DM-NAX-8ZSA

DM NAX™ 8-Zone Streaming Amplifier

Product Manual

Crestron Electronics, Inc.

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

Regulatory Model: M1845004

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Introduction

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.

DM NAX is built on AES67 standards with the additional ease of configuration via a web interface, SIMPL Windows, 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 and Dante® audio networking via the compatibility mode enabled in Dante Controller.

Voltage triggers corresponding to the 4 stereo line-level analog outputs can be used to power connected external amplifiers on and off. The DM-NAX-8ZSA supports Synchronized Control to manage a large network of DM NAX devices from a single interface.

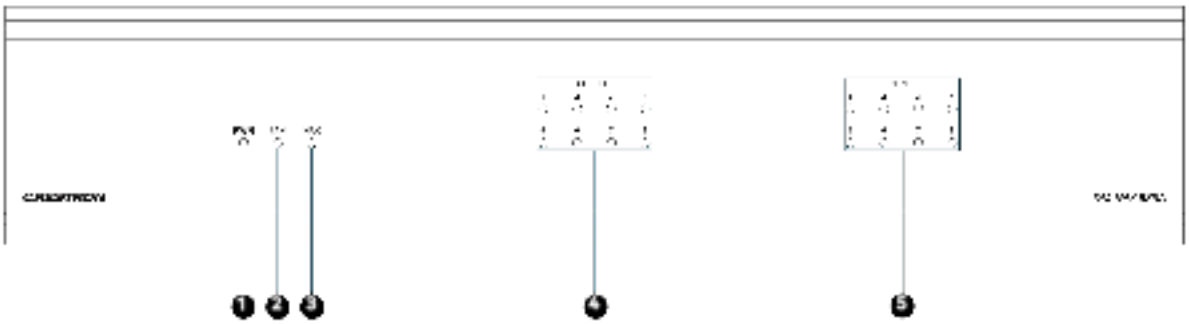
For installation information, refer to the Quick Start Guide.

Physical Description

The following sections provide information about the connectors, controls, and indicators that are available on the DM-NAX-8ZSA device.

Front Panel

The following illustration shows the front panel of the DM-NAX-8ZSA.

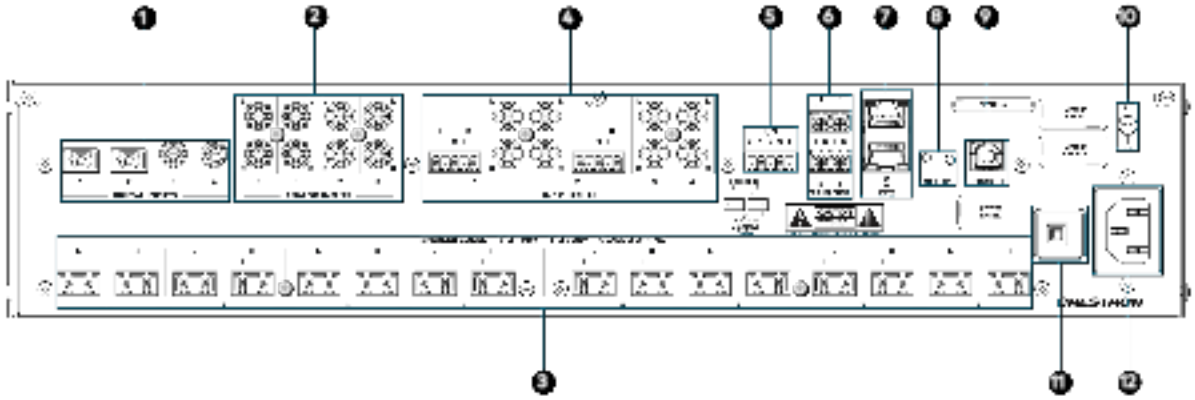


1. **PWR:** (1) LED, indicates operating power is supplied; illuminates amber while booting, white when powered on, red when in standby (no audio or LAN connection), and off when no power is supplied.
2. **LAN:** (1) LED, illuminates white when the amplifier is connected to a network with a valid IP address, and off when the device is not connected to a network or the IP address is invalid.
3. **NAX:** (1) LED, Illuminates white when the AoIP is ready to pass and the unit's PTP clock is synced, and off when there is no AoIP is passing to or from an amplifier and/or PTP is not synced.
4. **SOURCE:** (8) LEDs, illuminate white when a signal is detected on the specified input/source, red when there is clipping on an analog input or bitstream audio detected on a digital input, and off when there is no signal detected on the specified input/source.
5. **ZONE:**(8) LEDs, illuminate white when there is audio output on the indicated zone, red when clipping or a fault is detected on the zone output due to overcurrent, over temperature, or low voltage.

Rear Panel

The following illustration shows the rear panel of the DM-NAX-8ZSA.

DM-NAX-8ZSA Rear Panel



1. **DIGITAL INPUTS:** (2) JIS F05 female (TOSLINK®) optical fiber connectors, S/PDIF optical digital audio inputs;
   (2) RCA female; S/PDIF coaxial digital audio inputs; Input Impedance: 75 Ohms

2. **ANALOG INPUTS:** (8) RCA female comprising (4) unbalanced stereo line-level audio inputs; Input Impedance: 10000 Ohms;
   Maximum Input Level: 2 Vrms

3. **SPEAKER OUTPUTS:** (16) 2-pin 7.62 mm detachable terminal block;
   Balanced/unbalanced stereo line-level audio outputs,
   Output Impedance: 4 Ohms/8 Ohms;
   Maximum Output Level: 150 Watts single-ended at 8 Ohms, 300 Watts single-ended at 4 Ohms, with zones bridgeable up to 500 Watts at 8 Ohms.

4. **LINE OUTPUTS:** (8) RCA connectors, female; Comprise (4) unbalanced line-level stereo audio outputs (mirror corresponding speaker outputs pair 1 – 4);
   Output Impedance: 100 Ohms; Maximum Output Level: 2 Vrms;
   (2) 5-pin 3.5mm detachable terminal blocks; Balanced stereo line-level audio outputs (mirror corresponding unbalanced RCA output pairs 1 – 2);
   Output Impedance: 150 Ohms; Maximum Output Level: 4 Vrms

5. **I/O Port:** (1) single 5-pin Phoenix block that comprises four I/O ports, and a shared ground

6. **TRIGGER:** (2) 4-pin Phoenix connectors for all outputs;
   The triggers correspond to the respective LINE OUTPUTS 1-4 and will drive the individual eight zone amplifiers whenever a signal is routed to the respective line output.

Ethernet 1: (1) 8-pin RJ-45 connector, female;
100BASE-TX/1000BASE-T Ethernet port;
Green LED indicates Ethernet link status;
Flashing amber LED indicates Ethernet activity

Ethernet 2: (1) 8-pin RJ-45 connector, female;
100BASE-TX/1000BASE-T Ethernet port;
Green LED indicates Ethernet link status;
Flashing amber LED indicates Ethernet activity

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;
Press and hold the **SETUP** button with power disconnected then connect the power supply and continue to hold **SETUP** button for 15 seconds will perform a factory restore;
(1) LED, illuminates red when the button is pressed, flashes red when reset has been initiated

CONSOLE: (1) Standard USB 2.0 Type B connector, female

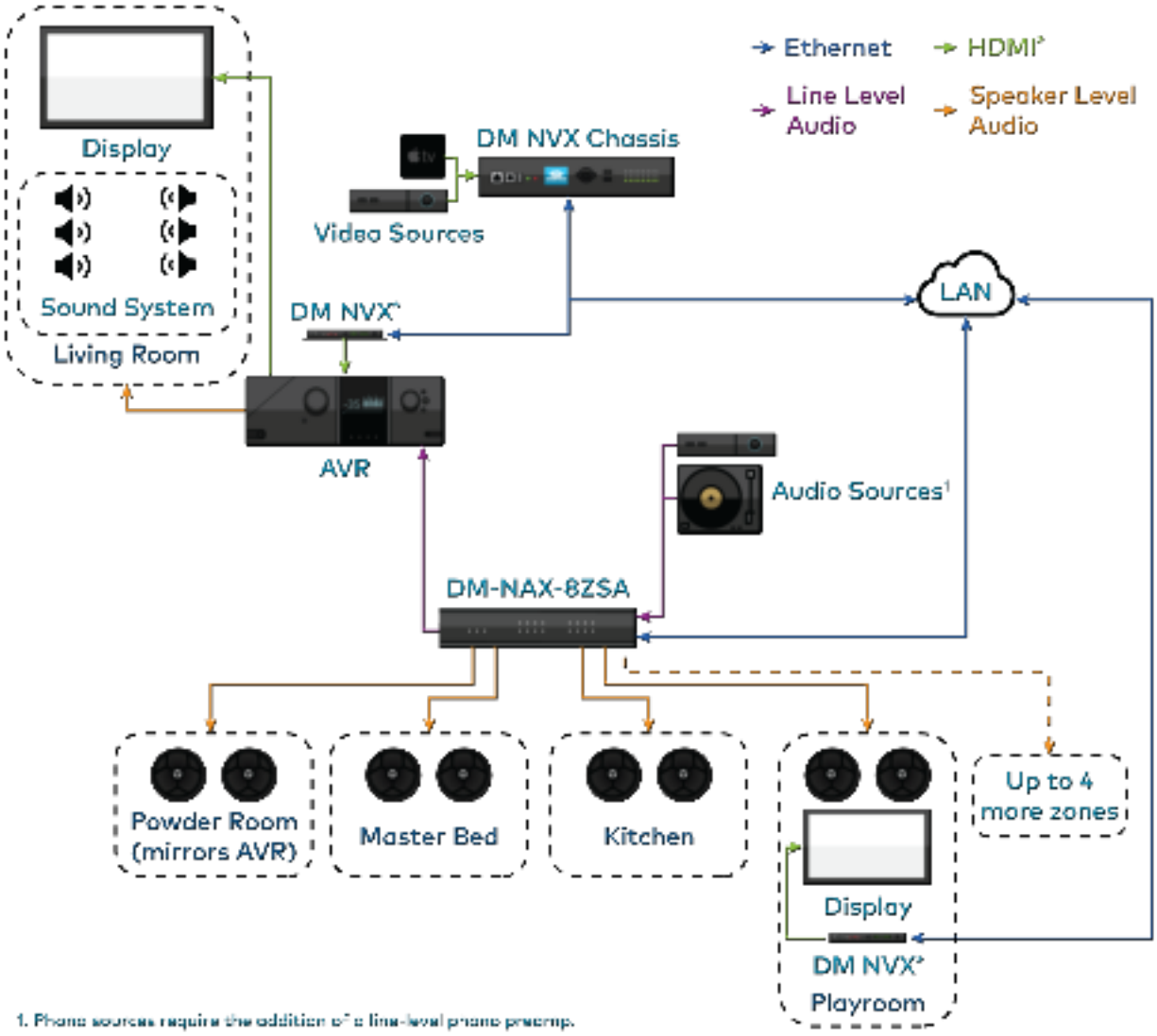
GROUND: 6-32 screw, chassis ground lug 11

10A Fuse: 10 Ampere Fuse

POWER OUTLET: (1) 100-240V~50/60Hz Universal AC; IEC 60320 C14 Main power inlet, mates with removable power cord (included)

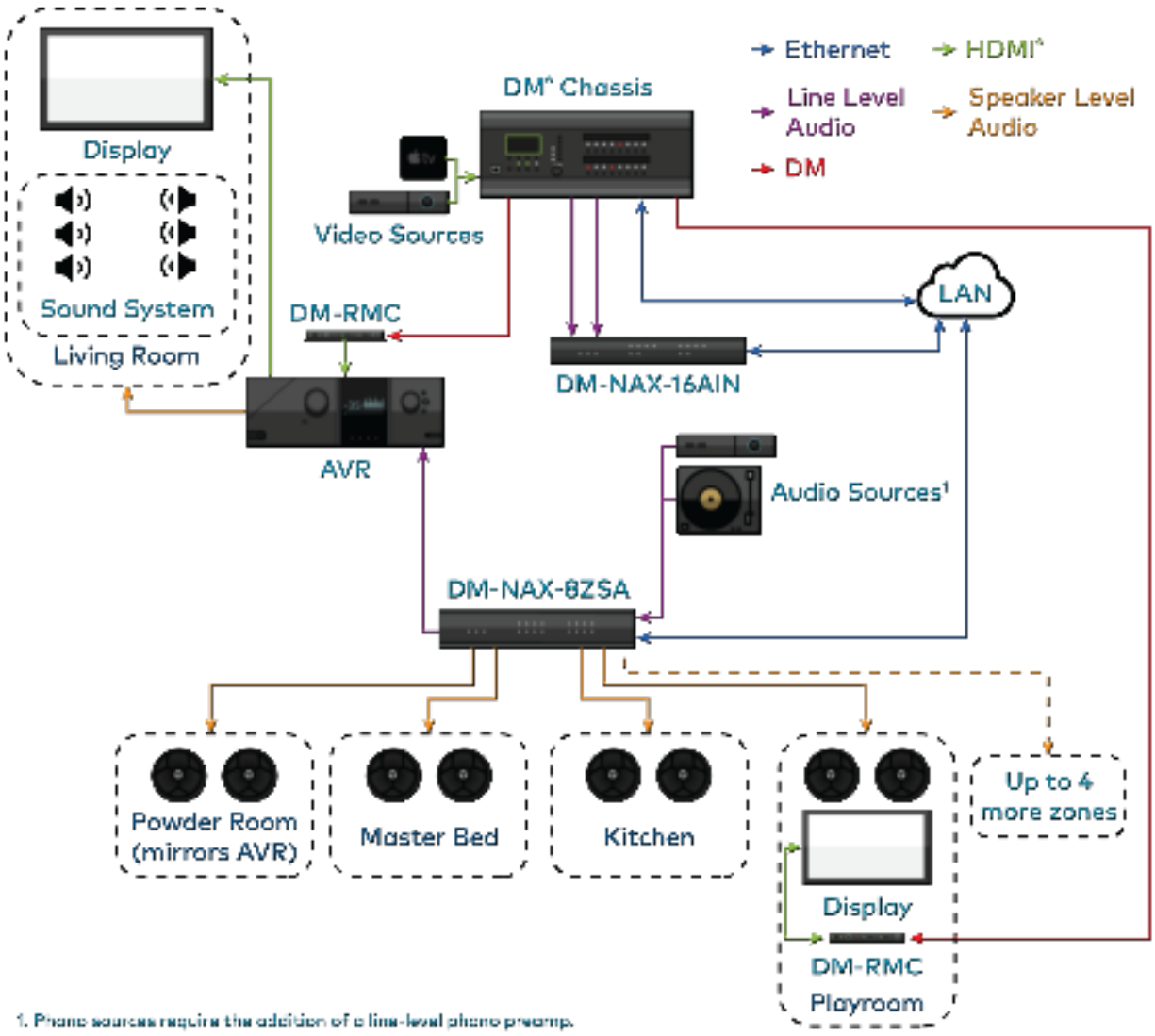
Application

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



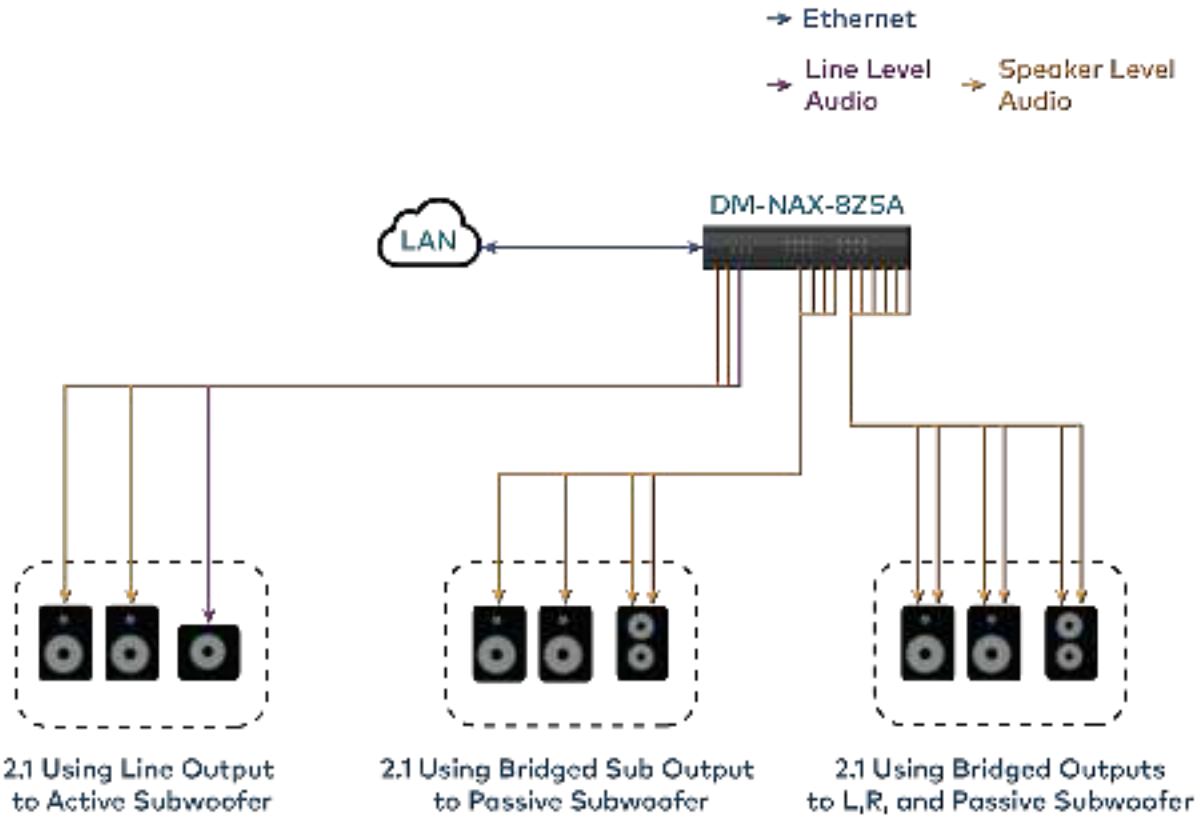
This application diagram shows the following setup:

- Up to 8 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 NVX audio streams to route audio from video sources to non-video zones
- Available music streaming services on up to 8 NAX zones



This application diagram shows the following setup:

- Up to 8 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 8 NAX zones
- The DM-NAX-16AIN is used to carry audio from the DM chassis' video sources to the NAX network for routing to non-video zones



This application diagram shows different 2.1 configurations and how they affect the zone count of an DM-NAX-8ZSA. By default, a zone comprises two speaker outputs (a left and a right).

- The 2.1 configuration at the left of the diagram comprises two speaker outputs, with an additional line output that feeds the subwoofer.

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

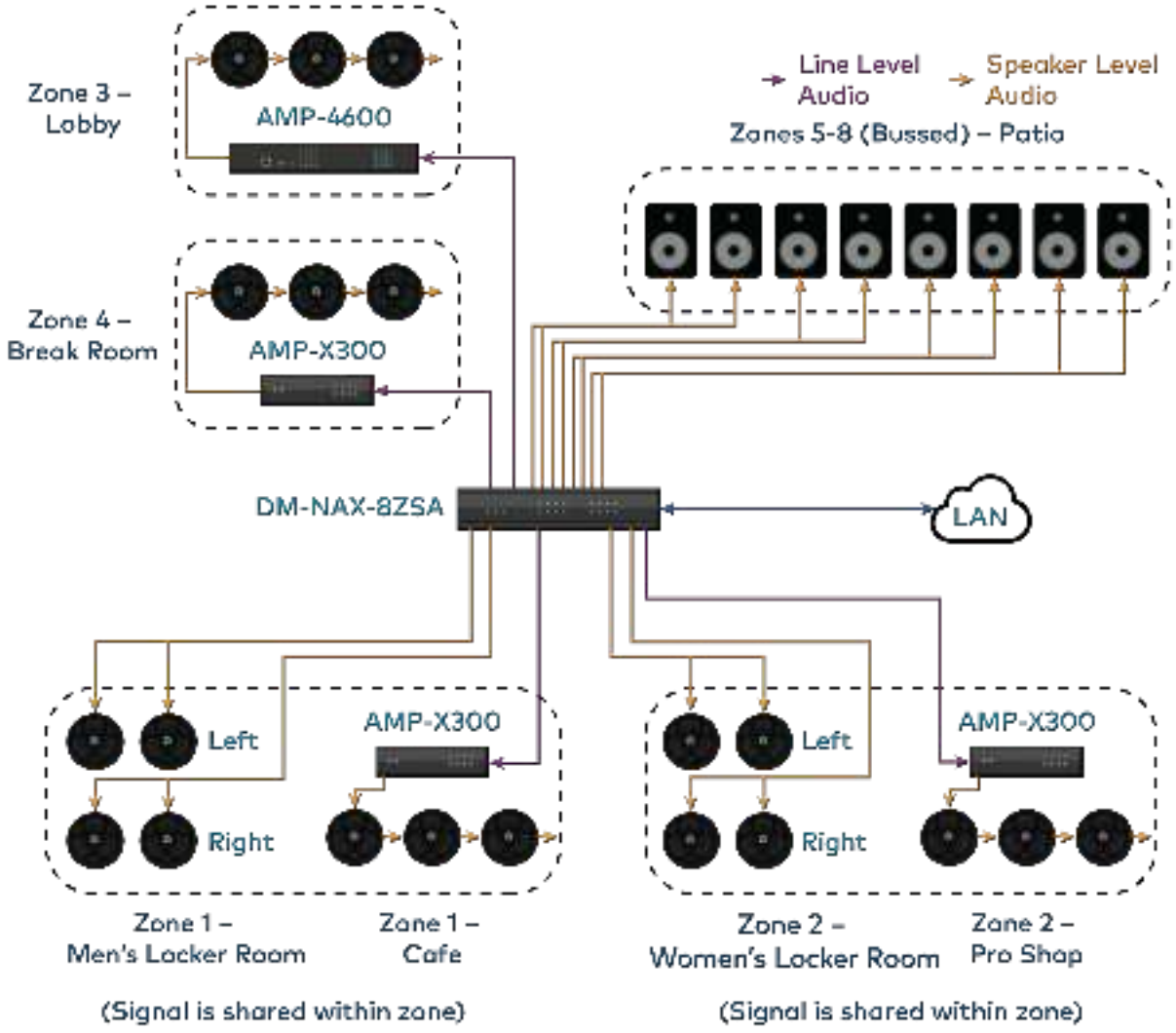
- The middle configuration (2.1 Bridged sub) comprises four speaker outputs - two left and right and two for the bridged sub.

  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 8 as there is no speaker output pair 9.

- The right configuration (Bridged 2.1) comprises six speaker outputs - two for the bridged left, two for the bridged right, and two for the bridged sub.

  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.

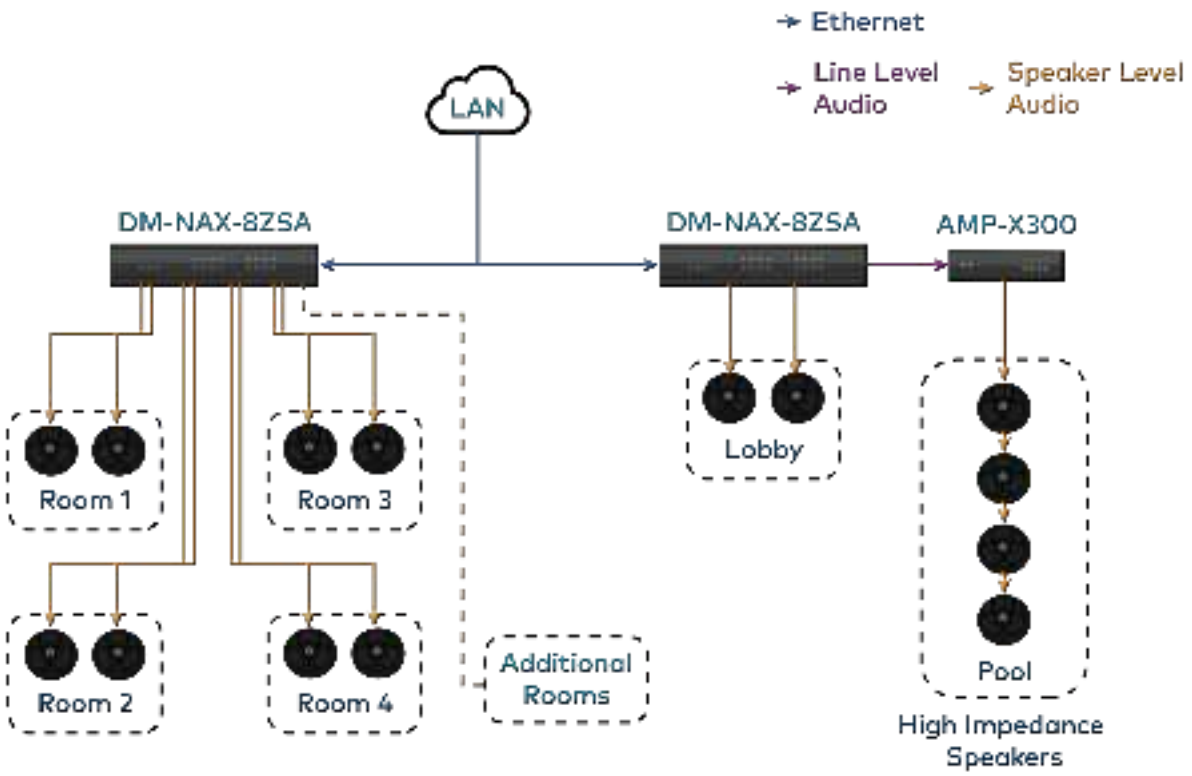


This application diagram shows the following setup:

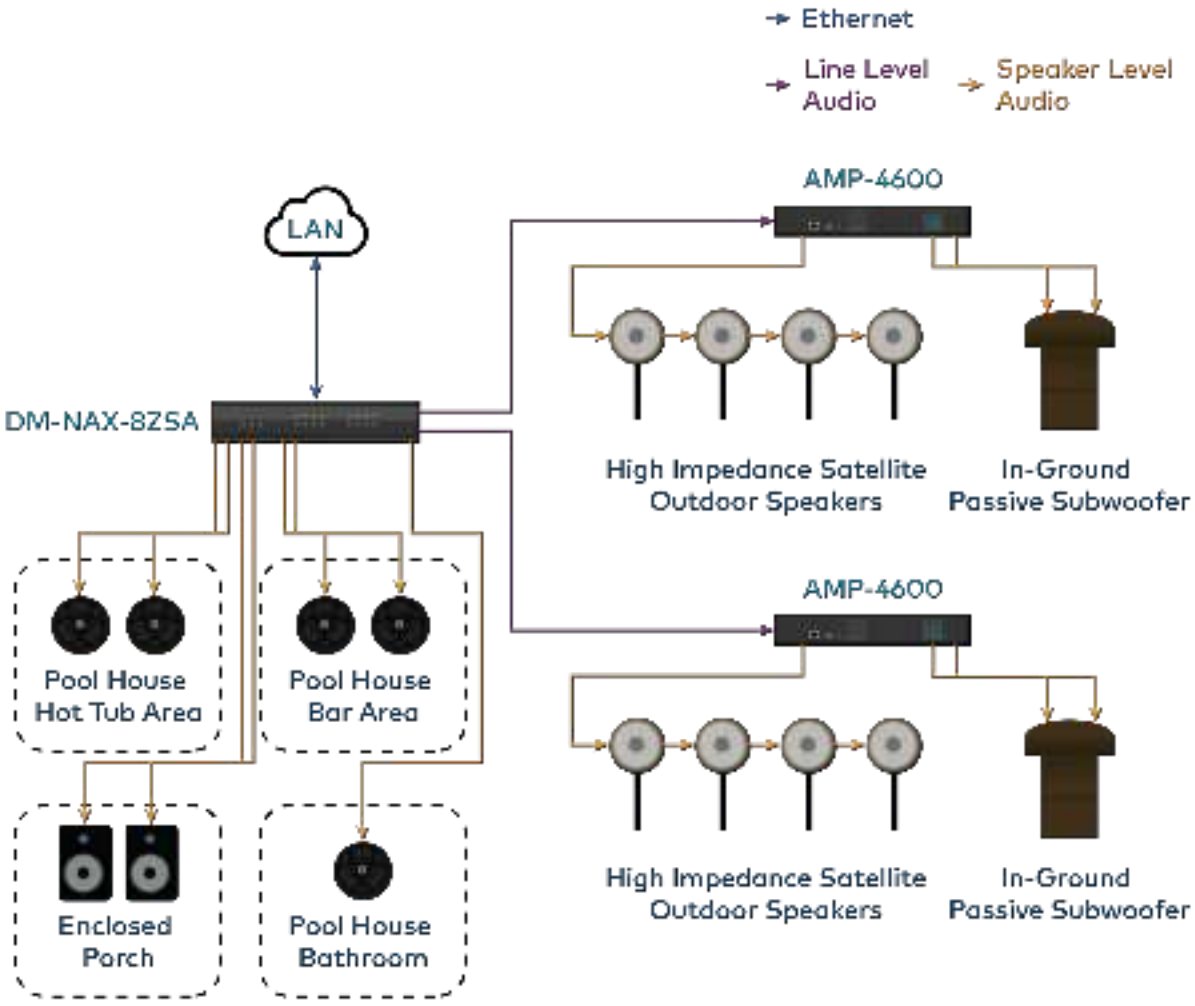
- Mirrored zones (Zone 1 and Zone 2 each have two rooms receiving the same audio signal)
- Parallel wiring of low impedance speakers in two Locker Room areas

> NOTE: This is a parallel wiring of 8 Ohm speakers for a total supported load of 4 Ohms per channel. Parallel wiring lowers the effective impedance of the connected loads, so make sure the speakers impedance matches the supported impedance levels from the DM-NAX-8ZSA.

- Using the line outputs of the DM-NAX-8ZSA to feed high-impedance amplifiers (AMP-X300s and AMP-4600) for long speaker runs
- Bussing to multiple zones to feed a large group of low-impedance speakers with the same signal and shared controls



This application diagram shows a commercial setup using casting service streaming applications. For example, in a hotel, each room can receive a cast from a third-party device. The Lobby and Pool zones can exist on another DM-NAX-8ZSA unit that is on the same LAN or on a separate VLAN or WAP to cast to/control those zones.



This application diagram shows zones using only the line outputs. Line outputs 1 and 2 feed high impedance amplifiers driving speakers for large outdoor spaces and speaker zone outputs 5-8 feed low-impedance indoor spaces without overlap of signals. The LAN cloud shows that any individual applications can exist as part of a large NAX system.

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 the next page)
- Access the Web Interface With the Crestron Toolbox™ Application (on page 62)

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, press the **Setup** button on the rear panel of the device to display the IP address on the connected output. The IP address is displayed for 20 seconds.

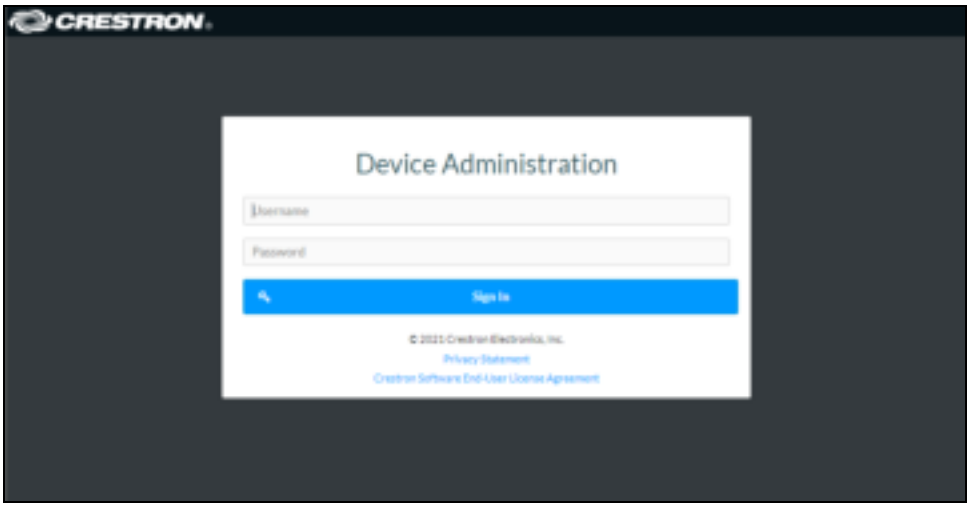
2. If you are creating a user account for the first time, do the following; otherwise, skip to step 3.

   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. Click **Create User**. The Device Administration page appears.

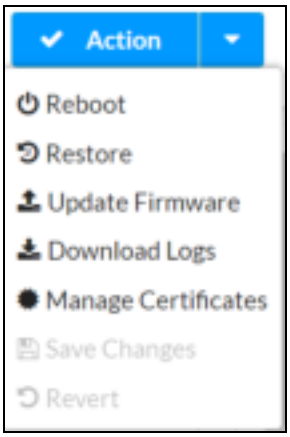


3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Click **Sign In**.

Action

The **Action** drop-down menu is displayed at the top right side of the interface and provides quick access to common device functionalities:

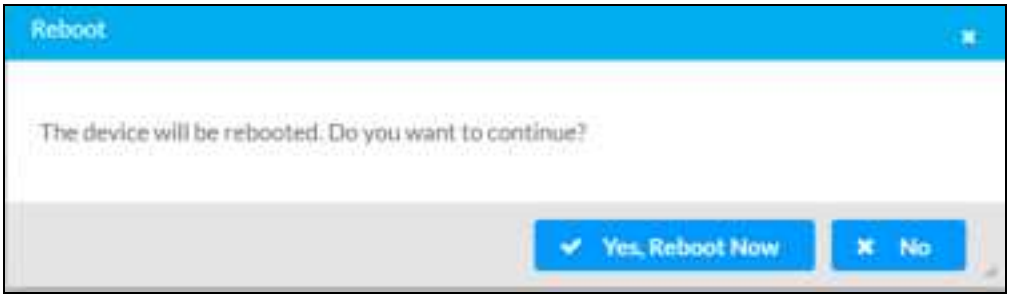
- Reboot
- Restore
- Update Firmware
- Download Logs
- Manage Certificates
- Save Changes
- Revert



Rebooting the DM-NAX-8ZSA

Certain changes to the settings may require the DM-NAX-8ZSA to be rebooted to take effect. To reboot the device, do the following:

1. Click **Reboot** in the **Actions** drop-down menu. The **Confirmation** message box appears.



2. Click **Yes, Reboot Now** to reboot the device. The **Reboot** message box appears. Wait for the device reboot to complete before attempting to reconnect to the device.

Restoring to Factory Default Settings

1. Click **Restore** in the **Actions** drop-down 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. Click **Yes** in the **Confirmation** dialog to restore the DM-NAX-8ZSA to factory settings. Click **No** to cancel the restore operation.

   A dialog is displayed again, indicating that the Restore process was successful and that the device rebooted.

You can also restore to factory settings by pressing and holding the **SETUP** button with power disconnected then connect the power supply and continue to hold **SETUP** button for 15 seconds.

Updating Firmware

1. Click **Update Firmware** in the **Actions** drop-down menu.
2. In the **Firmware Upgrade** dialog, click **+ Browse**.

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

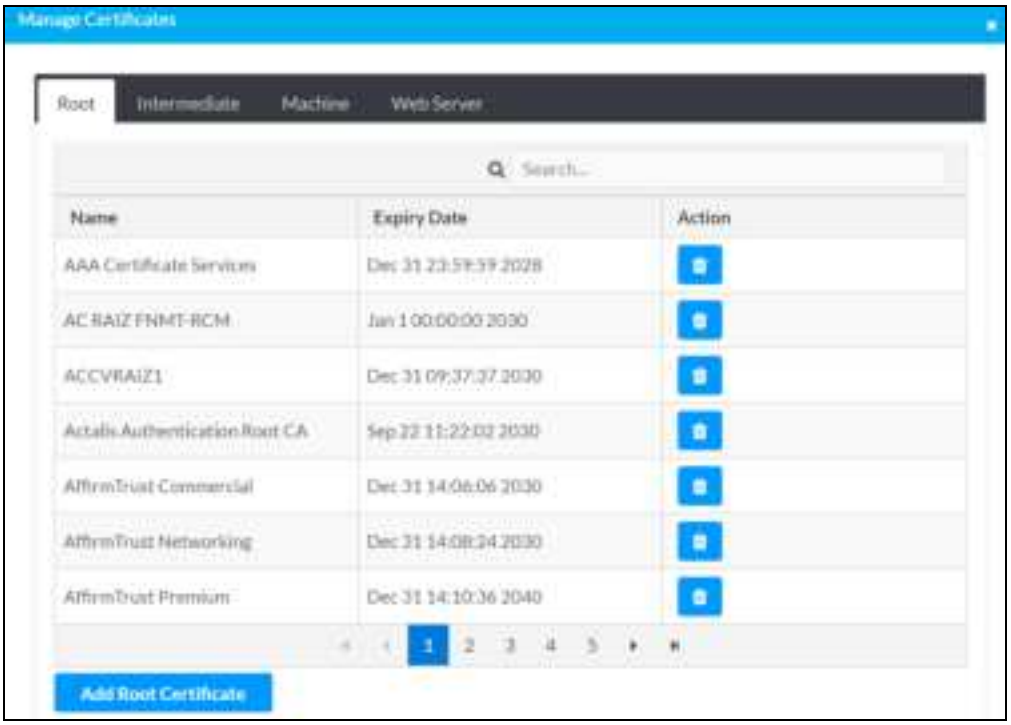
Download Logs

1. Click **Download Logs** in the **Actions** drop-down menu to download the device message logs for diagnostic purposes.

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

Managing Certificates

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



1. Click **Manage Certificates** in the **Actions** drop-down 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. Click the corresponding certificate tab.
2. Click the **Add Root Certificate** button.
3. Click the **+ Browse** button.
4. Locate and select the file, and then click the **Open** button.

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

5. Click **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. Click the corresponding certificate tab.
2. Click the trashcan button ( ) in the **Actions** column to delete the certificate.
3. Click **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

Save Changes

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

Revert

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

Status

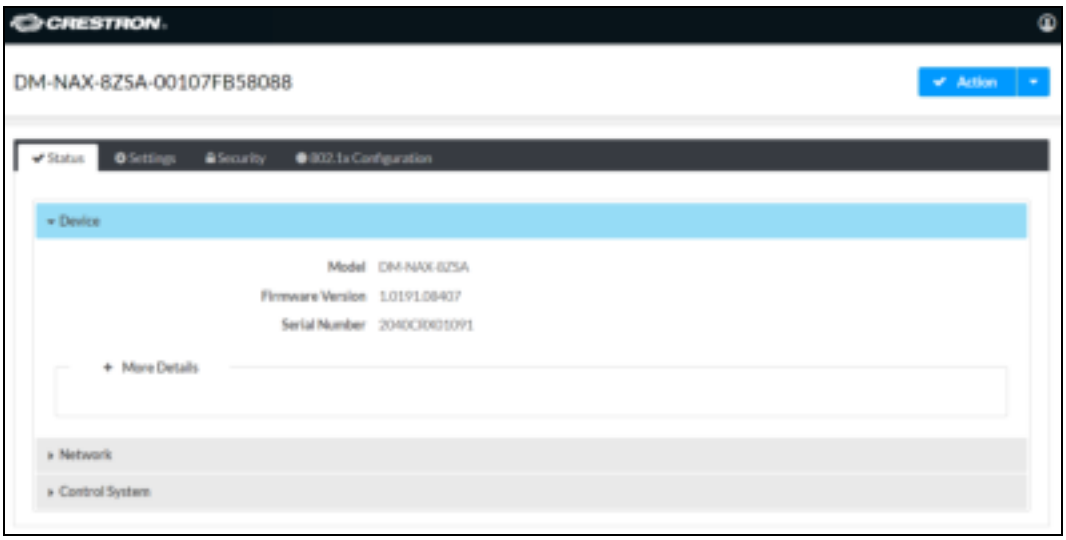
The **Status** tab is the first page displayed when opening the interface of the DM-NAX-8ZSA. It displays general information about the DM-NAX-8ZSA (such as Model Name, Firmware Version, and Serial Number), current network settings (such as Host Name and IP Address, etc.), and input and output ports' current status.

The Status tab can be accessed at any time by clicking the **Status** tab of the DM-NAX-8ZSA interface.

Information displayed on the **Status** tab is organized into different sections.

Device

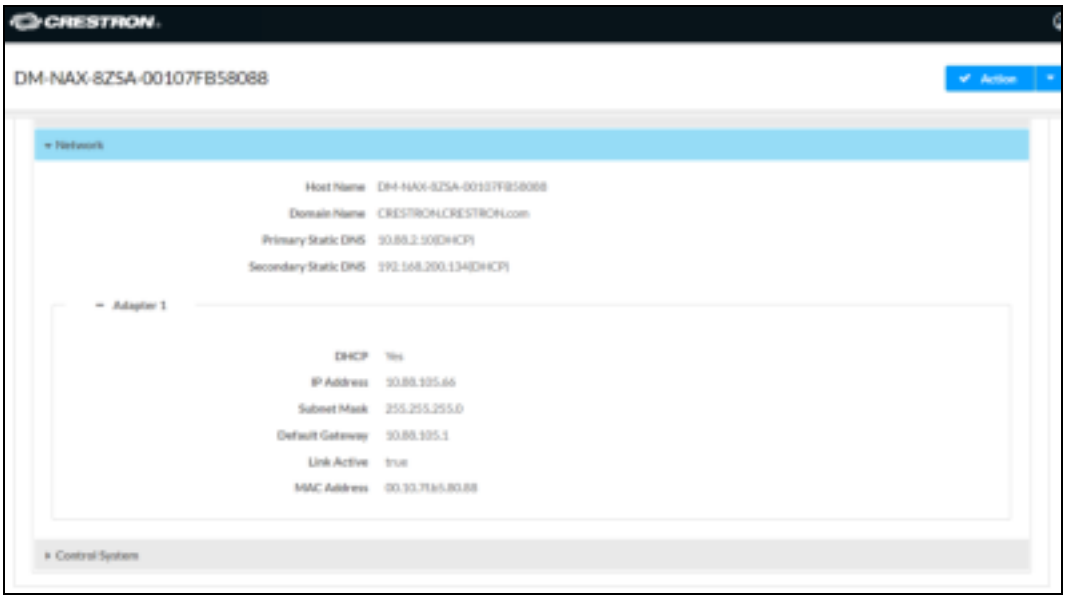
The **Device** section displays the **Model**, **Firmware Version**, and **Serial Number** of the DM-NAX-8ZSA.



Click **+ More Details** to review additional information about the DM-NAX-8ZSA.

Network

The **Network** section displays network-related information about the DM-NAX-8ZSA, including the Hostname, Domain Name, and DNS Servers.



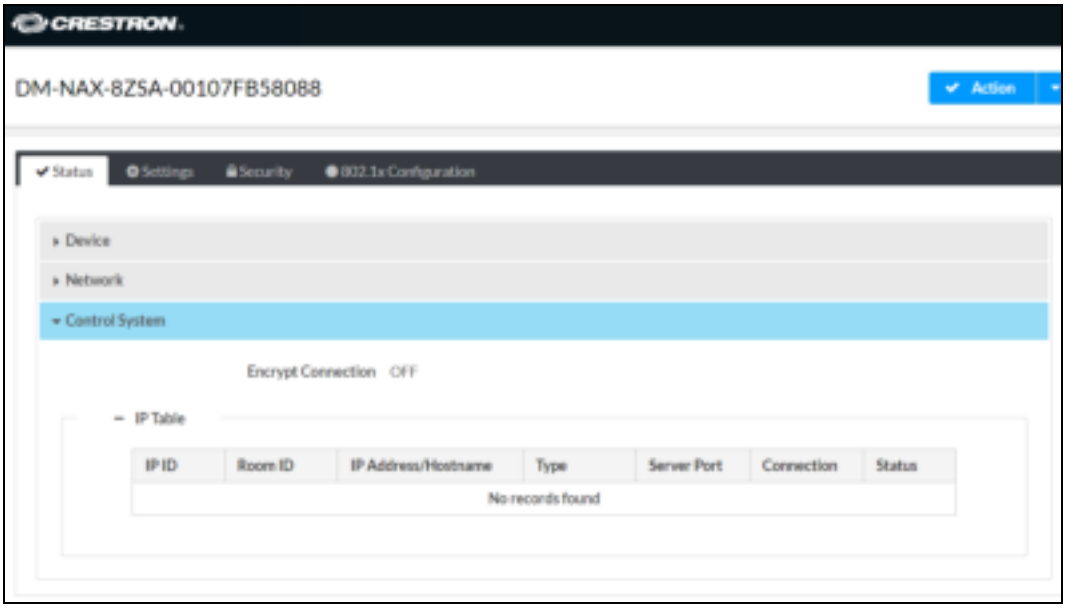
NOTE: By default, the host name of the DM-NAX-8ZSA consists of the model name followed by the MAC address of the device. For example, DM-NAX-8ZSA-00107FB58088.

Click **+ Adapter 1** to display an expanded section that shows additional information. If **+ Adapter 1** is selected, click **- Less** details to collapse the section.

NOTE: The **+ Adapter 2** option appears when the dual Ethernet ports on the DM-NAX-8ZSA are set to isolate traffic.

Control System

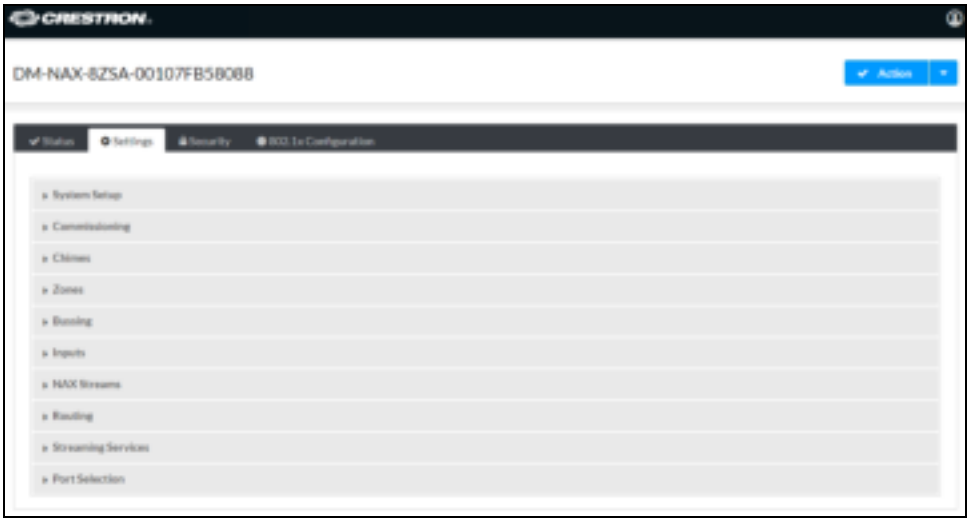
The **Control System** section displays connection information, consisting of the following:



- **Encrypt Connection**: ON or OFF
- **IP ID**: Reports the currently used IP ID of the DM-NAX-8ZSA.
- **IP Address/Hostname**: IP address of the control system.
- **Room ID**: Displays the room ID.
- **Status**: OFFLINE or ONLINE

Settings

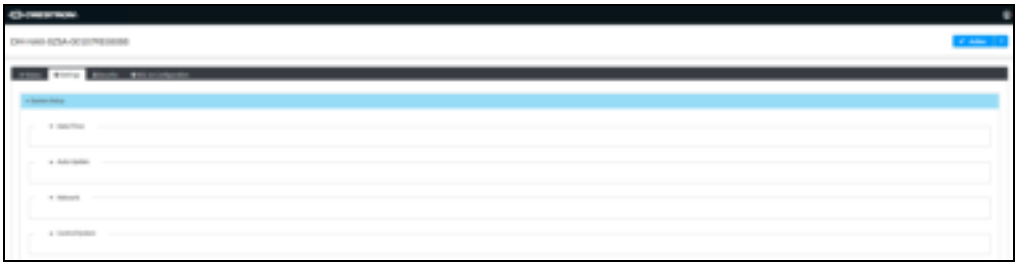
The **Settings** tab enables you to configure the DM-NAX-8ZSA settings. The Settings page can be accessed at any time by clicking the **Settings** tab of the DM-NAX-8ZSA interface.



Information displayed on the **Settings** tab is organized into different sections.

System Setup

The **System Setup** section displays information about the Date/Time, Auto Update, Network, and Control System.



Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM-NAX-8ZSA.

Time Synchronization

1. Move the **Time Synchronization** slider to specify whether time synchronization will be enabled (right) or disabled (left). By default, time synchronization is enabled.
2. In the **NTP Time Servers**, enter the URL of the NTP or SNTP server.
3. Click **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

Time Configuration

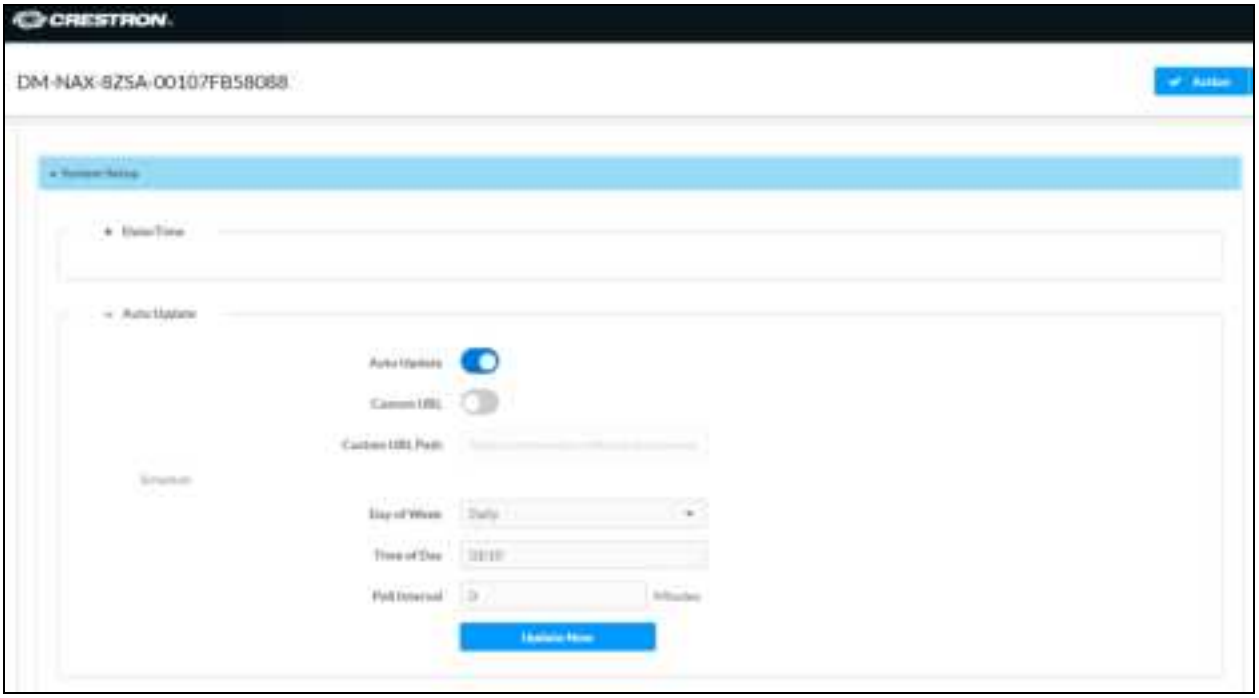
1. Click on the **Time Zone** drop-down menu to select the applicable time zone.
2. In the **Date** field, enter the current date.
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Click the **Save Changes** button to save the settings.

Click **Revert** from the **Actions** drop-down menu to revert to the previous settings without saving.

Auto Update

The DM-NAX-8ZSA can be automatically updated with the latest firmware at scheduled intervals.



1. Using the Crestron Auto Update Tool, generate a manifest file. The file is placed on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
2. To enable auto update, move the **Auto Update** slider to the right position.
3. 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. To enable a custom URL, move the **Custom URL** slider to the right position. In the **Custom URL Path** text box, enter the path to the manifest file in the FTP or SFTP URL format.
4. 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.
5. Click **Save Changes**.

Clicking **Update Now** causes the firmware to be updated at the current time; however, the schedule that is set in step 4 above remains in effect.

Network

The **Network** section displays network-related information about the DM-NAX-8ZSA, including the Host Name, Domain, Primary Static DNS, and Secondary Static DNS.

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.

Adapter 1

Displays DHCP, IP Address, Subnet Mask, and Default Gateway.

NOTE: The **+ Adapter 2** option appears when the dual Ethernet ports on the DM-NAX-8ZSA are set to isolate traffic.

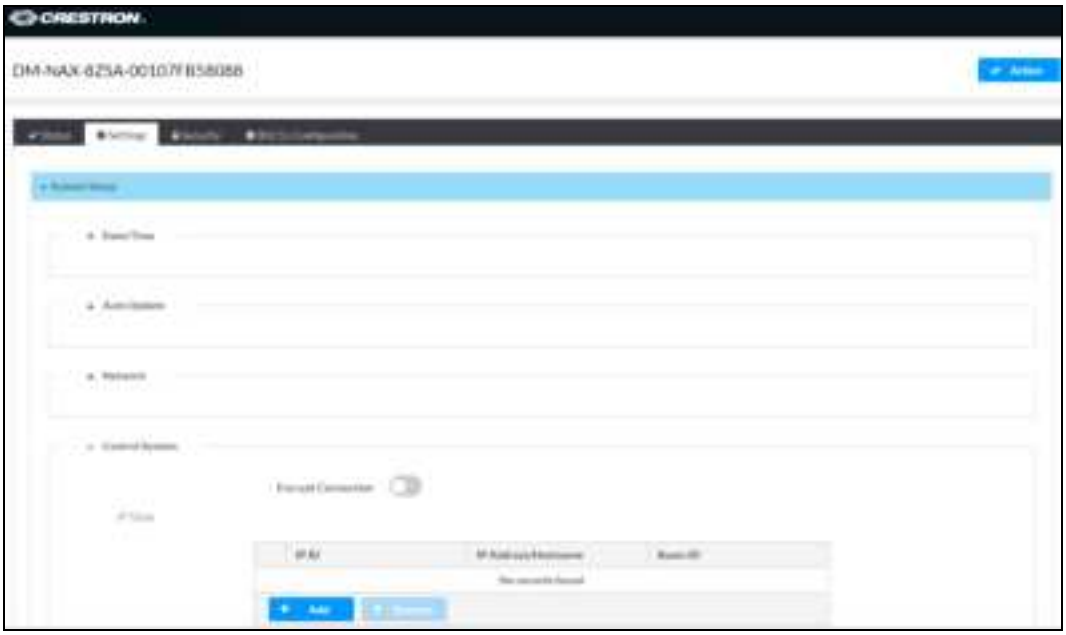
Configure DHCP

Set the **DHCP** slider to enabled (right) or disabled (left) to specify whether the IP address of the DM-NAX-8ZSA 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-8ZSA is automatically assigned by a DHCP server on the local area network (LAN) for a predetermined period of time.
- **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-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.

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

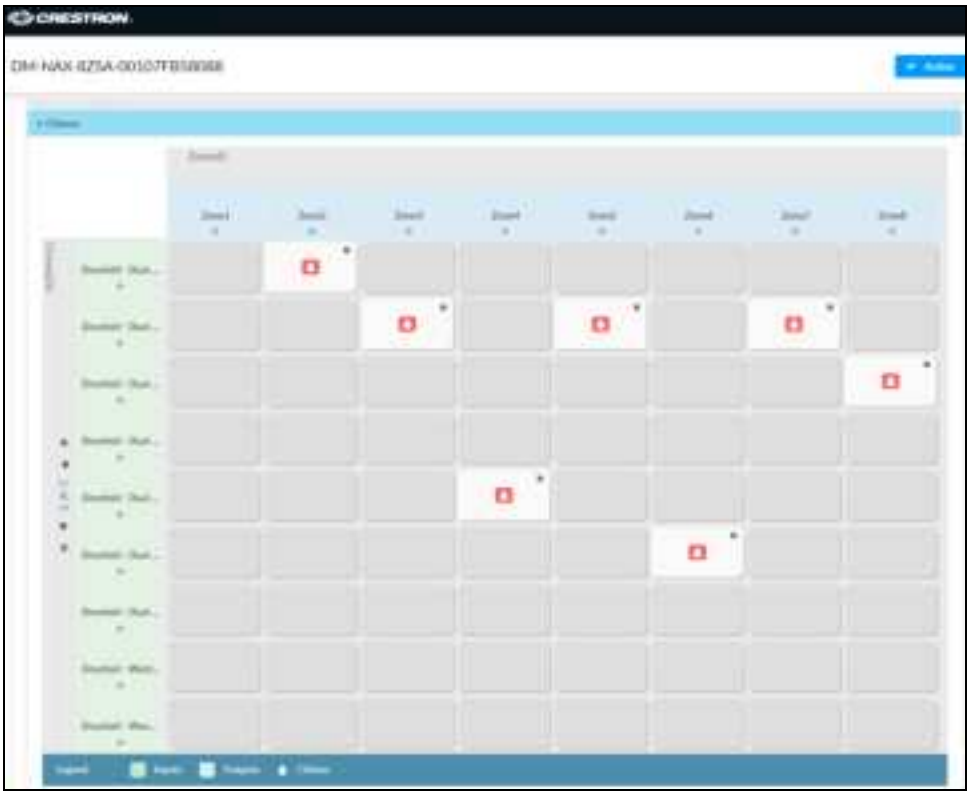
Control System



1. Move the **Encrypt Connection** slider to specify whether the encryption will be enabled (right) or disabled (left). By default, Encrypt Connection is enabled.
2. Enter the username in the **Control System Username** field.
3. Enter the password in the **Control System Password** field.
4. Enter the Room ID in the **Room ID** field.
5. Enter the IP ID of the DM-NAX-8ZSA in the **IP ID** field.
6. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
7. Click the **Save Changes** button to save the new entries. The Control System Save message box appears, indicating that the control system settings were saved successfully. Click the **Revert** button to revert to the previous settings without saving.

Chimes

The **Chimes** section allows the built-in chime files to be assigned to any of the output zones on the device.



Click the cells corresponding to the desired Zones for playback of that specific chime sound. You can select multiple chimes for the same zone. The maximum supported chime length is 10 seconds. To view all available chimes, use arrows ▲ or ▼ at the left of the matrix to change pages.

To configure the chime volume of a zone:

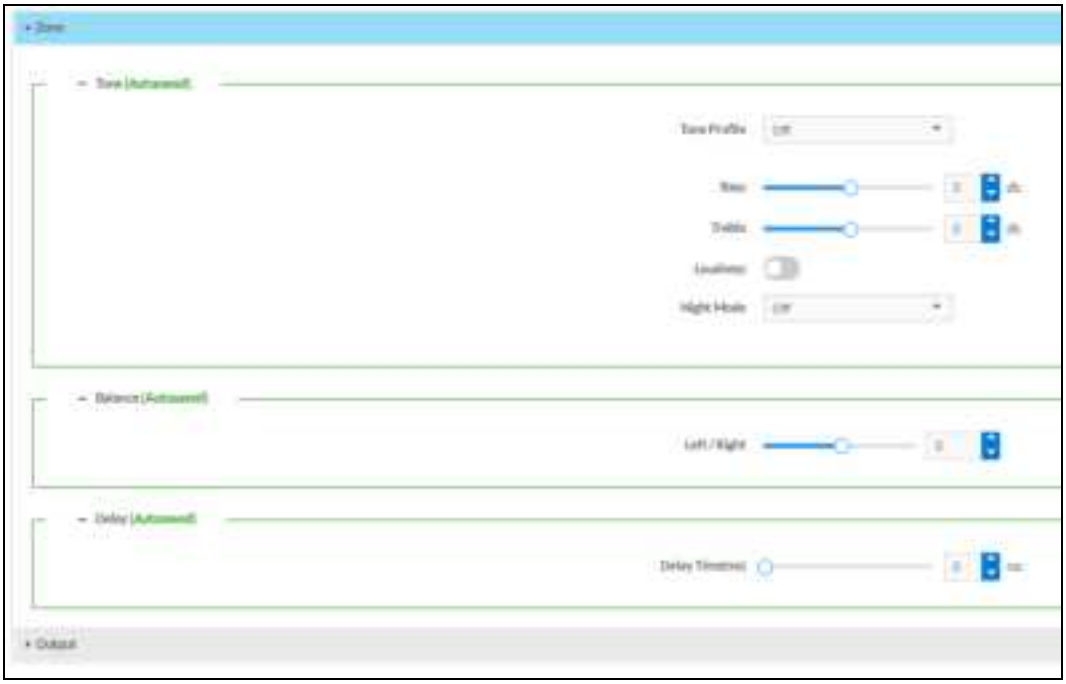
1. Click the ⚙ icon corresponding to the zone. The Configure dialog appears.

2. To set the volume, do one of the following:
    - Move the **Volume** slider to the right to increase or to the left to decrease the chime volume.
    - Click the % arrows to increase or decrease the chime volume. Values range from 0 to 100%, adjustable in 1% increments.
    - Manually enter a value in the **Volume** field.

    NOTE: The set volume is independent of the zone volume control.
3. To mute the chime sound, move the **Do Not Disturb** slider to the right. To unmute the chime sound, move the **Do Not Disturb** slider to the left.
4. Click **OK** to apply the new settings.

Zones

The **Zones** section enables configuration of the zones settings.



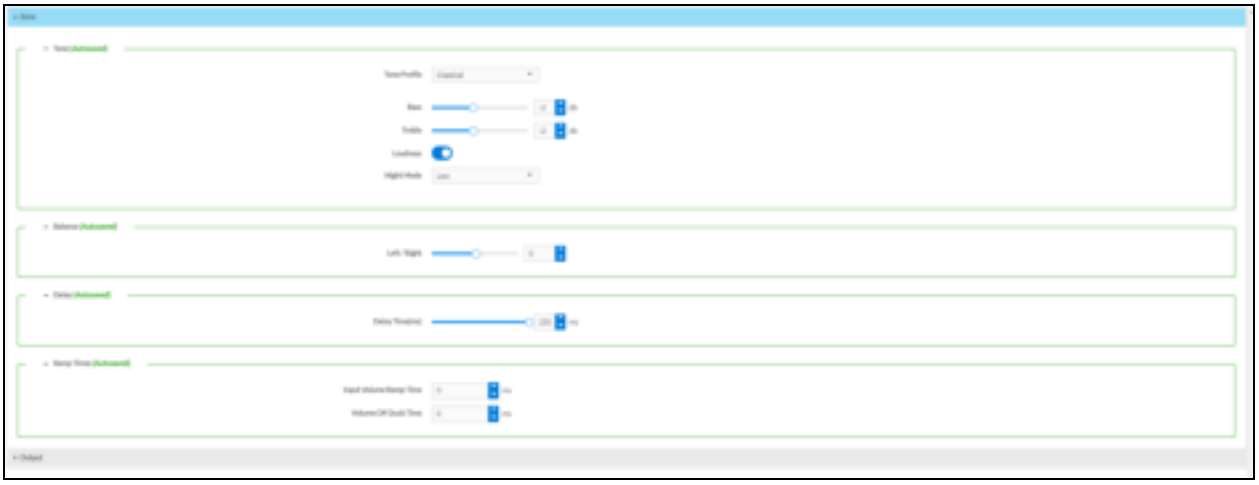
To configure the zone volume:

1. If needed, edit the name of the zone in the **Name** field.
2. To set 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.
    - Click the % arrows to increase or decrease the zone volume. Values range from 0 to 100%, adjustable in 1% increments.
    - Manually enter a value in the **Volume** field.
3. To mute the zone sound, click the **Mute** button. To unmute the zone sound, click the **Muted** button.

Zone Settings

To configure zone settings, click the configure button (Configure). The **Edit Zone** window appears.

Click **Zone** to configure **Tone (Autosaved)**, **Balance (Autosaved)**, and **Delay (Autosaved)**.



Configure Tone (Autosaved)

1. Select the tone profile from the **Tone Profile** drop-down menu. Values are **Off**, **Classical**, **Jazz**, **Pop**, **Rock**, and **SpokenWord**.
2. To set the bass, do one of the following:
    - Move the **Bass** slider to the right to increase or to the left to decrease the bass.
    - Click the **db** arrows to increase or decrease the bass. Values range from -12 db to 12 db, adjustable in 1 db increments.
    - Manually enter a value in the **Bass** field.
3. To set the treble, do one of the following:
    - Move the **Treble** slider to the right to increase or to the left to decrease the treble.
    - Click the **db** arrows to increase or decrease the treble. Values range from -12 db to 12 db, adjustable in 1 db increments.
    - Manually enter a value in the **Treble** field.
4. To enable loudness, move the **Loudness** slider to the right position. To disable the loudness, move the slider to the left position. By default, **Loudness** is disabled.
5. Select the night mode from the **Night Mode** drop-down menu. Values are **Off**, **Low**, **Medium**, and **High**.

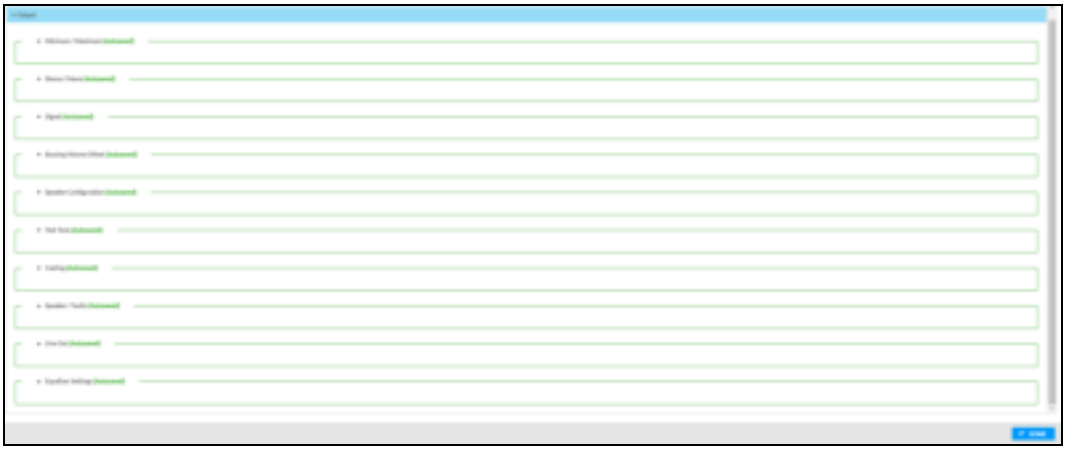
Configure Balance (Autosaved)

1. To configure the balance, do one of the following:
    - Move the **Balance** slider to the right to increase or to the left to decrease the balance.
    - Click the arrows to increase or decrease the balance. Values range from -50 to 50, adjustable in 1 increments.
    - Manually enter a value in the **Balance** field.

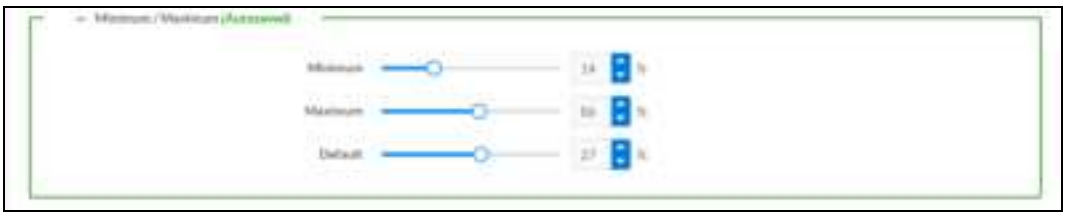
Configure Delay (Autosaved)

1. To configure the delay, do one of the following:
    - Move the **Delay** slider to the right to increase or to the left to decrease the delay.
    - Click the **ms** arrows to increase or decrease the delay. Values range from 0 ms to 250 ms, adjustable in 1 ms increments.
    - Manually enter a value in the **Delay** field.

Click **Output** to configure **Minimum/Maximum (Autosaved)**, **Stereo/Mono (Autosaved)**, **Signal (Autosaved)**, **Bussing Volume Offset (Autosaved)**, **Speaker Configuration (Autosaved)**, **Test Tone (Autosaved)**, **Speaker/Faults (Autosaved)**, **Line Out (Autosaved)**, and **Equalizer Settings (Autosaved)**.



Configure Minimum/Maximum (Autosaved)



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

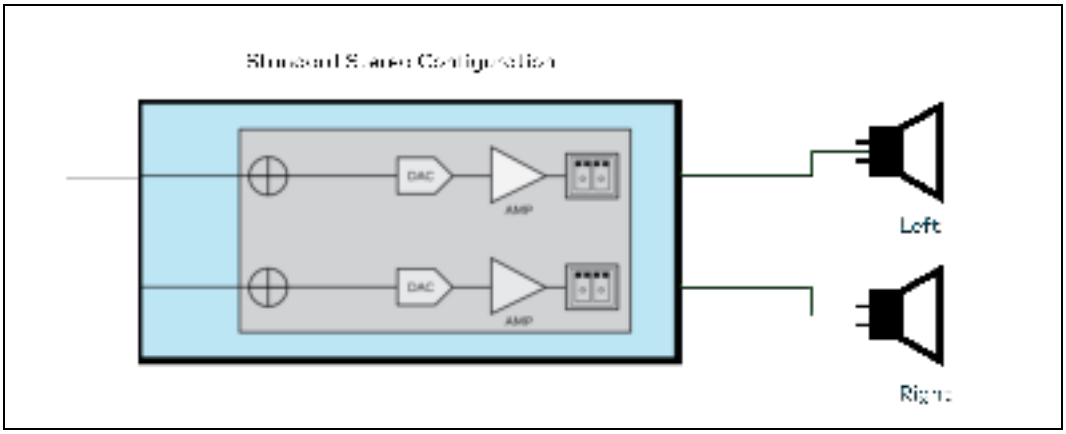
    NOTE: When the minimum and maximum volume are configured, the volume and default volume control reflects a percentage value of that range (the range from minimum to maximum).
3. To configure the default volume, do one of the following:
    - Move the **Default** slider to the right to increase or to the left to decrease the default volume.
    - Click the **%** arrows to increase or decrease the default volume. Values range from 0 to 50%, adjustable in 1% increments.
    - Manually enter a value in the **Default** field.

Configure Stereo/Mono (Autosaved)

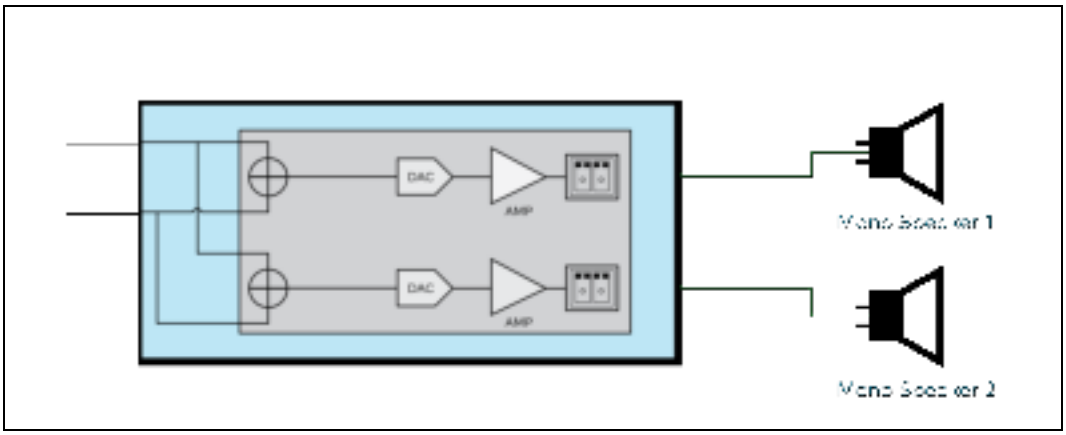
1. Select either **Stereo** or **Mono** from the **Stereo/Mono** field.
2. Select the zone configuration from the **Zone Configuration** drop-down menu. Values are **Standard**, **Bridged**, **Bridged 2.1**, **Bridged Sub 2.1**, and **Bridged Mono**.

NOTE: The **Stereo/Mono** field is disabled for the Bridge Mono, Bridged 2.1, and Bridged Sub 2.1 zone configurations.

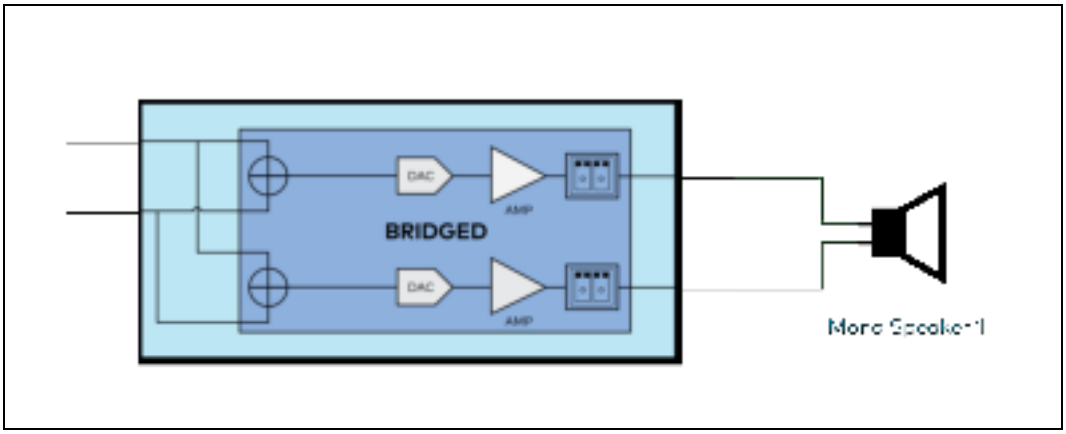
Stereo - Standard



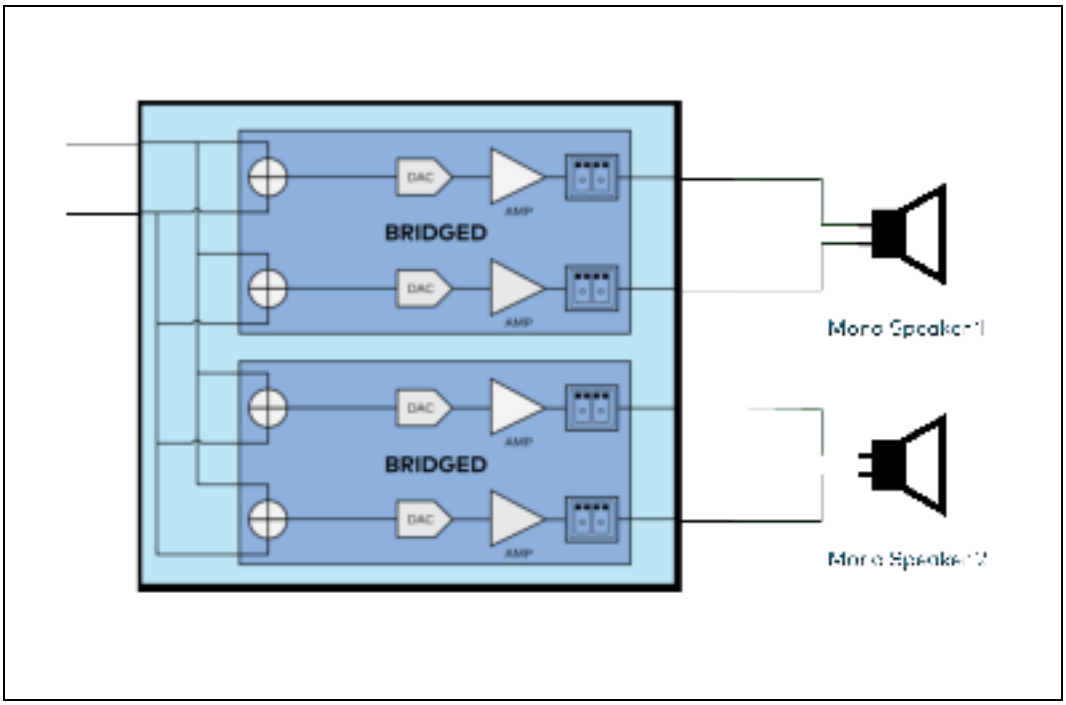
Mono - Standard



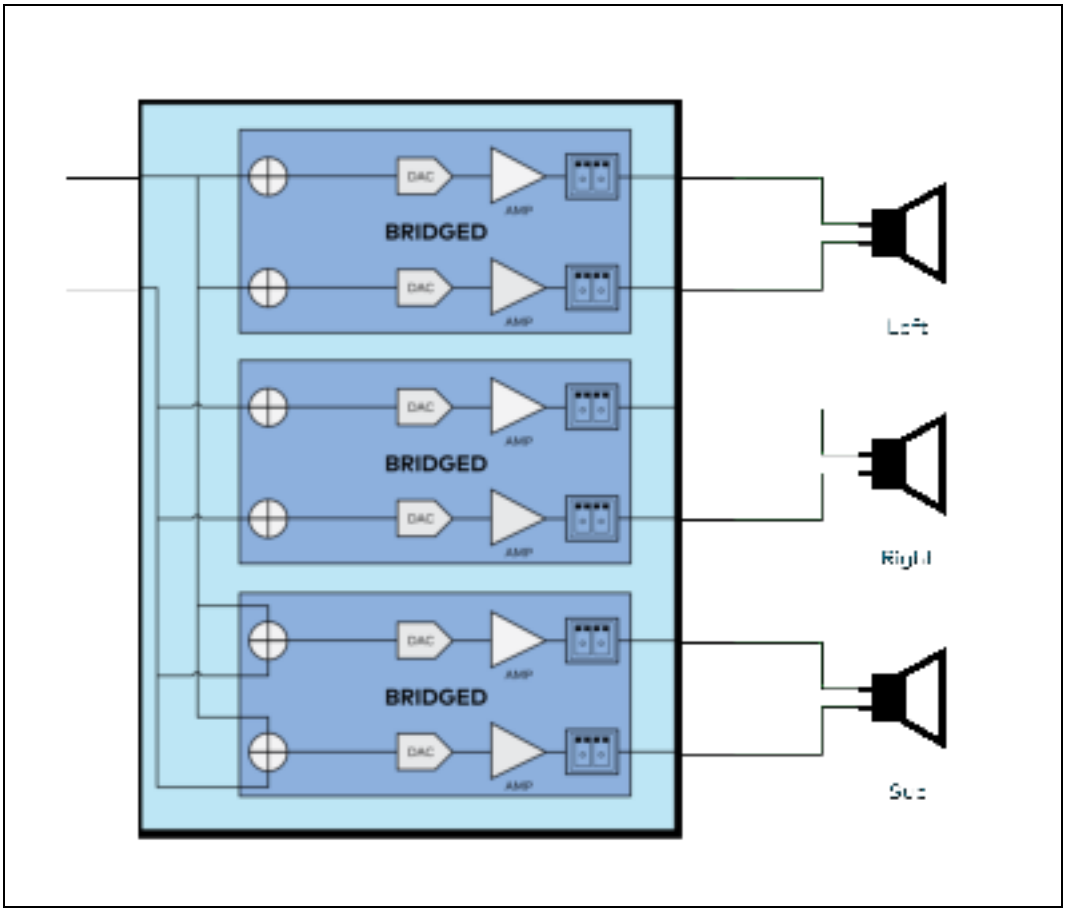
Bridged Mono



Mono - Bridged



Bridged 2.1


DAC
AMP
BRIDGED
DAC
AMP
DAC
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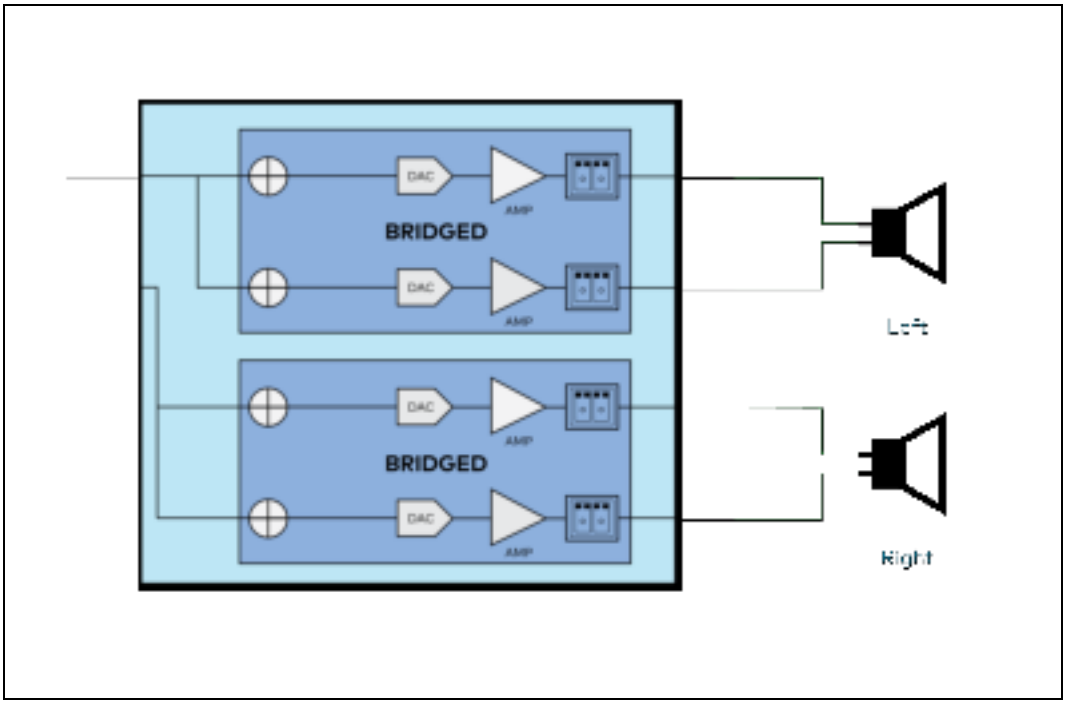
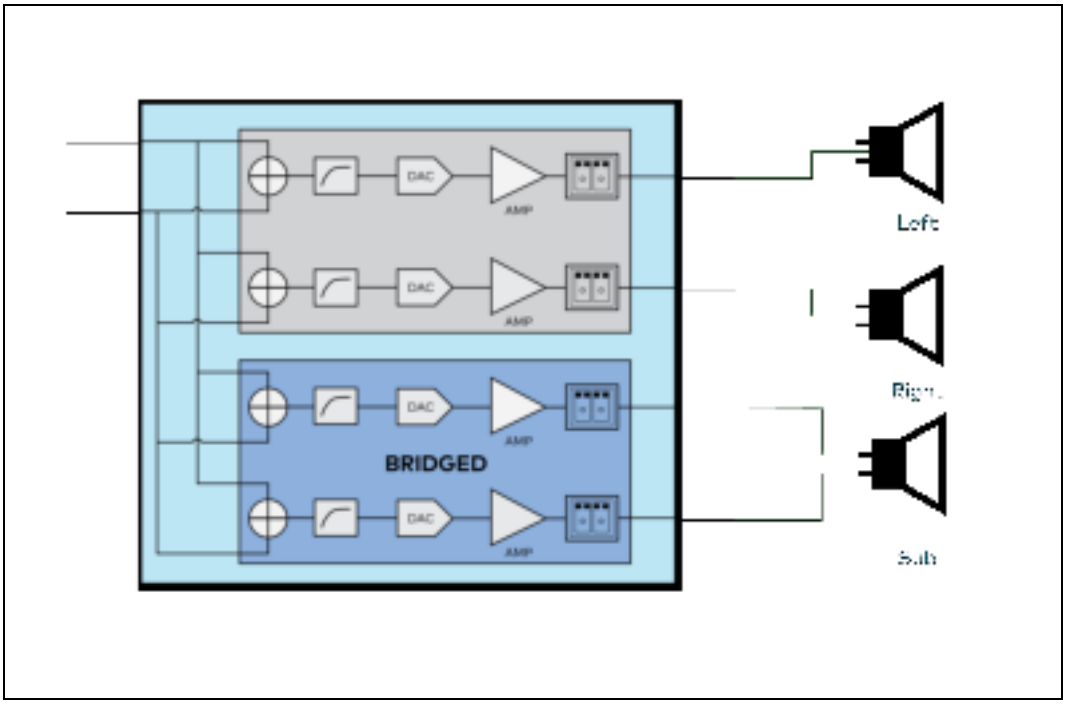
AMP

Stereo - Bridged



Bridged Sub 2.1



Signal (Autosaved)

The **Signal (Autosaved)** section displays the **Signal** and **Clipping** status.

- If the signal is present but not clipping, then the **Signal** status changes to **Present** in green and **Clipping** status changes to **None** in green.
- If both signal and clipping are present, then the **Signal** status changes to **Present** in green and **Clipping** status changes to **Present** in red.
- If there is no signal or clipping, then the **Signal** status changes to **Not Present** in red and **Clipping** status changes to **None** in green.

Configure Bussing Volume Offset (Autosaved)

1. To configure 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 bussing volume offset.
    - Click the **db** arrows to increase or decrease the bussing volume offset. Values range from -12 db to 12 db, adjustable in 1 db increments.
    - Manually enter a value in the **Bussing Volume Offset** field.

Speaker Configuration (Autosaved)

1. To prevent the delivered power from exceeding the speaker's power rating, move the **Enable Speaker Protect** slider to the right position. To disable the enable speaker protect, move the slider to the left position. By default, **Enable Speaker Protect** is disabled.
2. To configure the speaker wattage, do one of the following:
   - Move the **Speaker Wattage** slider to the right to increase or to the left to decrease the amplifier wattage send to the speaker.
   - Click the **Watts** arrows to increase or decrease the amplifier wattage send to the speaker. Values range from 5 Watts to 150 Watts, adjustable in 1 watt increments.
   - 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 menu. Values are **4 Ohms**, **8 Ohms**, and **Bridged**.

Configure Test Tone (Autosaved)

1. **Test Tone** is used for troubleshooting connections. To configure the test tone, do one of the following:
   - Move the **Test Tone** slider to the right to increase or to the left to decrease the test tone.
   - Click the arrows to increase or decrease the test tone. Values range from 0 to 100, adjustable in 1 increments.
   - Manually enter a value in the **Test Tone** field.

   NOTE: The test tone volume is independent of the zone volume and is not affected by the Minimum/Maximum volume settings.
2. To enable the test tone, click the **Inactive** button. To disable the test tone, click the **Active** button. By default, **Test Tone** is disabled.

Speaker/Faults (Autosaved)

The Speaker/Fault section displays the status of **DC Offset Fault**, **Over Current Fault**, **Clipping Detected**, **Over or Under Voltage**, and **Over Temperature**. If a fault is detected, then it displays **Fault Detected**, otherwise it displays **None**.

Configure Line Out (Autosaved)

1. **Line Out Volume** controls the volume level of the Line Outputs independently. To configure 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.
    - Click the arrows to increase or decrease the line out volume. Values range from 0 to 100, adjustable in 1 increments. Range in db is -80 db to 20 db.
    - Manually enter a value in the **Line Out Volume** field.
2. To enable the line out EQ bypass, move the **Line Out EQ Bypass** slider to the right position. To disable the line out EQ bypass, move the slider to the left position. By default, **Line Out EQ Bypass** is disabled.

NOTE: When the **Line Out EQ Bypass** setting is disabled, the Line Out level will match the Volume control for the Zone. If the **Line Out EQ Bypass** setting is enabled, the **Line Out Volume** slider can be used to set a level for the Line Output that will not be affected by the speaker output Volume controls.

Configure Equalizer Settings (Autosaved)

1. Move the **Speaker EQ Enabled** slider to the right position to enable the speaker EQ. Move the slider to the left position to disable the speaker EQ.

   NOTE: When the **Speaker EQ Enabled** is disabled, all bands of the equalizer will be bypassed to allow for A/B testing of the entire EQ curve.

2. With the **Speaker EQ Enabled** slider in the right position, do the following to configure Band01 to Band10:
   a. To configure the gain, do one of the following:
      - Move the **Gain** slider up to increase or down to decrease the gain.
      - Click the arrows to increase or decrease the gain. Values range from -40 to 20, adjustable in 0.1 increments.
      - Manually enter a value in the **Gain** field.

   b. Select the type from the **Type** drop-down menu. Values are **EQ**, **Notch**, **TrebleShelf**, **BassShelf**, **LowPass**, and **HighPass**.

   c. To configure the frequency, do one of the following:
      - Click the arrows to increase or decrease the frequency. Values range from 20Hz to 20kHz, adjustable in 1Hz increments.
      - Manually enter a value in the **Frequency** field.

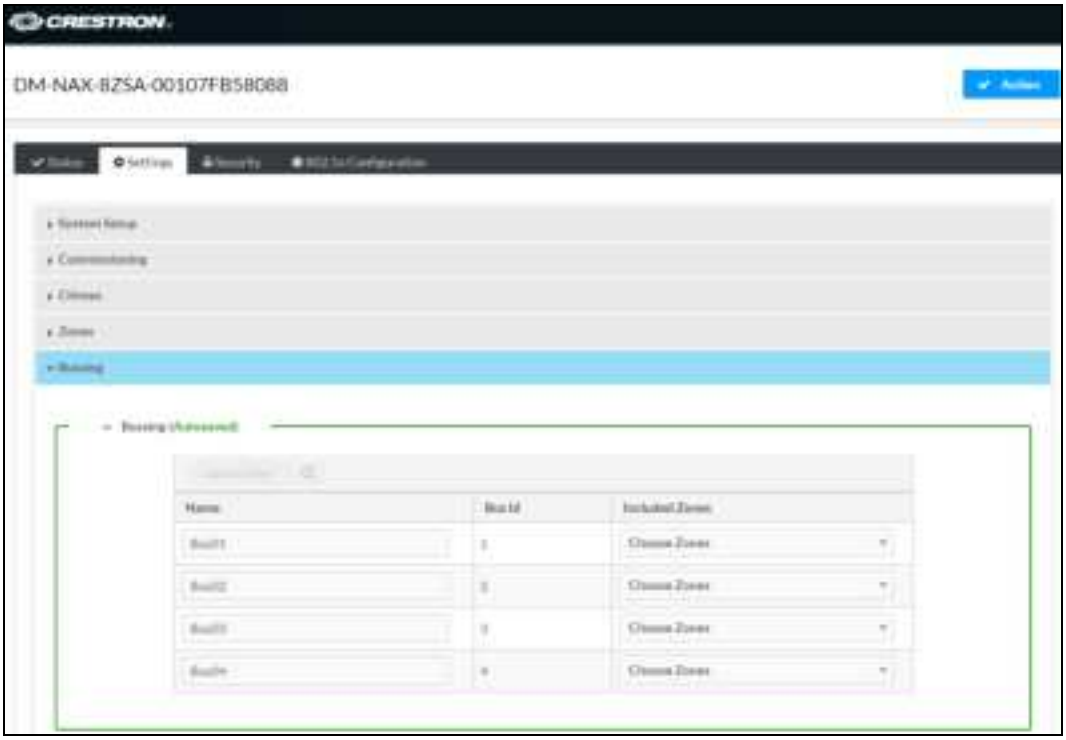
   d. To configure the bandwidth, do one of the following:
      - Click the arrows to increase or decrease the bandwidth. Values range from 0.1 octaves to 4.0 octaves, adjustable in 0.1 octave increments.
      - Manually enter a value in the **Bandwidth** field.

e. The individual Bypass controls allow you to bypass a single band of EQ at a time for a more granular A/B testing of a single filter. To enable the bypass, move the **Bypass** slider to the right position. To disable the bypass, move the slider to the left position. By default, **Bypass** is disabled.

Click **Done** to return to the **Settings** tab of the web user interface or click **Reset** to reset the band configuration.

Bussing

Bussing assigns the selected zones to a 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, the other zones in that bus follow. You can create four bus zones on the device.



Configure Bussing

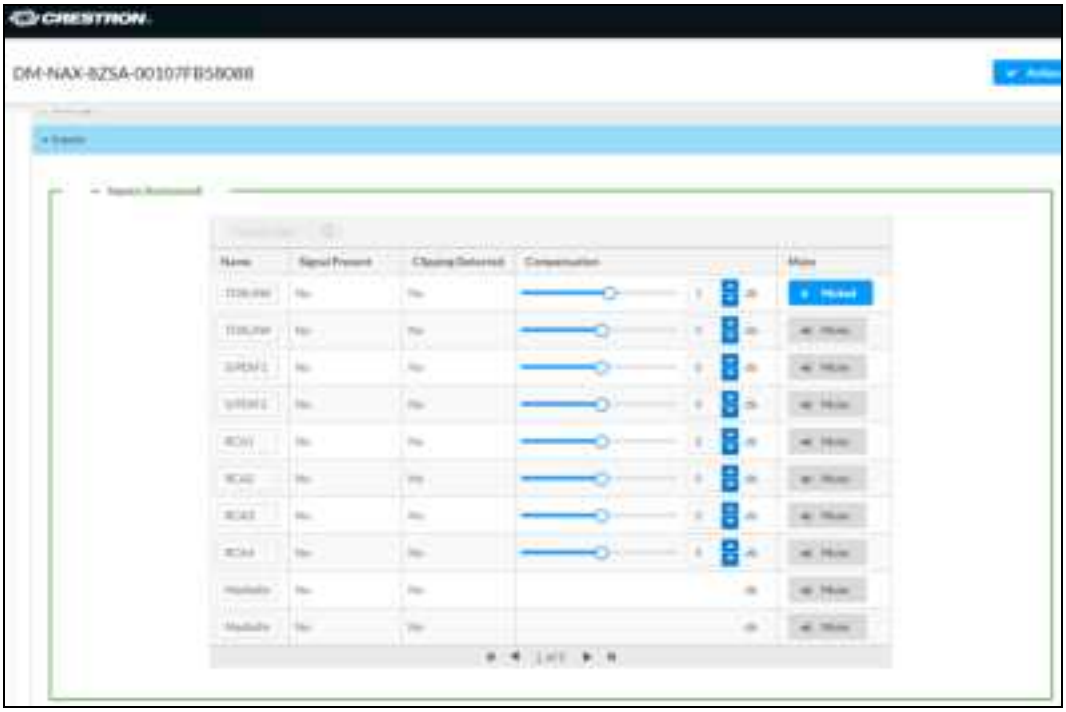
1. If needed, edit the name of the bus in the **Name** field.
2. Select the zone from the **Included Zones** drop-down menu. Values are **Zone1**, **Zone2**, **Zone3**, **Zone4**, **Zone5**, **Zone6**, **Zone7**, and **Zone8**.

NOTE: Each zone can be a member of only one Bus.

Inputs

The **Inputs** menu is used to configure **Name**, **Compensation**, and **Mute**, and of the available analog, digital, and media streaming inputs on the DM-NAX-8ZSA.

A total of 16 inputs are spread across an array of connectors. Only the first 8 inputs are related to physical connectors. The last 8 inputs are the media players for music/media streaming services.



Configure Inputs

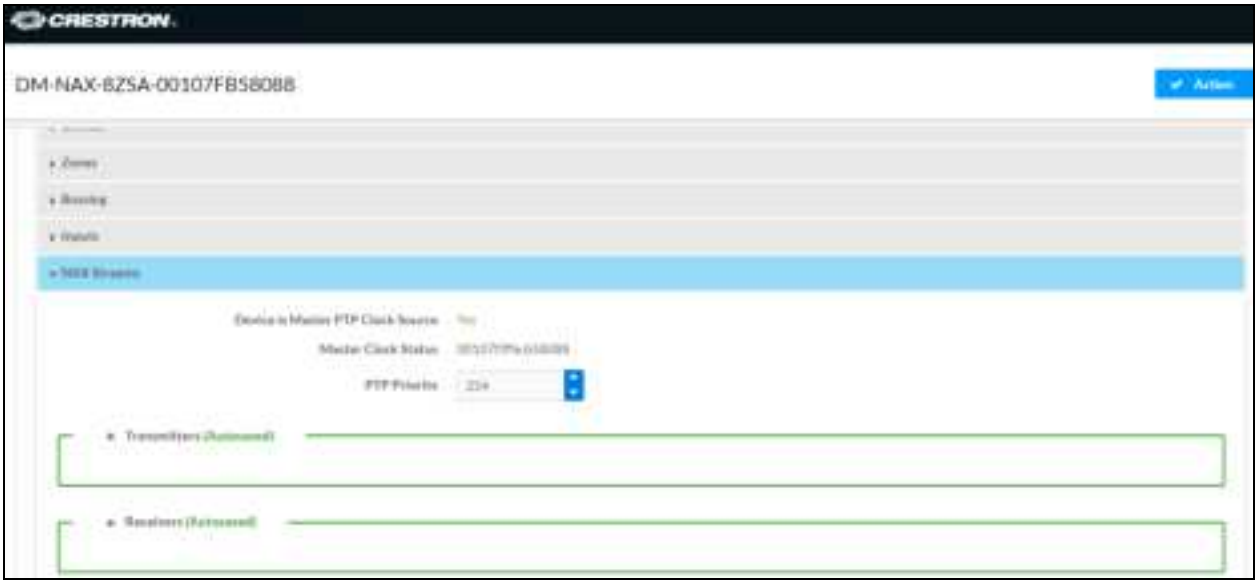
1. If needed, edit the name of the input in the **Name** field.
2. To configure the compensation, do one of the following:
   - Move the **Compensation** slider to the right to increase or to the left to decrease the compensation.
   - Click the **db** arrows to increase or decrease the compensation. Values range from -10 db to 10 db, adjustable in 1 db increments.
   - Manually enter a value in the **Compensation** field.
3. To mute the signal from the corresponding input, click the **Mute** button. To disable the mute, click the **Muted** button. By default, **Mute** is disabled.

Monitor the input signal using **Signal Present** and **Clipping Detected**. Use ▶ at the bottom of the matrix to view the Media streamers.

DM NAX Streams

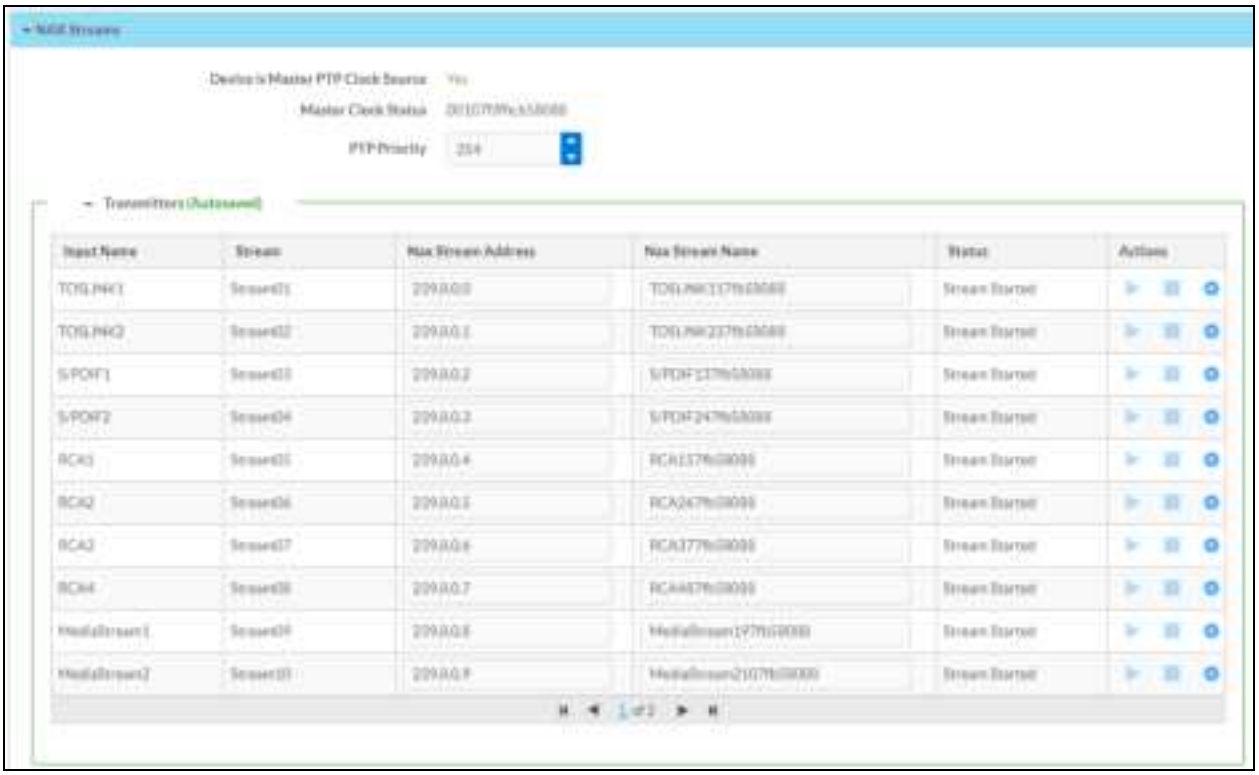
DM NAX audio over IP supports the AES67 standard. AES67 support allows an audio source to be transmitted as an AES67 source.

Click **NAX Streams** to display the following information.



- **Device is Master PTP Clock Source** indicates whether the device is the master for PTP on the network. **Yes** will be displayed in green when the local DM-NAX-8ZSA is the PTP clock master and **No** will be displayed in red when another PTP clock on the network is operating as the master clock.
- **Master Clock Status** displays the Master Clock ID of the device on the network that acts as the Master Clock.
- **PTP Priority** This sets the priority of the device over other DM NAX devices. Set a value between 1 and 255. The default setting is 254 so that the DM-NAX-8ZSA will only operate as clock master if no other PTP master is present on the network.

Configure Transmitters



To configure a DM NAX transmit stream for any of the available inputs, do the following.

1. Enter a validated 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, as it is associated with the Multicast/NAX Stream Address by other NAX or AES67 devices.
3. **Status** indicates whether the stream is active or not. When the stream has started or stopped, the **Status** column will update accordingly.
4. Click the configure button ( ) in the **Actions** column. The **Configure** dialog appears.

5. To enable auto initiation, move the **Auto Initiation** slider to the right position. To disable auto initiation, move the slider to the left position.
    - If Auto Initiation is enabled for the input, the stream will begin automatically, and will be available as a Multicast stream on your network at the specified address.
    - If Auto Initiation is disabled for the input, the stream will not begin until it is manually initiated.

6. To configure the port number, do one of the following:
    - Click the arrows to increase or decrease the port number.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
7. Click **OK** to save or click **Cancel** to cancel the changes.

Configure Receivers

Click **Receivers** to display the following information:

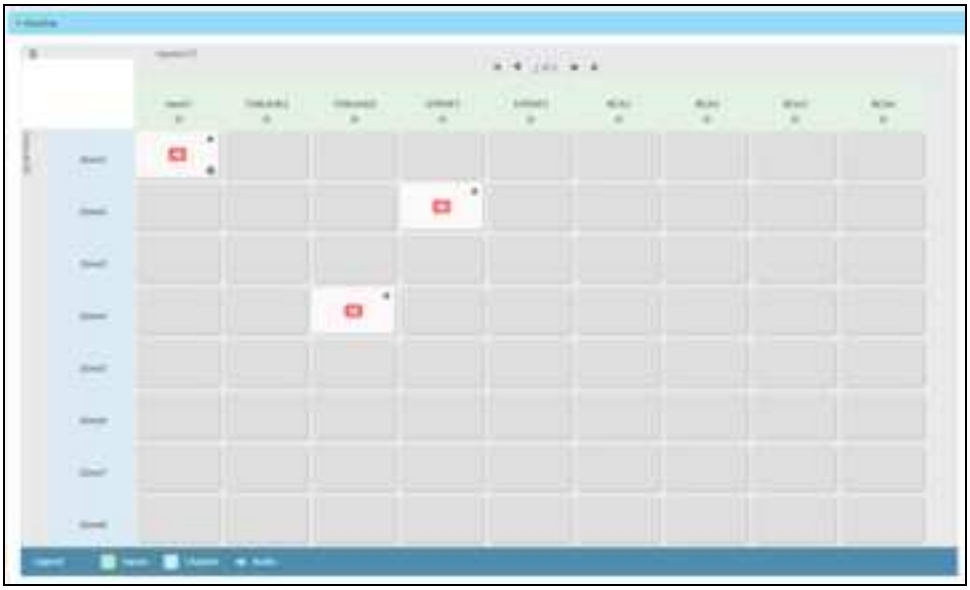
1. Enter the multicast address of a transmitting stream to connect the receiver in the **Requested Stream Address** field.
2. Click the configure button ( ) in the **Actions** column. The **Configure** dialog appears.

3. To enable auto initiation, move the **Auto Initiation** slider to the right position. To disable auto initiation, move the slider to the left position.
    - If Auto Initiation is enabled, the stream will begin automatically, and will be available as a Multicast stream on your network at the specified address.
    - If Auto Initiation is disabled, the stream will not begin until it is manually initiated.

4. To configure the port number, do one of the following:
    - Click the arrows to increase or decrease the port number.
    - Manually enter a port number in the **Port** field. The default port number is 5004.
5. Click **OK** to save or click **Cancel** to cancel the changes.

Routing

The **Routing** page is used to route a local input, media player, or AES67 stream to a Zone on the DM-NAX-8ZSA.



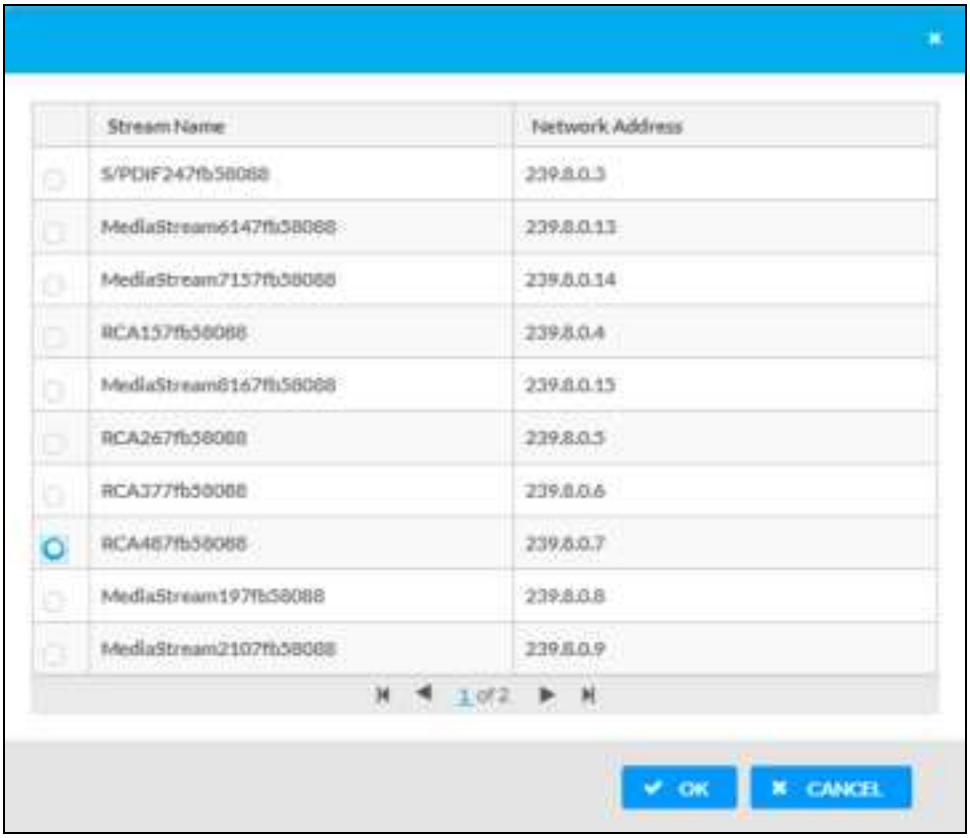
To route an input to the zones, click the box under the name of the corresponding input. The input is routed to the Zone.

To route inputs to zones on the device:

- Click the cells corresponding to the desired zone that are to be paired for routing. Once a route is made, appears. The input that you have selected for a given row will route to the Zone corresponding to that row in the matrix.
- Use arrows ◀ or ▶ at the top of the matrix to change pages to view all available inputs.
- To break a given route click or ✖ .

To select a specific NAX/AES67 stream when AES67 is selected as the source for a Zone.

- Click ⚙ to display the list of streams available and select the desired stream to be routed to the specific zone.



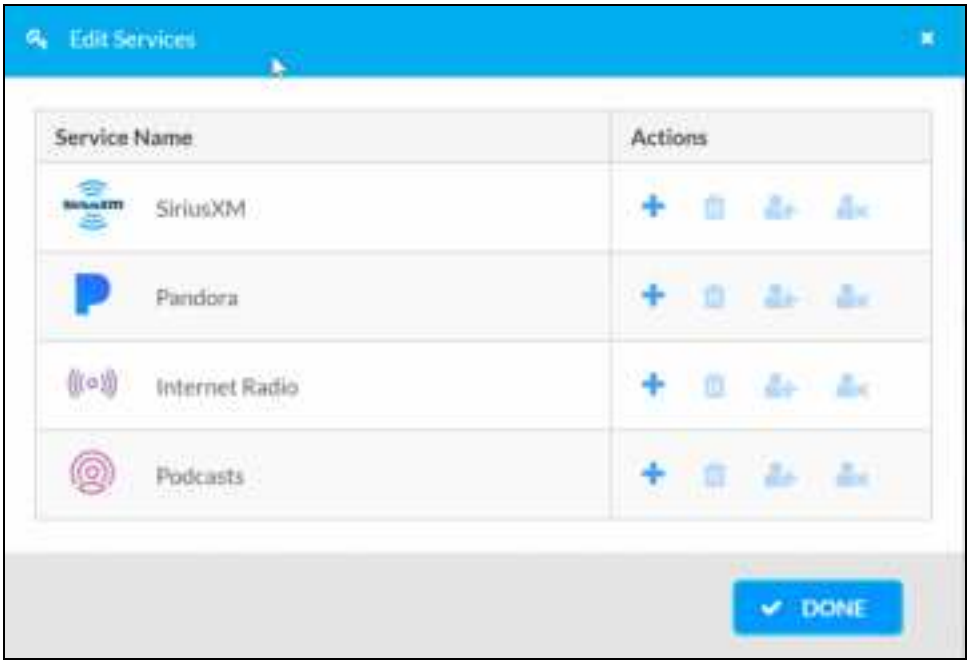
- Click **OK** to save or click **Cancel** to cancel the changes.
- To route a single input to all the zones, click on the Input ✔ icon.

Streaming Services

Multiple profiles can be created with discrete credentials to enable multiple users access to media streaming services on the same DM-NAX-8ZSA without interfering with other users' recommendations, favorites, or playlists.

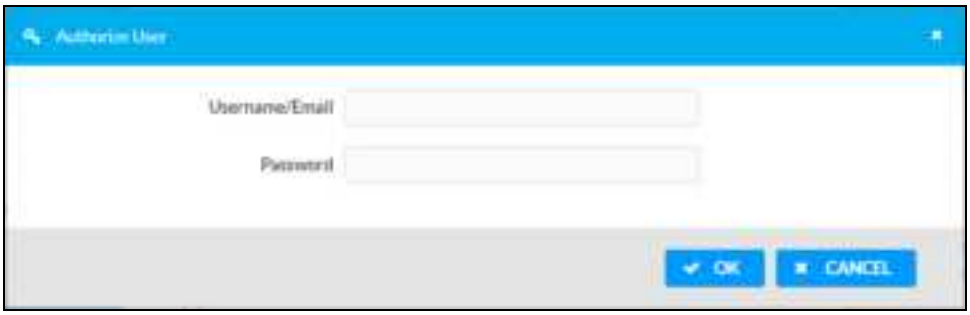
To configure Streaming Services:

1. To enable end user access, move the **End User Access** slider to the right position. To disable end user access, move the slider to the left position. By default, **End User Access** is disabled.
2. Click the **+ Add User Profile** button to create a new user profile.
3. Enter a name in the **Profile Name** field. Click **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.
4. Click **Services** on the **Action** column and an **Edit Services** window appears.



5. Select from the available Streaming Services: **SiriusXM®**, **Pandora®**, **Internet Radio**, and **Podcasts**.
6. Click + or 🗑 to add or delete the desired streaming services for each user profile.

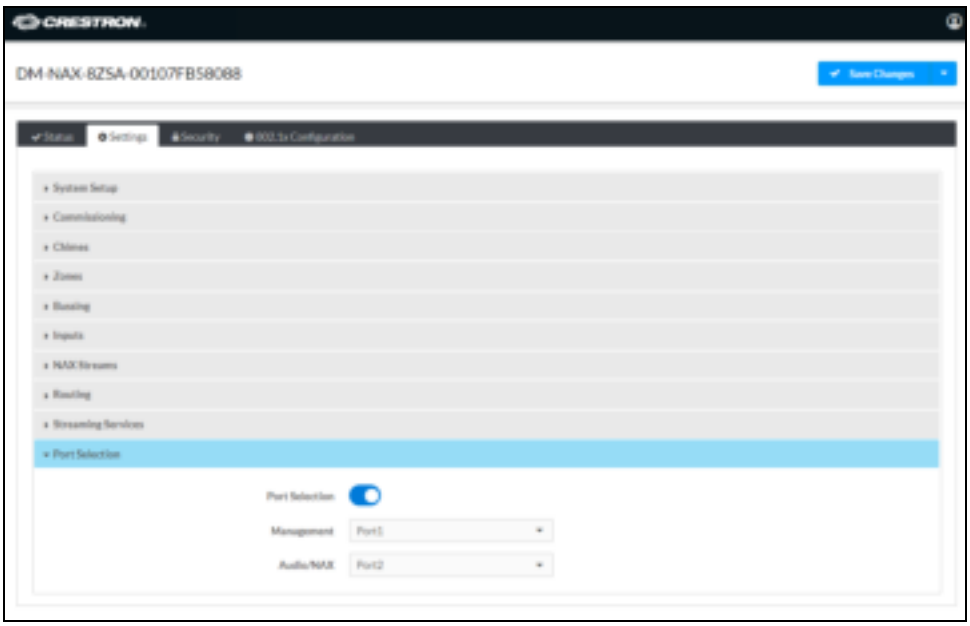
7. User authentication is required for SiriusXM and Pandora. Click to authorize the user, then enter the credentials and click **OK**.



8. Click **DONE** to return to **Streaming Services**.

Port Selection

Port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, and external Ethernet ports can then be assigned to various traffic types. AES67 or Dante audio can be separated from the primary video and control network resulting in a dedicated audio network.



To configure port selection:

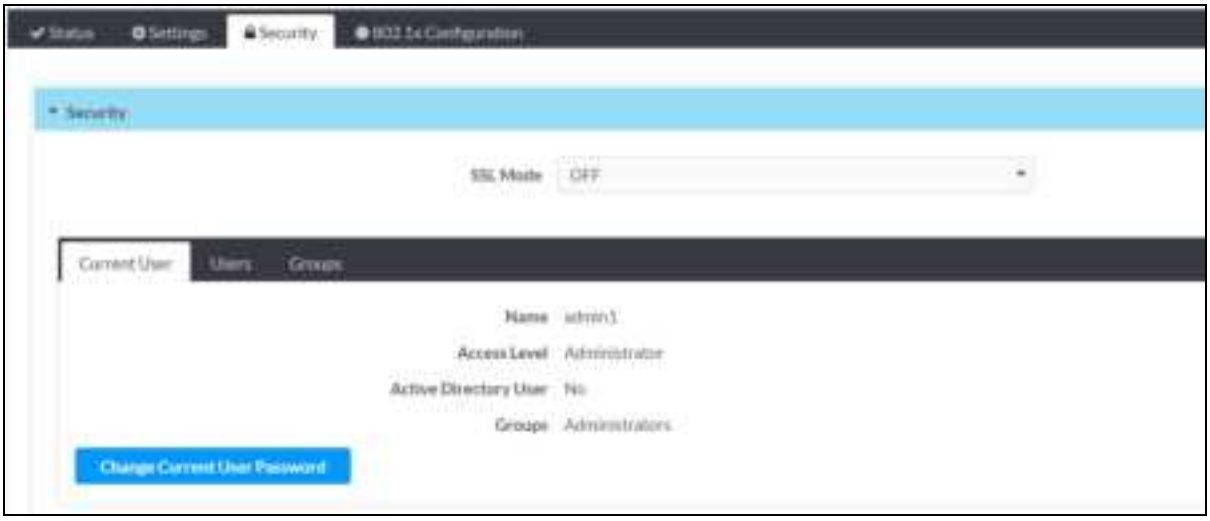
1. To enable the port selection, move the **Port Selection** slider to the right position. To disable the port selection, move the slider to the left position. By default, **Port Selection** is disabled.
2. With the port selection enabled, select an Ethernet port from the **Management** drop-down menu to assign traffic type.

   NOTE: The Management port controls your connection to the web interface. Changing the port value will result in losing your connection to the device via the web interface.

3. With the port selection enabled, select an Ethernet port from the **Audio/NAX** drop-down menu to assign traffic type.
4. Click **Save** changes to apply the new settings.

Security

Click the **Security** tab to configure security for users and groups and to allow different levels of access to the DM-NAX-8ZSA functions . By default security is disabled.



Select **Encrypt and Validate**, **Encrypt**, or **OFF** in the **SSL Mode** drop-down menu, to specify whether to use encryption. By default SSL Mode is set to **OFF**.

Current User

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

1. Click the **Change Current User Password** button 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. Click **OK** to save or click **Cancel** to cancel the changes.

Users

Click 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 clicking 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 menu 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.

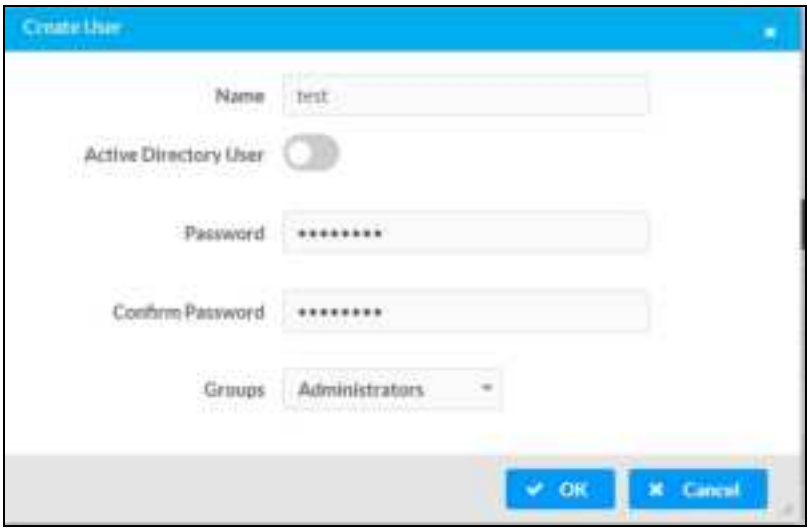
- **Username**: Displays the name of the user.
- **AD User**: Displays whether the user requires authentication using Active Directory.

  Click the corresponding button in the Actions column to view detailed user information or to delete the user.

  To create a new user, click the **Create User** button.

Create a New Local User

1. Click the **Create User** button in the User 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** slider is disabled.

3. Click **OK** to save or click **Cancel** to cancel the changes.

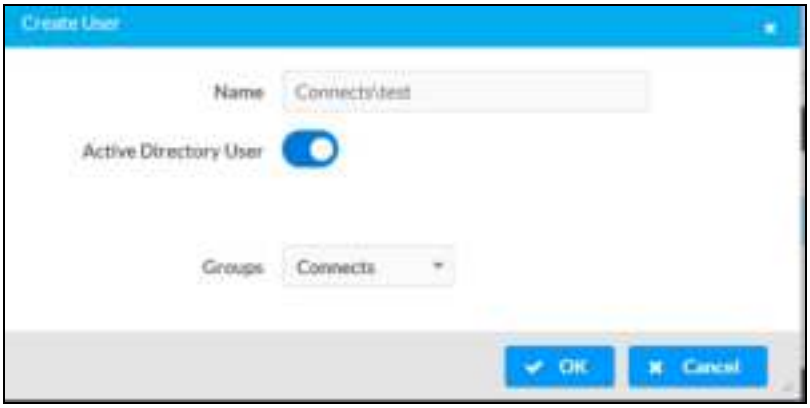
Add an Active Directory User

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-8ZSA, or add the Active Directory group(s) that they are a member of to the DM-NAX-8ZSA.

To add an Active Directory user.

1. Click the **Create User** button.
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** slider is set to enabled.

3. Click **OK** to save or click **Cancel** to cancel the changes.

Delete User

Click the trashcan button ( ) in the **Actions** column to delete the user. Click **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.

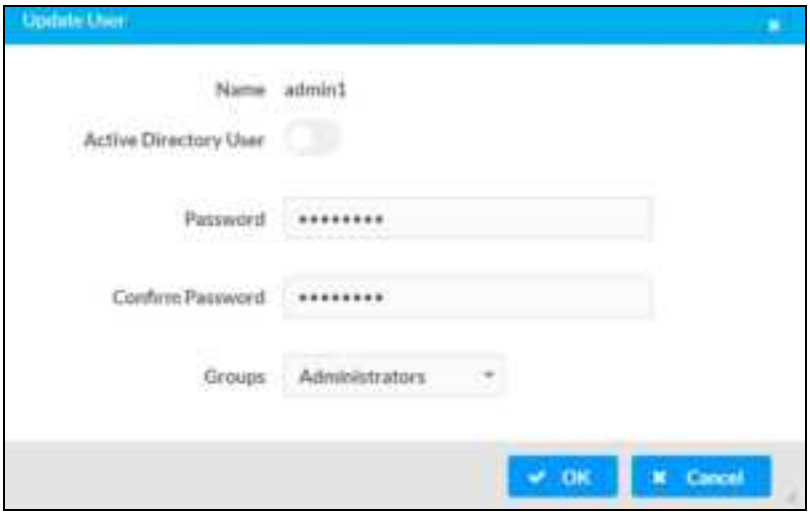
View User Details

Click the information button ( ) 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.

Click **OK** to close the **User Details** dialog and to return to the **Users** tab.

Update User Details



1. Click the edit button ( ) 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. Click **OK** to save or click **Cancel** to cancel the changes.

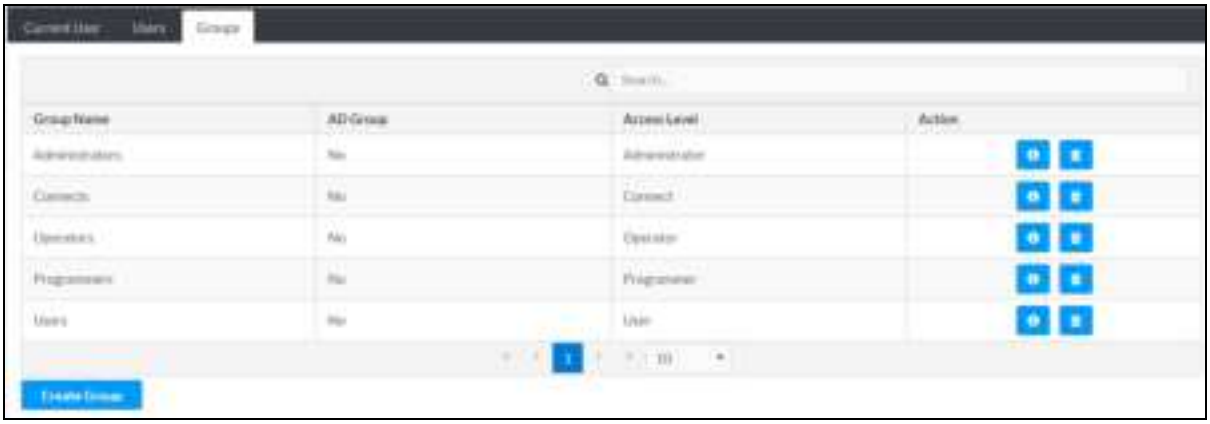
The **Update User** dialog also displays the following read-only information for the selected user.

- **Name**: Displays the name of the user.
- **Active Directory User**: Displays whether the user is an Active Directory user.

Groups

Click 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 clicking 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 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.
- **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).

Click the corresponding button in the **Actions** column to view detailed group information ( ) or to delete ( ) selected group.

Click on the **Create Group** button in the **Groups** tab to create new group.

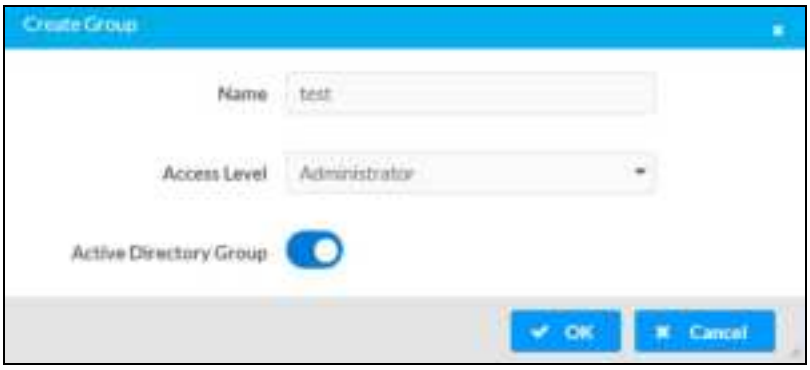
Create Local Group

1. Click the **Create Group** button.
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** slider is disabled.
3. Click **OK** to save. Click **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-8ZSA.

1. Click the **Create Group** button.
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** slider is enabled.

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

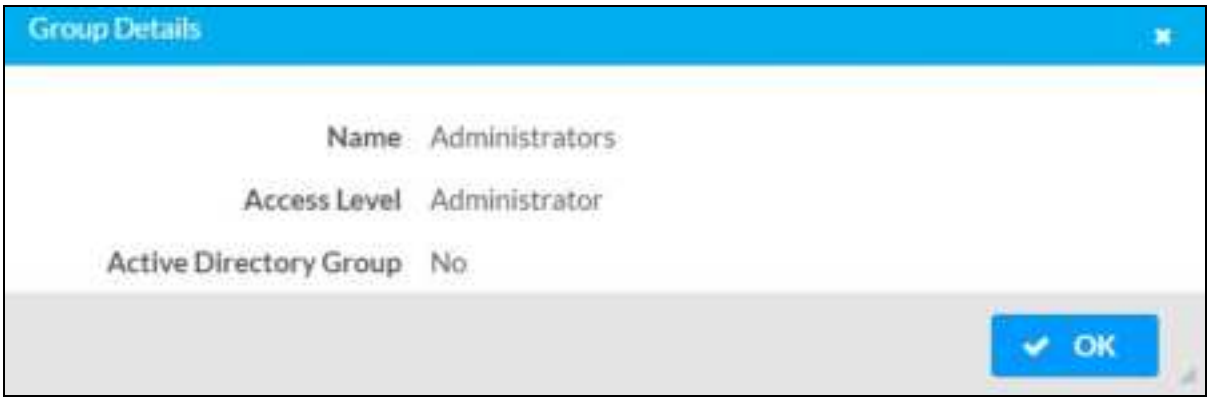
Delete a Group

Click the trashcan button ( ) in the **Actions** column to delete a group. Click **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

Click the information button ( ) in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group.

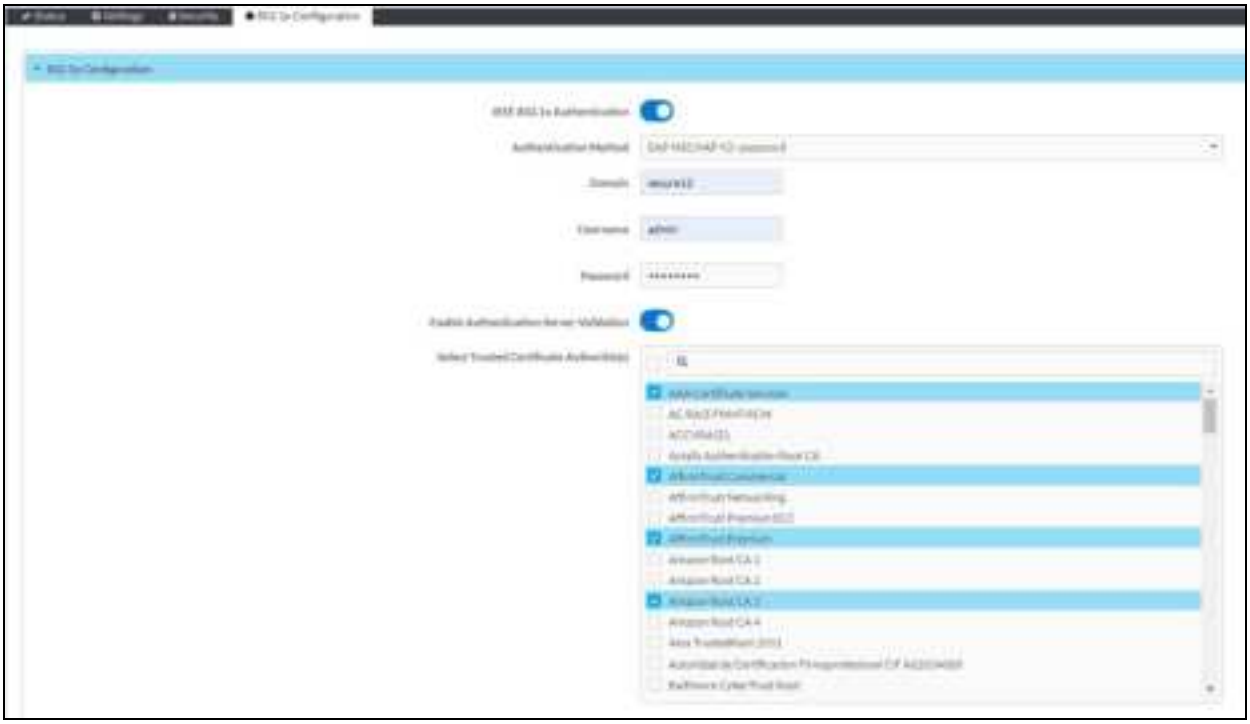


- **Name**: Displays the name of the group.
- **Access Level**: Displays the access level of the group and its users.
- **Active Directory Group**: Displays whether the group is an Active Directory group.

Click **OK** to close the **Group Details** dialog and to return to the Groups tab.

802.1x Configuration

The DM-NAX-8ZSA 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-8ZSA for 802.1X Authentication

1. Move the **IEEE 802.1X Authentication** slider 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**, click **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-8ZSA.
   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, click **Save Changes** to save the changes to the device and reboot it. Click **Revert** to cancel any changes.

Access the Web Interface With the Crestron Toolbox™ Application

To access the web interface by opening a web browser within the Crestron Toolbox™ application, do the following:

1. Open the Crestron Toolbox application.
2. From the **Tools** menu, select **Device Discovery Tool**. You can also access the Device Discovery Tool by clicking the Device Discovery Tool button ( ) 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 the Crestron Toolbox application 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, double-click your device.
4. Enter your credentials in the **Authentication Required** dialog that opens, and then click **Log In**.
5. Click the **Web Configuration** button in the Configuration page displayed on the left side of the Device Discovery Tool.

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Product Manual — Doc. 9045A

06/14/21
Specifications subject to
change without notice.