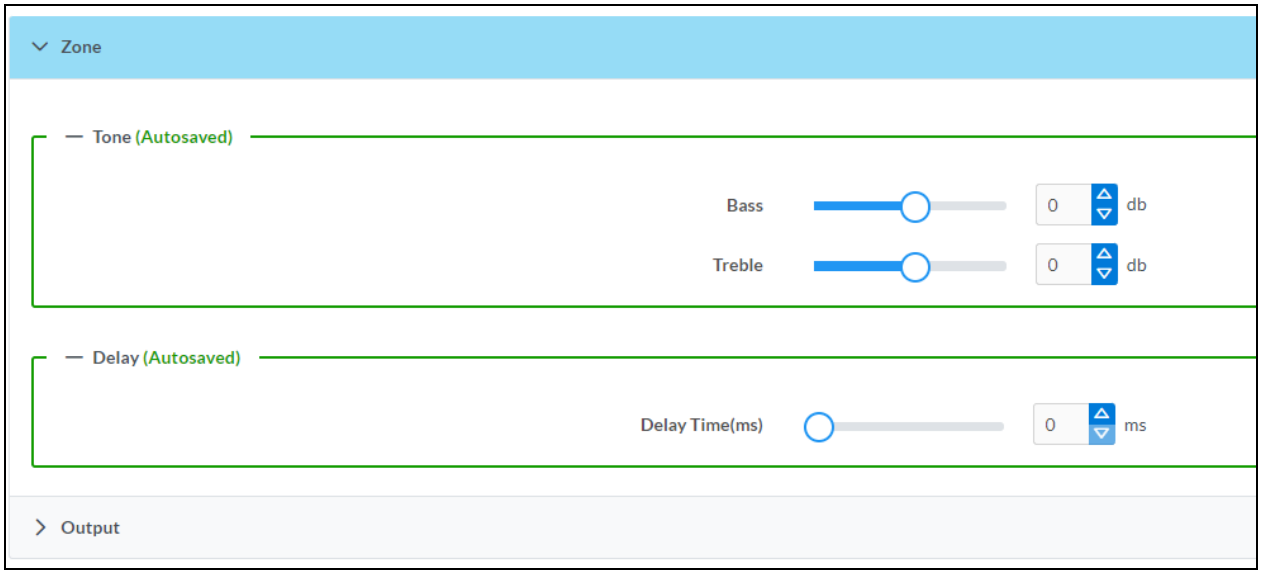
Zone Settings

To configure the settings for an output channel, select **Edit**. The **Edit Zone** window is displayed.

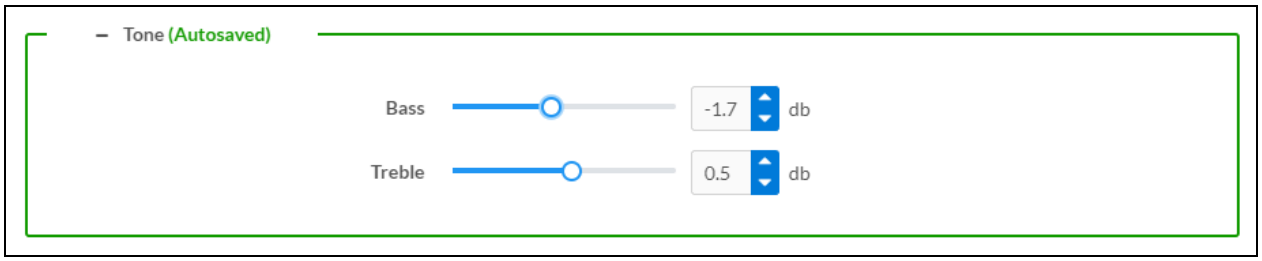


Zone

Select **Zone** to access the settings for **Tone** and **Delay**.

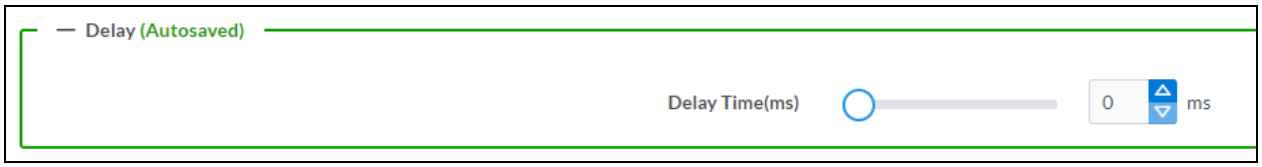


Tone



- **Bass**: To adjust the bass, do one of the following:
  - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
  - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Bass** field.
- **Treble**: To adjust the treble, do one of the following:
  - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
  - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 dB, adjustable in increments of .1 dB.
  - Manually enter a value in the **Treble** field.

Delay



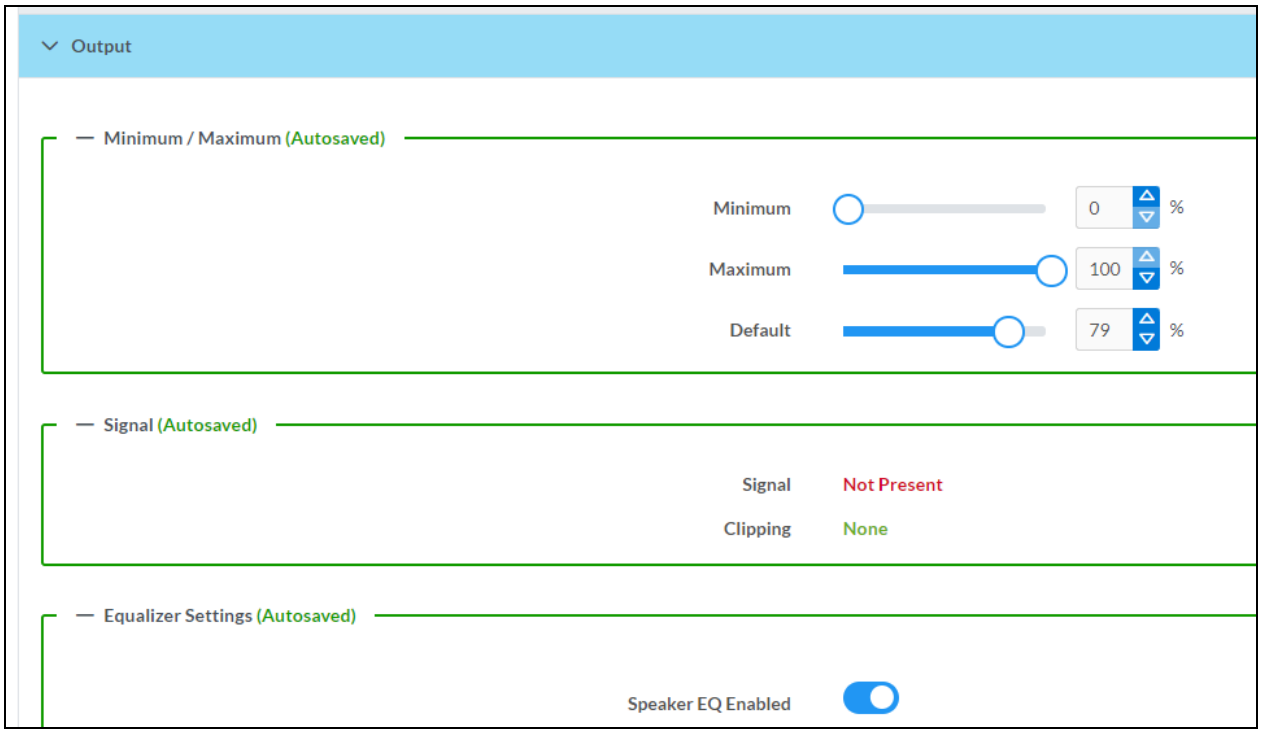
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

> **NOTE:** The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Signal**, and the output **Equalizer**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

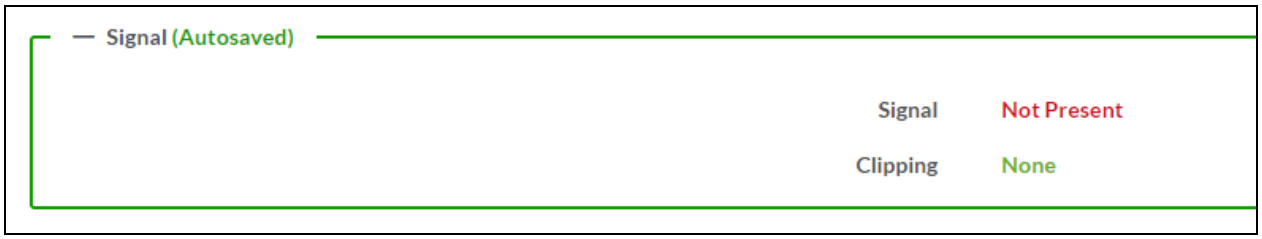
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

    > **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

    > **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

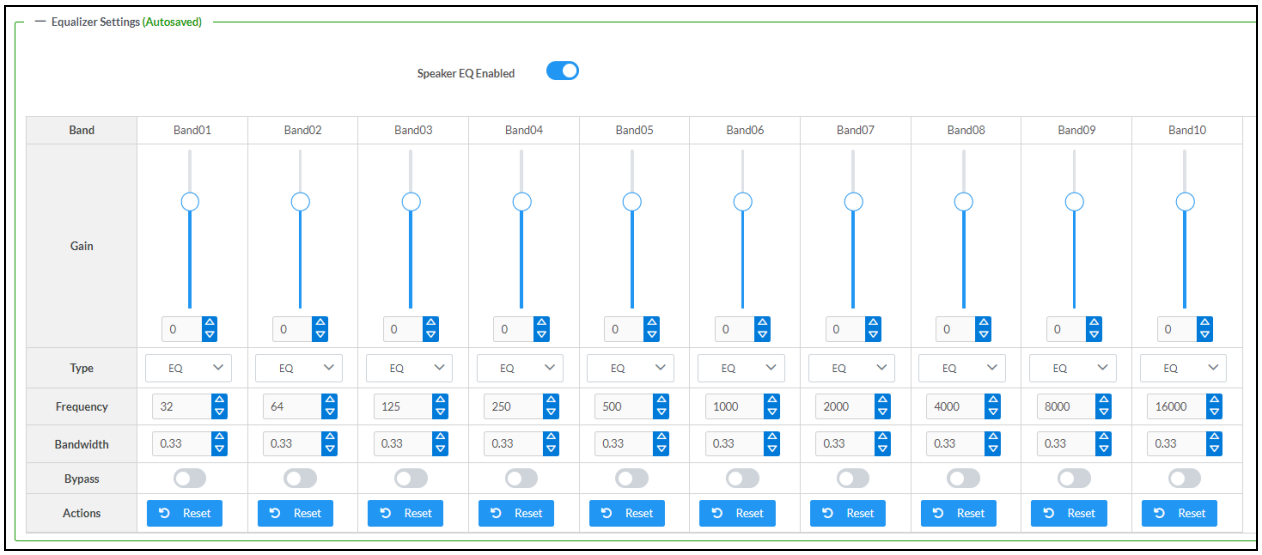
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Equalizer Settings



Each output channel of the DM-NAX-AUD-USB has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

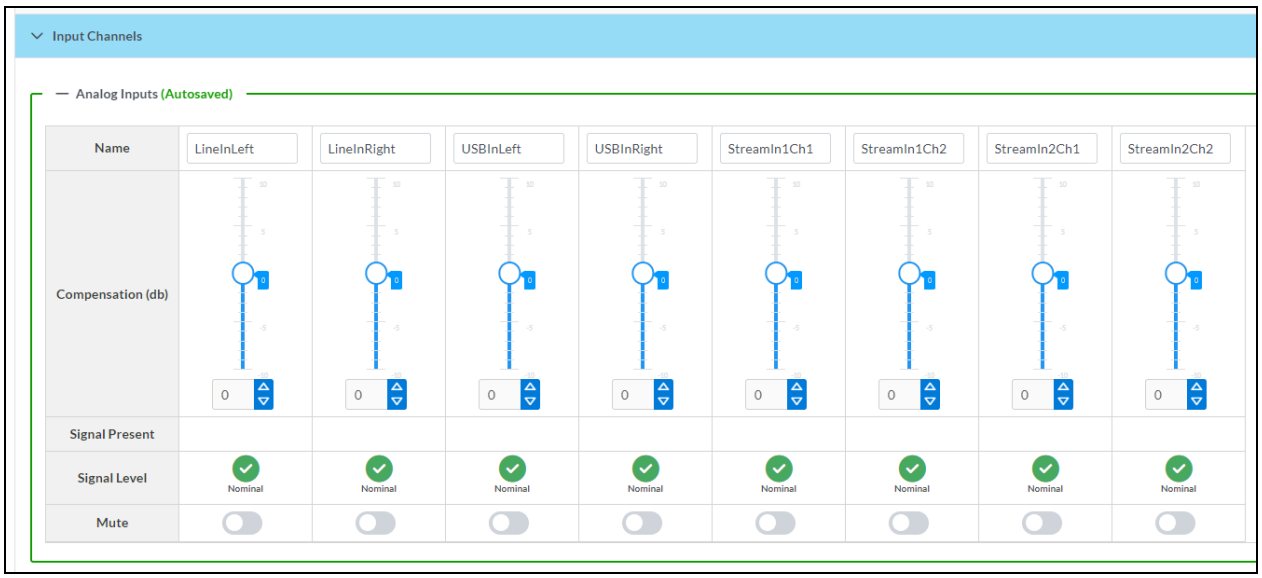
2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.
   a. To set a band's gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
      - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
e. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Input Channels

The **Input Channels** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the front panel inputs on the DM-NAX-AUD-USB.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
   - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
   - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
   - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

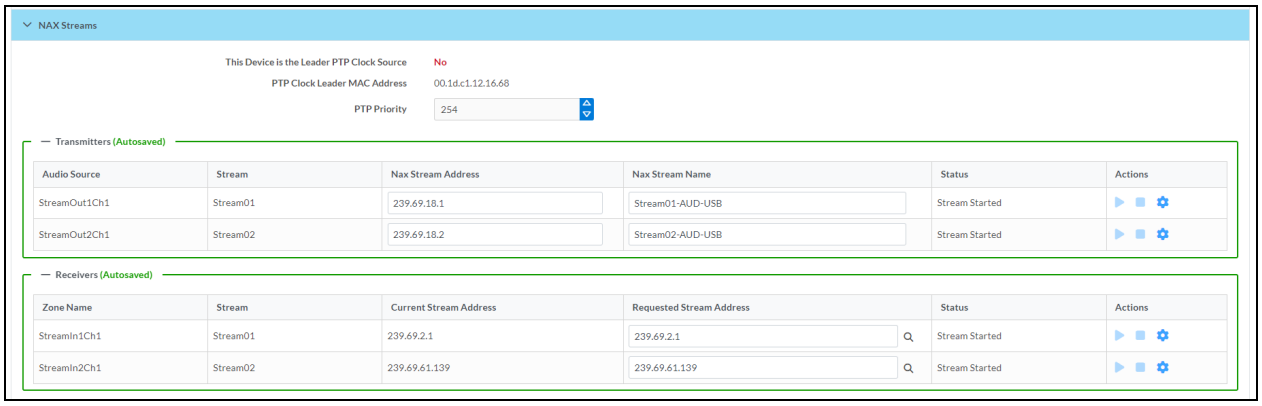
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

The local inputs of the DM-NAX-AUD-USB can be made available as DM NAX audio-over-IP streams. Two network stream transmitters are available on the device. One transmitter will encode the local unbalanced line level input, and the other will encode the USB input audio.

Select **NAX Streams** to expand the tab and display the following information.

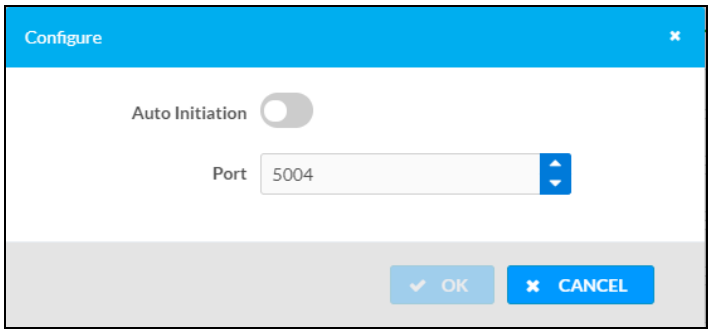


- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-AUD-USB's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AUD-USB will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure the DM NAX transmit stream:

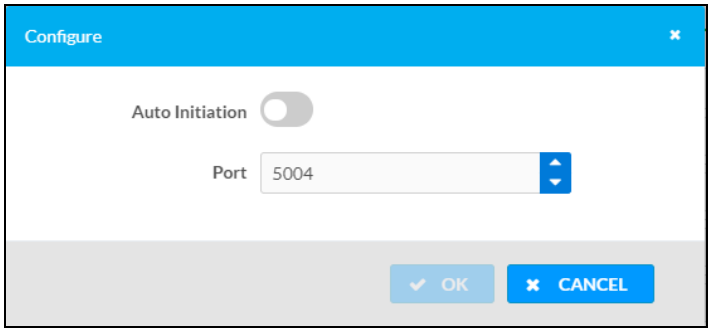
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



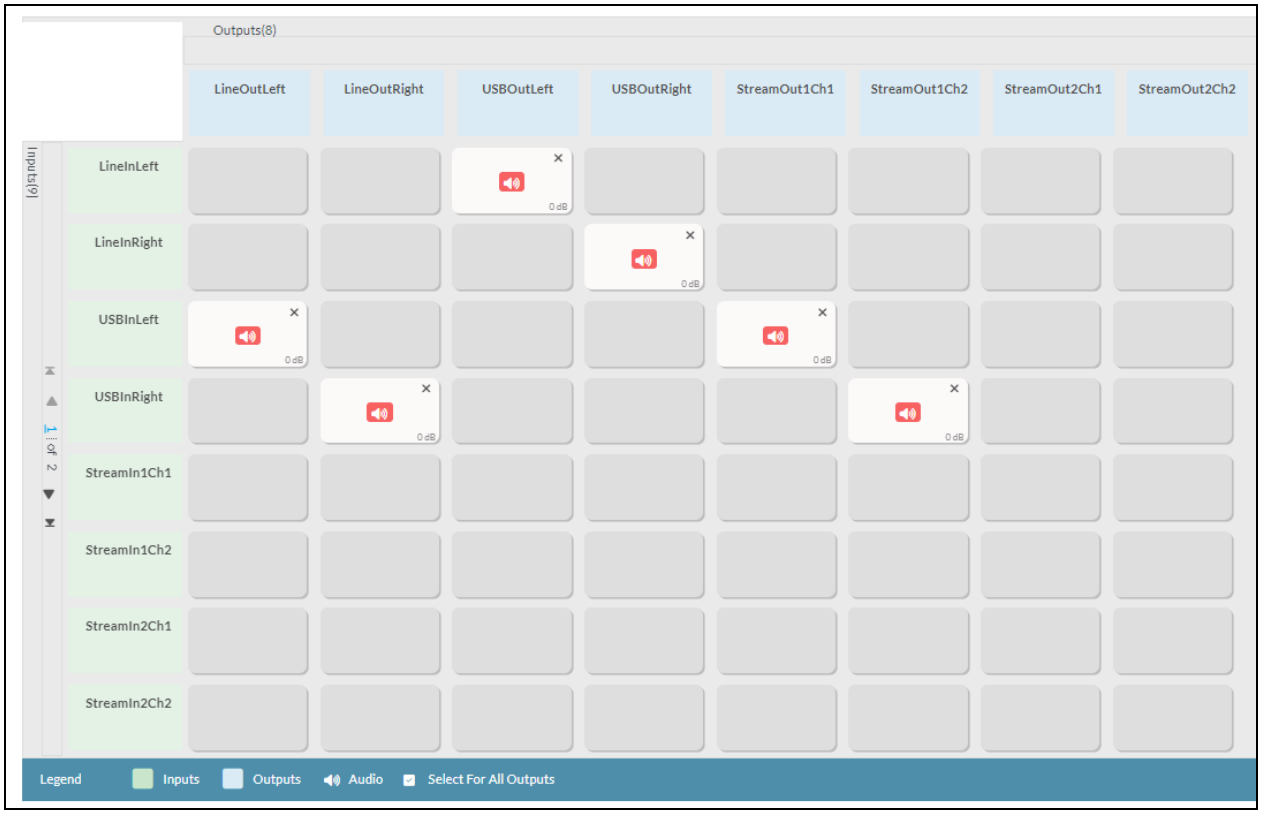
3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Mixing

The **Mixing** matrix is used to route a local input or AES67 stream to an output on the DM-NAX-AUD-USB.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.

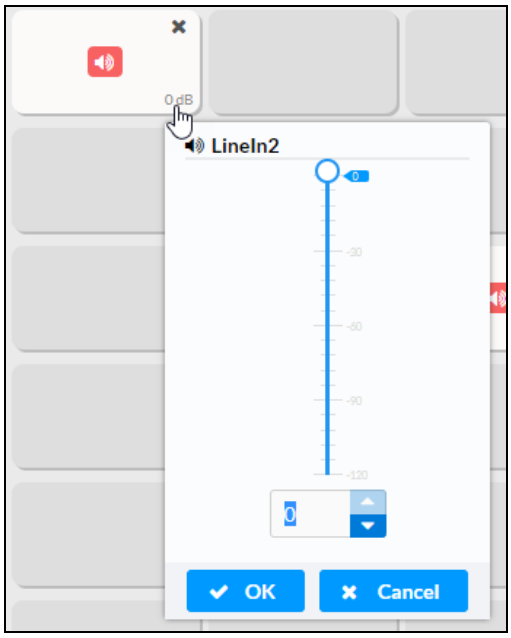


To route inputs to outputs on the device:

- Select the cells corresponding to the desired output that are to be paired for routing. Once a route is made, a speaker icon is displayed. The input that you have selected for a given row will route to the output corresponding to that row in the matrix.
- Use the left ◀ or right ▶ arrows at the left of the matrix to change pages to view all available inputs.
- To break a given route select the speaker icon or the **x** at the top right of the box.

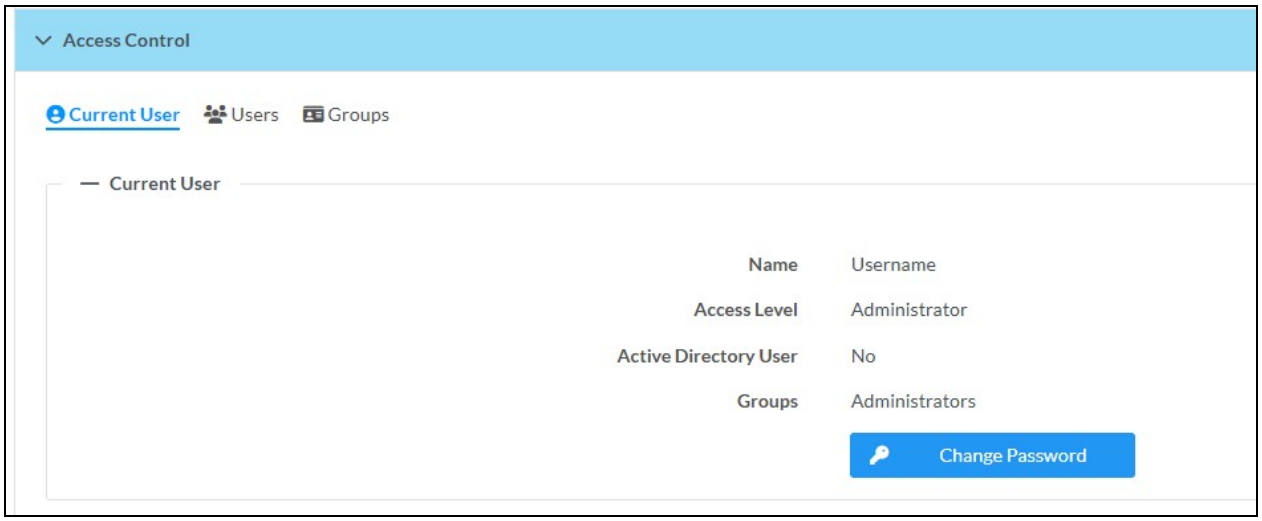
Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.
- Manually enter a value in the field.



Access Control

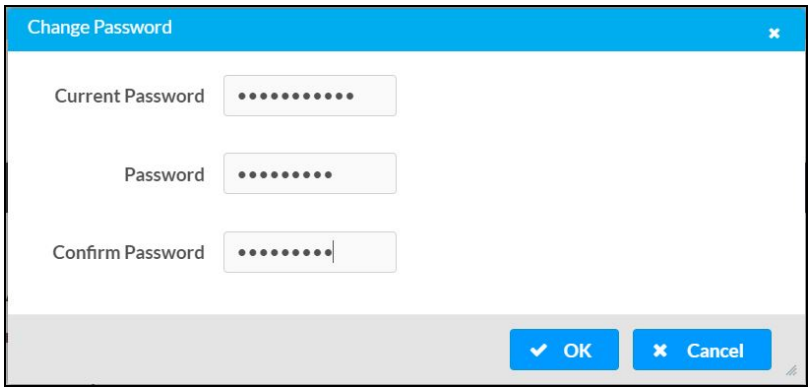
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-AUD-USB functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

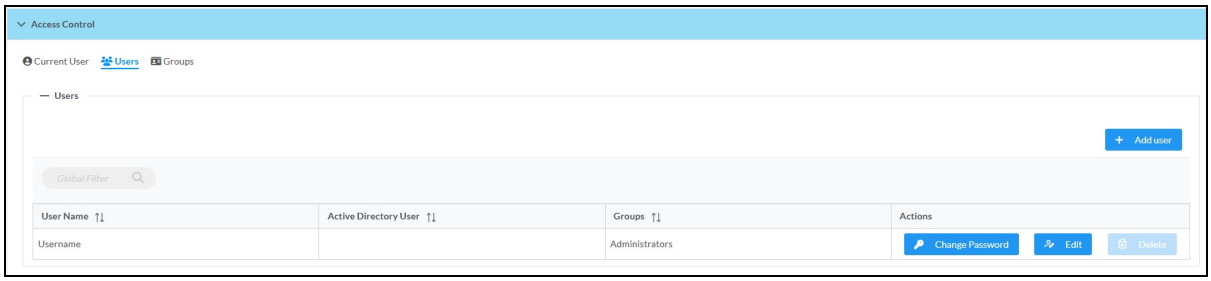
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

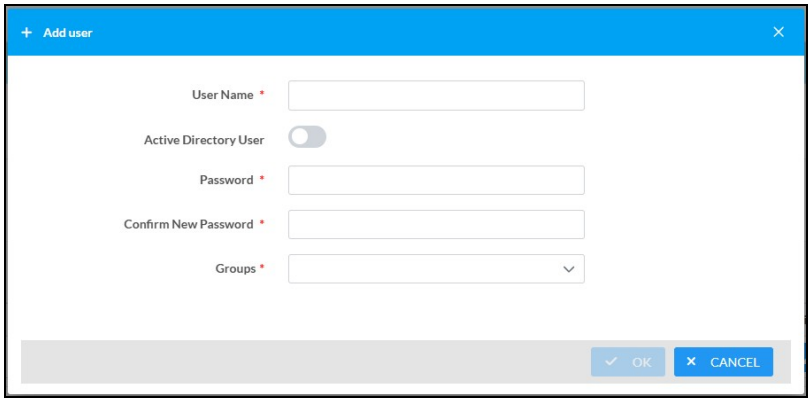
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-AUD-USB:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

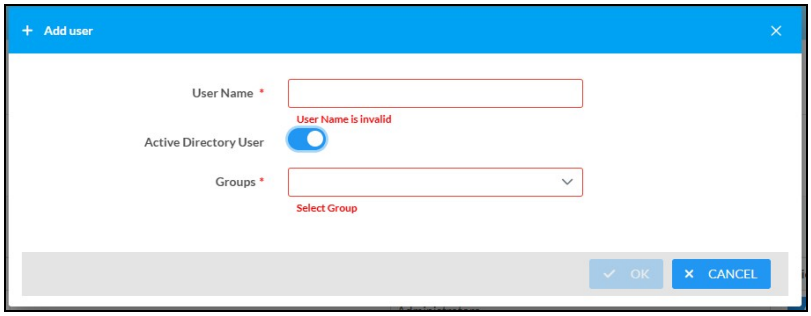
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-AUD-USB, or add the Active Directory group(s) that they are a member of to the DM-NAX-AUD-USB.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

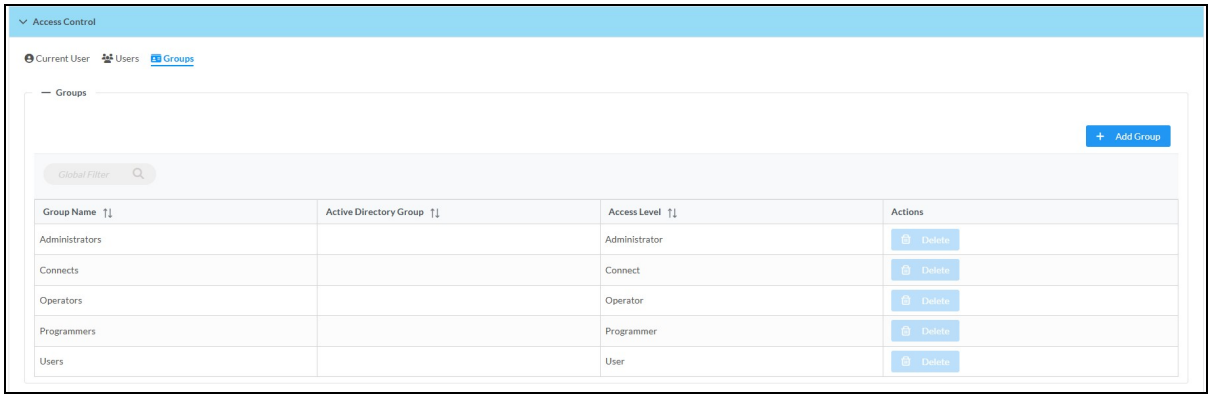
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

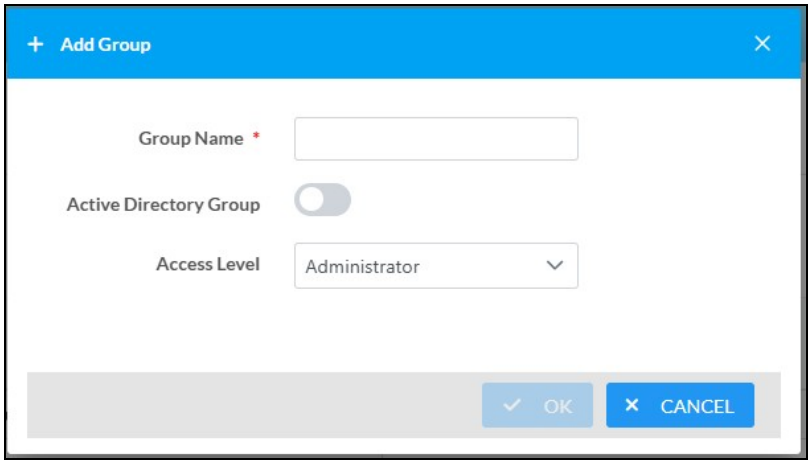
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



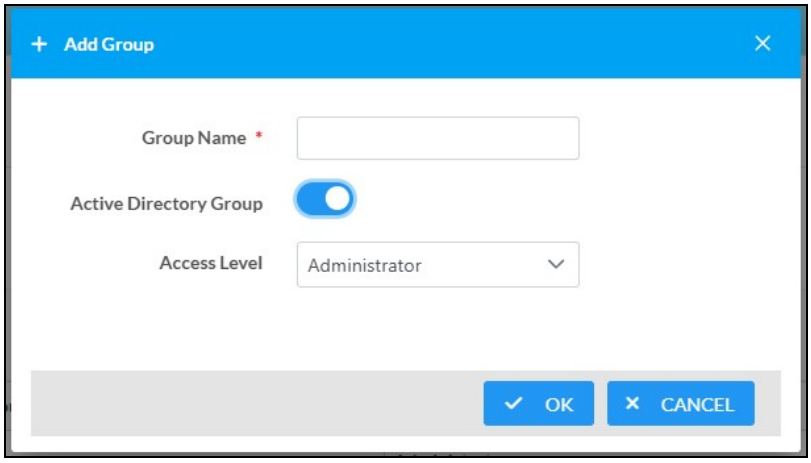
1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
   a. Enter the group name in the **Name** field.
   b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-AUD-USB.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:

a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

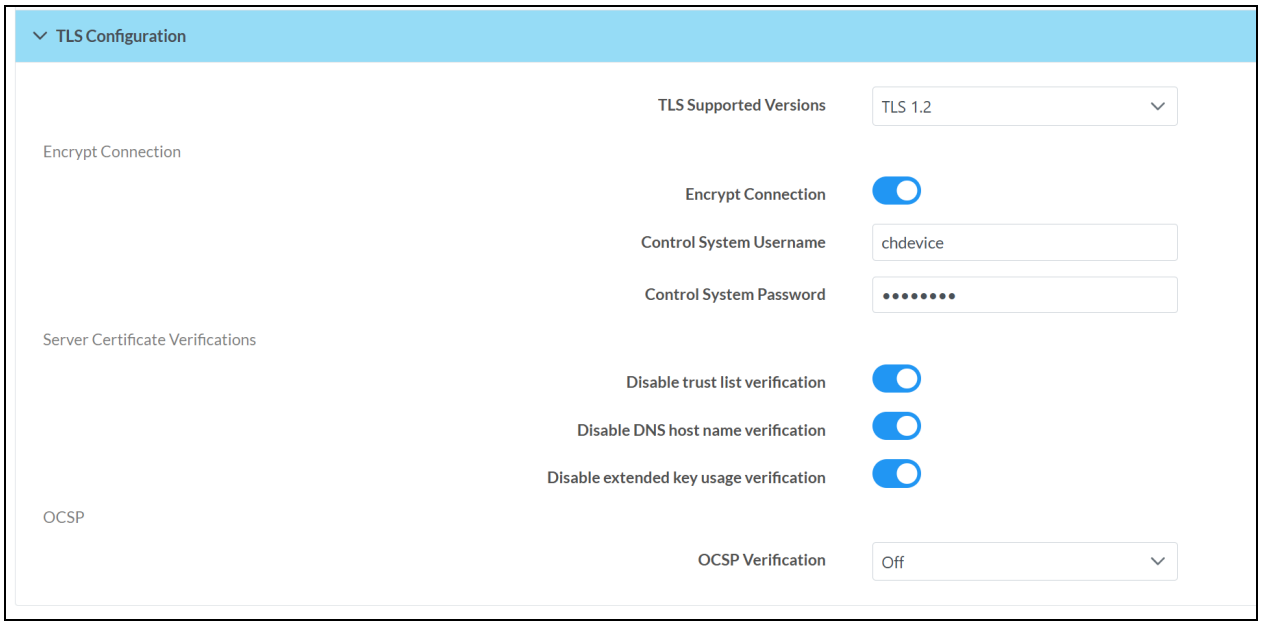
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-AUD-USB.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.

- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required**are displayed.

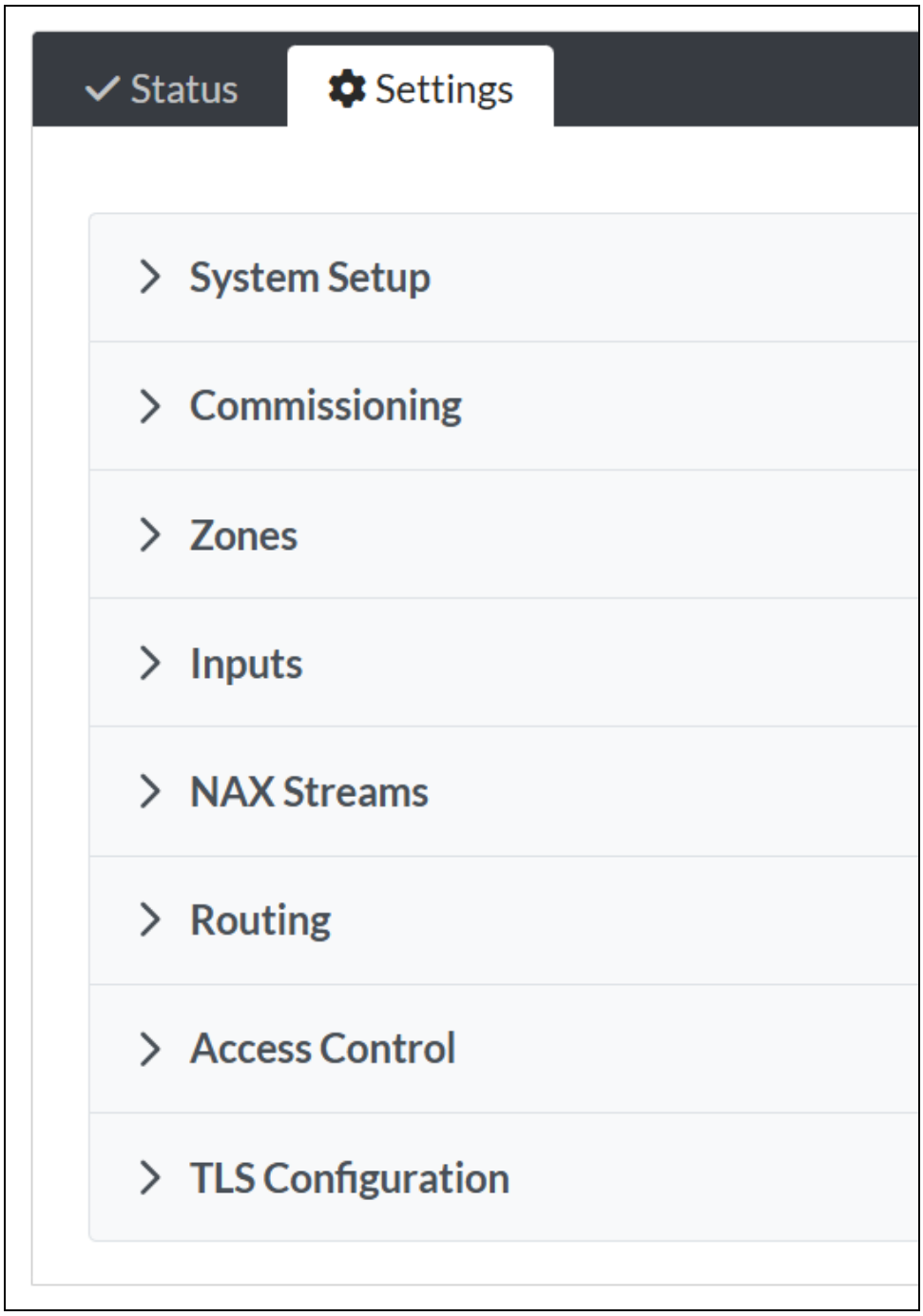
  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

Residential Mode

The **Settings** page enables you to configure the DM-NAX-AUD-USB settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-AUD-USB web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 631
- Commissioning on page 638
- Zones on page 638
- Inputs on page 645
- DM NAX Streams on page 646
- Routing on page 649
- Access Control on page 649
- TLS Configuration on page 654

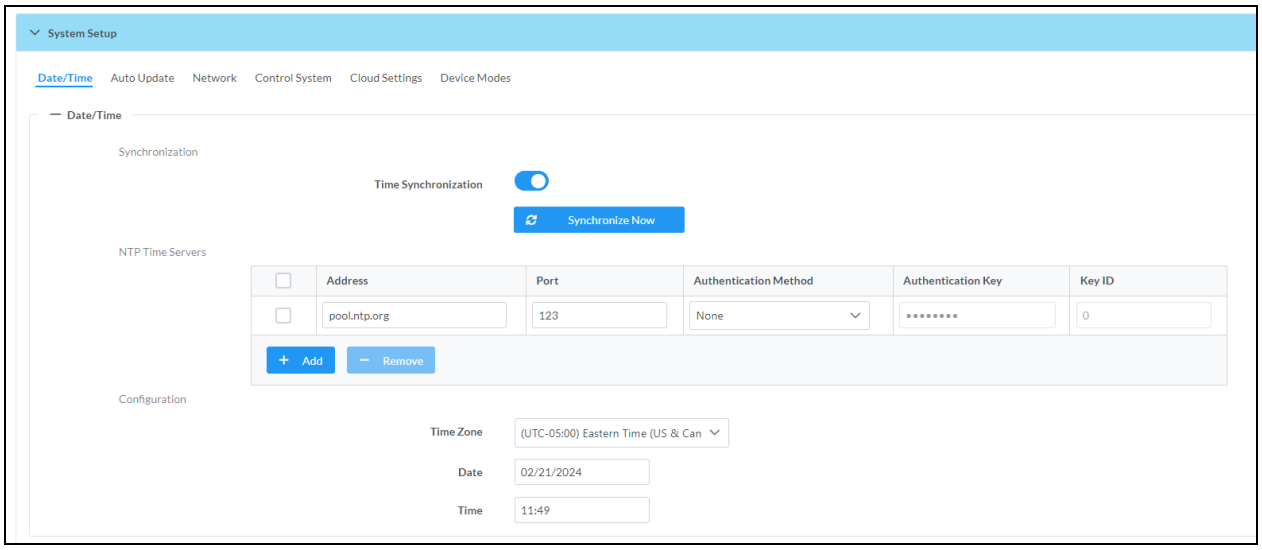


System Setup

The **System Setup** section displays information about the **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-AUD-USB.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

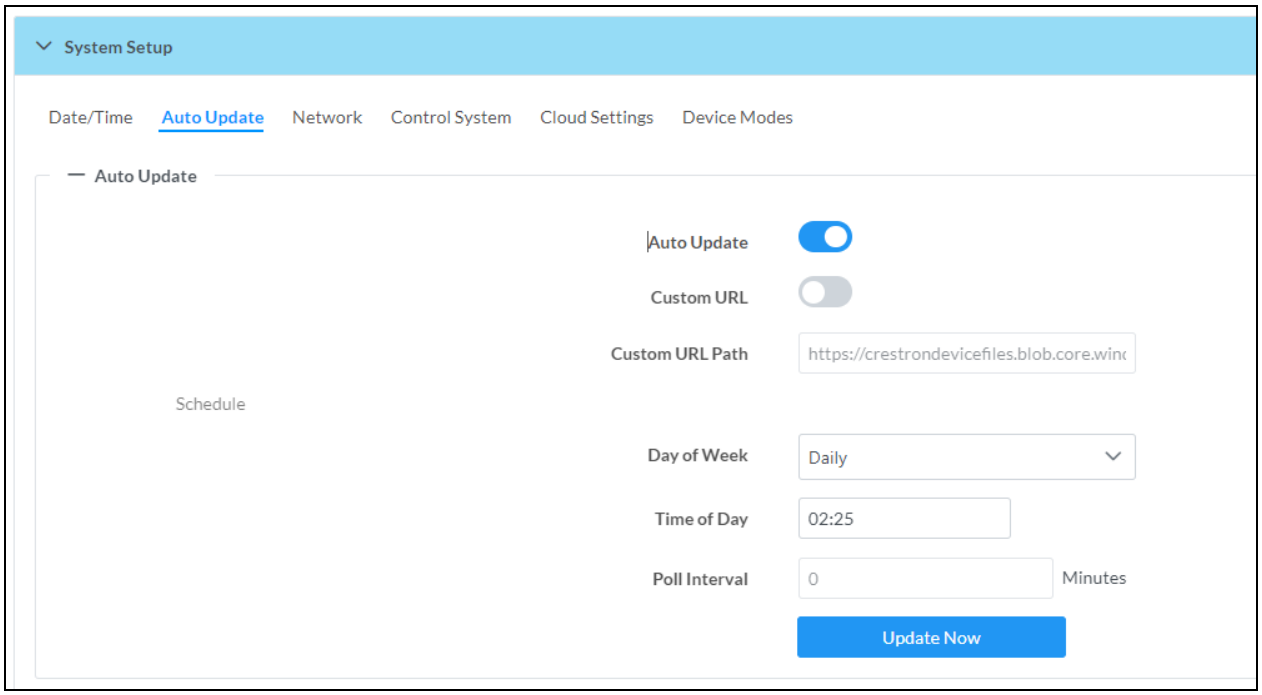
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-AUD-USB can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

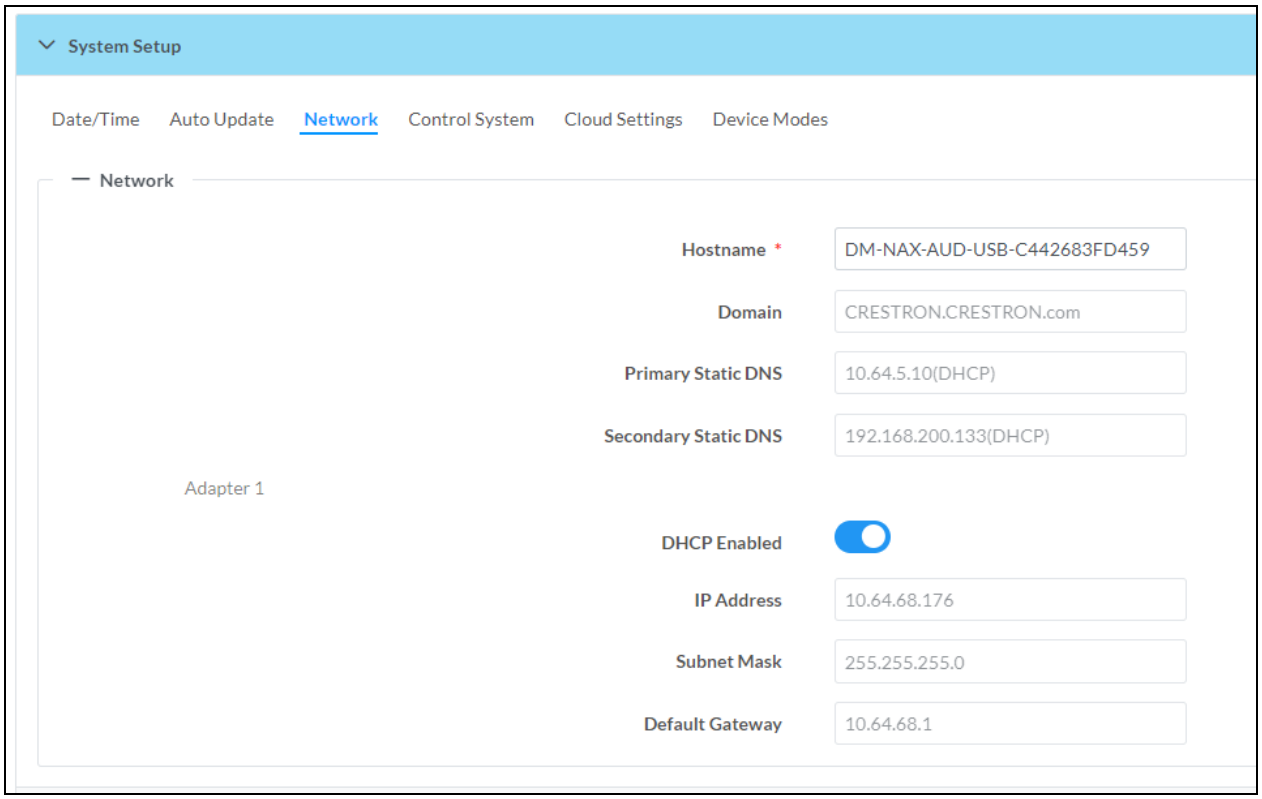


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-AUD-USB, including the Hostname, Domain, Primary Static DNS, and Secondary Static DNS.



NOTE: By default, the host name of the DM-NAX-AUD-USB consists of the model name followed by the MAC address of the device. For example, DM-NAX-AUD-USB-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

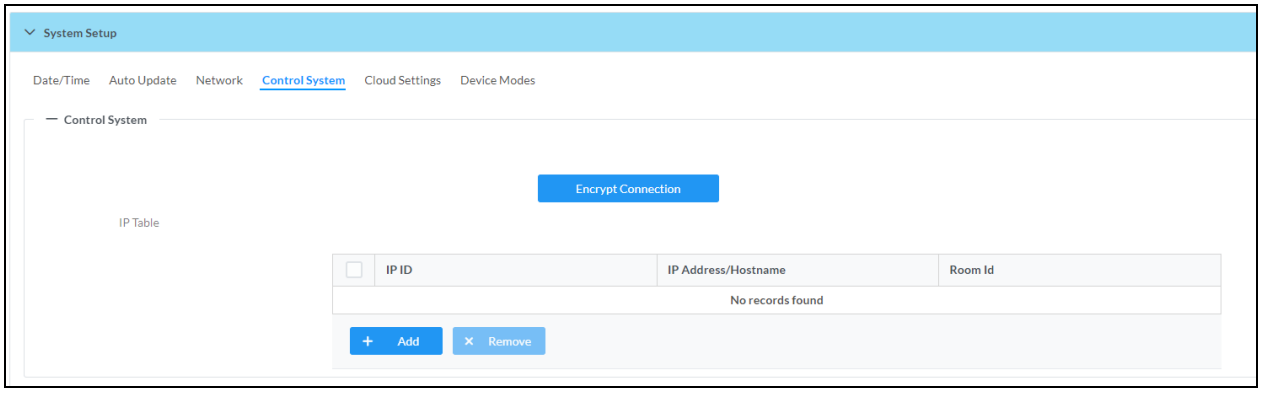
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-AUD-USB is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-AUD-USB is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-AUD-USB.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-AUD-USB in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

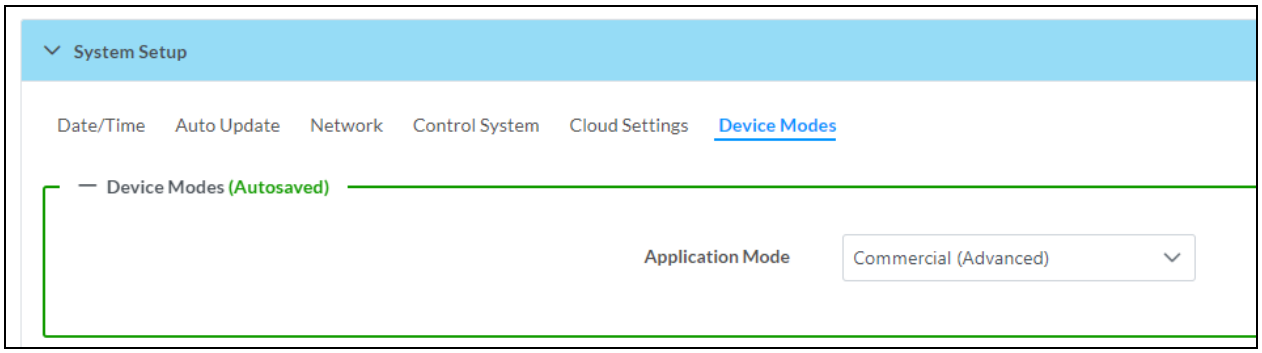
Cloud Settings



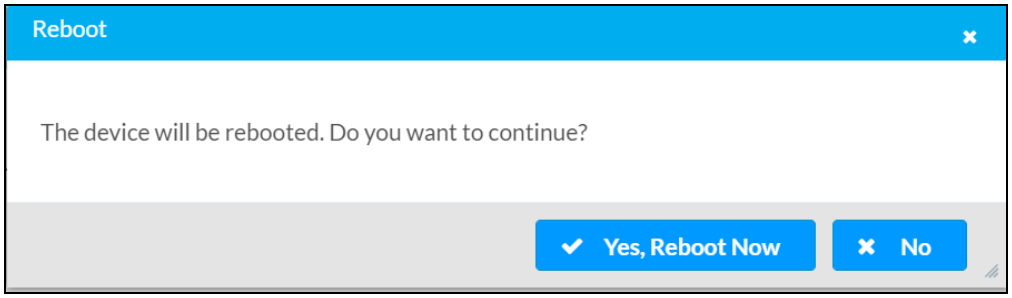
Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AUD-USB can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode**.

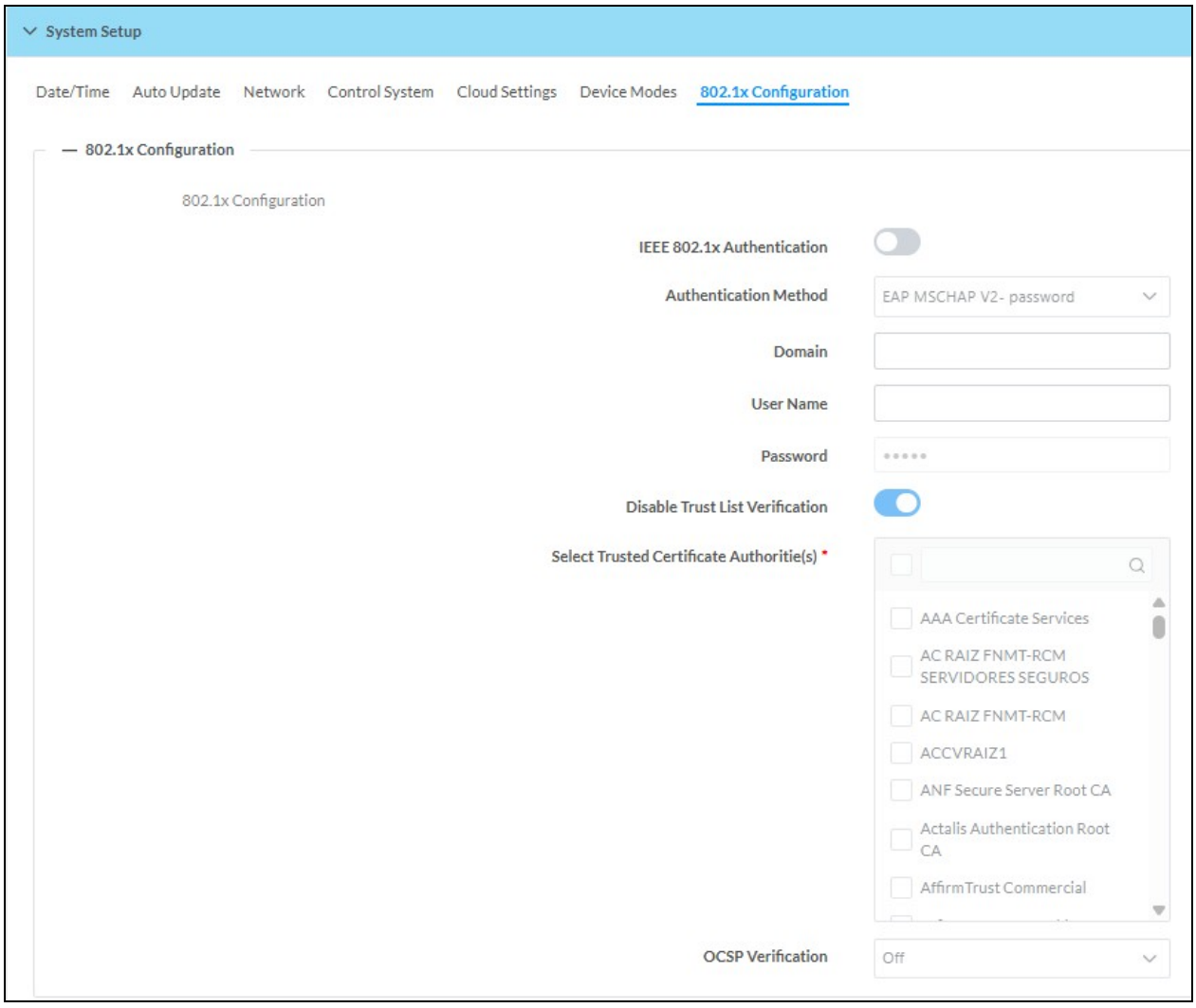


- **Application Mode**: The Application Mode determines which options and controls are available.
  - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



  - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
  - Wait for the device restart to complete before attempting to reconnect to the device.

802.1X Configuration



The DM-NAX-AUD-USB has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-AUD-USB:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.

- If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.

4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

   The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-AUD-USB. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

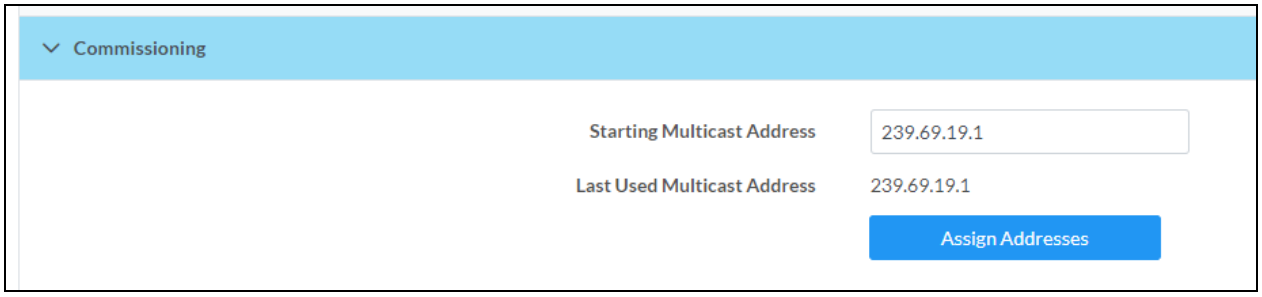
   When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

   > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.

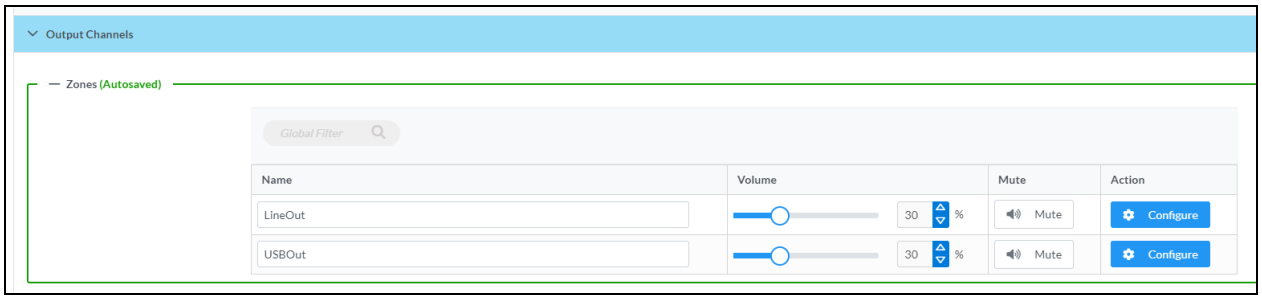


Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-AUD-USB a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Zones

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a Configure option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

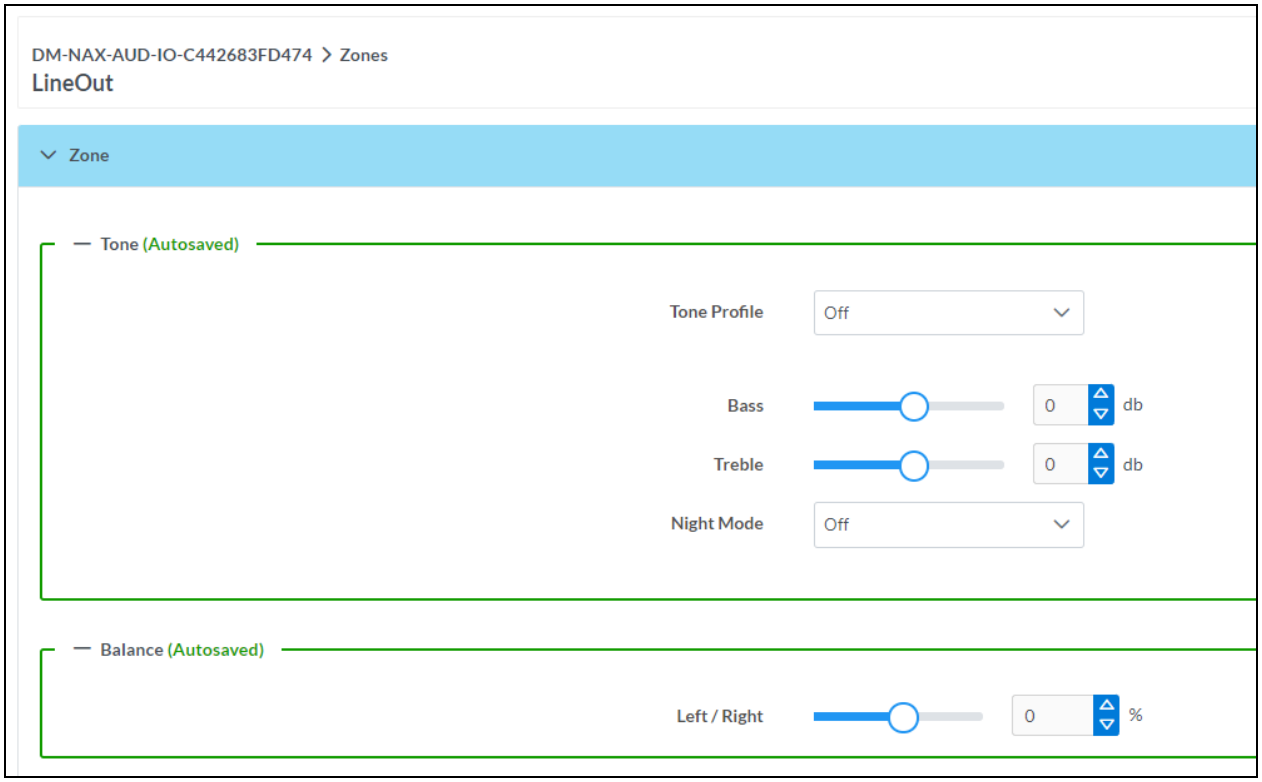
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Zone Settings

To configure zone settings, select **Configure** (Configure). The **Edit Zone** window is displayed.

Zone

Select **Zone** to access the settings for **Tone**, **Balance**, and **Delay**.



The **Tone** section provides adjustments for the **Tone Profile**, **Bass**, **Treble**, **Loudness**, and **Night Mode** settings of the zone output.

> **NOTE:** The **Tone Profile**, **Bass**, **Treble**, and **Loudness** settings in the **Tone** section are all applied separately from the **Equalizer Settings** for the zone. This means that any adjustments made in the **Tone** section will stack with those made in the **Equalizer Settings** section.

1. To select a tone profile preset for the zone, select an option from the **Tone Profile** drop-down. The available options are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **Spoken Word**. By default, **Off** is selected.
2. **Bass**: To adjust the bass, do one of the following:
    - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
    - Use the **db** arrows to increase or decrease the bass level. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Bass** field.
3. **Treble**: To adjust the treble, do one of the following:
    - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
    - Use the **db** arrows to increase or decrease the treble level. Values range from -12 dB to 12 db, adjustable in increments of 1 db.
    - Manually enter a value in the **Treble** field.
4. To enable the loudness setting on the zone output, slide the **Loudness** switch to the right. To disable loudness, slide the **Loudness** switch to the left.
5. The **Night Mode** feature applies subtle processing to restrict the dynamic range of the zone audio, to allow for lower listening levels at night or in rooms where higher listening levels would be disruptive. To select a dynamics processing level, select an option from the **Night Mode** drop-down. The available options are **Off**, **Low**, **Medium**, and **High**. By default, **Off** is selected.

Balance

To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay

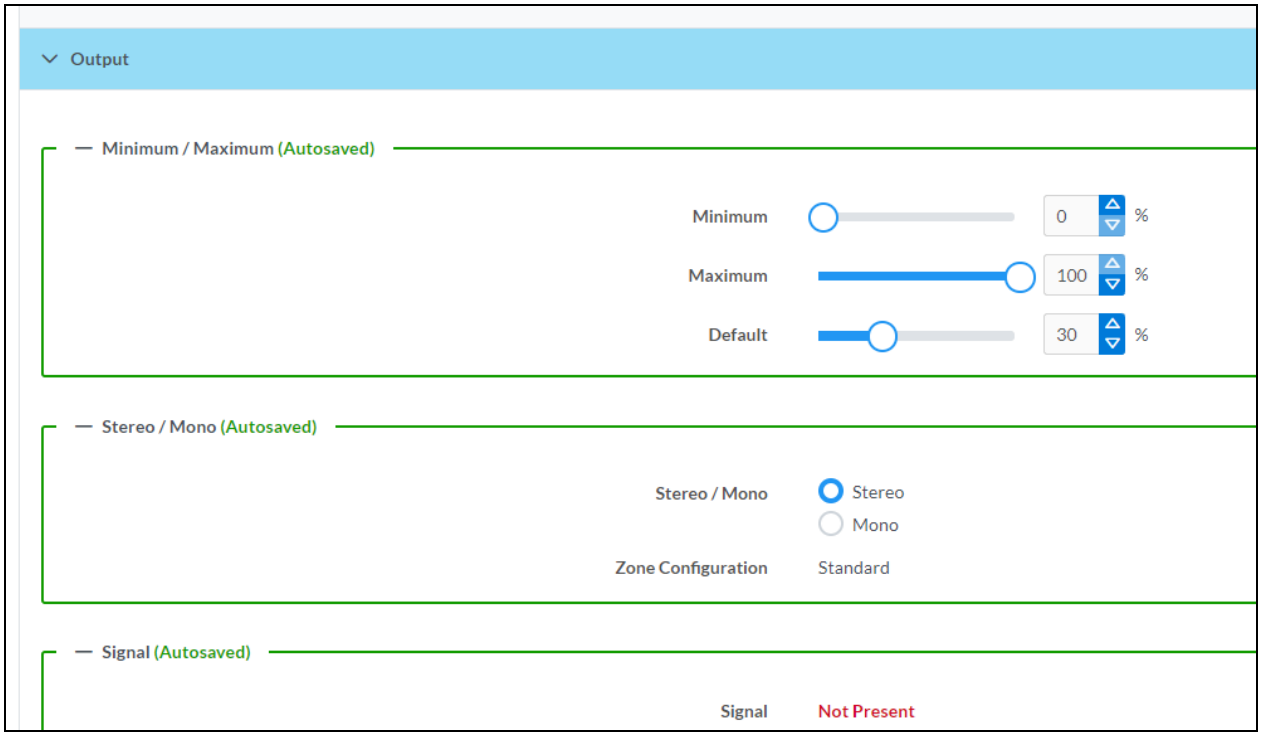
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

NOTE: The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, **Signal**, **Bussing Volume Offset**, **Signal Generator**, and **Equalizer Settings**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

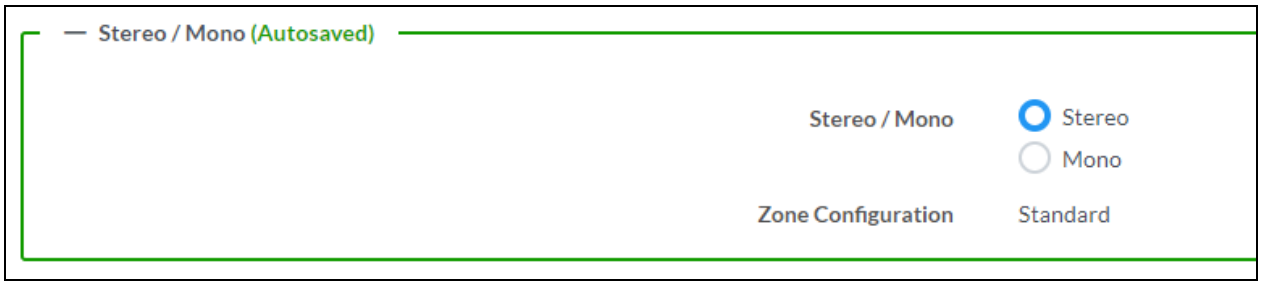
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

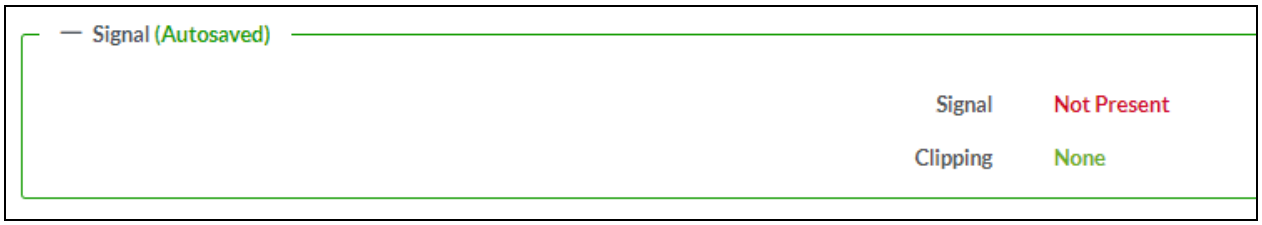
> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono



Select either **Stereo** or **Mono**. If **Stereo** is selected, both output channels can have independent audio content. If **Mono** is selected, both output channels receive the same audio content.

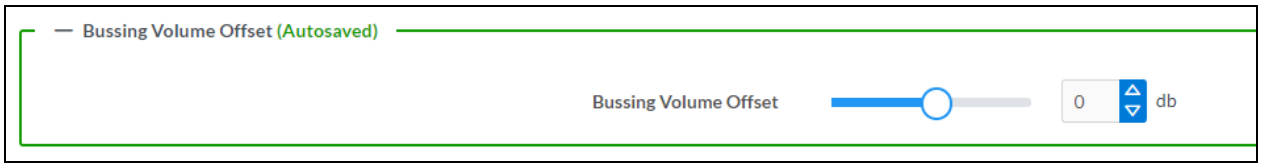
Signal



The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Bussing Volume Offset

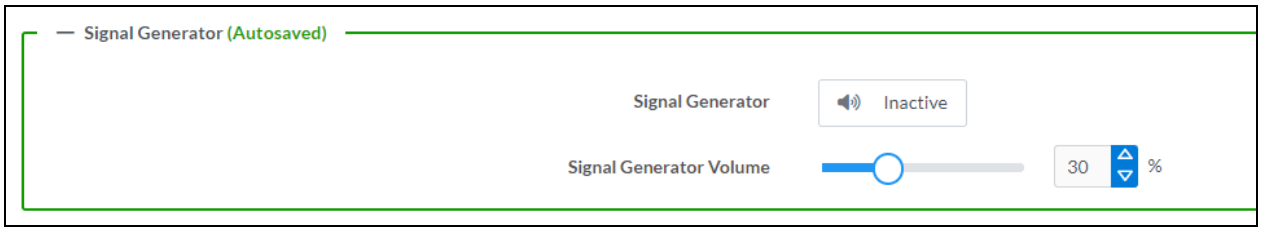


Bussing Volume Offset is an additional level compensation applied to the zone relative to any other zones it is grouped with via the **Bussing** feature.

To set the bussing volume offset, do one of the following:

- Move the **Bussing Volume Offset** slider to the right to increase or to the left to decrease the offset.
- Use the **db** arrows to increase or decrease the offset. Values range from -12 dB to 12 dB, adjustable in increments of 1 dB.
- Manually enter a value in the **Bussing Volume Offset** field.

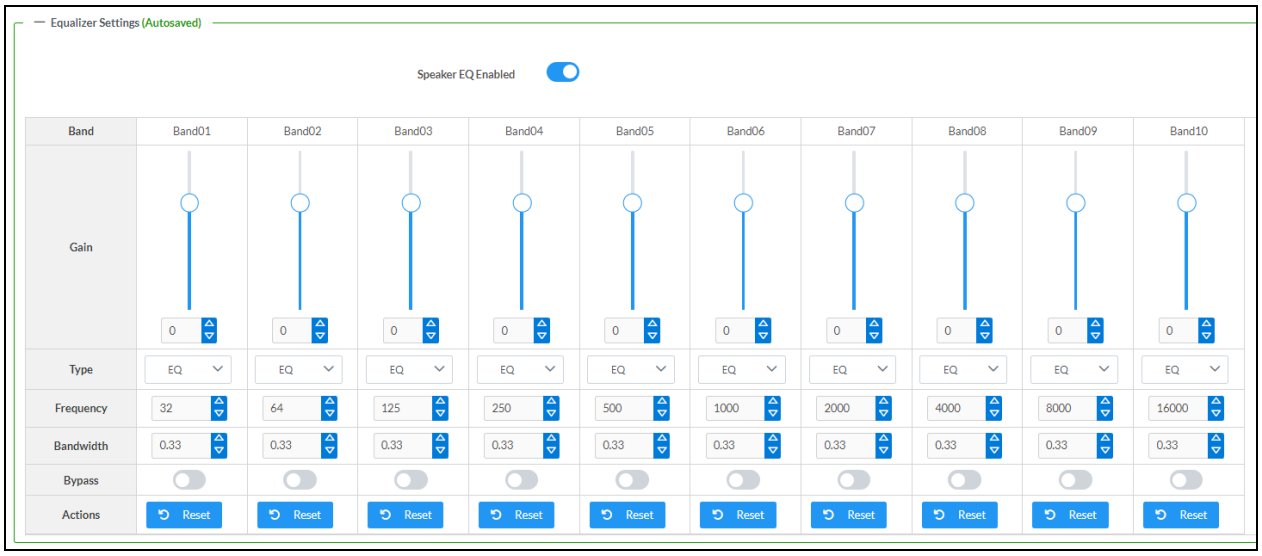
Signal Generator



The DM-NAX-AUD-USB has a built-in signal generator that allows an integrator to send an audio signal to the output for testing purposes.

1. To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue. To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey. By default, the signal generator is not routed to the zone output.
2. To adjust the signal generator's volume, do one of the following:
    - Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
    - Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
    - Manually enter a value in the **Signal Generator Volume** field.

Equalizer Settings



The zone output of the DM-NAX-AUD-USB has a dedicated ten-band equalizer that can be fully customized to tune the zone output signal to the needs of an install. Each band can have a discrete gain, filter type, center frequency, and bandwidth set, and can also be bypassed. The equalizer itself can also be bypassed using the **Speaker EQ Enabled** toggle.

1. Set the **Speaker EQ Enabled** toggle to the right position to enable the equalizer. Set the toggle to the left position to bypass the equalizer.

   > **NOTE:** When **Speaker EQ Enabled** is disabled, all equalizer bands are bypassed. This is a quick way to perform A/B testing of the entire EQ curve.

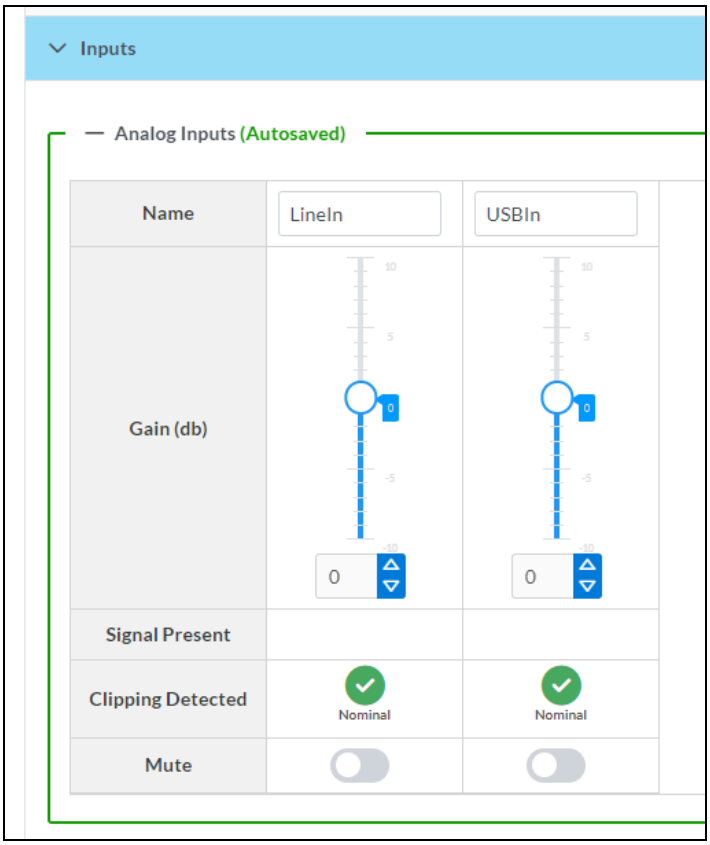
2. With the **Speaker EQ Enabled** toggle in the right position, configure the equalizer bands.
   a. To set a band's gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Use the arrows to increase or decrease the gain. Values range from -40 dB to 20 dB, adjustable in increments of 0.1 dB.
      - Manually enter a value in the **Gain** field.

b. Select a filter type from the **Type** drop-down. By default, all bands are set to the **EQ** filter type. Some filter types will disable other settings in their respective band while enabled. For example, selecting the **LowPass** filter type for a band will disable that band's **Gain** and **Bandwidth** settings, since the **LowPass** filter applies a fixed roll-off slope at a set frequency. The available filter types are:
    - **EQ:** a fully parametric filter that can boost or cut a range of frequencies.
    - **Notch:** a parametric filter designed to more precisely cut a frequency or range of frequencies. A notch filter can achieve a narrower bandwidth than the standard **EQ** parametric filter type.
    - **TrebleShelf:** a filter that boosts or cuts all frequencies above a set frequency by a set gain.
    - **BassShelf:** a filter that boosts or cuts all frequencies below a set frequency by a set gain.
    - **LowPass:** a filter that fully cuts all frequencies above a set frequency using a fixed roll-off slope of -12 dB per octave.
    - **HighPass:** a filter that fully cuts all frequencies below a set frequency using a fixed roll-off slope of -12 dB per octave.
c. Set a center frequency for the equalizer band to tune a specific portion of the audible frequency spectrum. To set the center frequency, do one of the following:
    - Use the arrows to increase or decrease the frequency. Values range from 20 Hz to 20 kHz, adjustable in increments of 1 Hz. Each band has a default center frequency that will be applied if **Reset** at the bottom of the band is selected.
    - Manually enter a value in the **Frequency** field.
d. Set a bandwidth to determine how wide of a frequency range is effected by the equalizer band. To set the bandwidth, do one of the following:
    - Use the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in increments of 0.1 octave.
    - Manually enter a value in the **Bandwidth** field.
e. The individual Bypass controls allow you to bypass a single band of equalization at a time for more granular A/B testing of a single filter. Set a band's **Bypass** toggle to the right position to bypass that band. Set the toggle to the left position to disable the bypass. By default, **Bypass** is disabled.
f. Each equalizer band has a **Reset** that will reapply the default settings for that band.

Select **Done** to return to the **Settings** tab of the web interface.

Inputs

The **Inputs** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-AUD-USB.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

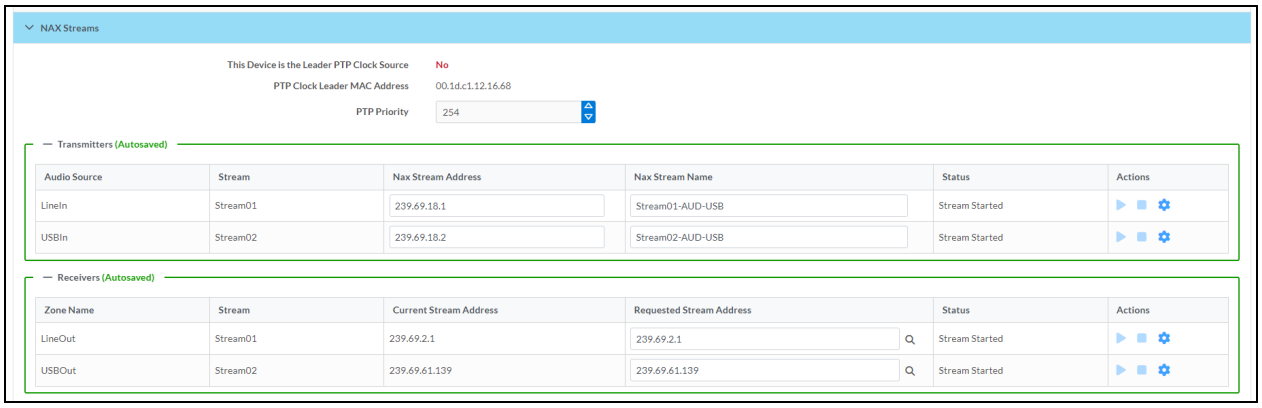
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

The two local inputs of the DM-NAX-AUD-USB can be made available as DM NAX audio-over-IP streams.

Select **NAX Streams** to expand the tab and display the following information.

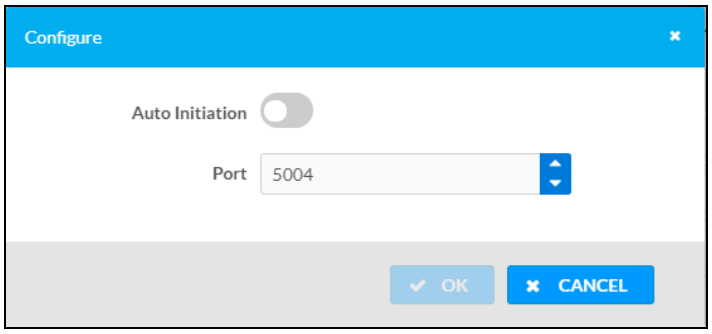


- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-AUD-USB is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-AUD-USB will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure a DM NAX transmit stream:

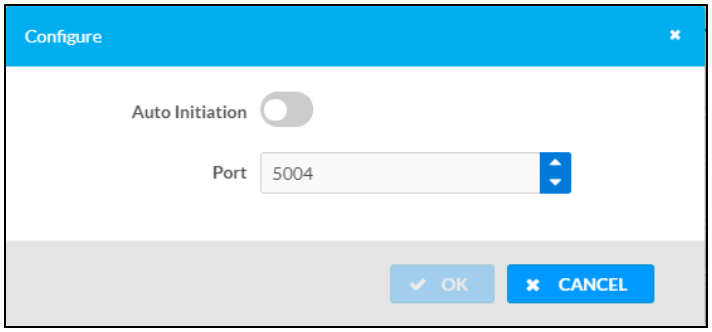
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Routing

The **Routing** section is used to route a local input or AES67 stream to a zone on the DM-NAX-AUD-USB.

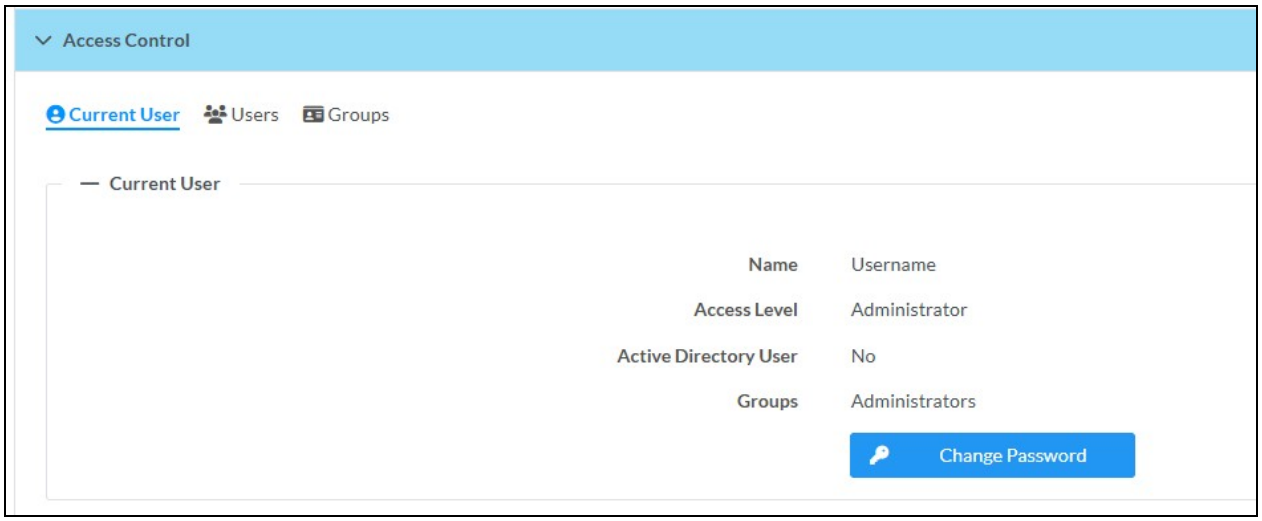
> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the checkbox icon under the input's name.

Access Control

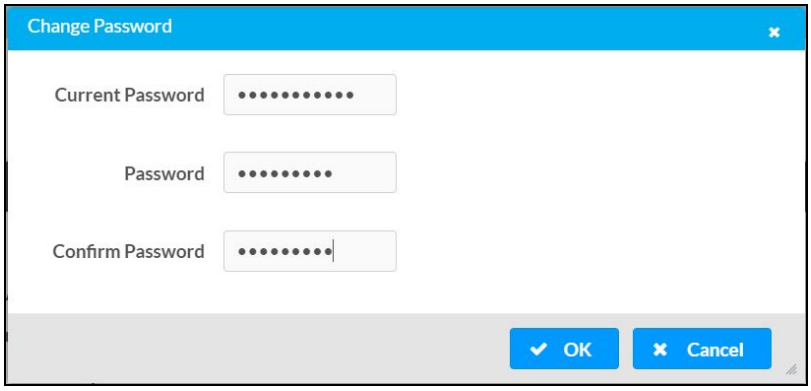
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-AUD-USB functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

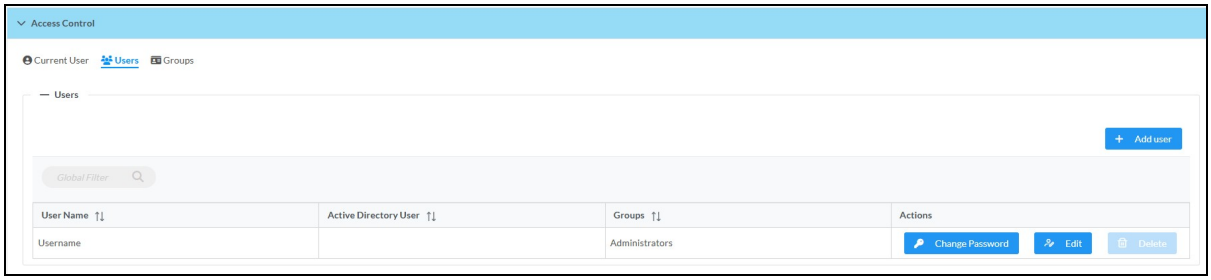
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

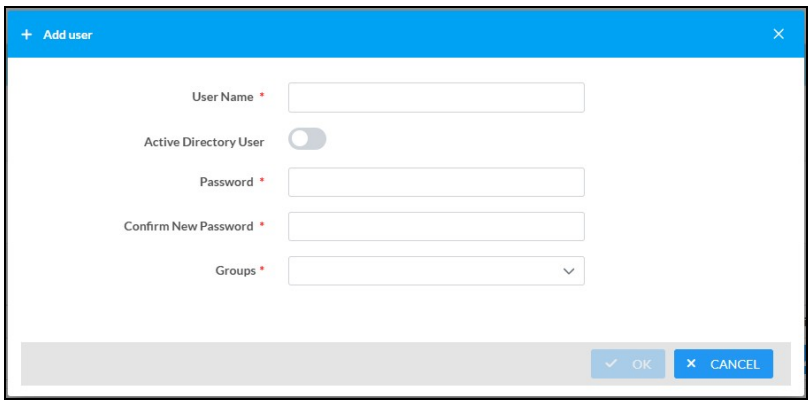
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-AUD-USB:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

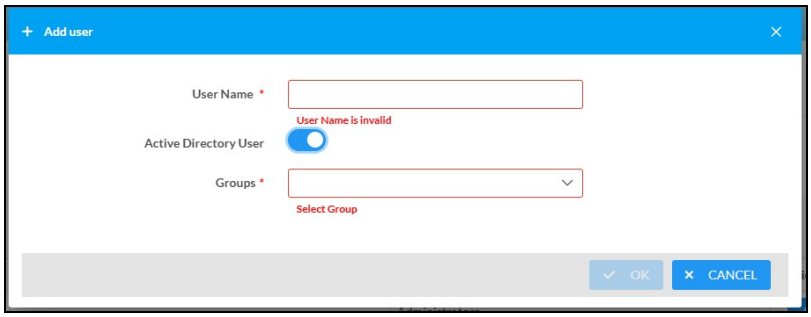
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-AUD-USB, or add the Active Directory group(s) that they are a member of to the DM-NAX-AUD-USB.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



   a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

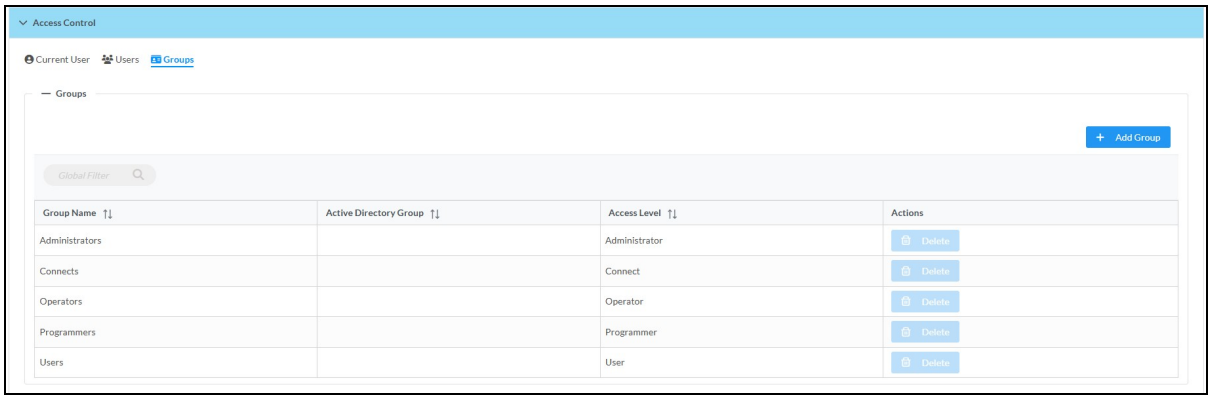
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

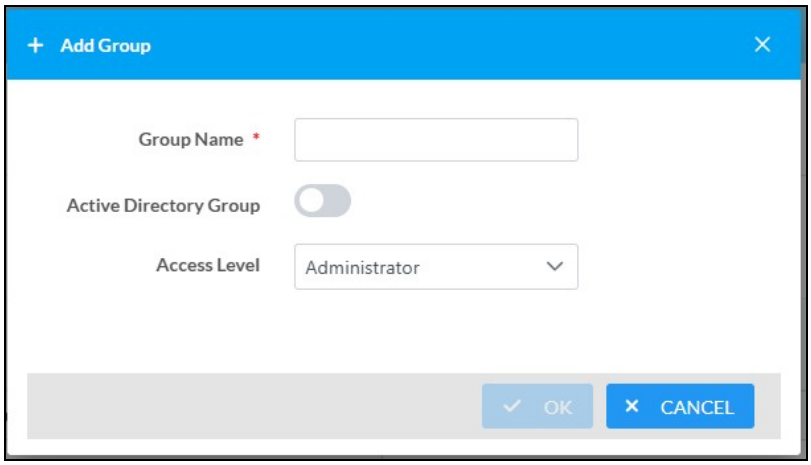
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator,

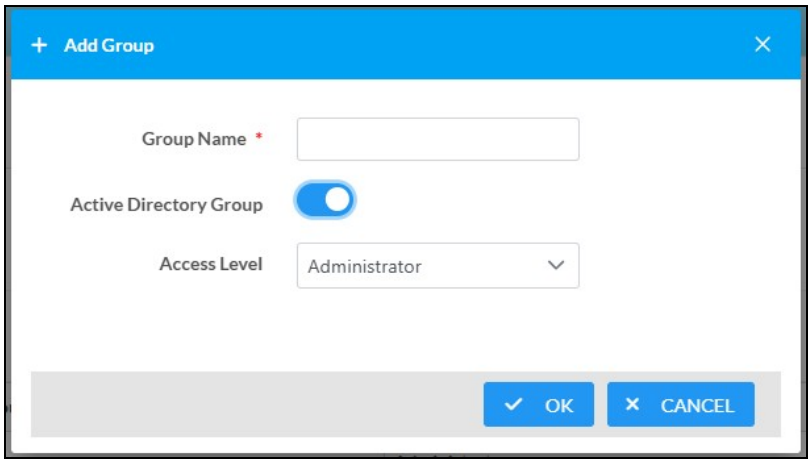
Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

> **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-AUD-USB.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

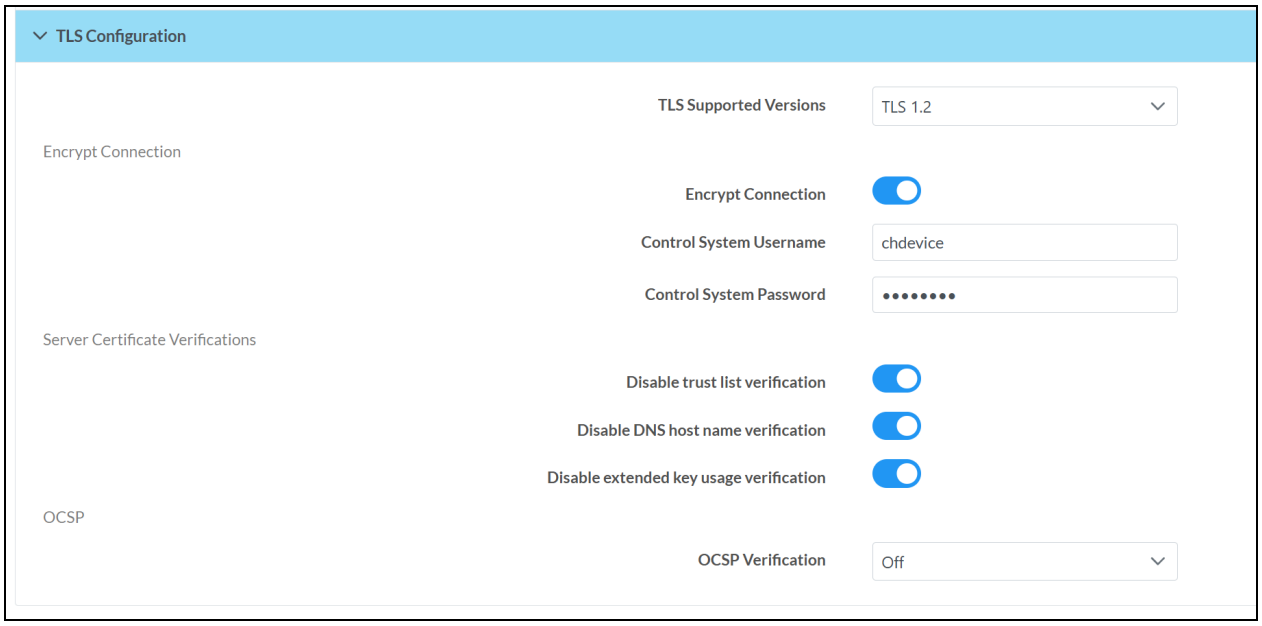
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-AUD-USB.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

DM-NAX-BTIO-100-1G

This section describes how to configure the DM-NAX-BTIO-100-1G.

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

This section provides the following information:

- Web Interface Configuration
- Front Panel Menu
- Access the Web Interface With Crestron Toolbox™ Software
- Action
- Status
- Settings

Web Interface Configuration

The DM-NAX-2XLRI-1G web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 657
- Access the Web Interface With Crestron Toolbox™ Software on page 667

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

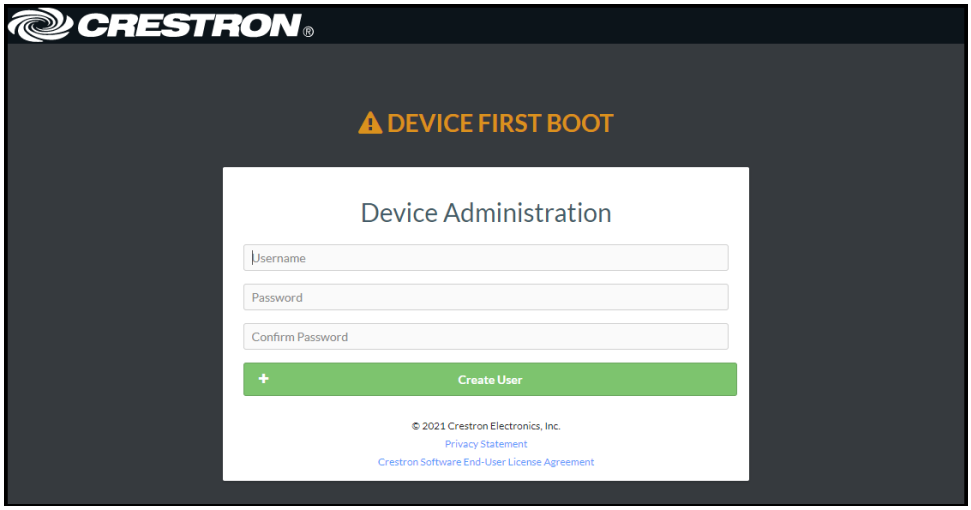
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

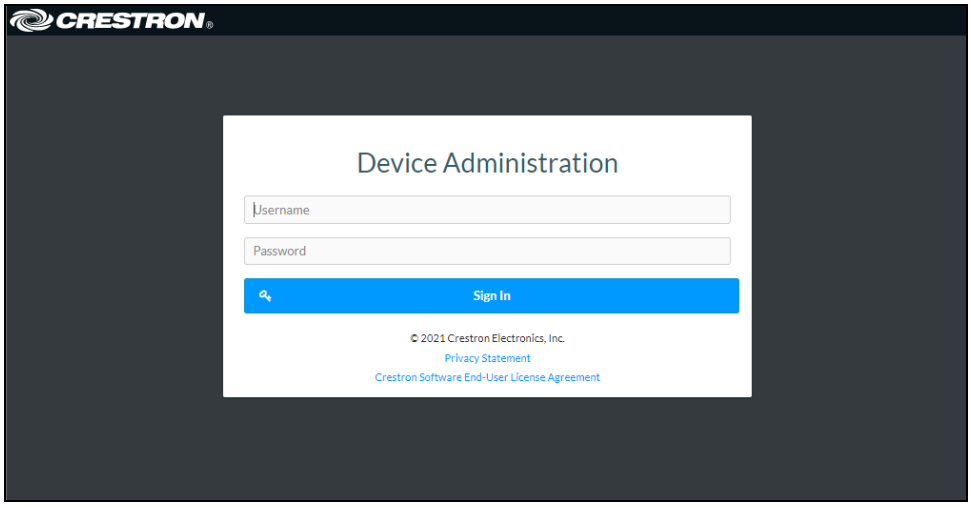
1. Enter the IP address of the DM-NAX-BTIO-100-1G into a web browser.

   > **NOTE:** To obtain the IP address, access the front panel menu of the wall plate, use the **Device Discovery Tool** in Crestron Toolbox™ software, or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Front Panel Menu

The DM-NAX-BTIO-100-1G features an OLED front panel display for basic setup menus and volume control readout.

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

Using the Front Panel Buttons

The front panel of the DM-NAX-BTIO-100-1G features four push buttons for device control and menu navigation:

- The **Menu** button opens the menu from either display standby or the home page. Once the menu is open, this button functions as a select button to select a highlighted menu item.
- The **Bluetooth® Rune** button puts the device into pairing mode when held during display standby or from any menu page.
- The **Up** and **Down** buttons increase and decrease the volume of the connected Bluetooth device (respectively) while the display is in standby or on the home page. Once the menu is open, these buttons navigate up and down the list of menu items, respectively.

  > **NOTE:** The **Up** and **Down** buttons will require programming to control volume levels when the DM-NAX-BTIO-100-1G is added to a SIMPL Windows program. Refer to Knowledge Article 3059 for programming information.

The front panel display will enter standby after an interval determined by the **Standby Timeout** setting in the web interface. Refer to Commercial Mode on page 678 or Residential Mode on page 706 for information on configuring **Standby Timeout**. If the display is in standby, pressing any front panel button will wake it.

The front panel menu will differ depending on whether the device is in receive mode or transmit mode. Refer to the following sections depending on which mode the device is in:

- Front Panel Pages - Receive Mode on page 659
- Front Panel Pages - Transmit Mode on page 663

Front Panel Pages - Receive Mode

The images in this section are representations of the pages that are displayed when the wall plate is in **Receive** mode. The text of the displayed pages will vary depending on settings, connected devices, and active media.

Starting Up

When the device is starting, the front panel display will show a Crestron swirl logo for approximately two minutes, followed by a temporary **STARTING UP** page.

Starting Up Page

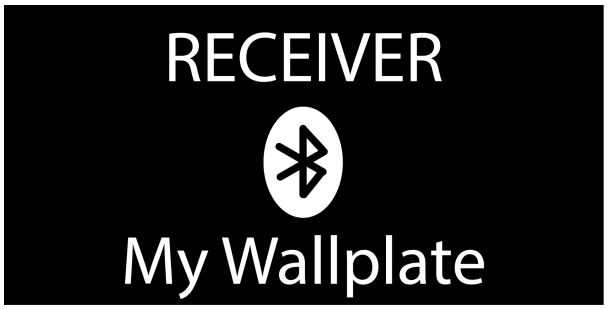


Home Page

The home page is displayed when the wall plate fully starts, is woken up from standby, or when the menu pages are closed.

If no Bluetooth devices are paired with the wall plate, the home page displays a readout of the current Bluetooth mode (**Receiver**), a Bluetooth Rune logo, and the Bluetooth name by which the device is discoverable.

Sample Home Page - No Device Connected



Pairing Devices

When the **Bluetooth Rune** button is pressed and held, two pages are displayed in succession. The first is an instruction to keep holding the button to initiate pairing. Hold the button until the second page is displayed, which is a status message that the wall plate is now discoverable.

Sample Pairing Page - Hold to Pair



Sample Pairing Page - Discoverable



Once pairing is complete, the device will return to the home page.

When a device is paired, the home page will display available metadata from currently playing audio or a message relating to the status of the connected device, as well as the name of the connected device.

Sample Home Page - Ready



Sample Home Page - Paused



Sample Home Page - Audio Playing



Clearing Devices

Press and hold the **Bluetooth Rune** and **Down** buttons simultaneously for 5 seconds to access a menu with functions for clearing paired devices.

Clear Devices Page

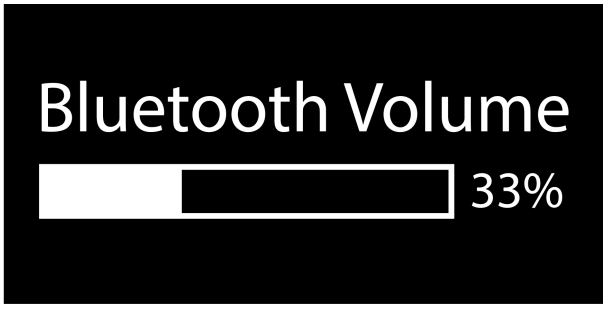


- Select **CLEAR CURRENT** to forget the actively transmitting device.
- Select **CLEAR ALL** to forget all paired devices.
- Select **BACK** to return to the home page.

Volume Control

The volume of the incoming audio is controlled either using the volume buttons on the casting device or the **Up** and **Down** buttons on the front panel. When a volume adjustment is made, the **Bluetooth Volume** page is displayed on the front panel.

Sample Bluetooth Volume Page



After several seconds of inactivity, the front panel display will return to the home page.

Menu Pages

From the home page, press the **Menu** button to access the menu pages. Once the menu pages are displayed, the **Menu** button functions as a select button instead.

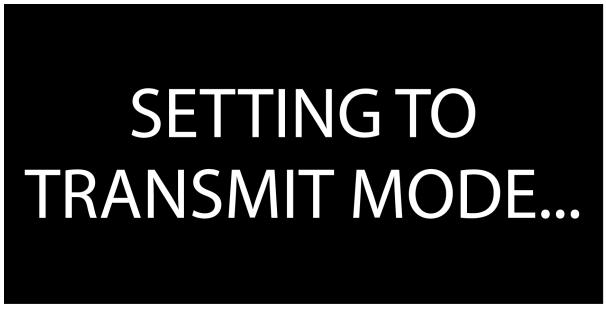
The IP address of the wall plate is displayed at the top of the menu, followed by the available menu functions. The current menu function selection is underlined. Using the **Up** and **Down** buttons, choose between **BACK** to return to the home page or **SET TRANSMITTER** to switch the wall plate into transmit mode.

Sample Menu Page



After selecting **SET TRANSMITTER**, a status page is briefly displayed indicating that the device is switching to transmit mode, followed by the temporary **STARTING UP** page.

Setting to Transmit Mode Page



Front Panel Pages - Transmit Mode

The images in this section are representations of the pages that will are displayed when the wall plate is in **Transmit** mode. The text of the displayed pages will vary depending on settings and connected devices.

Starting Up

When the device is starting, the front panel display will show a Crestron swirl logo for approximately two minutes, followed by a temporary **STARTING UP** page.

Starting Up Page

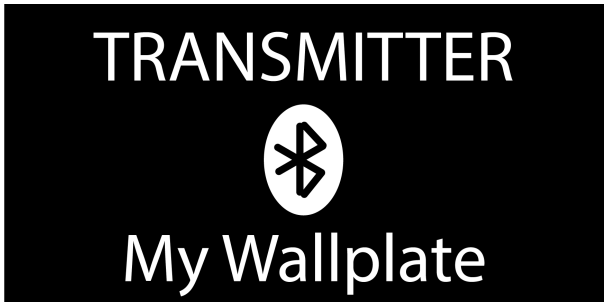


Home Page

The home page is displayed when the wall plate fully starts, is woken up from standby, or when the menu pages are closed.

If there is no Bluetooth device paired with the wall plate, the home page displays a readout of the current Bluetooth mode (**Transmitter**), a Bluetooth Rune logo, and the Bluetooth name by which the device is discoverable (or its IP address if no custom name was set).

Sample Home Page - No Device Connected



Pairing Devices

When the **Bluetooth Rune** button is pressed and held, two pages are displayed in succession. The first is an instruction to keep holding the button to initiate pairing discovery. After several seconds, the second page is a list of all discovered sink devices.

Sample Pairing Page - Hold to Pair



Sample Pairing Page - Discovered Devices



Use the **Up** and **Down** buttons on the front panel to highlight a device from the list. There may be additional discovered devices beyond the first two results. Continue pressing the **Down** button to scroll to additional discovered devices at the end of the list.

Once the desired device is highlighted, press the **Menu** button to select the device and initiate pairing. A pairing status screen is displayed.

Sample Pairing Page - Pairing To Device



When pairing completes, the device will return to the home page, which now indicates that a device is connected.

Sample Home Page - Connected To Device



Any audio signal routed to the Bluetooth output of the DM-NAX-BTIO-100-1G will be heard at the sink device for as long as they remain connected.

> **TIP:** Use the volume controls built into the sink device to control the playback level of the audio signal.

Clearing Devices

Press and hold the **Bluetooth Rune** and **Down** buttons simultaneously for 5 seconds to access a menu with functions for clearing paired devices.

Clear Devices Page



- Select **CLEAR CURRENT** or **CLEAR ALL** to forget the paired device (only one device can be paired while in transmit mode - either menu option will accomplish the same result).
- Select **BACK** to return to the home page.

Menu Pages

From the home page, press the **Menu** button to access the menu pages. Once the menu pages are displayed, the **Menu** button functions as a select button instead.

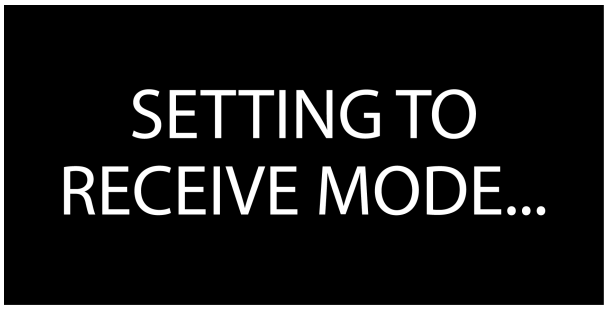
The IP address of the wall plate is displayed at the top of the menu, followed by the available menu functions. The current menu function selection is underlined. Using the **Up** and **Down** buttons, choose between **BACK** to return to the home page or **SET RECEIVER** to switch the wall plate into receive mode.

Sample Menu Page



After selecting **SET RECEIVER**, a status page is briefly displayed indicating that the device is switching to receive mode, followed by the temporary **STARTING UP** page.

Setting to Receive Mode Page



Access the Web Interface With Crestron Toolbox™ Software

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

To access the web interface by opening a web browser within Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-BTIO-100-1G is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

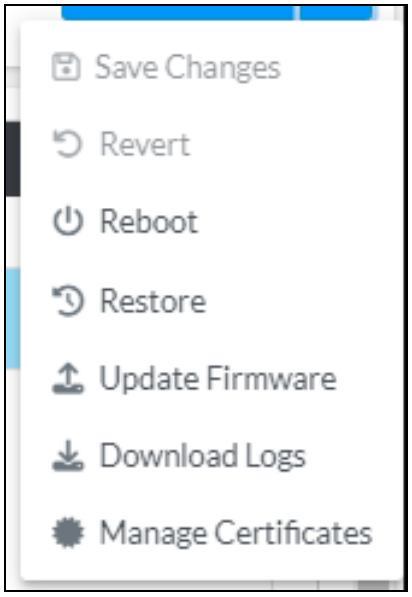
3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 668
- Revert on page 668
- Reboot on page 669
- Restore to Factory Default Settings on page 669
- Update Firmware on page 670
- Download Logs on page 670
- Manage Certificates on page 671

NOTE: The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

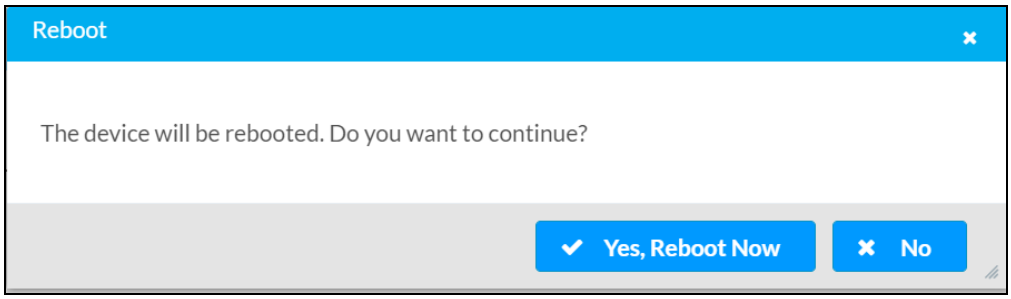
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-BTIO-100-1G to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



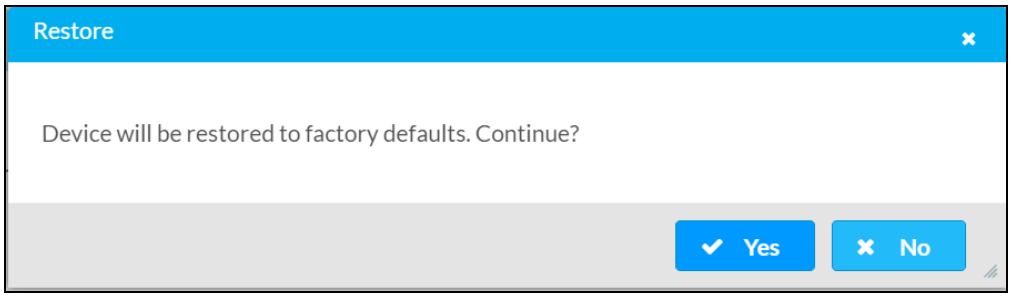
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-BTIO-100-1G to factory defaults.

NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



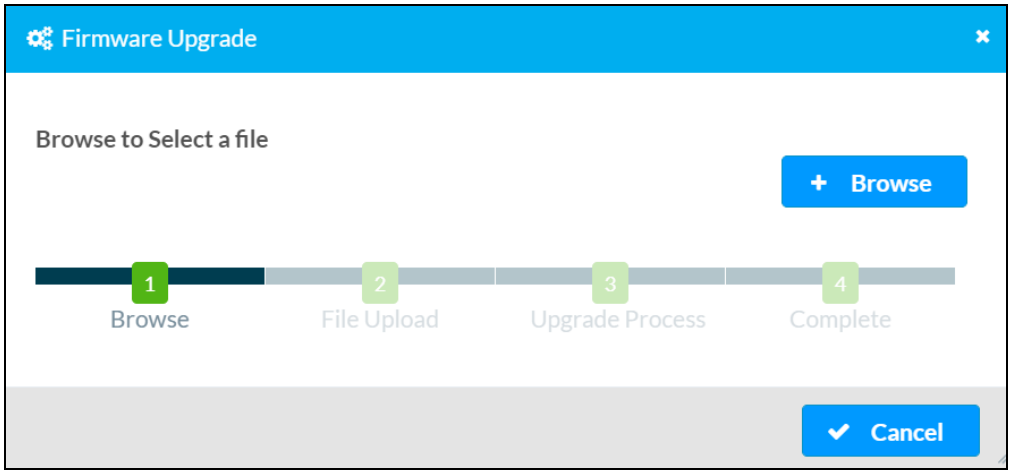
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-BTIO-100-1G to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **SETUP** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **SETUP** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

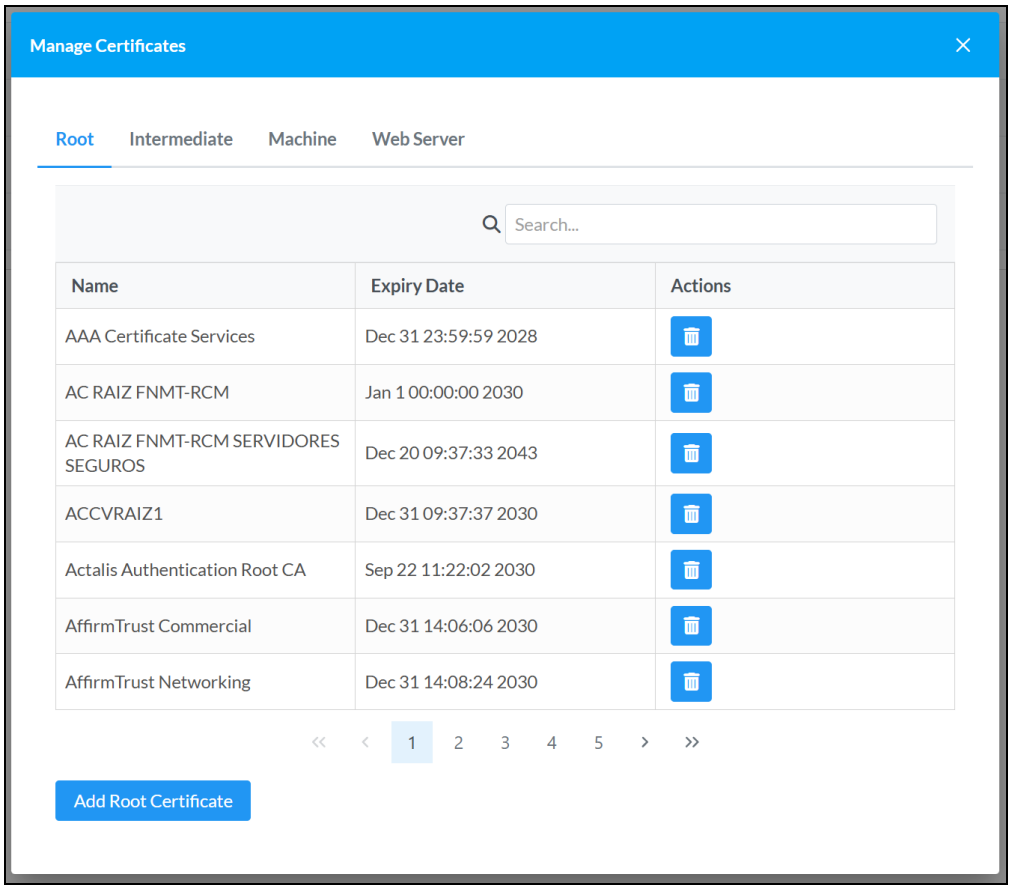
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** dialog to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-BTIO-100-1G to validate the network's authentication server. The DM-NAX-BTIO-100-1G has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-BTIO-100-1G. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

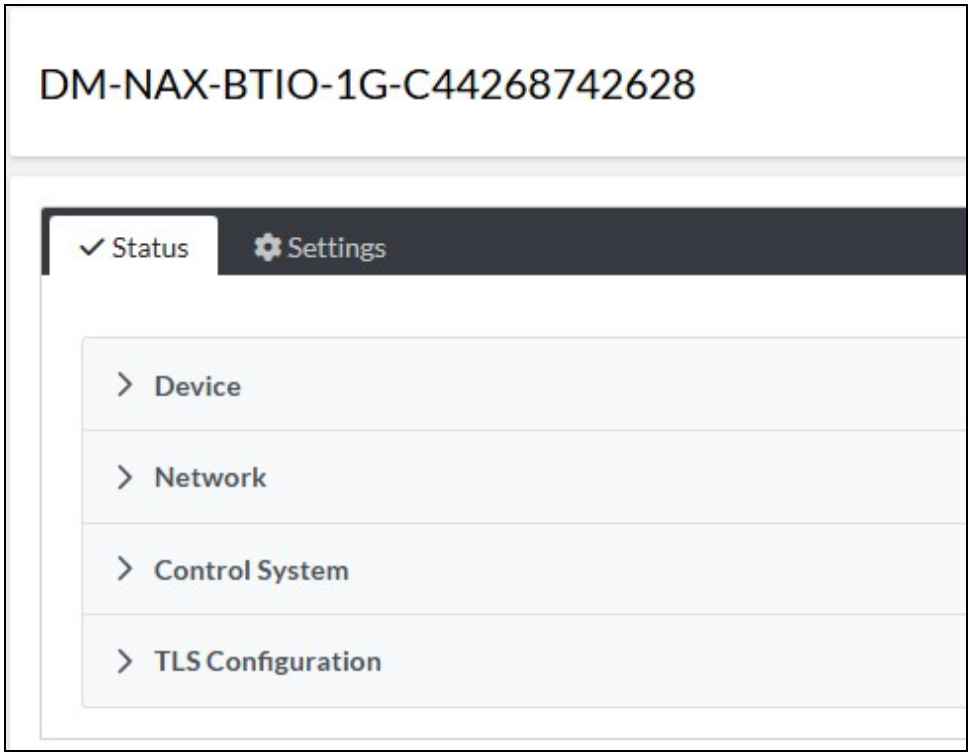
1. Select the corresponding certificate tab.
2. Select the delete icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-BTIO-100-1G. It displays general information about the DM-NAX-BTIO-100-1G , current network settings, the device's connection to a Crestron control system, and TLS configuration.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-BTIO-100-1G web interface.

NOTE: The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

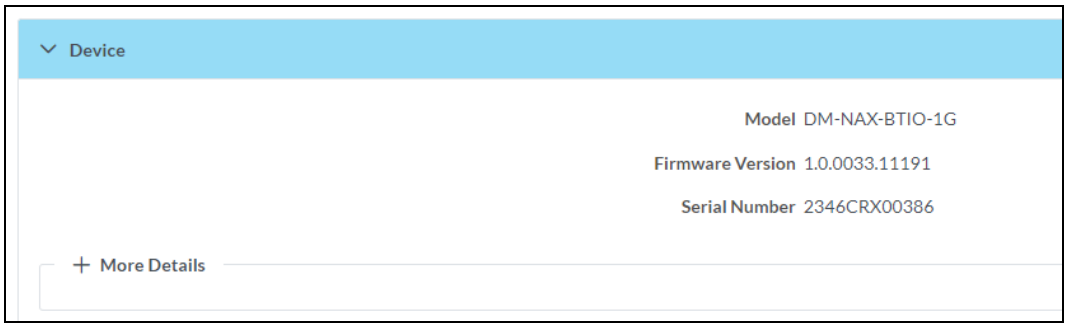


Information displayed on the **Status** tab is organized into different collapsible accordions:

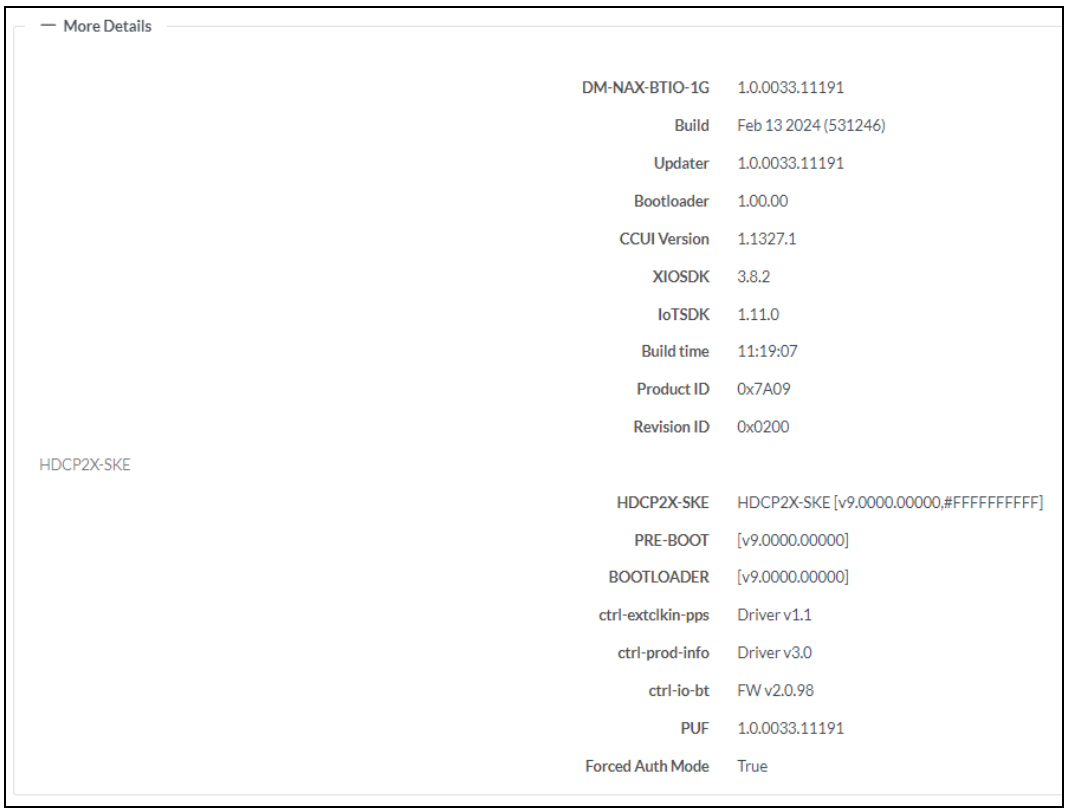
- Device on page 673
- Network on page 674
- Control System on page 675
- TLS Configuration on page 675

Device

The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-BTIO-100-1G.

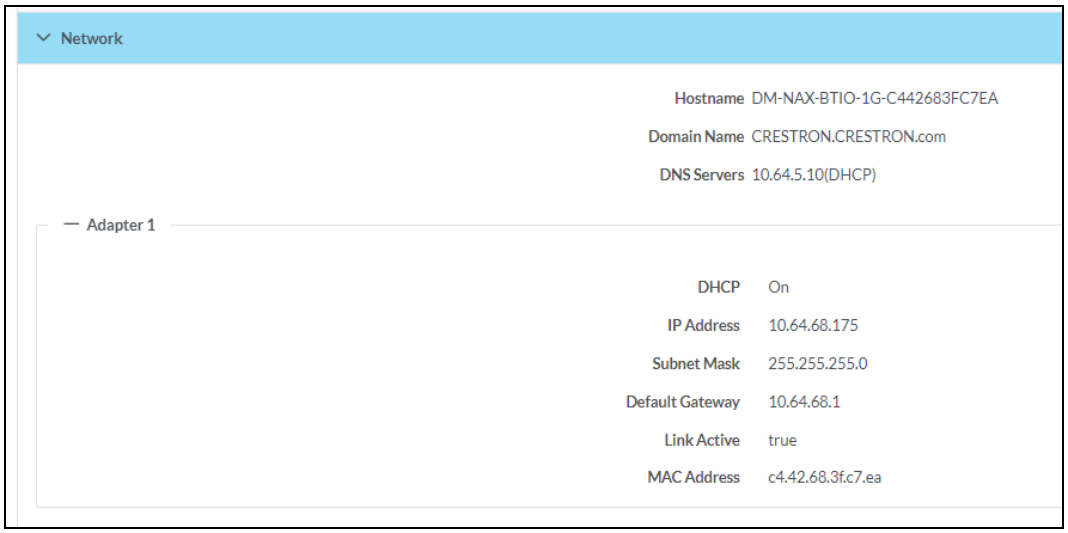


Select **+ More Details** to review additional information about the DM-NAX-BTIO-100-1G.



Network

The **Network** accordion displays network-related information about the DM-NAX-BTIO-100-1G, including the **Hostname**, **Domain Name**, and **DNS Servers**.

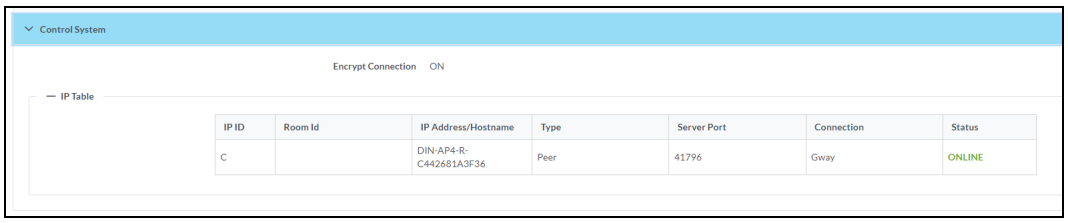


NOTE: By default, the host name of the DM-NAX-BTIO-100-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-BTIO-100-1G-00107FB58088.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** details to collapse the section.

Control System

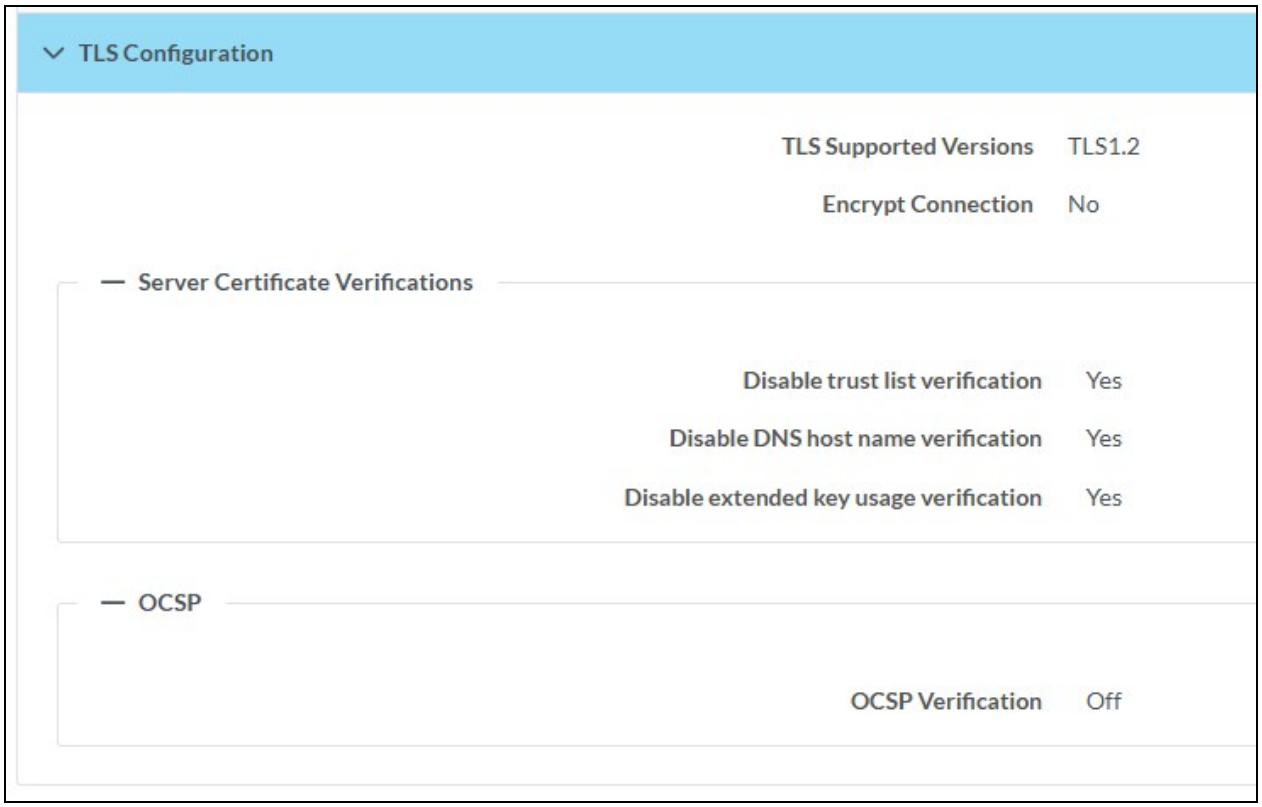
The **Control System** accordion displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-BTIO-100-1G.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Room ID**: Displays the room ID.
- **Status**: Displays **OFFLINE** or **ONLINE**.

TLS Configuration

The **TLS Configuration** accordion contains information about the current TLS settings of the DM-NAX-BTIO-100-1G.



TLS settings can be adjusted in the **Settings** tab under the **System Setup** and **TLS Configuration** accordions. Depending on the device mode of the DM-NAX-BTIO-100-1G, refer to either Commercial Mode on page 678 or Residential Mode on page 706 for information.

Settings

The **Settings** page enables configuration of the DM-NAX-BTIO-100-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-BTIO-100-1G web interface.

Many options in the **Settings** page are exclusive to a specific device mode: Residential or Commercial. The DM-NAX-BTIO-100-1G is in Commercial mode by default.

This section provides the following information:

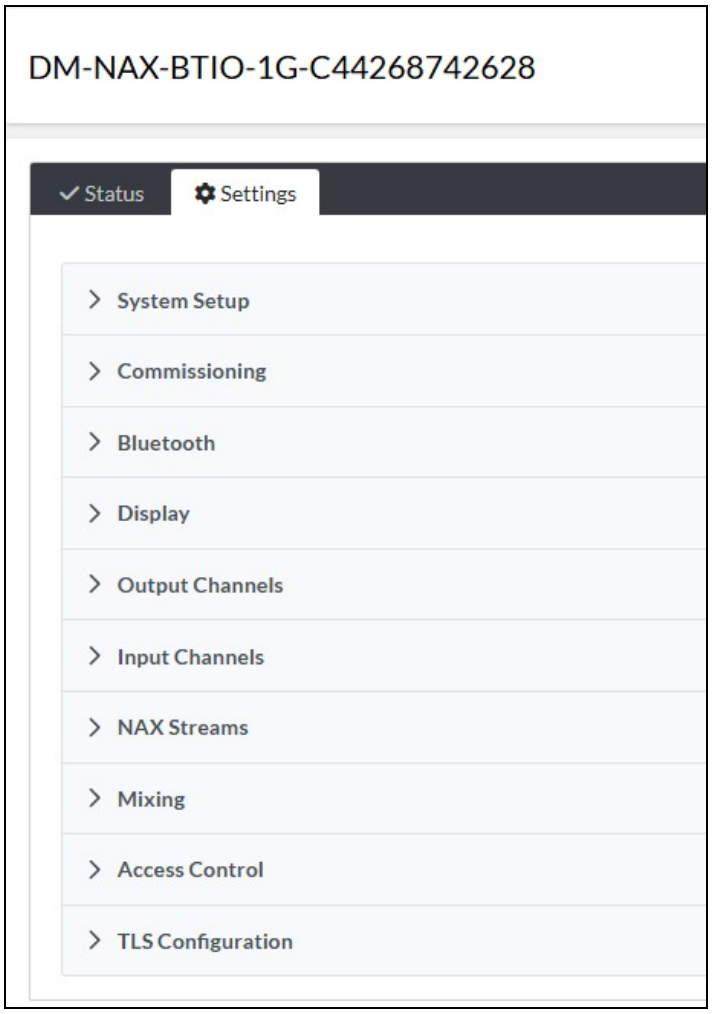
- Commercial Mode on page 678
- Residential Mode on page 706

Commercial Mode

The **Settings** page enables you to configure the DM-NAX-BTIO-100-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-BTIO-100-1G web interface. The following collapsible accordions are available within the **Settings** tab:

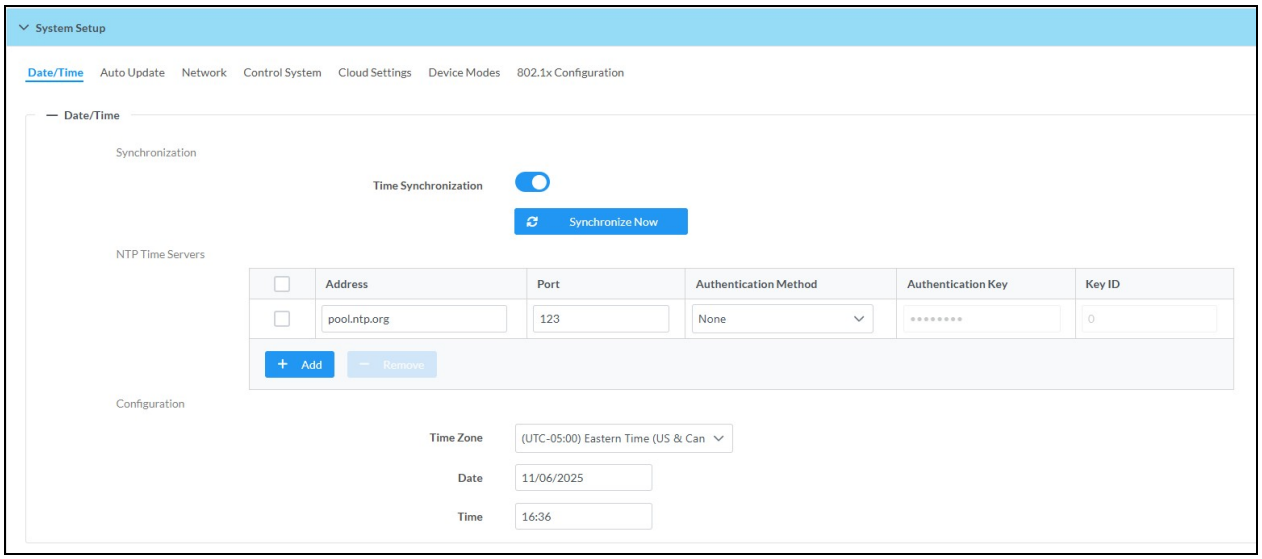
- System Setup on page 679
- Commissioning on page 686
- Bluetooth on page 687
- Display on page 690
- Output Channels on page 691
- Input Channels on page 695
- DM NAX Streams on page 695
- Mixing on page 698
- Access Control on page 699
- TLS Configuration on page 704

> **NOTE:** The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.



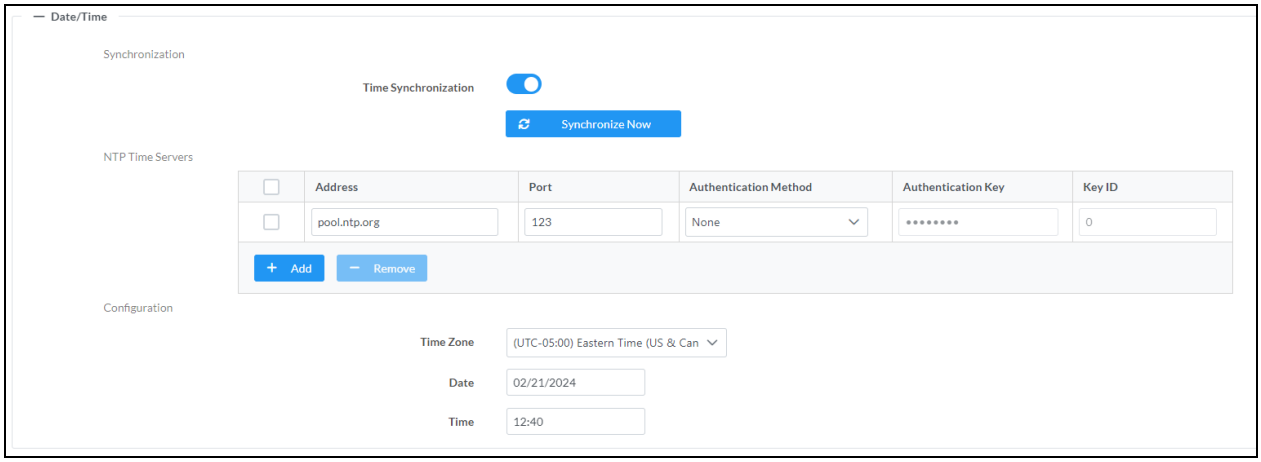
System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.



Date/Time

Use the **Date/Time** tab to configure the date and time settings of the DM-NAX-BTIO-100-1G.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

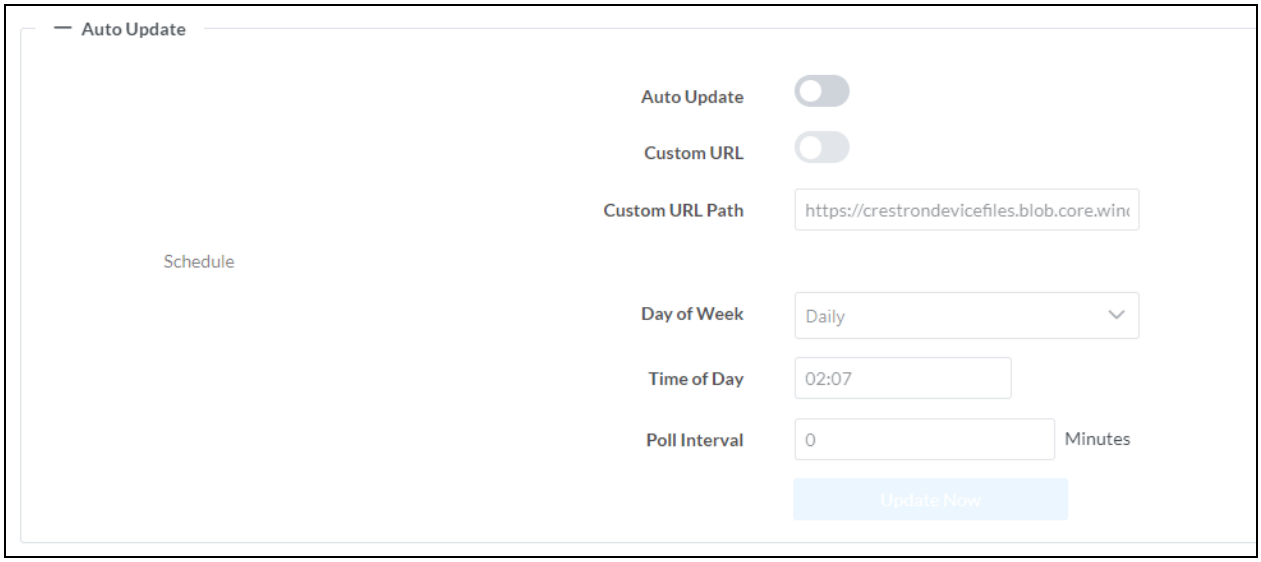
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-BTIO-100-1G can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

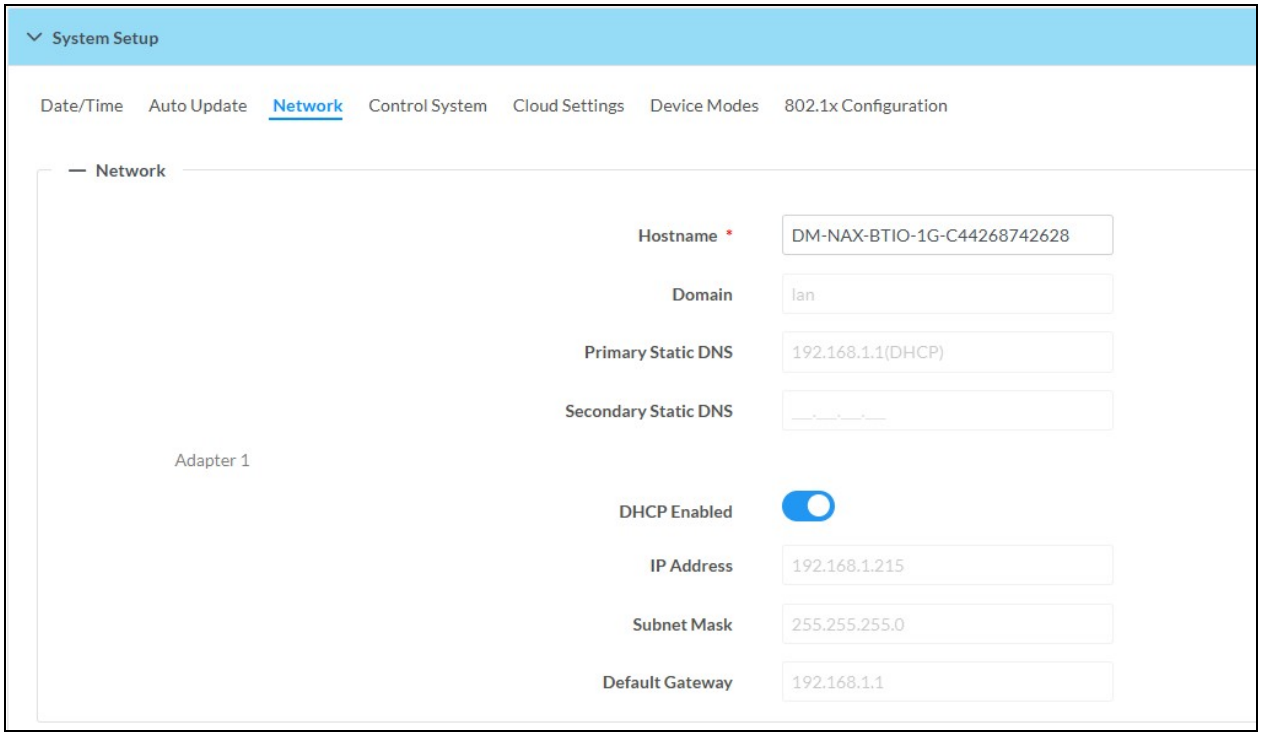


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** tab contains network-related settings for the DM-NAX-BTIO-100-1G, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the hostname of the DM-NAX-BTIO-100-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-BTIO-100-1G-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

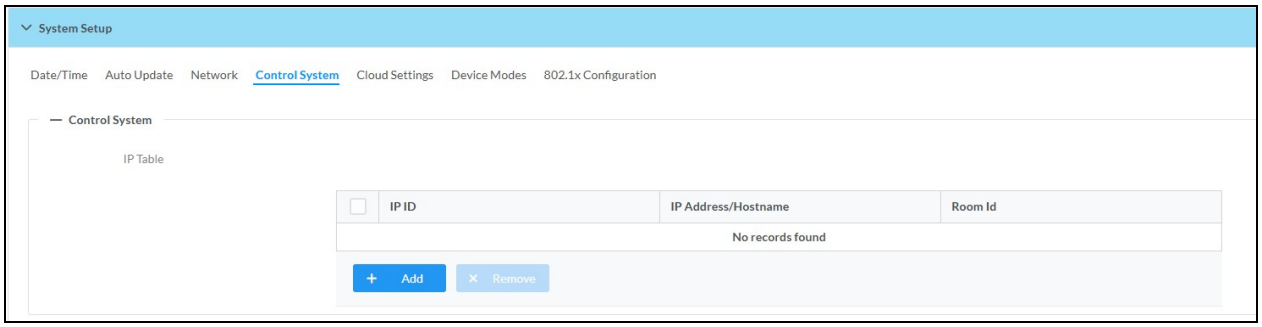
Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-BTIO-100-1G is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-BTIO-100-1G is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-BTIO-100-1G.

- **Subnet Mask**: Enter the subnet mask that is set on the network.
- **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

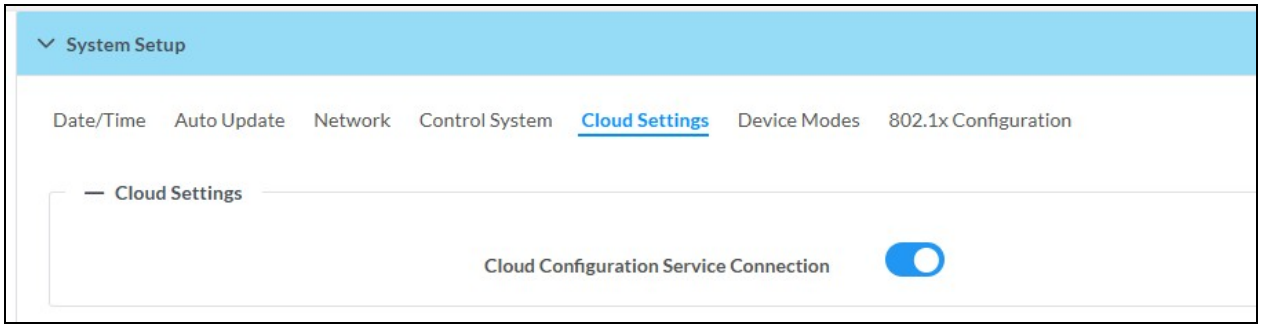
To save any new network entries, select **Save Changes**.

Control System



1. Select **+ Add** to add an IP table entry to the **IP Table**.
   a. Enter the Room ID in the **Room ID** field.
   b. Enter the IP ID of the DM-NAX-BTIO-100-1G in the **IP ID** field.
   c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
2. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

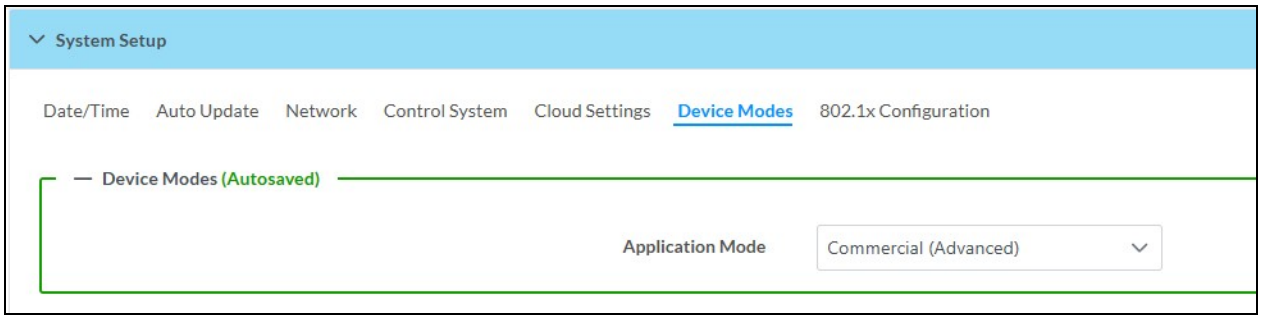
Cloud Settings



Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-BTIO-100-1G can communicate with the XiO Cloud® platform.

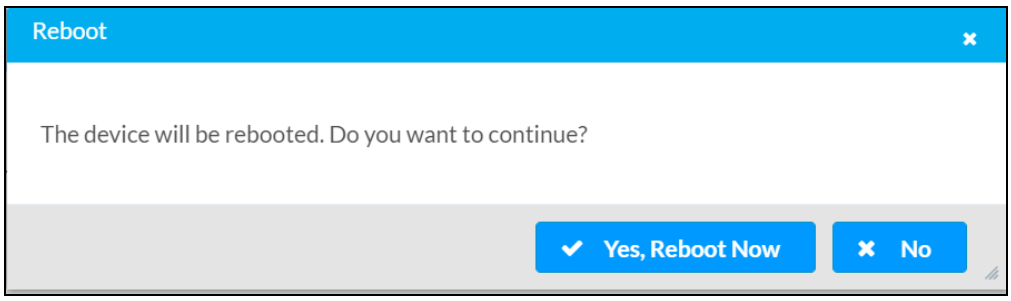
Device Modes

Use the **Device Modes** tab to configure the **Application Mode** of the DM-NAX-BTIO-100-1G.



Application Mode determines which options and controls are available.

- Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.

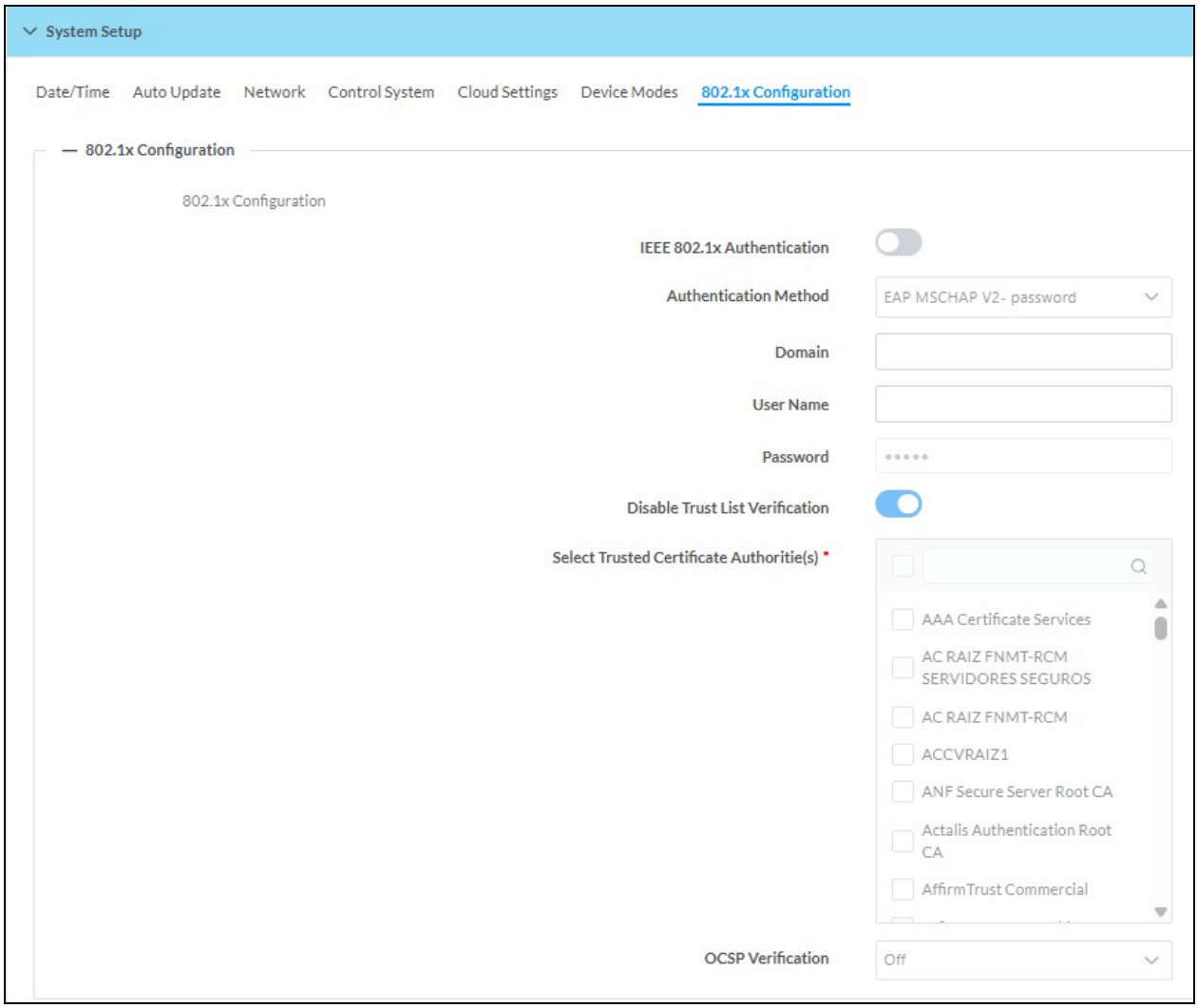


- Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
- Wait for the device restart to complete before attempting to reconnect to the device.

By default, the DM-NAX-BTIO-100-1G is set to **Commercial (Advanced)** mode.

> **NOTE:** Bluetooth wireless audio modes are adjusted from the Bluetooth accordion. Refer to Bluetooth on page 687.

802.1X Configuration



The DM-NAX-BTIO-100-1G has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-BTIO-100-1G:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.

- If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.

4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

   The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-BTIO-100-1G. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

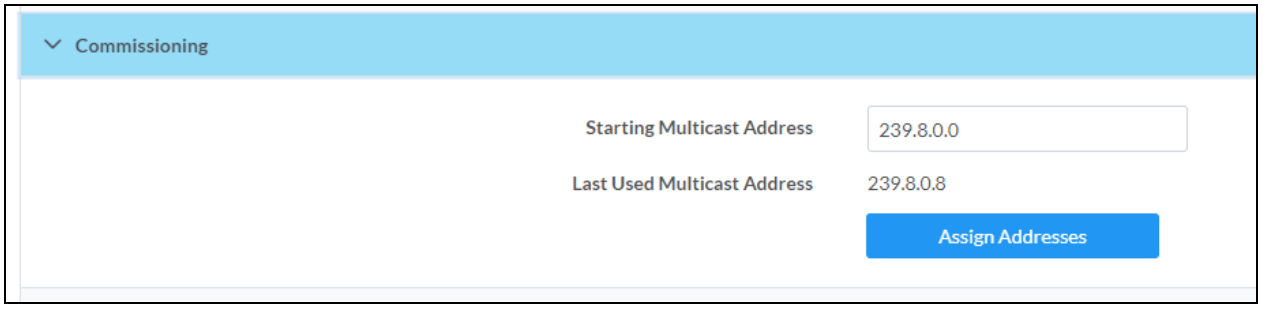
   When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

   > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.



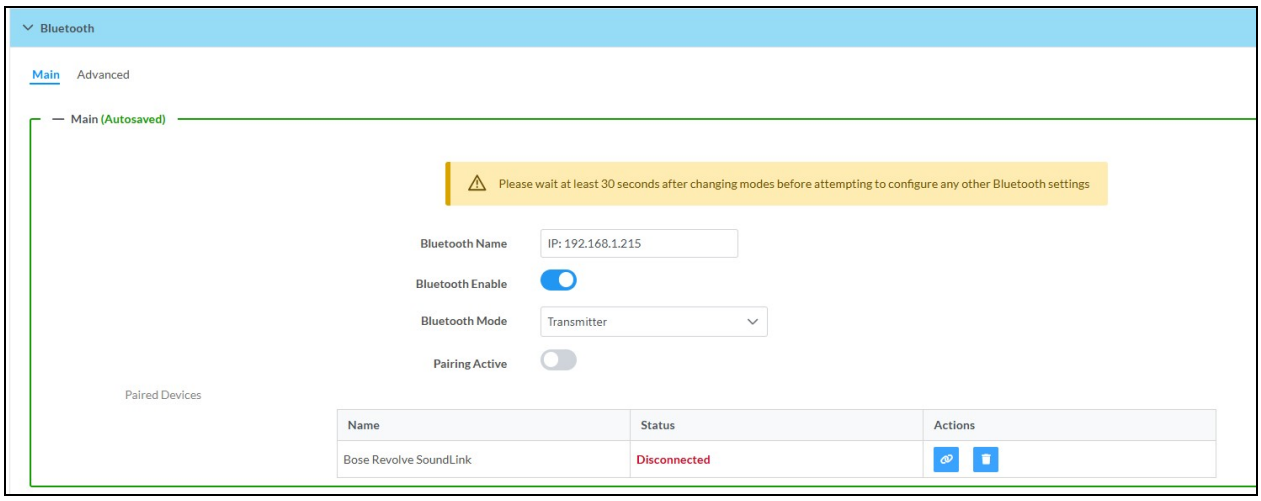
Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-BTIO-100-1G a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.255.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Bluetooth

The **Bluetooth** section provides settings for the internal Bluetooth radio of the DM-NAX-BTIO-100-1G. These settings are divided up into two tabs, labeled **Main** and **Advanced**.

Main Bluetooth Settings



To configure the settings in the **Main** tab of the Bluetooth settings section:

- Enter a custom name for the DM-NAX-BTIO-100-1G in the **Bluetooth Name** text field. This is the name that will be displayed on source devices (such as smartphones) that discover the DM-NAX-BTIO-100-1G as a receiving device. Most sink devices (such as headphones) will read this name out once the DM-NAX-BTIO-100-1G successfully pairs.

  > **TIP:** Set the **Bluetooth Name** before connecting devices to simplify the discovery process. Changing the name after devices are connected will temporarily disconnect them from the DM-NAX-BTIO-100-1G.

- Set the **Bluetooth Enable** toggle to the right to allow Bluetooth wireless audio casting to or from the DM-NAX-BTIO-100-1G. Set the **Bluetooth Enable** toggle to the left to disable Bluetooth wireless audio.

  > **NOTE:** While Bluetooth audio is disabled on the device, some applications that scan for Bluetooth devices may still be able to detect the DM-NAX-BTIO-100-1G. These applications will not be able to connect to the DM-NAX-BTIO-100-1G or cast audio to it while Bluetooth audio is disabled.

- Set the **Pairing Active** toggle to the right position to enable pairing mode, allowing Bluetooth devices to pair to the DM-NAX-BTIO-100-1G. Set the **Pairing Active** toggle to the left to disable pairing mode.

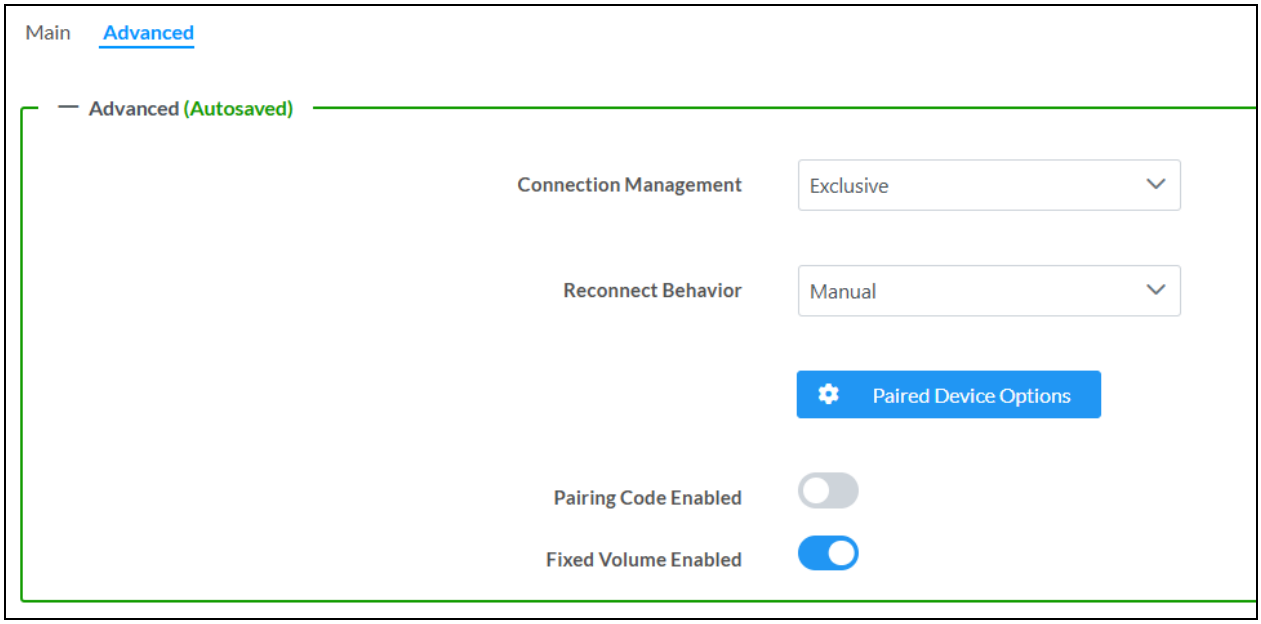
- Select **Receiver** or **Transmitter** from the **Bluetooth Mode** drop-down to determine whether the DM-NAX-BTIO-100-1G will operate as a Bluetooth wireless audio receiver or transmitter:
    - In **Receiver** mode, the DM-NAX-BTIO-100-1G can receive wireless stereo audio signals from Bluetooth enabled source devices such as smart phones or laptops.
    - In **Transmitter** mode, the DM-NAX-BTIO-100-1G can transmit a wireless stereo audio signal to a Bluetooth enabled sink device such as a speaker or a pair of headphones.
- The **Paired Devices** table displays the name and status of all remembered Bluetooth devices that were previously paired with the DM-NAX-BTIO-100-1G.
    - In **Receiver** mode, the DM-NAX-BTIO-100-1G can remember up to seven previously paired devices. In **Transmitter** mode, only one device can be paired to the DM-NAX-BTIO-100-1G.
    - Only one paired Bluetooth device can have a **Connected** status at a time. All other paired devices will display a **Disconnected** status. The **Connected** status indicates which device is currently able to actively cast media to the wall plate.
    - To disconnect a connected device, select the disconnect icon . Disconnected devices can be reconnected by selecting the connect icon .
    - To delete a remembered device from the **Paired Devices** table, select the trashcan icon . Deleted devices must be paired with the DM-NAX-BTIO-100-1G again in order to reconnect.

Advanced Bluetooth Settings

The **Advanced** tab under the **Bluetooth** accordion will vary depending on whether the device is in **Receiver** or **Transmitter** mode:

- Advanced Bluetooth Settings - Receiver Mode on page 688
- Advanced Bluetooth Settings - Transmitter Mode on page 690

Advanced Bluetooth Settings - Receiver Mode



To configure the settings on the **Advanced** tab of the Bluetooth settings section while in **Receiver** mode:

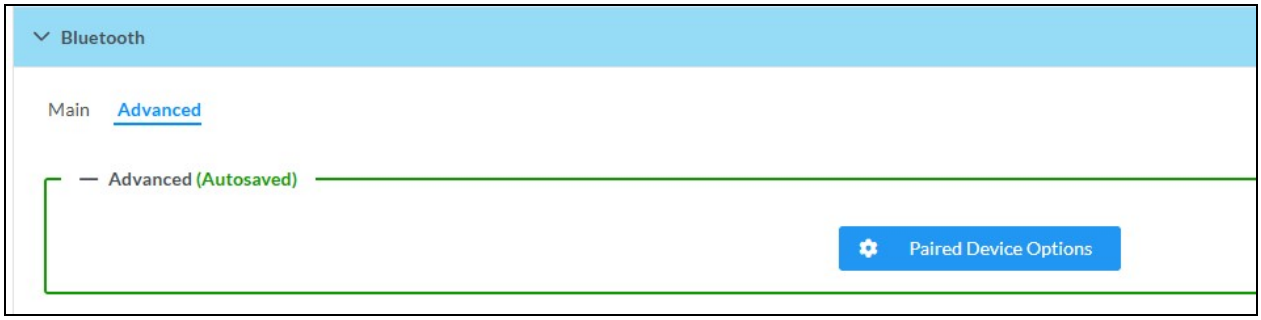
- Select a **Connection Management** option from the drop-down. **Exclusive** mode is selected by default.
    - In **Interrupt** mode, remembered paired devices can reconnect to the DM-NAX-BTIO-100-1G from their Bluetooth connections list, and will interrupt any currently playing audio. The most recent casting device to select the DM-NAX-BTIO-100-1G from its Bluetooth list will show a **Connected** status in the **Paired Devices** table, and all other devices will revert to **Disconnected**.
    - In **Exclusive** mode, remembered paired devices cannot be reconnected to the DM-NAX-BTIO-100-1G from their Bluetooth connections list until the currently **Connected** device is disconnected. The device that is listed as **Connected** in the **Paired Devices** table will remain connected until it is disconnected by programming, from the web interface, or by the casting device itself.
    - **Temporary** mode is the same as **Exclusive** mode, with the added behavior that the DM-NAX-BTIO-100-1G will forget the currently connected device once it is disconnected.
- Select a **Reconnect Behavior** option from the drop-down. **Manual** is selected by default.
    - **Manual** indicates that any time the Bluetooth casting device is disconnected from the DM-NAX-BTIO-100-1G, it can only be reconnected by selecting the casting device from the DM NAX device's list of paired devices. This is the recommended setting for any system with multiple paired transmitting devices or multiple DM-NAX-BTIO-100-1G devices within range of each other.
    - **Automatic** indicates that any remembered paired Bluetooth casting device will reconnect to the DM-NAX-BTIO-100-1G when it is within the wireless range of the DM NAX device.
- Select **Paired Device Options** to open a **Paired Device Options** window. Select a command from the drop-down, then select **Send** to issue the command to the DM NAX device:
    - **Disconnect All Paired Devices**: Disconnects all currently paired devices from the DM-NAX-BTIO-100-1G.
    - **Disconnect Inactive Paired Devices**: Disconnects any paired device that is not actively playing any media.
    - **Delete All Paired Devices**: Deletes all currently paired devices from the **Paired Devices** table of the DM-NAX-BTIO-100-1G.
    - **Delete Inactive Paired Devices**: Disconnects and forgets any paired device that is not actively playing any media.
    - **Delete Connected Devices**: Disconnects and forgets only the current **Connected** device.
- Set the **Pairing Code Enabled** toggle to the right position to enable the pairing code feature. When this is enabled, a pairing code string will populate on both the casting device and the OLED display of the DM-NAX-BTIO-100-1G during pairing. Confirm that the code matches on each device to complete the pairing process. Set the toggle to the left to disable the pairing code feature. The pairing code feature is disabled by default.

- Set the **Fixed Volume Enabled** toggle to the right to keep the Bluetooth input at a fixed volume level regardless of user input from the wallplate front panel or a paired device.

  > **NOTE:** With this enabled, the only volume control for the Bluetooth input is the vertical slider in the **Inputs** section.

  Set the toggle to the left to allow user input to change the volume level from the wallplate or paired device.

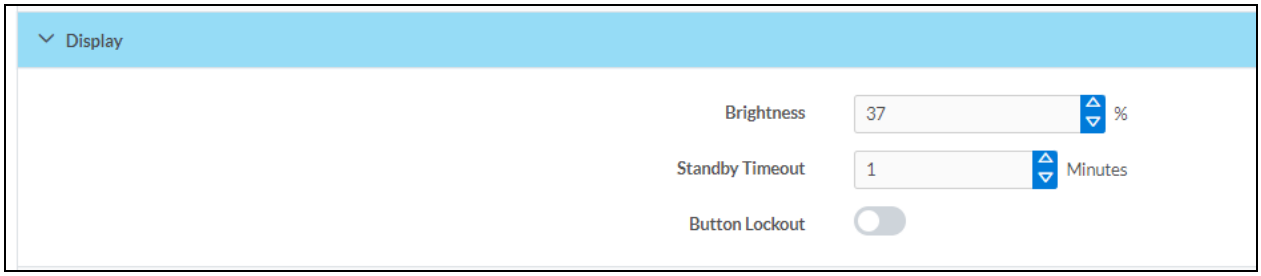
Advanced Bluetooth Settings - Transmitter Mode



While in **Transmitter** mode, the **Advanced** tab of the Bluetooth settings section contains a button labeled **Paired Device Options**. Select the button to open a **Paired Device Options** window. Select a command from the drop-down, then select **Send** to issue the command to the DM NAX device:

- **Disconnect All Paired Devices**: Disconnects all currently paired devices from the DM-NAX-BTIO-100-1G.
- **Disconnect Inactive Paired Devices**: Disconnects any paired device that is not actively playing any media.
- **Delete All Paired Devices**: Deletes all currently paired devices from the **Paired Devices** table of the DM-NAX-BTIO-100-1G.
- **Delete Inactive Paired Devices**: Disconnects and forgets any paired device that is not actively playing any media.
- **Delete Connected Devices**: Disconnects and forgets only the current **Connected** device.

Display

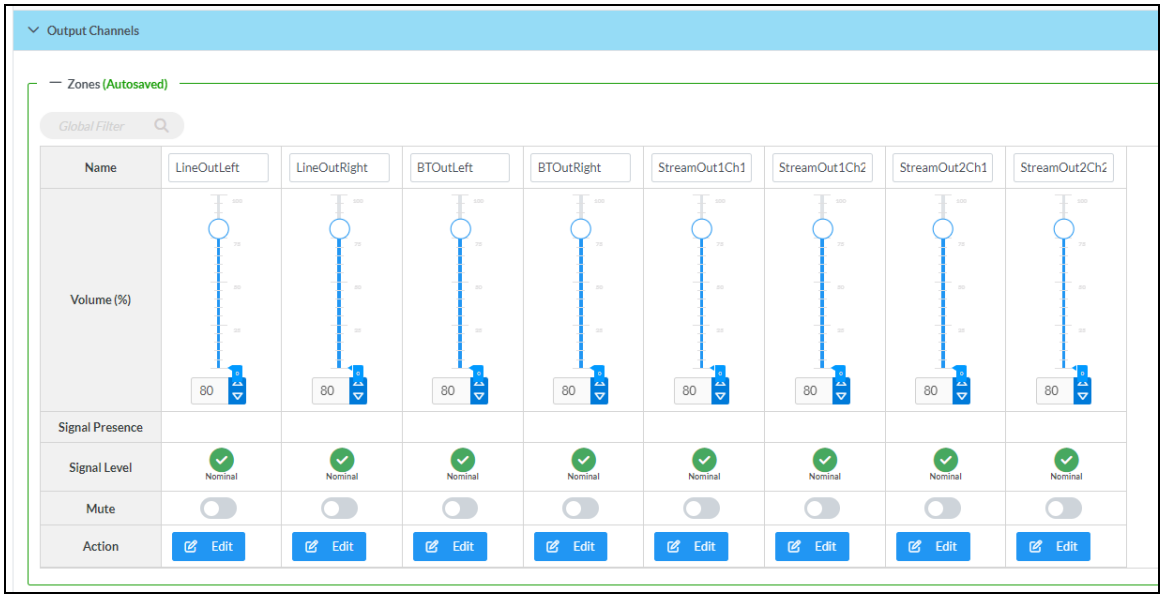


The **Display** section contains settings that affect the front panel OLED display of the DM-NAX-BTIO-100-1G.

- To adjust the display brightness:
  - Use the **%** arrows to increase or decrease the brightness. Values range from 0 to 100%, adjustable in increments of 1%.
  - Manually enter a percentage value in the **Brightness** text field.
- To adjust the display standby timeout:
  - Use the **Minutes** arrows to increase or decrease the brightness. The default timeout value is one minute.
  - Manually enter a value in the **Standby Timeout** text field.
- Set the **Button Lockout** toggle to the right to lock out the front panel buttons on the DM-NAX-BTIO-100-1G. Set the **Button Lockout** toggle to the left to disable the lockout.

Output Channels

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as an **Edit** option for more advanced settings within each zone.



Signal Presence indicates whether or not an audio signal is detected in that zone.

Signal Level indicates if the signal is **Clipping** or **Nominal** (non-clipping).

- **Nominal**: The signal level is within normal operating bounds and below the clipping threshold.
- **Clipping**: The signal level is clipping or above the -3 dB warning threshold and in danger of clipping.

Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

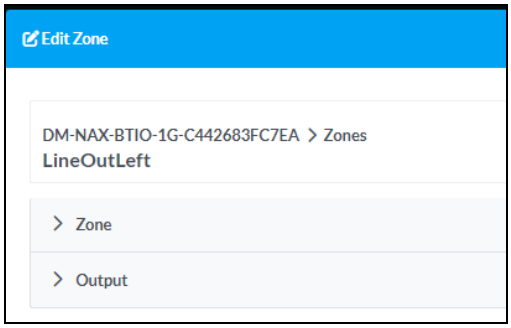
- Move the **Volume** slider up to increase or down to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select the **Muted**.

Select **Edit** to view additional **Zone** and **Output** options.

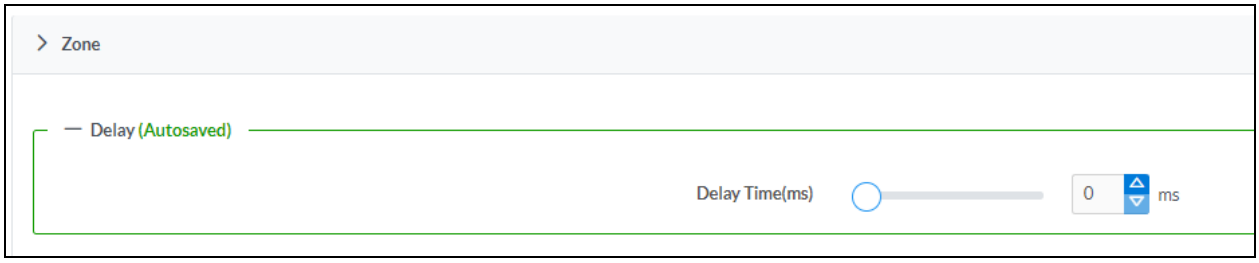
Zone Settings

To configure the settings for an output channel, select **Edit**. The **Edit Zone** window is displayed.

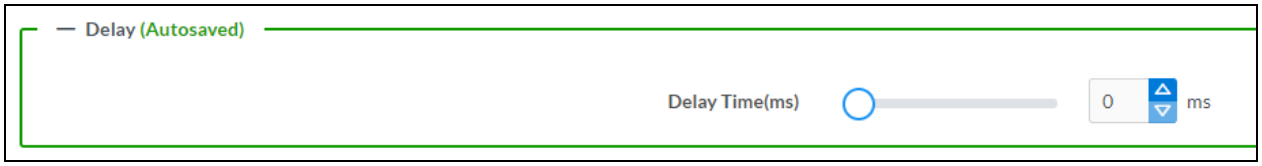


Zone

Select **Zone** to access the settings for **Delay**.



Delay (Line Outputs Only)



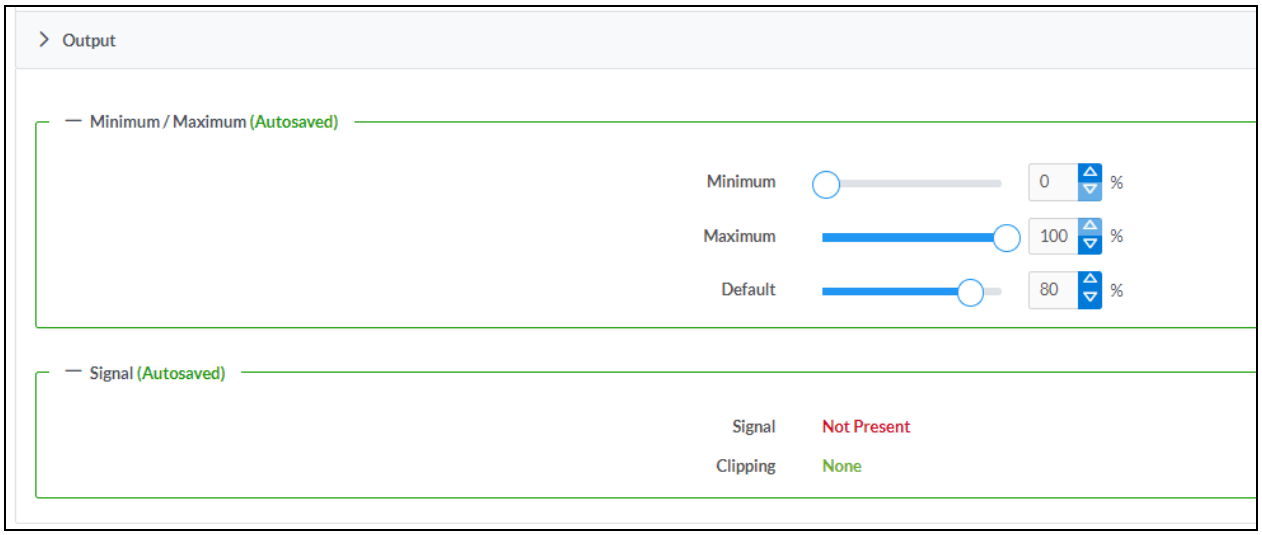
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

> **NOTE:** The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume** and **Signal**.



Minimum/Maximum Volume



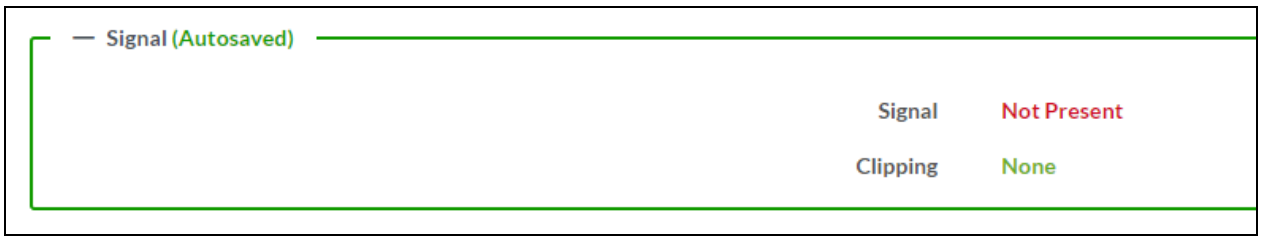
1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Signal

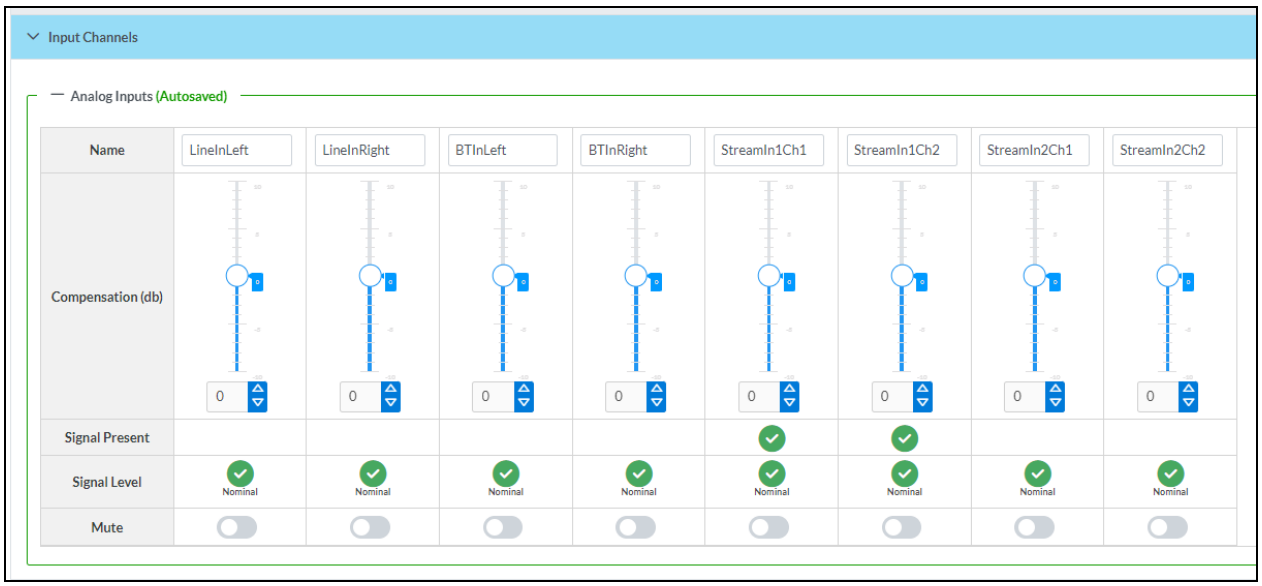


The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Input Channels

The **Input Channels** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the audio inputs of the DM-NAX-BTIO-100-1G.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

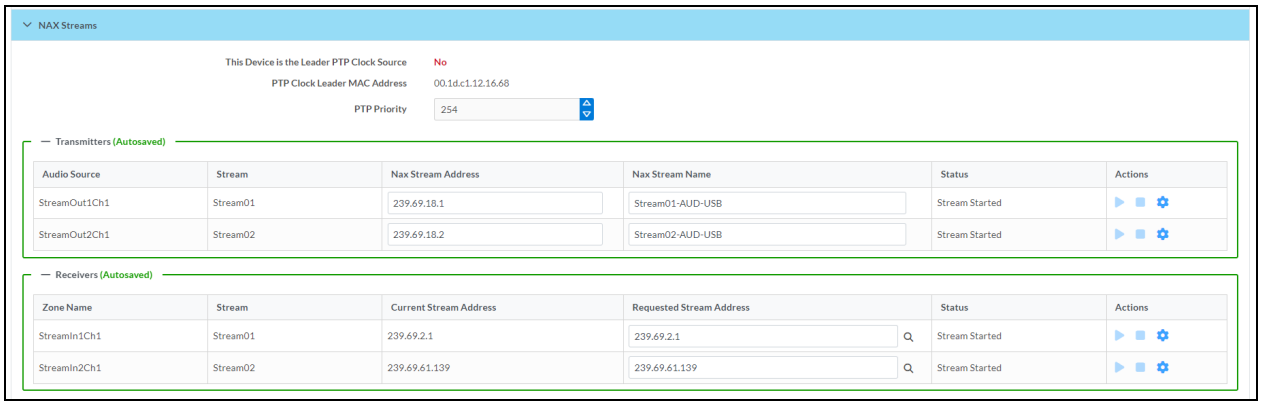
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

DM NAX Streams

The local inputs of the DM-NAX-BTIO-100-1G can be made available as DM NAX audio-over-IP streams. Two network stream transmitters are available on the device. One transmitter will encode the local unbalanced line level input, and the other will encode the Bluetooth input audio.

Select **NAX Streams** to expand the tab and display the following information.

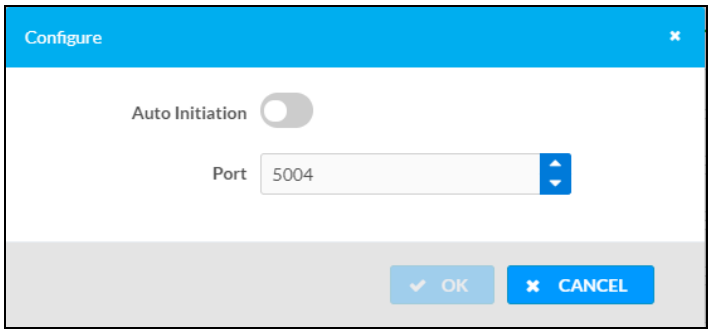


- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-BTIO-100-1G's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-BTIO-100-1G will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure the DM NAX transmit stream:

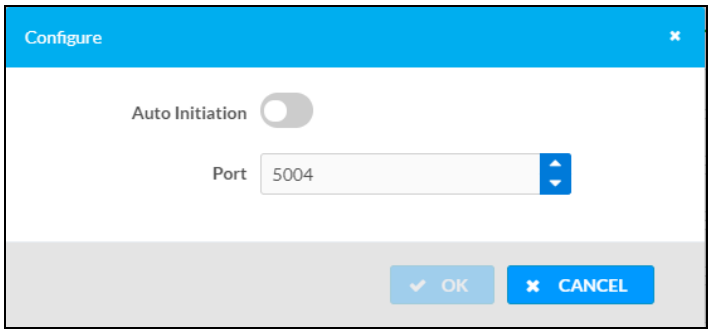
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

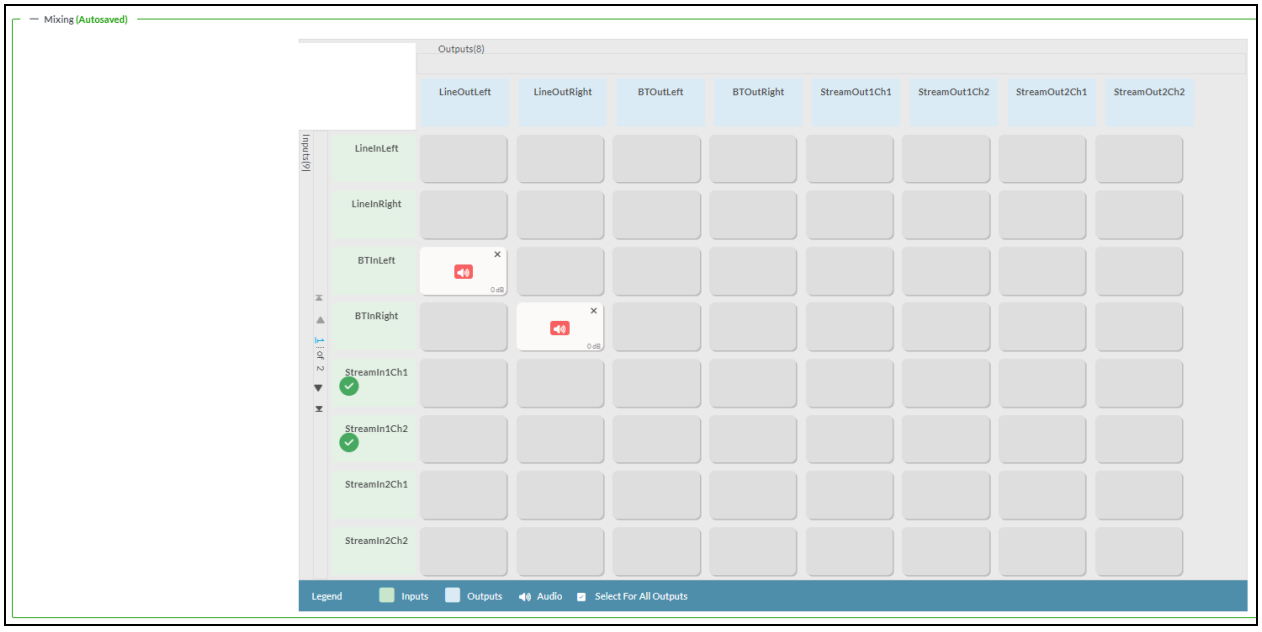


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Mixing

The **Mixing** matrix is used to route a local input or AES67 stream to an output on the DM-NAX-BTIO-100-1G.

> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.

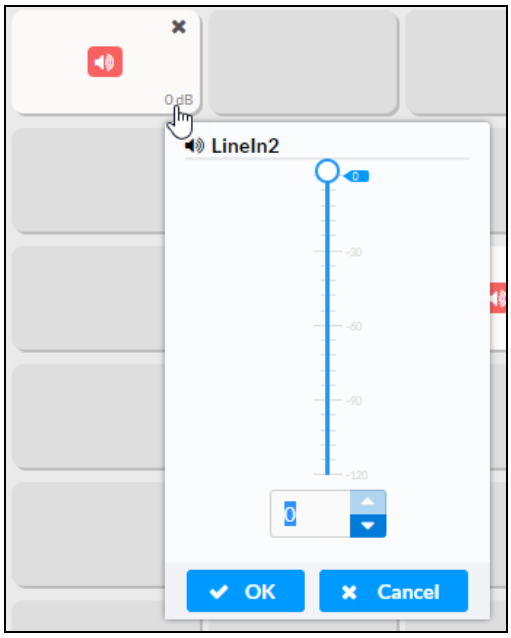


To route inputs to outputs on the device:

- Select the cells corresponding to the desired output that are to be paired for routing. Once a route is made, a speaker icon is displayed. The input that you have selected for a given row will route to the output corresponding to that row in the matrix.
- Use the left ◀ or right ▶ arrows at the left of the matrix to change pages to view all available inputs.
- To break a given route select the speaker icon or the **x** at the top right of the box.

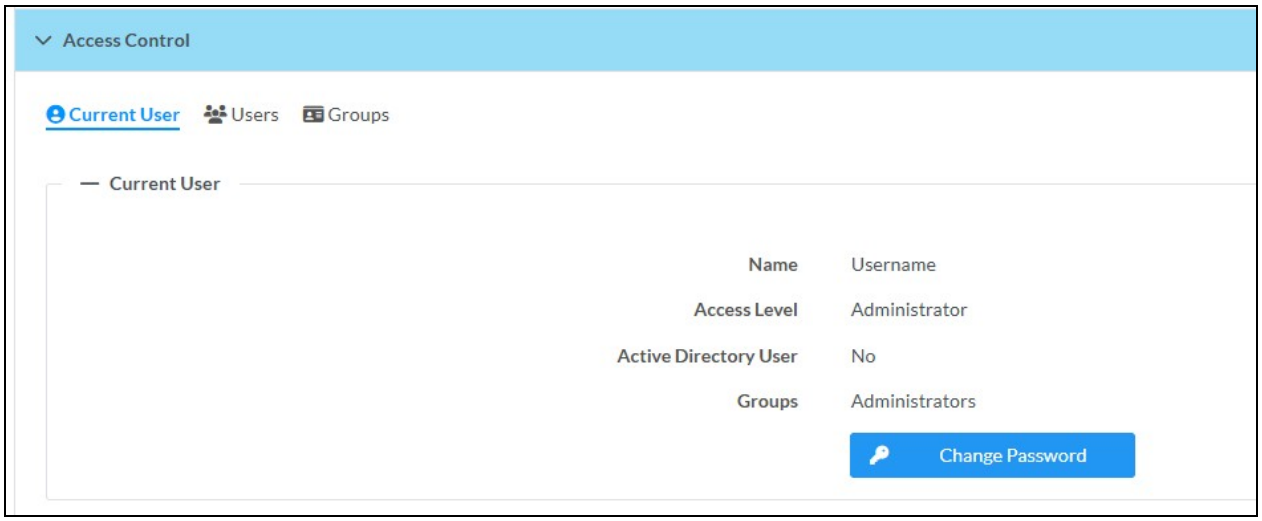
Each output can have any number of inputs routed to it. To adjust the mix setting for a route, select the **dB** value of the cell, then do one of the following:

- Move the slider up to increase or down to decrease the mix level.
- Use the arrows to increase or decrease the mix level.
- Manually enter a value in the field.



Access Control

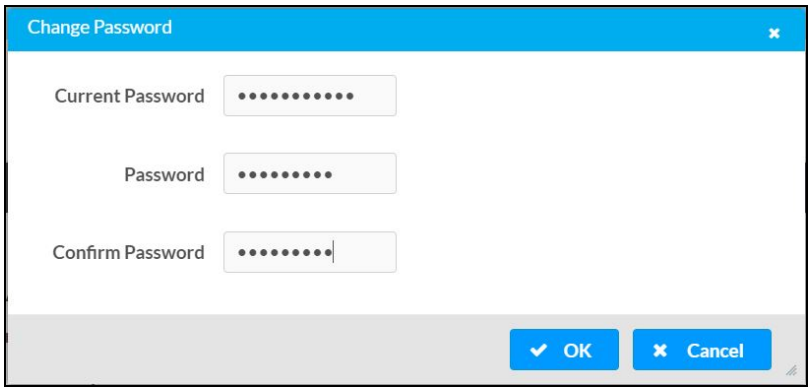
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-BTIO-100-1G functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

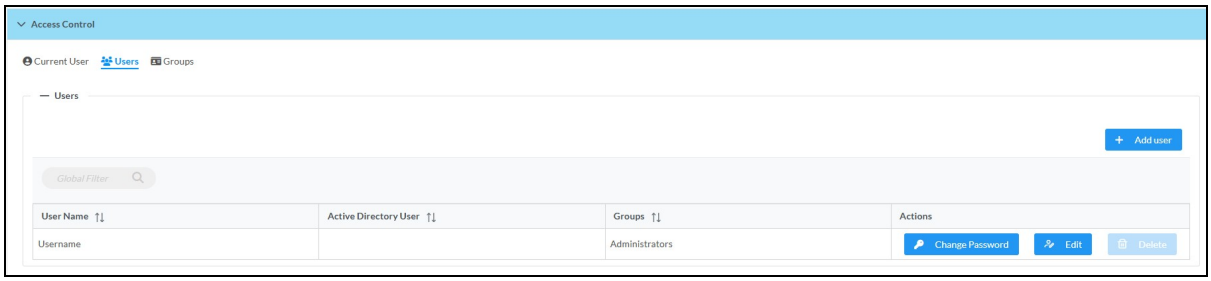
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

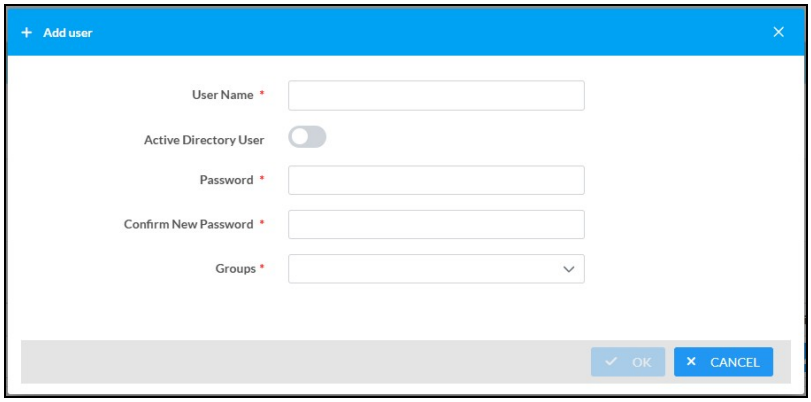
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-BTIO-100-1G:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

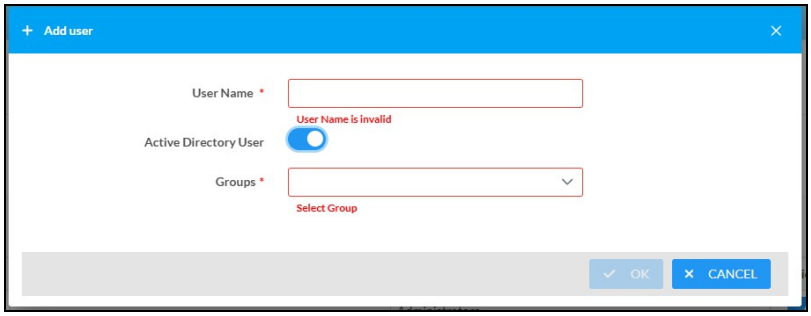
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-BTIO-100-1G, or add the Active Directory group(s) that they are a member of to the DM-NAX-BTIO-100-1G.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

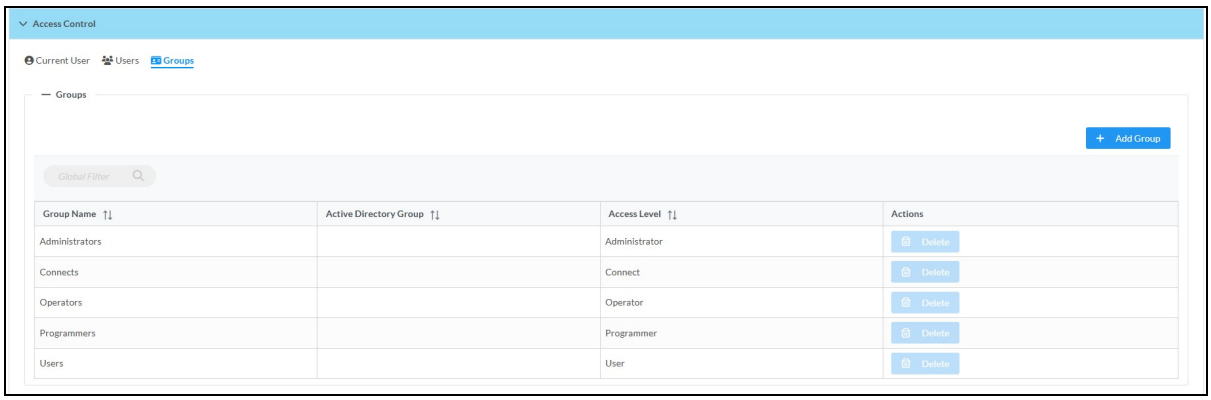
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

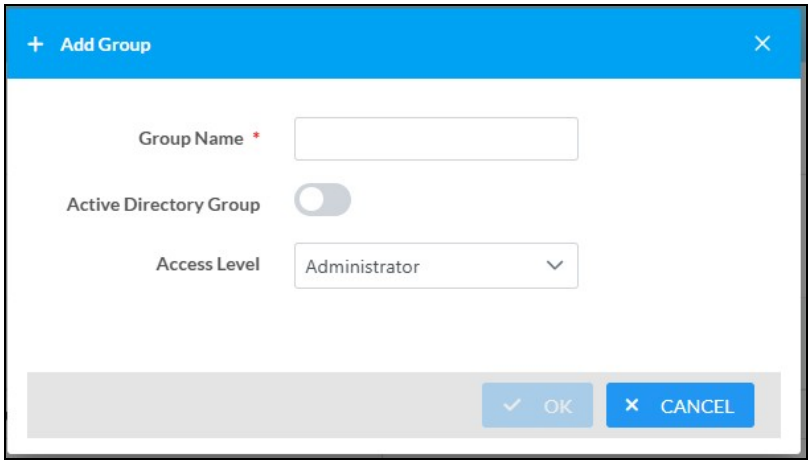
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



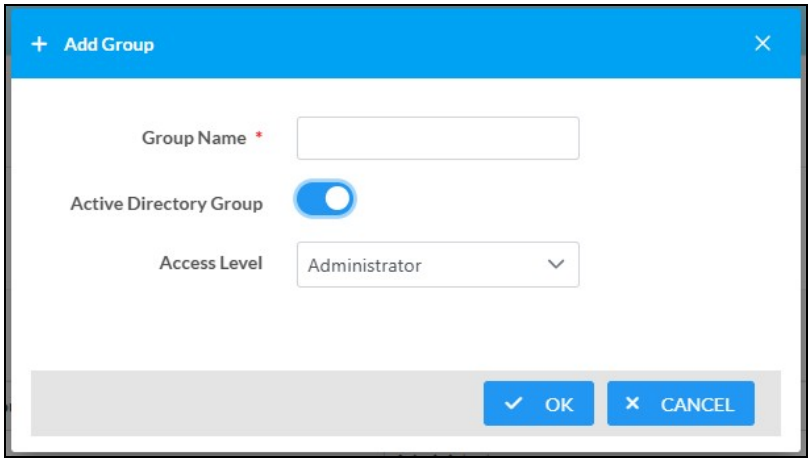
1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
   a. Enter the group name in the **Name** field.
   b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-BTIO-100-1G.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:

a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

   > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

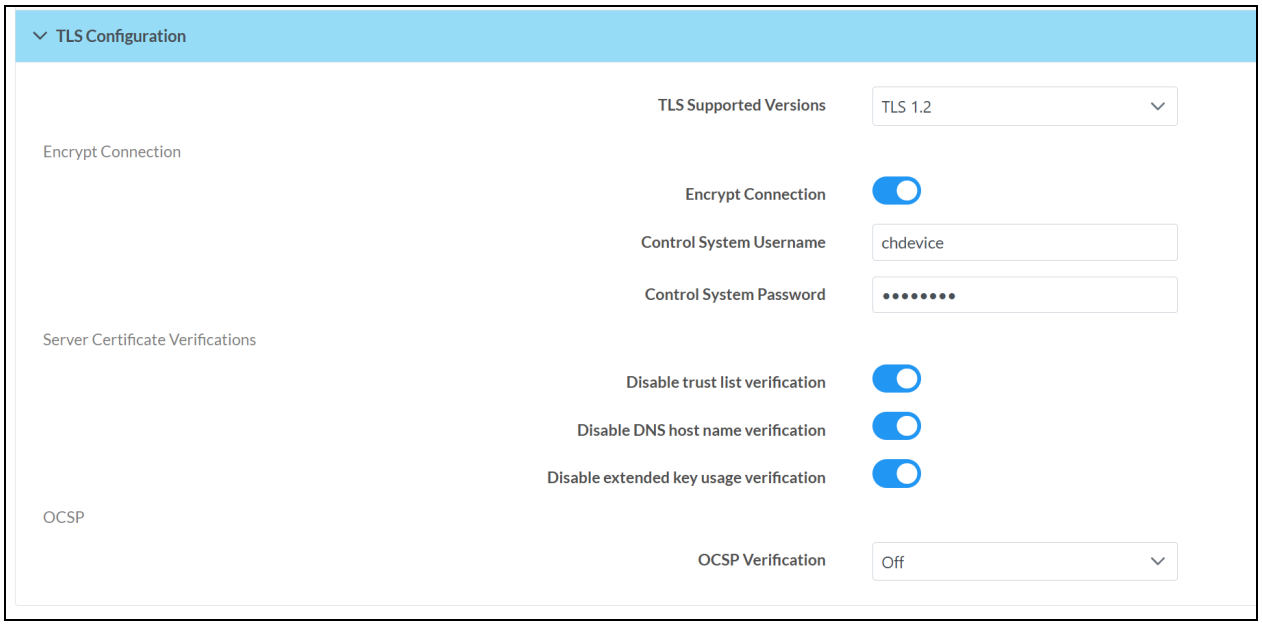
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-BTIO-100-1G.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted. If the toggle is set to the right, enter administrator-level credentials for the control system in the **Control System Username** and **Control System Password** fields.

- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

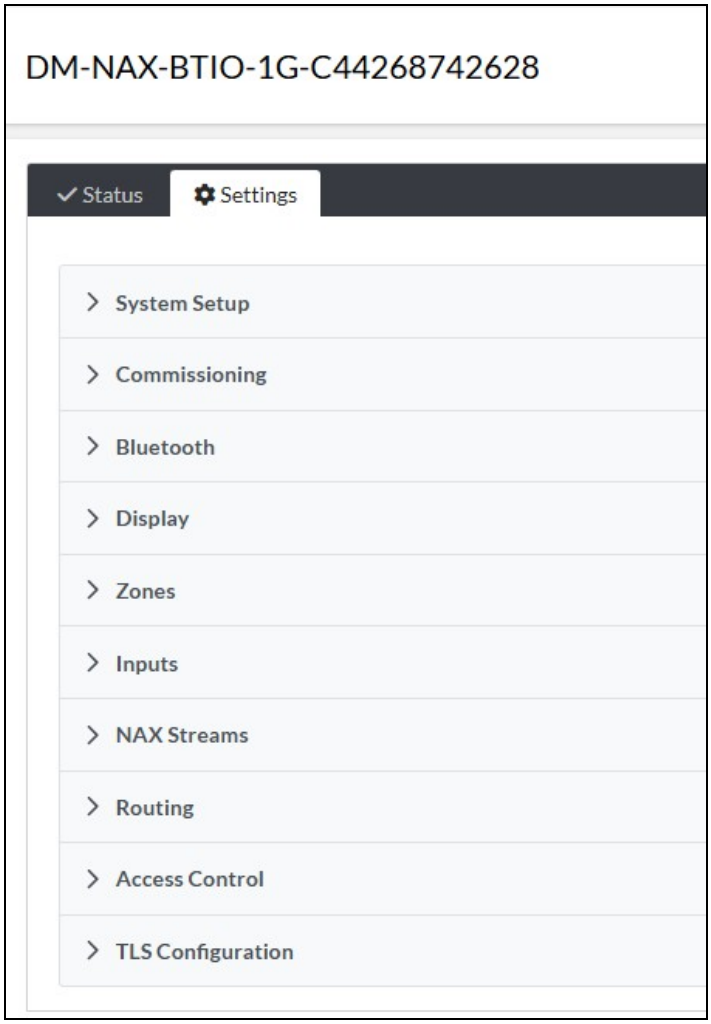
Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

Residential Mode

The **Settings** page enables you to configure the DM-NAX-BTIO-100-1G settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-BTIO-100-1G web interface. The following accordions are available within the **Settings** tab:

- System Setup on page 707
- Commissioning on page 713
- Bluetooth on page 713
- Display on page 717
- Zones on page 718
- Inputs on page 723
- NAX Streams on page 724
- Routing on page 726

NOTE: The information in this section also applies to the DM-NAX-BTIO-1G (discontinued) unless otherwise noted.

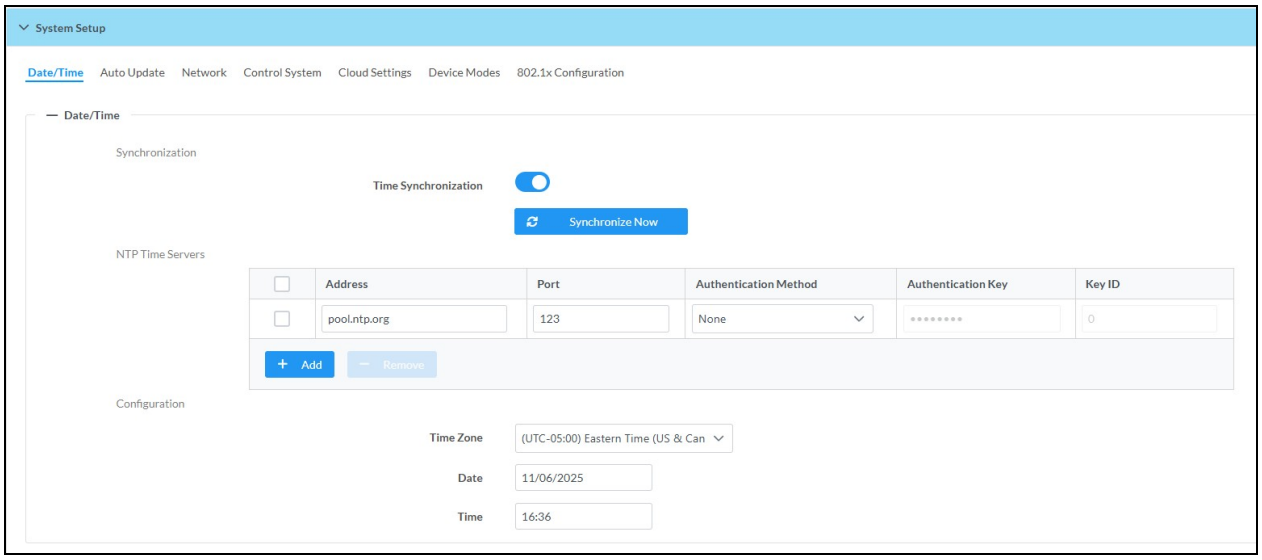


System Setup

The **System Setup** accordion contains settings for **Date/Time**, **Auto Update**, **Network**, **Control System**, **Cloud Settings**, **Device Modes**, and **802.1X Configuration**.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-BTIO-100-1G.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

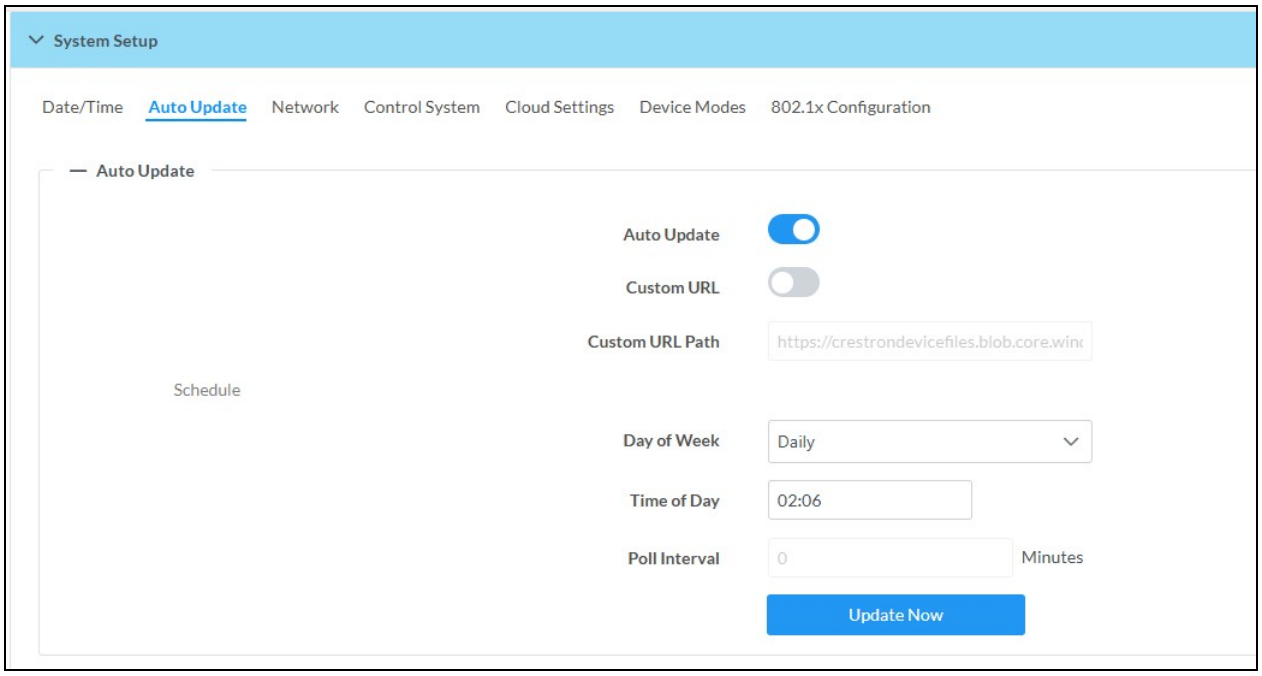
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-BTIO-100-1G can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

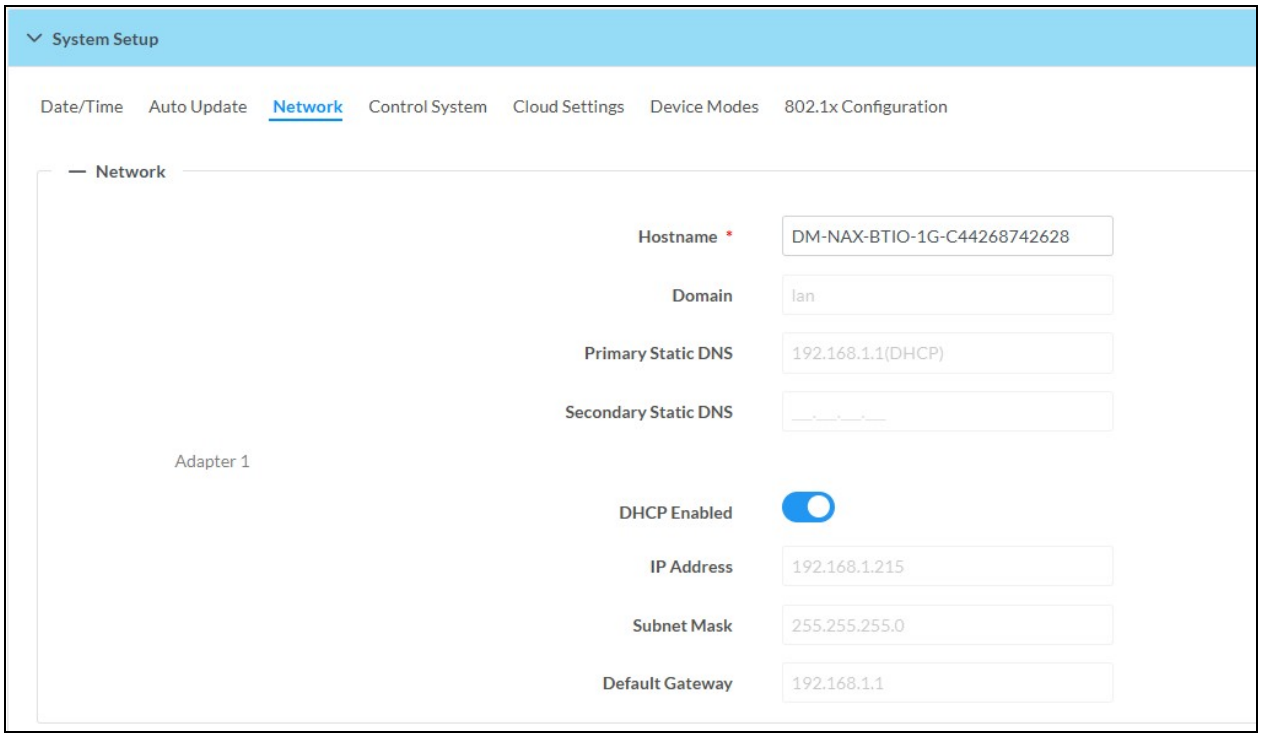


1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:
    a. Use the default URL to download the updates from the Crestron server.
    b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
    a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
    b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Network

The **Network** section contains network-related settings for the DM-NAX-BTIO-100-1G, including the Hostname, Domain, Primary Static DNS, and Secondary Static DNS.



NOTE: By default, the host name of the DM-NAX-BTIO-100-1G consists of the model name followed by the MAC address of the device. For example, DM-NAX-BTIO-100-1G-00107FB58088.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

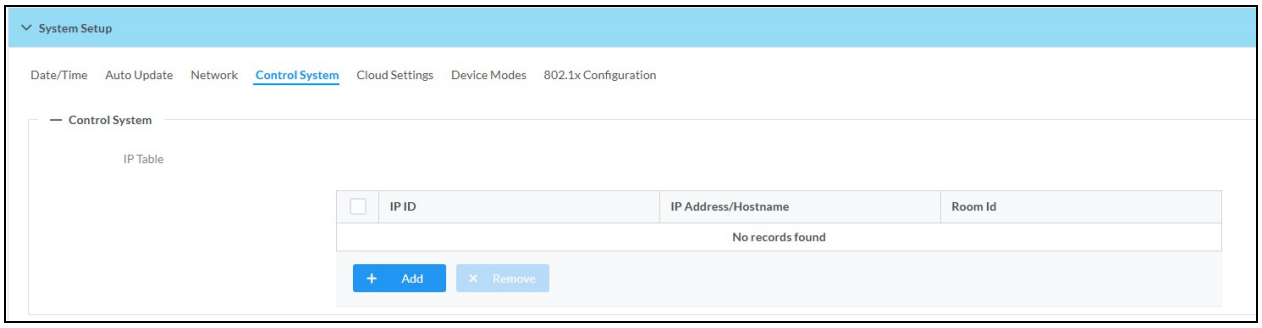
NOTE: DM NAX devices' internal processes use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts.

Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-BTIO-100-1G is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When DHCP is enabled (default setting), the IP address of the DM-NAX-BTIO-100-1G is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS**: Enter a primary DNS IP address.
  - **Secondary Static DNS**: Enter a secondary DNS IP address.
  - **IP Address**: Enter a unique IP address for the DM-NAX-BTIO-100-1G.
  - **Subnet Mask**: Enter the subnet mask that is set on the network.
  - **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

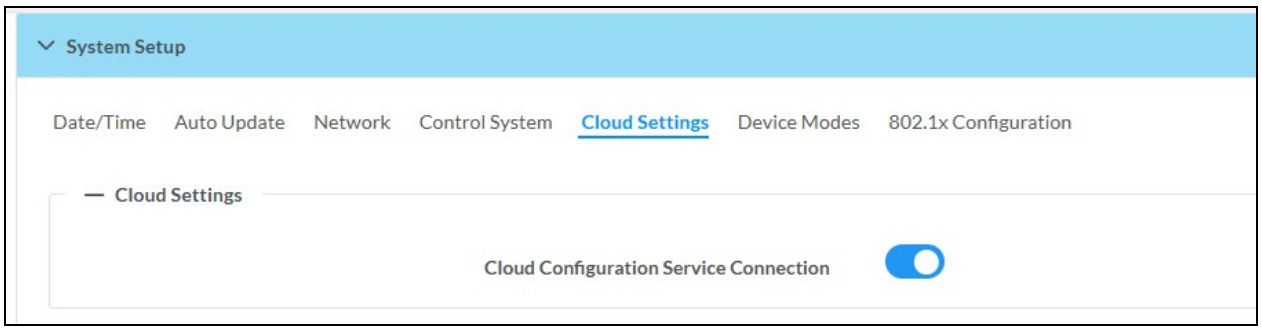
To save any new network entries, select **Save Changes**.

Control System



1. Select **+ Add** to add an IP table entry to the **IP Table**.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-BTIO-100-1G in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
2. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

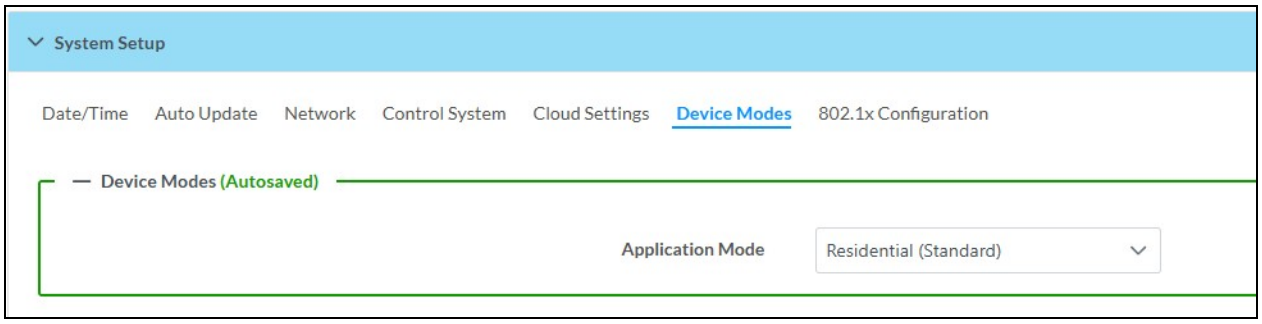
Cloud Settings



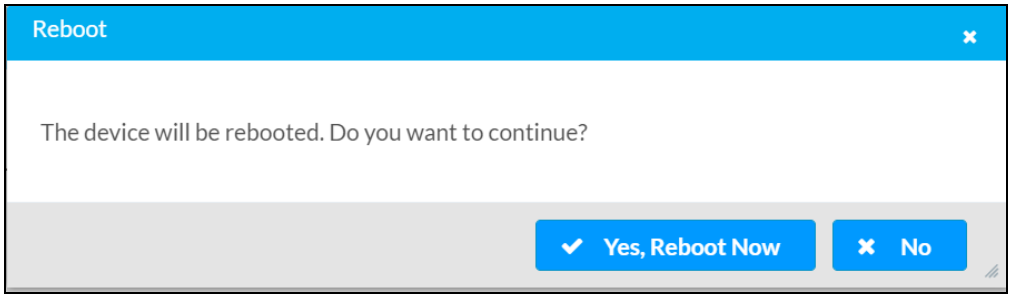
Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-BTIO-100-1G can communicate with the XiO Cloud® platform.

Device Modes

Use the **Device Modes** section to configure the **Application Mode**.

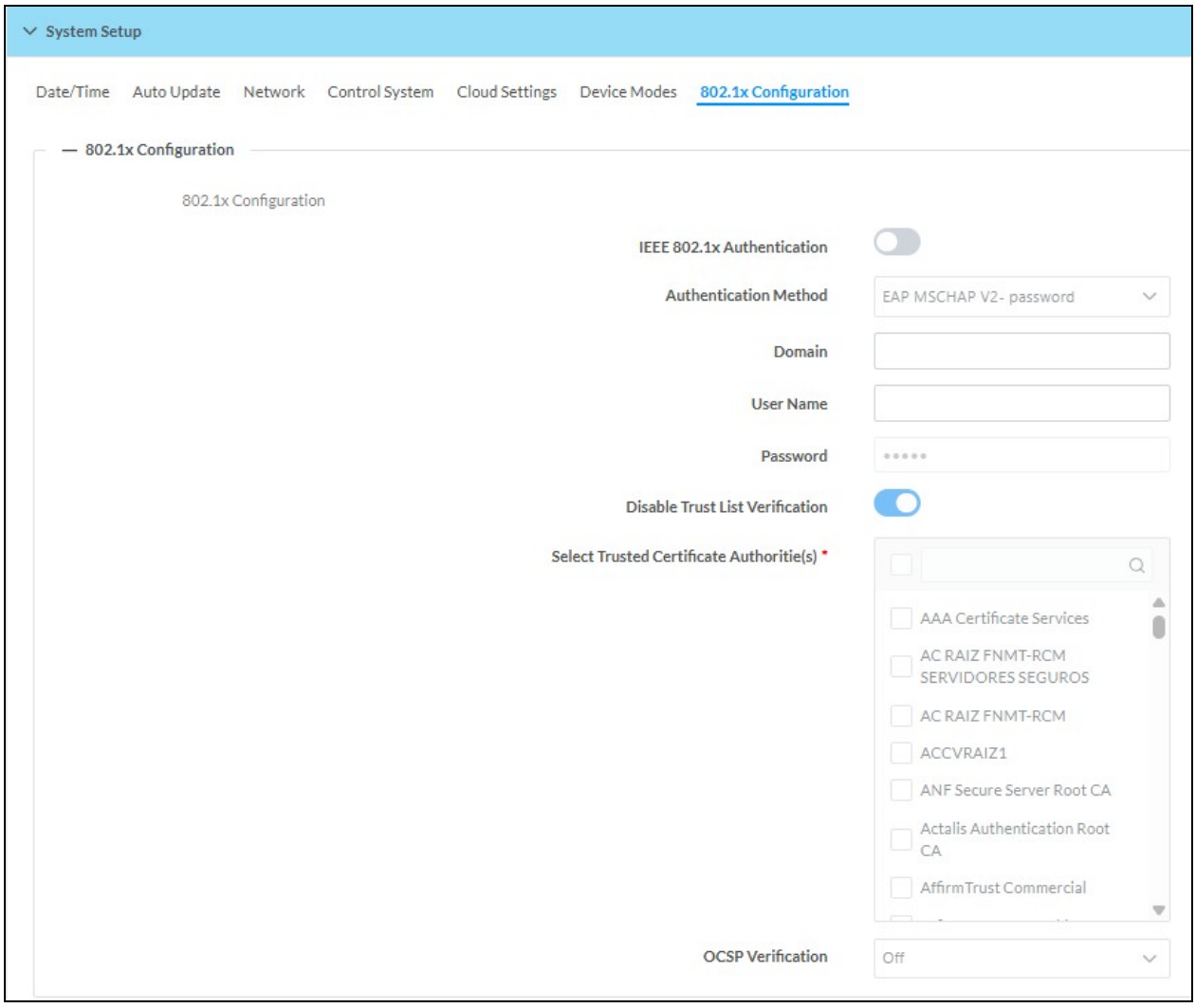


- **Application Mode**: The Application Mode determines which options and controls are available.
  - Select **Residential (Standard)** or **Commercial (Advanced)**. A **Reboot** confirmation message box is displayed.



  - Select **Yes, Reboot Now** to restart the device into the selected mode. The **Reboot** message box is displayed.
  - Wait for the device restart to complete before attempting to reconnect to the device.

802.1X Configuration



The DM-NAX-BTIO-100-1G has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

To configure 802.1X authentication on the DM-NAX-BTIO-100-1G:

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all remaining options in the **802.1X Configuration** tab.
2. Select an option from the **Authentication Method** drop-down: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to a network administrator's direction.
3. Do one of the following:
    - If **EAP-TLS Certificate** was selected: Select **Manage Certificates** from the **Action** menu to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by a network administrator along with a certificate password.

- If **EAP-MSCHAP V2 Password** was selected: Enter a username and password supplied by a network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only credentials.

4. If required, enter the domain name of the network in the **Domain** field.
5. Set the **Disable Trust List Verification** toggle to the left to enable the **Select Trusted Certificate Authoritie(s)** list or set it to the right to disable the list.

   The **Select Trusted Certificate Authoritie(s)** list contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-BTIO-100-1G. Select the check box next to each CA whose certificate can be used for server validation, as specified by a network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu.
6. Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

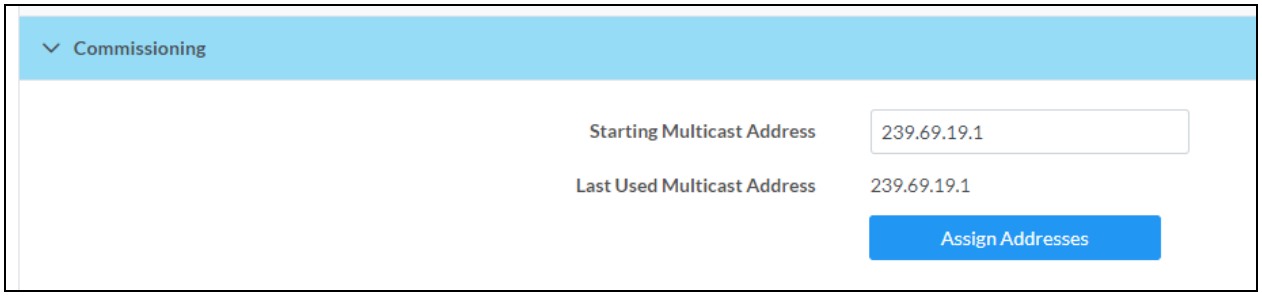
   When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

   > **NOTE:** This setting is repeated in the **TLS Configuration** accordion at the bottom of the **Settings** tab.

Once the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** from the **Action** menu to cancel any changes.

Commissioning

The **Commissioning** section provides a quick way to automatically assign multicast addresses to the device's internal audio-over-IP stream transmitters.



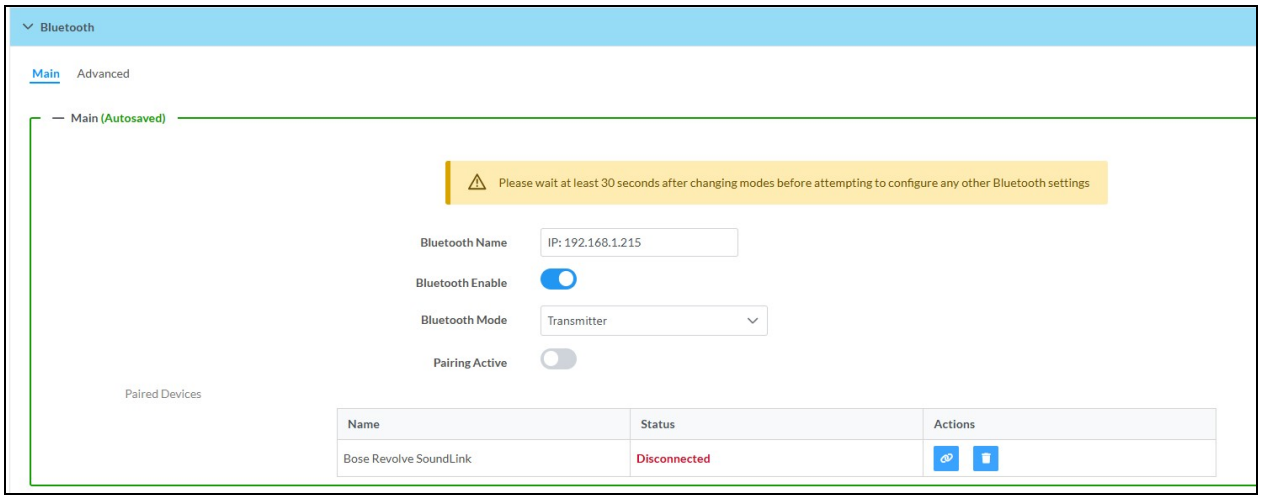
Select **Assign Addresses** to give each DM NAX transmitter in the DM-NAX-BTIO-100-1G a unique multicast address beginning with the specified **Starting Multicast Address**. The valid range for **Starting Multicast Address** is 239.8.0.0 to 239.127.255.254.

> **NOTE:** This will begin transmitting multicast traffic on your network. Refer to Audio-over-IP Network Design on page 785 for details on proper audio-over-IP network management.

Bluetooth

The **Bluetooth** section provides settings for the internal Bluetooth radio of the DM-NAX-BTIO-100-1G. These settings are divided up into two tabs, labeled **Main** and **Advanced**.

Main Bluetooth Settings



To configure the settings in the **Main** tab of the Bluetooth settings section:

- Enter a custom name for the DM-NAX-BTIO-100-1G in the **Bluetooth Name** text field. This is the name that will be displayed on source devices (such as smartphones) that discover the DM-NAX-BTIO-100-1G as a receiving device. Most sink devices (such as headphones) will read this name out once the DM-NAX-BTIO-100-1G successfully pairs.

  > **TIP:** Set the **Bluetooth Name** before connecting devices to simplify the discovery process. Changing the name after devices are connected will temporarily disconnect them from the DM-NAX-BTIO-100-1G.

- Set the **Bluetooth Enable** toggle to the right to allow Bluetooth wireless audio casting to or from the DM-NAX-BTIO-100-1G. Set the **Bluetooth Enable** toggle to the left to disable Bluetooth wireless audio.

  > **NOTE:** While Bluetooth audio is disabled on the device, some applications that scan for Bluetooth devices may still be able to detect the DM-NAX-BTIO-100-1G. These applications will not be able to connect to the DM-NAX-BTIO-100-1G or cast audio to it while Bluetooth audio is disabled.

- Set the **Pairing Active** toggle to the right position to enable pairing mode, allowing Bluetooth devices to pair to the DM-NAX-BTIO-100-1G. Set the **Pairing Active** toggle to the left to disable pairing mode.
- Select **Receiver** or **Transmitter** from the **Bluetooth Mode** drop-down to determine whether the DM-NAX-BTIO-100-1G will operate as a Bluetooth wireless audio receiver or transmitter:
  - In **Receiver** mode, the DM-NAX-BTIO-100-1G can receive wireless stereo audio signals from Bluetooth enabled source devices such as smart phones or laptops.
  - In **Transmitter** mode, the DM-NAX-BTIO-100-1G can transmit a wireless stereo audio signal to a Bluetooth enabled sink device such as a speaker or a pair of headphones.

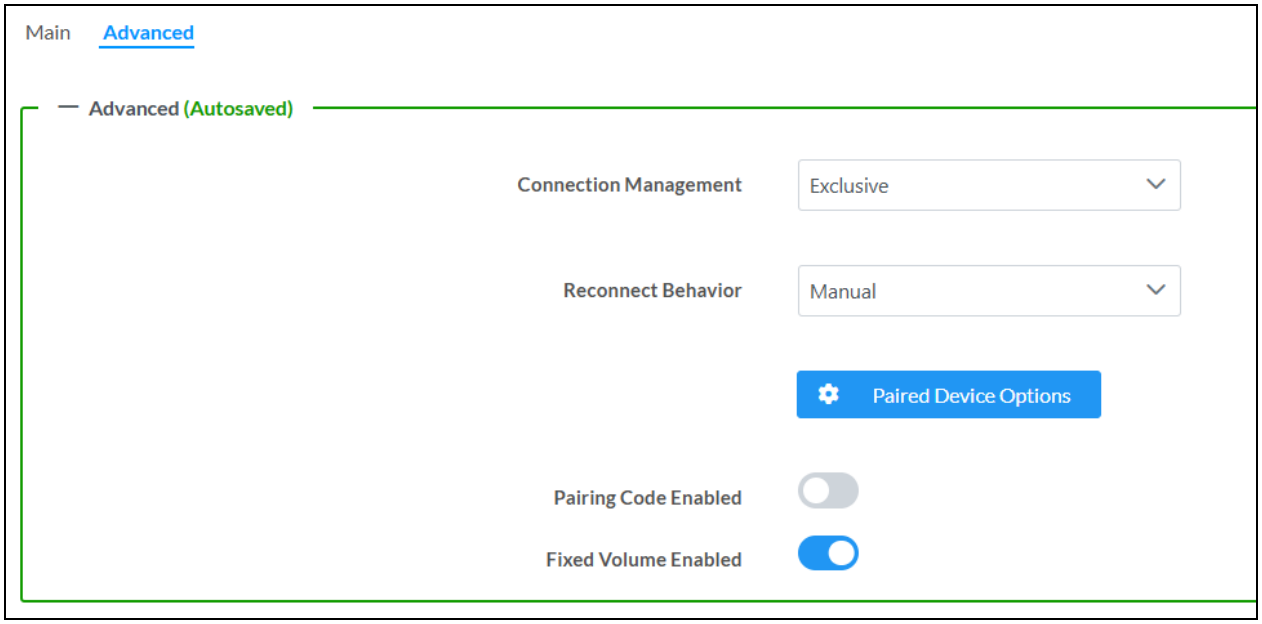
- The **Paired Devices** table displays the name and status of all remembered Bluetooth devices that were previously paired with the DM-NAX-BTIO-100-1G.
    - In **Receiver** mode, the DM-NAX-BTIO-100-1G can remember up to seven previously paired devices. In **Transmitter** mode, only one device can be paired to the DM-NAX-BTIO-100-1G.
    - Only one paired Bluetooth device can have a **Connected** status at a time. All other paired devices will display a **Disconnected** status. The **Connected** status indicates which device is currently able to actively cast media to the wall plate.
    - To disconnect a connected device, select the disconnect icon . Disconnected devices can be reconnected by selecting the connect icon .
    - To delete a remembered device from the **Paired Devices** table, select the trashcan icon . Deleted devices must be paired with the DM-NAX-BTIO-100-1G again in order to reconnect.

Advanced Bluetooth Settings

The **Advanced** tab under the **Bluetooth** accordion will vary depending on whether the device is in **Receiver** or **Transmitter** mode:

- Advanced Bluetooth Settings - Receiver Mode on page 715
- Advanced Bluetooth Settings - Transmitter Mode on page 717

Advanced Bluetooth Settings - Receiver Mode



To configure the settings on the **Advanced** tab of the Bluetooth settings section:

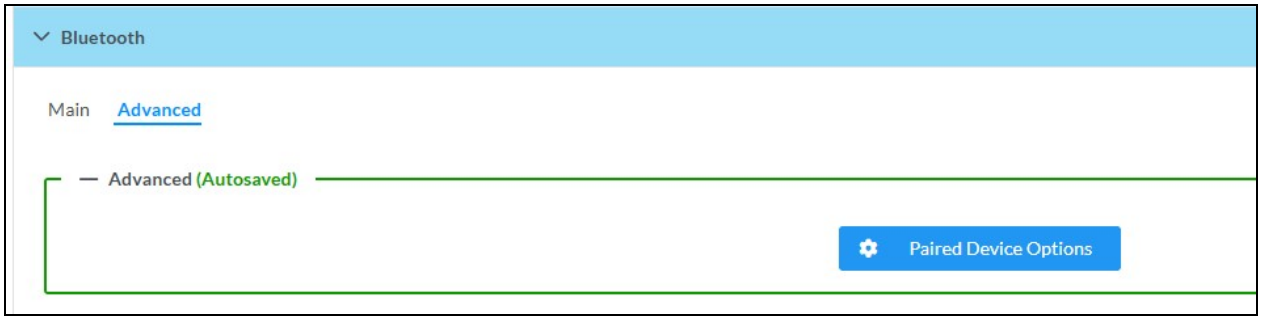
- Select a **Connection Management** option from the drop-down. **Exclusive** mode is selected by default.
    - In **Interrupt** mode, remembered paired devices can reconnect to the DM-NAX-BTIO-100-1G from their Bluetooth connections list, and will interrupt any currently playing audio. The most recent casting device to select the DM-NAX-BTIO-100-1G from its Bluetooth list will show a **Connected** status in the **Paired Devices** table, and all other devices will revert to **Disconnected**.
    - In **Exclusive** mode, remembered paired devices cannot be reconnected to the DM-NAX-BTIO-100-1G from their Bluetooth connections list until the currently **Connected** device is disconnected. The device that is listed as **Connected** in the **Paired Devices** table will remain connected until it is disconnected by programming, from the web interface, or by the casting device itself.
    - **Temporary** mode is the same as **Exclusive** mode, with the added behavior that the DM-NAX-BTIO-100-1G will forget the currently connected device once it is disconnected.
- Select a **Reconnect Behavior** option from the drop-down. **Manual** is selected by default.
    - **Manual** indicates that any time the Bluetooth casting device is disconnected from the DM-NAX-BTIO-100-1G, it can only be reconnected by selecting the casting device from the DM NAX device's list of paired devices. This is the recommended setting for any system with multiple paired transmitting devices or multiple DM-NAX-BTIO-100-1G devices within range of each other.
    - **Automatic** indicates that any remembered paired Bluetooth casting device will reconnect to the DM-NAX-BTIO-100-1G when it is within the wireless range of the DM NAX device.
- Select **Paired Device Options** to open a **Paired Device Options** window. Select a command from the drop-down, then select **Send** to issue the command to the DM NAX device.
    - **Disconnect All Paired Devices**: Disconnects all currently paired devices from the DM-NAX-BTIO-100-1G.
    - **Disconnect Inactive Paired Devices**: Disconnects any paired device that is not actively playing any media.
    - **Delete All Paired Devices**: Deletes all currently paired devices from the **Paired Devices** table of the DM-NAX-BTIO-100-1G.
    - **Delete Inactive Paired Devices**: Deletes any paired device that is not actively playing any media.
    - **Deleted Connected Devices**: Deletes only the current **Connected** device.
- Set the **Pairing Code Enabled** toggle to the right position to enable the pairing code feature. When this is enabled, a pairing code string will populate on both the casting device and the OLED display of the DM-NAX-BTIO-100-1G during pairing. Confirm that the code matches on each device to complete the pairing process. Set the toggle to the left to disable the pairing code feature. The pairing code feature is disabled by default.

- Set the **Fixed Volume Enabled** toggle to the right to keep the Bluetooth input at a fixed volume level regardless of user input from the wallplate front panel or a paired device.

  > **NOTE:** With this enabled, the only volume control for the Bluetooth input is the vertical slider in the **Inputs** section.

  Set the toggle to the left to allow user input to change the volume level from the wallplate or paired device.

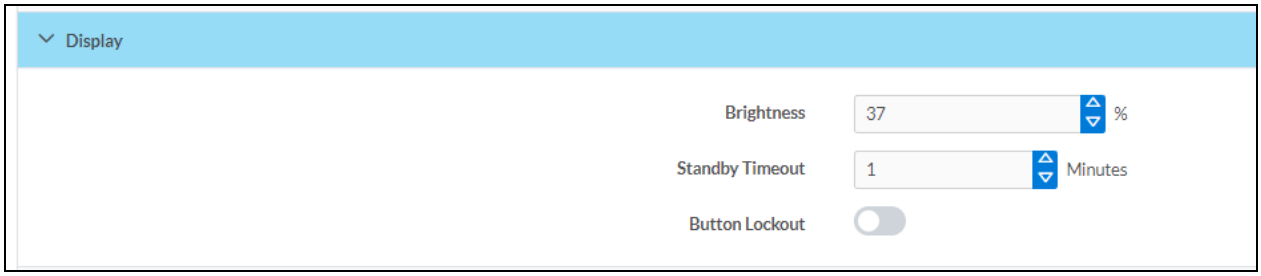
Advanced Bluetooth Settings - Transmitter Mode



While in **Transmitter** mode, the **Advanced** tab of the Bluetooth settings section contains a button labeled **Paired Device Options**. Select the button to open a **Paired Device Options** window. Select a command from the drop-down, then select **Send** to issue the command to the DM NAX device.

- **Disconnect All Paired Devices**: Disconnects all currently paired devices from the DM-NAX-BTIO-100-1G.
- **Disconnect Inactive Paired Devices**: Disconnects any paired device that is not actively playing any media.
- **Delete All Paired Devices**: Deletes all currently paired devices from the **Paired Devices** table of the DM-NAX-BTIO-100-1G.
- **Delete Inactive Paired Devices**: Disconnects and forgets any paired device that is not actively playing any media.
- **Delete Connected Devices**: Disconnects and forgets only the current **Connected** device.

Display

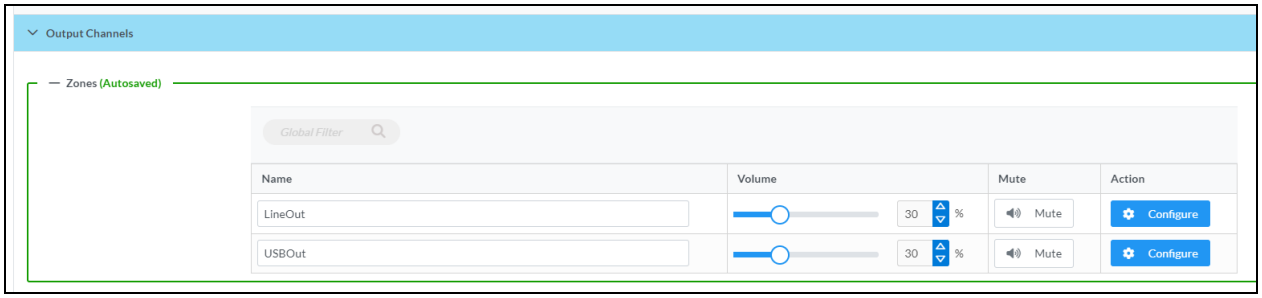


The **Display** section contains settings that affect the front panel OLED display of the DM-NAX-BTIO-100-1G.

- To adjust the display brightness:
  - Use the **%** arrows to increase or decrease the brightness. Values range from 0 to 100%, adjustable in increments of 1%.
  - Manually enter a percentage value in the **Brightness** text field.
- To adjust the display standby timeout:
  - Use the **Minutes** arrows to increase or decrease the brightness. The default timeout value is one minute.
  - Manually enter a value in the **Standby Timeout** text field.
- Set the **Button Lockout** toggle to the right to lock out the front panel buttons on the DM-NAX-BTIO-100-1G. Set the **Button Lockout** toggle to the left to disable the lockout.

Zones

The **Zones** section contains the **Volume** and **Mute** settings for all zone outputs of the device, as well as a Configure option for more advanced settings within each zone.



Give each zone a friendly name using the **Name** column of the **Zones** table. If the device is paired with a control system, these names may be overwritten by the control system's program.

To configure the zone volume, do one of the following:

- Move the **Volume** slider to the right to increase or to the left to decrease the zone volume.
- Use the **%** arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in increments of 1%.
- Manually enter a value in the **Volume** field.

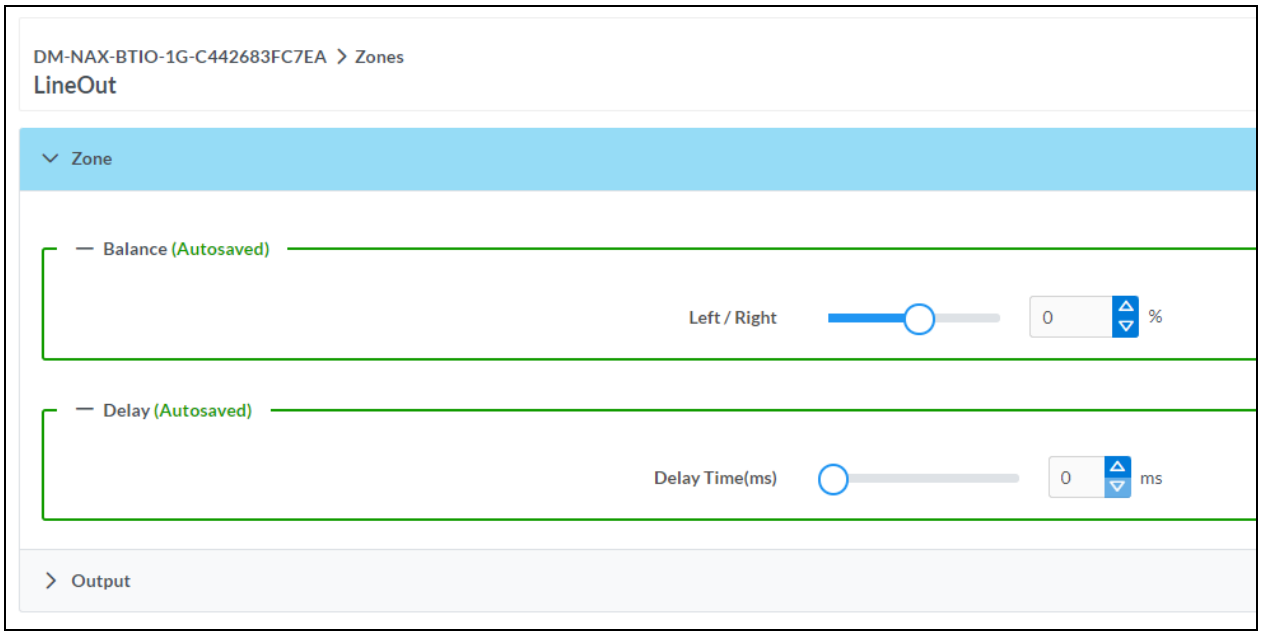
To mute all audio output from a zone, select its respective **Mute**. To unmute the zone, select **Muted**.

Zone Settings

To configure zone settings, select **Configure** (Configure). The **Edit Zone** window is displayed.

Zone

Select **Zone** to access the settings for **Balance** and **Delay**.



Balance

To adjust the left/right balance of the stereo output signal, do one of the following:

- Move the **Balance** slider to the right to shift the stereo balance to the right channel or to the left to shift the balance to the left.
- Use the arrows to adjust the balance left or right. The up arrow shifts the balance to the right while the down arrow shifts the balance to the left.
- Manually enter a value in the **Balance** field. Values range from -50 to 50, adjustable in increments of 1. Positive values shift the balance to the right while negative values shift the balance to the left.

Delay (Line Output Only)

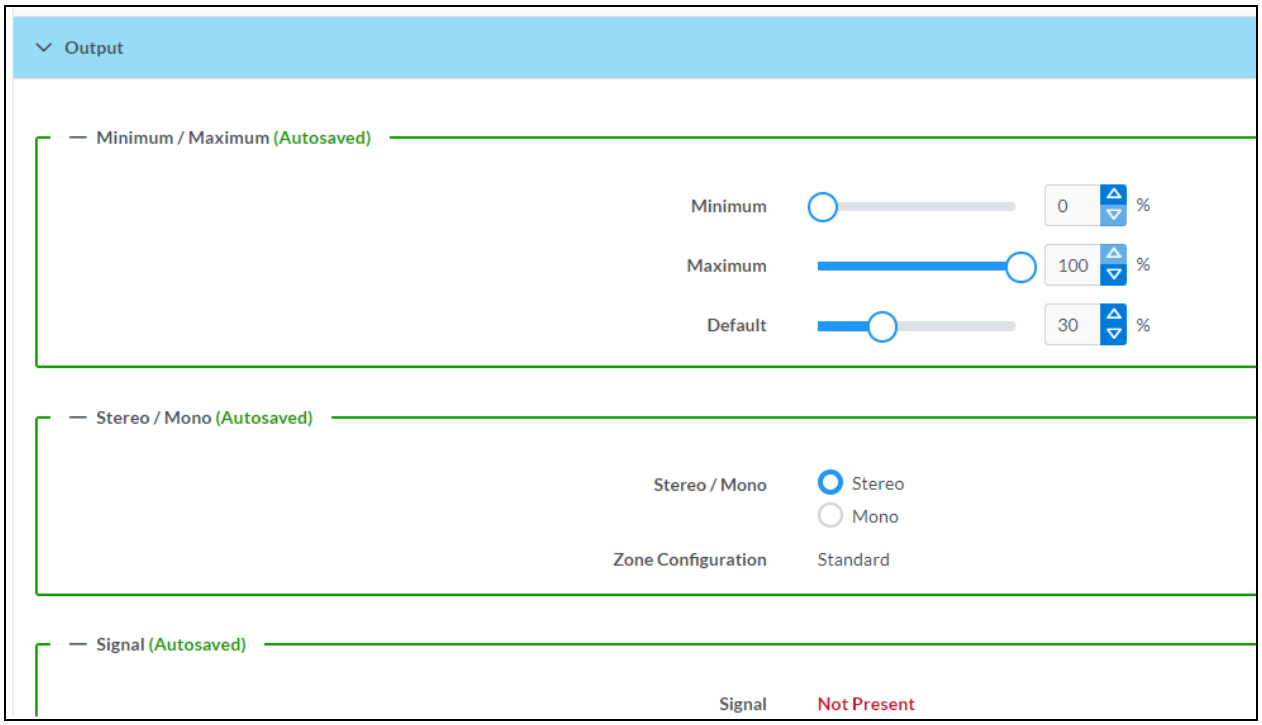
To set the delay, do one of the following:

- Move the **Delay Time(ms)** slider to the right to increase or to the left to decrease the delay time.
- Use the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 85 ms, adjustable in increments of 1 ms.
- Manually enter a value in the **Delay Time(ms)** field.

> **NOTE:** The delay feature is only available on the line level output channels.

Output

Select **Output** to access the settings for **Minimum/Maximum Volume**, **Stereo/Mono**, and **Signal**.



Minimum/Maximum Volume



1. To set the minimum volume of the zone, do one of the following:
    - Move the **Minimum** slider to the right to increase or to the left to decrease the minimum volume.
    - Use the **%** arrows to increase or decrease the minimum volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Minimum** field.

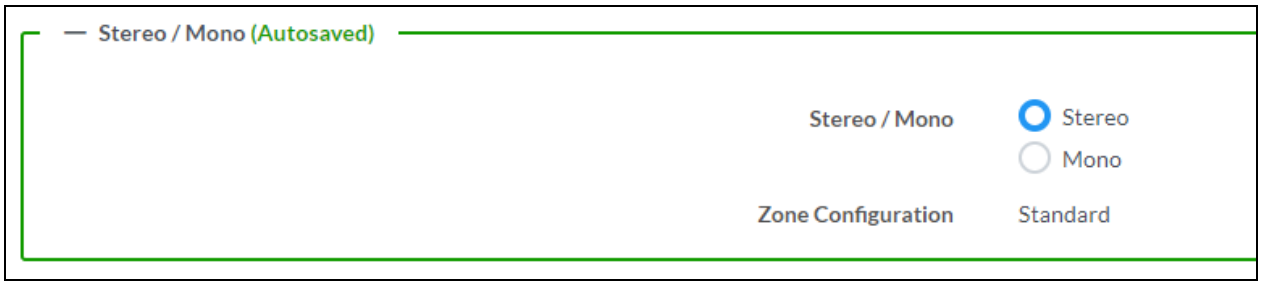
2. To set the maximum volume of the zone, do one of the following:
    - Move the **Maximum** slider to the right to increase or to the left to decrease the maximum volume.
    - Use the **%** arrows to increase or decrease the maximum volume. Values range from 70 to 100%, adjustable in increments of 1%.
    - Manually enter a value in the **Maximum** field.

> **NOTE:** When a **Minimum** and **Maximum** volume are set, the 1-100% range represented by the **Zone** and **Default** volume controls are scaled to the range set. For example, if a **Minimum** of 10% and a **Maximum** of 80% are set for a zone, the 1-100% range of the **Zone** volume control is scaled to the 10%-80% range set as the **Minimum** and **Maximum**.

3. To set the default volume of the zone, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Use the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in increments of 1%.
    - Manually enter a value in the **Default** field.

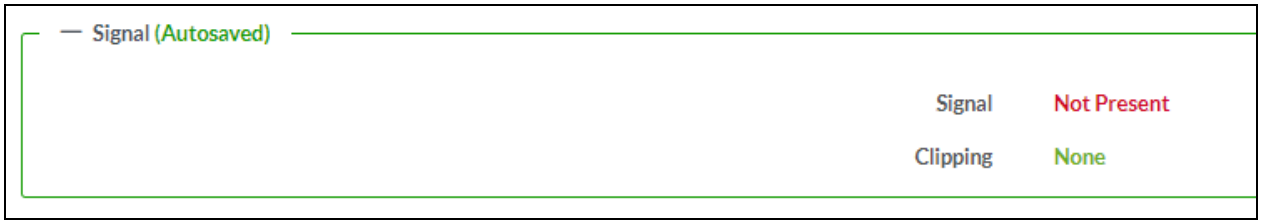
> **NOTE:** The **Default** volume is applied as the **Zone** volume any time the zone receives a source route and no source was previously routed to that zone.

Stereo/Mono



Select either **Stereo** or **Mono**. If **Stereo** is selected, both output channels can have independent audio content. If **Mono** is selected, both output channels receive the same audio content.

Signal

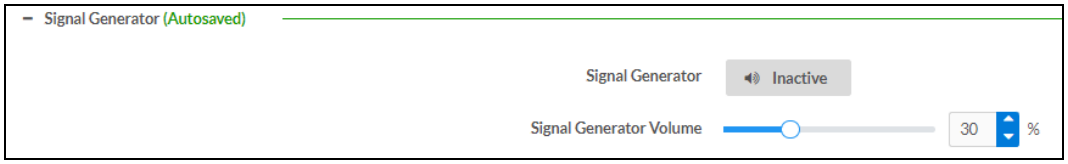


The **Signal** section is a read-only field that displays the **Signal** and **Clipping** status of the zone output.

- If an output signal is present but not clipping, **Signal** will display **Present** in green and **Clipping** will display **None** in green.
- If an output signal is present and clipping, **Signal** will display **Present** in green and **Clipping** will display **Present** in red.
- If no output signal is detected, **Signal** will display **Not Present** in red and **Clipping** will display **None** in green.

Select **Done** to return to the **Settings** tab of the web interface.

Signal Generator



The DM-NAX-BTIO-100-1G has a built-in signal generator that allows an integrator to send an audio signal to the output to test functionality.

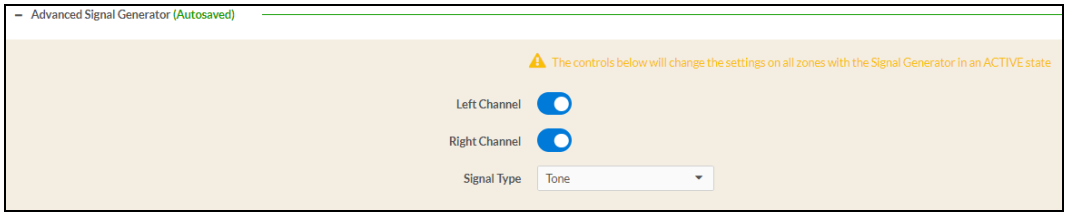
1. To route the signal generator to the zone output, select **Signal Generator** so that it displays **Active** and is highlighted in blue. To unroute the signal generator on the zone output, select **Signal Generator** so that it displays **Inactive** and is highlighted in grey. By default, the signal generator is not routed to the zone output.

   NOTES:

   - There is only one signal generator built-in to the DM NAX device. Each zone has its own button to enable or disable the signal generator from passing signal to that output. Setting the signal generator to **Inactive** on a given zone output only breaks the route for that output and does not stop it from playing back in other zones.
   - The **Signal Generator Volume** control is a local control that does not affect the signal generator's volume on the other zone output. Only the settings under **Advanced Signal Generator** are applied to both zones of the DM NAX device.

2. To adjust the signal generator's volume, do one of the following:
   - Move the **Signal Generator Volume** slider right to increase or left to decrease the volume.
   - Use the arrows to increase or decrease the signal generator volume. Values range from 0 to 100, adjustable in increments of 1.
   - Manually enter a value in the **Signal Generator Volume** field.

Advanced Signal Generator

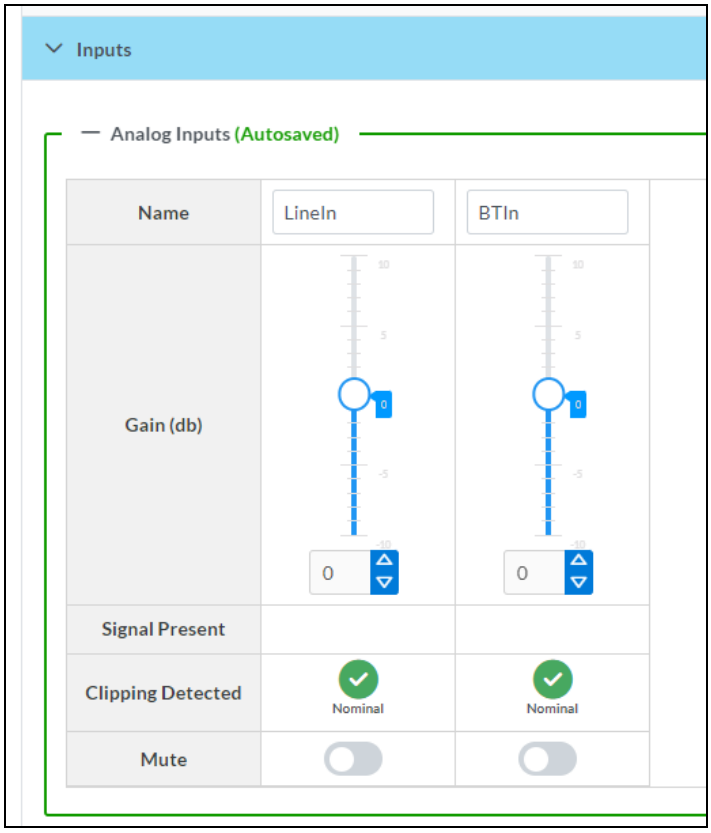


The advanced signal generator settings control the built-in signal generator directly, and are applied to both zones of the DM NAX device. The signal type for the generator can be set, and the left and right channels of the test signal can be individually enabled or disabled.

1. Set the **Left Channel** toggle to the right position to enable the left channel of the signal. Set the toggle to the left position to disable the left channel. By default, **Left Channel** is enabled.
2. Set the **Right Channel** toggle to the right position to enable the right channel of the signal. Set the toggle to the left position to disable the right channel. By default, **Right Channel** is enabled.
3. Select an audio test signal type from the **Signal Type** drop-down. The available signal types are:
    - **Tone**: Generates a 1 kHz sine wave tone.
    - **Pink Noise**: Generates pink noise.
    - **White Noise**: Generates white noise.

Inputs

The **Inputs** section is used to configure the **Name**, **Compensation**, and **Mute** attributes of the available analog, digital, and media streaming inputs on the DM-NAX-BTIO-100-1G.



Configure Inputs

1. If needed, enter a friendly name for each input in its **Name** field.
2. To set a level compensation adjustment for a given input, do one of the following:
    - Move the **Compensation** slider up to increase or down to decrease the level compensation. Compensation increases or decreases the level of the incoming audio signal on any of the physical inputs on the device's rear panel.
    - Use the **db** arrows to increase or decrease the compensation. Values range from -10 dB to 10 dB, adjustable in increments of 1 dB.
    - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, set the **Mute** toggle to the right. To disable the mute, set the **Mute** toggle to the left. By default, **Mute** is disabled.

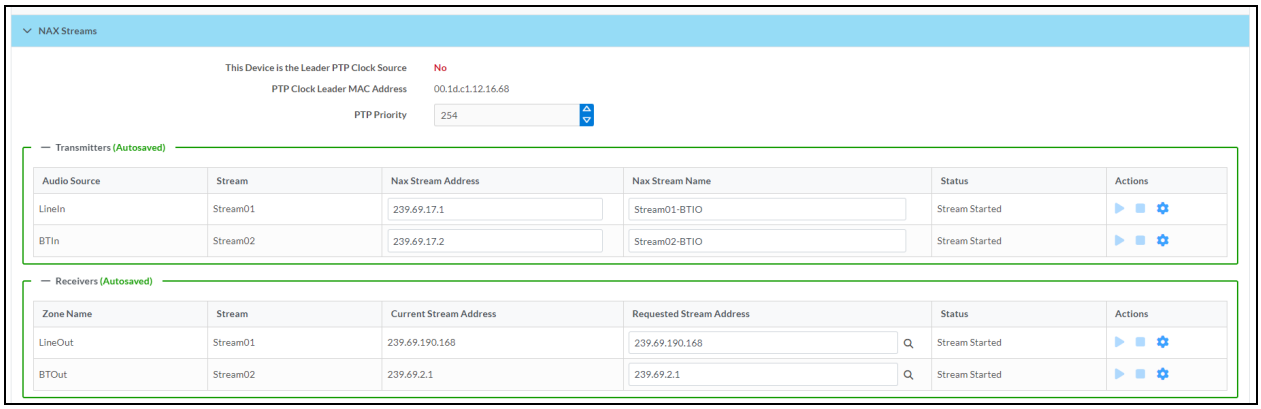
Monitor the device's input signals using the text indicators in the **Signal Present** and **Clipping Detected** columns:

- **Signal Presence** indicates whether or not a signal is detected in that zone.
- **Clipping Detected** indicates if the signal is **Clipping** or **Nominal** (non-clipping).

NAX Streams

The two local inputs of the DM-NAX-BTIO-100-1G can be made available as DM NAX audio-over-IP streams.

Select **NAX Streams** to expand the tab and display the following information.

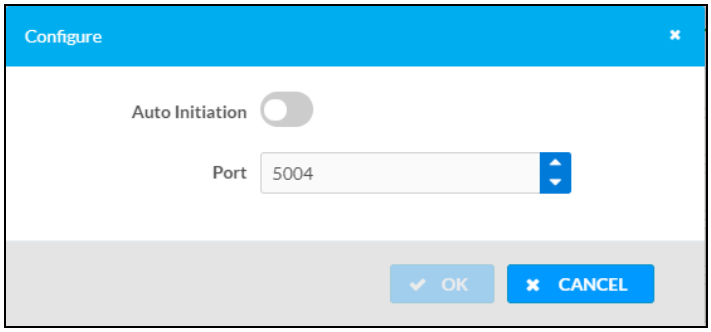


- **Device is Leader PTP Clock Source** indicates whether the device is the leader for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-BTIO-100-1G is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that acts as the Leader Clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-BTIO-100-1G will only operate as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

To configure a DM NAX transmit stream:

1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, like a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

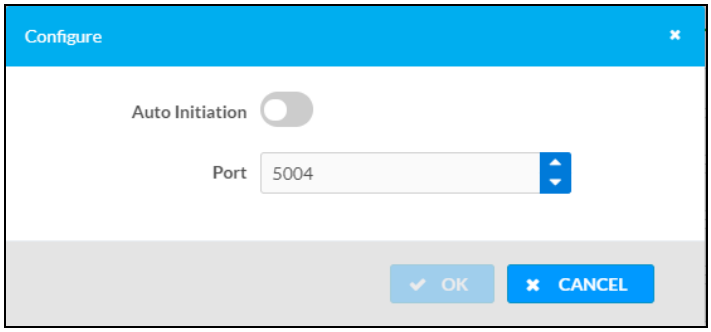


5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.

2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

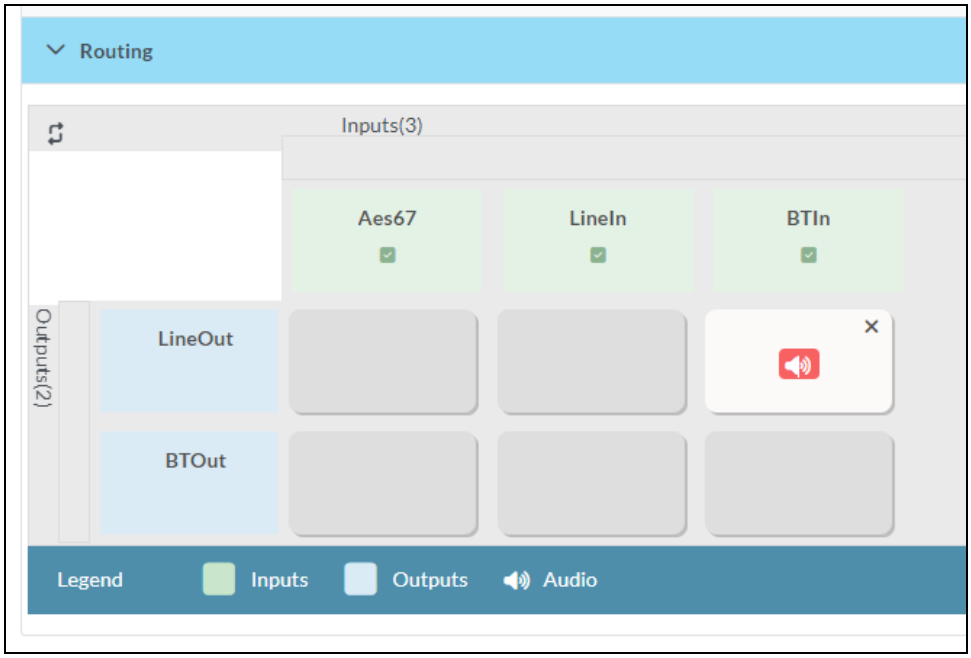


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.
4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number by increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Routing

The **Routing** section is used to route a local input or AES67 stream to a zone on the DM-NAX-BTIO-100-1G.

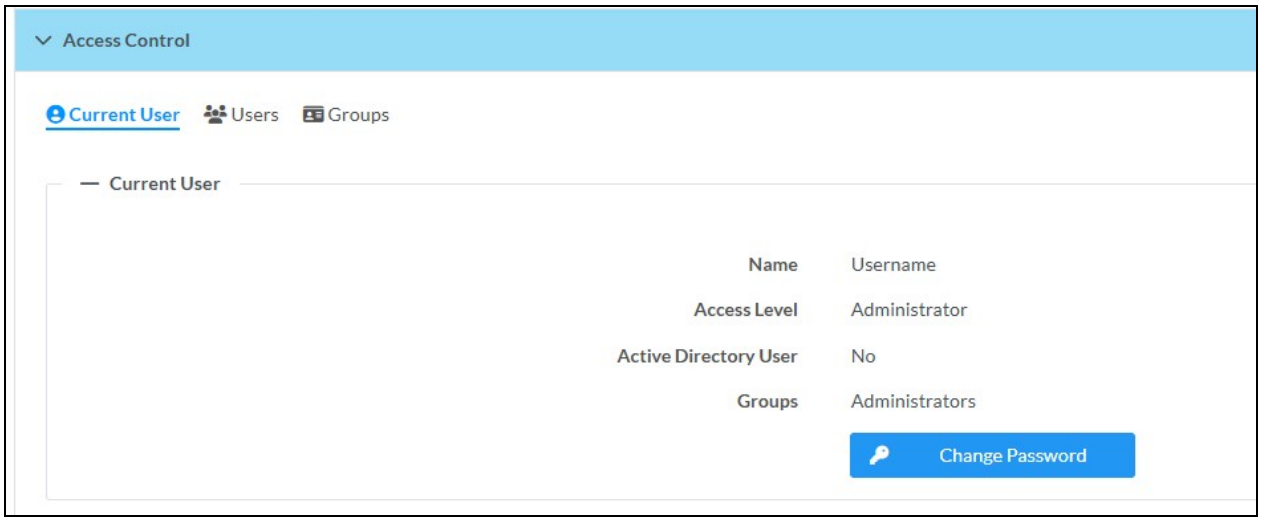
> **NOTE:** To receive an AES67 stream from a Dante device, refer to Knowledge Article 1001151.



- To route an input to a zone, select the box in the routing matrix where the zone's row overlaps the corresponding input's column. Once a route is made, a speaker icon is displayed.
- To break a given route select the speaker icon or the **x** at the top right of the box.
- To route a single input to all zones, select the checkbox icon under the input's name.

Access Control

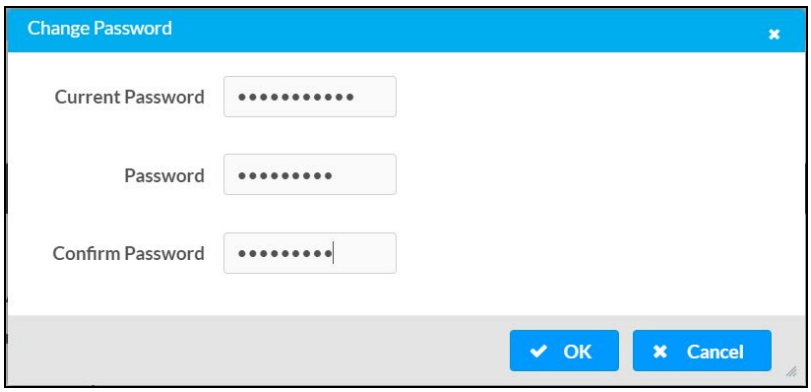
Select the **Access Control** accordion to configure security settings for users and groups, and to allow different levels of access to the DM-NAX-BTIO-100-1G functions.



Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.

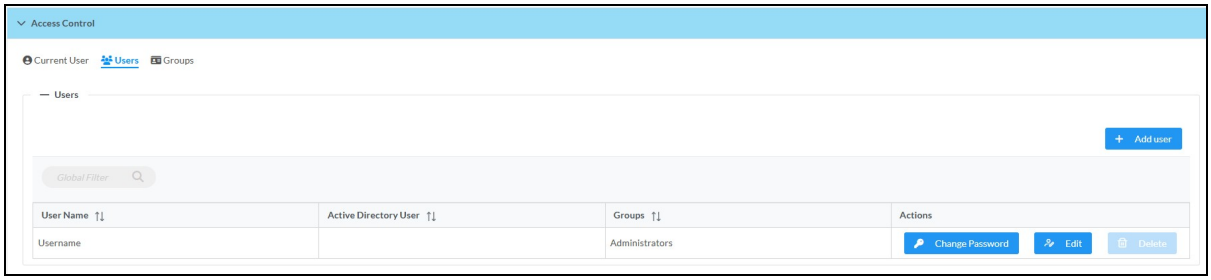
1. Select **Change Password** to create a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format, with the following details provided for each user:

- **Username**: Displays the name of the user.
- **Active Directory User**: Displays whether the user requires authentication using Active Directory.
- **Groups:** Displays any groups the user has been added to.

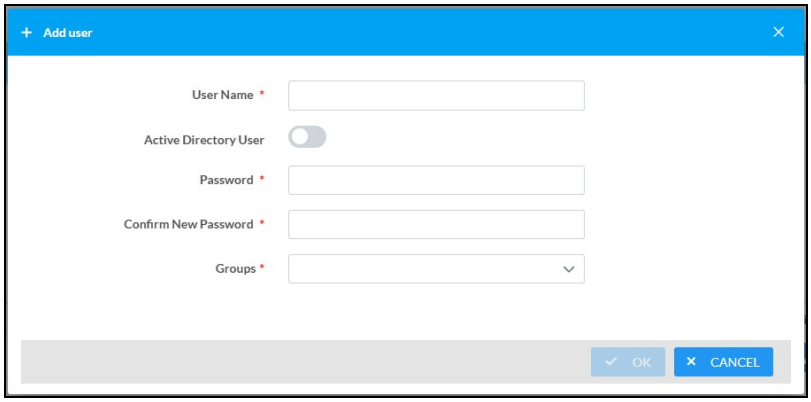
Select the corresponding icon in the **Actions** column to change a given user's password, edit their account information, or delete their account.

To create a new user, select **Add user**.

Create a New Local User

To create a new local user account for the DM-NAX-BTIO-100-1G:

1. Select **Add user** in the **Users** tab.
2. In the **Add user** dialog, enter the following:



a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

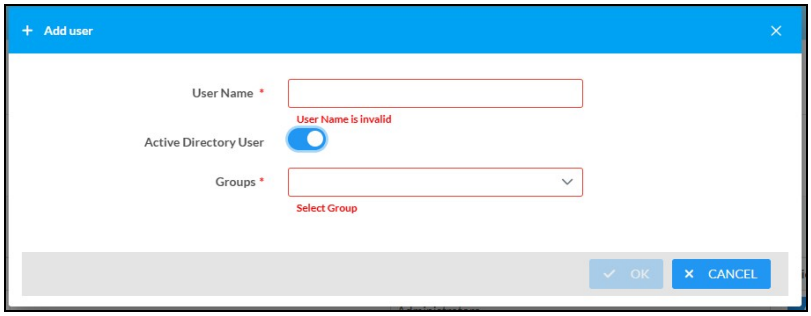
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-BTIO-100-1G, or add the Active Directory group(s) that they are a member of to the DM-NAX-BTIO-100-1G.

To add an Active Directory user.

1. Select **Add User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

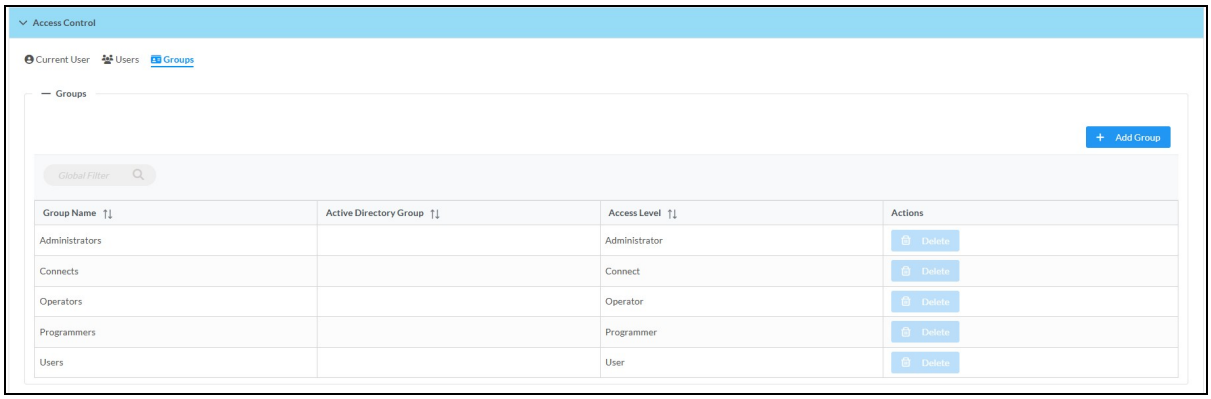
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

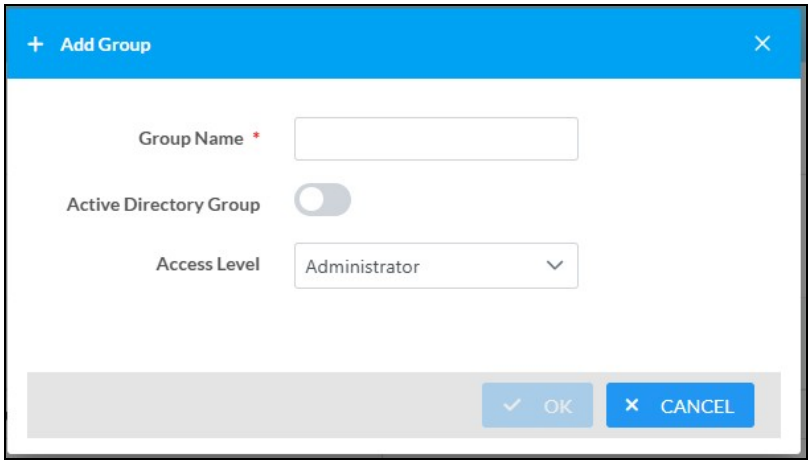
Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **Active Directory Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (**Administrator**, **Programmer**, **Operator**, **User**, or **Connect**).

Select **Add Group** in the **Groups** tab to create new group.

Create Local Group



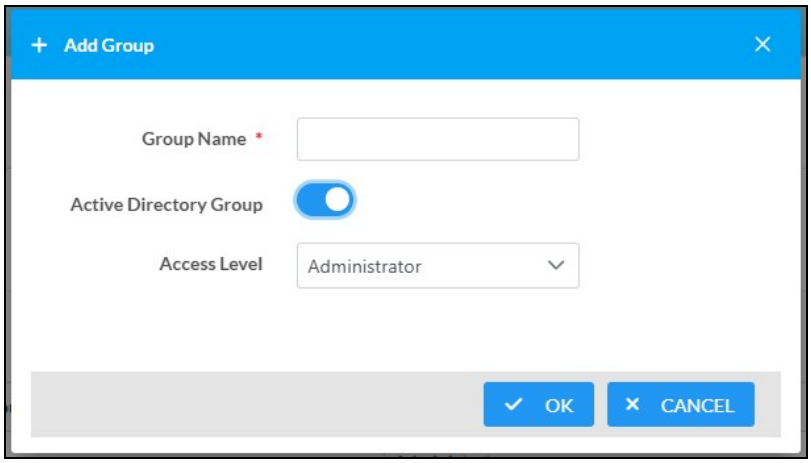
1. Select **Add group**.
2. In the **Add group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-BTIO-100-1G.

1. Select **Add group**.
2. In the **Add group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

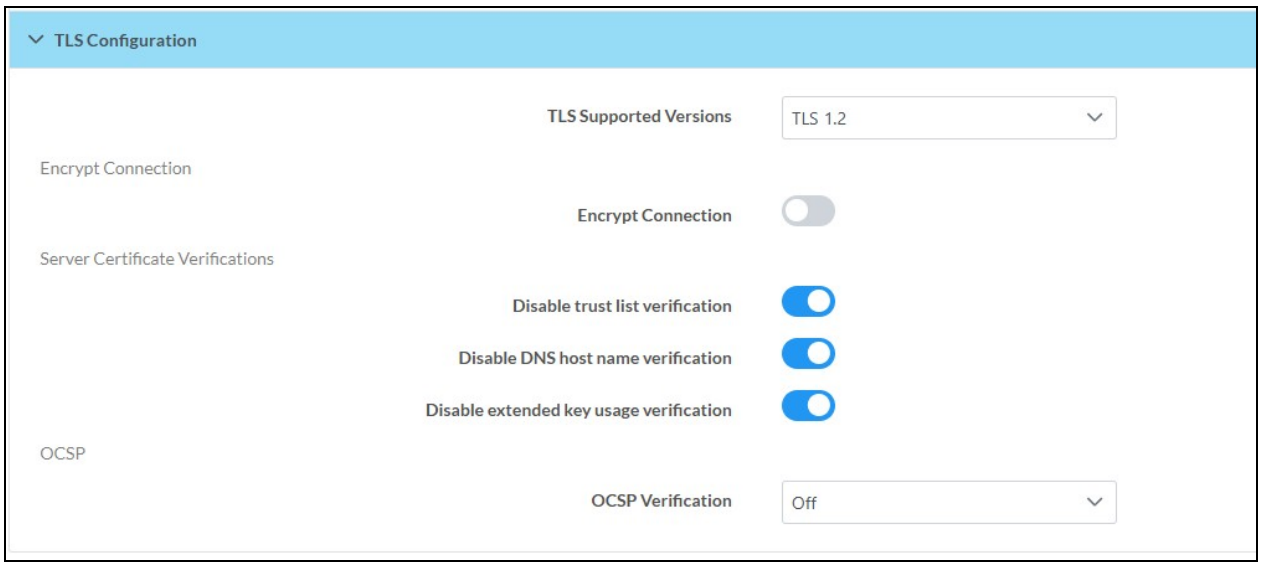
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

TLS Configuration

Select the **TLS Configuration** accordion to adjust Transport Layer Security (TLS) settings for the DM-NAX-BTIO-100-1G.



Configure the following TLS settings as required by the network administrator:

- Select a TLS version from the TLS Supported Versions drop-down from **TLS 1.2**, **TLS 1.2 & TLS 1.3**, and **TLS 1.3**.
- Set the **Encrypt Connection** toggle to the right to use TLS to encrypt the connection between the DM NAX device and a Crestron control system. Set the toggle to the left to keep this connection unencrypted.
- Set the **Disable trust list verification** toggle to the right to disable trust list verification. Set this toggle to the left to allow trust list verification.
- Set the **Disable DNS host name verification** toggle to the right to disable DNS host name verification. Set this toggle to the left to allow DNS host name verification.
- Set the **Disable extended key usage verification** toggle to the right to disable extended key usage verification. Set this toggle to the left to allow extended key usage verification.
- Select either **Off** (default) or **Use Remote Server** from the OSCP Verification drop-down as directed by a network administrator.

  When **Use Remote Server** is selected, additional status fields for **OSCP Required** and **OSCP Stapling Required** are displayed.

  > **NOTE:** This setting is repeated in the **802.1X** tab within the **System Setup** accordion at the top of the **Settings** tab.

Select **Save Changes** to save the new settings or select **Revert** from the **Action** menu to discard these changes.

DM-NAX-XSP

This section describes how to configure the DM-NAX-XSP.

Web Interface Configuration

The DM-NAX-XSP web interface allows you to view status information and configure network and device settings.

Access the Web Interface

To access the web interface, do either of the following:

- Access the Web Interface with a Web Browser on page 734
- Access the Web Interface With Crestron Toolbox™ Software on page 736

The web interface is accessed from a web browser. The following table lists operating systems and their corresponding supported web browsers.

Operating System and Supported Web Browsers

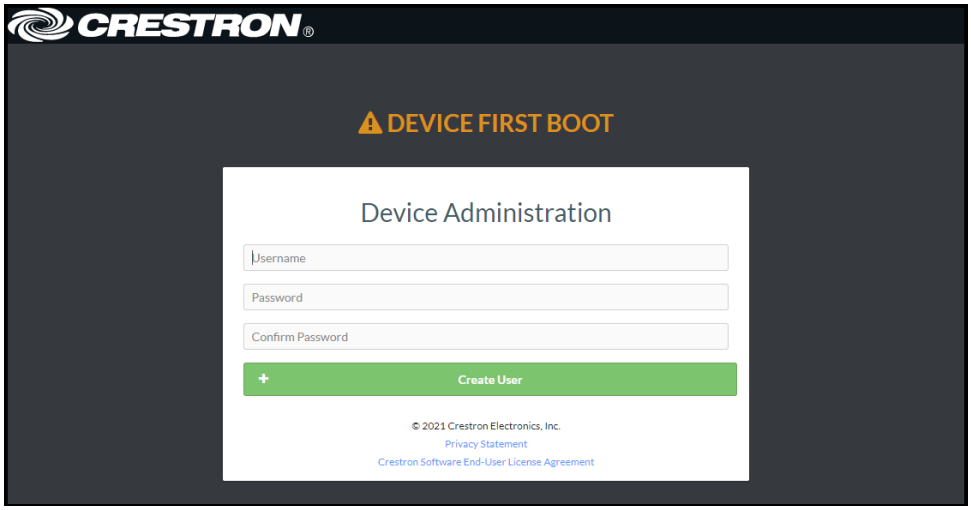
OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

Access the Web Interface with a Web Browser

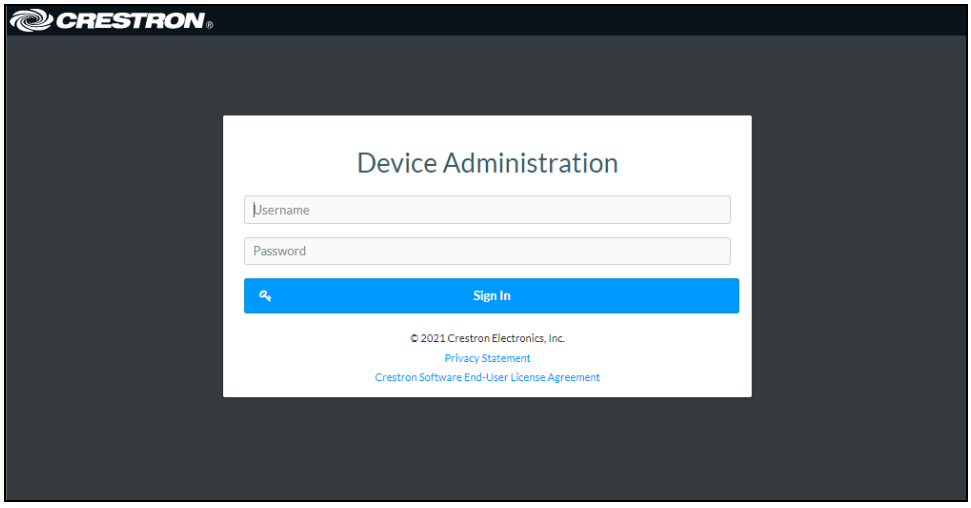
1. Enter the IP address of the DM-NAX-XSP into a web browser.

   > **NOTE:** To obtain the IP address, use the **Device Discovery Tool** in Crestron Toolbox™ software or an IP scanner application.

2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.
   a. Enter a username in the **Username** field.
   b. Enter a password in the **Password** field.
   c. Re-enter the same password in the **Confirm Password** field.



   d. Select **Create User**. The **Device Administration** page is displayed.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

Access the Web Interface With Crestron Toolbox™ Software

To access the web interface by opening a web browser within Crestron Toolbox™ software:

1. Open Crestron Toolbox software.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by selecting the Device Discovery Tool icon  in the Crestron Toolbox toolbar. The DM-NAX-XSP is discovered and listed in the device list on the left side of the screen. The associated host name, IP address, and firmware version are also displayed.

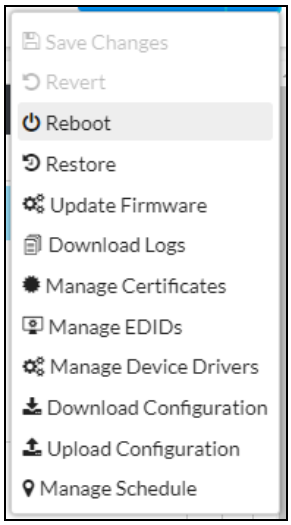
   > **NOTE:** If there is security software running on the computer, a security alert might be displayed when Crestron Toolbox software attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. In the Device Discovery Tool list, select the device.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

Action

The **Action** menu is displayed at the top right of the web interface and provides quick access to common device functions:

- Save Changes on page 737
- Revert on page 737
- Reboot on page 738
- Restore to Factory Default Settings on page 738
- Update Firmware on page 739
- Download Logs on page 739
- Manage Certificates on page 739
- Manage EDIDs on page 741
- Manage Device Drivers on page 743
- Download Configuration on page 746
- Upload Configuration on page 746
- Manage Schedule on page 748



Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

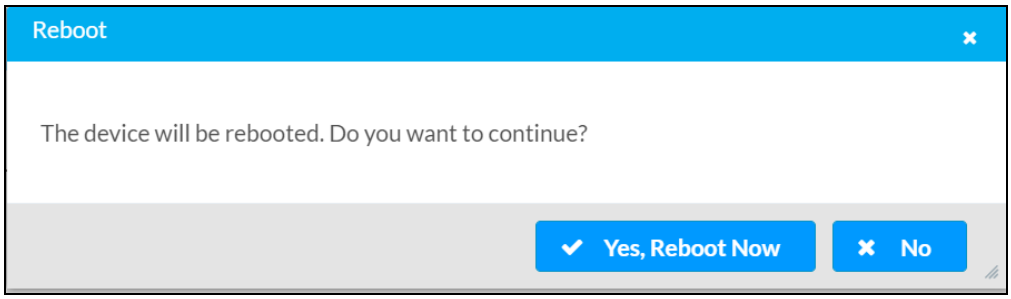
Revert

Select **Revert** to revert the device back to the last saved configuration settings.

Reboot

Certain changes to the settings may require the DM-NAX-XSP to be restarted to take effect. To restart the device:

1. Select **Reboot** in the **Action** menu. The **Confirmation** message box is displayed.



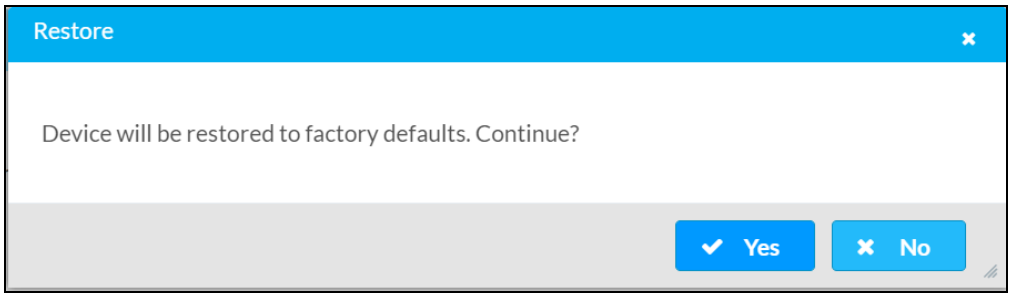
2. Select **Yes, Reboot Now** to restart the device. The **Reboot** message box is displayed. Wait for the device restart to complete before attempting to reconnect to the device.

Restore to Factory Default Settings

CAUTION: This procedure should only be performed to recover an unresponsive device. Performing the **Restore** procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before proceeding, please contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

1. Select **Restore** in the **Action** menu to restore the settings of the DM-NAX-XSP to factory defaults.

NOTE: When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



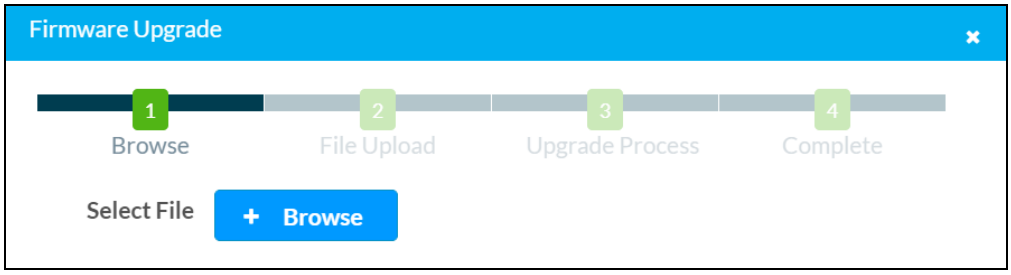
2. Select **Yes** in the **Confirmation** dialog to restore the DM-NAX-XSP to factory settings. Select **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the restore process was successful and that the device restarted.

You can also restore to factory settings by pressing and holding the **RESET** button on the rear panel of the device with power disconnected then connect the power supply and continue to hold **RESET** button for 30 seconds.

Update Firmware

1. Select **Update Firmware** in the **Action** menu.
2. In the **Firmware Upgrade** dialog, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Firmware Upgrade** dialog.
4. Select **Load** and wait for the progress bar to complete and for **OK** in the message to become selectable.
5. Select **OK**. The device with new firmware can now be accessed.

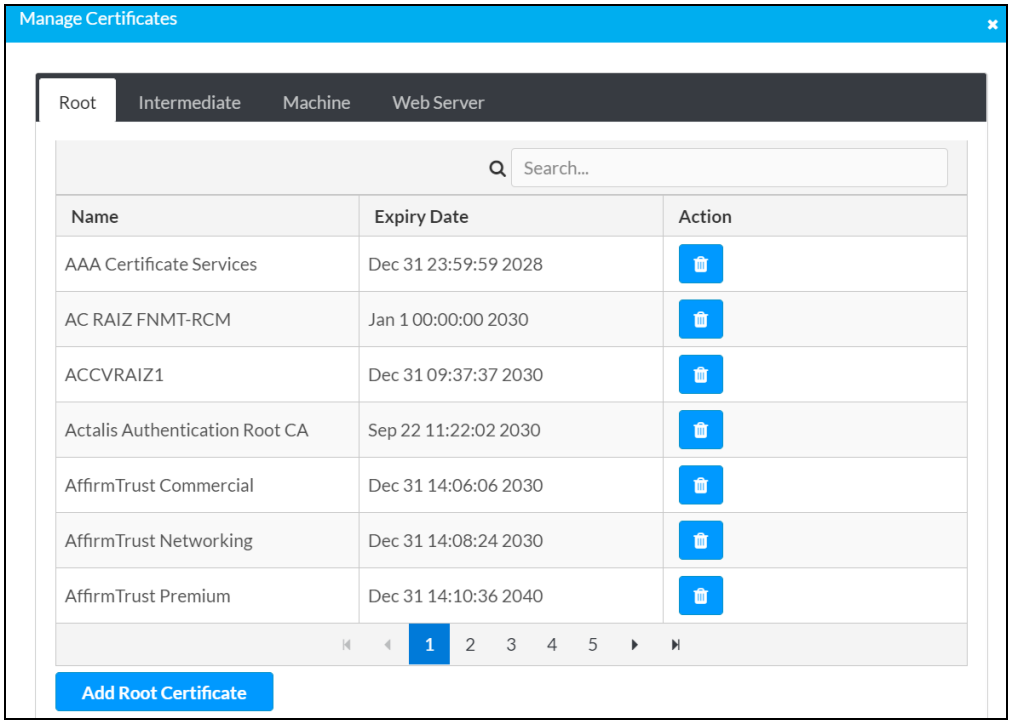
Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

Manage Certificates

Use the **Manage Certificates** window to add, remove, and manage certificates used in 802.1X and other protected networks.



Select **Manage Certificates** in the **Action** menu. The following certificate tabs are displayed:

- **Root**: The Root certificate is used by the DM-NAX-XSP to validate the network's authentication server. The DM-NAX-XSP has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate**: The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine**: The machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM-NAX-XSP. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1X, only one machine certificate can reside on the device.
- **Web Server**: The Web Server certificate is a digital file that contains information about the identity of the web server.

To Add Certificates

1. Select the corresponding certificate tab.
2. Select **Add Root Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

   > **NOTE:** If the certificate is a Machine Certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list box, displaying the file name and expiration date.

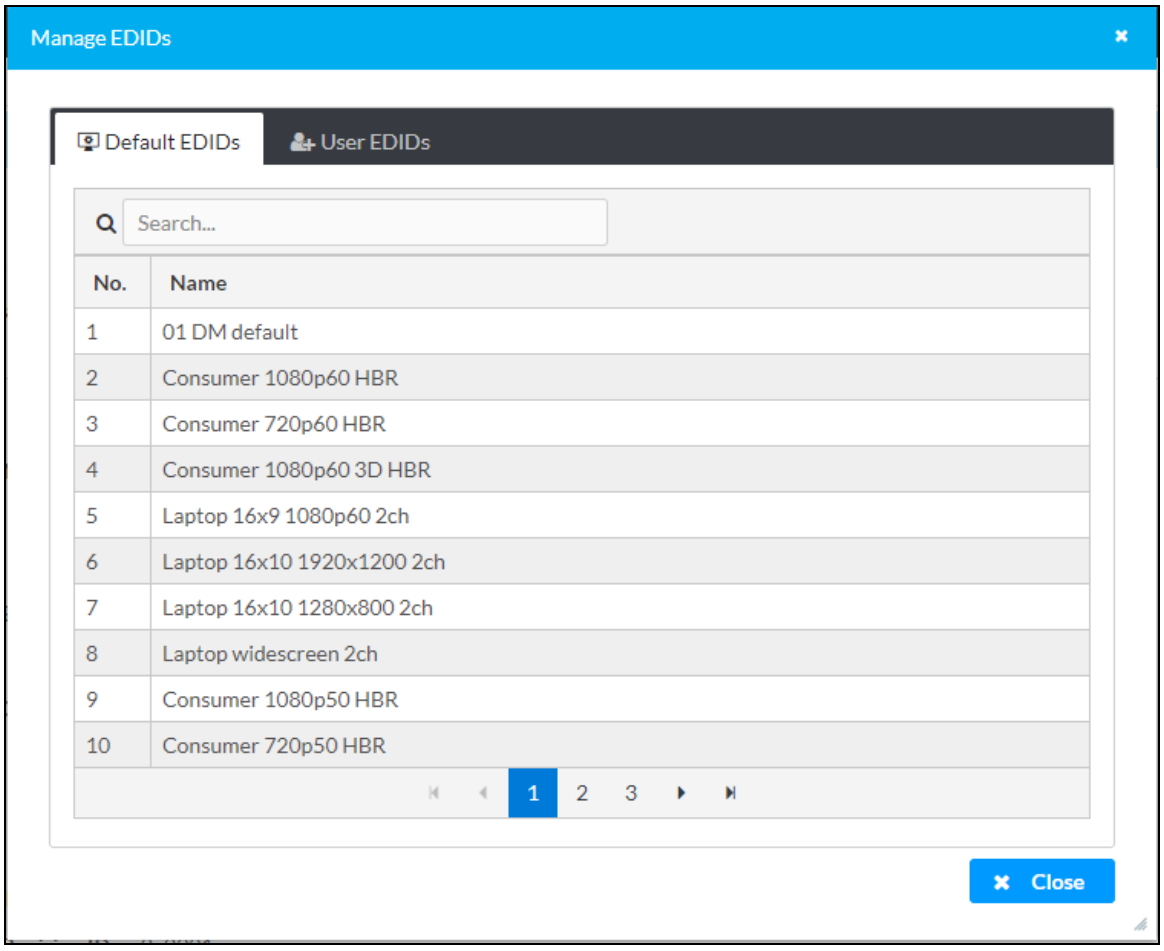
   The certificate is now available for selection and can be loaded to the device.

To Delete Certificates

1. Select the corresponding certificate tab.
2. Select the trashcan icon in the **Actions** column to delete the certificate.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Manage EDIDs

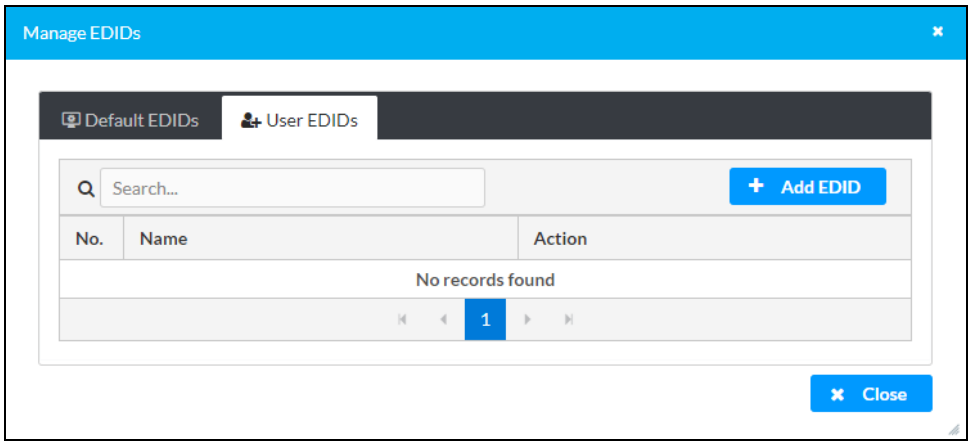
Use the **Manage EDIDs** window to add, remove, or browse which EDIDs are available for the HDMI input/output of the DM-NAX-XSP.



Select the **Manage EDIDs** entry in the **Action** menu. The **Manage EDIDs** window is displayed.

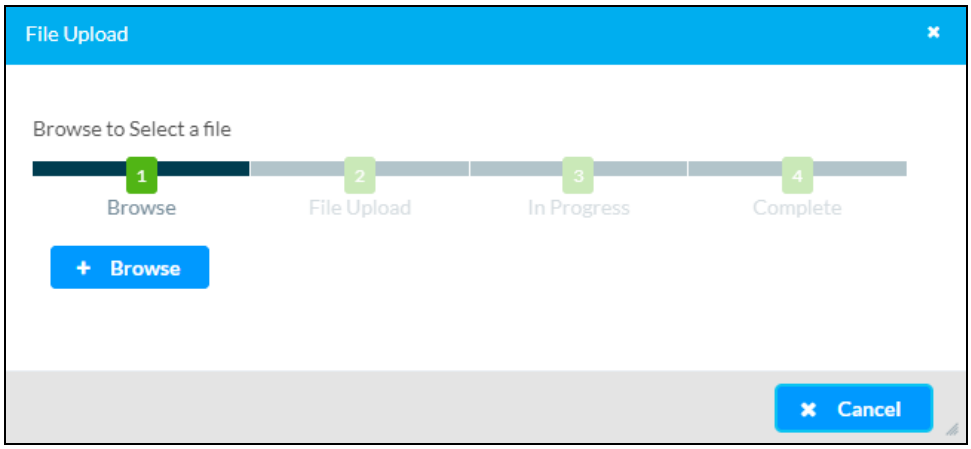
- The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM-NAX-XSP as part of the device firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.

- The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**. To add or remove custom EDID files:

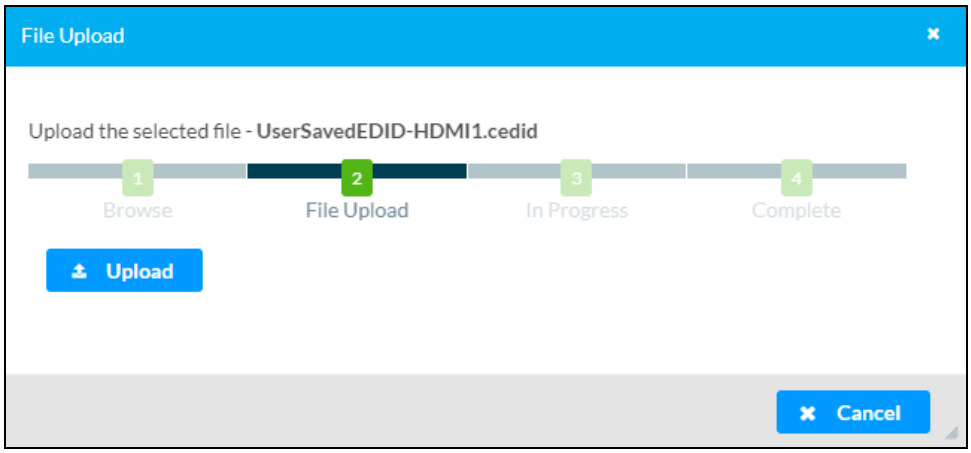


1. Select **Add EDID** at the top right of the table.
2. The **File Upload** screen is displayed. Browse for a .cedid file, then select **Upload** to upload it to the DM-NAX-XSP.

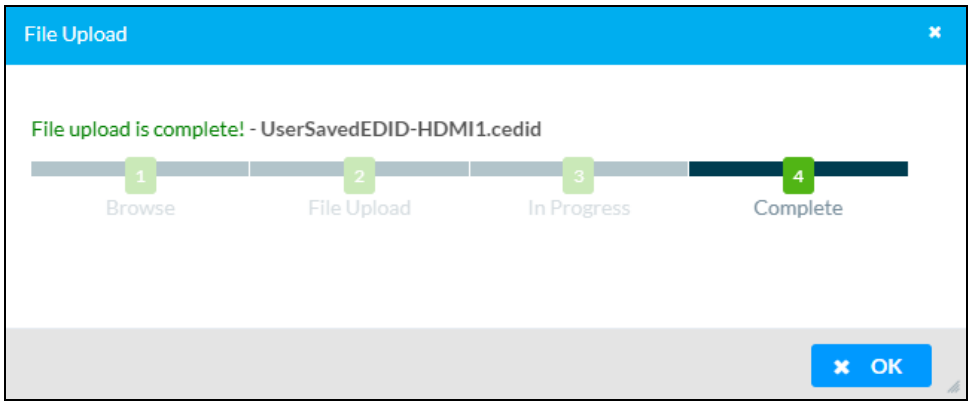
Browse and select a .cedid file



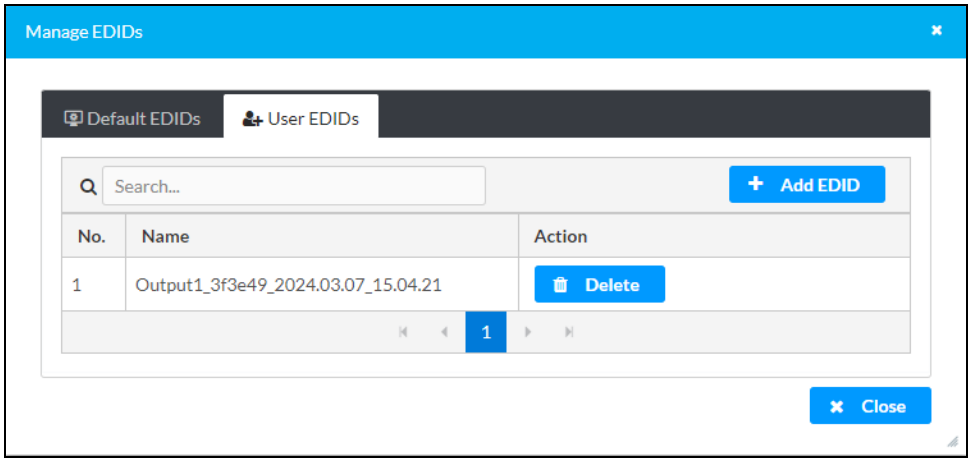
Upload the file



Wait for the file to upload to complete, then select OK

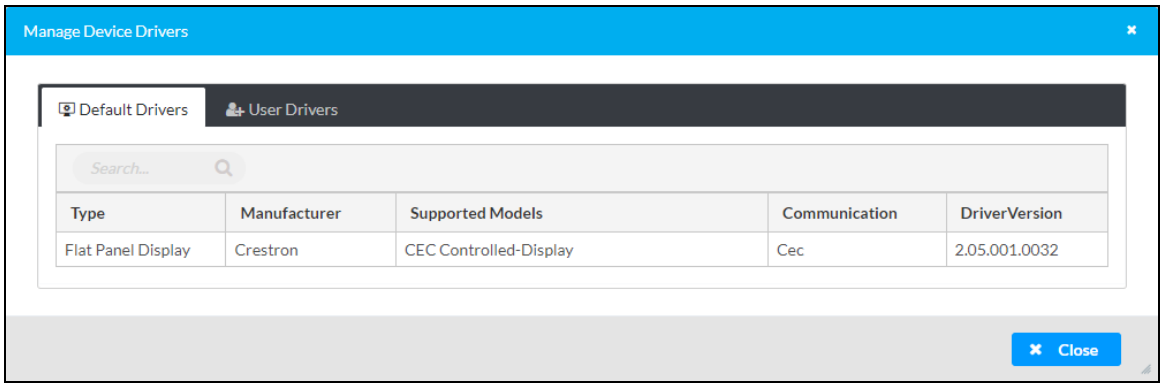


3. Select **OK** to return to the **Manage EDIDs** window. The uploaded custom EDID will now be displayed in the table. To remove a custom EDID, select **Delete** in its table row.



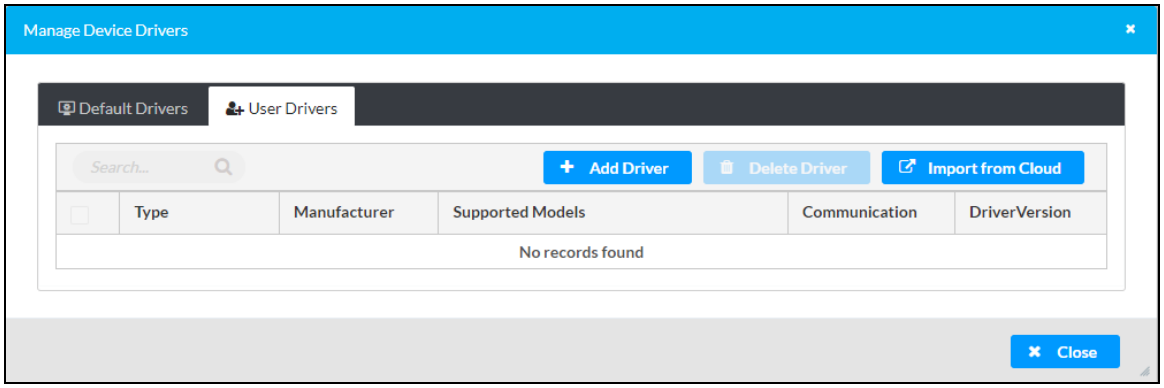
Manage Device Drivers

Use the **Manage Device Drivers** window to add, remove, or browse which drivers are available for controlling displays connected to the DM-NAX-XSP.

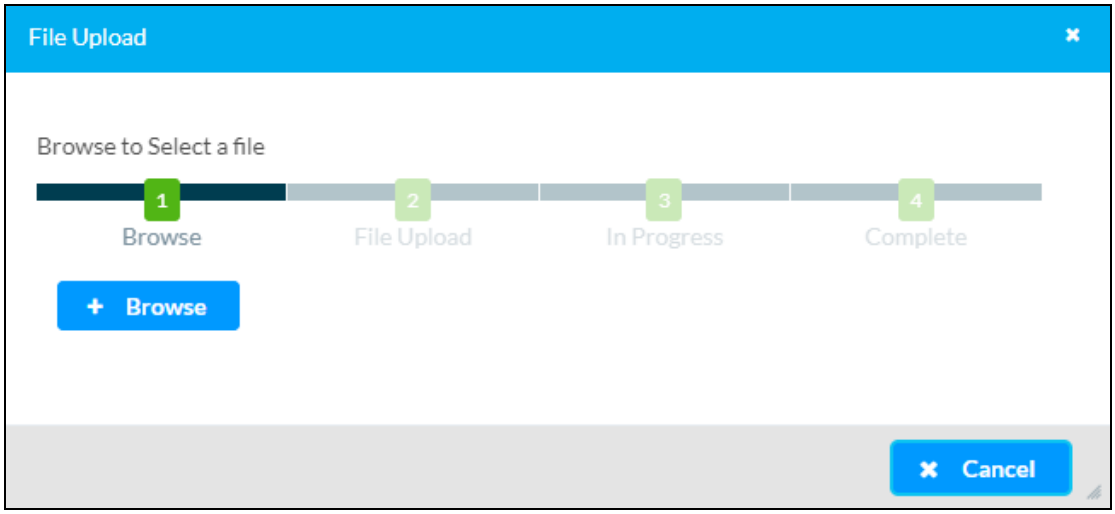


Select **Manage Device Drivers** in the **Action** menu. The **Manage Device Drivers** window is displayed:

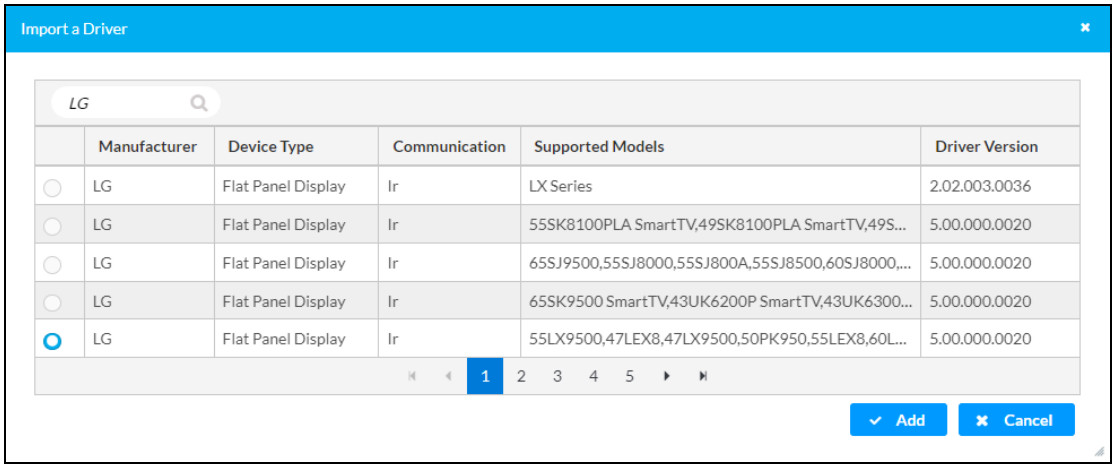
- The default tab that will open in this window is the **Default Drivers** tab. This tab is read only, and provides a list of all default drivers available on the DM-NAX-XSP as part of the device firmware. Use the **Search...** text entry field to filter the list of drivers by name. Default drivers cannot be removed from the device.
- The second tab available in this window is the **User Drivers** tab. By default, the table will populate with **No records found**. To add or remove custom driver files:



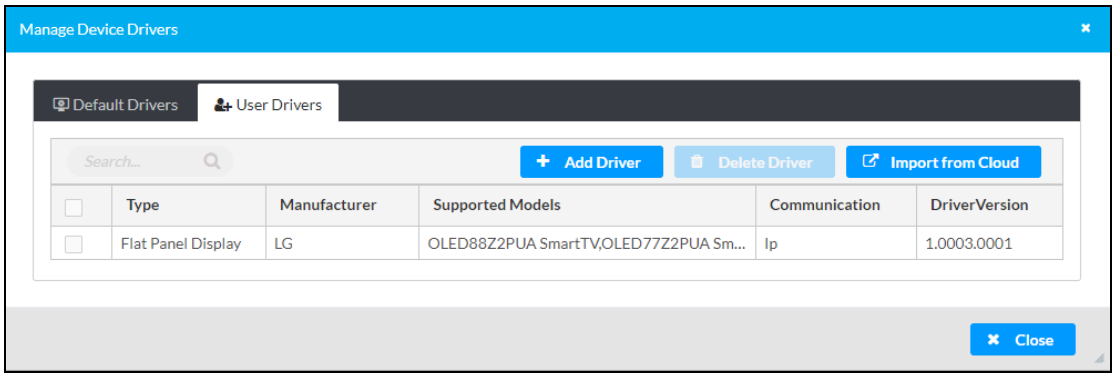
1. Select either **Add Driver** or **Import from Cloud** at the top right of the table.
   - Selecting **Add Driver** opens a window for uploading a custom .pkg driver file that was created from the Device Learner utility in Crestron Toolbox software. Browse for a .pkg file and upload it to the DM-NAX-XSP.



   - Selecting **Import from Cloud** opens a window for browsing the Crestron Driver Web Portal. Search the drivers list by manufacturer or model name, select a driver, then select **Add** to download the driver file and add it to the DM-NAX-XSP.



2. Select **OK** to return to the **Manage Drivers** window. The uploaded custom driver will now be displayed in the table. To remove a custom driver, select its row, then select **Delete Driver**.



Download Configuration

Select **Download Configuration** to download a TGZ file containing the settings data for the DM NAX device.

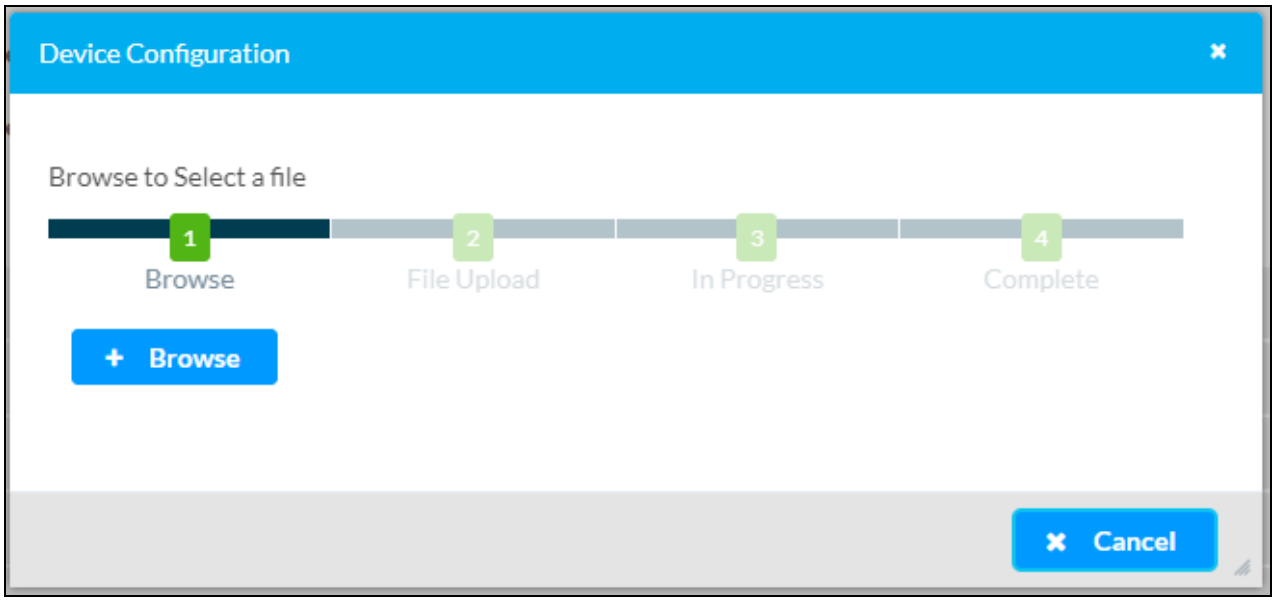
> **NOTE:** Multicast addresses, stream names, and user accounts for accessing the device are not saved in this configuration file.

Upload Configuration

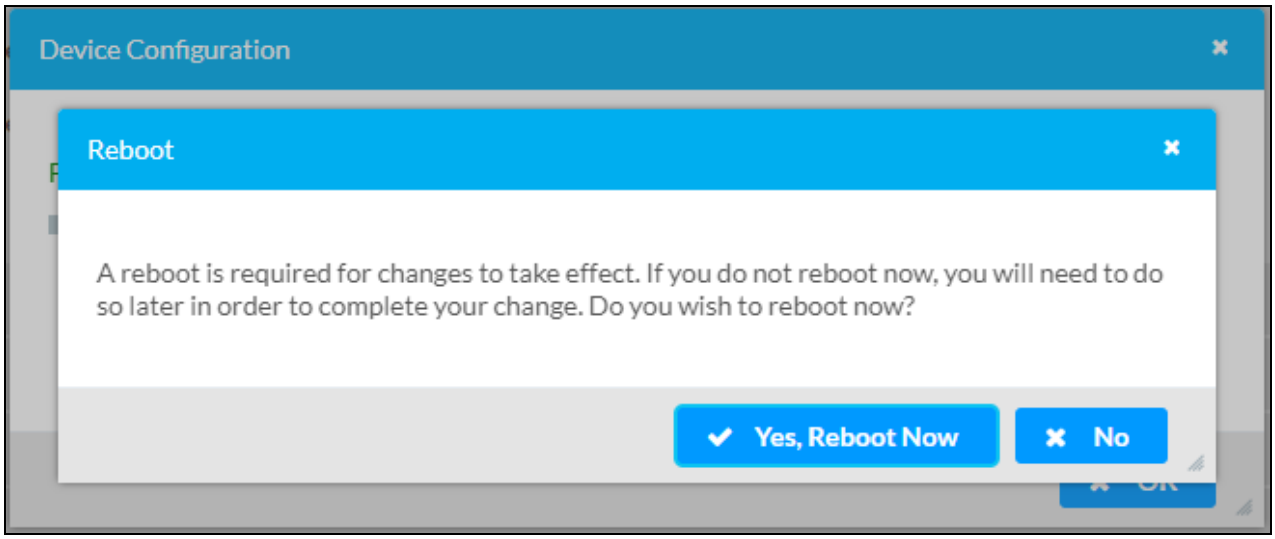
1. Select **Upload Configuration** to upload a TGZ file that will overwrite the current settings of the DM NAX device with a saved configuration.

   > **CAUTION:** Be sure to load a TGZ file for the same DM NAX device type while using the Load Configuration feature. For example, if loading a TGZ file to a DM-NAX-XSP, be sure that the TGZ file originated from a DM-NAX-XSP.

2. Select **Browse** to navigate to the desired TGZ file in your file browser. Select the file, then select **Open**.



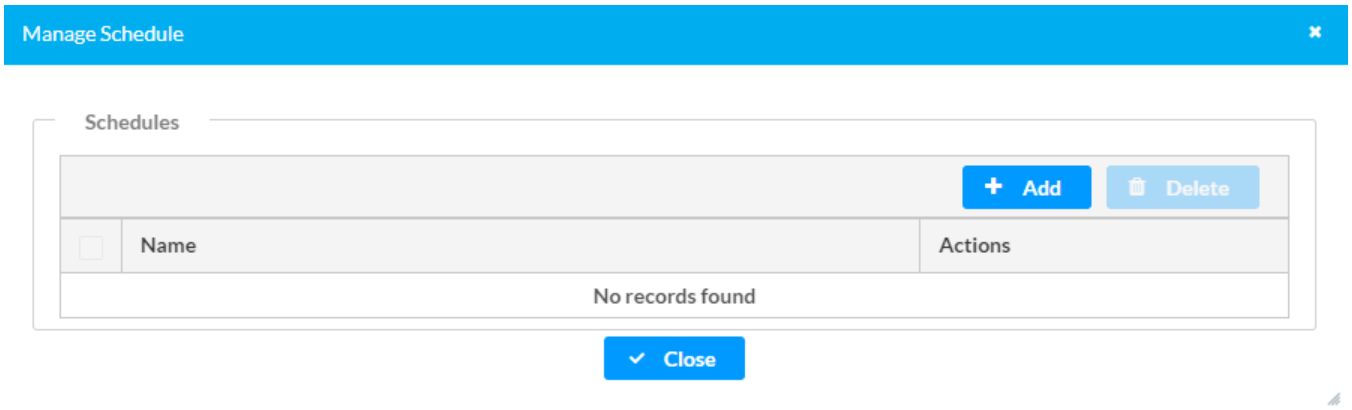
3. Select **Upload** to begin the file upload process. A progress bar will indicate the status of the configuration file upload.
4. Once the upload is complete, the device will require a restart. Select **Yes, Reboot Now** to begin the restart, or select **No** to return to the web interface.



> **NOTE:** Any changes made after the configuration file upload, but before a device restart, may be overwritten when the device is restarted.

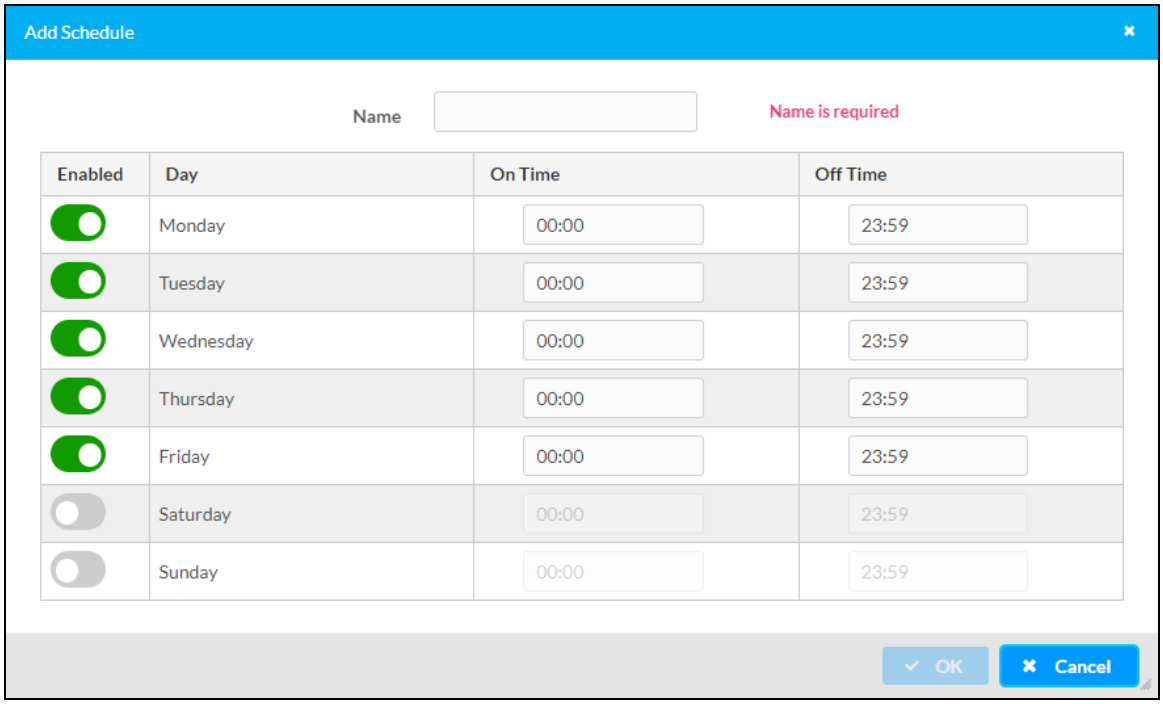
Manage Schedule

Use the **Manage Schedule** window to add, edit, or remove schedules that can be used to power on or off connected displays.



Select **Manage Schedules** in the **Action** menu. The **Manage Schedules** window is displayed. By default, the table will populate with **No records found**. To add a schedule:

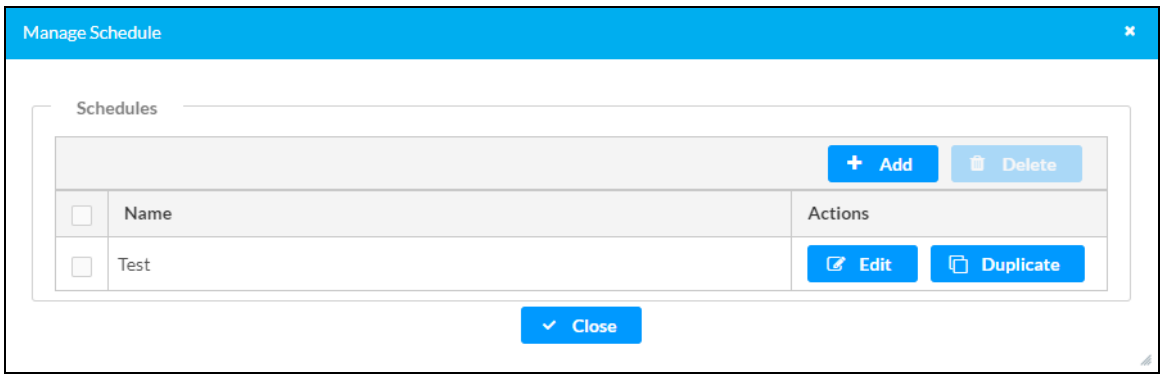
1. Select **Add** at the top right of the table. A window for creating a custom schedule is displayed.
2. Enter a name for the schedule in the **Name** text field at the top of the window.



3. Enable or disable each day of the week.
4. Set an hour range for each enabled day.
5. Set an **On Time** value to determine when the power on command will be sent to the connected display.

6. Set an **Off Time** value to determine when the power off command will be sent to the connected display.
7. Select **OK** to return to the **Manage Schedules** window. The custom schedule will now be displayed in the table.

   Select **Duplicate** to duplicate the schedule or select **Edit** to edit it.

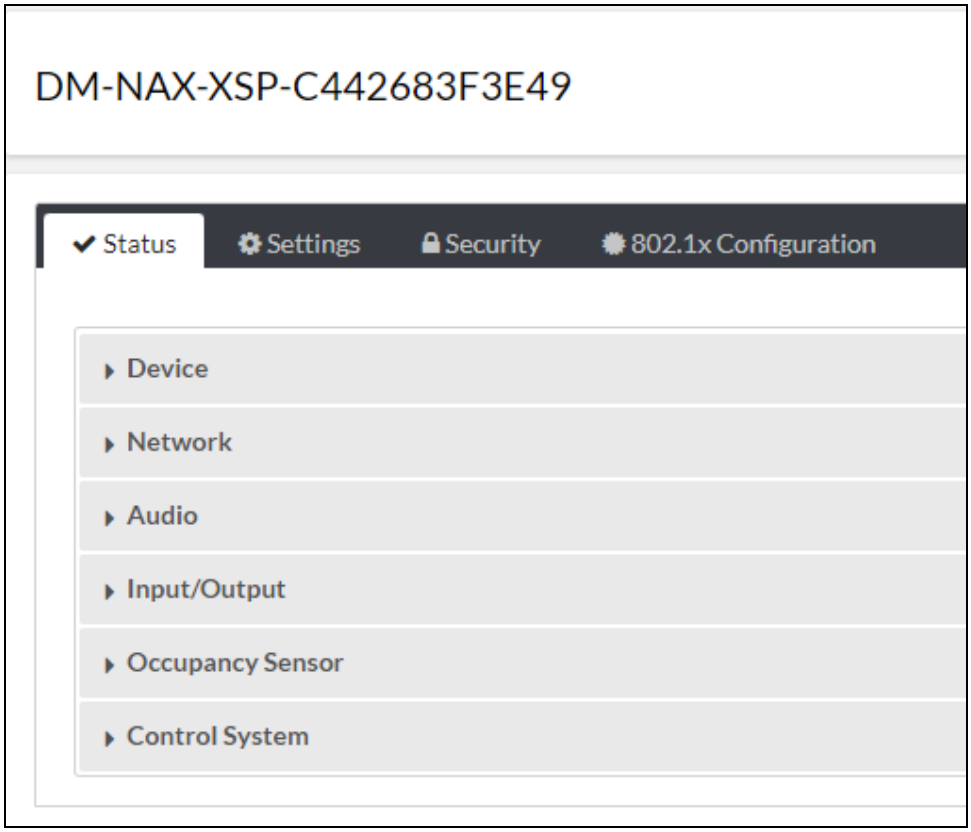


To delete a schedule, select its row, then select **Delete**.

Status

The **Status** page is the first page displayed when opening the web interface of the DM-NAX-XSP. It displays general information about the DM-NAX-XSP (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**, etc.), and input and output ports' current status.

The **Status** page can be accessed at any time by selecting the **Status** tab of the DM-NAX-XSP web interface.



Information displayed on the **Status** tab is organized into different collapsible accordions:

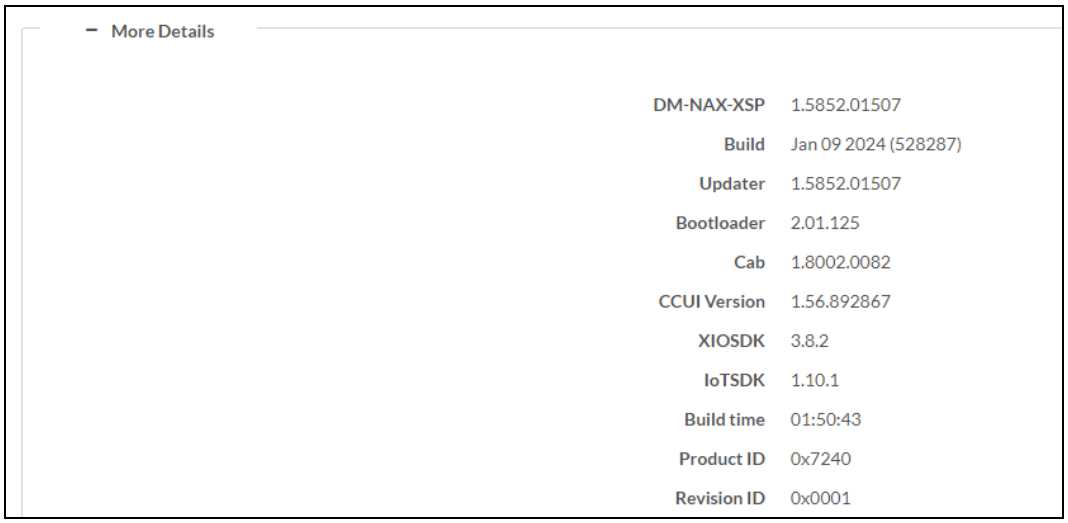
- Device on page 750
- Network on page 751
- Audio on page 752
- Input/Output on page 752
- Occupancy Sensor on page 753
- Control System on page 753

Device

The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-XSP.

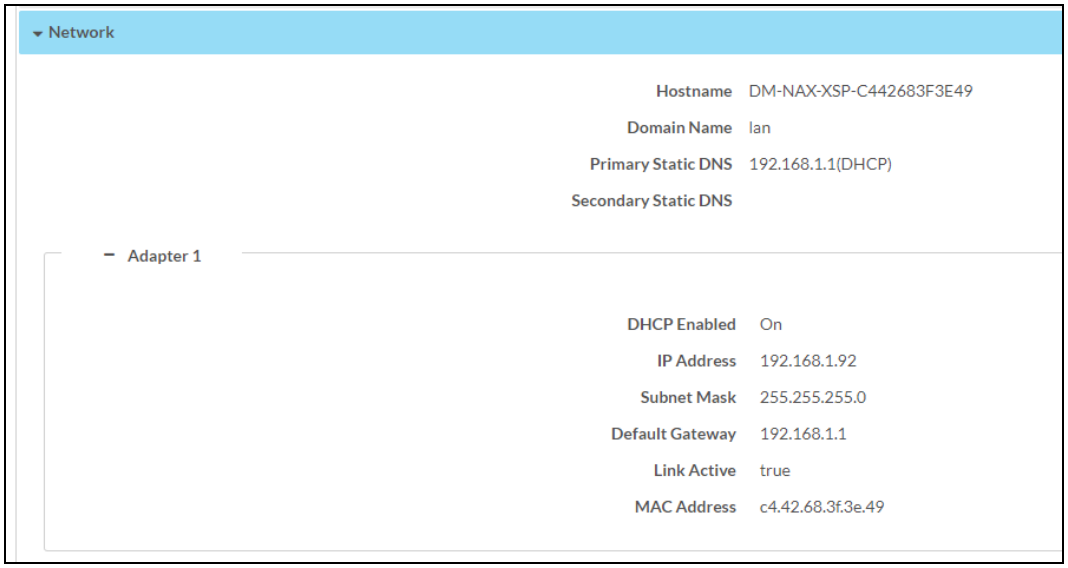


Select **+ More Details** to review additional information about the DM-NAX-XSP.



Network

The **Network** section displays network-related information about the DM-NAX-XSP, including the **Hostname**, **Domain Name**, and **DNS Servers**.



NOTE: By default, the host name of the DM-NAX-XSP consists of the model name followed by the MAC address of the device. For example, DM-NAX-XSP-C442683F3E49.

Select **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, select **- Adapter 1** details to collapse the section.

NOTE: The **+ Adapter 2** option is only displayed when the Ethernet ports on the DM-NAX-XSP are set to isolate traffic using the **Port Selection** feature.

Audio

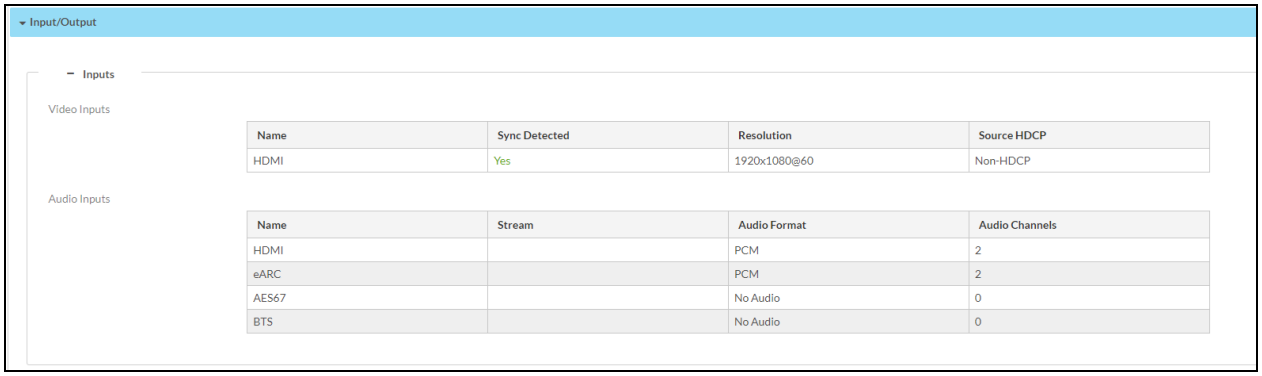
The **Audio** section displays details about the active audio source of the DM-NAX-XSP.



Information is only populated in this section for whichever audio input is selected as the active audio source. The active audio source is determined by the **Input / Output Selection** section of the **Settings** tab, or by commands issued by a control system.

Input/Output

The Input/Output section displays information on the available AV inputs and outputs of the DM-NAX-XSP.

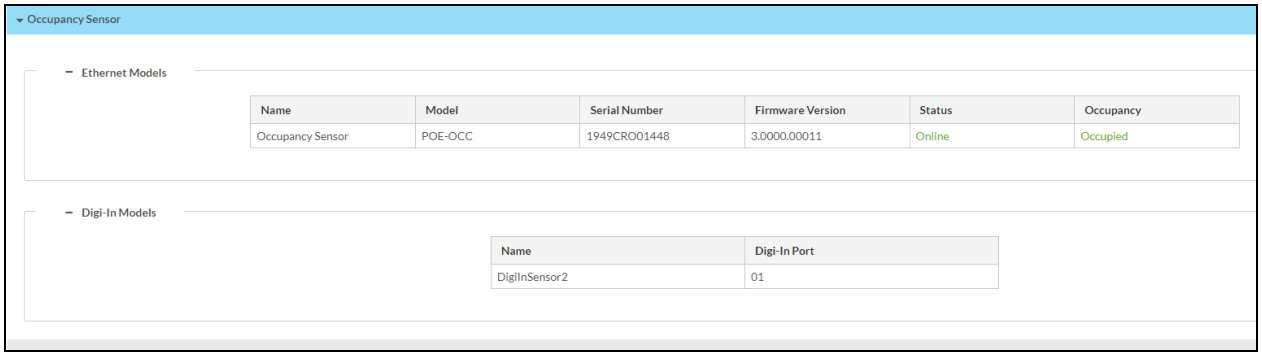


In the **Video Inputs** table, the **Sync Detected** status for the HDMI input displays whether or not a source is connected to the HDMI input. If sync is detected and a signal is passing, the **Resolution** and **Source HDCP** fields will also populate with information about the video signal.

In the **Audio Inputs** table, each available audio input on the device has a row. The **Stream**, **Audio Format**, and **Audio Channels** columns will each populate with information about the audio signal for a given input when an audio signal is detected.

Occupancy Sensor

The **Occupancy Sensor** section displays information on any occupancy sensors paired with the DM-NAX-XSP.

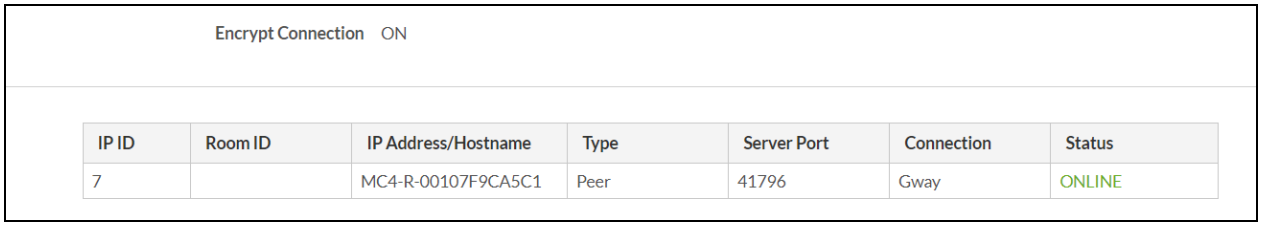


Occupancy sensors can be paired with the device using the **Occupancy Sensor** section of the **Settings** tab.

The Ethernet Models table displays the **Name**, **Model**, **Serial Number**, and **Firmware Version** of any paired IP based occupancy sensors. The **Status** field will either read **Online** or **Offline**. The **Occupancy** field will either read **Occupied** or **Vacant**. The **Name** field is populated with the friendly name entered while pairing the occupancy sensor, while the other fields populate based on information pulled from the occupancy sensor. Up to three IP based occupancy sensors can be paired with the DM-NAX-XSP.

Control System

The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: Displays **ON** or **OFF**.
- **IP ID**: Displays the currently used IP ID of the DM-NAX-XSP.
- **Room ID**: Displays the room ID.
- **IP Address/Hostname**: Displays the IP address or hostname of the control system.
- **Type**: Displays the type of IP table entry the device holds in the control system's table; the DM-NAX-XSP will always report as a **Peer** entry in the control system's table.
- **Server Port**: Displays the port number for the connection to the control system.

- **Connection**: Displays the type of connection the device is using to communicate with the control system; the DM-NAX-XSP will always report a **Gway** connection.
- **Status**: Displays **OFFLINE** or **ONLINE**.

Settings

The **Settings** page enables you to configure the DM-NAX-XSP settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the DM-NAX-XSP web interface. The following collapsible accordions are available within the **Settings** tab:

- System Setup on page 755
- Occupancy Sensor on page 759
- Port Selection on page 760
- Input / Output Selection on page 761
- DM NAX Streams on page 768

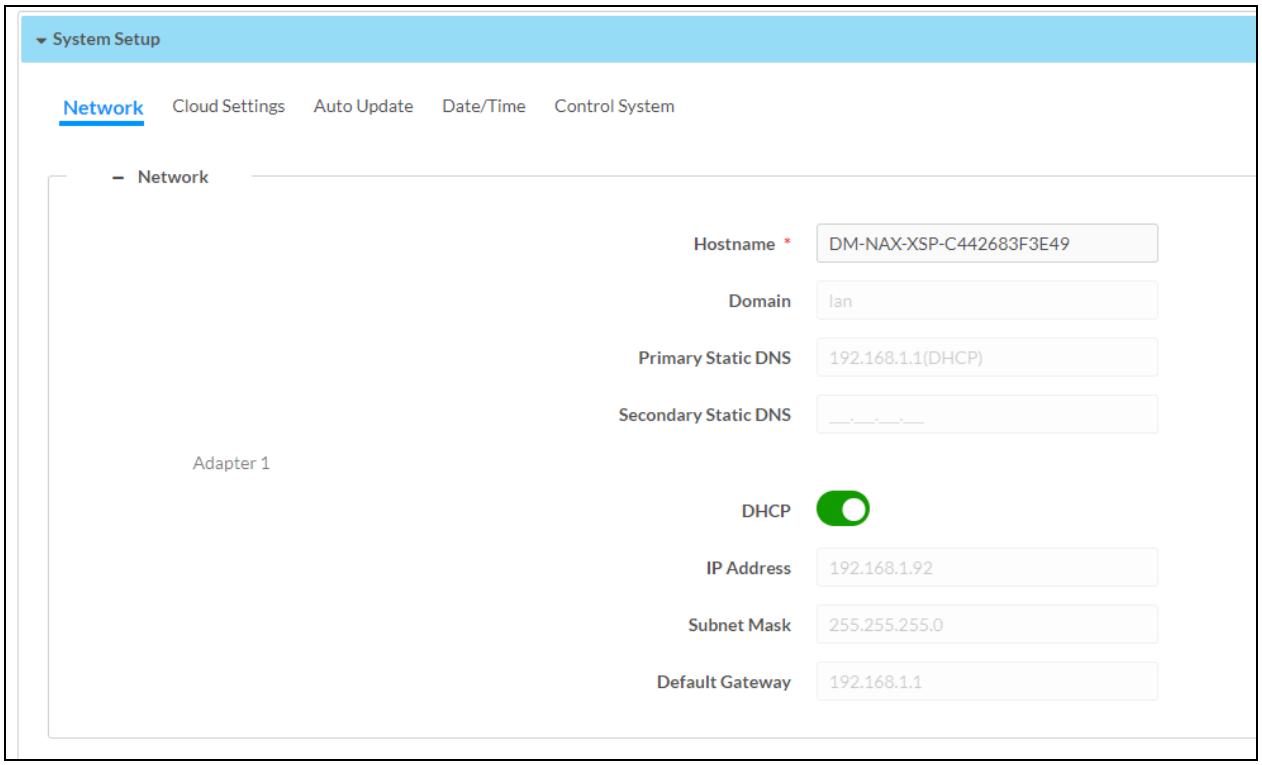


System Setup

The **System Setup** section contains settings for **Network**, **Cloud Settings**, **Auto Update**, **Date/Time**, and **Control System**.

Network

The **Network** section contains network-related settings for the DM-NAX-XSP, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



NOTE: By default, the hostname of the DM-NAX-XSP consists of the model name followed by the MAC address of the device. For example, DM-NAX-XSP-C442683F3E49.

Adapter 1

The **Adapter 1** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of Ethernet adapter 1 on the rear panel of the device.

NOTES:

- An **+ Adapter 2** option is only displayed when the Ethernet ports on the DM-NAX-XSP are set to isolate traffic using the **Port Selection** feature. The settings for **Adapter 2** are identical to those available for **Adapter 1**.
- Internal processes of DM NAX devices use IP addresses in the 10.10.10.*xxx* range. This IP range should be avoided when addressing DM NAX devices to prevent conflicts with these internal addresses.

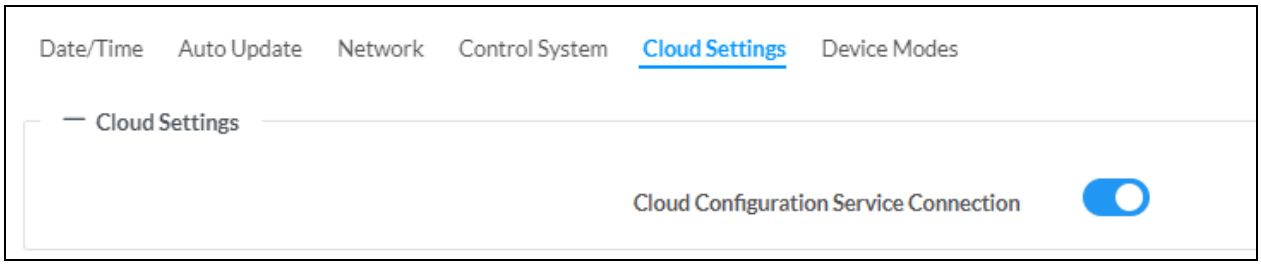
Set the **DHCP** toggle to the right position to enable DHCP or to the left to disable DHCP. This specifies whether the IP address of the DM-NAX-XSP is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled**: When **DHCP** is enabled (default setting), the IP address of the DM-NAX-XSP is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled**: When **DHCP** is disabled, manually enter information in the following fields:

- **Primary Static DNS**: Enter a primary DNS IP address.
- **Secondary Static DNS**: Enter a secondary DNS IP address.
- **IP Address**: Enter a unique IP address for the DM-NAX-XSP.
- **Subnet Mask**: Enter the subnet mask that is set on the network.
- **Default Gateway**: Enter the IP address that is to be used as the network's gateway.

To save any new network entries, select **Save Changes**.

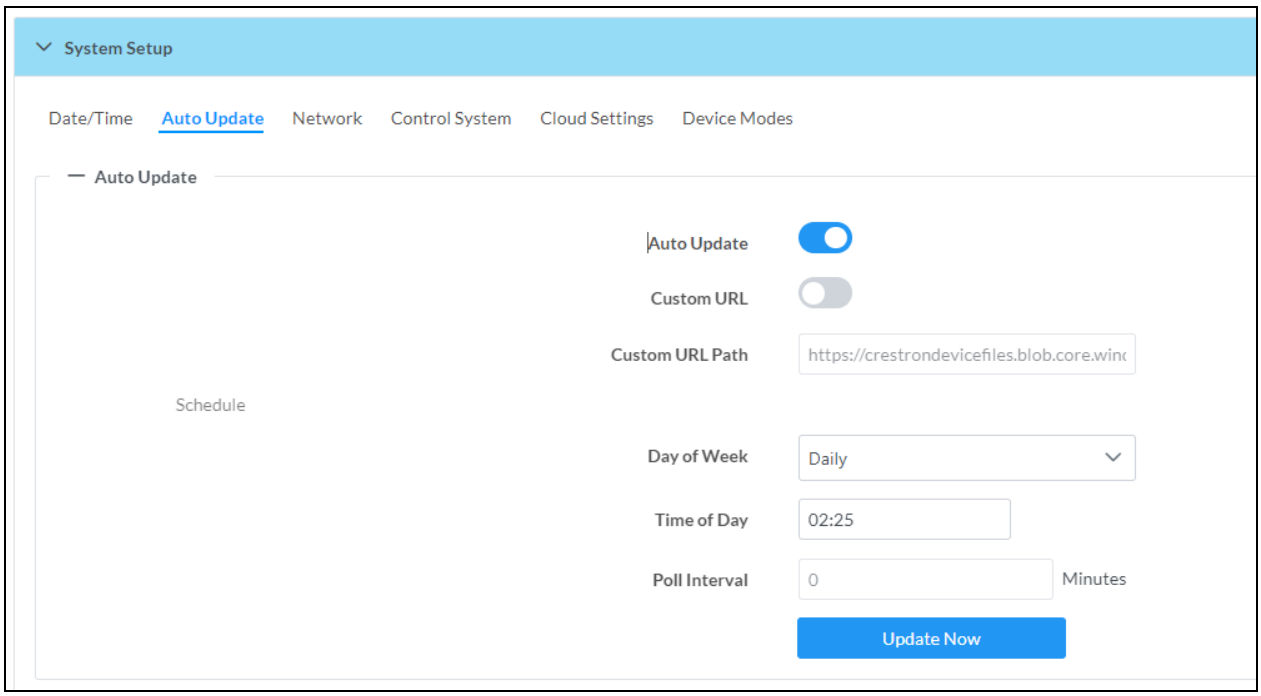
Cloud Settings



Set the **Cloud Settings** toggle to the right position to enable or to the left to disable cloud settings. This specifies whether the DM-NAX-AUD-IO can communicate with the XiO Cloud® platform.

Auto Update

The DM-NAX-XSP can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



1. Set the **Auto Update** toggle to the right position to enable automatic updates.
2. Define the URL to download the updates by doing either of the following:

a. Use the default URL to download the updates from the Crestron server.

b. Use a custom URL. Set the **Custom URL** toggle to the right position to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.

3. Set a schedule for the automatic firmware update by doing either of the following:

   a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.

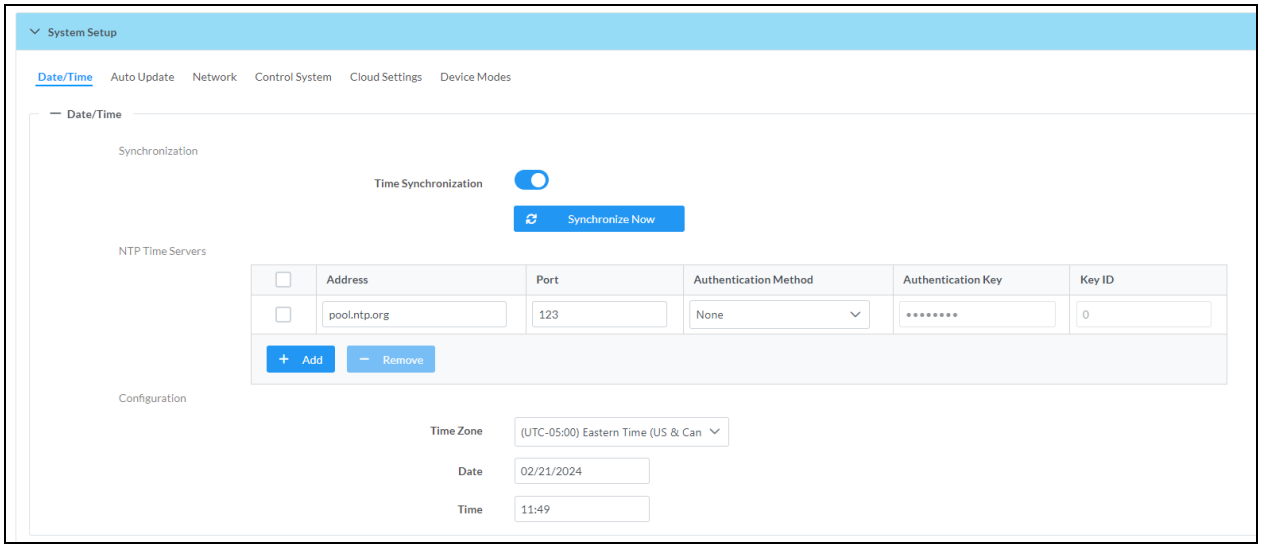
   b. Set the **Poll Interval** by entering a value from **60** to **65535** minutes. A value of **0** disables the Poll Interval.

4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 4 above, that schedule still remains in effect.

Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-XSP.



Time Synchronization

1. Set the **Time Synchronization** toggle to the right position to enable or left position to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

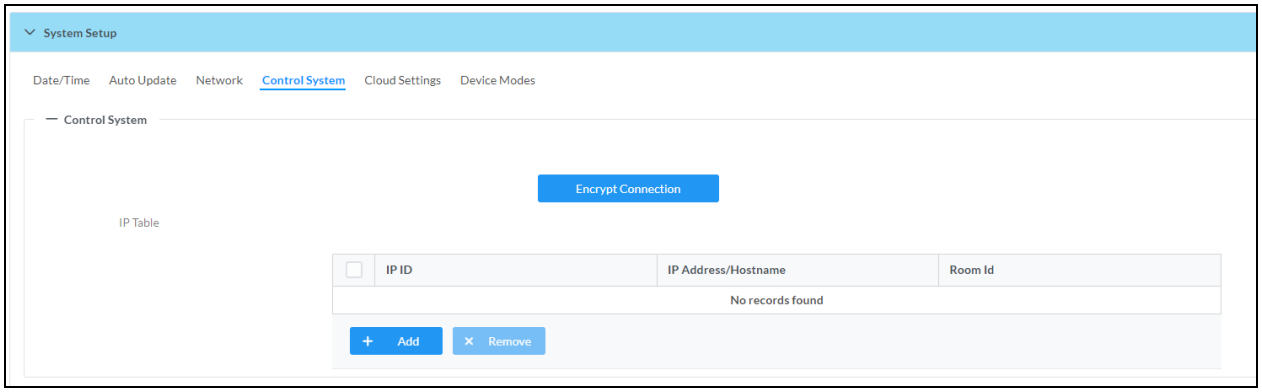
1. Open the **Time Zone** drop-down to select the applicable time zone.
2. In the **Date** field, enter the current date.

3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** menu to revert to the previous settings without saving.

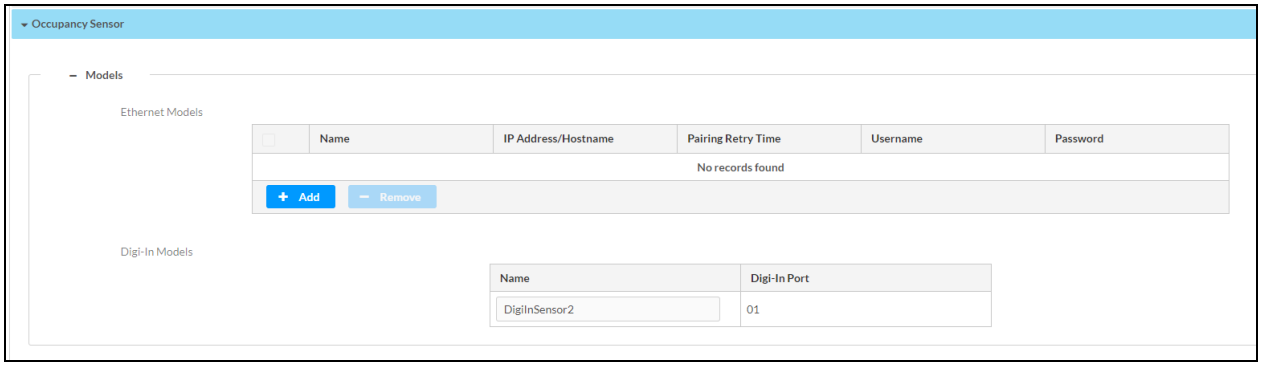
Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
    a. Enter the username in the **Control System Username** field.
    b. Enter the password in the **Control System Password** field.
2. Select + Add to add an IP table entry to the IP Table.
    a. Enter the Room ID in the **Room ID** field.
    b. Enter the IP ID of the DM-NAX-XSP in the **IP ID** field.
    c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box is displayed, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

Occupancy Sensor

Use the **Occupancy Sensor** section to pair up to three Ethernet based and one digital input based occupancy sensor.



The **Ethernet Models** table contains all settings for pairing Ethernet-based occupancy sensors.

To pair an Ethernet occupancy sensor:

1. Select **Add**.
2. Enter a friendly name for the occupancy sensor in the **Name** text field.
3. Enter the IP address or hostname of the occupancy sensor in the **IP Address/Hostname** field.
4. Select a **Pairing Retry Time** from the drop-down. The options are from one to five minutes. If the DM-NAX-XSP loses connection to the occupancy sensor, this interval will determine how often it attempts to reconnect to the sensor.
5. Enter the credentials of the occupancy sensor in the **Username** and **Password** fields.

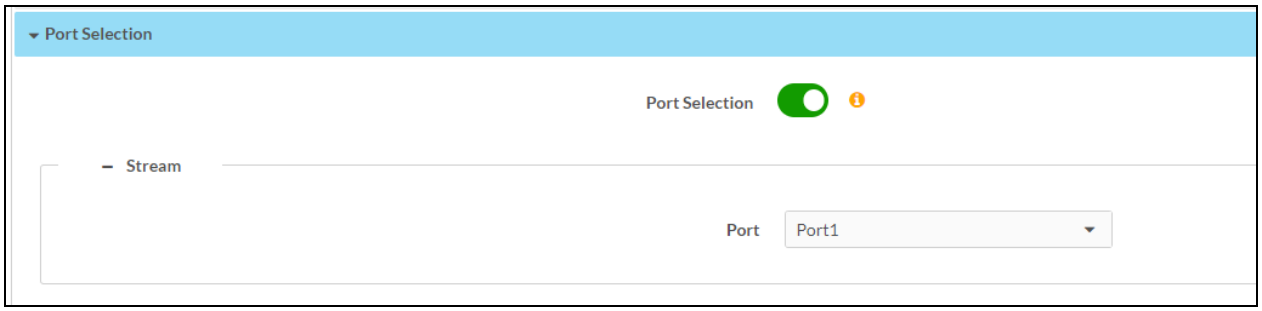
To remove an Ethernet occupancy sensor:

1. Select the check box in the leftmost column to select the occupancy sensor.
2. Select **Remove**.

The **Digi-In Models** table is used to name the digital input based occupancy sensor connected to the **IN** port of the DM-NAX-XSP. Enter a friendly name for the occupancy sensor in the **Name** text field.

Port Selection

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment the device's management and streaming service traffic to a separate Ethernet port from the audio-over-IP streaming traffic. With **Port Selection** enabled on all DM NAX devices on a network, DM NAX and AES67 network traffic can be physically separated from the control network onto a dedicated audio network.



To configure **Port Selection**:

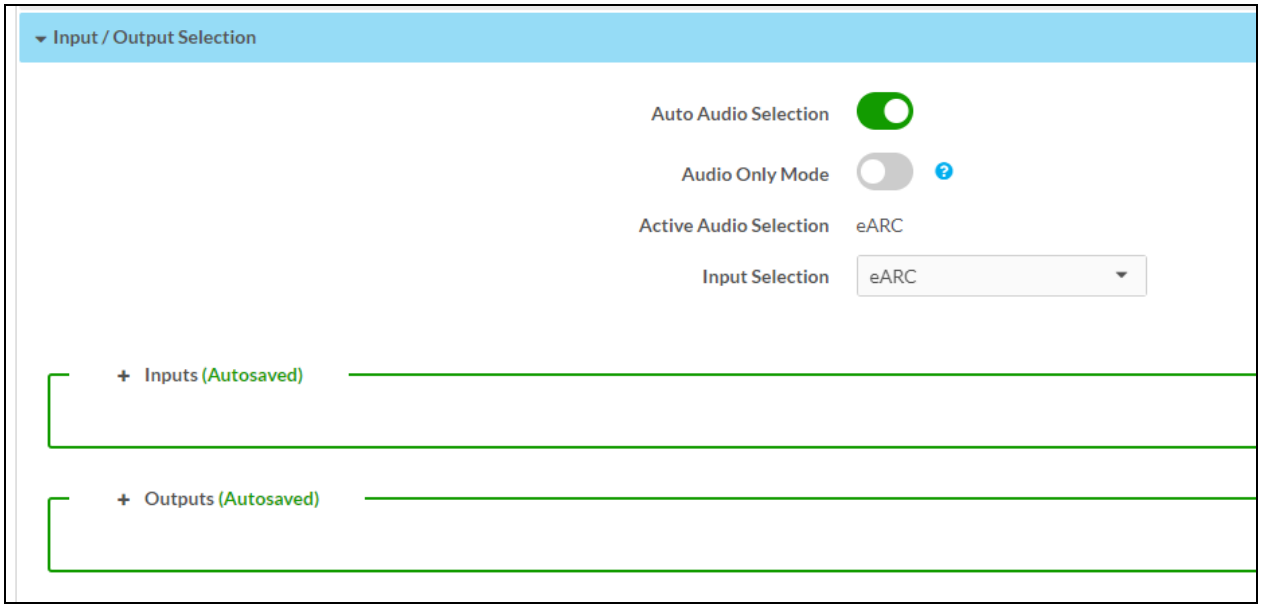
1. Set the **Port Selection** toggle to the right position to enable **Port Selection**. Set the toggle to the left position to disable **Port Selection**. By default, **Port Selection** is disabled.

   > **NOTE:** Ports 1 and 2 correspond to the Ethernet adapters labeled **1** and **2** on the rear panel of the DM-NAX-XSP, respectively.

2. With **Port Selection** enabled, select an Ethernet port from the **Stream** drop-down to designate which Ethernet port will handle audio-over-IP streaming network traffic.
3. Select **Save Changes** to apply the new settings.

   > **NOTE:** Making changes to **Port Selection** settings will require a restart.

Input / Output Selection



The **Auto Audio Selection** setting determines whether the active audio input of the DM-NAX-XSP is driven automatically by signal detection, or driven manually by either the **Input Selection** drop-down or programming.

- Set the **Auto Audio Selection** toggle to the right position to enable Auto Audio Selection. Set the toggle to the left to disable Auto Audio Selection. Auto Audio Selection is enabled by default.

Audio Only Mode allows the DM-NAX-XSP to be used exclusively as an audio encoder without requiring an active video signal on the HDMI input. With Audio Only Mode enabled, the HDMI output can maintain A/V sync with the connected display and continue to receive (e)ARC audio without passing video content.

- Set the **Audio Only Mode** toggle to the right position to enable Audio Only Mode. Set the toggle to the left to disable Audio Only Mode. Audio Only Mode is disabled by default.

Active Audio Selection is a read only field that indicates which of the audio inputs of the DM-NAX-XSP is currently selected and transmitting audio via the DM NAX and BTS Audio-over-IP (AoIP) streams.

The **Input Selection** drop-down selects an active audio source for the DM-NAX-XSP to transmit via the DM NAX and BTS AoIP streams. If **Auto Audio Selection** is enabled, this setting will override it and will set a new **Active Audio Selection**. The available options for **Input Selection** are **None**, **HDMI**, **eARC**, **AES67**, and **BTS**.

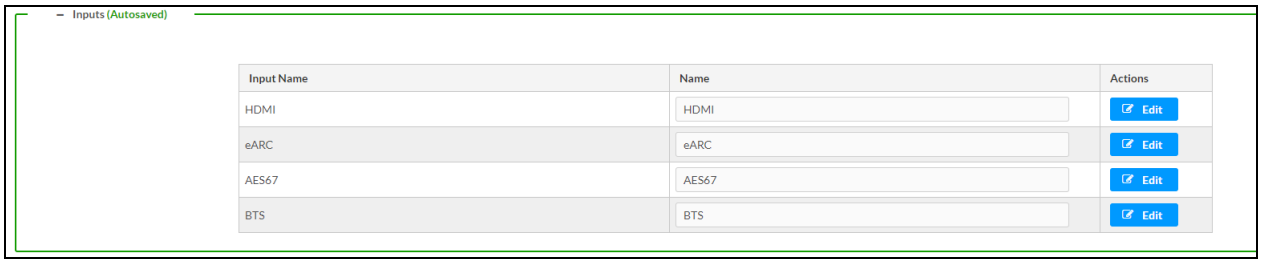
Surround Sound Audio

The DM-NAX-XSP supports lossless transport of surround sound audio signals (including Dolby® TrueHD, Dolby Atmos®, DTS HD®, and DTS:X® audio signals) and up to 8 channels of uncompressed linear PCM. The DM-NAX-XSP can receive both multichannel and 2-channel downmix signals from another DM-NAX-XSP, allowing either signal to be selected at the HDMI output. The EDID selected at the HDMI output and the EDID of the HDMI sink device will determine which surround sound audio formats can be sent to the sink device. To configure surround sound audio, set a compatible EDID using the **Manage EDIDs** function from the **Action** menu.

The DM-NAX-XSP can also receive a multichannel surround sound audio signal from the local HDMI input or the eARC path of the HDMI output. Surround sound audio from the local HDMI connections can then be transmitted over the network to another DM-NAX-XSP via the **BTS** stream, or downmixed to stereo and transmitted to any other DM NAX device via the **AES67** stream. The DM-NAX-XSP can distribute both the **BTS** and **AES67** streams simultaneously over the network, allowing either signal to be selected at any receiver on the network.

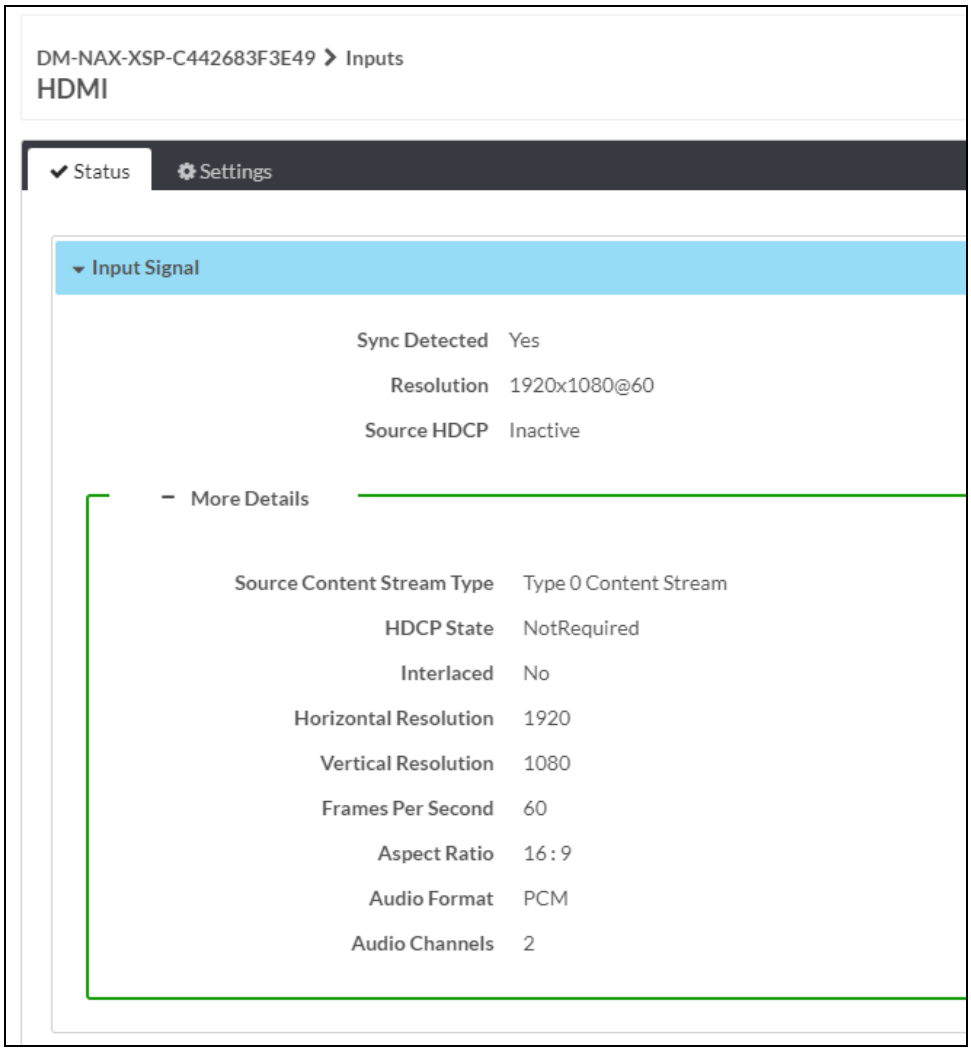
Inputs

The **Inputs** subsection provides a table of the available inputs on the DM-NAX-XSP, with settings to rename or edit the inputs.



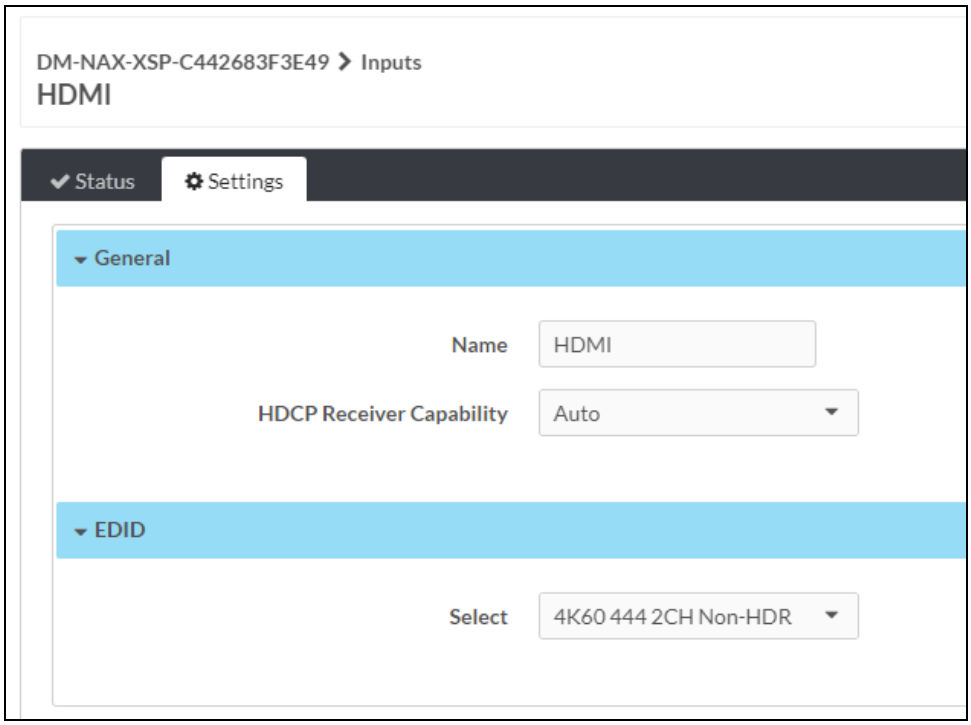
Enter a friendly name for each input in the **Name** text fields.

To view the status and available settings for an input, select **Edit**.



All four inputs have a read only **Status** tab that shows video and audio information for the connected source. Video status fields are only populated for the HDMI and eARC inputs, and will show **N/A** for the AES67 and BTS inputs.

The HDMI input has an additional **Settings** tab that includes settings for HDCP capabilities and applying an EDID.



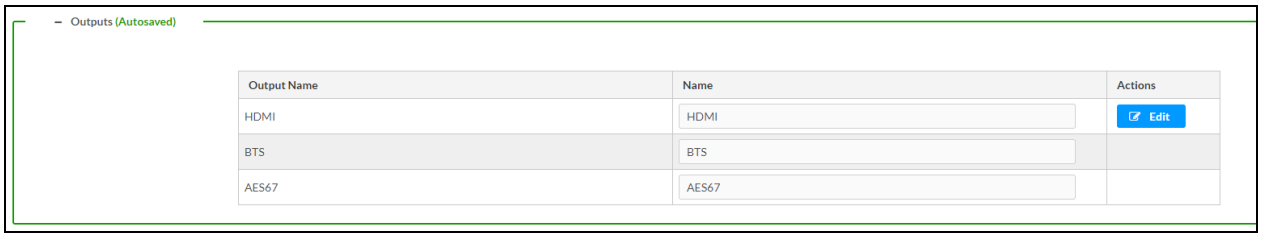
To configure the settings of the HDMI input:

- Enter a friendly name for the HDMI input in the **Name** text field. This will track with the **Name** field from the previous page.
- Use the **HDCP Receiver Capability** drop-down in the **General** section to determine which HDCP keys the HDMI input of the DM-NAX-XSP will present to its source device.
    - With **Auto** selected, the DM-NAX-XSP will attempt to match the HDCP requirements between the connected source and sink devices.
    - With **Disabled** selected, the DM-NAX-XSP will not pass any HDCP protected content to the HDMI output.
    - With **HDCP 1.4** selected, the DM-NAX-XSP will not pass any content protected by an HDCP version higher than 1.4.
    - With **HDCP 2.x** selected, the DM-NAX-XSP will pass all content protected by the latest HDCP 2.x version supported in firmware.
- Use the Select drop-down in the **EDID** section to set an EDID at the HDMI input of the DM-NAX-XSP. To add a custom EDID to this drop-down list, refer to the Action Menu.

Outputs

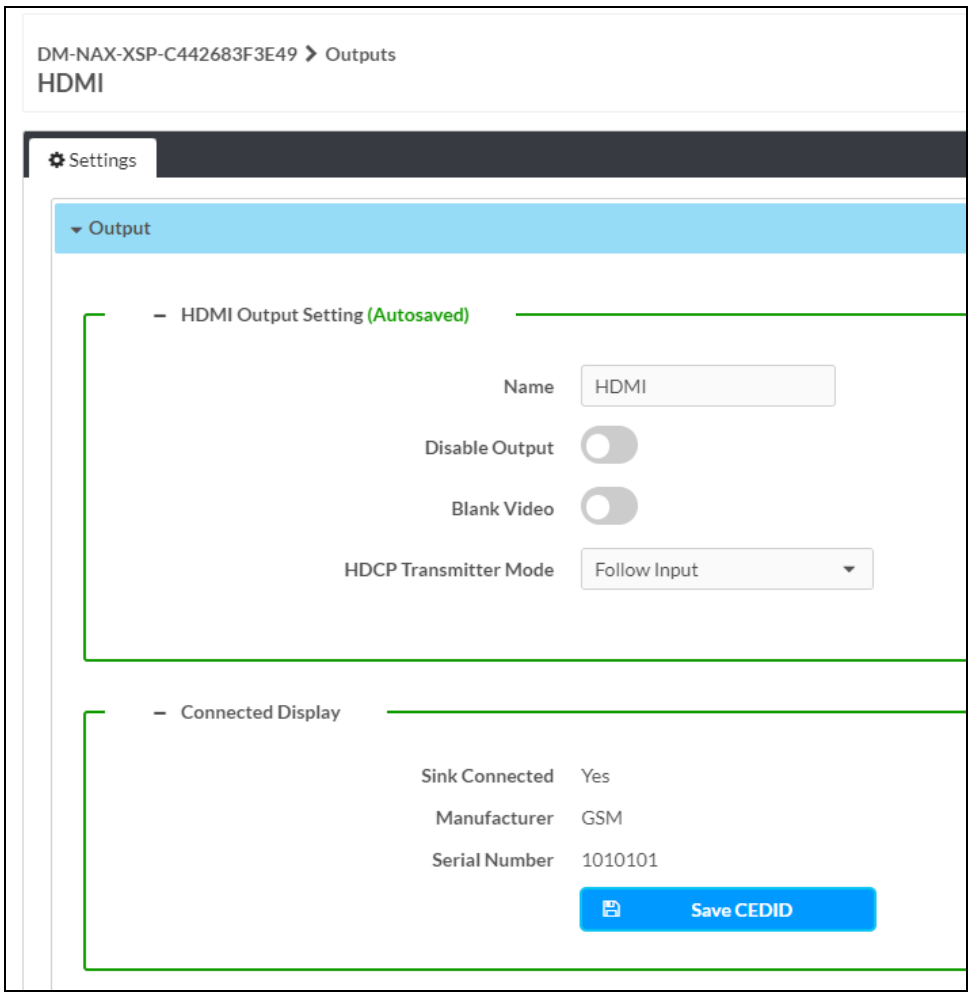
The **Outputs** subsection provides a table of the available outputs on the DM-NAX-XSP, with settings to rename or edit the outputs.

> **NOTE:** Only the HDMI output has an **Edit** option.



Enter a friendly name for each output in the **Name** text fields.

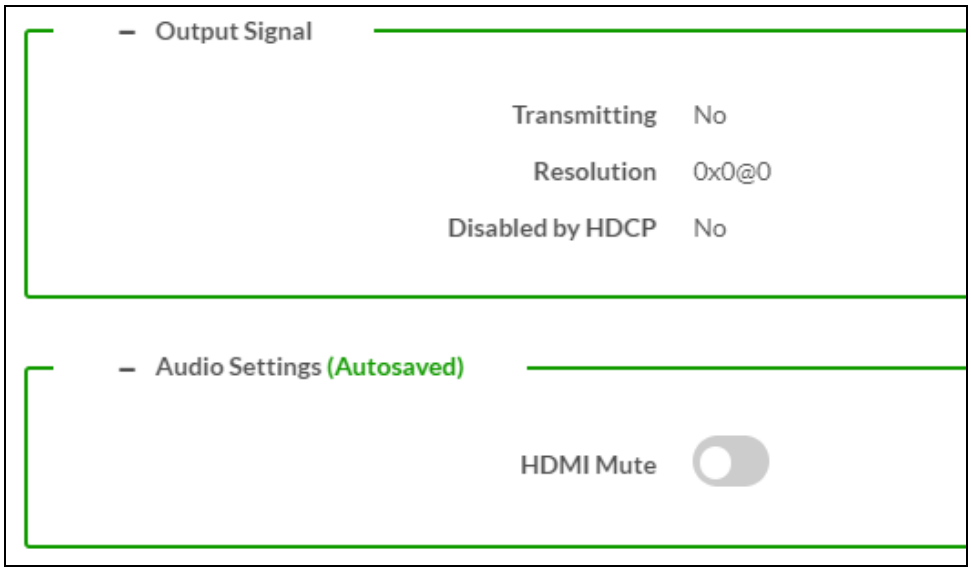
To access the settings of the HDMI output, select **Edit**.



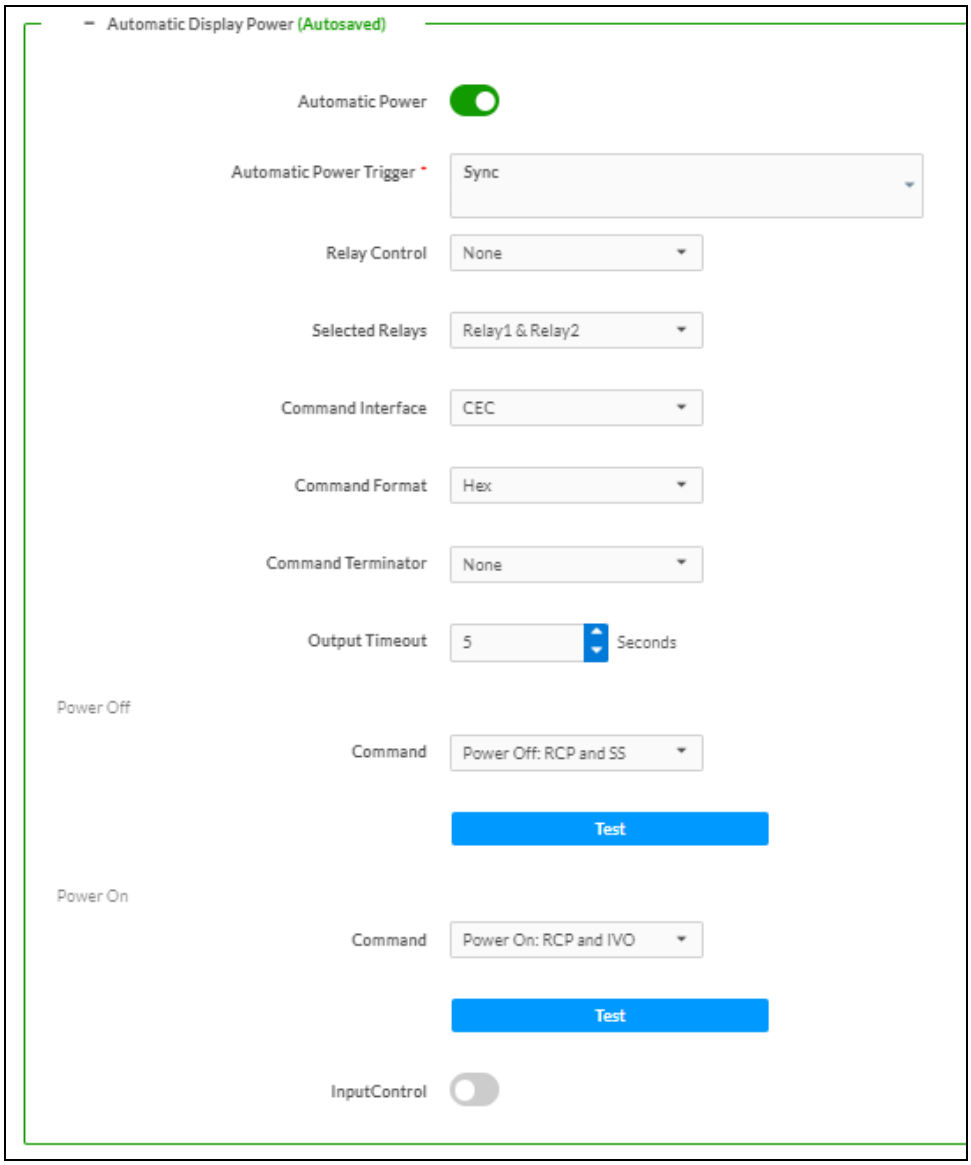
To configure the settings of the HDMI output:

- Enter a friendly name for the output in the **Name** text field. This will track with the **Name** field from the previous page.
- Set the **Disable Output** toggle to the right to disable any video signal from passing to the HDMI output. Set the toggle to the left to pass video signal.
- Set the **Blank Video** toggle to the right to send a black screen to the HDMI output instead of passing the HDMI input signal through. Set the toggle to the left to revert to the HDMI input signal.

- Use the HDCP Transmitter Mode drop-down to determine which HDCP level will be present on the HDMI output of the DM-NAX-XSP.
    - With **Follow Input** selected, the HDMI output signal HDCP level will be the same as the HDMI input signal from the source device.
    - With **Force Highest** selected, the HDMI output signal HDCP level will be set to the highest version supported in firmware. If this level is not supported by the connected display or the HDMI source, the video output will be blanked.
    - With **Never Authenticate** selected, the HDMI output signal will not authenticate HDCP. Any HDCP content from the HDMI input will be blanked.
- The **Connected Display** subsection reads out the connection status, manufacturer, and serial number of the connected display. Select **Save CEDID** to save the EDID of the connected display as a .cedid file. This file can be loaded to the DM-NAX-XSP or other Crestron A/V device.



- The **Output Signal** subsection contains read only fields for the transmission, resolution, and HDCP status of the HDMI output.
- The **Audio Settings** subsection contains a toggle to mute the audio of the HDMI output. Set the **HDMI Mute** toggle to the right to mute the audio on the HDMI output. Set the toggle to the left to unmute the output.

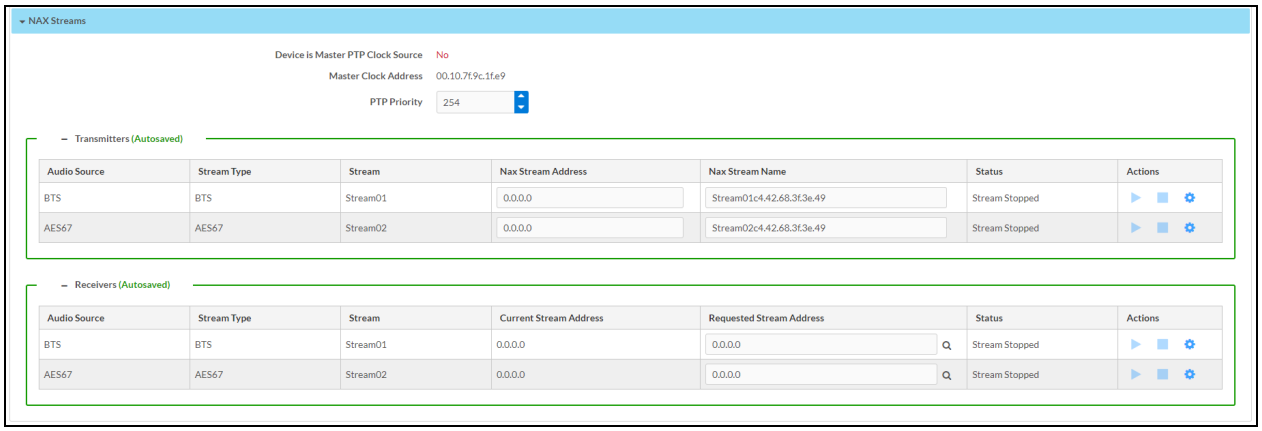

Automatic Display Power (Autosaved)
Automatic Power
Automatic Power Trigger *
Sync
Relay Control
None
Selected Relays
Relay1 & Relay2
Command Interface
CEC
Command Format
Hex
Command Terminator
None
Output Timeout
5
Seconds
Power Off
Command
Power Off: RCP and SS
Test
Power On
Command
Power On: RCP and IVO
Test
InputControl

- The Automatic Display Power subsection contains settings for powering the connected display on or off via either CEC, RS-232, IR, or IP. The settings below **Automatic Power** are only displayed if its toggle is enabled. Set the toggle to the right position to enable it, and to the left to disable it. **Automatic Power** is enabled by default.
    - Select any desired triggers for the power commands to be issued from the **Automatic Power Trigger** drop-down. Any number of the three options - **Sync**, **Occupancy**, and **Schedule** - can be selected.
    - The **Relay Control** and **Selected Relays** drop-downs allow the **RELAY** connectors of the DM-NAX-XSP to trigger additional connected devices when the automatic power command is sent to the display. Select the desired **Relay Control** type from either **Latched/Interlocked** or **Momentary**, depending on the control requirements of the connected device.
    - Use the **Command Interface** drop-down to determine whether the power command is issued via CEC, the **RS-232** connector, the **IR** connector, or via a driver that was loaded to the device. Refer to Action Menu for more details on loading drivers.
    - If CEC or RS-232 is selected as the command interface, use the **Command Format** drop-down to choose whether the power command is sent as an **ASCII** or **Hex** command. Use the **Command Terminator** drop-down to select any necessary character string to be appended to the end of the power command.
    - If IR is selected as the command interface, use the **IR Settings** subsection to load an IR file specific to the connected display. IR files can be downloaded from the Crestron Driver Web Portal, or created using the Device Learner utility in Crestron Toolbox™ software.
    - Set an **Output Timeout** using the text field or up and down arrows. This determines when the power off command will be sent to the display.
    - Use the **Power Off** and **Power On** subsections to test the power commands.
    - Set the **InputControl** toggle to the right to allow input selection commands to be sent to the connected display. Additional input selection commands can be added or selected in the settings fields that are shown when the toggle is enabled. If CEC or RS-232 is selected as the command interface, the additional input selection commands can be added as text strings in the **Command String** field. If IR is selected as the command interface, the additional commands can be selected from the **Command** drop-down based on any commands included in the IR file.

DM NAX Streams

The local audio sources of the DM-NAX-XSP can be made available as a DM NAX audio-over-IP stream. This includes the HDMI input audio from a local source and the eARC audio from the HDMI output path to the connected display.

Select **NAX Streams** to expand the tab and display the following information.



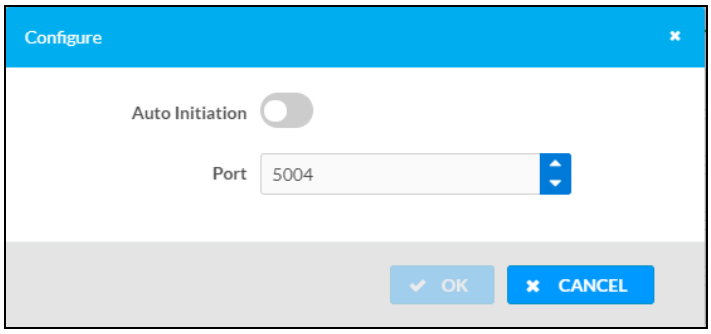
- **Device is Leader PTP Clock Source** indicates whether the DM NAX device's PTP clock is the leader clock on the network. **Yes** will be displayed in green when the local DM-NAX-XSP's clock is the PTP leader clock and **No** will be displayed in red when another PTP clock on the network is operating as the leader clock.
- **Leader Clock Status** displays the Leader Clock ID of the device on the network that is currently acting as the leader clock.
- **PTP Priority**: This sets the priority of the local DM NAX device's PTP clock relative to other clocks on the network. The default setting is 254 (one increment higher than the lowest possible value) so that the DM-NAX-XSP only operates as the leader clock if no other PTP leader is present on the network. Valid values range from 1 to 255.

Configure Transmitters

The DM-NAX-XSP features two main AoIP transmit streams. The first stream listed in the Transmitters list is the **BTS** stream, which is a unique AoIP transmit stream to the DM-NAX-XSP. The **BTS** stream will allow lossless transmission of surround sound audio formats over the network to another DM-NAX-XSP. The second stream is labeled **AES67**, and is a 2-channel AoIP stream that is compatible with all existing DM NAX and DM NVX devices.

To configure a DM NAX transmit stream:

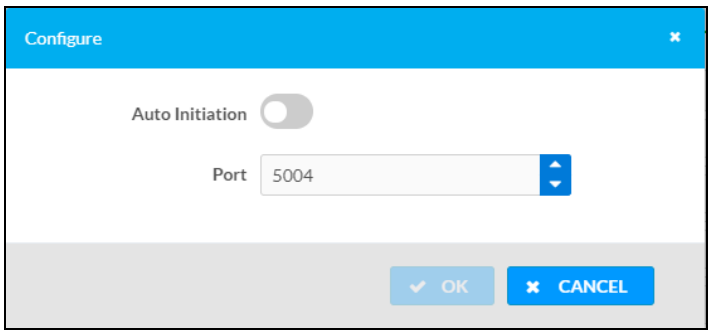
1. Enter a valid multicast address in the **NAX Stream Address** field.
2. Enter a name in the **NAX Stream Name** field by which the stream can be identified. This stream name is associated with the DM NAX stream's multicast address by other DM NAX or AES67 devices, similar to a device hostname that resolves to a given IP address.
3. **Status** indicates whether a stream is transmitting or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:



5. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled for a given stream, the stream will begin transmitting automatically and will be available as a multicast stream on your network at the specified multicast address.
    - If **Auto Initiation** is disabled for the input, the stream will not begin transmitting until it is manually initiated.
6. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number in increments of 1.
    - Manually enter a port number in the **Port** field. The default port number for DM NAX streams is 5004.
7. Select **OK** to save or select **Cancel** to cancel the changes.

Configure Receivers

1. Enter the multicast address of a transmitting stream in the **Requested Stream Address** field to subscribe the receiver to the stream.
2. Select the configure icon in the **Actions** column. The **Configure** dialog is displayed:

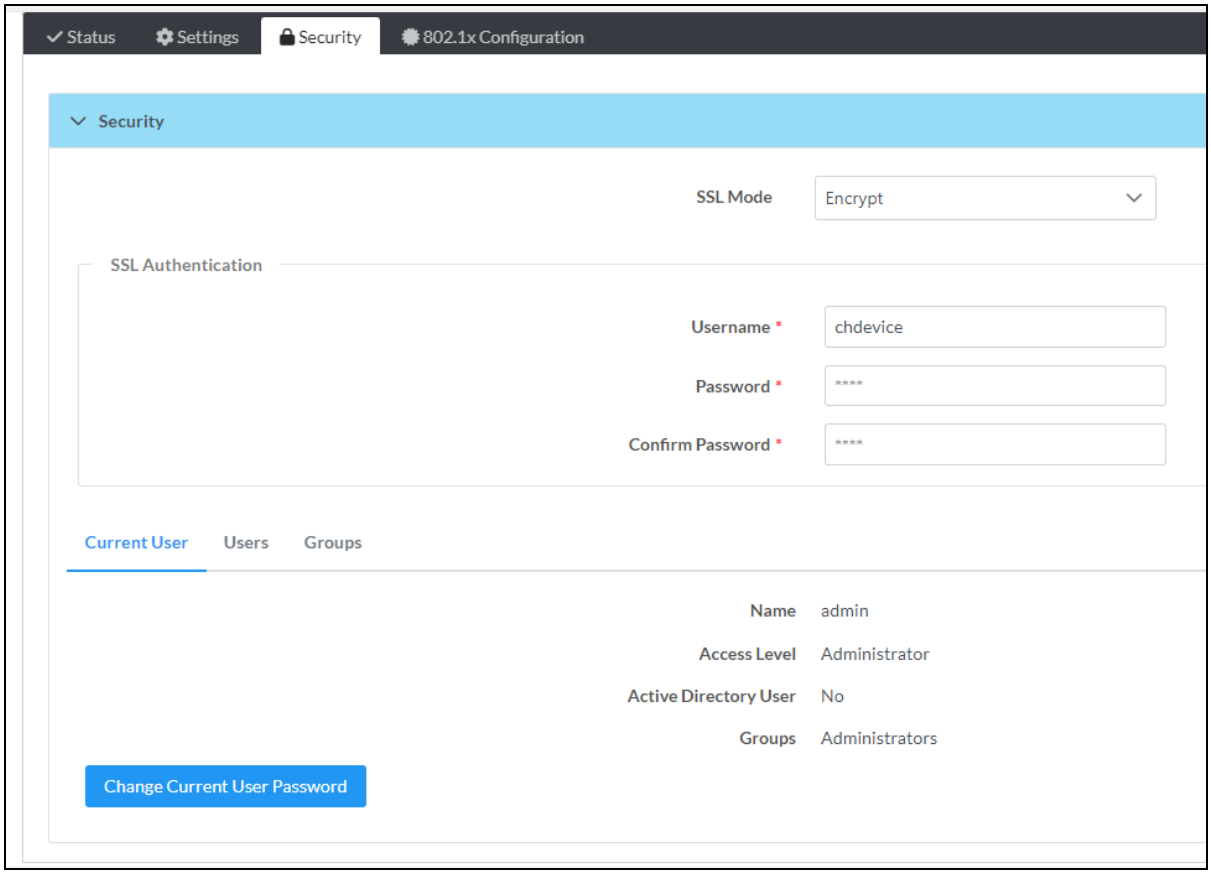


3. Set the **Auto Initiation** toggle to the right position to enable auto initiation. Set the toggle to the left position to disable auto initiation.
    - If **Auto Initiation** is enabled, the stream will begin automatically when the receiver subscribes to the transmitter.
    - If **Auto Initiation** is disabled, the stream will not begin until it is manually initiated.

4. To set the port number, do one of the following:
    - Use the arrows to increase or decrease the port number in increments of 1.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Select **OK** to save or select **Cancel** to cancel the changes.

Security

Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM-NAX-XSP functions. By default, security is disabled.



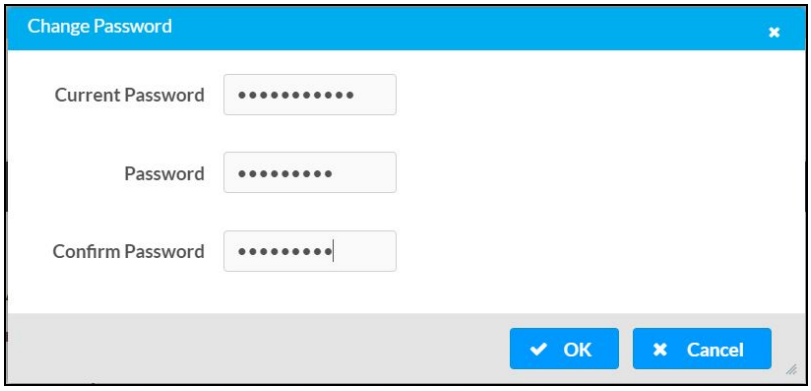
Select **Encrypt and Validate**, **Encrypt**, or **OFF** in the **SSL Mode** drop-down, to specify whether to use encryption. By default, SSL Mode is set to **OFF**.

Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



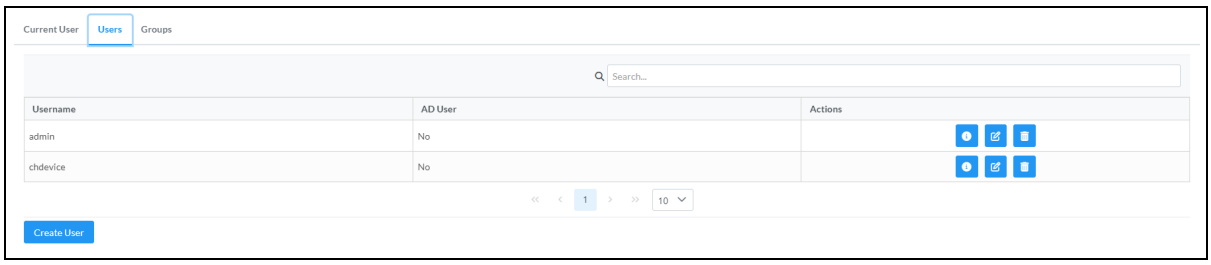
1. Select **Change Current User Password** to provide a new password for the current user.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about users.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list of users by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

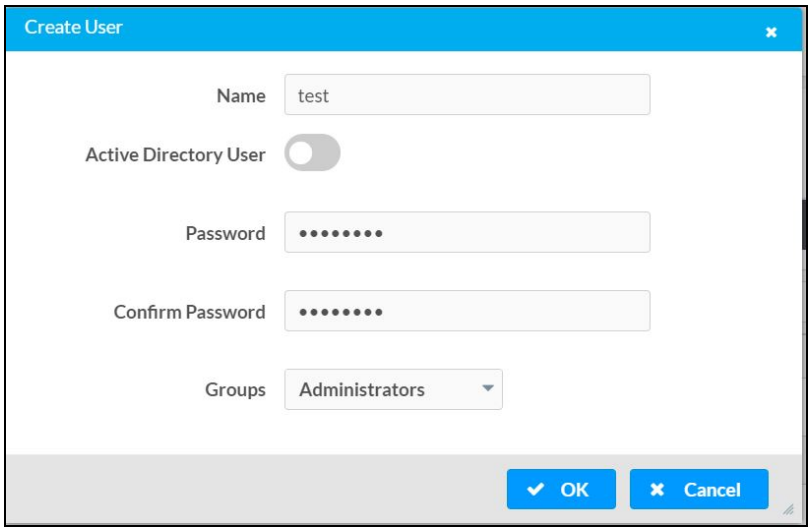
- **Username**: Displays the name of the user.
- **AD User**: Displays whether the user requires authentication using Active Directory.

  Select the corresponding icon in the **Actions** column to view detailed user information or to delete the user.

  To create a new user, select **Create User**.

Create a New Local User

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:



   a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.
   b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
   c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is disabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

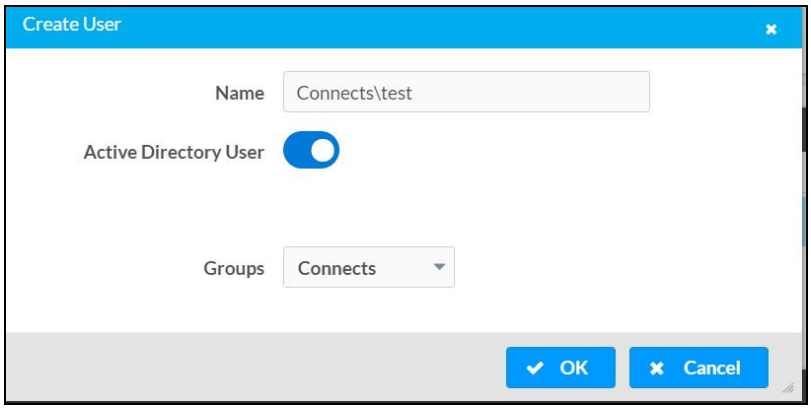
Add an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM-NAX-XSP, or add the Active Directory group(s) that they are a member of to the DM-NAX-XSP.

To add an Active Directory user.

1. Select **Create User**.
2. In the **Create User** dialog, enter the following.



a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "_" character.

b. Select one or more groups from the **Groups** drop-down list.

> **NOTE:** Make sure that the **Active Directory User** toggle is set to enabled.

3. Select **OK** to save or select **Cancel** to cancel the changes.

Delete User

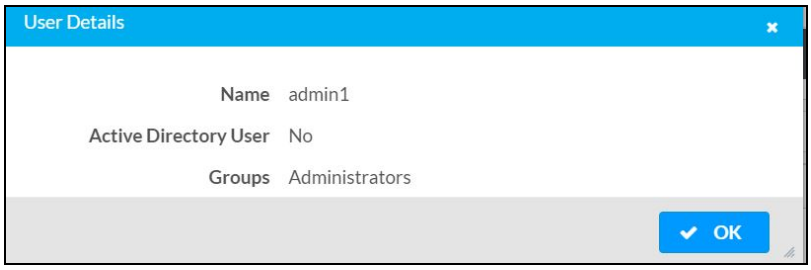
Select the trashcan icon in the **Actions** column to delete the user. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

After a user is removed from a group, they lose any access rights associated with that group. Note that the user account is not deleted by the delete user operation.

View User Details

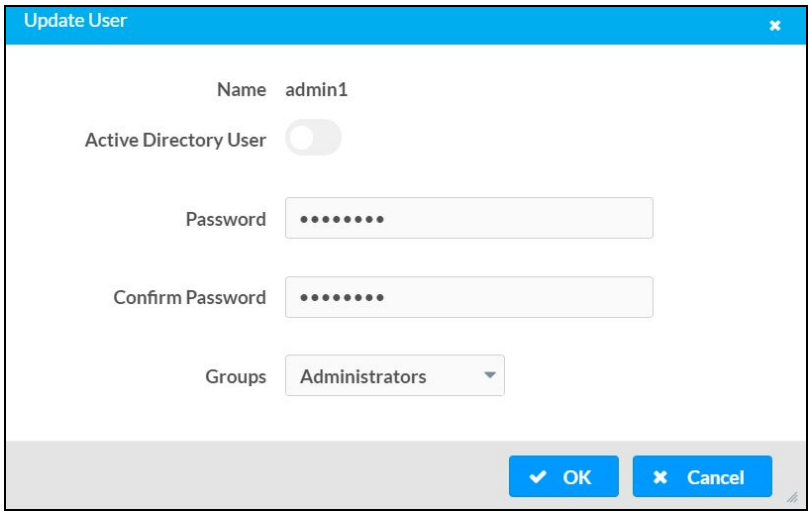
Select the information icon in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user:

- **Name**: Displays the name of the selected user.
- **Active Directory User**: Displays whether the user is an Active Directory user.
- **Group**: Displays group(s) the selected user is part of.



Select **OK** to close the **User Details** dialog and to return to the **Users** tab.

Update User Details



1. Select the edit icon in the **Actions** column to update information for the selected user.
2. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
3. Select one or more groups to assign the user to from the **Groups** drop-down list.
4. Select **OK** to save or select **Cancel** to cancel the changes.

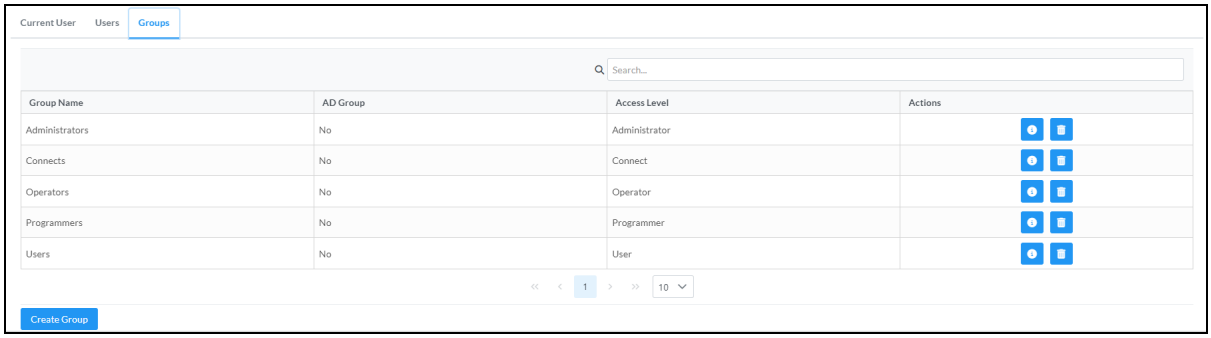
The **Update User** dialog also displays the following read-only information for the selected user.

- **Name**: Displays the name of the user.
- **Active Directory User**: Displays whether the user is an Active Directory user.

Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Additionally, each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

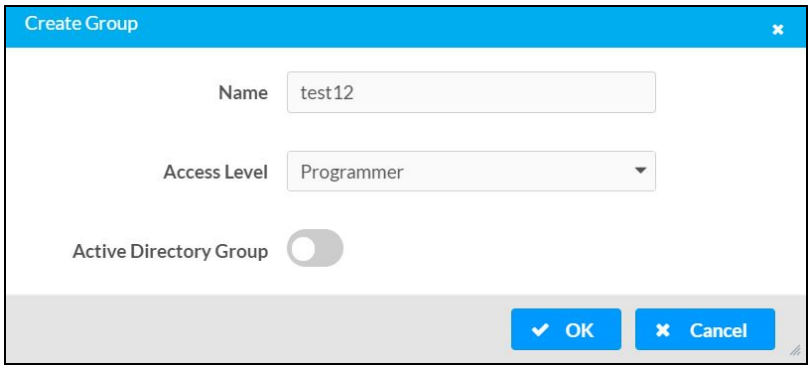
Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name**: Displays the name of the group.
- **AD Group**: Displays whether the group requires authentication using Active Directory.
- **Access Level**: Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the corresponding icon in the **Actions** column to view detailed group information or to delete selected group.

Select **Create Group** in the **Groups** tab to create new group.

Create Local Group



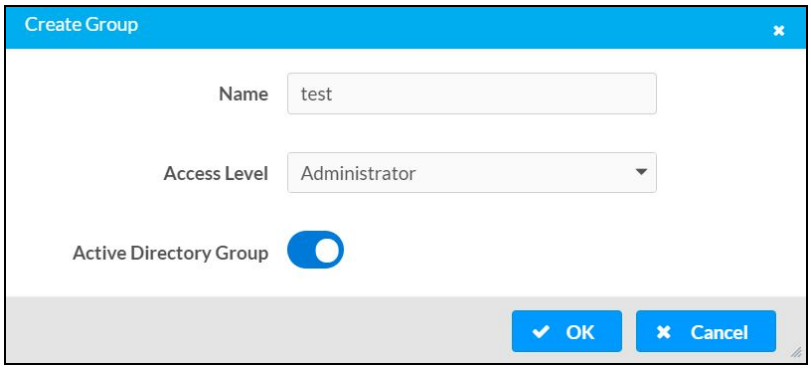
1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
    a. Enter the group name in the **Name** field.
    b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is disabled.

3. Select **OK** to save. Select **Cancel** to cancel the changes.

Add Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing group in Active Directory.



Once the group is added, all members of that group will have access to the DM-NAX-XSP.

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
    a. Enter the group name in the **Name** field, for example "Engineering Group". Note that group names are case sensitive; a space is a valid character that can be used in group names.
3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down list.

    > **NOTE:** Make sure that the **Active Directory Group** toggle is enabled.

4. Select **OK** to save. Select **Cancel** to cancel the changes.

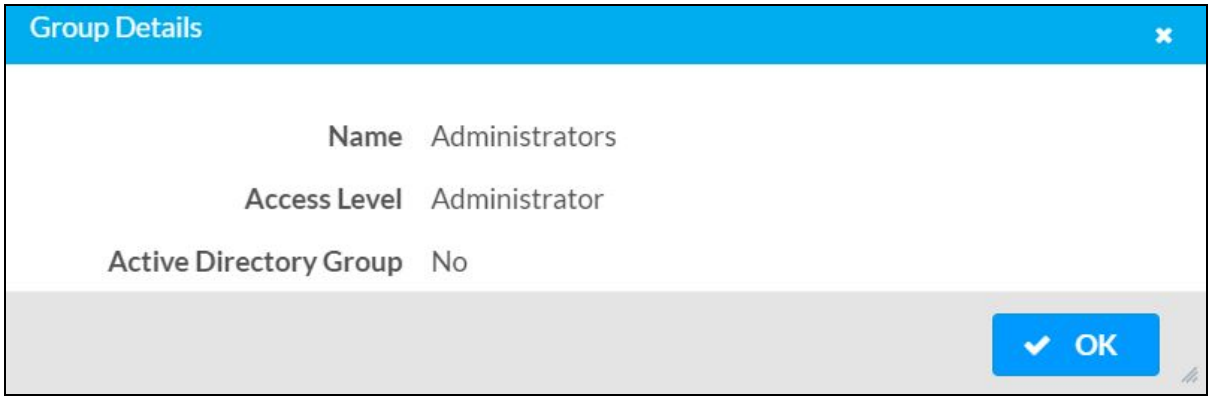
Delete a Group

Select the trashcan icon in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

View Group Details

Select the information icon in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group.

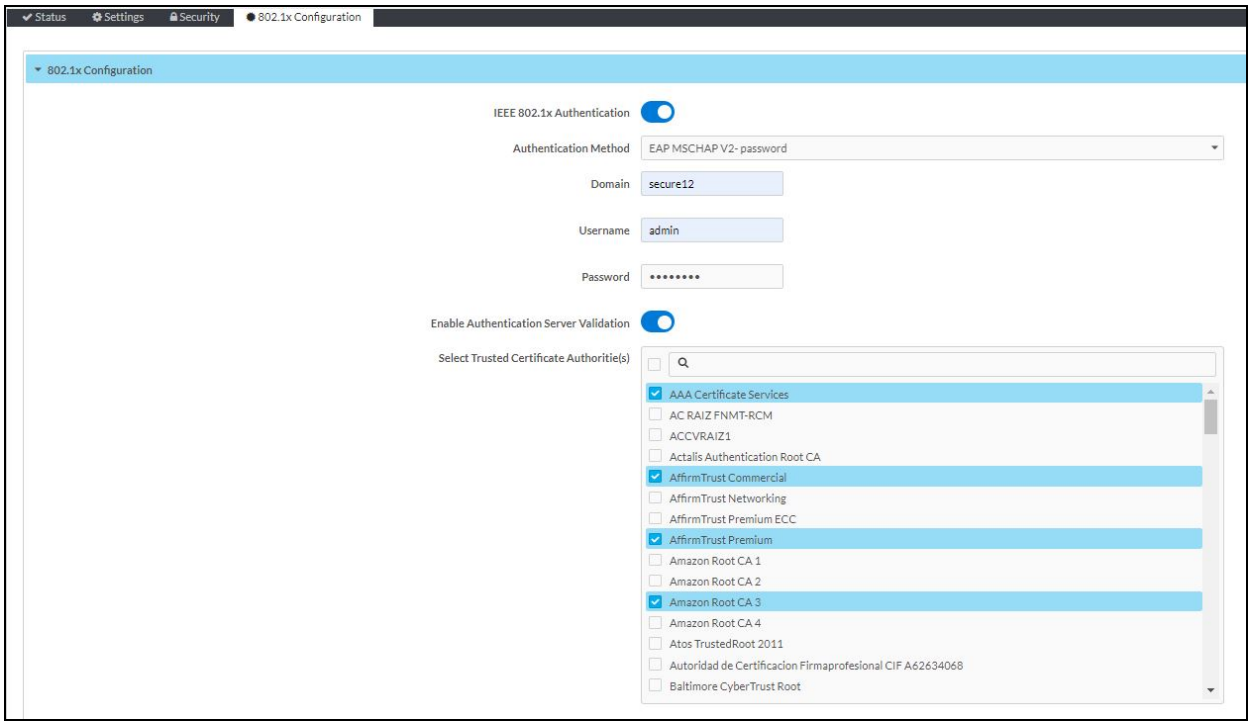


- **Name**: Displays the name of the group.
- **Access Level**: Displays the access level of the group and its users.
- **Active Directory Group**: Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and to return to the **Groups** tab.

802.1X Configuration

The DM-NAX-XSP has built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs. The standard relies on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.



To Configure DM-NAX-XSP for 802.1X Authentication

1. Set the **IEEE 802.1X Authentication** toggle to enabled. This will enable all options on the 802.1X dialog.
2. Select the **Authentication method**: **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.
3. Do either one of the following:
    - Select **EAP-TLS Certificate**: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
    - Select **EAP-MSCHAP V2 Password**: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded into the DM-NAX-XSP.
   Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

   If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** functionality.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and restart it. Select **Revert** to cancel any changes.

Troubleshooting

Refer to the following table for common troubleshooting scenarios and their resolutions.

Issue	Resolution(s)	Notes
Distortion is heard in the audio output.	Locate the point in the signal chain where the distortion is occurring. Avoid unnecessary level increases in gain staging to prevent clipping. If the distortion is occurring at or before the input to the DM NAX device, turn down the volume at the source device.	
Audio is not passing from a connected S/PDIF source (DM-NAX-16AIN, DM-NAX-4ZSA-50, DM-NAX-4ZSP, and DM-NAX-8ZSA).	Set the source to output via its optical or coaxial output.	Some displays will only use a single audio output at once, and are set to use the internal speakers by default.
	Ensure that the digital audio format is 2-channel PCM.	DM NAX devices do not support multichannel digital audio input with the exception of the DM-NAX-XSP. Multichannel audio-over-IP extension can be accomplished from one DM-NAX-XSP to another, but multichannel audio playback requires a third-party device such as an AVR.
Audio is routed, but not heard.	Unmute the output or increase the output level.	There are several level controls available on the outputs of DM NAX devices. Refer to Configuration on page 158 for information on setting the output level.
Audio distorts or drops when the device or metal in the vicinity of the device is touched.	Properly ground the device using the chassis ground lug.	

Issue	Resolution(s)	Notes
A DM NAX audio stream has stopped.	Ensure that the multicast address is valid and unique on the network.	Refer to Audio-over-IP Network Design on page 785.
Audio is inconsistent when multiple DM NAX audio streams are transmitting to the network switch.	Enable IGMPv2 or IGMPv3 snooping on the network switch for the associated ports or VLAN.	
	Set the IGMP filter to drop unknown multicast IP addresses.	
Audio stops suddenly and the network switch IGMP reports disappear.	Configure the IGMP querier correctly.	
Streaming service audio levels are different from each other or from other connected sources (DM-NAX-4ZSP and DM-NAX-8ZSA).	Adjust the relative levels of each streaming service using the Text Console commands available in Knowledge Article 3144.	
Bluetooth devices are automatically reconnecting (DM-NAX-BTIO-100-1G).	Set the **Connection Management** mode to **Exclusive** or **Temporary**.	**Exclusive** mode allows devices to reconnect only if no other device is currently connected. **Temporary** mode forgets paired devices once they disconnect or go out of the device's range. Refer to Commercial Mode on page 678 or Residential Mode on page 706 for more information.

Reset the Device

A network reset or factory restore may be performed when troubleshooting. The following procedures apply to all DM NAX audio-over-IP devices.

CAUTION: These procedures should only be performed to recover an unresponsive device. Both the Network Reset and Factory Restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing these procedures, contact Crestron True Blue Support via phone, email or chat as described at www.crestron.com/support.

Network Reset

To perform a network reset:

1. Ensure the device is powered on.
2. Press and hold the **SETUP** button for up to 15 seconds until the **SETUP** LED flashes red.

The device will restart, and the default network settings will be reset. The device will be reverted to its default hostname with DHCP enabled and no static IP set.

Factory Restore

To perform a factory restore:

1. Turn off the device by disconnecting the power cable from the device.
2. Press and hold the **SETUP** button and then reconnect the power cable while continuing to hold the button. Continue holding the **SETUP** button for up to 30 seconds until the **SETUP** LED flashes.

The device will restart, and all the factory default settings will be restored, including zone settings, streaming service accounts, multicast addressing, and so forth.

> **CAUTION:** Performing a factory restore will clear all settings from the device configuration.

Audio-over-IP Network Design

A Crestron DM NAX® audio-over-IP (AoIP) digital audio distribution system routes and manages local audio sources as well as cloud-based streaming services over standard gigabit Ethernet infrastructure. The DM NAX AoIP platform is based on AES67 standards, and is interoperable with third-party AES67 devices for added flexibility and scalability. DM NAX AoIP network traffic is multicast by design, so careful and thorough network design is critical to a successful deployment. For a proper installation of a DM NAX AoIP audio distribution system, refer to the best practices that follow.

> **NOTE:** Additional content pertaining to systems with DM NVX® AV-over-IP traffic is available in the DM NVX AV-over-IP System Design Guide.

Minimum Network Requirements

Several network switch hardware and firmware features are required in order for an install to successfully support DM NAX AoIP.

- Required network switch features and settings:
  - 1 Gbps port for each connected DM NAX endpoint
  - Non-blocking backplane
  - Layer 3
  - IGMPv2 snooping
  - IGMPv2 Querier
  - Fast-Leave (also known as immediate leave)
- Recommended network switch settings:
  - Layer 3 packet prioritization (DSCP) for Quality of Service (QoS)

    > **NOTE:** This should be considered a hard requirement for any systems with mixed DM NAX and DM NVX traffic
- Inter-switch uplink requirements (if needed)
  - Must have sufficient bandwidth for all encoder and decoder traffic to be passed along the uplink (allocate 1 Gbps of traffic per device)

Network Design Overview

DM NAX networks should be designed to isolate traffic on network segments specifically configured to handle DM NAX AoIP and DM NVX A/V-over-IP (AVoIP) traffic. This can be accomplished by using separate infrastructure or Virtual Local Area Networks (VLANs). DM NAX network segments may carry DM NAX multicast streams, DM NAX control, and/or other ancillary traffic.

> **NOTE:** DM NAX devices do not support VLAN tagging, so only DM NAX devices with dual Ethernet ports can be used in conjunction with VLANs to fully isolate DM NAX AoIP traffic from other traffic types on a single network switch.

DM NAX devices with dual Ethernet ports can be configured to isolate network traffic so that one port is designated for control and media player traffic and the other port is designated for AoIP traffic.

- When this **Port Isolation** feature is enabled, connect the control and media player port to the same network segment as the control system. This port will also need Internet access in order to support network streaming services.
- Connect the AoIP port to the network segment that will handle AoIP and AVoIP streams, such as DM NAX audio, AES67 audio, or DM NVX AVoIP streams.

These segments can be handled via VLANs or physically separate switching hardware. If the AoIP traffic is relegated to separate network switches, only the AoIP network switches need to meet the **Minimum Network Requirements** listed above.

Networked AV devices other than DM NAX AoIP devices can be placed on the DM NAX AoIP network segment. The network bandwidth requirements will often be higher in this case, so ensure that the network hardware can support the bandwidth of both platforms. When AV devices such as DM NVX AVoIP endpoints are added to the network, it may be necessary to configure QoS settings such as DSCP priorities on the network switch. Refer to Quality of Service Configuration on page 788 for further information.

A single DM NAX AoIP device can have several network addresses:

- One IP address is required for device control, web configuration, and console access.
- A discrete multicast address is required for each multicast stream transmitting from the device:
    - DM NAX devices will typically have a multicast transmit stream available for each local source and media player on the device, but may also have additional transmit streams called **Parallel Zone Outputs** that mirror the audio signal of the local outputs of the device. For example, the DM-NAX-8ZSA has 8 transmit streams for the local inputs, 8 transmit streams for the local media players, and 8 **Parallel Zone Output** streams, for a total of 24 DM NAX transmit streams, each of which will require its own multicast address. Be sure to account for all available transmit streams of each DM NAX device when allocating multicast address ranges for DM NAX devices.
    - During device configuration, the **Commissioning** function in the web user interface (UI) will automatically assign multicast addresses to the transmit streams in a specified address range. Alternatively, each transmit stream address can be assigned manually via the web UI or custom programming. Duplicate multicast addresses are not permissible, and will cause network collisions and unpredictable behavior at the receiving device. The **Commissioning** function prevents address duplication on a single DM NAX device, and Crestron Home® OS automatically manages multicast addressing on all DM NAX and DM NVX devices in a system to prevent duplicate addresses.

The DM NAX network segment must receive network services, including DNS, DHCP, Active Directory®, PTP, mDNS, and RADIUS services. Coordinate with IT staff to provide access to these services and to create the proper routes for the DM NAX network segment.

Multicast Network Traffic

DM NAX AoIP devices send and receive audio as multicast network traffic. This Internet Group Management Protocol (IGMP) multicast traffic replaces a fixed switching architecture to achieve AoIP audio distribution.

To implement DM NAX devices successfully, first segregate DM NAX traffic away from customer-facing networks with wireless access points and/or Internet access. This can be accomplished either via VLANs or physically-separate switching hardware. In a network segment with multicast traffic, if traffic is not managed, all ports can be flooded by IGMP packets at any time, regardless of whether that traffic was intended to be received by the network device on that port. This leads to interference with network operation and can even be a means of implementing a denial-of-service attack on a network if done maliciously.

To ensure that only traffic between intended multicast senders and multicast receivers is present on a given port, IGMP Snooping must be supported and enabled on the network switch. IGMP Snooping is a feature that enables a network switch to limit multicast traffic only to ports between intended senders and receivers. DM NAX AoIP supports both versions of IGMP snooping: IGMPv2 and IGMPv3.

An IGMP Querier must also be available and enabled to ensure the network switch knows which ports should or should not receive multicast traffic. In a multiswitch topology, the switch with the lowest numerical IP address on the network is typically the default IGMP Querier. Only one IGMP Querier should be enabled and selected on a network. The default leave time for the IGMP Querier (typically 125 seconds) is sufficient for a DM NAX network.

Precision Time Protocol

Precision Time Protocol (PTP) is a clock synchronization protocol that keeps signal clocking aligned throughout a network. This is a crucial component of AoIP audio distribution, since it keeps audio synchronized and transmitting properly between networked audio devices in the system. Many interactions that are part of PTP are extremely time critical, and allow the protocol to achieve submicrosecond accuracy between networked clocks. This also makes PTP traffic extremely sensitive to high-bandwidth traffic if not managed properly.

PTP is multicast traffic, and needs to be able to reach all DM NAX or AES67-capable devices on a network in order to maintain clock synchronization. To keep units synchronized, a single clock in the system is designated as the **PTP Leader Clock**, and all other clocks in the system synchronize to that device's clock. This can be a DM NAX or AES67 AoIP device, or it can be a dedicated clock on the network. The leader clock assignment is decided based on a priority value associated with the clocks on the network:

- DM NAX devices have a default priority of 254, and can be elected as the leader clock only if all other devices on the network have a priority of 254 or 255.
- Any device with a priority value less than 254 would be assigned as the leader clock over a DM NAX device unless the DM NAX device was set to a lower value via the web UI. It is recommended to leave the clock priority value of DM NAX devices at its default value to allow a dedicated PTP clock on the network to be assigned as the leader.

Once a leader clock is selected, all other clocks on the network will be synchronized to that device. In the event that a leader clock becomes inaccessible, a new leader clock will be elected instantly. If network bandwidth becomes saturated and clock synchronization is compromised, noticeable drops in audio quality, broken routes, or audible distortions will occur. If these symptoms are occurring, enable QoS settings on the network switch to preserve consistent clock synchronization and good audio quality.

PTP packets also include a discrete Time To Live (TTL) value. TTL is a value which determines how many network router hops a given packet can traverse before it is discarded by the router. DM NAX PTP packets have a TTL value of 1, meaning the PTP traffic will not survive traversal through a router to another subnet. As a result, all DM NAX traffic must be relegated to a single subnet.

Quality of Service Configuration

Quality of Service (QoS) refers to a suite of features on network switches that are designed to preserve network traffic integrity in the event of compromising circumstances, such as bandwidth saturation. QoS is typically a mechanism of organizing different network traffic types hierarchically, so higher priority traffic has a better chance of being undisturbed by suboptimal network performance (at the expense of lower priority traffic). Configuring QoS can help ensure that time-critical events like PTP clock synchronization between AoIP devices do not fail, even as a network switch handles high utilization rates from surges in traffic bandwidth. Configuring QoS is necessary in VLANs that combine both DM NAX AoIP and DM NVX AVoIP traffic, since constant high-bandwidth traffic will be the standard for most ports on the VLAN.

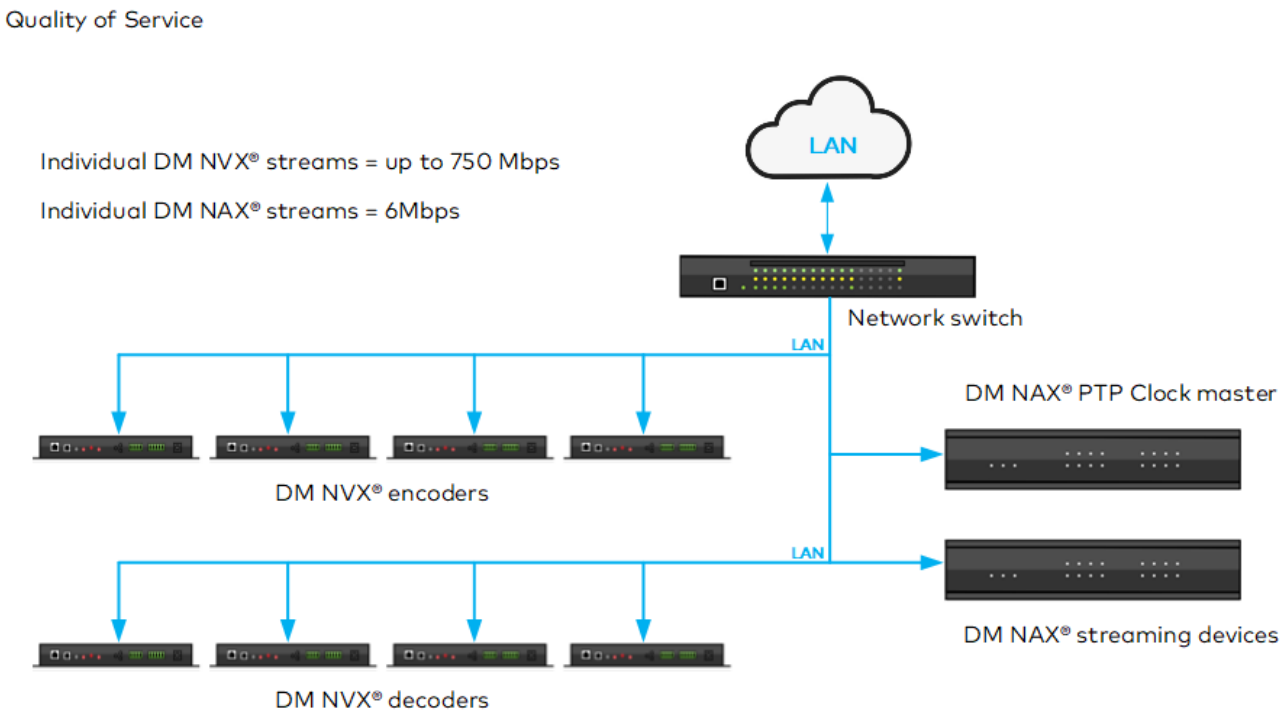
DM NAX devices tag outgoing traffic with Differentiated Services Code Point (DSCP) headers as shown in the following table:

Prioritization	Traffic Type	DSCP Value
Highest	Time-critical PTP events	CS7 (56)
↓	Remaining PTP traffic	CS6 (48)
	Audio	EF (46)
Lowest	Other	BestEffort (0)

NOTES:

- DM NAX traffic is tagged with DSCP values, not 802.1P IP Precedence values.
- These DSCP values vary slightly from the AES67 standard so that DM NAX PTP and audio traffic can more easily be set to higher priorities than the values corresponding to DM NVX video traffic.
- VLAN tagging is not supported on DM NAX devices.

Mixed DM NAX and DM NVX Network Segment



With the potential for DM NVX, AES67, control, and USB traffic to be passing on individual switch connections in a mixed DM NAX and DM NVX VLAN, any given port may approach or exceed 80% utilization (assuming 1 Gbps ports), at which point QoS can prioritize time-critical PTP negotiations. This prevents leader clock status or synchronization from being interrupted during near network saturation. Without QoS configuration, as port utilization approaches the point of saturation, PTP may no longer remain synchronized and audio signals throughout the network may begin to falter, distort, or cut out

completely. QoS cannot fabricate additional bandwidth for the network switch: in the event of true bandwidth saturation, QoS settings cannot guarantee the timely delivery of high-priority traffic.

Network Topologies

The relationships between network switches and their interconnection define a network's topology. In a topology with multiple interconnected switches, there are two classes of network switches: edge switches and core switches.

- Edge switches are connected via uplinks to other switches and routers, and typically have lower backplane bandwidth or processing power.
- Core switches are switches to which edge switch uplinks connect, aggregating and managing traffic from the network's edge. As such, core switches must have sufficient bandwidth and processing power to manage all network traffic from all connected switches.

Connect devices such as control processors, touch screens, servers, personal computing devices, and DM NAX endpoints directly to network switches. In a large network with multiple layers of switch hierarchy, connect these devices to edge switches.

The following general rules apply for determining nonblocking switch fabric bandwidth:

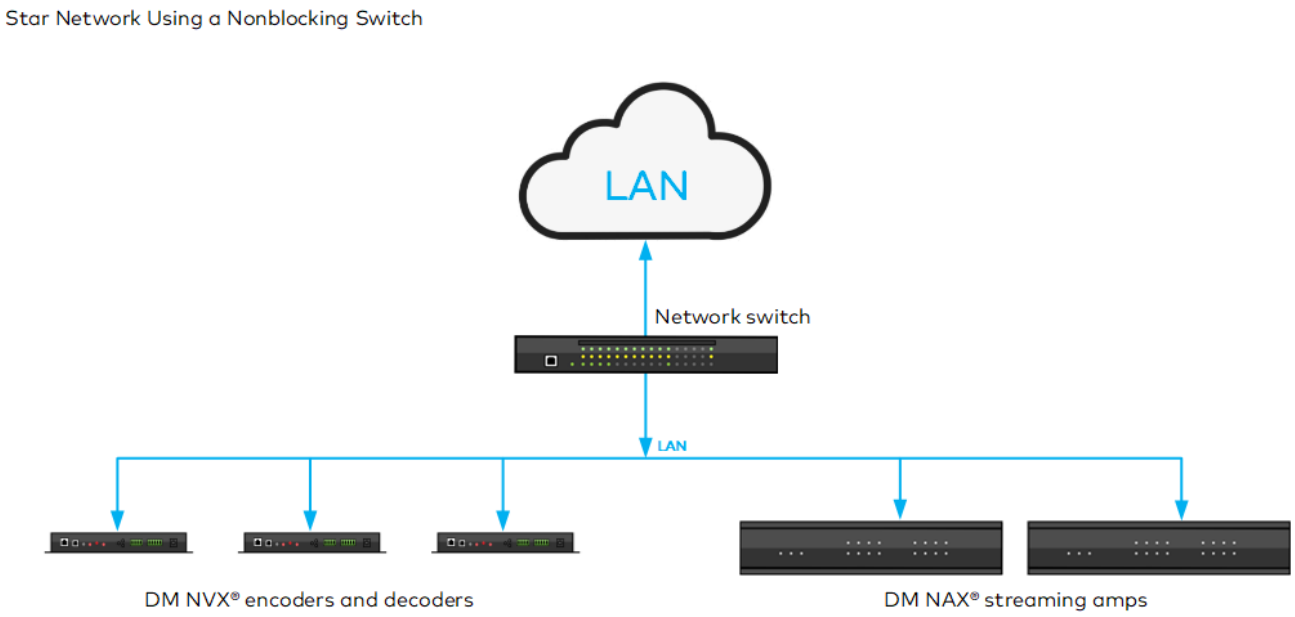
- The network core must support a fabric bandwidth and uplink speed equal to 1 Gbps multiplied by the lesser of the total number of anticipated encoder endpoints or the total number of anticipated decoder endpoints. DM NAX devices can act as both encoders and decoders simultaneously, while DM NVX devices may only operate as one or the other. Include any USB extenders in the endpoint count as well.
- The network edge must support a fabric bandwidth and uplink speed equal to 1 Gbps multiplied by the greater of the total number of anticipated encoder endpoints or the total number of anticipated decoder endpoints. Include any USB extenders in the endpoint count as well.

Star

The basic recommended network topology for a DM NAX system is the star topology. Using a fully nonblocking switch, star topology allows any combination of one or more endpoints to connect to any other combination of endpoints.

The network switch in a star topology must support a backplane bandwidth greater than or equal to 1 Gbps multiplied by the total number of anticipated transmitting endpoints or receiving endpoints, whichever is greater.

Star Topology Using a Nonblocking Network Switch



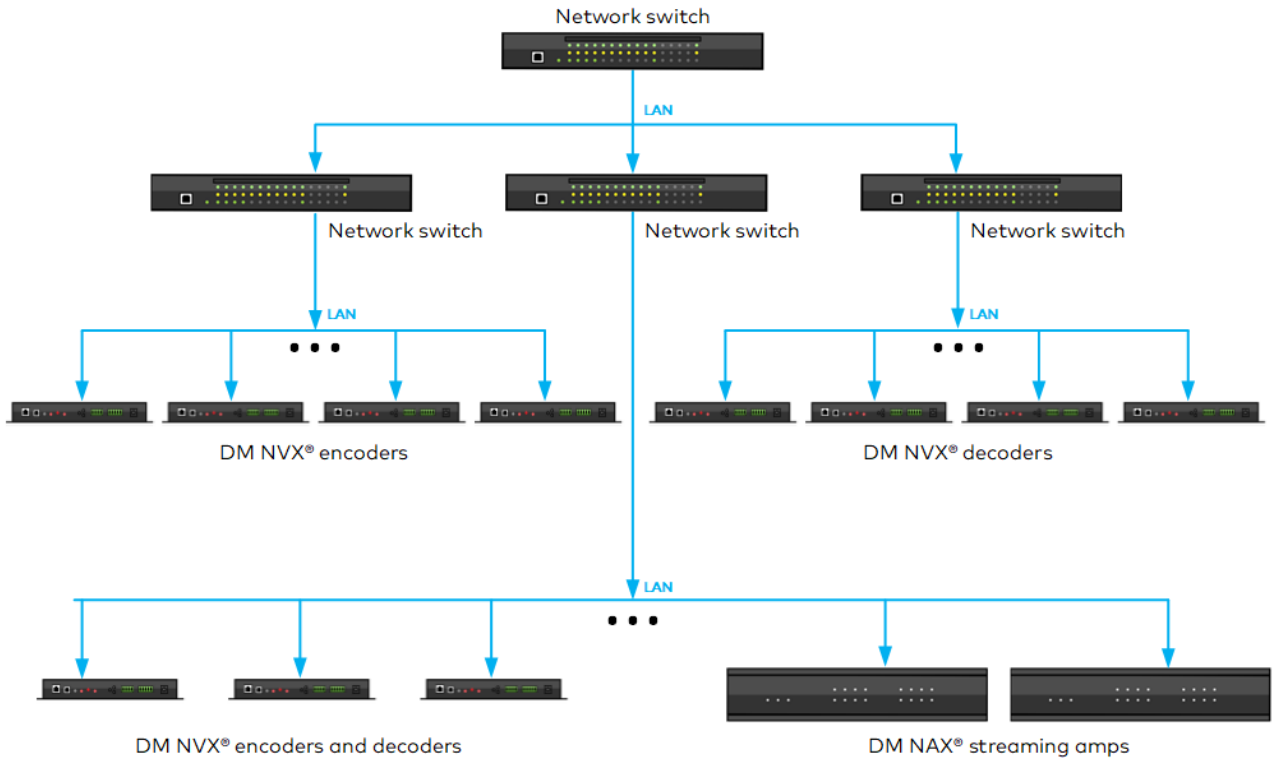
Tree

A tree network is a combination of more than one star network existing on a core switching infrastructure. The tree network allows for failure in one attached star network without widely effecting the others. Configure the network core switch for redundancy and scalability.

In a network with multiple layers of switch hierarchy, always connect DM NAX devices to edge switches. Network edge switches are connected via uplinks to other switches and routers that form the network's core. The core switch fabric and uplinks in a tree topology must support a bandwidth greater than or equal to 1 Gbps multiplied by the total number of anticipated endpoints that will transmit through the core switch.

Each edge switch in a tree topology must support a backplane bandwidth greater than or equal to 1 Gbps multiplied by the total number of anticipated transmitting endpoints or receiving endpoints local to that switch, whichever is greater.

Tree Topology Using Nonblocking Switches on a Core Network



Network Security

Security requires the support of particular capabilities within all devices on the network. DM NAX networks employ:

- 802.1X authentication to ensure that devices on the network have been authorized by the network administration team.
    - Unauthorized devices are prevented from being added to the network and from having access to sensitive content.
- Active Directory services for endpoint administration to ensure that administrative privileges for DM NAX devices can be centrally managed, granted, and revoked when necessary.
- SSL-based Secure Cresnet over IP (SCIP) for control to allow control processors and DM NAX devices to communicate with the intended party device, and that any unauthorized device on the network cannot monitor commands or status.
- SSH-based command-line console access for device configuration and status to protect the device console from access by unauthorized users.

SCIP and SSH-based command-line console access are automatically configured within DM NAX devices and support software. Designs will need to facilitate 802.1X and Active Directory service support within the network.

For additional information about the secure deployment of Crestron products, refer to the IP Considerations Guidelines for the IT Professional Design Guide and Knowledge Article 5571.

Network Design Considerations

Adhere to these best practices when designing a DM NAX network:

- Use nonblocking Layer 3 switches with port-based QoS at all stages of the design:
  - Ensure sufficient switch fabric bandwidth and port speeds.
- Configure QoS to ensure prioritization of time-critical PTP clock traffic:
  - PTP events are tagged with DSCP values at DM NAX devices so PTP events can successfully pass on the network even at near saturation traffic levels, and clock synchronization is not interrupted between audio devices.
- Enable an IGMP Querier on at least one switch in the DM NAX network.
- Choose an appropriate network topology:
  - Consider the network, including basic functionality and redundancy, as well as whether additional features such as DM NVX video walls or repetitive display signage are necessary.
  - Ensure that network IT staff and network architects are involved in the decision.
- In multiswitch designs, choose switches with sufficient bandwidth at each segment from edge to core to ensure a fully non-blocking design.
- Consult the network switch manufacturer's documentation to confirm that any uplinks are configured properly for multicast traffic.
  - Refer to Knowledge Article 2948 for further considerations when configuring Link Aggregation Groups (LAGs).
- Use Active Directory for network security:
  - Create an Active Directory group responsible for device administration.
  - Add device administrators to the group.
  - Add the group to the DM NAX device via the **Device** tab of the web UI.
- Use a DHCP server with link-layer filtering, and configure the IP addresses of endpoints using DHCP rather than static IP addressing.
  - Using a DHCP server with short lease times, MAC address filtering, and sufficient address space for future needs makes network management simpler.
- Enable IGMP Snooping on the network switch.
  - This is a requirement for all designs, and enables multicast traffic delivery to DM NAX endpoints. Without IGMP Snooping enabled, switches that receive a multicast stream will transmit that stream to all ports simultaneously, which may saturate all network links.
- Use Rapid Spanning Tree Protocol (RSTP) on the network to ensure that network loops are discoverable and to prevent deployment issues.
  - Network management should account for RSTP discovery downtime when changes are made to the network.
- Disable the IGMP proxy function on Crestron control systems on the network that have a built-in router to ensure that DM NAX multicast traffic does not interfere with the control processor.
  - Refer to Knowledge Article 1001644 for instructions on disabling the IGMP proxy function.

- Ensure that multicast IP addresses do not overlap and do not share multicast MAC addresses.
    - Overlapping addresses will cause network collisions and prevent successful operation of the DM NAX network.

System Installation

The installation phase of DM NAX network deployment has its own set of best practices to ensure optimal performance and longevity.

Endpoint Installation

Each DM NAX endpoint has unique installation requirements that vary depending on:

- Quantity of RJ-45 connectors:
    - Single Ethernet port models cannot isolate AoIP and control traffic.
    - Dual Ethernet port models can either share all traffic between both ports or dedicate one port to AoIP traffic, segmenting the remaining traffic to the other port, via the **Port Selection** feature.
- Local I/O capabilities:
    - Some local I/O signal types require close proximity to the connected source or sink.
    - Some signal types, such as unbalanced line-level analog audio, are more susceptible to interference from other devices, especially from AC power lines.
    - Wireless communications such as Bluetooth audio may require unobstructed line-of-sight between transmitter and receiver for optimal performance.
- Amplification, form factor limitations, and channel count requirements.
- Versiport capabilities.

DM NAX devices with dual Ethernet ports can pass the control LAN through to a Crestron touch screen on the secondary Ethernet port when the **Port Selection** feature is disabled.

To minimize required maintenance on an installation:

- Avoid direct access to the endpoint by end users, as they can induce failures or create a security risk due to unauthorized network access.
- Use shielded or unshielded CAT5e (or greater) copper network cable that is properly terminated with an RJ-45 connector and tested for both continuity and throughput.
- Observe the minimum bend radius and maximum pull force of cables to maintain cable integrity.
- Use plenum rated cables in plenum spaces:
    - Fire rated conduit for any fiber or copper cabling used in plenum spaces is also suitable.
- Practice good cable dressing.
- Use descriptive names for endpoints, either through the web UI or Crestron Toolbox™ software; do not rely on default names or the Crestron IP ID.
- Physically secure the endpoint to a fixed point or rack to prevent movement over time.

- Thoroughly document the installation of endpoints, including diagrams, lists, and descriptions to provide detailed information for those who will maintain or upgrade the network.

Network Installation

The success of a DM NAX network installation varies depending on several factors of the physical install, including whether existing network infrastructure is being reused or the location of networking equipment relative to the DM NAX and DM NVX endpoints.

For optimal installation and maintenance of a DM NAX network, adhere to these best practices:

- Use or repurpose existing infrastructure as possible in DM NAX network installation.
- Practice physical security for the network:
  - Secure all network locations (MDF/CDF and IDF down to individual closets) from unauthorized access.
- Disable any unused ports on network switches.
- Use a structured cabling approach, such as those described in the TIA/EIA-568 standard:
  - Include keystones in jacks and patch panels, shielded or unshielded solid copper conductor cable not exceeding 295 ft (90 m), and patch cables not exceeding 33 ft (10 m) to connect between patch panels.
  - Use cable testers to verify the integrity of the installation and capacity for future expansion and backup.
- Use Crestron recommended switch configuration files when possible.
  - Refer to Knowledge Article 1000314 for network switch configuration files that have been shown to meet the minimum requirements for DM NVX deployments; not all of these files have been tested with mixed DM NAX and DM NVX environments. Contact Crestron True Blue Support to confirm if a network switch will support a mixed DM NAX and DM NVX environment.
  - Refer to Knowledge Article 2836 for instructions on configuring NETGEAR® AV network switches to use the built-in DM NAX and DM NVX profiles.
- Configure the routing of any external servers:
  - If non-dedicated DHCP, RADIUS, Active Directory, or other servers are used, ensure that these servers can reach the DM NAX network.
- Thoroughly document all DM NAX network hardware and configurations.

Resources

The following resources are provided for DM NAX®.

> **NOTE:** You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

Crestron Support and Training

- Crestron True Blue Support
- Crestron Resource Library
- Crestron Online Help (OLH)
- Crestron Training Institute (CTI) Portal

Programmer and Developer Resources

- help.crestron.com: Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- developer.crestron.com: Provides developer documentation for Crestron APIs, SDKs, and other development tools

Product Certificates

To search for product certificates, refer to support.crestron.com/app/certificates.

Crestron Electronics, Inc.
15 Volvo Drive, Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7656
www.crestron.com

Product Manual — Doc. 9045AD
08/26/26
Specifications subject to
change without notice.