



# HD-MD4X2-4KZ-E and HD-MD4X1-4KZ-E 4K60 4:4:4 HDR AV Switchers

Web Interface Configuration Guide  
Crestron Electronics, Inc.

The original language version of this document is U.S. English.  
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**HDMI**

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# Introduction

The HD-MD4X2-4KZ-E and HD-MD4X1-4KZ-E are 4K60 4:4:4 HDR (High Dynamic Range) AV switchers. The HD-MD4X2-4KZ-E is equipped with four HDMI® inputs and two HDMI outputs. The HD-MD4X1-4KZ-E is equipped with four HDMI inputs and one HDMI output. The HD-MD4X2-4KZ-E and HD-MD4X1-4KZ-E, hereinafter referred to as AV switchers, both include features such as automatic switching of inputs, EDID management, HDCP 2.3 compliance, enterprise-grade security, and XiO Cloud® service support.

## Web Interface Configuration

The web interface of the AV switchers allows you to view status information and configure network and device settings.

**NOTE:** Unless otherwise indicated in this guide, the web interface of the AV switchers is the same.

## Access the Web Interface

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

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

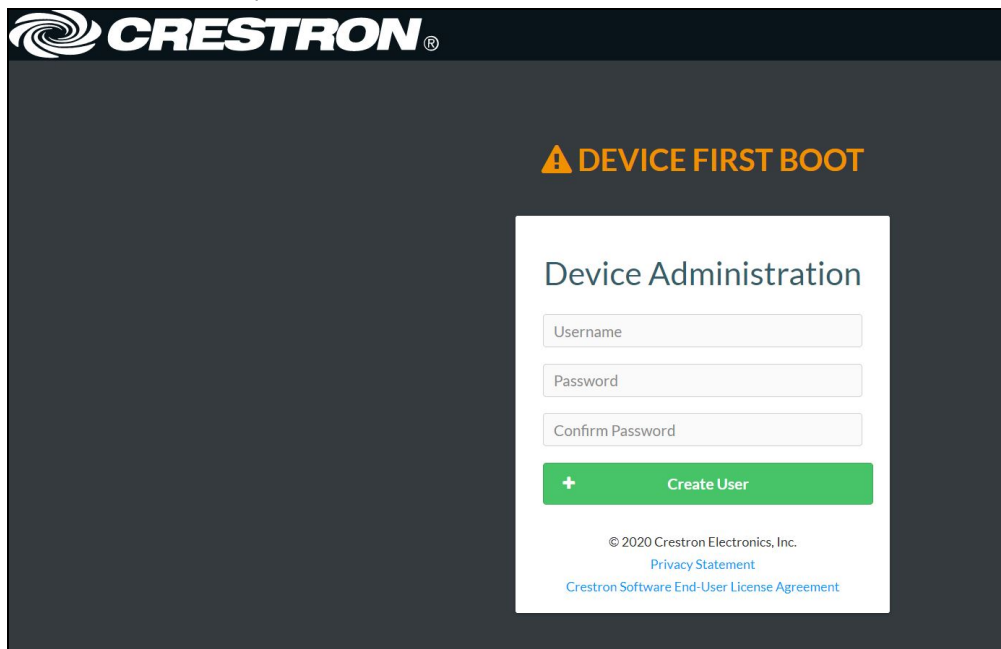
- Open it directly in a web browser.
- Open a web browser from within the Crestron Toolbox™ application.

# Access the Web Interface with a Web Browser

1. Enter the IP address of the AV switcher into a web browser.

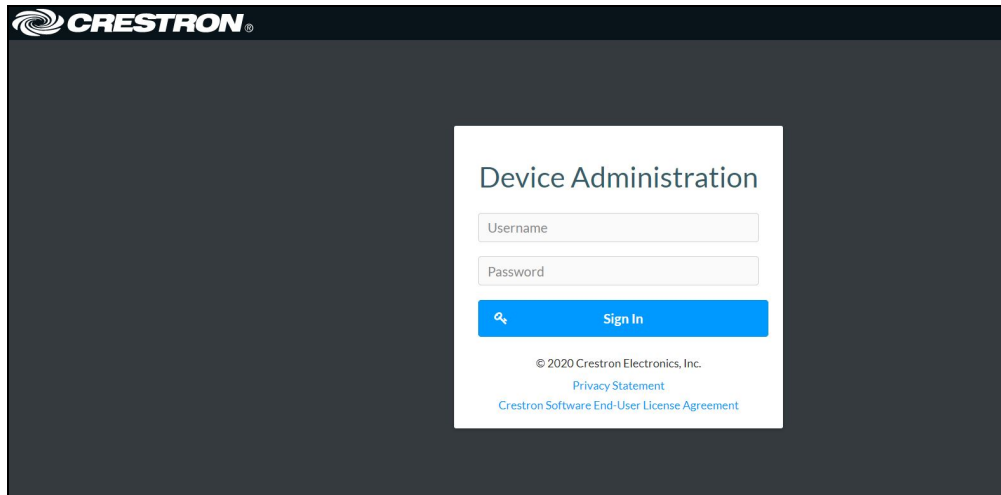
**NOTE:** To obtain the IP address, press the **Setup** button on the AV switcher to display the IP address on the HDMI output. The IP address is displayed for 20 seconds.

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.



The screenshot displays the Crestron web interface. At the top left is the Crestron logo. In the center, there is a warning icon (a triangle with an exclamation mark) followed by the text "DEVICE FIRST BOOT". Below this, the page is titled "Device Administration". There are three input fields: "Username", "Password", and "Confirm Password". Below these fields is a green button with a white plus sign and the text "Create User". At the bottom of the page, there is copyright information: "© 2020 Crestron Electronics, Inc." followed by links for "Privacy Statement" and "Crestron Software End-User License Agreement".


- 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**.

## 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 AV switchers are 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.

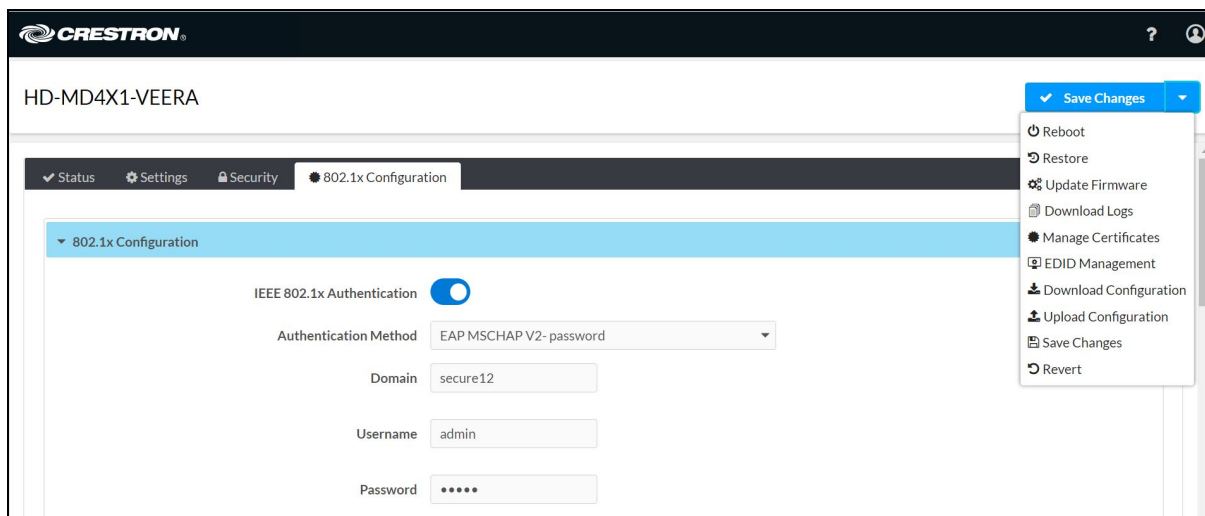
3. In the Device Discovery Tool list, double-click your device.
4. Enter your credentials in the **Authentication Required** dialog that opens, and then click **Log In**.
5. Click the **Web Configuration** button in the Configuration page displayed on the left side of the Device Discovery Tool.



# Actions Menu

The Actions drop-down menu is displayed at the top right side of the interface and provides quick access to common device functionality of the AV switchers, such as:

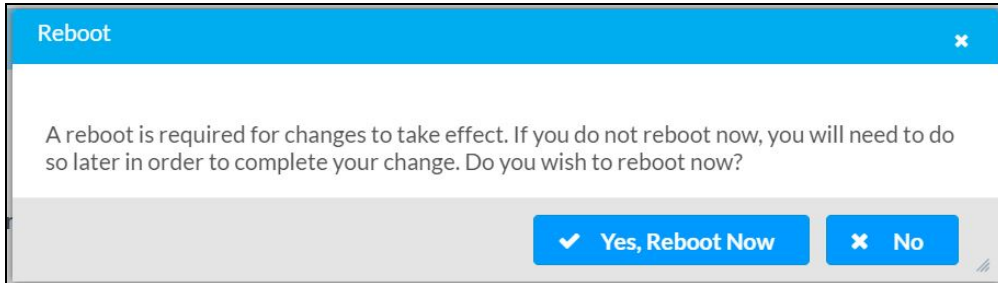
- Rebooting
- Restoring
- Updating Firmware
- Downloading Logs
- Managing Certificates
- EDID Management
- Downloading Configuration
- Uploading Configuration
- Saving Changes
- Reverting



# Rebooting the AV Switchers

Certain changes to the settings may require the AV switchers 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.

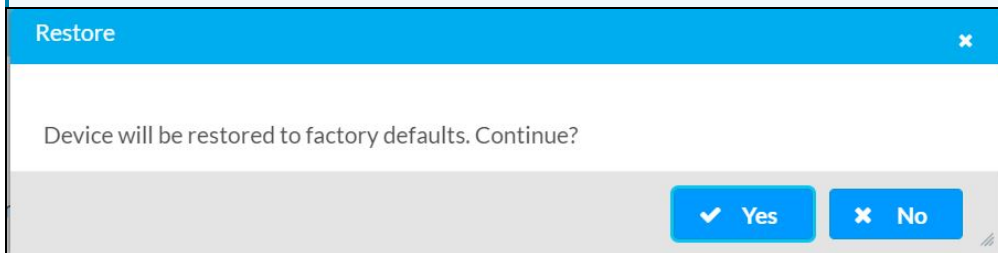


2. Click **Yes, Reboot Now** to reboot the device. The **Reboot** message box appears. Wait for the device reboot to complete before attempting to reconnect to the device.

# Restoring to Factory Default Settings

1. Click **Restore** in the **Actions** drop-down menu to restore the settings of the AV switchers to factory defaults.

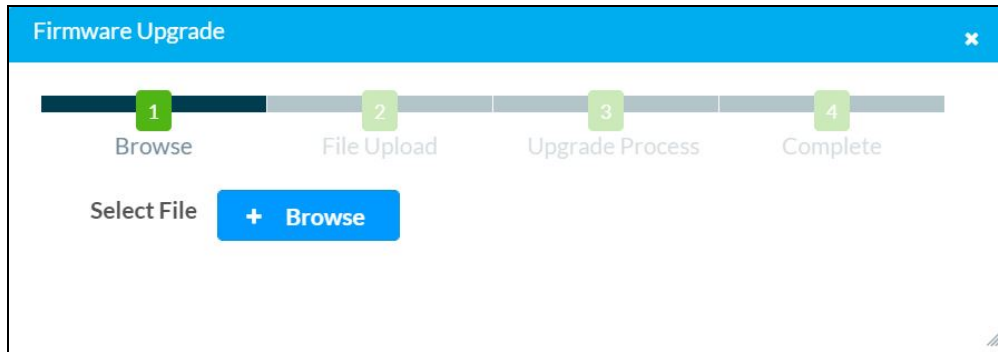
**NOTE:** When settings are restored, all settings, including the network settings, will revert to the factory default. If a static IP address is set, restoring the device to factory default settings will revert the IP address to the default DHCP mode.



2. Click **Yes** in the **Confirmation** dialog to restore the AV switchers 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.

# 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.

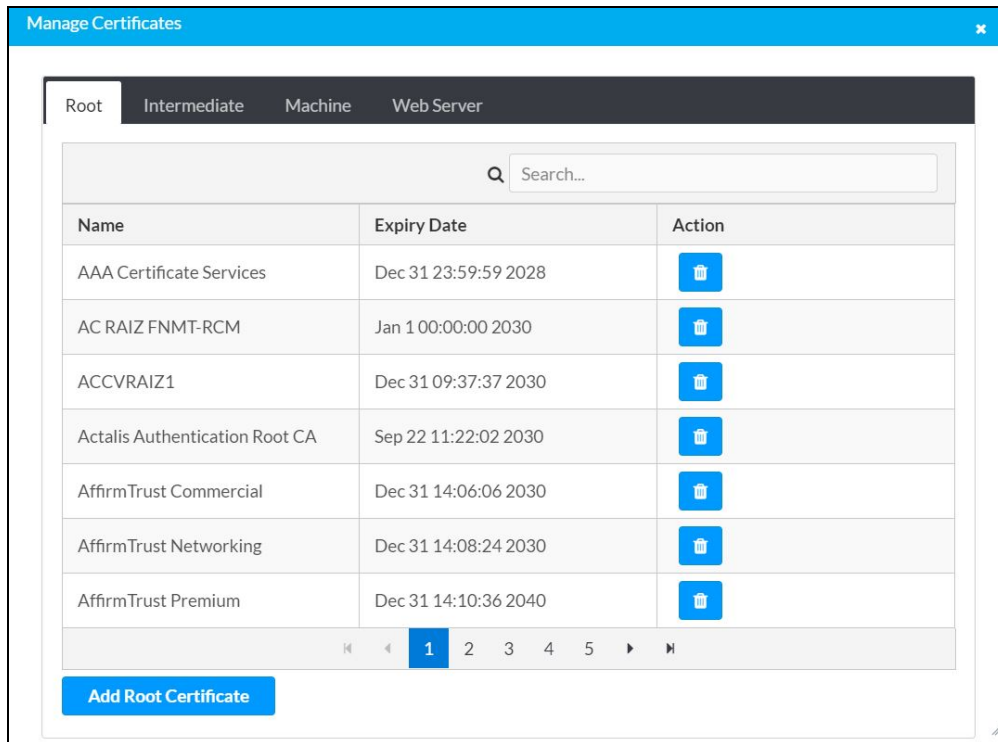
# Downloading Logs

Click **Download Logs** in the **Actions** drop-down menu.

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.



Click **Manage Certificates** in the **Actions** drop-down menu. The following certificate tabs are displayed:

- **Root:** The Root certificate is used by the AV switchers to validate the network's authentication server. The AV switchers have 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 AV switchers. 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 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.

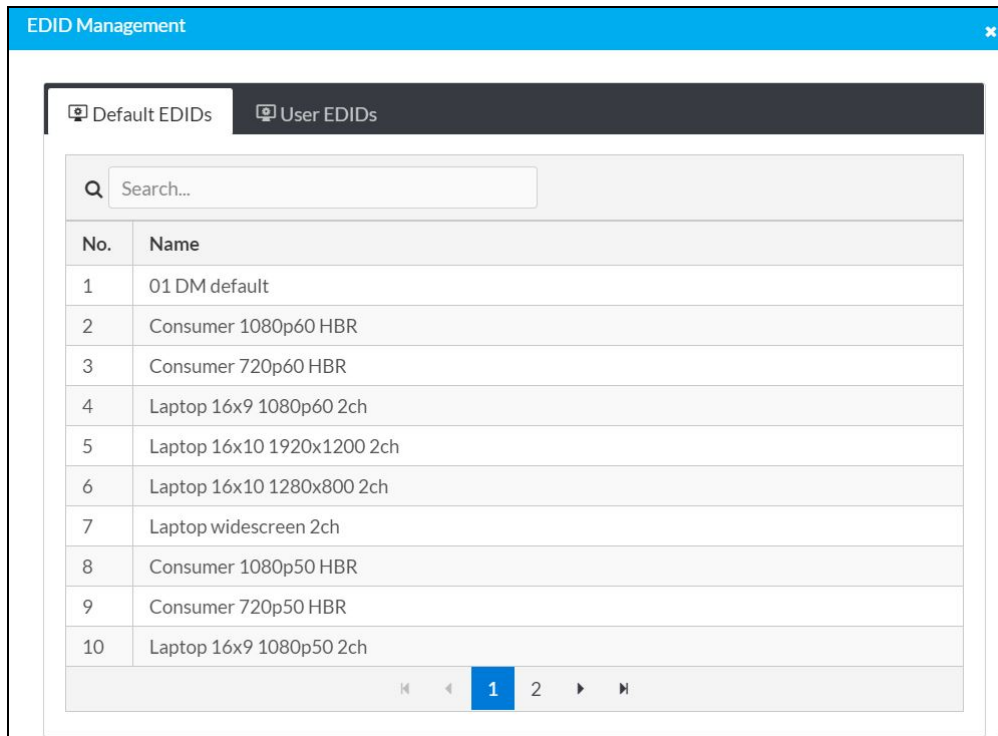
5. Click **OK**. This will add the certificate to the list box, displaying the file name and expiration date.  
The certificate is now available for selection and can be loaded to the device.

## 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.

# EDID Management

The EDID Management dialog displays available built-in EDID files and allows loading of a custom EDID file.



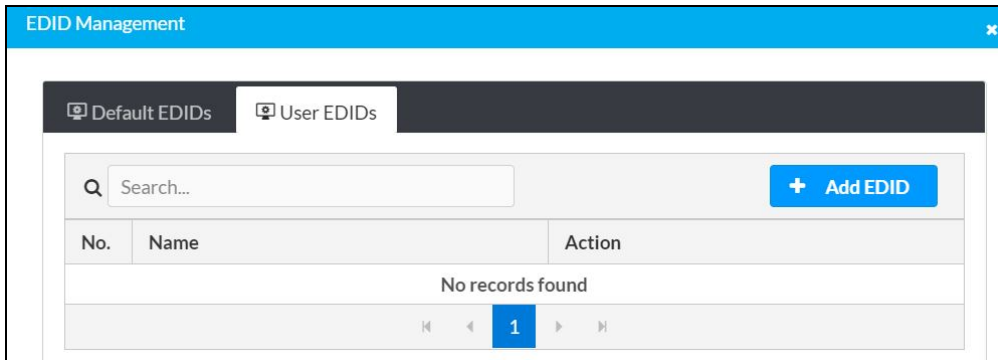
Built-in EDIDs are displayed in the **Default EDIDs** tab of the **EDID Management** dialog. The following EDIDs are available:

- 01 DM default
- Consumer 1080p60 HBR
- Consumer 720p60 HBR
- Laptop 16x9 1080p60 2ch
- Laptop 16x10 1920x1200 2ch
- Laptop 16x10 1280x800 2ch
- Laptop widescreen 2ch
- Consumer 1080p50 HBR
- Consumer 720p50 HBR
- Laptop 16x9 1080p50 2ch
- DM Default 4k 30Hz 2ch
- DM Default 4k 60Hz 2ch
- DM Default 4k 60Hz HBR
- 4K60 444 2CH Non-HDR
- 4K60 444 2CH HDR

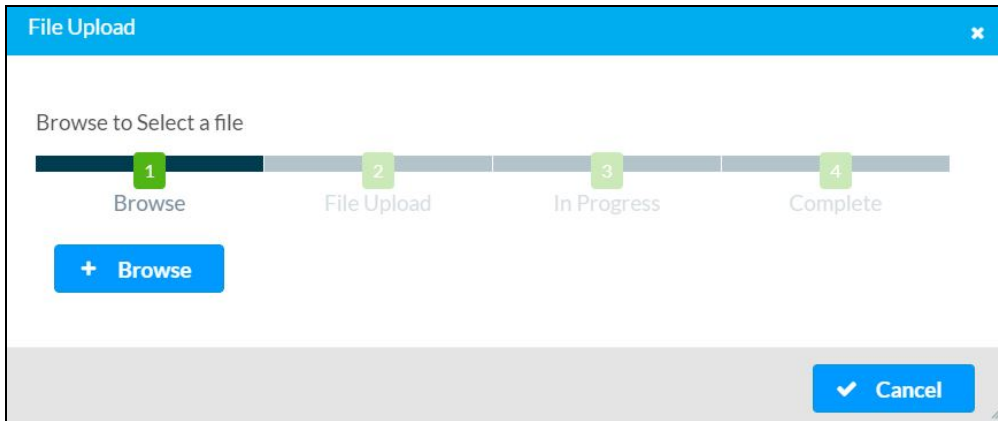
- 4K60 444 HBR HDR
- 4K60 444 2CH HDR DCI
- 4K60 444 HBR Non-HDR
- 4K60 444 2CH HDR10+
- 4K60 444 HBR HDR10+

## To Load a Custom EDID File

1. In the EDID Management dialog, click the **User EDIDs** tab and then click the **+ Add EDID** button.



2. Click the **+ Browse** button in the File Upload dialog.



3. Navigate to the desired custom EDID file (.cedid extension), select the file, and then click **Open**.
4. Click **Send EDID**. A prompt appears asking for confirmation that the EDID file be uploaded to the device.
5. Click **OK**.


Once the EDID file is sent successfully the following occurs:

- In the **Global EDID** section of the **Inputs** panel, the custom EDID file name is added to the **Send EDID to all inputs** drop-down list.
- In the **Inputs** section of the **Inputs** panel, the custom EDID file name is added to each individual input **EDID** drop-down list.

**NOTE:** Any custom EDIDs will be listed (in alphabetical order) after the last built-in EDID.

## To Delete a Custom EDID File

**NOTE:** Only custom EDID files that are not applied to an input can be deleted. Built-in EDID files cannot be deleted.

1. Click the **User EDIDs** tab and then click the trashcan button () in the row of the custom EDID file to be deleted.
2. Click **Yes** in the Confirmation dialog to confirm the delete operation. Click **No** to cancel the operation.

After a successful deletion, the custom EDID file is removed from the **Send EDID to Global Inputs** drop-down list and also from each individual input **EDID** drop-down list in the **Inputs** sections of the **Inputs** panel.

## Downloading Configuration

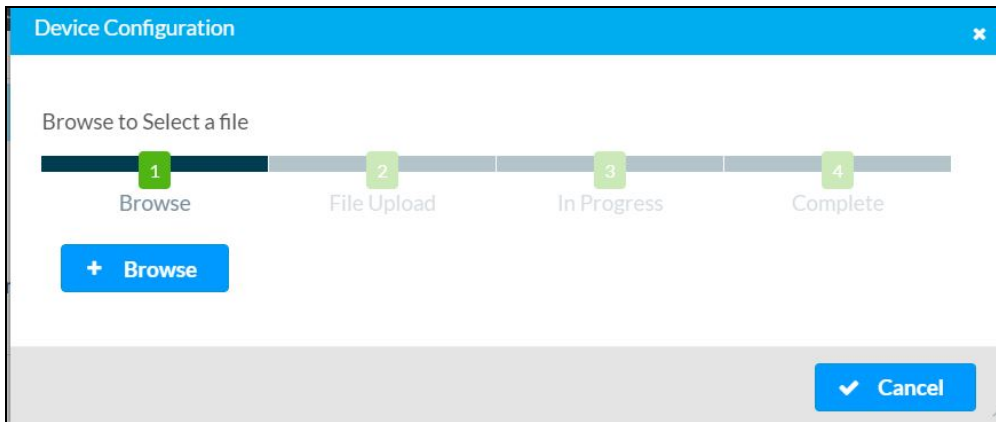
Click **Download Configuration** in the **Actions** drop-down menu.

The configuration file (.tgz) is downloaded to the Downloads folder of the PC.



# Uploading Configuration

1. Click **Upload Configuration** in the **Actions** drop-down menu.

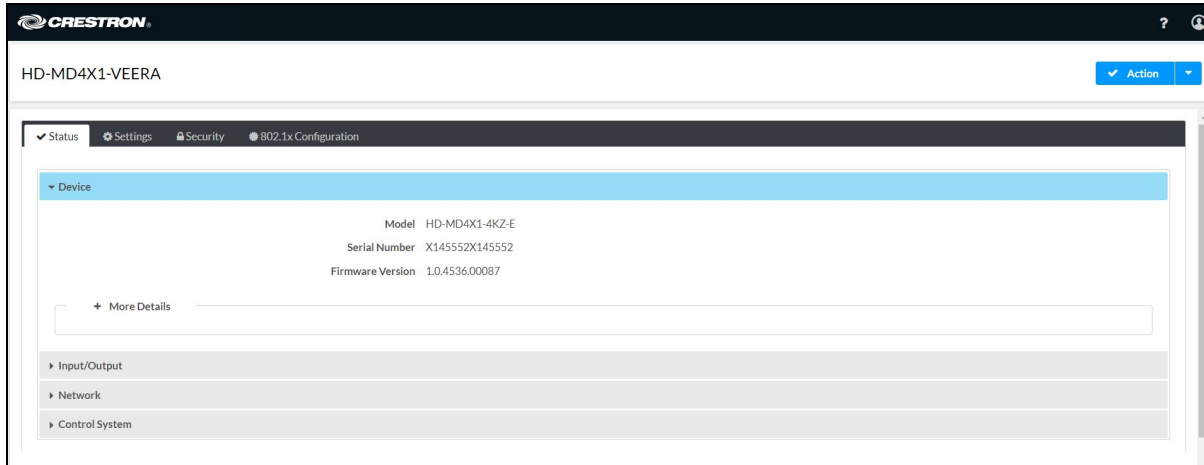


2. Click the **+ Browse** button.
3. Navigate to the configuration file, select the file, and then click **Open**.
4. Click the **Load** button. The Confirmation dialog appears.
5. Click **Yes, Reboot Now** to reboot the device. The Reboot message box appears.

# Status

The **Status** tab is the first page displayed when starting the interface of the AV switchers. It displays general information about the AV switchers (such as Model Name, Serial Number, and Firmware Version), current network settings (such as Host Name and IP Address, etc.), input and output ports, as well as information about the connection to the control system.

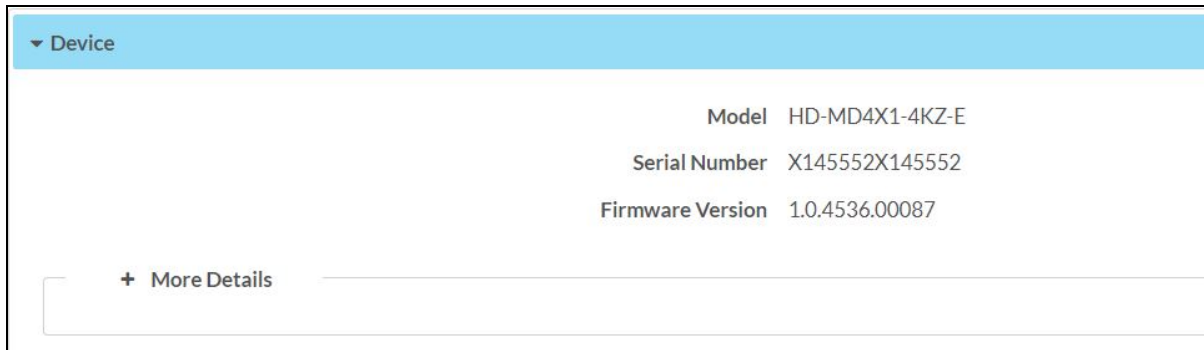
The Status tab can be accessed at any time by clicking the Status tab of the AV switchers interface.



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

## Device

The **Device** section displays the **Model**, **Serial Number**, and **Firmware Version** of the AV switchers.



Click **+ More Details** to review additional information about the AV switchers.

- More Details

HD-MD4X1-4KZ-E	1.0.4536.00087
Build	Sep 26 2020 (377129)
Updater	1.0.4536.00087
Bootloader	1.001.024
Cab	1.999.2093
CCUI Version	2.93.835129
Build time	05:31:09
Product ID	0x7801
Revision ID	0x0000
CPU ID	0x0000
PUF	1.0.4536.00087
MCU	1.4525.00043
FORCED_AUTH_MODE	True

## Input/Output

The **Input/Output** section displays information about available inputs and outputs of the AV switchers.

▼ Input/Output

- Inputs

Name	Sync Detected	Resolution	Source HDCP
HDMIInput 1	No	0x0@0	No Signal
HDMIInput 2	Yes	0x0@0	HDCP 2.x
HDMIInput 3	No	0x0@0	No Signal
HDMIInput 4	No	0x0@0	No Signal

### Inputs

- **Name:** Displays the name of the input source.
- **Sync Detected:** Displays **Yes** if connection is detected or **No** if connection is not detected.
- **Resolution:** Resolution when video with valid resolution is detected. If no video is detected, the reported resolution will be **0x0@0**.
- **Source HDCP:** Reports **HDCP 1.x** or **HDCP 2.x** when the HDCP source is connected. Reports **Non-HDCP** when a non-HDCP source is connected and reports **No Signal** when no source is connected.

## Outputs

- **Name:** Displays the name of the output source.
- **Sink Connected:** Displays **Yes** if connection is detected or **No** if connection is not detected.
- **Resolution:**
  - Displays **0x0@0** when the video signal is not being transmitted. For example, no HDMI cable is connected.
  - Displays detected resolution when video signal is being transmitted. In the event an HDMI cable is connected to the display/downstream device, but the device is turned off, the last detected resolution will be displayed until a new video signal is received.
- **Sink HDCP Capability:** HDCP support 1.4 or 2.x.
- **Disabled by HDCP:** **Yes** or **No**.

## Network

The **Network** section displays network-related information about the AV switchers, including the Hostname, Domain Name, and DNS Servers.

▼ Network	
Host Name	HD-MD4X1-4KZ-E-00107FCE6929
Domain Name	CRESTRON.CRESTRON.com
DHCP Enabled	Yes
IP Address	10.88.102.79
Primary Static DNS	10.88.2.51(DHCP)
Secondary Static DNS	10.88.2.52(DHCP)
Default Gateway	10.88.102.1
Link Active	Yes
MAC Address	00.10.7f.ce.69.29
Subnet Mask	255.255.255.0

**NOTE:** By default the host name of the AV switchers consists of the model name followed by the MAC address of the device. For example, HD-MD4X1-4KZ-E-00107FCE6929.

Additionally, the following IPv4 addressing information is provided:

- Host Name
- Domain Name
- DHCP Enabled

- IP Address
- Primary Static DNS
- Secondary Static DNS
- Default Gateway
- Link Active
- MAC Address
- Subnet Mask

## Control System

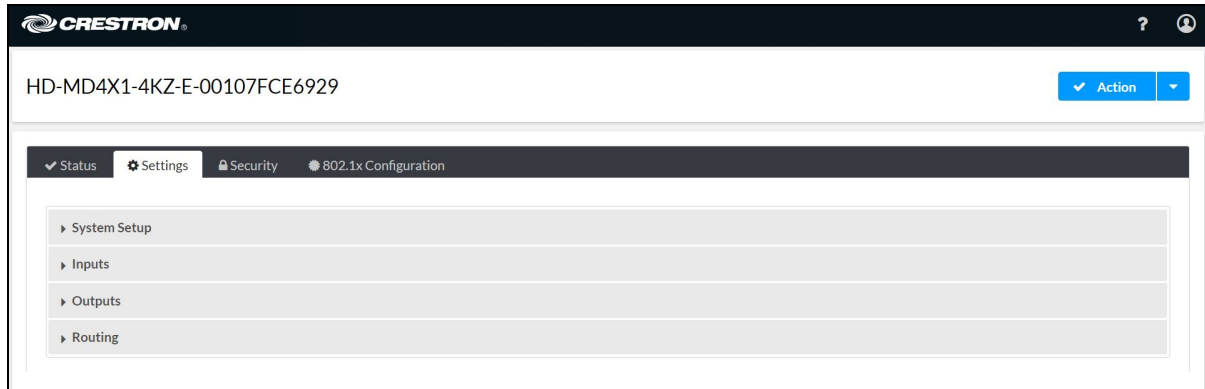
The **Control System** section displays connection information, consisting of the following:

Control System			
Encrypt Connection ON			
- IP Table			
IPID	IP Address/Hostname	Room ID	Status
36	10.254.80.78	JJ	OFFLINE

- Encrypt Connection: ON or OFF
- IPID: Reports the currently used IP ID of the AV switchers.
- 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 AV switchers settings. The Settings page can be accessed at any time by clicking the Settings tab of the AV switchers interface.



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

## System Setup

The **System Setup** section displays information about the Network, Front Panel, Cloud Settings, Auto Update, Date/Time, Control System, and Service Ports.

# Network

The **Network** section displays network-related information about the AV switchers, including the Host Name, Domain, Primary Static DNS, and Secondary Static DNS.

— Network

Host Name	HD-MD4X1-4KZ-E-00107FCE6929
Domain	CRESTRON.CRESTRON.com
Primary Static DNS	10.88.2.51(DHCP)
Secondary Static DNS	10.88.2.52(DHCP)
Adapter 1	
DHCP	<input checked="" type="checkbox"/>
IP Address	10.88.102.79
Subnet Mask	255.255.255.0
Default Gateway	10.88.102.1

**NOTE:** By default the host name of the AV switchers consists of the model name followed by the MAC address of the device. For example, HD-MD4X1-4KZ-E-00107FCE6929.

## Adapter 1

Displays DHCP, IP Address, Subnet Mask, and Default Gateway of the AV switchers.

## Configure DHCP

Set the **DHCP** slider to enabled (right) or disabled (left) to specify whether the IP address of the AV switchers is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

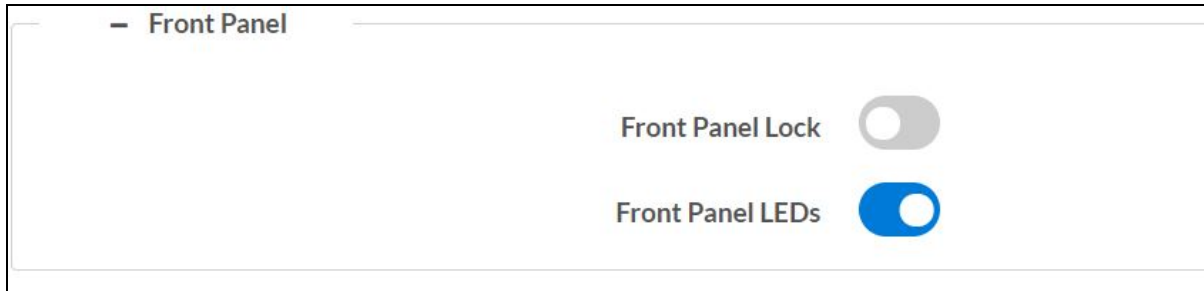
- **Enabled:** When DHCP is enabled (default setting), the IP address of the AV switchers is automatically assigned by a DHCP server on the local area network (LAN) for a predetermined period of time.
- **Disabled:** When DHCP is disabled, manually enter information in the following fields:
  - **Primary 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 AV switchers.

- **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**.

## Front Panel

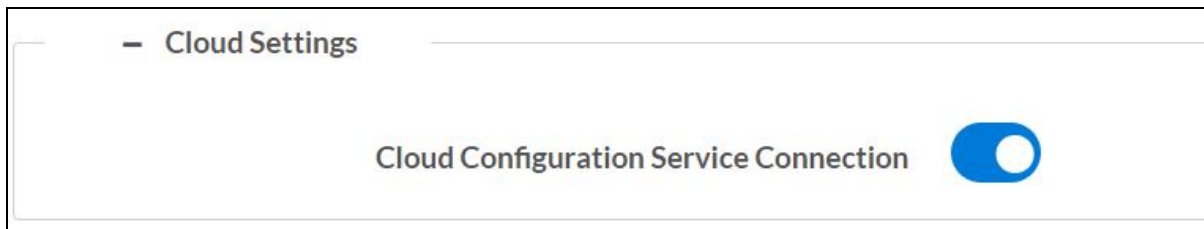
To prevent accidental changes to device settings, the Front Panel section can be set to lock the front panel buttons on the AV switchers. By default, the front panel is unlocked, allowing the front panel buttons to function. When the front panel is locked, pressing any of the buttons (with the exception of the SETUP button) has no effect. In addition, the LEDs on the front panel are enabled by default. When the front panel LEDs are disabled, the LEDs (except the SETUP LED) do not light.



- **Front Panel Lock:** To enable the front panel lock, move the **Front Panel Lock** slider to the right position. To disable the front panel lock, move the slider to the left position.
- **Front Panel LEDs:** To enable the front panel LEDs, move the **Front Panel LEDs** slider to the right position. To disable the front panel LEDs, move the slider to the left position.

## Cloud Settings

The **Cloud Settings** section provides functionality to enable or disable the cloud configuration service connection. By default, the cloud configuration service connection is enabled.



- **Cloud Configuration Service Connection:** To disable the connection to the cloud server, move the **Cloud Configuration Service Connection** slider to the left position. To enable the connection, move the slider to the right position.



## Auto Update

The AV switchers can be automatically updated with the latest firmware at scheduled intervals.

— Auto Update

Auto Update

Custom URL

Custom URL Path

Schedule

Day of Week

Time of Day

Poll Interval  Minutes

[Update Now](#)

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.

# Date/Time

Use the **Date/Time** section to configure the date and time settings of the AV switchers.

## 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.

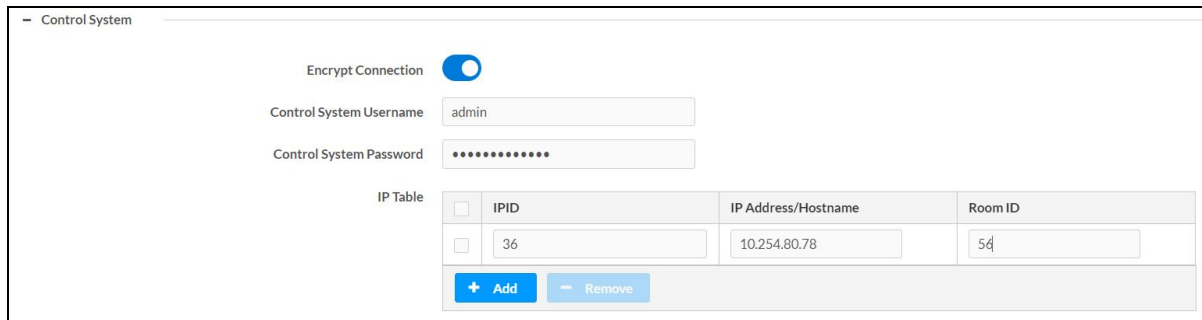
## Time Configuration

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 the **Revert** button to revert to the previous settings without saving.

# Control System



Control System

Encrypt Connection

Control System Username

Control System Password


IP Table

<input type="checkbox"/>	IPID	IP Address/Hostname	Room ID
<input type="checkbox"/>	36	10.254.80.78	54

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 IPID of the AV switches in the **IPID** 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.

## Service Ports

The USB port available on the front panel of the AV switchers can be enabled or disabled using the USB Service Port.



Service Ports

USB Service Port

- **USB Service Port:** To enable the USB Service Port, move the **USB Service Port** slider to the right position. To disable the USB Service Port, move the slider to the left position.

**NOTE:** The Service Port can provide up to 5V 500 mA power to a USB powered device.

# Inputs

The Inputs section can be used to configure the HDMI input settings of the AV switchers by renaming one or more inputs, changing and applying EDID to specific inputs or to all inputs at once (Global EDID), and enabling or disabling HDCP (High-bandwidth Digital Content Protection) on individual inputs.

Name	Sync Detected	EDID	Resolution	HDCP Receiver Capability	Source HDCP	Priority	Actions
HDMI 1	No	01 DM default	0x0@0	Auto	No Signal		<a href="#">Edit</a>
HDMI 2	No	01 DM default	0x0@0	Auto	No Signal		<a href="#">Edit</a>
HDMI 3	No	01 DM default	0x0@0	Auto	No Signal		<a href="#">Edit</a>
HDMI 4	No	01 DM default	0x0@0	Auto	No Signal		<a href="#">Edit</a>

**NOTE:** Under the **Inputs** panel, the **Priority Routing** option is disabled. For Priority Routing to work, make sure that Auto Routing is enabled under the **Routing** panel.

## Global EDID

In the **Send EDID to all inputs** drop-down menu, select a built-in EDID file from a list of built-in predefined EDID files.

- Copy Output1
- Copy Output2
- 01 DM default
- Consumer 1080p60 HBR
- Consumer 720p60 HBR
- Laptop 16x9 1080p60 2ch
- Laptop 16x10 1920x1200 2ch
- Laptop 16x10 1280x800 2ch
- Laptop widescreen 2ch
- Consumer 1080p50 HBR
- Consumer 720p50 HBR
- Laptop 16x9 1080p50 2ch
- DM Default 4k 30Hz 2ch

- DM Default 4k 60Hz 2ch
- DM Default 4k 60Hz HBR
- 4K60 444 2CH Non-HDR
- 4K60 444 2CH HDR
- 4K60 444 2CH HBR HDR
- 4K60 444 2CH HDR DCI
- 4K60 444 HBR Non-HDR
- 4K60 444 2CH HDR10+
- 4K60 444 HBR HDR10+

**NOTE:** The Copy Output2 option is applicable only for HD-MD-4x2-4KZ-E.

The selected EDID is automatically sent to all inputs and appears in the EDID drop-down menu in the Inputs section of the page.

## Inputs

The **Inputs** section displays information and allows settings to be modified for available inputs.

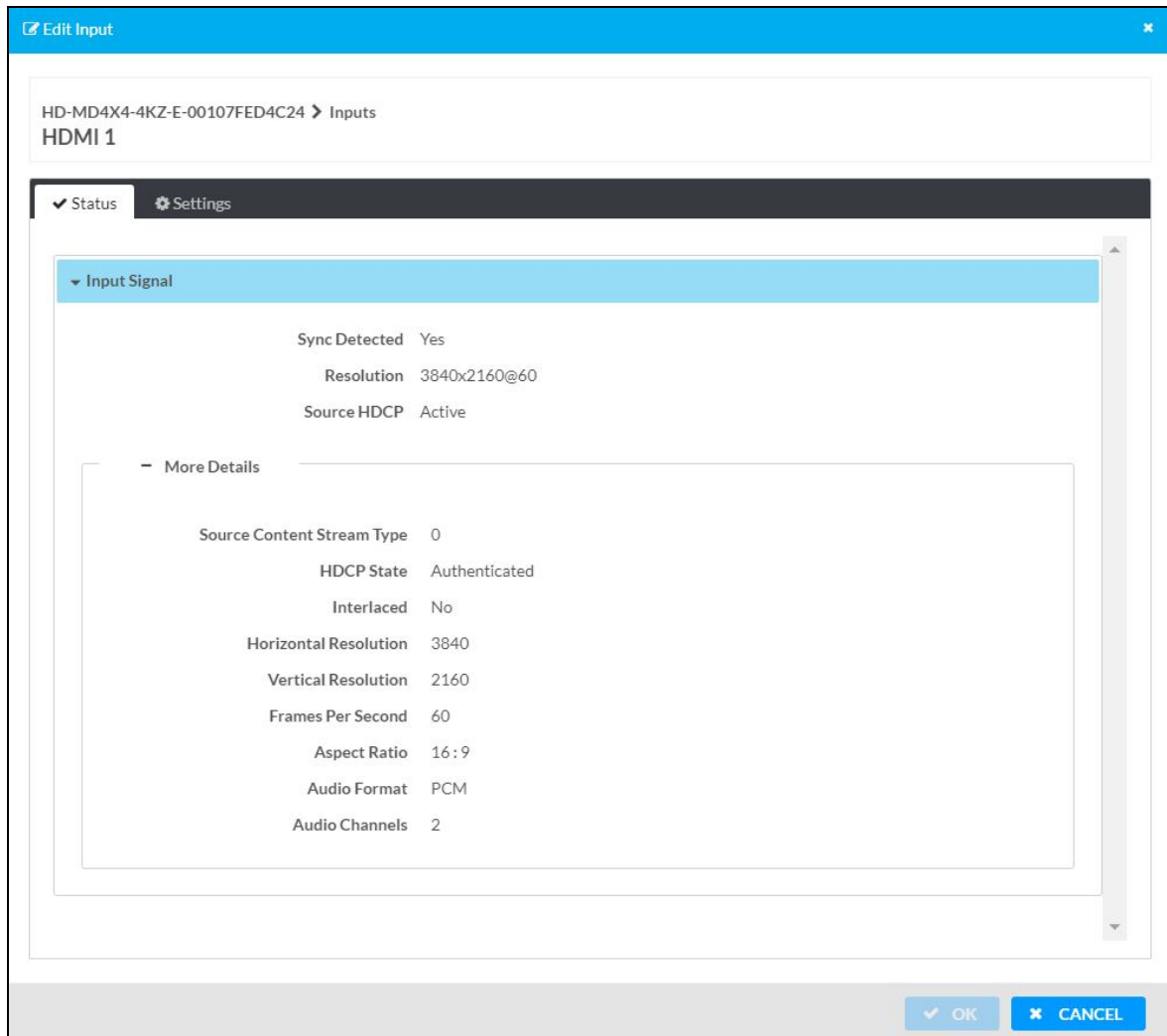
- **Name:** Displays the name of the input. To modify the name of the input, click **Edit** and enter the new name in this field.
- **Sync Detected:** Indicates whether a valid video signal is detected at the corresponding input.
- **EDID:** Displays the selected predefined EDID file. To modify the existing setting, click **Edit** and select an EDID from the **EDID** drop-down menu.
- **Resolution:** Resolution when video with valid resolution is detected. If no video is detected, the reported resolution will be 0x0@0.
- **HDCP Receiver Capability:** Specifies whether HDCP Support for this input will be Disabled, Auto, HDCP 1.4 or HDCP 2.x. To modify the existing setting, click **Edit** and select the desired option from the **HDCP Receiver Capability** drop-down menu.
- **Source HDCP:** Reports **HDCP 1.x** or **HDCP 2.x** when the HDCP source is connected. Reports **Non-HDCP** when a non-HDCP source is connected and reports **No Signal** when no source is connected.

Click **Save Changes** to save the changes.

Click **Revert** to revert to the previous settings without saving.

# Edit HDMI Input Settings

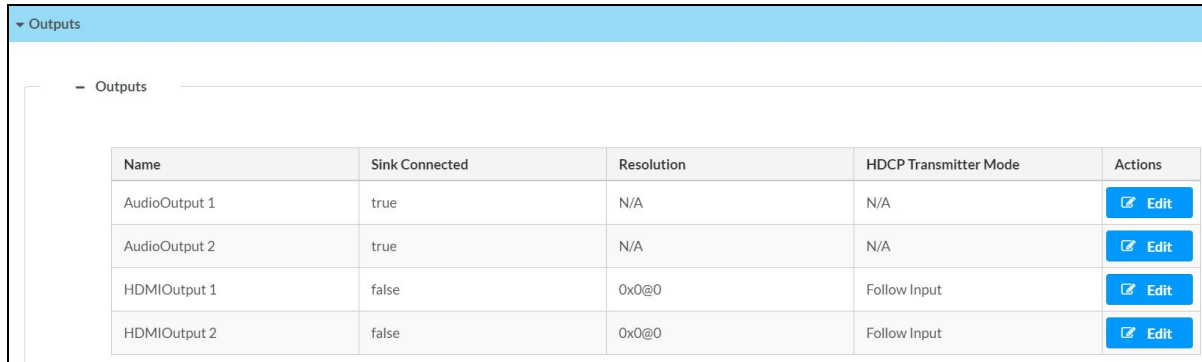
1. Click the **Edit** button (  **Edit** ) in the **Actions** column to edit the HDMI settings of the selected HDMI input. The **Edit Input** dialog box appears.



2. Under the **Status** tab, **Input Signal** section displays **Sync Detected**, **Resolution**, and **Source HDCP** of the HDMI input. Click **+ More Details** to review additional information about the Input Signal.
3. Under the **Settings** tab, do the following:
  - a. Optionally, edit the name of the HDMI input in the **Name** field.
  - b. Select the HDCP receiver capability from the **HDCP Receiver Capability** drop-down menu. Values are **Disabled**, **Auto**, **HDCP 1.4**, and **HDCP 2.x**.
  - c. Select EDID from the **Select** drop-down menu.
4. Click **OK** to save. Click **Cancel** to cancel the changes.

# Outputs

The Outputs section can be used to configure the HDMI and Audio output settings of the AV switchers.

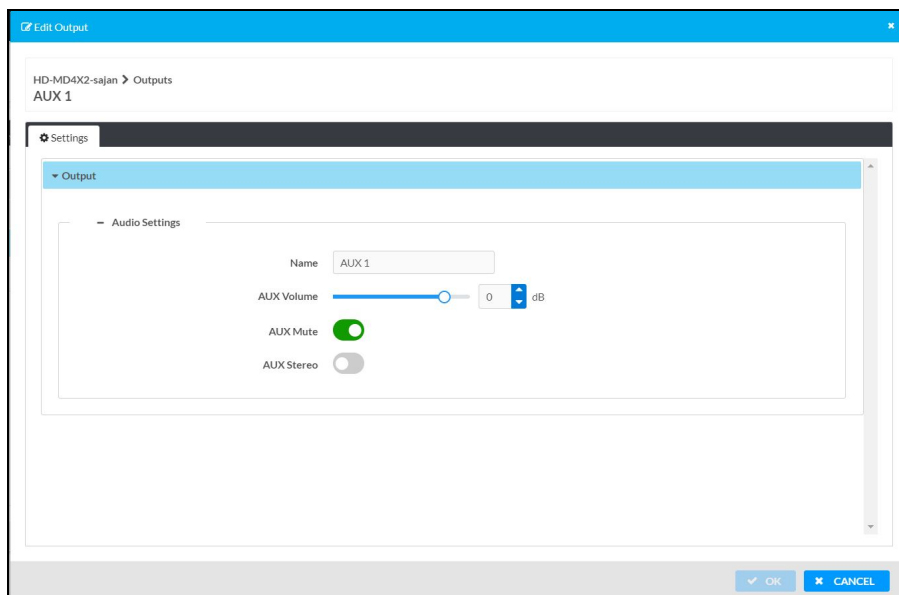



Name	Sink Connected	Resolution	HDCP Transmitter Mode	Actions
AudioOutput 1	true	N/A	N/A	<a href="#">Edit</a>
AudioOutput 2	true	N/A	N/A	<a href="#">Edit</a>
HDMIOutput 1	false	0x0@0	Follow Input	<a href="#">Edit</a>
HDMIOutput 2	false	0x0@0	Follow Input	<a href="#">Edit</a>

The Outputs section displays information and allows settings to be modified for available outputs.


- **Name:** Displays the name of the output. To modify the name of the output, click **Edit** and enter the new name in this field.
- **Sink Connected:** **Yes**, if connection is detected or **No**, if connection is not detected. For AUX outputs, this will be N/A.
- **Resolution:** Resolution when video with valid resolution is detected. If no video is detected, the reported resolution will be 0x0@0. For AUX outputs, this will be N/A.
- **HDCP Transmitter Mode:** Displays the selected HDCP Transmitter Mode value of the HDMI Output. For AUX outputs, this will be N/A.

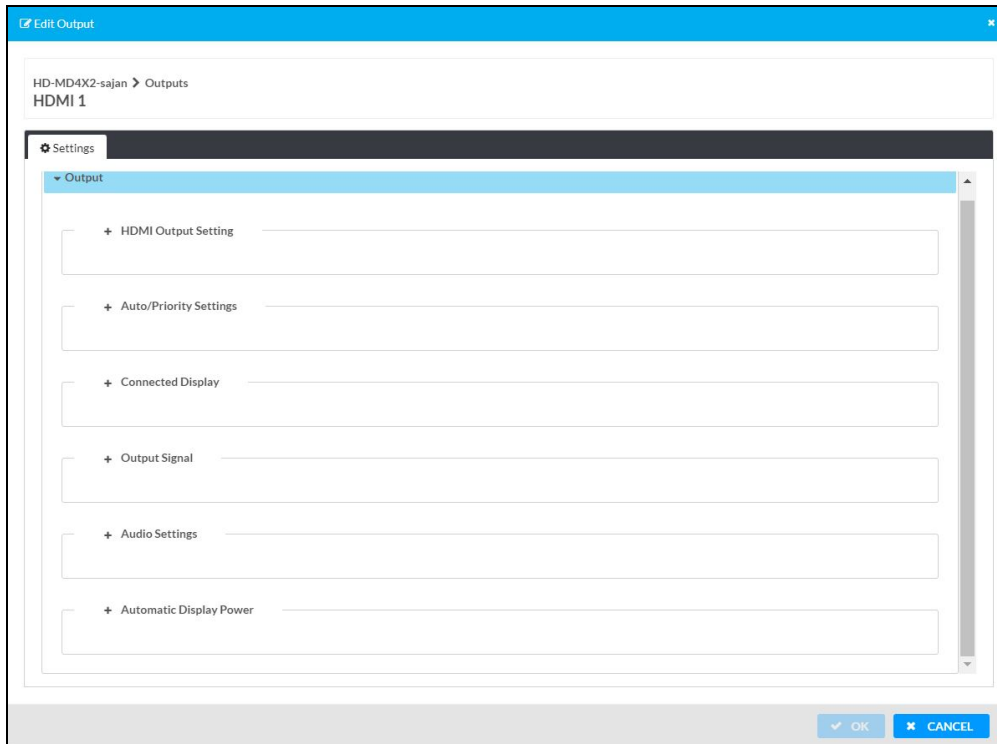
## Edit AUX Output Settings



1. Click the **Edit** button (  **Edit** ) in the **Actions** column to edit the AUX settings of the selected AUX output.
2. In the **Edit Output** dialog enter the following:
  - a. Optionally, edit the name of the AUX output in the **Name** field.
  - b. Move the **AUX Volume** slider to the right to increase or to the left to decrease the AUX volume or by manually entering a value in the AUX Volume field. Valid value ranges from -80 dB to 20 dB, adjustable in 1dB increments.
  - c. Move the **AUX Mute** slider to right or left to mute or unmute the AUX.
  - d. Move the **AUX Stereo** slider to right or left to specify stereo or mono output.
3. Click **OK** to save. Click **Cancel** to cancel the changes.

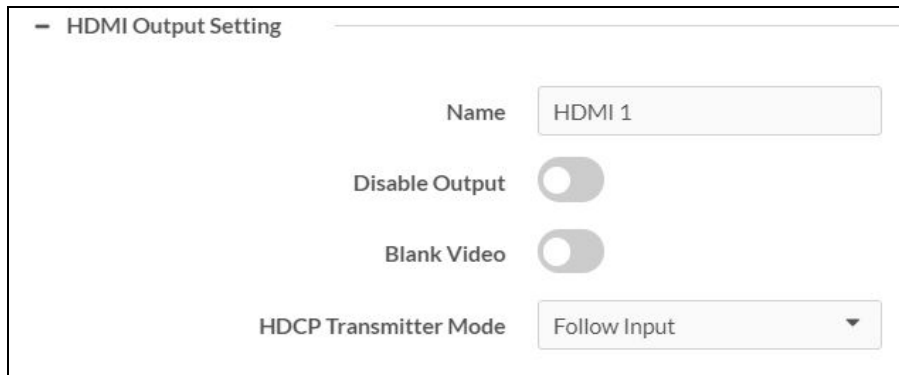
## Edit HDMI Output Settings

Click the **Edit** button (  **Edit** ) in the **Actions** column to edit the HDMI settings of the selected HDMI output. The **Edit Output** dialog box appears.





## Configure HDMI Output Setting



The screenshot shows a configuration window titled "HDMI Output Setting". It contains four settings:

- Name:** A text input field containing "HDMI 1".
- Disable Output:** A toggle switch currently turned off (to the left).
- Blank Video:** A toggle switch currently turned off (to the left).
- HDCP Transmitter Mode:** A drop-down menu currently set to "Follow Input".

1. Optionally, edit the name of the HDMI output in the **Name** field.
2. Move the **Disable Output** slider to the right to disable the audio and video outputs. To enable the audio and video outputs, move the slider to the left.
3. Move the **Blank Video** slider to the right to disable video. To enable video, move the slider to the left.
4. Select the desired option from the **HDCP Transmitter Mode** drop-down menu to set the HDCP Mode as follows:
  - a. **Follow Input** (Default): Authenticates each time the input sync changes its state. The output will authenticate to the level reported at the Input.
  - b. **Force Highest:** Authenticates to the highest level HDCP supported by the downstream device and always maintains sync.
  - c. **Never Authenticate:** The HDMI output will blank if the input is HDCP encrypted.
5. Click **OK** to save. Click **Cancel** to cancel the changes.

## Configure Auto/Priority Settings

Input	Priority
HDMI 1	1
HDMI 2	2
HDMI 3	3
HDMI 4	4

**NOTE:** For Priority Routing to work, make sure that Auto Routing is enabled under the **Routing** panel.

Priority levels for automatic routing of an input range from Priority 1 (highest priority) to Priority 4 (lowest priority).

**NOTE:** If priority is set as 0, then the input source is not considered for priority routing.

Automatic routing of an input occurs according to the routing priority level and the detection of a source at the input. Routing of an input remains until the input is disconnected. If the input that is being routed is disconnected, automatic routing switches to the input with the next highest priority setting.

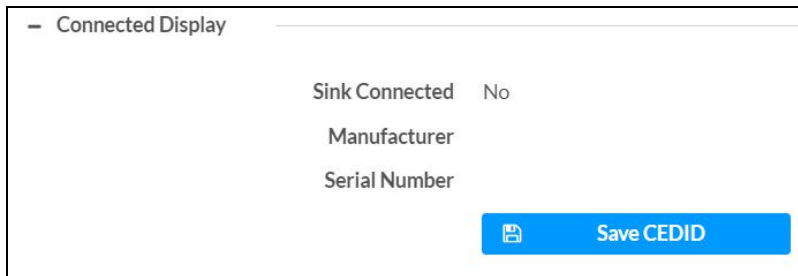
**NOTE:** If the same priority level is set for all inputs, the last connected input is automatically routed.

To configure the priority level:

1. Select the priority level from the **Priority** drop-down menu for the input. Optionally, enter the input source name in the **Global Filter** field to search for an input source, then set the priority level.
2. Click **OK** to save. Click **Cancel** to cancel the changes.

## Connected Display

The **Connected Display** section displays the **Sink Connected**, **Manufacturer**, and **Serial Number** of the connected device.



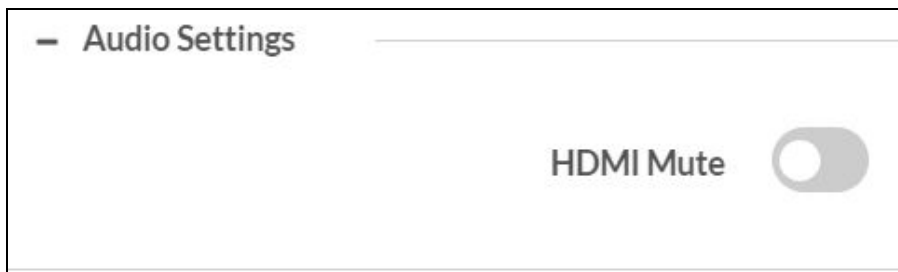
Click **Save CEDID** to save .cedid file on the host computer.  
The .cedid file is downloaded to the Downloads folder of the host computer.

## Output Signal

The **Output Signal** section displays the **Transmitting**, **Resolution**, and **Disabled by HDCP** details of the output signal.



## Configure Audio Settings



Move the **HDMI Mute** slider to the right to disable the audio output. To enable audio output, move the slider to the left.

## Configure Automatic Display Power

Automatic Display Power

Automatic Power

Automatic Power Trigger Sync

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

Delay 5 seconds

Command String

Test

Move the **Automatic Power** slider to the right to enable automatic power. To disable, automatic power, move the slider to the left.

If the Automatic Power is enabled, select the following settings:

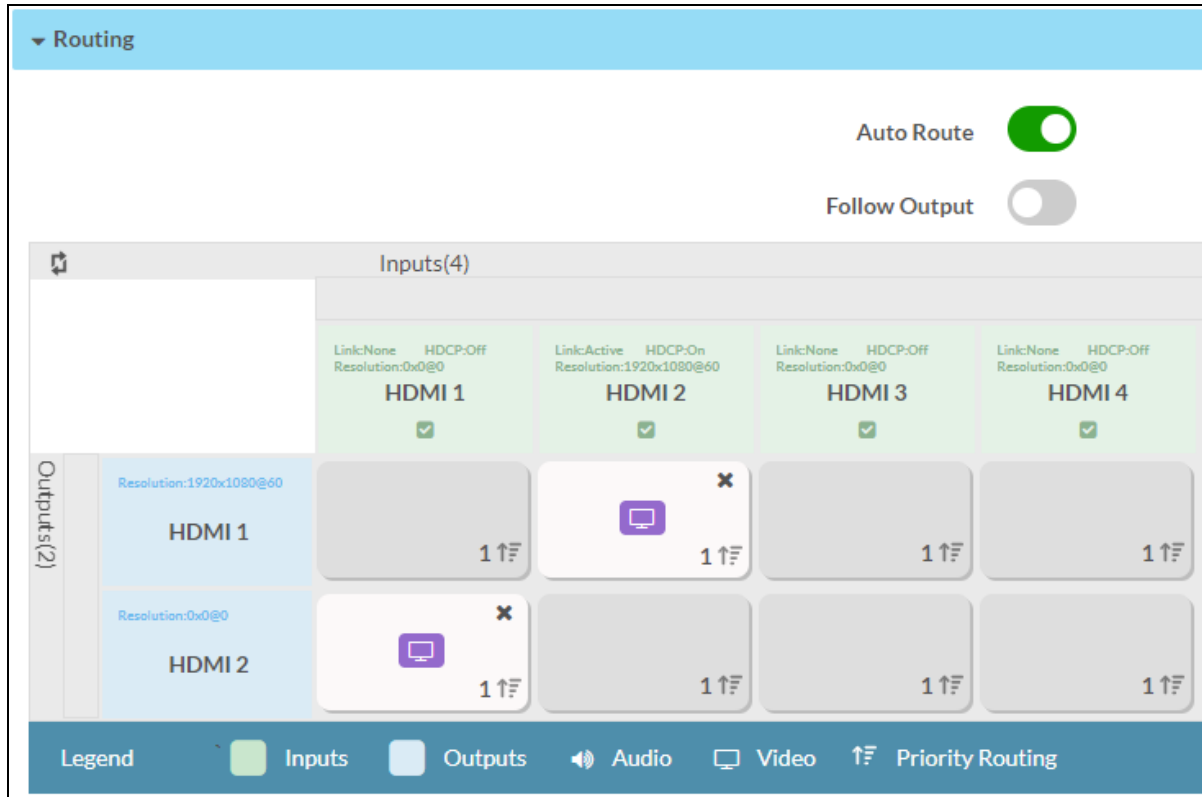
1. Select **Sync**, **Occupancy**, or **Sync or Occupancy** from the **Automatic Power Trigger** drop-down menu.
2. Select **CEC** or **Drivers** from the **Command Interface** drop-down menu.
3. Select **ASCII** or **Hex** from the **Command Format** drop-down menu.
4. Select **None**, **CR**, **LF**, or **CR\_LF** from the **Command Terminator** drop-down menu.
5. Select the Output Timeout value from the **Output Timeout** drop-down menu. Valid values are **5**, **10**, **15**, **30**, **60**, **90** or **Custom** in seconds.
6. Select **Power Off: RCP and SS**, **Power Off: RCP only**, **Power Off: SS only**, or **Custom** from the **Power Off Command** drop-down menu. Click **Test** to test the command.
7. Select **Power On: RCP and IVO**, **Power On: RCP**, **Power On: Image View On**, or **Custom** from the **Power On Command** drop-down menu. Click **Test** to test the command.
8. Move the **Input Control** slider to the right to enable input control. To disable input control, move the slider to the left.

If the input control is enabled, select the following settings:

- a. Select the delay value from the **Delay** drop-down menu. Valid values are **0**, **3**, **5**, **7**, **10**, or **20** seconds.
  - b. Enter command in the **Command String** field. Click **Test** to test the command.
9. Click **OK** to save. Click **Cancel** to cancel the changes.

# Routing

The Routing section can be used to enable or disable automatic routing between video inputs to select and route a local input to the output.



## Configure Auto Route

Move the **Auto Route** slider to the right to enable or to the left to disable the automatic routing of video inputs.

When automatic input routing is enabled, the AV switchers automatically routes the last connected input.

## Configure Follow Output

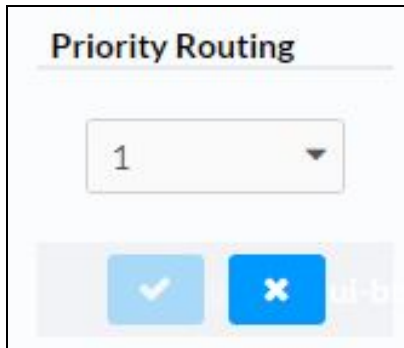
Move the **Follow Output** slider to the right to enable or to the left to disable the same input on both the outputs.



**NOTE:** The **Follow Output** option is applicable only for HD-MD-4x2-4KZ-E.

# Configure Priority Routing


**NOTE:** For Priority Routing to work, make sure that Auto Routing is enabled.

To configure priority routing, click the priority routing icon (🔼🔽). The Priority Routing dialog appears.



1. Select the priority level from the **Priority** drop-down menu.
2. Click  to save. Click  to cancel the changes.

## Route a Single Input to all the Outputs

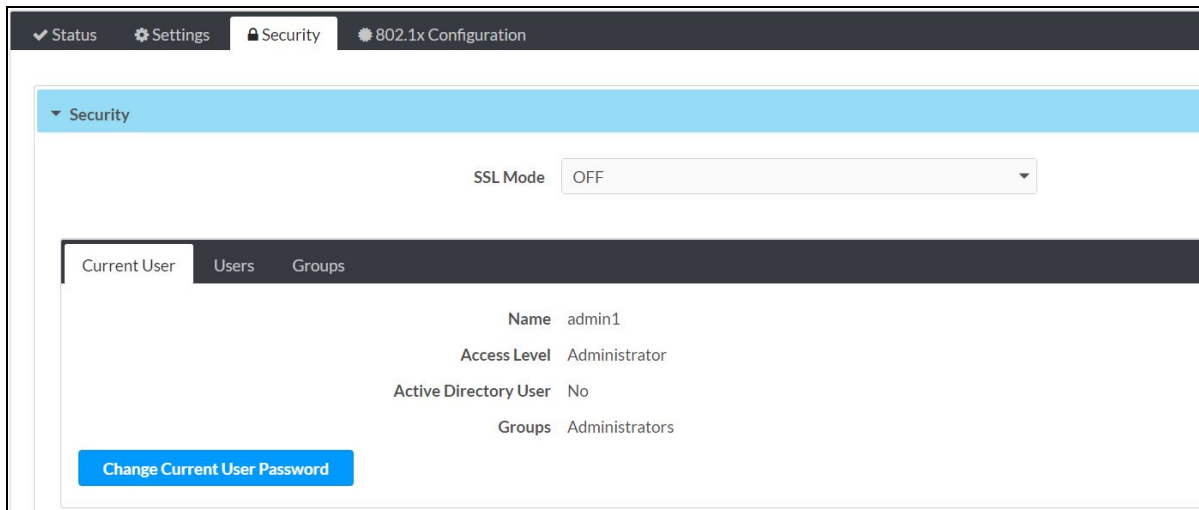
1. To route a single input to all the outputs, click on the Input  icon. The **Select For All Outputs** dialog appears.
2. Click **OK**.
3. Click **Save Changes** to save the changes.

## Manually Route a Local Input to the Output

1. To manually route a local input to the output, click the output box next to the name of the corresponding input. The input is routed to the output.
2. Click **Save Changes** to save the changes.
3. Click **Revert** to revert to the previous settings without saving.

# Security

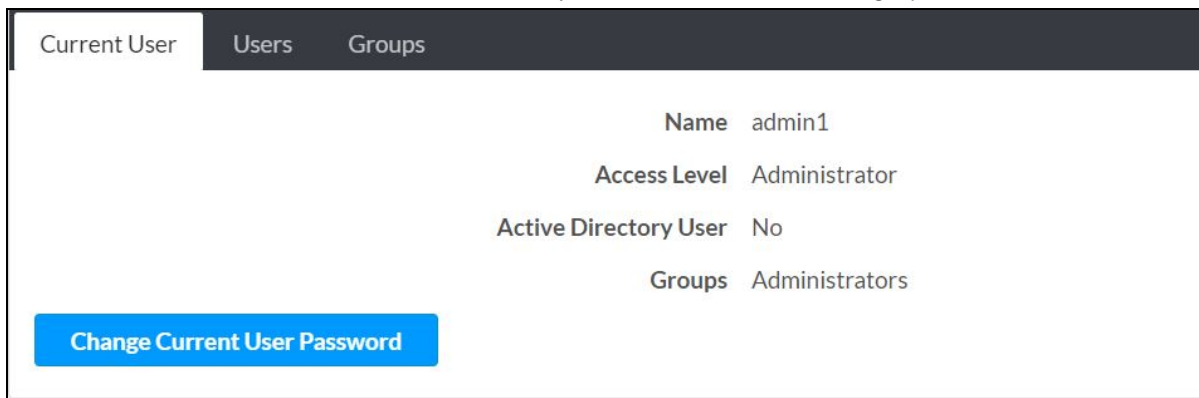
Click the **Security** tab to configure security for users and groups and to allow different levels of access to the functions of the AV switchers. By default the security is disabled.



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.

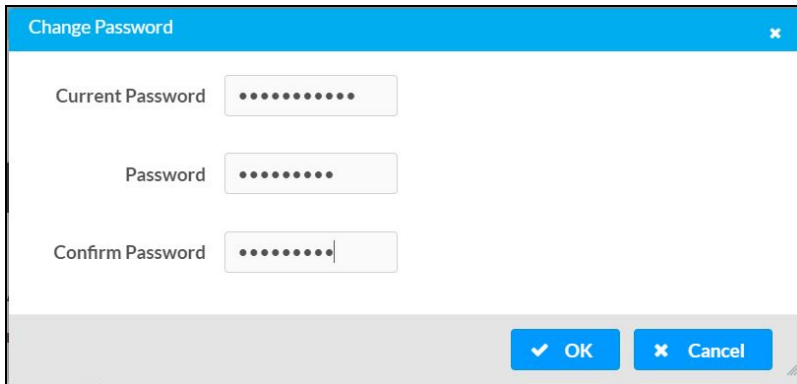
## Current User

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



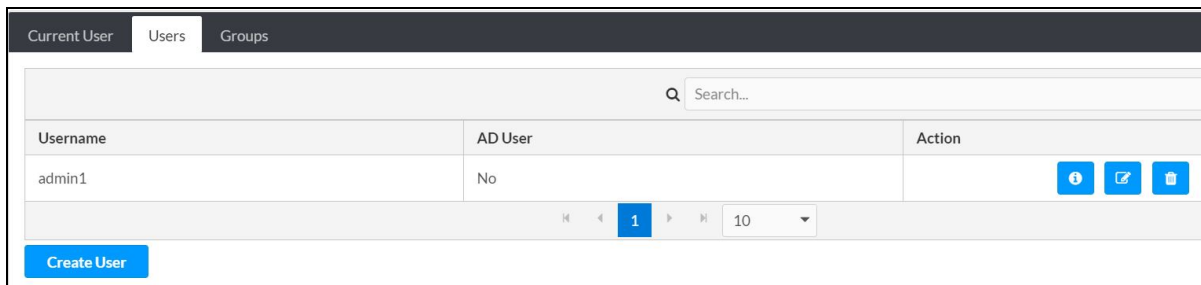


A dialog box titled "Change Password" with a close button (X) in the top right corner. It contains three input fields: "Current Password" with 10 dots, "Password" with 8 dots, and "Confirm Password" with 8 dots and a cursor. At the bottom right, there are two buttons: "OK" with a checkmark icon and "Cancel" with an X icon.

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.



The interface shows three tabs: "Current User", "Users", and "Groups". The "Users" tab is active. At the top right of the Users pane is a search field labeled "Search...". Below it is a table with columns: "Username", "AD User", and "Action".

Username	AD User	Action
admin1	No	<input type="button" value="Info"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>

At the bottom of the table, there are navigation arrows, a page number "1", and a drop-down menu set to "10". A "Create User" button is located at the bottom left of the Users pane.

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.

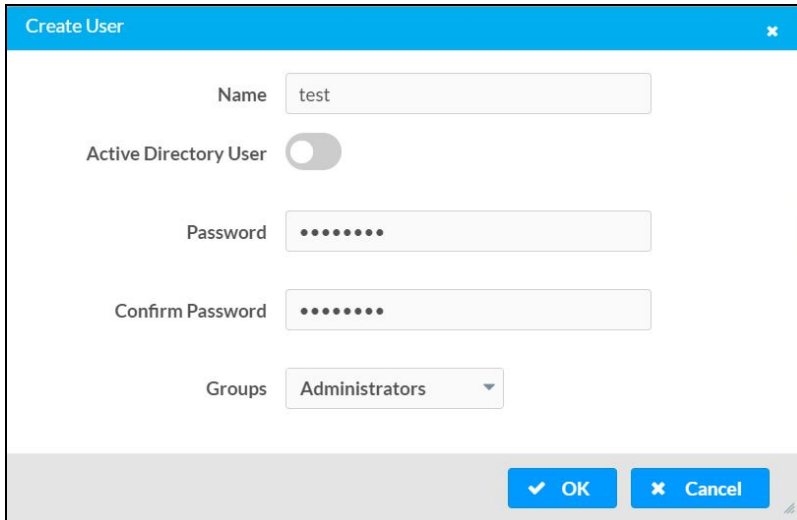
Information about existing users is displayed in table format and the following details are provided for each user.

- **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 delete user.

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

## Create New Local User

1. Click **Create User** button in the User tab.
2. In the **Create User** dialog, enter the following:



The screenshot shows a 'Create User' dialog box with the following fields and values:

- Name:** test
- Active Directory User:** Disabled (toggle switch)
- Password:** Masked with dots
- Confirm Password:** Masked with dots
- Groups:** Administrators (dropdown menu)

Buttons at the bottom right: **OK** and **Cancel**.

- a. Enter a user name in the **Name** field. 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. Click **Cancel** to cancel the changes.

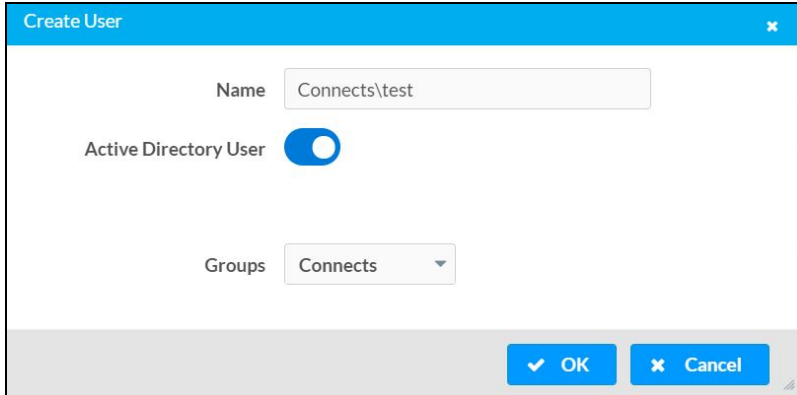
## Add Active Directory User

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 AV switchers, or add the Active Directory group(s) that they are a member of to the AV switchers.

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 the 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. Click **Cancel** to cancel the changes.

## Delete User

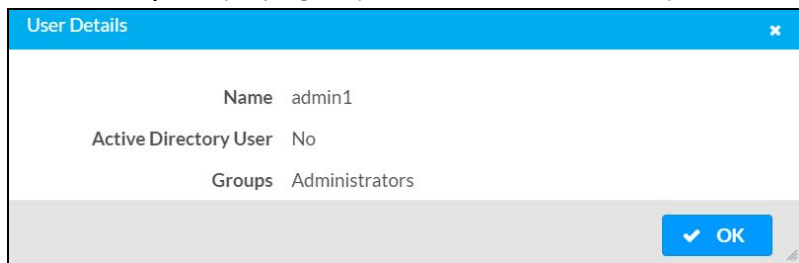
Click the trashcan button (  ) in the **Actions** column to delete the user. Click **Yes** when prompted to delete the user or **No** to cancel the deletion.

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.



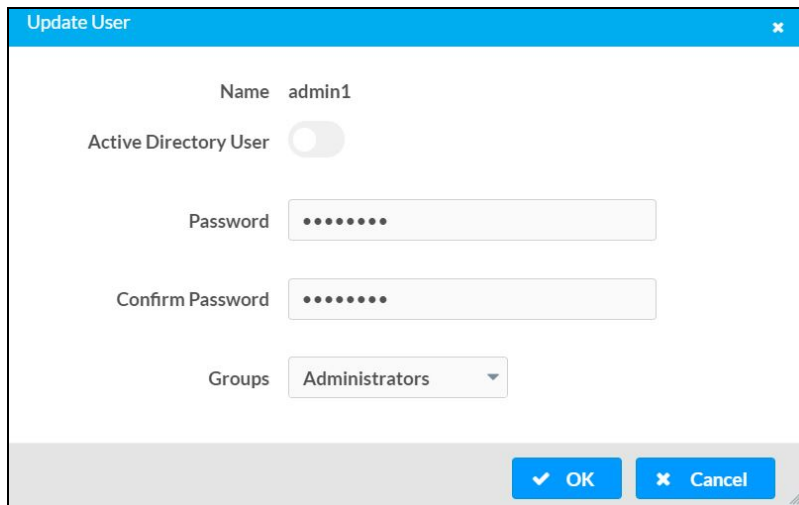
The **User Details** dialog box shows the following information for the selected user:

Name	admin1
Active Directory User	No
Groups	Administrators

At the bottom right, there is a blue button with a checkmark and the text "OK".

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


## Update User Details



The **Update User** dialog box shows the following information for the selected user:

Name	admin1
Active Directory User	<input type="checkbox"/>
Password	<input type="password" value="....."/>
Confirm Password	<input type="password" value="....."/>
Groups	Administrators

At the bottom, there are two blue buttons: "OK" with a checkmark and "Cancel" with an 'X'.

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.

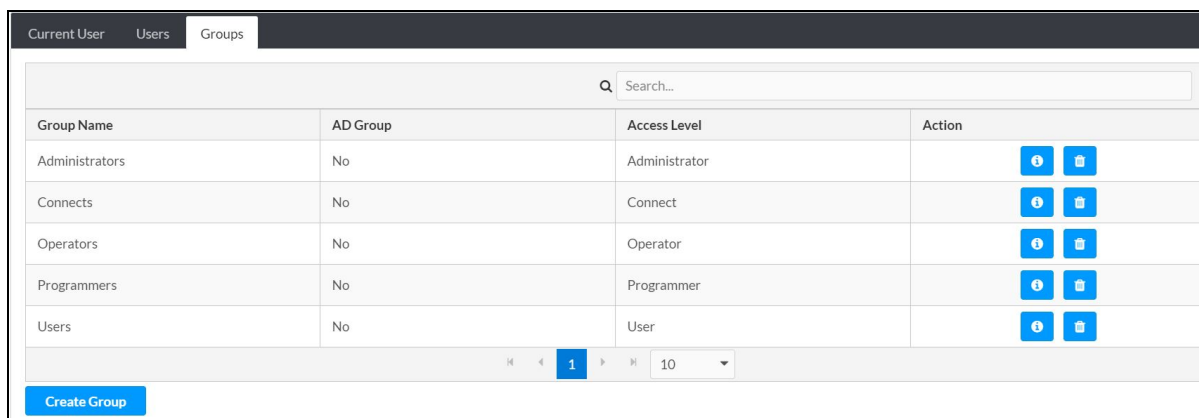
The **Update User** dialog also displays the following read-only information for the selected user.

- **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.



The screenshot shows a web interface with three tabs: 'Current User', 'Users', and 'Groups'. The 'Groups' tab is active. At the top of the table is a search bar labeled 'Search...'. Below it is a table with the following columns: 'Group Name', 'AD Group', 'Access Level', and 'Action'. The table lists five groups: Administrators, Connects, Operators, Programmers, and Users. Each group has a corresponding 'AD Group' value (all 'No') and an 'Access Level' (Administrator, Connect, Operator, Programmer, and User respectively). The 'Action' column contains two blue buttons for each group: an information icon (i) and a delete icon (trash). At the bottom of the table, there are navigation arrows, a page number '1', and a drop-down menu set to '10'. A 'Create Group' button is located at the bottom left of the interface.

Group Name	AD Group	Access Level	Action
Administrators	No	Administrator	 
Connects	No	Connect	 
Operators	No	Operator	 
Programmers	No	Programmer	 
Users	No	User	 

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.

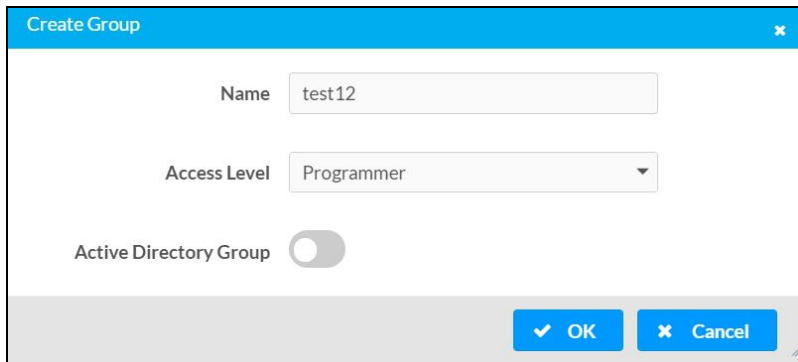
Existing groups are displayed in a table and the following information is provided for each group:

- **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



The screenshot shows a 'Create Group' dialog box with the following fields and controls:

- Name:** A text input field containing 'test12'.
- Access Level:** A dropdown menu with 'Programmer' selected.
- Active Directory Group:** A toggle switch that is disabled (greyed out).
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

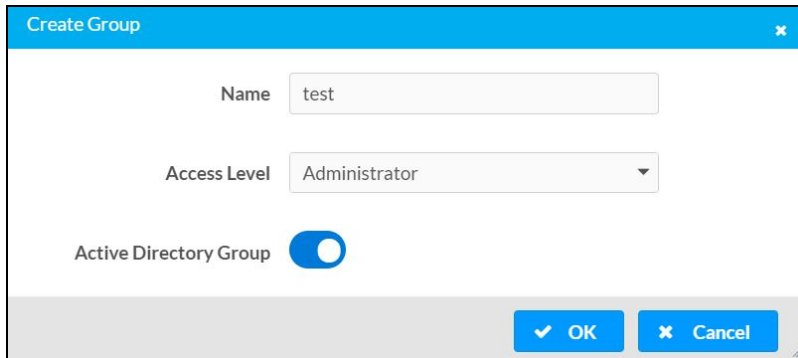
1. Click the **Create Group** button.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down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



The screenshot shows a 'Create Group' dialog box with the following fields and controls:

- Name:** A text input field containing 'test'.
- Access Level:** A dropdown menu with 'Administrator' selected.
- Active Directory Group:** A toggle switch that is enabled (blue).
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

Once the group is added, all members of that group will have access to the AV switchers.


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.

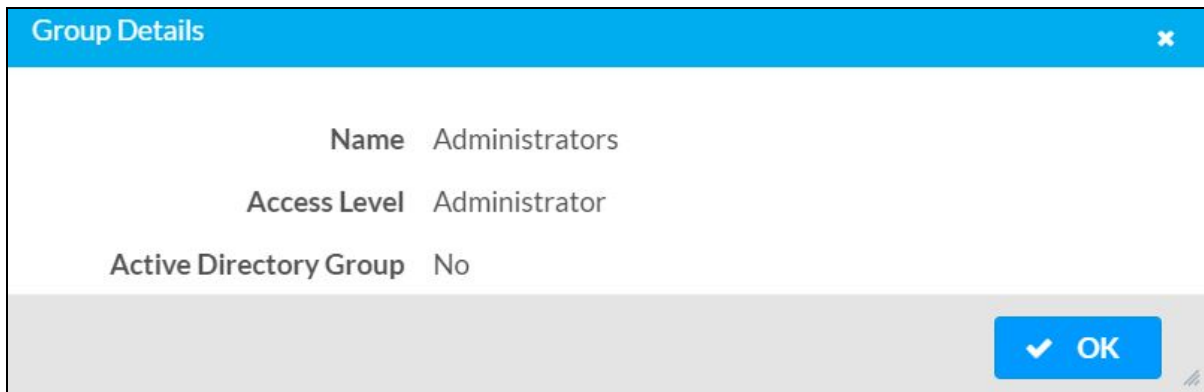
## Delete a Group

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.

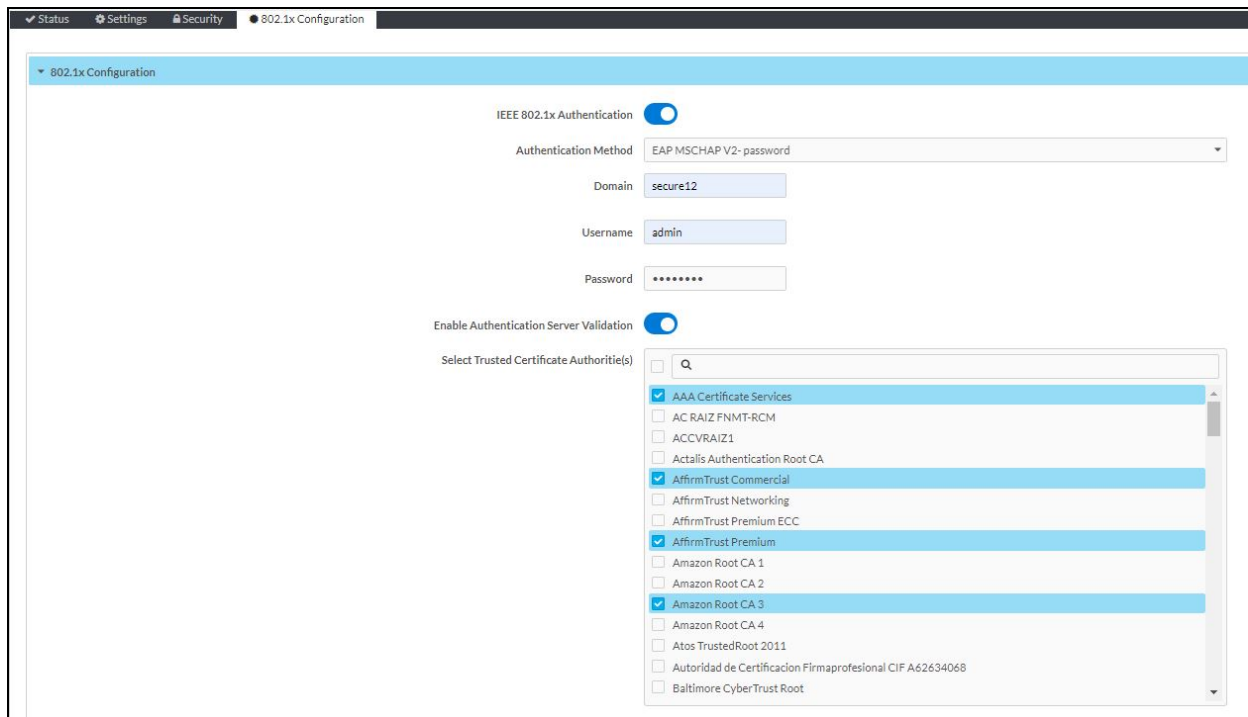


- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

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

# 802.1x Configuration

The AV switchers have 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 AV Switchers 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 Authority(ies)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded into the AV switchers.

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.

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