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Product Manual

DM NVX Director® Network AV Switching Appliances

DM-NVX-DIR-80
DM-NVX-DIR-160
DM-NVX-DIR-ENT

Crestron Electronics, Inc.

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

Regulatory Model: DM-XIO-DIR-80, DM-XIO-DIR-160, DM-XIO-DIR-ENT

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Overview

DM NVX Director® network AV switching appliances facilitate configuration, control, and management of large-scale AV networks. The network appliances provide a means for managing large networks of DM NVX® encoder and decoder endpoints, routing AV signals, and simplifying integration with one or more Crestron® control systems. The network appliances eliminate the need for physical matrix switchers, replacing them with the virtual equivalent running on the AV network.

DM NVX Director network appliances consist of the following models:

- **DM-NVX-DIR-80:** Supports a maximum of 80 DM NVX endpoints and 1 domain
- **DM-NVX-DIR-160:** Supports a maximum of 160 DM NVX endpoints and 20 domains
- **DM-NVX-DIR-ENT:** Supports a maximum of 1000 DM NVX endpoints and 240 domains

Multiple DM NVX Director network appliances can be used in a system.

This section provides information about the following:

- Features
- Physical description

Features

Key features of DM NVX Director network appliances include:

- Network AV system configuration, management, and signal routing
- Compatible with DM NVX encoders and decoders
- Support of up to 80 endpoints and 1 domain (DM-NVX-DIR-80 only)
- Support of up to 160 endpoints and 20 domains (DM-NVX-DIR-160 only)
- Support of up to 1000 endpoints and 240 domains (DM-NVX-DIR-ENT only)
- Interdomain routing (DM-NVX-DIR-160 and DM-NVX-DIR-ENT only)
- Intuitive web-based graphical user interface
- Full programmable control of the virtual matrices and physical endpoints
- Automatic endpoint device discovery
- Multicast address control
- Credential management of DM NVX endpoints
- Custom naming and search tools
- Easy diagnostics and signal status display
- XML device map file import and export
- Built-in logging
- Multiple control system support
- Four 1000BASE-T RJ-45 ports (DM-NVX-DIR-80 and DM-NVX-DIR-160 only)

- Six 1000BASE-T RJ-45 ports (DM-NVX-DIR-ENT only)
- Six 10GBASE-X SFP+ ports, four of which are 1000BASE-T compatible (DM-NVX-DIR-ENT only)
- Fiber-optic connectivity with the use of SFP or SFP+ transceivers, sold separately (DM-NVX-DIR-ENT only)
- 1 RU 19-inch rack-mountable
- Universal 100-240V internal power supply (DM-NVX-DIR-80 and DM-NVX-DIR-160 only)
- Onboard 100-240V hot-swappable redundant power supplies (DM-NVX-DIR-ENT only)

Simple and Flexible Configuration

A DM NVX Director network appliance automatically discovers DM NVX endpoints on the network and enables each endpoint to be assigned as a logical input or output within a domain:

- The DM-NVX-DIR-80 supports a maximum of 80 DM NVX endpoints and 1 domain.
- The DM-NVX-DIR-160 supports a maximum of 160 DM NVX endpoints and 20 domains.
- The DM-NVX-DIR-ENT supports a maximum of 1000 DM NVX endpoints and 240 domains.

Multiple DM NVX Director network appliances can be used in a system. In addition to features supported by all DM NVX Director network appliances, the DM-NVX-DIR-ENT includes additional enterprise features.

Web-Based Setup and Control

A DM NVX Director network appliance provides an intuitive web interface to facilitate system configuration, signal routing, and diagnostics of the complete AV network. Each domain, endpoint, input, and output can be designated with a user-friendly name. The web interface enables easy navigation of the entire system. Domains, endpoints, inputs, and outputs can be quickly found by name or address. For each input and output, a signal routing map is also provided, showing video, audio, and USB signal status in a graphical layout.

Interdomain Routing (DM-NVX-DIR-160 and DM-NVX-DIR-ENT Only)

Video inputs can be routed to video outputs within a single domain. In addition, support of interdomain routing enables video inputs within a domain to be routed to video outputs of one or more other domains. Routing control of AV signals is accomplished by using the web interface or control system programming.

Multicast Address Control

A custom multicast range can optionally be assigned for DM NVX encoder endpoints within a domain. The custom multicast range is determined by the assignment of a starting multicast address, the number of multicast addresses assigned to each DM NVX endpoint, and the number of DM NVX endpoints assigned to a domain. Multicast address control is accomplished by using the web interface.

Credential Management of DM NVX Endpoints

Username and password credentials can be changed simultaneously for all DM NVX encoder and decoder endpoints within a domain. Username and password credential management is accomplished by using the web interface.

Multiple Control System Support (DM-NVX-DIR-160 and DM-NVX-DIR-ENT Only)

A DM NVX Director network appliance supports Crestron 3-Series® or later control systems. For the DM-NVX-DIR-160 and DM-NVX-DIR-ENT, a single control system, referred to as the Global Domain control system, can be assigned to all domains simultaneously. In addition, support of multiple control systems enables the Global Domain control system or another control system, referred to as a Domain control system, to be assigned to each domain on an individual basis. The Domain control system that is assigned on an individual basis must be different for each domain. Assignment of multiple control systems is accomplished by using the web interface or control system programming.

Copper or Fiber Ethernet Connectivity (DM-NVX-DIR-ENT Only)

The DM-NVX-DIR-ENT includes six 1000BASE-T RJ-45 ports and six 10GBASE-X SFP+ ports. Four of the 10GBASE-X SFP+ ports are 1000BASE-T compatible. Connection to a 1000BASE-T or 10GBASE-X fiber-optic network is facilitated by inserting an appropriate SFP or SFP+ transceiver module (Crestron SFP-1G or SFP-10G series, sold separately) into an SFP+ port. A selection of modules is offered to accommodate various multimode and single-mode fiber types.

> **NOTE:** Ports 7 and 8 support 10GBASE-X only and are compatible with SFP-10G SFP+ transceivers only.

Redundant Power Supplies (DM-NVX-DIR-ENT Only)

Onboard dual redundant power supplies provide enhanced reliability for demanding applications. In the unlikely event of an individual power supply fault, the DM-NVX-DIR-ENT will continue to operate unhindered on only one functioning power supply. A modular, hot-swappable design allows either power supply to be replaced in seconds from the rear panel without powering down or rebooting the system. The DM-NVX-DIR-ENT ships complete with both power supply modules installed.

Physical Description

The following sections provide information about the connectors, controls, and indicators that are available on the front and rear panels of the DM-NVX-DIR-80, DM-NVX-DIR-160, and DM-NVX-DIR-ENT.

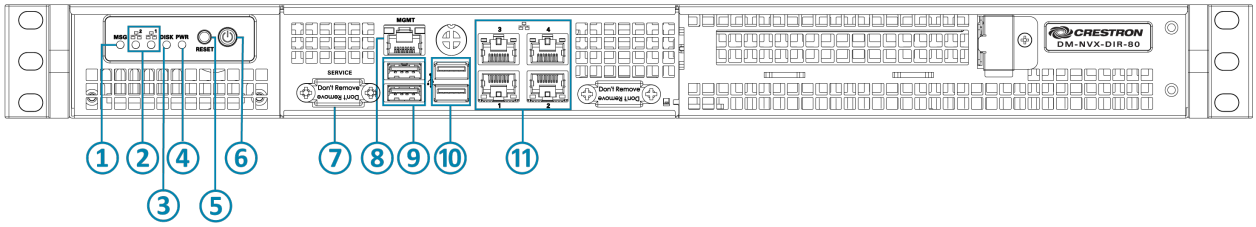
DM-NVX-DIR-80 and DM-NVX-DIR-160

The following illustration shows the front and rear panels of the DM-NVX-DIR-80 and DM-NVX-DIR-160.

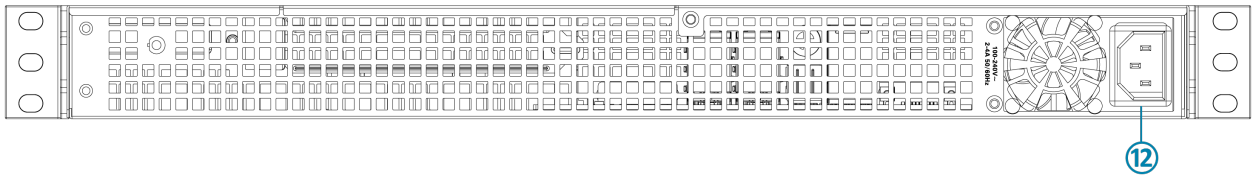
> **NOTE:** With the exception of the model name, the front panels of the DM-NVX-DIR-80 and DM-NVX-DIR-160 are identical to one another. The rear panel of the DM-NVX-DIR-80 is identical to the rear panel of the DM-NVX-DIR-160.

DM-NVX-DIR-80 and DM-NVX-DIR-160 Front and Rear Panels (DM-NVX-DIR-80 Model Name Shown)

Front Panel



Rear Panel



1. **MSG:** Blue LED, identifies the device when the unit identification process is initiated

   > **NOTE:** To be able to locate the device in a rack, use the web interface to initiate the unit identification process (refer to Display for information).

2. **Ethernet 2, 1:** Green LEDs, indicate Ethernet activity on the corresponding Ethernet port
3. **DISK:** Yellow LED, indicates SSD (solid-state drive) activity
4. **PWR:** Green LED, indicates that the unit is powered on
5. **RESET:** Recessed push button, initiates a hardware reset
6. **Power Button:** Push button, initiates boot up or shutdown

   > **NOTE:** If the device is powered on, pressing the Power button for less than 5 seconds enables a normal shutdown. Pressing the Power button for 5 seconds forces the device to shut down.

⑦ **SERVICE:** For factory use only

⑧ **MGMT:** 8-pin RJ-45 connector, shielded, female; 100BASE-TX/1000BASE-T Ethernet port for hardware management;
Bicolor green/orange LED, green indicates 100 Mbps link status and orange indicates 1 Gbps link status;
Amber LED, indicates Ethernet activity

> **NOTE:** The MGMT port connects to the management network and is used for management and monitoring of the DM NVX Director hardware. The MGMT port does not provide access to the DM NVX Director software and is independent of Ethernet ports 1-4.

⑨ **USB 2.0:** USB Type A connectors, female, black;
USB 2.0 host ports for factory use only

⑩ **USB 3.0:** USB Type A connectors, female, blue;
USB 3.0 host ports for factory use only

⑪ **Ethernet 1-4:** 8-pin RJ-45 connectors, shielded, female;
100BASE-TX/1000BASE-T Ethernet ports for web browser, endpoint, and control traffic;
Bicolor green/orange LED, green indicates 100 Mbps link status and orange indicates 1 Gbps link status;
Amber LED, indicates Ethernet activity

> **NOTE:** Ethernet ports 1-4 connect to video or control networks. The ports provide access to the DM-NVX-DIR-80/DM-NVX-DIR-160 software and allow configuration of the software. The ports are independent of each other and have different network settings.

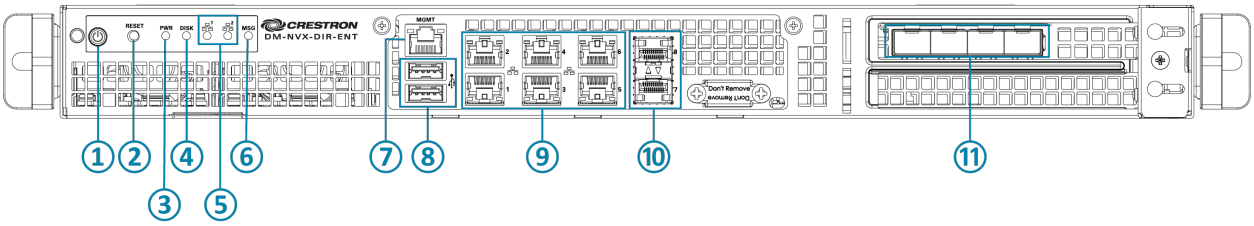
⑫ **100-240V~2-4A 50/60Hz:** IEC 60320 C14 mains power inlet;
Mates with removable power cord, included

DM-NVX-DIR-ENT

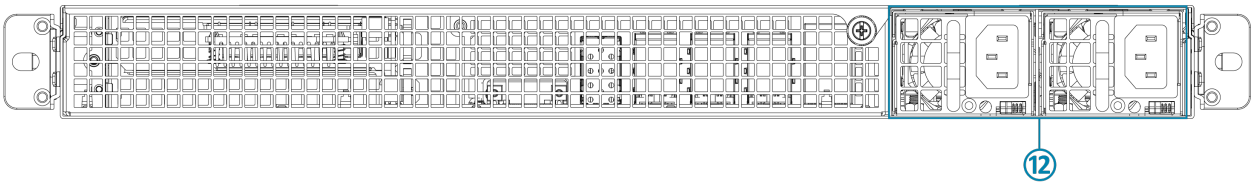
The following illustration shows the front and rear panels of the DM-NVX-DIR-ENT.

DM-NVX-DIR-ENT Front and Rear Panels

Front Panel



Rear Panel



① **Power Button:** Push button, initiates boot up or shutdown

> **NOTE:** If the device is powered on, pressing the Power button for less than 5 seconds allows a normal shutdown. Pressing the Power button for 5 seconds forces the device to shut down.

② **RESET:** Recessed push button, initiates a hardware reset

③ **PWR:** Green LED, indicates that the unit is powered on

④ **DISK:** Yellow LED, indicates SSD activity

⑤ **Ethernet 1-2:** Green LEDs, indicate Ethernet activity on the corresponding Ethernet port

⑥ **MSG:** Bicolor blue/red LED, blue identifies the device when the unit identification process is initiated, red indicates a power supply fault

> **NOTE:** To be able to locate the device in a rack, use the web interface to initiate the unit identification process (refer to Display for information).

⑦ **MGMT:** 8-pin RJ-45 connector, shielded, female;
100BASE-TX/1000BASE-T Ethernet port for hardware management;
Bicolor green/orange LED, green indicates 100 Mbps link status and orange indicates 1 Gbps link status;
Amber LED, indicates Ethernet activity

> **NOTE:** The MGMT port connects to the management network and is used for management and monitoring of the DM NVX Director hardware. The MGMT port does not provide access to the DM NVX Director software and is independent of RJ-45 Ethernet ports 1-6 and SFP+ Ethernet ports 7-12.

⑧ **USB 3.0:** USB Type A connectors, female, blue;
USB 3.0 host ports for factory use only

⑨ **Ethernet 1-6:** 8-pin RJ-45 connectors, shielded, female;
100BASE-TX/1000BASE-T Ethernet ports for web browser, endpoint, and control traffic;
Bicolor green/orange LED, green indicates 100 Mbps link status and orange indicates 1 Gbps link status;
Amber LED, indicates Ethernet activity

> **NOTE:** Ethernet ports 1-6 connect to video or control networks. The ports provide access to the DM-NVX-DIR-ENT software and allow configuration of the software. The ports are independent of each other and SFP+ Ethernet ports 7-12 and have different network settings.

⑩ **Ethernet 7-8:** SFP+ ports;
10GBASE-X Ethernet ports for web browser, endpoint, and control traffic;
Accept Crestron SFP-10G Series SFP+ transceiver modules

> **NOTE:** Ethernet ports 7-8 connect to video or control networks. The ports provide access to the DM-NVX-DIR-ENT software and allow configuration of the software. The ports are independent of each other and SFP+ Ethernet ports 9-12. The ports are also independent of RJ-45 Ethernet ports 1-6. Each of the Ethernet ports has different network settings.

⑪ **Ethernet 9-12:** SFP+ ports;
1000BASE-X/10GBASE-X Ethernet ports for web browser, endpoint, and control traffic;
Accept Crestron SFP-1G or SFP-10G series SFP/SFP+ transceiver modules

> **NOTE:** Ethernet ports 9-12 connect to video or control networks. The ports provide access to the DM-NVX-DIR-ENT software and allow configuration of the software. The ports are independent of each other and SFP+ Ethernet ports 7-8. The ports are also independent of RJ-45 Ethernet ports 1-6. Each of the Ethernet ports has different network settings.

⑫ **100-240~3-6A 50/60Hz:** IEC 60320 C14 mains power inlets;
Each mates with removable power cord, included

Specifications

For product specifications of DM NVX Director network appliances, refer to the following product pages on the Crestron website:

- DM-NVX-DIR-80
- DM-NVX-DIR-160
- DM-NVX-DIR-ENT

Installation

For information about installing DM NVX Director network appliances, refer to the following documentation on the Crestron website:

- DM-NVX-DIR-80/DM-NVX-DIR-160 Quick Start
- DM-NVX-DIR-ENT Quick Start

Configuration

> **NOTE:** Prior to configuration, ensure that the latest firmware is running on the device. For instructions to update the firmware, refer to Updating Firmware.

DM NVX Director network appliances include an integrated web server that provides a web interface for viewing device status and managing DM NVX encoders/decoders in an AV network.

This section provides information about the following:

- Accessing the web interface
- Navigating the web interface
- Saving configuration changes
- Viewing status information
- Configuring network settings
- Configuring device settings
- Using the dashboard
- Adding a domain
- Global domain routing
- Modifying a domain

Accessing the Web Interface

The following table lists the supported operating system and corresponding web browsers that can be used to access the web interface.

Supported Operating System and Corresponding Web Browsers

Operating System	Supported Web Browsers
Windows® operating system	Chrome™ web browser, version 114.0.5735.199 or later
	Firefox® web browser, version 115.0.2 or later
	Microsoft Edge® web browser, version 114.0.1823.82 or later
macOS® operating system	Safari® web browser, version 16.6 or later

To access the web interface:

1. Open a web browser.
2. Go to the IP address of one of the connected Ethernet ports:

   > **NOTE:** The Ethernet port that is used to configure the DM NVX Director software must be accessible from the network of the device running the web browser, the network of the associated DM NVX devices, and the network of the control system (if present).

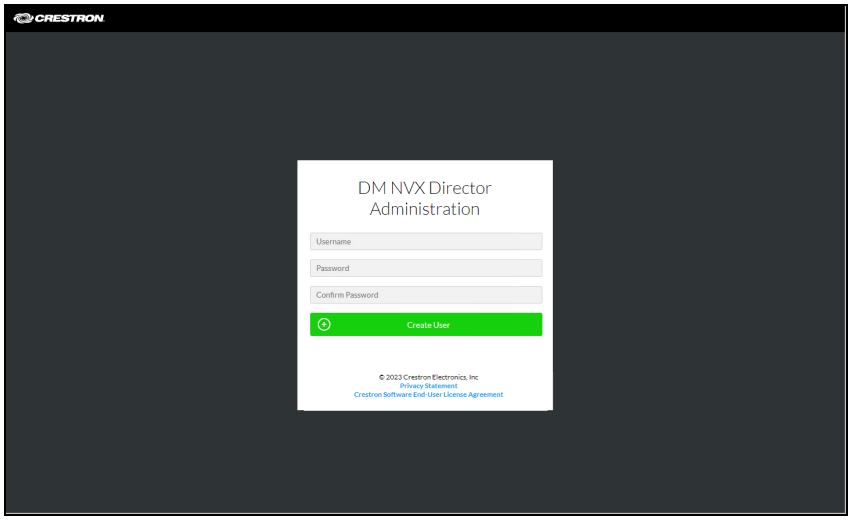
   - For the DM-NVX-DIR-80 and DM-NVX-DIR-160, RJ-45 Ethernet ports 1-4 provide access to the DM NVX Director software and enable configuration of the software.

     By default, DHCP is enabled for ports 1-3, enabling each port to be assigned a different IP address automatically. The IP address of port 4 defaults to a link-local address in the 169.254.*xxx.xxx* (refer to RFC 3927 for information about link-local addressing).
   - For the DM-NVX-DIR-ENT, RJ-45 Ethernet ports 1-6 and SFP+ Ethernet ports 7-12 provide access to the DM NVX Director software and enable configuration of the software.

     By default, DHCP is enabled for ports 1-5 and 7-12, enabling each of those ports to be assigned a different IP address automatically. The IP address for port 6 defaults to a link-local address in the 169.254.*xxx.xxx* range (refer to RFC 3927 for information about link-local addressing).

   To find the IP address of any of the connected Ethernet ports, use the Device Discovery Tool in the Crestron Toolbox™ software.
3. Do either of the following:
   - If no user account has been created, the Create User page opens. Continue with step 4 to create an account.
   - If an account has already been created, the Sign-In page opens. Omit step 4 and proceed to step 5.
4. If no user account has been created, create an account on the Create User page.

   Create User Page

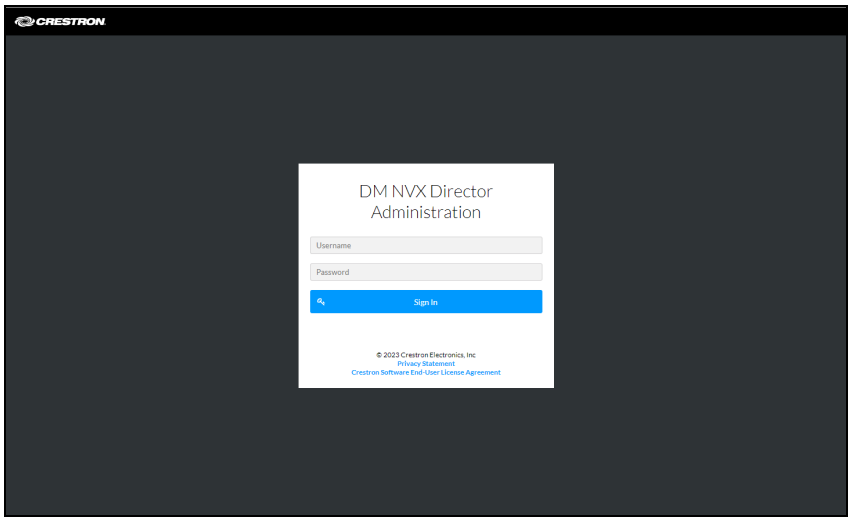
   To create a user account:

a. In the **Username** text box, enter a username. The username is not case sensitive.
b. In the **Password** text box, enter a password using a minimum of 8 characters. The password is case sensitive.
c. In the **Confirm Password** text box, reenter the password for confirmation.
d. Click **Create User**.

The Sign In page opens. Continue with step 5.

5. Sign in to the device on the Sign In page.

Sign In Page



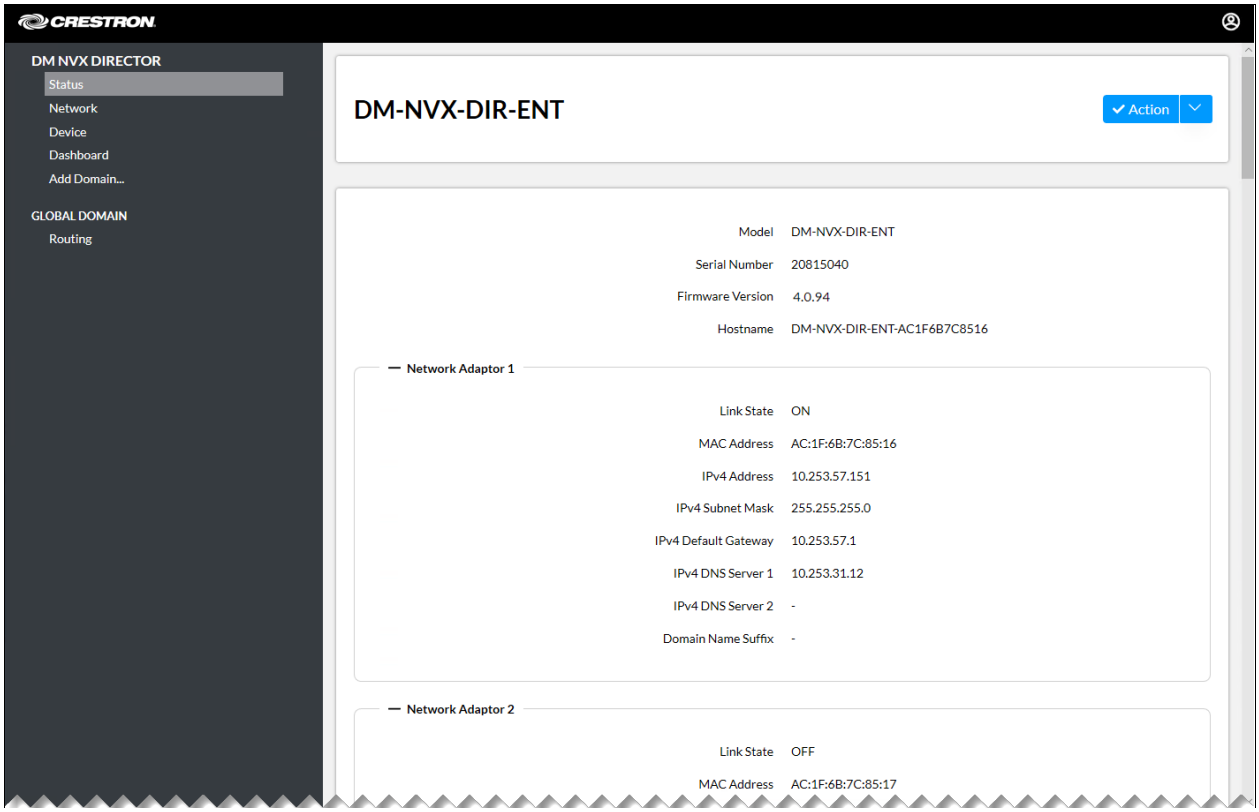
To sign in to the device:

a. In the **Username** text box, enter the username. The username is not case sensitive.
b. In the **Password** text box, enter the password. The password is case sensitive.
c. Click **Sign In**. The web interface opens.

Navigating the Web Interface

After signing in to the web interface, the web interface appears as shown in the sample screen below.

Web Interface (Sample DM-NVX-DIR-ENT Screen Shown)

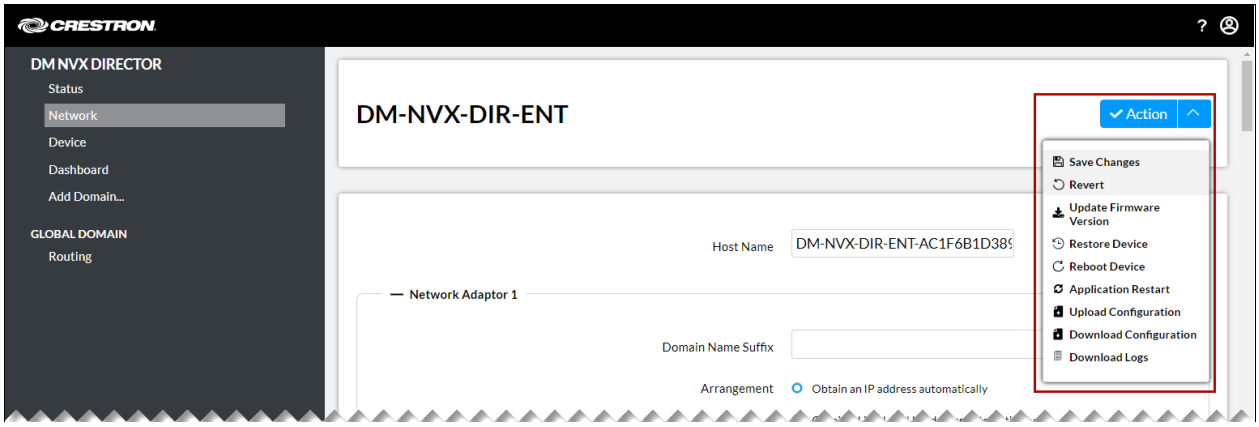


The web interface provides a navigation bar that consists of a list of links to enable access to embedded web pages. By default, the following items are listed in the navigation bar:

- Status (refer to Viewing Status Information)
- Network (refer to Configuring Network Settings)
- Device (refer to Configuring Device Settings)
- Dashboard (refer to Using the Dashboard)
- Add Domain (refer to Adding a Domain)
- GLOBAL DOMAIN, Routing (refer to Global Domain Routing)

In addition to the navigation bar, an **Action** menu is provided in the upper-right corner of the web interface.

Action Menu



The Action menu enables configuration changes to be saved (refer to Saving Configuration Changes for information).

The Action menu also enables the following device management functions to be performed:

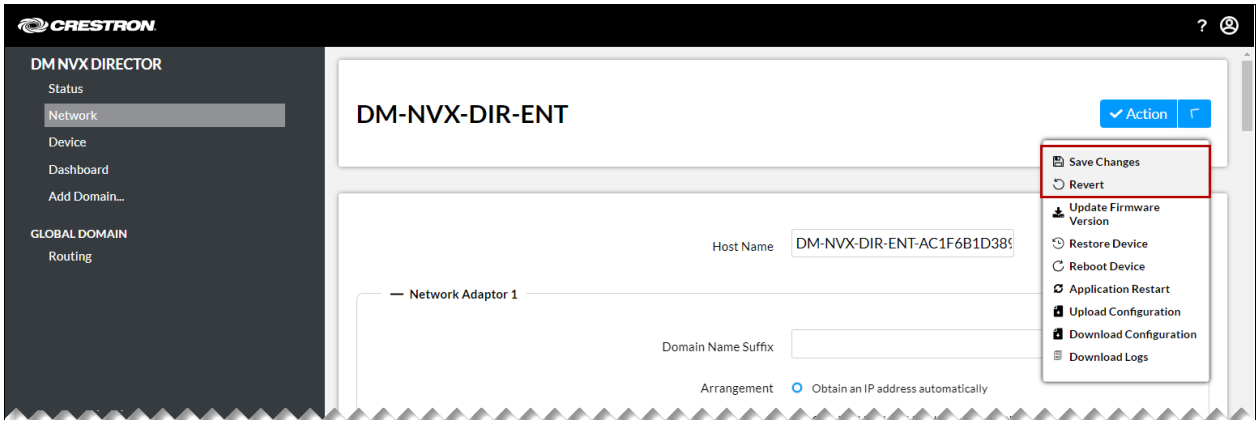
- Updating firmware
- Restoring factory default settings
- Rebooting the device
- Restarting applications
- Uploading a configuration file
- Downloading a configuration file
- Downloading message logs
- Adding a Log Marker on page 109

Saving Configuration Changes

Depending on the configuration change being made, the change is either saved automatically or must be saved manually. Various changes to configuration settings on the Network, Device, Add Domain, and Endpoint Map pages must be saved manually.

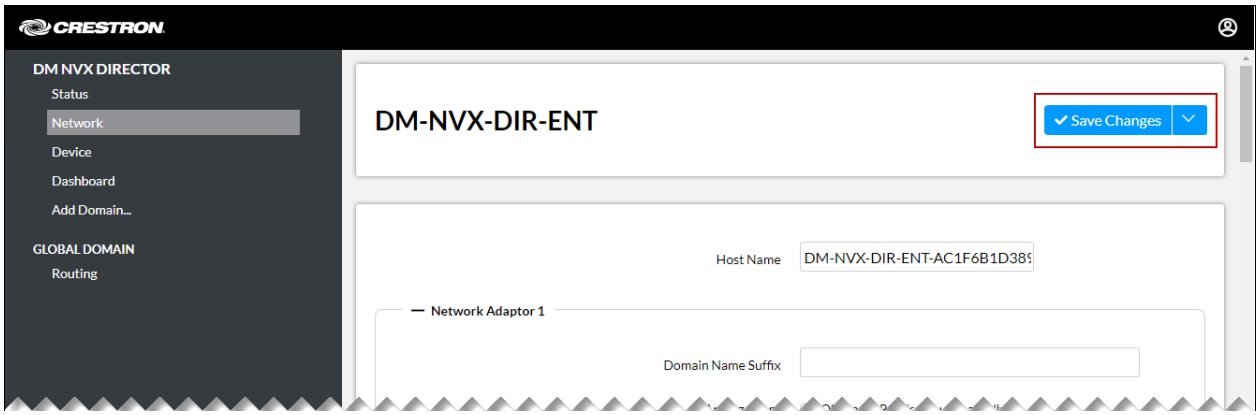
By default, the **Action** menu provides **Save Changes** and **Revert** (undo) menu items that are disabled prior to configuration settings being changed.

Action Menu - Save Changes and Revert Menu Items Disabled



After one or more configuration settings are changed and the changes must be saved manually, the **Save Changes** menu item is enabled.

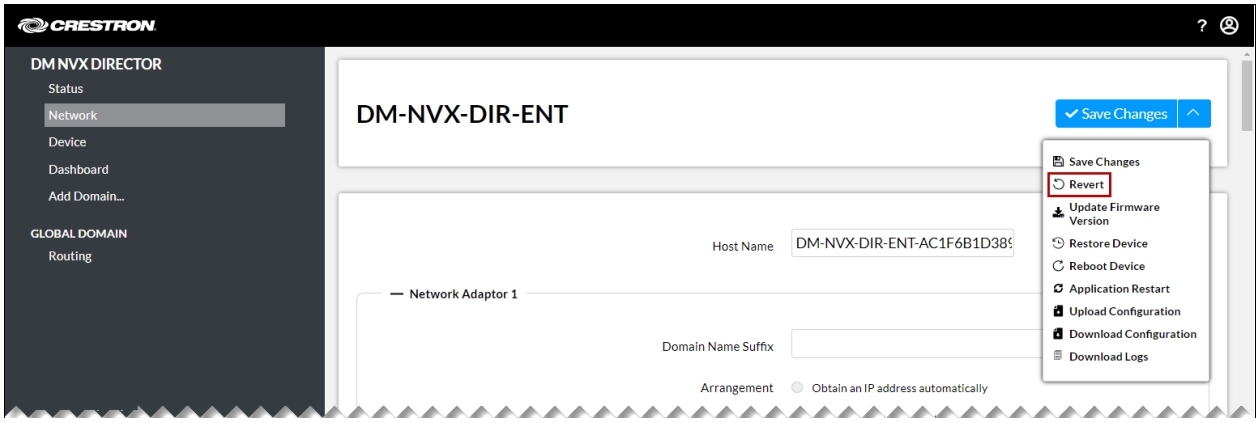
Action Menu - Save Changes Menu Item Enabled



Do either of the following:

- To save one or more configuration changes, click **Save Changes**.
- To undo the newly entered configuration changes and revert to the previously saved settings, click the drop-down arrow to the right of the **Save Changes** menu item and then click **Revert**.

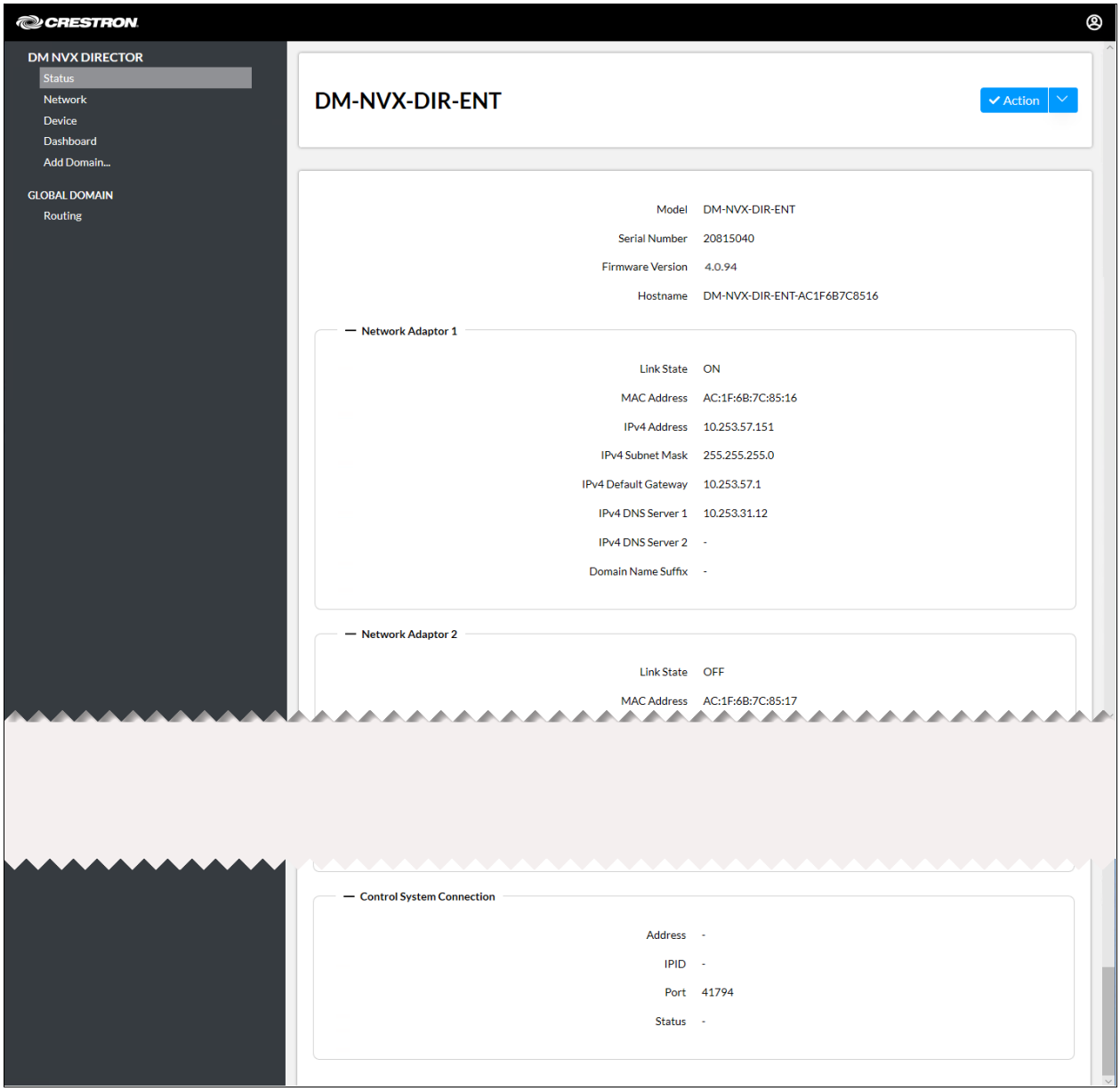
Action Menu - Revert Menu Item Enabled



Viewing Status Information

By default, the Status page is displayed after the web interface is accessed. To access the Status page if it is not displayed, click **Status** in the navigation bar.

Sample Status Page (DM-NVX-DIR-ENT Shown)



The Status page displays the model name, serial number, firmware version, and hostname of the DM NVX Director network appliance.

Information about each of the Ethernet ports on the device is also displayed:

- For the DM-NVX-DIR-ENT, the Status page displays information about Ethernet ports 1-12 in the Network Adaptor 1-12 sections.
- For the DM-NVX-DIR-160 and DM-NVX-DIR-80, the Status page displays information about Ethernet ports 1-4 in the Network Adaptor 1-4 sections.

The Status page also displays information about the control system connection to the DM NVX Director network appliance.

Configuring Network Settings

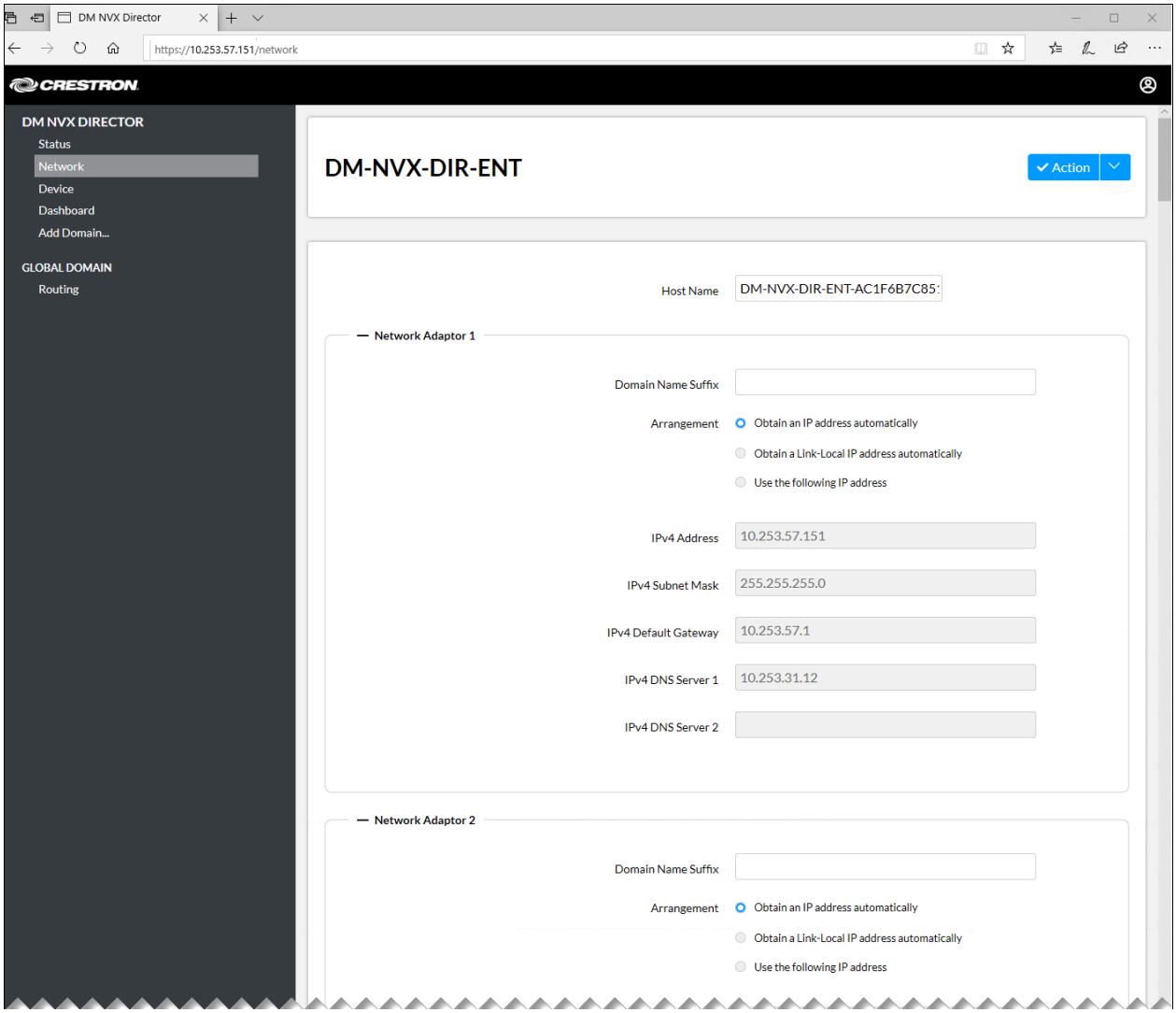
The Network section of the web interface enables network settings to be configured for Ethernet ports of the device.

> **NOTES:**
>
> - For the DM-NVX-DIR-ENT, RJ-45 Ethernet ports 1-6 and SFP Ethernet ports 7-12 are independent of each other and require different network settings.
> - For the DM-NVX-DIR-80 and DM-NVX-DIR-160, RJ-45 Ethernet ports 1-4 are independent of each other and require different network settings.

To configure network settings:

In the navigation bar, click **Network**. The Network page opens.

Sample Network Page (DM-NVX-DIR-ENT Shown)



Refer to the configuration guidelines that follow.

- **Host Name:** In the text box, enter the desired host name to identify the device on the network. The host name is restricted to the letters a to z (not case sensitive), the digits 0 to 9, and the hyphen.

  The default host name consists of the model name followed by a hyphen and the MAC address of the device. For example, if the model name is DM-NVX-DIR-ENT and the MAC address is ac.1f.6b.7c.85.16, the default host name is DM-NVX-DIR-ENT-AC1F6B7C8516.
- **Network Adaptors:** Configure network settings for Ethernet ports:
  - For the DM-NVX-DIR-ENT, configure network settings for Ethernet ports 1-12 in the **Network Adaptor 1-12** sections.
  - For the DM-NVX-DIR-160 and DM-NVX-DIR-80, configure network settings for Ethernet ports 1-4 in the **Network Adaptor 1-4** sections.

In each **Network Adaptor** section, configure the following as required for each Ethernet port:

- **Domain Name Suffix**: In the text box, enter the appropriate domain name suffix.
- **Arrangement:** Click the appropriate radio button to select the desired method by which the IP address is to be specified for the device:
  - **Obtain an IP address automatically**. An IP address is assigned by a DHCP server on the network for a predetermined period of time.

    NOTES:
    - For the DM-NVX-DIR-ENT, DHCP is enabled by default for Ethernet ports 1-5 and 7-12, enabling each of the ports to be assigned a different IP address automatically.
    - For the DM-NVX-DIR-80 and DM-NVX-DIR-160, DHCP is enabled by default for Ethernet ports 1-3, enabling each of the ports to be assigned a different IP address automatically.
  - **Obtain a Link-Local IP address automatically**. The IPv4 address uses a link-local address in the 169.254.xxx.xxx range (refer to RFC 3927 for detailed information about link-local addressing).

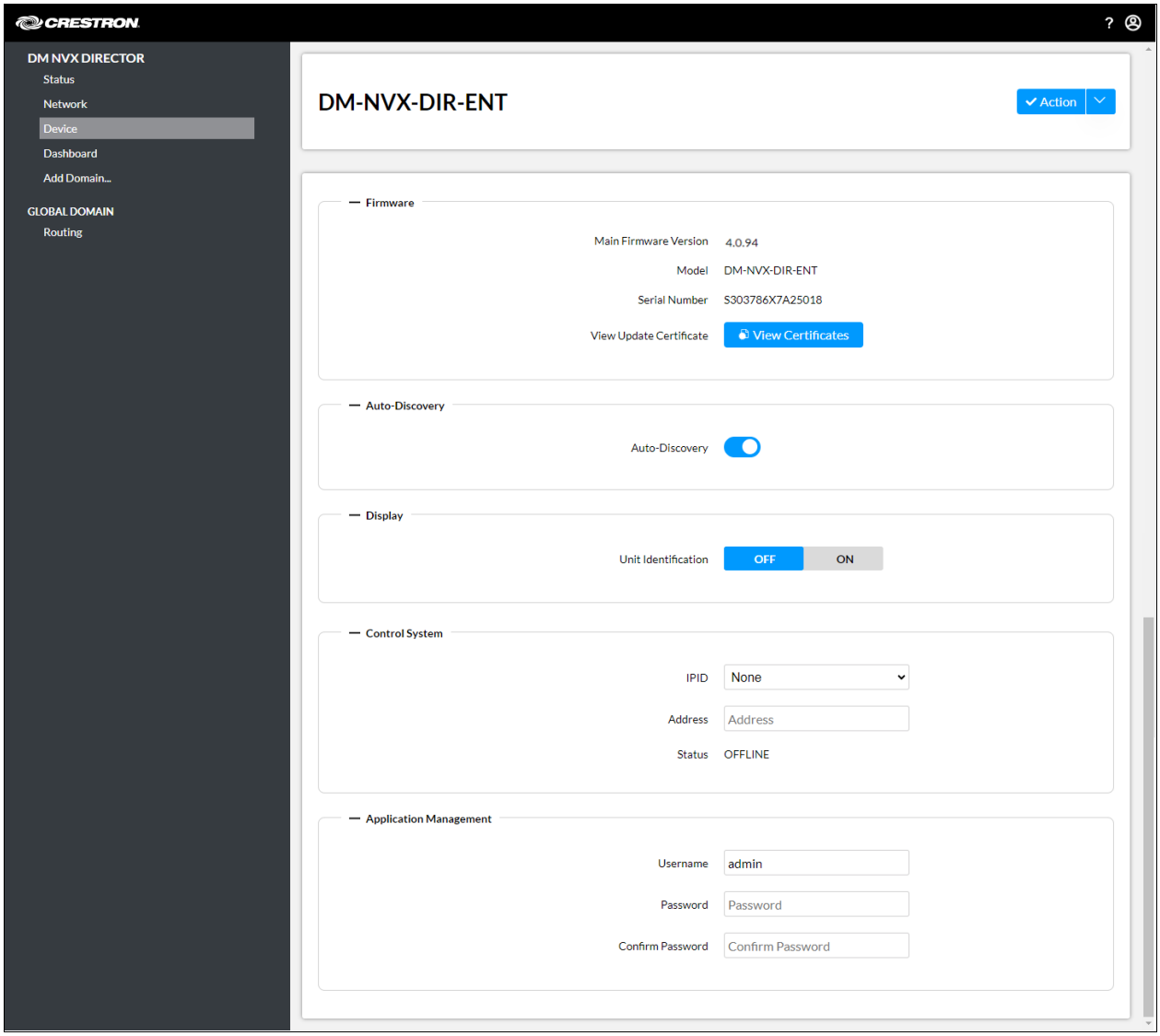
    NOTES:
    - For the DM-NVX-DIR-ENT, the IP address of Ethernet port 6 defaults to a link-local address in the 169.254.xxx.xxx range.
    - For the DM-NVX-DIR-80 and DM-NVX-DIR-160, the IP address of Ethernet port 4 defaults to a link-local address in the 169.254.xxx.xxx range.
  - **Use the following IP address**. If a static IP address is desired, enter the IP address and related network information in the corresponding text boxes:
    - **IPv4 Address:** Enter a unique static IPv4 address for the DM NVX Director network appliance.
    - I**Pv4 Subnet Mask:** Enter the IPv4 subnet mask that is set on the network.
    - **IPv4 Default Gateway:** Enter the IPv4 IP address that is to be used as the default gateway.
    - **IPv4 DNS Server 1:** Enter an IPv4 IP address for the primary static DNS server.
    - **IPv4 DNS Server 2:** Enter an IPv4 IP address for the secondary static DNS server.

Configuring Device Settings

To configure device settings:

In the navigation bar, click **Device**. The Device page opens.

Device Page (DM-NVX-DIR-ENT Shown)



The Device page consists of the following sections:

- Firmware
- Auto-Discovery
- Display
- Control System
- Application Management

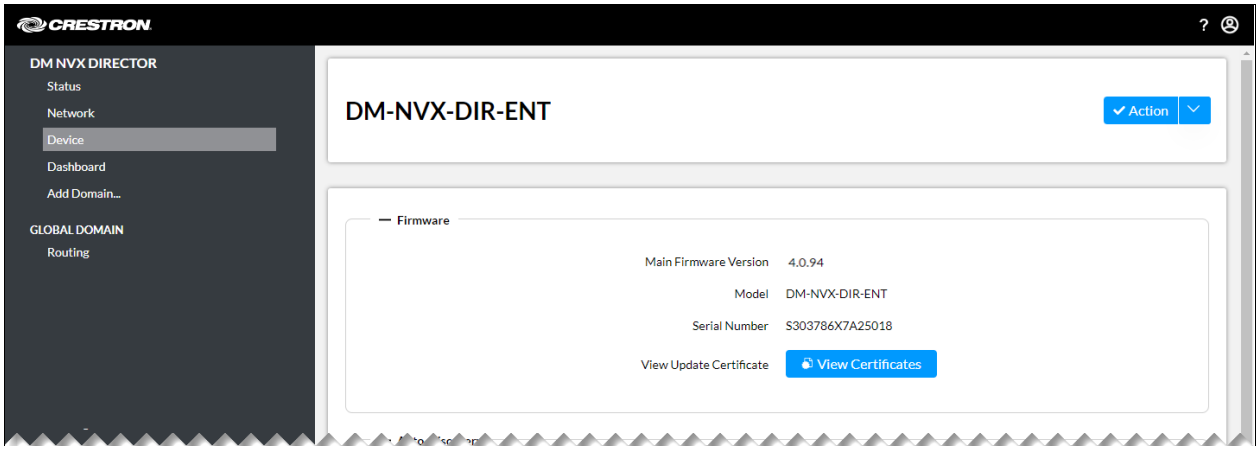
Firmware

The Device page provides a **Firmware** section, which displays the firmware version, model name, and serial number of the DM NVX Director network appliance. The **Firmware** section also enables display of encryption and authentication certificate information.

To view firmware-related information:

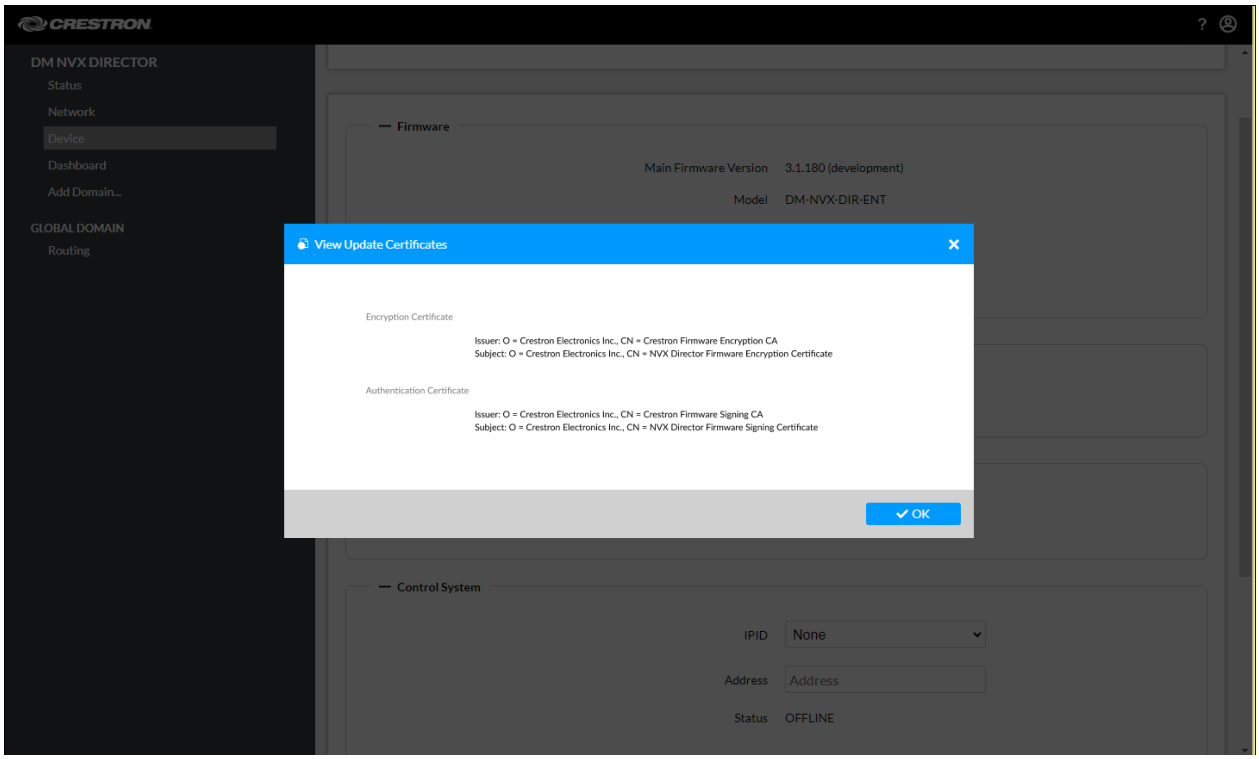
In the navigation bar, click **Device** and then go to **Firmware**.

Device Page - Firmware



To view certificate information related to firmware security, click the **View Certificates** button. The **View Update Certificates** dialog box opens, displaying encryption and authentication certificate information.

View Updates Certificates Dialog Box



The **View Update Certificates** dialog box displays the following information:

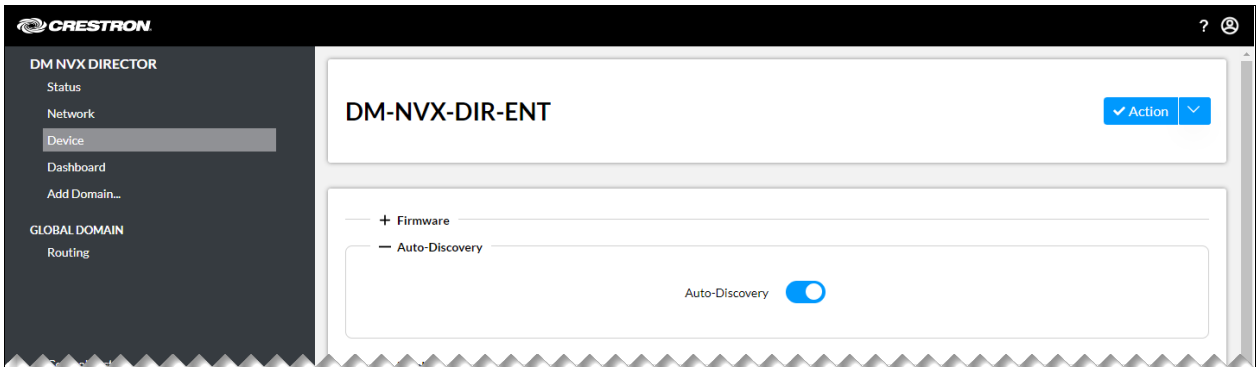
- The **Encryption Certificate** section displays the following:
  - Issuer's Organization (O), which is **Crestron Electronics, Inc.**, and Common Name (CN), which is **Crestron Firmware Encryption CA**
  - Subject's Organization (O), which is **Crestron Electronics, Inc.**, and Common Name (CN), which is **NVX Director Firmware Encryption Certificate**.
- The **Authentication Certificate** section displays the following:
  - Issuer's Organization (O), which is **Crestron Electronics, Inc.**, and Common Name (CN), which is **Crestron Firmware Signing CA**
  - Subject's Organization (O), which is **Crestron Electronics, Inc.**, and Common Name (CN), which is **NVX Director Firmware Signing Certificate**.

To close the dialog box, click **OK**.

Auto-Discovery

The **Auto-Discovery** section controls whether DM NVX endpoints on the network can automatically be discovered by the DM NVX Director network appliance.

Device Page - Auto-Discovery



To control automatic discovery of DM NVX endpoints, do either of the following:

- Set the toggle switch in the On position to enable automatic discovery of the endpoints (default setting).
- Set the toggle switch in the Off position to disable automatic discovery of the endpoints.

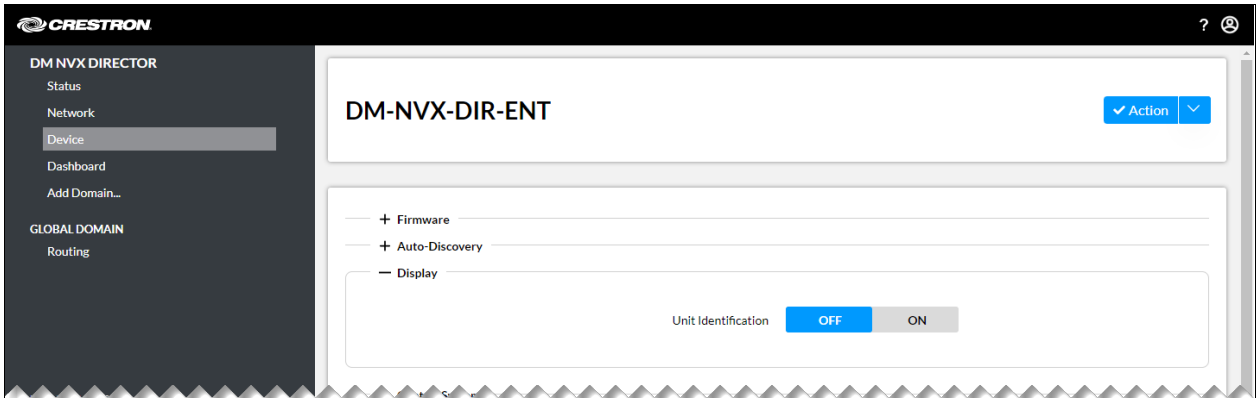
Display

The MSG LED on the DM NVX Director network appliance is used to identify the location of the device in a rack. When turned on, the LED lights blue.

To turn the MSG LED on or off:

In the navigation bar, click **Device** and then go to **Display**.

Device Page - Display



For **Unit Identification**, do either of the following:

- Click the **ON** button to turn on the MSG LED. The LED lights blue.
- Click the **OFF** button to turn off the MSG LED (default setting).

Control System

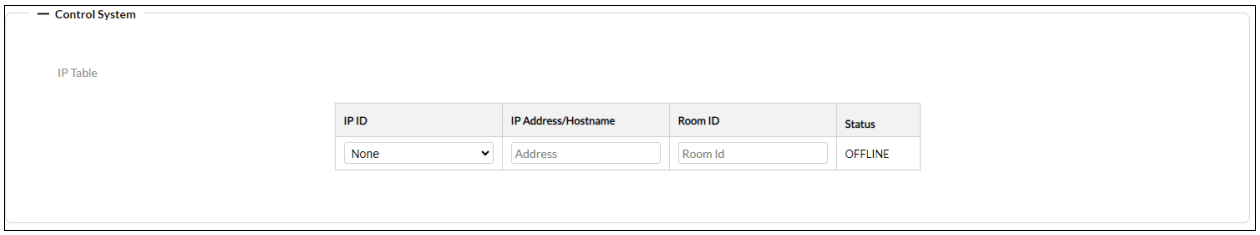
A single control system, referred to as the Global Control System, can be assigned to all domains simultaneously.

> **NOTE:** The Global Control System will be used as the default control system for all domains unless a different control system is assigned at the domain level. For additional information, refer to Domain Control System.

To assign a Global Control System:

In the navigation bar, click **Device** and then go to **Control System**.

Device Page - Control System



Refer to the configuration guidelines that follow.

- **IPID:** In the drop-down list, click the desired IP ID for all domains.
- **Address:** Enter the IP address of the control system.
- **RoomID**: If using Crestron Virtual Control, enter the **RoomID**.

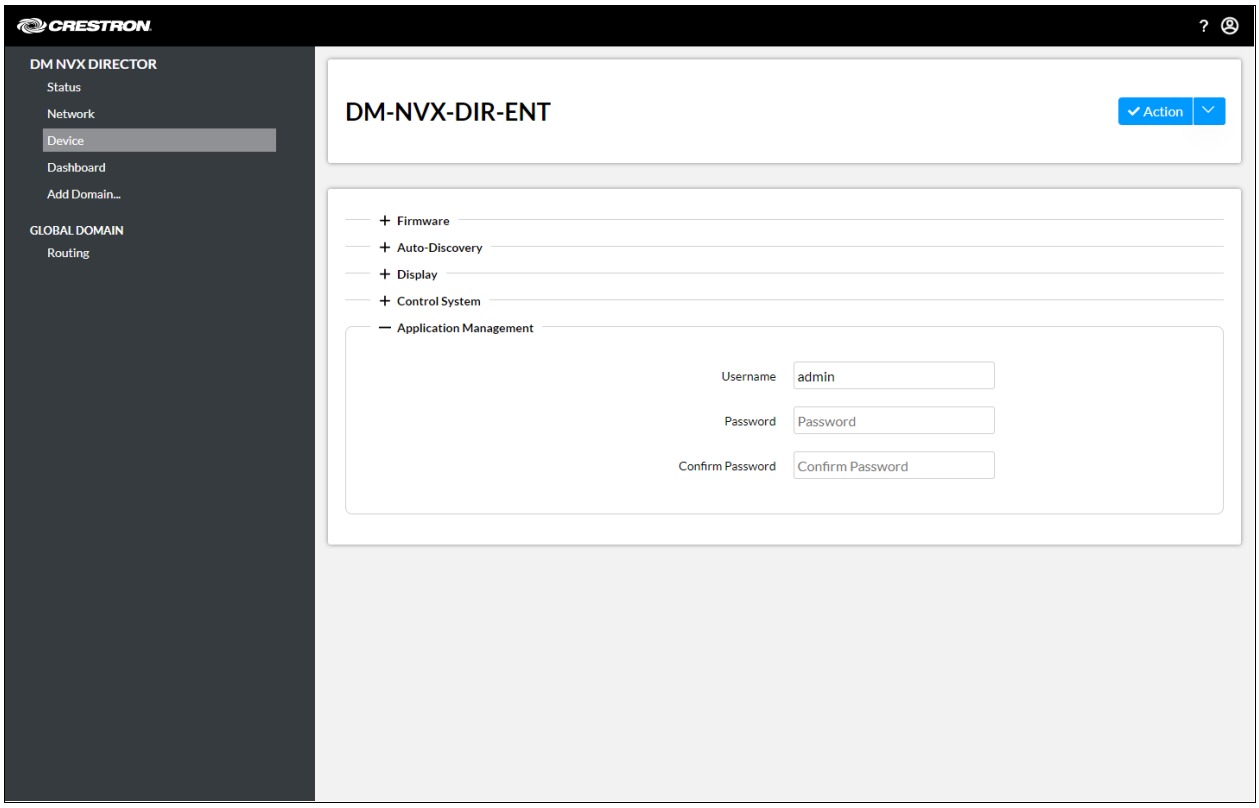
Status indicates whether the control system is **ONLINE** or **OFFLINE**.

Application Management

To change the username and password of the DM NVX Director network appliance:

In the navigation bar, click **Device** and then go to **Application Management**.

Device Page - Application Management



Change the username and password as follows:

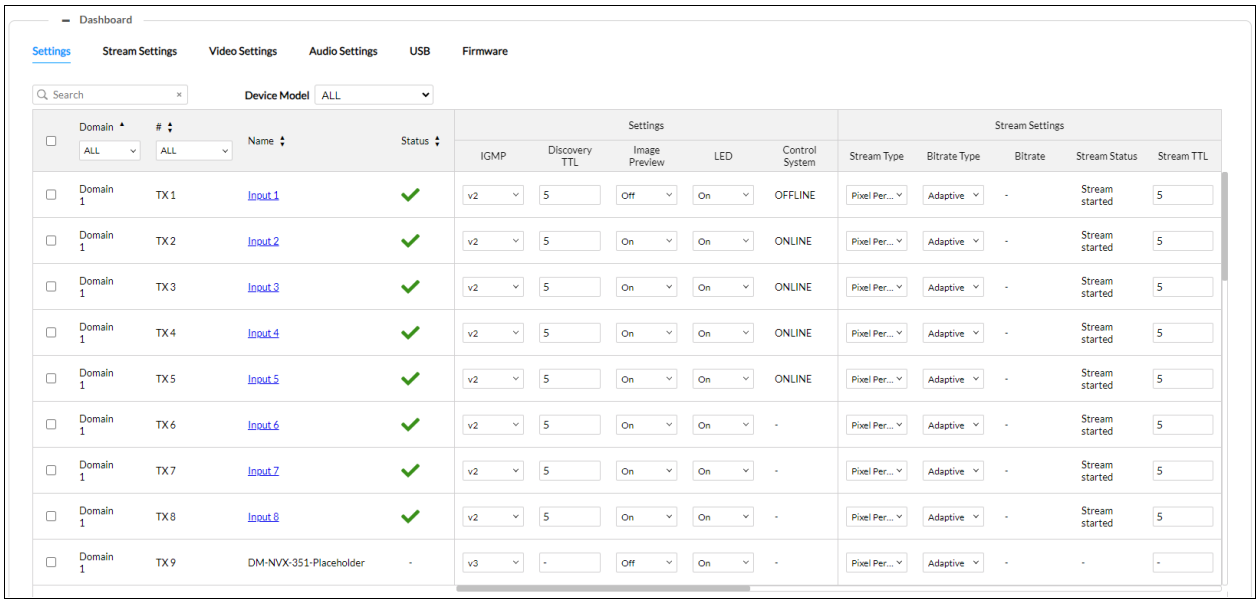
- In the **Username** text box, enter the desired username. The maximum number of characters is 128. The username is not case sensitive.
- In the **Password** text box, enter the desired password. The minimum number of characters is 8, and the maximum number of characters is 128. The password is case sensitive.
- In the **Confirm Password** text box, reenter the new password for confirmation.

Using the Dashboard

The **Dashboard** page enables settings management and firmware upgrades for DM NVX endpoints assigned to domains using the DM NVX Director network appliance.

> **NOTE:** The available settings and options for each will depend on the endpoint capabilities.

Dashboard Page



Receivers and receiver placeholders are denoted by RX. Transmitter and transmitter placeholders are denoted by TX. Both are numbered consecutively based on the order in which the receivers, placeholders, and transmitters are added to the domain.

Note the following information about each endpoint listed in the table:

- **Name:** Indicates the name assigned to the endpoint.
- **Device Status:** Provides one of the following symbols to indicate the status of a DM NVX endpoint connection to the DM NVX Director network appliance:
  - ✔: A network connection exists between the endpoint and the DM NVX Director network appliance.
  - ⇄: The device mode (transmitter or receiver) configured on the endpoint is being reconfigured to match the device mode selected when the endpoint was added to the domain.
  - ✘: No network connection exists between the endpoint and the DM NVX Director network appliance due to reasons such as the following:
    - The DM NVX Director network appliance cannot access the endpoint with the provided credentials.
    - The endpoint is not connected to the network.
  - **-** (hyphen): The endpoint is a placeholder.

Sorting the List

There are a number of ways to sort the list of connected DM NVX endpoints.

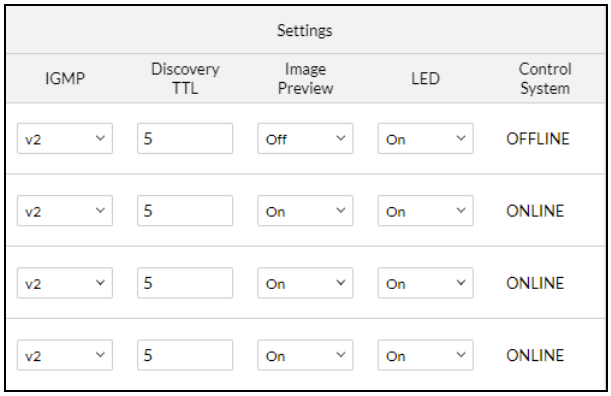
- In the drop-down list below the **Domain** heading, click **ALL** to view the endpoints in all domains (default setting) or click the desired domain number to view the endpoints within a particular domain. Transmitters, receivers, transmitter placeholders, and receiver placeholders are listed based on the domain number.
- To view the endpoints based on the ascending or descending numeric order of the domain, use the scroll arrows to the right of the **Domain** heading.
- Use the Search box or the **Device Model** drop-down list on the Dashboard page to find specific endpoints. By default, all endpoints corresponding to the desired model or model family appear in the table.

  > **NOTE:** The **Device Model** drop-down list provides a listing of all DM NVX endpoint models and model families (for example, DM-NVX-36x) in the same network as the DM NVX DIR device. If the desired model or a particular endpoint corresponding to that model or model family is not part of a domain, that endpoint will not appear in the dashboard.

- Use the drop-down list below the **#** heading to filter as follows:
  - **ALL:** (Default setting) View transmitters, receivers, transmitter placeholders, and receiver placeholders
  - **Receiver:** View receivers and receiver placeholders only
  - **Transmitter:** View transmitters and transmitter placeholders only
- To view the endpoints based on the ascending or descending alphanumeric order of the designations in the **#** column, use the scroll arrows to the right of the **#** heading.
- To view the endpoints based on the ascending or descending order of the **Device Status** symbol, use the scroll arrows to the right of the **Device Status** heading.
- To view the endpoints based on the ascending or descending alphanumeric order of the names, use the scroll arrows to the right of the **Name** heading.

Settings Column

Depending on the endpoint capabilities, the following options may be configurable in the **Settings** column:

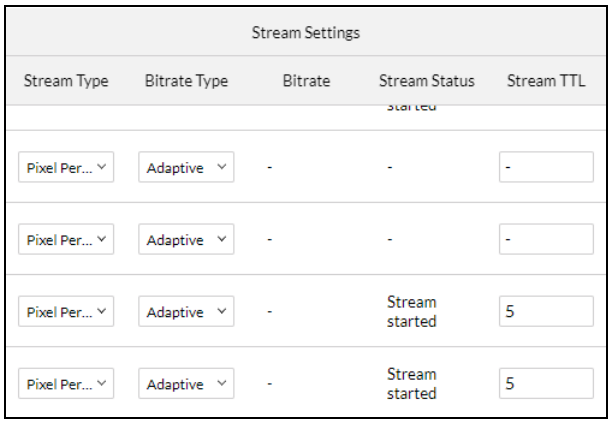


- **IGMP**
- **Discovery TTL**
- **Image Preview**
- **LED**
- **Control System**

These functions are described in the endpoint product manual.

Stream Settings Column

Depending on the endpoint capabilities, the following options may be configurable in the **Stream Settings** column:

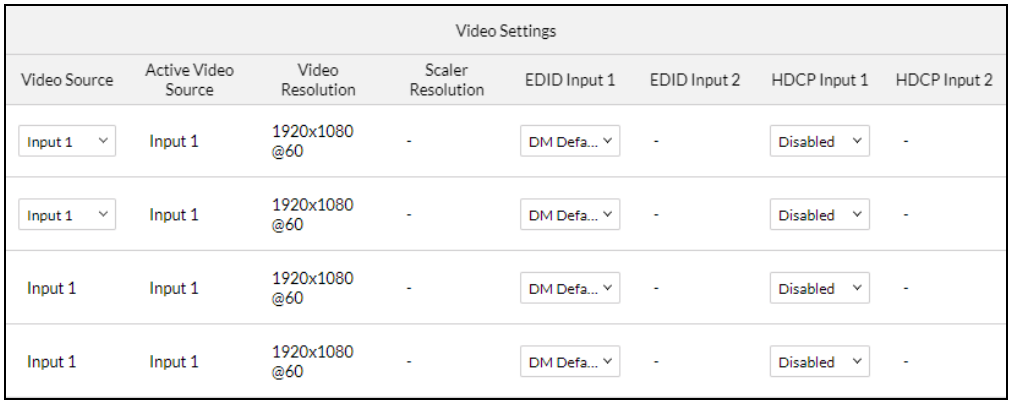


- **Stream Type**
- **Bitrate Type**
- **Bitrate**
- **Stream Status**
- **Stream TTL**

These functions are described in the endpoint product manual.

Video Settings Column

Depending on the endpoint capabilities, the following options may be configurable in the **Video Settings** column:

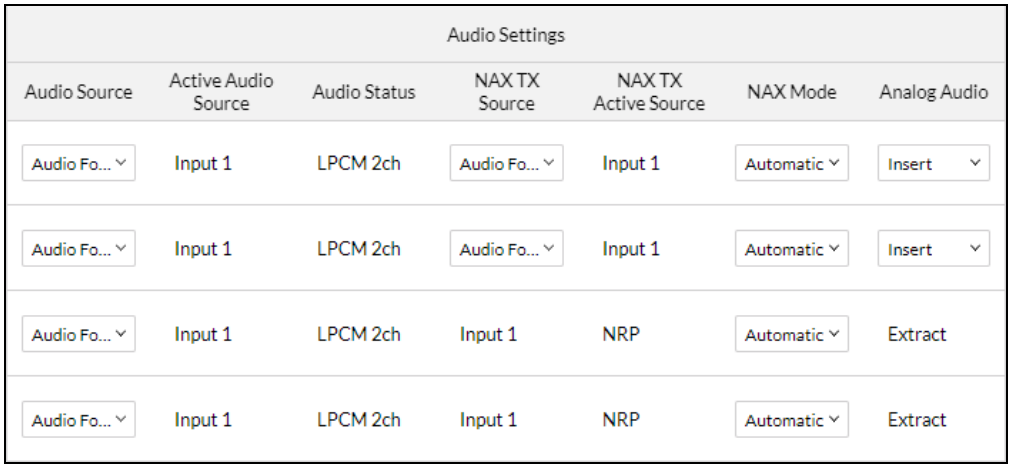


- **Video Source**
- **Active Video Source**
- **Video Resolution**
- **Scaler Resolution**
- **EDID Input 1**
- **EDID Input 2**
- **HDCP Input 1**
- **HDCP Input 2**

These functions are described in the endpoint product manual.

Audio Settings Column

Depending on the endpoint capabilities, the following options may be configurable in the **Audio Settings** column:

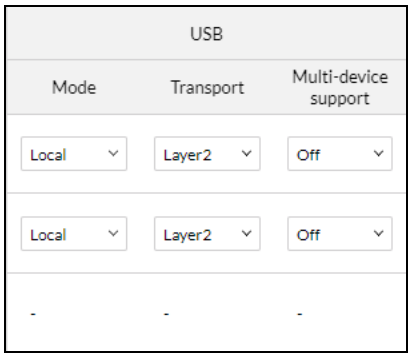


- **Audio Source**
- **Active Audio Source**
- **Audio Status**
- **NAX TX Source**
- **NAX TX Active Source**
- **NAX Mode**
- **Analog Audio**

These functions are described in the endpoint product manual.

USB Column

Depending on the endpoint capabilities, the following options may be configurable in the **USB** column:



- **Mode**
- **Transport**
- **Multi-device support**

These functions are described in the endpoint product manual.

Firmware Column

The Firmware column displays information about the current firmware version. The firmware can be updated on individual or multiple DM NVX endpoints. The following information is displayed:

- **Version:** Indicates the current firmware version of the endpoint. A **-** (hyphen) is displayed for an endpoint placeholder.

  To view the endpoints based on the ascending or descending numerical order of the firmware version, use the scroll arrows to the right of the **Firmware Version** heading.

- **Update Status:** Indicates the current status of the firmware upgrade process when using the Dashboard page to upgrade the firmware: **Uploading**, **Upgrading**, **Rebooting**, **Connecting**, and **Completed**. A **-** (hyphen) is displayed for a placeholder.

  To view the endpoints based on the ascending or descending alphabetical order of the firmware upgrade status, use the scroll arrows to the right of the **Firmware Upgrade** heading.

- **Last Updated:** Indicates the date when the firmware was last upgraded using the Dashboard page. A **-** (hyphen) is displayed when the firmware was not upgraded using the Dashboard page or when the endpoint is a placeholder.

  To view the endpoints based on the ascending or descending numerical order of the firmware update date, use the scroll arrows to the right of the **Last Updated** heading.

- **Update File Version:** Indicates the firmware version the endpoint will use if the firmware is updated.

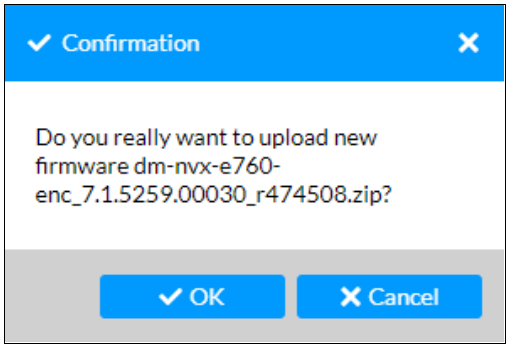
To update firmware, follow the instructions below.

1. Download the latest firmware file (*.zip) of the DM NVX endpoints to your computer. The firmware file can be found at www.crestron.com/firmware.

2. Select the endpoints for which firmware is to be upgraded:
    - If all endpoints for the desired model are to be upgraded, click the topmost checkbox in the first column of the table. The corresponding endpoints are selected in the table.
    - If only one or a limited number of endpoints for the desired model are to be upgraded, click the checkbox of the desired endpoints on an individual basis. The corresponding endpoints are selected in the table.
3. If updating a single endpoint, click the **Upgrade** button. If updating multiple endpoints, click the **Upgrade Selected** button. File Explorer opens.
4. Navigate to the firmware file on the computer, select the file, and then click **Open**.

    A **Confirmation** dialog box opens, prompting for confirmation to upload the firmware file.

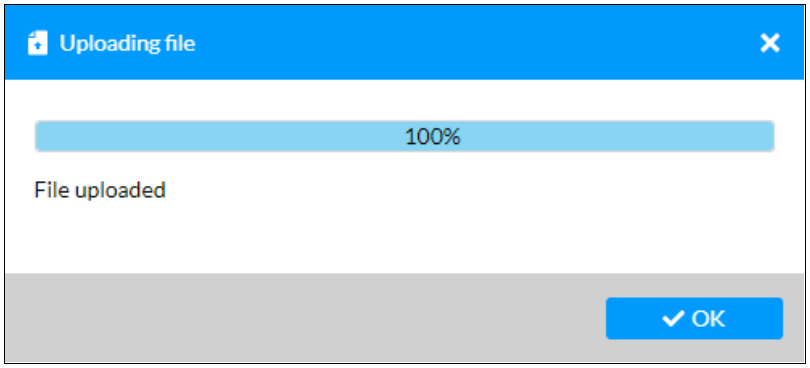
    Confirmation Dialog Box for Uploading Firmware File

5. Click **OK**.

    The **Uploading file** dialog box opens, indicating the progress of the upload of the firmware file. When the file upload process has completed, the **Uploading file** dialog box indicates that the file has been uploaded.

    Uploading File Dialog Box - File Uploaded

6. Click **OK**.

    The selected firmware file appears in the **Select Firmware File** text box on the Dashboard page.

7. Click the **Load** button.

   The **Firmware Upgrade** column for the selected endpoints indicates the progression of the firmware upgrade process as applicable to each DM NVX device: **Uploading**, **Waiting**, **Upgrading**, **Rebooting**, **Connected**, and **Completed**.

   > **NOTE:** The firmware file is uploaded to 10 DM NVX endpoints at a time. Starting with the eleventh device, the **Firmware Upgrade** column on the Dashboard page indicates **Waiting**. When one of the 10 devices completes the upload process, the eleventh device will start uploading the firmware file and the **Firmware Upgrade** column for the corresponding device will change from **Waiting** to **Uploading**.

Adding a Domain

A domain is a logical grouping of DM NVX endpoints that operate as a single switching entity, enabling individual subsystems to be arranged and controlled independently on the AV network. A DM NVX Director network appliance automatically discovers each DM NVX endpoint on the network.

> **NOTE:** In order for the DM NVX Director network appliance to be able to automatically discover DM NVX endpoints, **Auto-Discovery** must be enabled in the **Device > Auto-Discovery** section of the web interface (for additional information, refer to Auto-Discovery). In addition, one of the Ethernet ports (excluding the MGMT port) must be connected to the VLAN associated with the endpoints.

A DM NVX Director network appliance enables each endpoint to be assigned as a logical input or output within a domain:

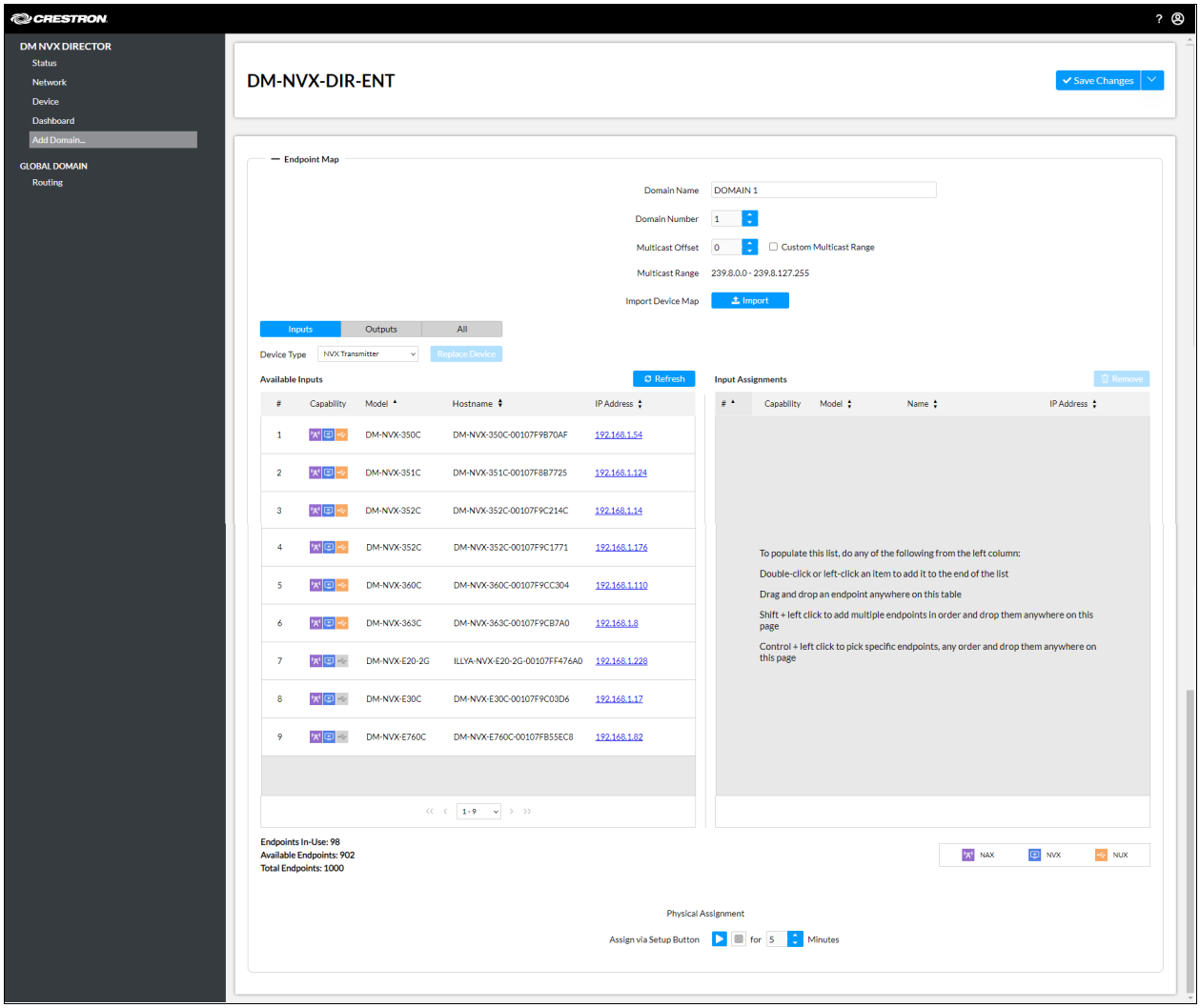
- The DM-NVX-DIR-80 supports a maximum of 80 DM NVX endpoints and 1 domain.
- The DM-NVX-DIR-160 supports a maximum of 160 DM NVX endpoints among 20 domains.
- The DM-NVX-DIR-ENT supports a maximum of 1000 DM NVX endpoints among 240 domains.

> **NOTE:** To simplify SIMPL programming of domains, it is recommended that domains be added in the DM NVX Director web interface before being added in the SIMPL program. The domain configuration in the web interface can then be referenced when adding domains in the SIMPL program.

To add a domain using the DM NVX Director web interface:

In the navigation bar, click **Add Domain**. The Add Domain page opens.

Add Domain Page



The Add Domain page provides an **Endpoint Map** section, enabling configuration of the domain.

To add a domain, configure the endpoint map as follows:

- Enter domain identification and multicast information.
- Assign endpoints to the domain.

To save the domain, refer to Saving a New Domain.

Entering Domain Identification and Multicast Information

Enter the following domain identification and multicast information:

- **Display Name:** Enter a meaningful domain name to identify the domain on the network. The default domain names are numbered consecutively as **DOMAIN 1**, **DOMAIN 2**, and so on.
- **Domain Number:** In the scrollable text box, enter or select a domain number:
  - For the DM-NVX-DIR-80, the domain number must be set to **1**.
  - For the DM-NVX-DIR-160, the domain number must be set to a number ranging from **1** to **20**.
  - For the DM-NVX-DIR-ENT, the domain number must be set to a number ranging from **1** to **240**.

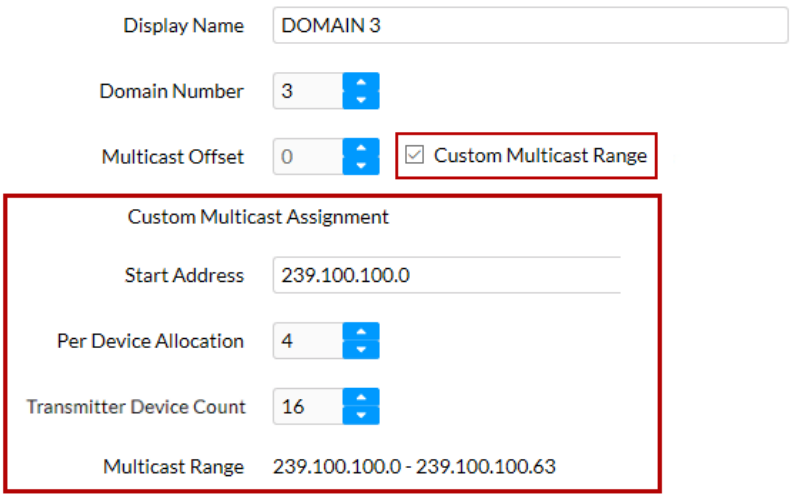
  > **NOTE:** The Domain Number must correspond to the XIO Domain slot number used in the SIMPL program. For example, if the Domain Number is assigned to **1** in the web interface, the corresponding XIO Domain slot number in the SIMPL program must be **Slot-01 : XIO-Domain : XIO Domain**.

- **Multicast Offset:** Enter or select a Multicast Offset only when multiple DM NVX Director network appliances exist on the same network and a **Custom Multicast Range** (discussed below) is not set. The Multicast Offset is required to prevent multicast collisions on the network.

  > **NOTES:**
  >
  > - The total of the Domain Number and the Multicast Offset must be less than or equal to 240.
  >
  >   **Examples:**
  >
  >   - If the Domain Number is **1**, valid Multicast Offset values range from **0** to **239**.
  >   - If the Domain Number is **2**, valid Multicast Offset values range from **0** to **238**.
  >   - If the Domain Number is **20**, valid Multicast Offset values range from **0** to **220**.
  > - The combination of Domain Number and Multicast Offset determines the **Multicast Range**, which must be unique for each domain.

- **Custom Multicast Range:** (Optional) Specifies a Custom Multicast Range when the checkbox is selected and **Start Address**, **Per Device Allocation**, and **Device** are set under **Custom Multicast Assignment**.

  Example of Custom Multicast Assignment



  Refer to the configuration guidelines that follow.

  - **Start Address:** Enter the starting multicast address of the Custom Multicast Range. The starting address must end with **0** or an even number (**2**, **4**, **6**, or **8**).

    > **NOTE:** Multicast addresses can start at 224.0.2.0 and end at 239.255.255.254, excluding 239.255.255.250 and 239.255.255.253.

    The first DM NVX endpoint in the domain is assigned the starting address.

  - **Per Device Allocation:** Enter or select the number of multicast addresses to be assigned to each DM NVX endpoint. Values range from **2** to **256** and must be an even number.

    > **NOTE:** If a value of **2** is entered, a message appears indicating that DM NVX endpoints can use 3 or more multicast addresses depending on the device configuration.

  - **Transmitter Device Count:** Enter or select the number of DM NVX endpoints to be assigned to the domain:
    - For the DM-NVX-DIR-80, values range from **2** to **80**.
    - For the DM-NVX-DIR-160, values range from **2** to **160**.
    - For the DM-NVX-DIR-ENT, values range from **2** to **1000**.

    The **Multicast Range** is displayed. For example, if **Start Address** is set to 239.100.100.0, **Per Device Allocation** is set to 4, and **Device** is set to 16, the custom multicast range will result in 64 multicast addresses (4 x 16) ranging from 239.100.100.0 to 239.100.100.63.

Assigning Endpoints to a Domain

To assign endpoints to a domain, do any of the following:

- Assign endpoints in the endpoint map.
- Assign endpoints using the Setup button.
- Import a device map.

While assigning endpoints, perform any of the following tasks as required:

- Remove an endpoint.
- Replace an endpoint.
- View input and output assignments simultaneously.
- View endpoint statistics.

Assigning Endpoints in the Endpoint Map

In the endpoint map, assign the desired discovered endpoints as transmitters (inputs) or receivers (outputs). Endpoint placeholders can also be assigned as transmitter placeholders (inputs) or receiver placeholders (outputs).

> **NOTE:** Transmitter placeholders and receiver placeholders are available for addition to a domain and can later be replaced by actual transmitters and receivers, respectively, when appropriate.

To assign transmitters or receivers to a domain, refer to Assigning Discovered Endpoints to a Domain for information. To assign transmitter or receiver placeholders to a domain, refer to Assigning Endpoint Placeholders to a Domain for information.

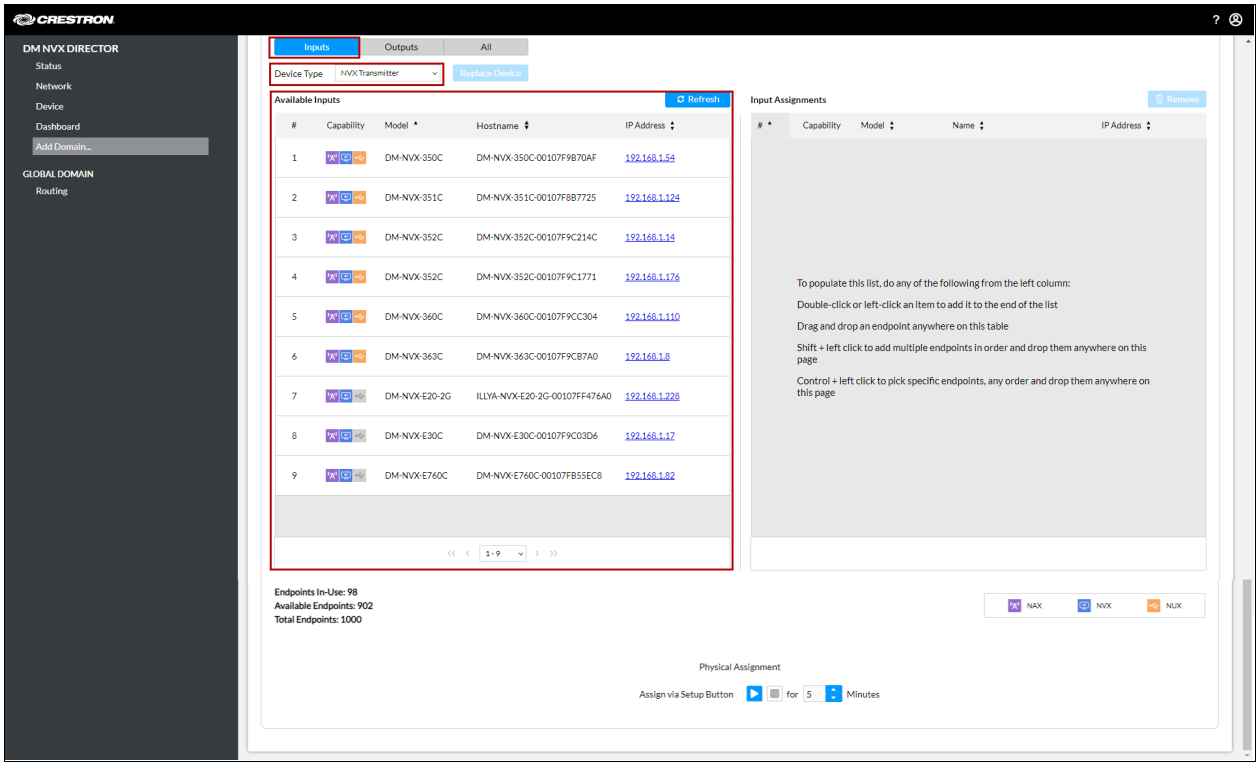
Assigning Discovered Endpoints to a Domain

Assign discovered endpoints to a domain based on the desired operating mode (transmitter or receiver).

To obtain a list of inputs (transmitters) available for addition to the domain:

1. Click the **Inputs** button (default setting).
2. In the **Device Type** drop-down list, click **NVX Transmitter** (default setting). Available DM NVX models that can function as transmitters are listed in the **Available Inputs** table.

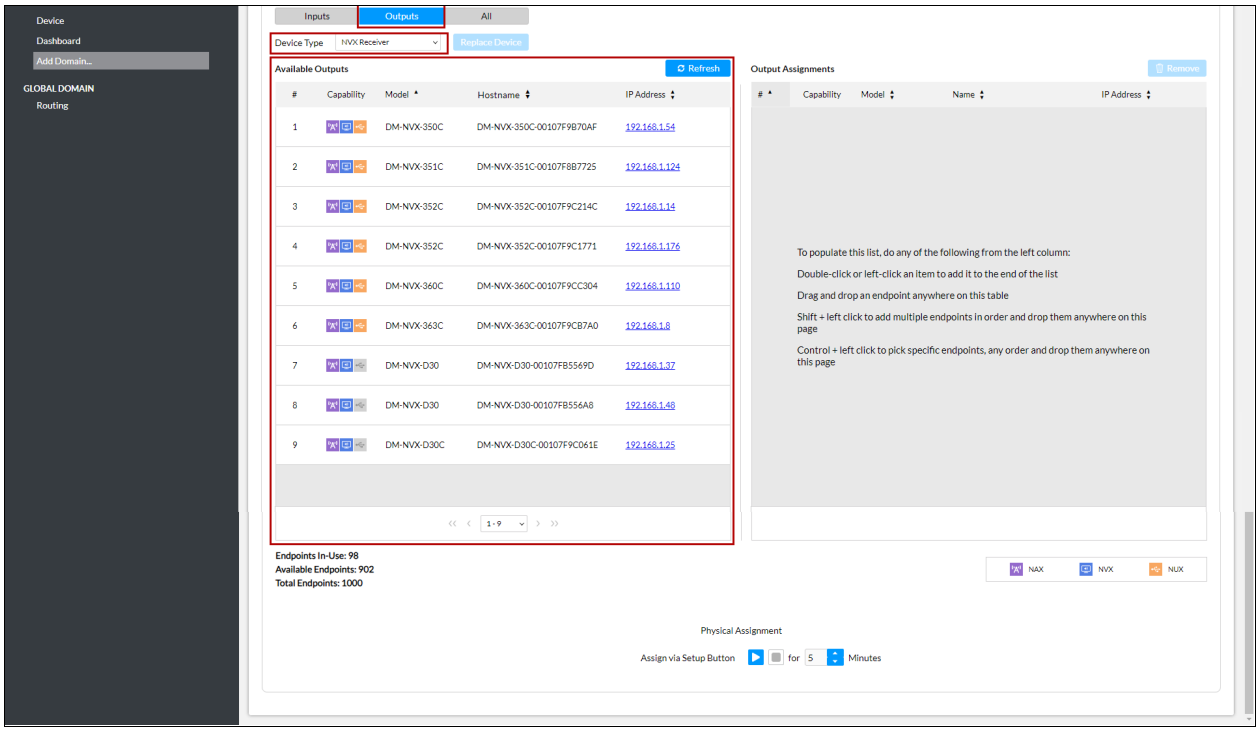
Add Domain Page - Example of Available Inputs for Discovered Transmitters



To obtain a list of outputs (receivers) available for addition to the domain:

1. Click the **Outputs** button.
2. In the **Device Type** drop-down list, click **NVX Receiver.** Available DM NVX models that can function as receivers are listed in the **Available Outputs** table.

Add Domain Page - Example of Available Outputs for Discovered Receivers

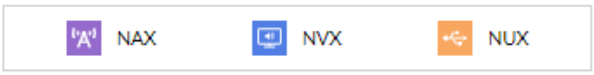


The corresponding **Available Inputs** or **Available Outputs** table provides the following information:

- **#:** Indicates the number of the device based on the order in which the device was added to the **Available Inputs** or **Available Outputs** list.
- **Capability:** Provides icons representing the capabilities of the device:
  - : Purple icon represents DM NAX™ audio.
  - : Blue icon represents DM NVX audio/video, which consists of HDMI® or analog audio and HDMI video.
  - : Orange icon represents DM NUX (USB) data from the DEVICE or HOST port on a DM NVX endpoint. If the DM NUX icon is shaded gray (), DM NUX capability is not supported by the endpoint.

  A Capability legend is provided below the **Input Assignments** and **Output Assignments** tables indicating the meaning of the icons.

Capability Legend



- **Model:** Indicates the model name of the DM NVX endpoint.

  To view the devices based on the ascending or descending alphanumeric order of the model name, use the scroll arrows to the right of the **Model** heading.
- **Hostname:** Indicates the hostname of the DM NVX endpoint. The default hostname is the model name followed by a hyphen and the MAC address of the device.

  To view the devices based on the ascending or descending alphanumeric order of the hostname, use the scroll arrows to the right of the **Name** heading.
- **IP Address:** Indicates the IP address of the DM NVX endpoint. Clicking the IP address provides access to the web interface of the endpoint.

  To view the devices based on the ascending or descending numerical order of the IP address, use the scroll arrows to the right of the **IP Address** heading.

Up to 10 available endpoints can be displayed in the table simultaneously. If more than 10 endpoints are available, use the scroll arrows at the bottom of the table to navigate through the list of endpoints.

NOTES:

- For a DM NVX endpoint that can function as either a transmitter or receiver, the endpoint is available for addition to the domain as a transmitter or receiver. If the endpoint is added to the **Input Assignments** table but the operating mode of the endpoint is configured as a receiver, the operating mode will automatically be reconfigured as a transmitter when the domain is saved.

  If the endpoint is added to the **Output Assignments** table but the operating mode of the endpoint is configured as a transmitter, the operating mode will automatically be reconfigured as a receiver when the domain is saved.
- For a transmitter-only endpoint, the endpoint is available for addition to the domain as a transmitter only and can only be added the **Input Assignments** table.
- For a receiver-only endpoint, the endpoint is available for addition to the domain as a receiver only and can only be added to the **Output Assignments** table.

To assign an endpoint to a domain on an individual basis, do either of the following:

- Drag and drop the desired endpoint into any location—including an existing row—of the corresponding **Input Assignments** or **Output Assignments** table.

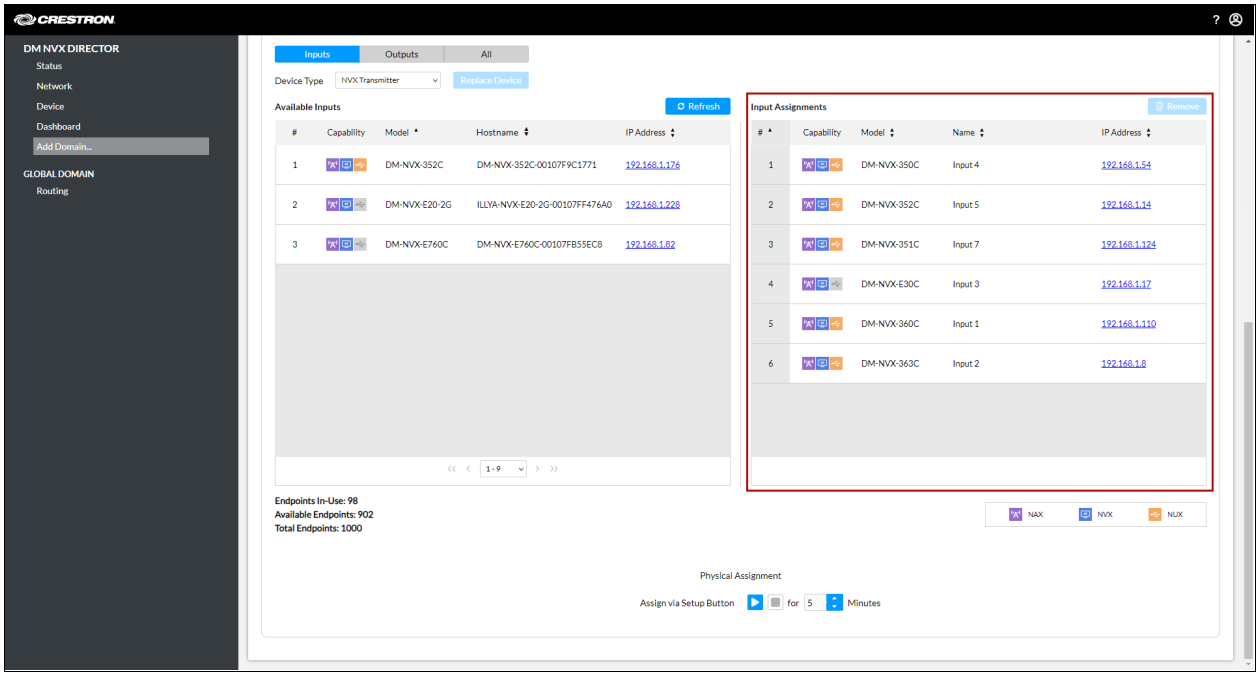
  If the assignments table was originally empty, the desired endpoint is added to the beginning of the table. If the endpoint was dragged into an existing row within the table, the endpoint is added to the desired row and all remaining rows are automatically renumbered. If the endpoint was not dragged into an existing row, the endpoint is added to the end of the table.
- Double-click the desired endpoint. The endpoint is added to the end of the corresponding **Input Assignments** or **Output Assignments** table.

To assign multiple endpoints simultaneously:

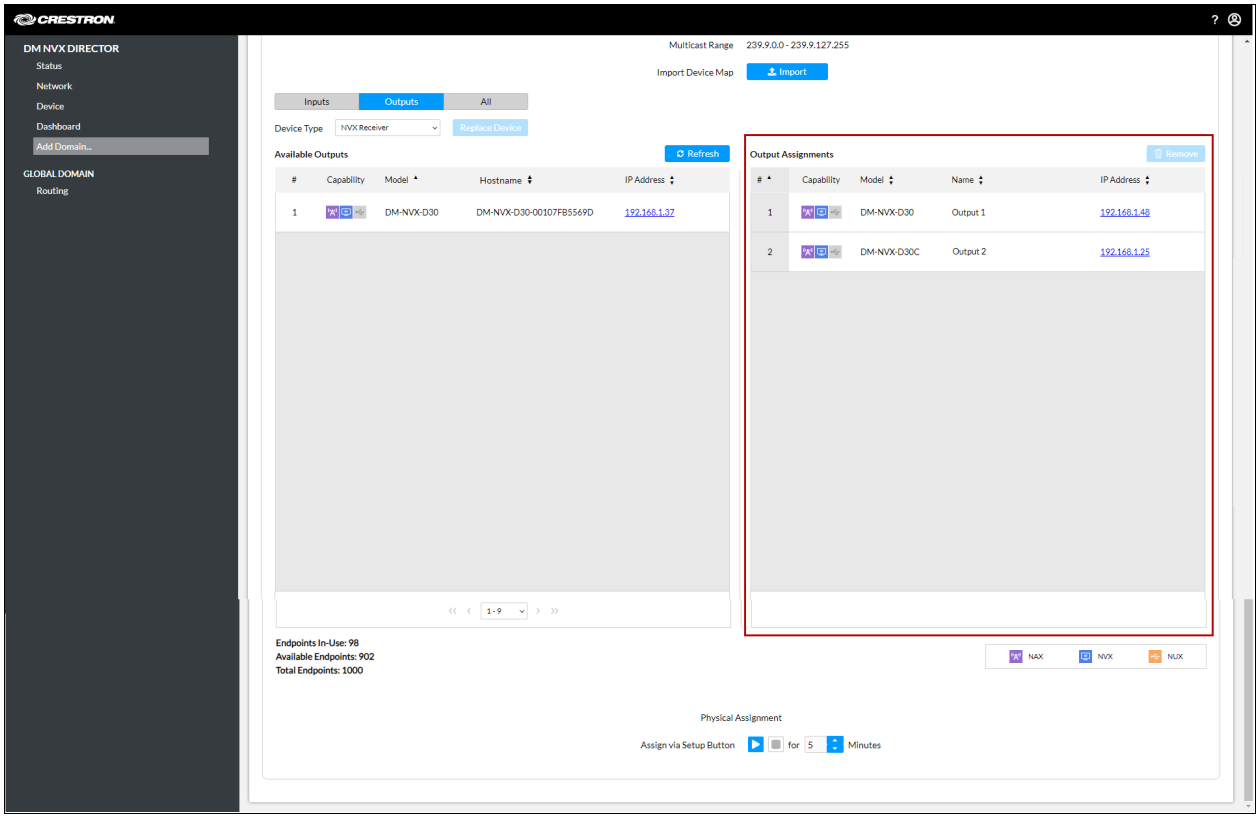
- **Shift** + **click** the desired consecutive endpoints and then drag and drop them into any location—including an existing row—of the corresponding **Input Assignments** or **Output Assignments** table.
- **Control** + **click** to select multiple endpoints on an individual basis in any order (ascending or descending) and then drag and drop them into any location—including an existing row—of the corresponding **Input Assignments** or **Output Assignments** table.

If the assignments table was originally empty, the selected endpoints are added to the beginning of the table. If the endpoints were dragged into an existing row within the table, the endpoints are added starting at the desired row location and all remaining rows are automatically renumbered. If the endpoints were not dragged into an existing row, the endpoints are added to the end of the table.

Add Domain Page - Example of Input Assignments for Transmitters



Add Domain Page - Example of Output Assignments for Receivers



The **Input Assignments** and **Output Assignments** tables provide the following information:

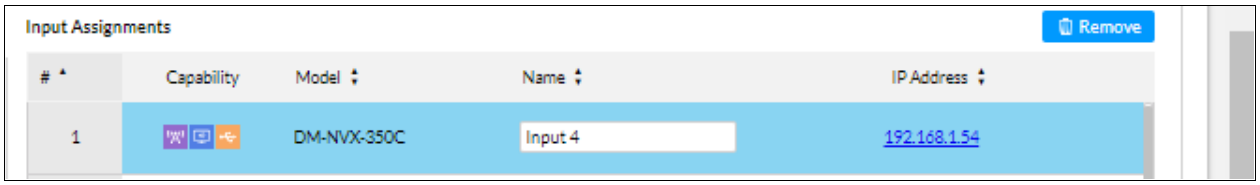
- **#:** Indicates the number of the device based on the order in which the device was added to the **Input Assignments** or **Output Assignments** table.

  To view the devices based on ascending or descending numerical order, use the scroll arrows to the right of the **#** heading.

- **Capability:** Provides the same icons as the **Available Inputs** and **Available Outputs** tables to represent the capabilities of the device (DM NAX, DM NVX, and DM NUX as applicable).

- **Name:** Indicates the device name assigned to the endpoint. Clicking the name enables the endpoint name to be changed.

  Renaming Input or Output Assignment (Input Shown)



  To view the devices based on the ascending or descending alphanumeric order of the name, use the scroll arrows to the right of the **Name** heading.

- **IP Address:** Indicates the IP address of the device. Clicking the IP address provides access to the web interface of the device.

  To view the devices based on the ascending or descending numerical order of the IP address, use the scroll arrows to the right of the **IP Address** heading.

If desired, assign endpoint placeholders to the domain. Refer to Assigning Endpoint Placeholders to a Domain for information.

Assigning Endpoint Placeholders to a Domain

Assign endpoint placeholders to a domain based on the desired operating mode (transmitter or receiver).

> **NOTE:** Placeholders can be added to a domain that also contains discovered endpoints. If desired, a domain consisting of placeholders only can be added.

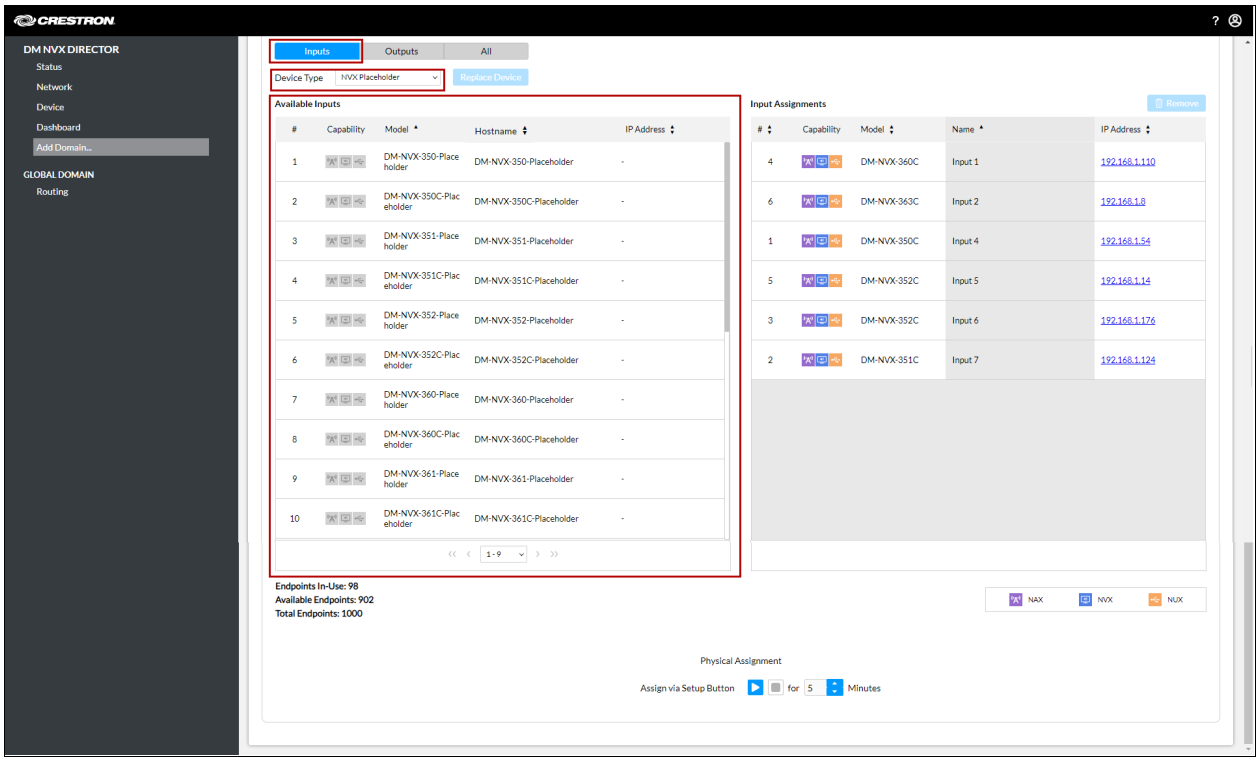
To obtain a list of transmitter placeholders available for addition to the domain:

1. Click the **Inputs** button (default setting).
2. In the **Device Type** drop-down list, click **NVX Placeholder**. By default, a placeholder for every DM NVX model that can function as a transmitter is listed in the **Available Inputs** table.

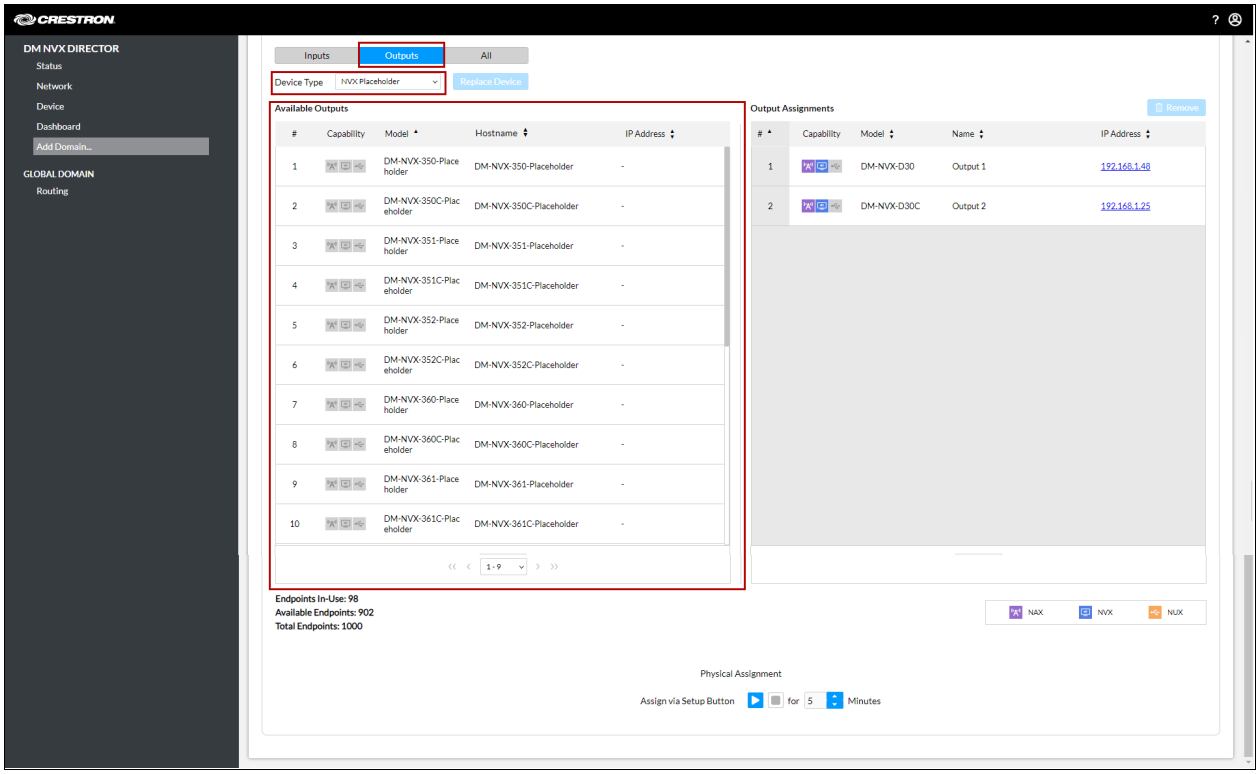
To obtain a list of receiver placeholders available for addition to the domain:

1. Click the **Outputs** button.
2. In the **Device Type** drop-down list, click **NVX Placeholder**. By default, a placeholder for every DM NVX model that can function as a receiver is listed in the **Available Outputs** table.

Add Domain Page - Default DM NVX Placeholders for Available Inputs (Transmitters)



Add Domain Page - Default DM NVX Placeholders for Available Outputs (Receivers)



The corresponding **Available Inputs** or **Available Outputs** table provides the following information:

- **#:** Indicates the number of the placeholder based on the alphanumeric order of the placeholder name.
- **Capability:** For each capability (DM NAX, DM NVX, and DM NUX), the icon is shaded gray to indicate that the placeholder provides no capability ( ).
- **Model:** For transmitter placeholders, indicates the model name of all DM NVX endpoints that can function as a transmitter. For receiver placeholders, indicates the model name of all DM NVX endpoints that can function as a receiver. The model name is appended by a hyphen and the word **Placeholder**, for example, **DM-NVX-350-Placeholder**. A **Generic-Transmitter-Placeholder** and **Generic-Receiver-Placeholder** are also provided. By default, the generic placeholders are provided at the end of the lists.

  To view the devices based on the ascending or descending alphanumeric order of the model name, use the scroll arrows to the right of the **Model** heading.
- **Name:** Indicates the same name listed as the model name.

  To view the placeholders based on the ascending or descending alphanumeric order of the name, use the scroll arrows to the right of the **Name** heading.
- **IP Address:** Displays a hyphen to indicate that the placeholder does not have an IP address.

Up to 10 placeholders can be displayed in the table simultaneously. Use the scroll arrows at the bottom of the table to navigate through more than 10 placeholders.

To assign placeholders to a domain, refer to the following sections:

- Assigning a Specific DM NVX Endpoint Model Placeholder to a Domain
- Assigning Different DM NVX Endpoint Model Placeholders to a Domain Simultaneously

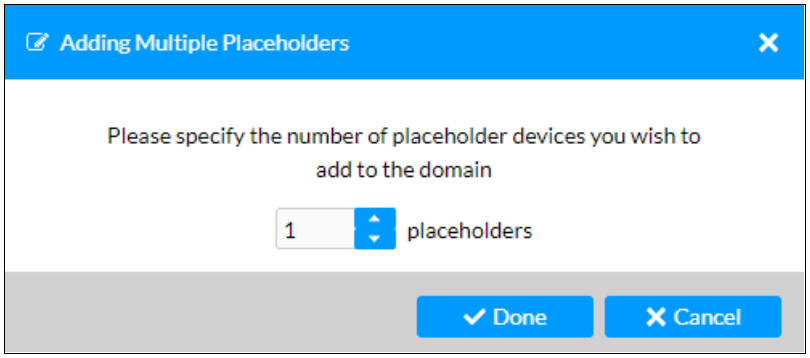
Assigning a Specific DM NVX Endpoint Model Placeholder to a Domain

To assign a specific DM NVX endpoint model placeholder to a domain:

1. Do either of the following:
   - Drag and drop the desired placeholder into any location—including an existing row—of the corresponding assignments table.
   - Double-click the desired placeholder.

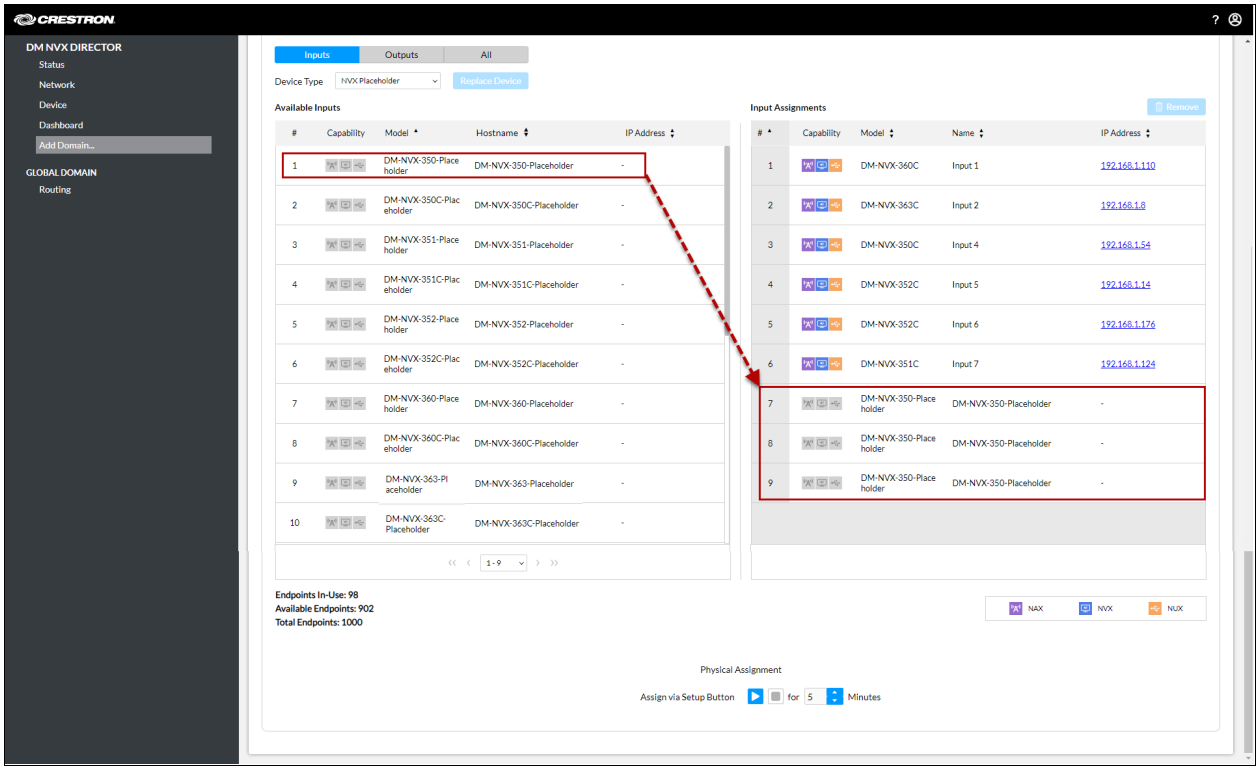
   The **Adding Multiple Placeholders** dialog box opens, prompting for the number of placeholders you wish to add to the domain.

   Adding Multiple Placeholders Dialog Box



2. In the scrollable text box, enter or select the desired number of placeholders (the default setting is **1**), and then click **Done**. Depending on the number of placeholders selected, one or more placeholders are added to the corresponding **Input Assignments** or **Output Assignments** table.

   Example of Three DM-NVX-350 Placeholders Simultaneously Added to Input Assignments Table



   If the assignments table was originally empty, the desired number of placeholders are added to the beginning of the table. If the placeholder was dragged to an existing row within the table, the desired number of placeholders are added starting at the desired row location and all remaining rows are automatically renumbered. If the placeholder was dragged to the end of the table, the desired number of placeholders are added to the end of the table.

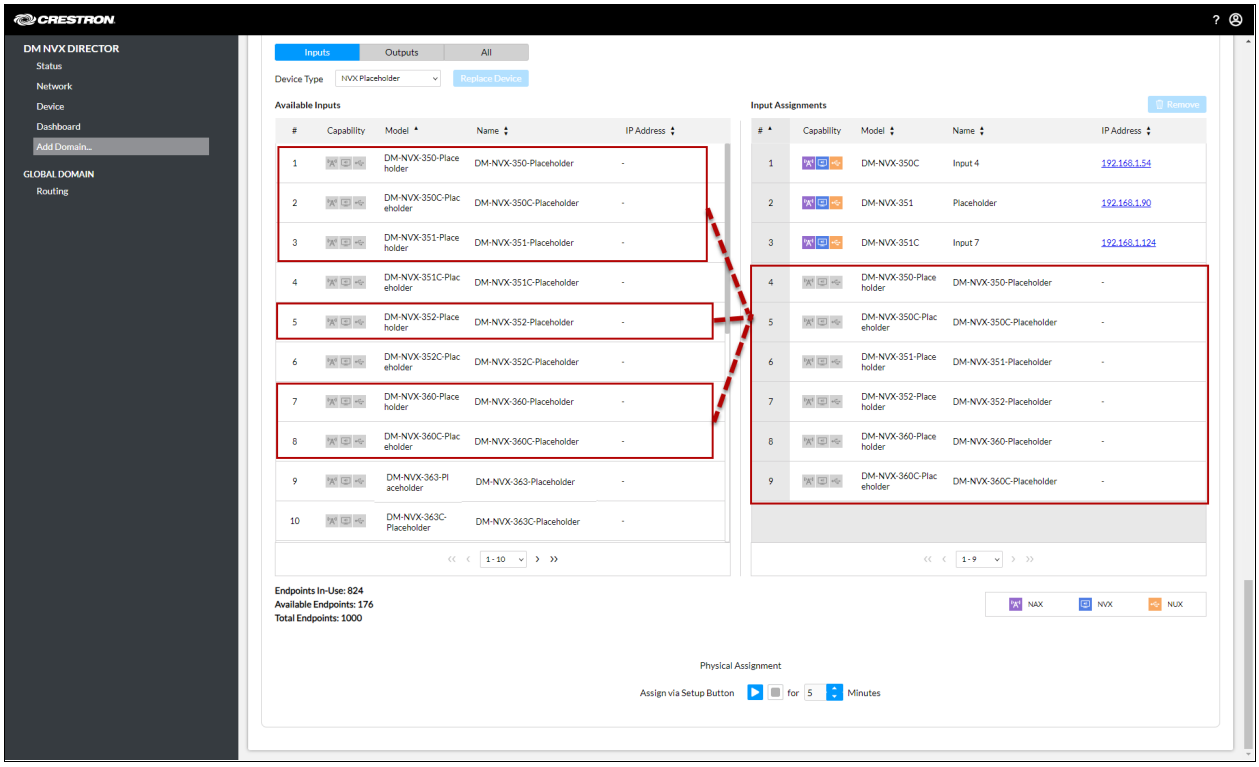
The **Input Assignments** and **Output Assignments** tables provide the same information for the placeholders as the information provided in the **Available Inputs** and **Available Outputs** tables, respectively: **#**, **Capability**, **Name**, and **IP Address**. However, in the **Name** column of the **Input Assignments** and **Output Assignments** tables, clicking the placeholder name enables the name to be changed.

Assigning Different DM NVX Endpoint Model Placeholders to a Domain Simultaneously

To assign different DM NVX endpoint model placeholders to a domain simultaneously, do either or both of the following:

- **Shift** + **click** the desired consecutive endpoint model placeholders and then drag and drop them into any location—including an existing row—of the corresponding assignments table.
- **Control** + **click** to select multiple endpoints on an individual basis in any order (ascending or descending) and then drag and drop them into any location—including an existing row—of the corresponding assignments table.

Example of Six Different DM NVX Endpoint Model Placeholders Simultaneously Added to Input Assignments Table



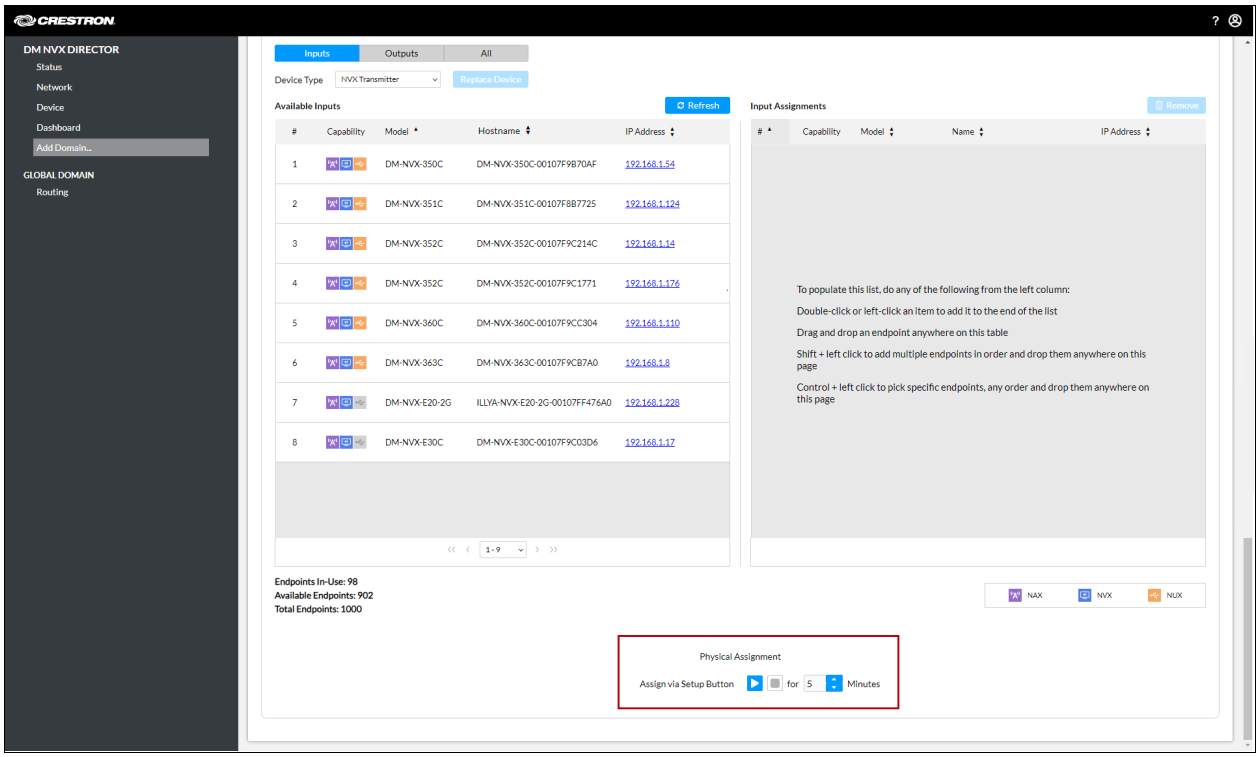
If the assignments table was originally empty, the desired placeholders are added to the beginning of the table. If the placeholders were dragged to an existing row within the table, the placeholders are added starting at the desired row location and all remaining rows are automatically renumbered. If the placeholders were dragged to the end of the table, the placeholders are added to the end of the table.

The **Input Assignments** and **Output Assignments** tables provide the same information for the placeholders as the information provided in the **Available Inputs** and **Available Outputs** tables, respectively: **#**, **Capability**, **Name**, and **IP Address**. However, in the **Name** column of the **Input Assignments** and **Output Assignments** tables, clicking the placeholder name enables the name to be changed.

Assigning Endpoints Using the Setup Button

The **Physical Assignment** section located at the bottom of the Add Domain page controls the total number of minutes the Setup button can be used on the desired endpoints listed in the **Available Inputs** and **Available Outputs** tables to assign the endpoints to a domain.

Add Domain Page - Physical Assignment



To set the number of minutes that the Setup button can be used to assign the desired endpoints to a domain:

1. Ensure that the Start button (▶), which is located to the right of **Assign via Setup Button**, is enabled (blue). By default, the Start button is enabled and the Stop (■) button is disabled (gray). To enable the Start button if it is disabled (▶), click the blue enabled Stop button (■). The Stop button is then disabled, and the Start button is enabled.
2. In the **Minutes** drop-down list, select the total number of minutes in which the Setup button on the desired available endpoints can be used to assign the endpoints to the domain. Values range from **0** to **30** minutes. A value of **0** prevents the Setup button from be used for endpoint assignment.
3. For each desired endpoint listed under **Available Inputs** and **Available Outputs**, press the Setup button on all endpoints within the number of minutes set in step 2.

   After the Setup button is pressed on an endpoint, the endpoint is assigned to the corresponding **Input Assignments** or **Output Assignments** table depending on the operating mode.

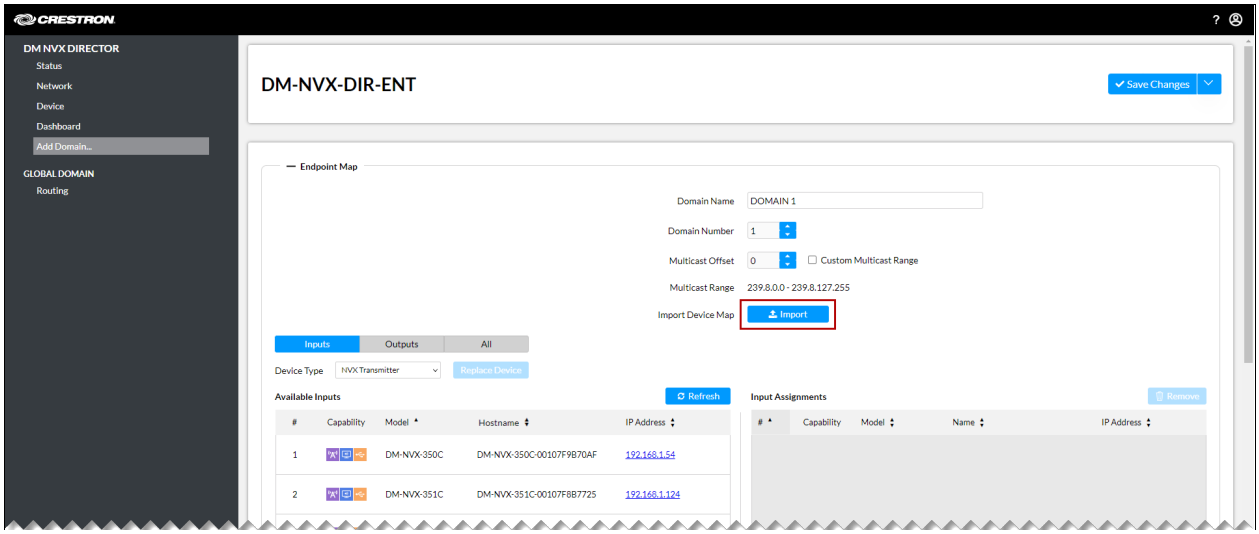
Importing a Device Map

A device map consists of a DM NVX Director domain configuration that can be imported or exported as an .xml file. A device map that was exported from a DM NVX Director network appliance being replaced can be imported into the replacement DM NVX Director network appliance. (For information about exporting a device map, refer to Exporting a Device Map.)

To import a device map:

1. In the Add Domain page, click the **Import** button.

   Add Domain Page, Import Device Map

   File Explorer opens.

2. Navigate to the location of the device map file that is to be imported, and then click **Open**.

   The device map is imported into the domain. DM NVX transmitter endpoints are automatically added to the **Input Assignments** table, and DM NVX receiver endpoints are automatically added to the **Output Assignments** table.

   > **NOTE:** If the device map file is formatted incorrectly, it will not be accepted by the DM NVX Director network appliance.

   For information about saving the device map to the domain, refer to Saving a New Domain.

Replacing Endpoints in a Domain

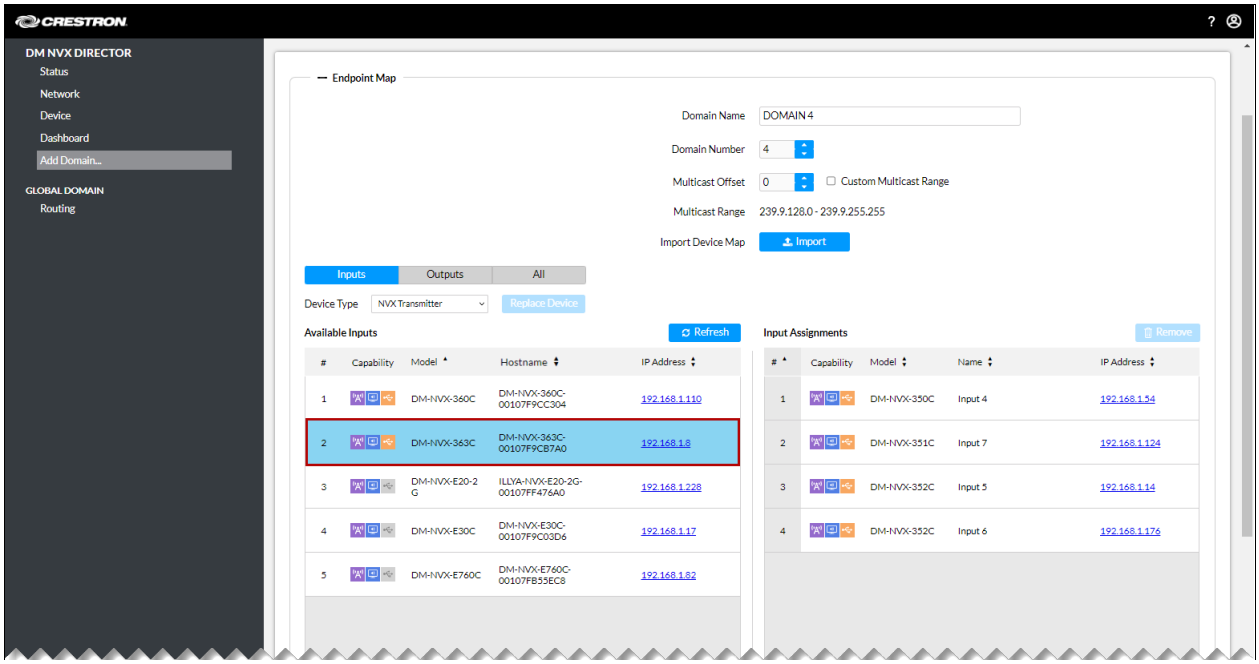
Endpoints assigned to a domain can be replaced with available endpoints if required. An endpoint in the **Input Assignments** table can be replaced with an endpoint in the **Available Inputs** table. Similarly, an endpoint in the **Output Assignments** table can be replaced with an endpoint in the **Available Outputs** table. Examples of reasons for replacing endpoints are as follows:

- Replacing an assigned endpoint with a newer available model.
- Replacing an assigned placeholder endpoint with an available discovered endpoint
- Replacing an assigned endpoint with a placeholder endpoint

To replace an assigned endpoint with an available endpoint:

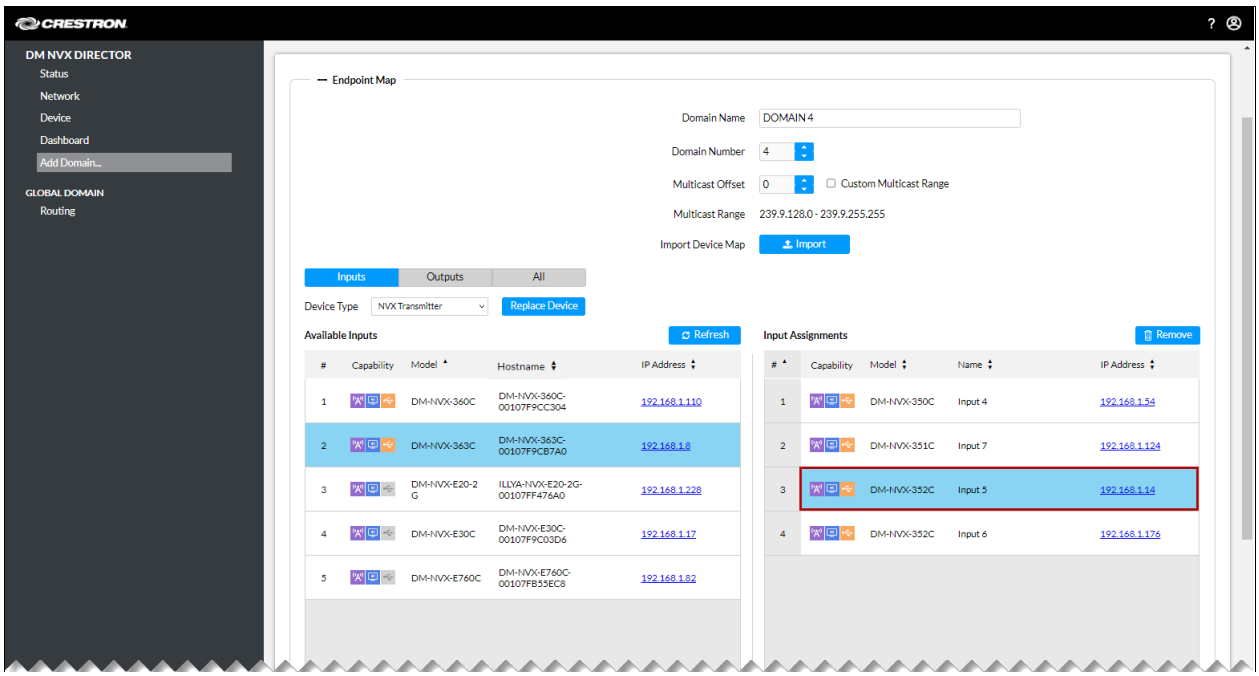
1. In the **Available Inputs** or **Available Outputs** table, click the endpoint that is to be used to replace an assigned endpoint. The endpoint is shaded blue.

   Selection of Available Endpoint



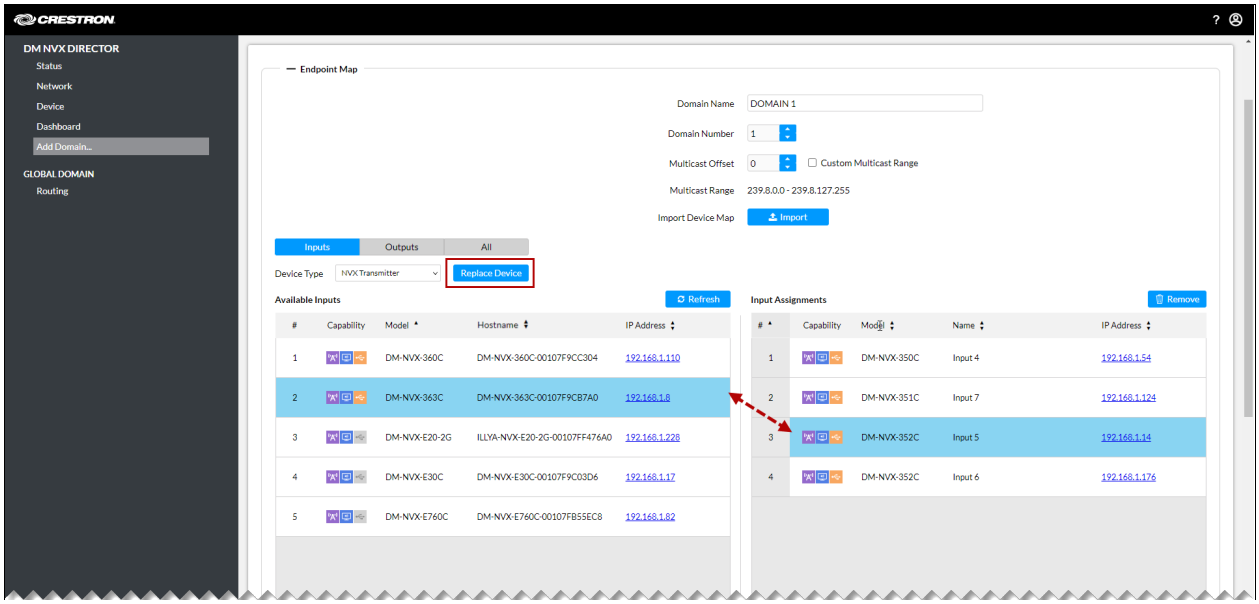
2. In the corresponding **Input Assignments** or **Output Assignments** table, click the endpoint that is to be replaced. The endpoint is shaded blue.

   Selection of Endpoint Assignment



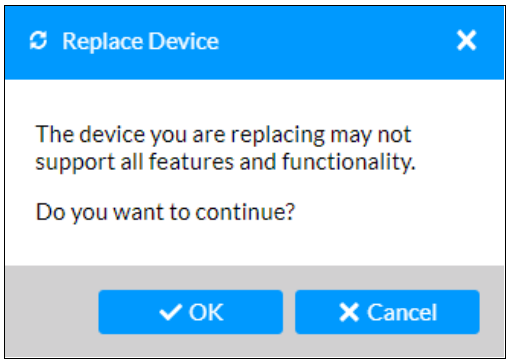
3. Click the **Replace Device** button.

Replacement of Endpoint Assignment with Available Endpoint



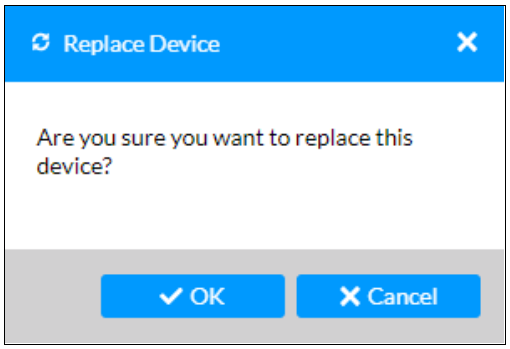
The **Replace Device** dialog box opens. If the replacement device is a different DM NVX model than the device being replaced, the dialog box indicates that the replacement device may not support all features and functionality of the device being replaced and prompts for confirmation that the device be replaced.

Replace Dialog Box - Replacing DM NVX Device with Different DM NVX Model



If the replacement device is the same DM NVX model as the device being replaced, the dialog box prompts for confirmation that the device be replaced.

Replace Dialog Box - Replacing DM NVX Device with Same DM NVX Model



4. Click **OK** to replace the device.

   The endpoint selected in step 1 replaces the endpoint selected in step 2. The endpoint selected in step 2 is removed from the domain and becomes an available endpoint.

Removing Endpoints from a Domain

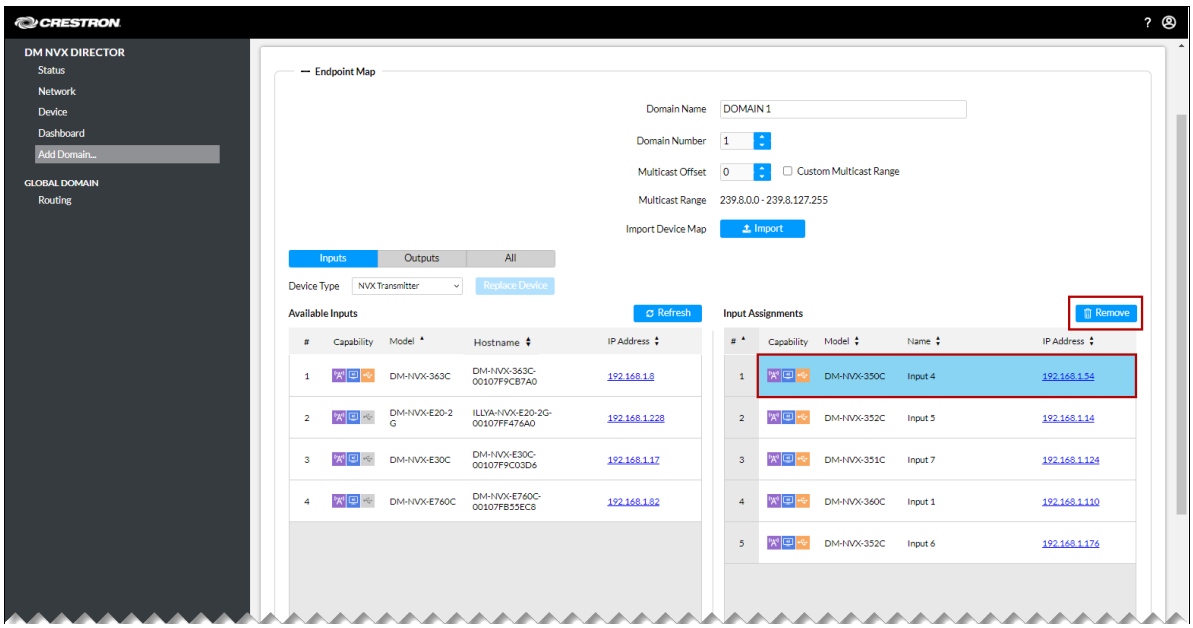
Endpoints can be removed from the **Input Assignments** or **Output Assignments** table of a domain. Refer to Removing a Single Endpoint or Removing Multiple Endpoints Simultaneously for instructions.

Removing a Single Endpoint

To remove a single endpoint from a domain:

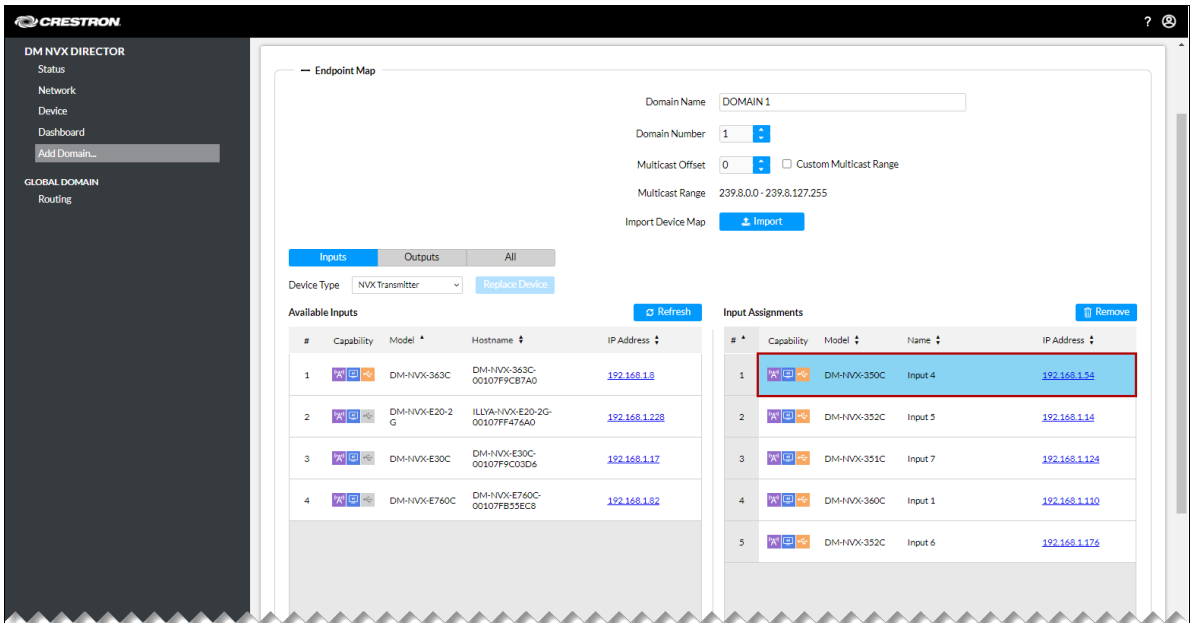
1. Do either of the following:
   - Click the endpoint to be removed. After the endpoint is shaded blue, click the **Remove** button.

     Removal of Endpoint by Clicking and Using the Remove Button



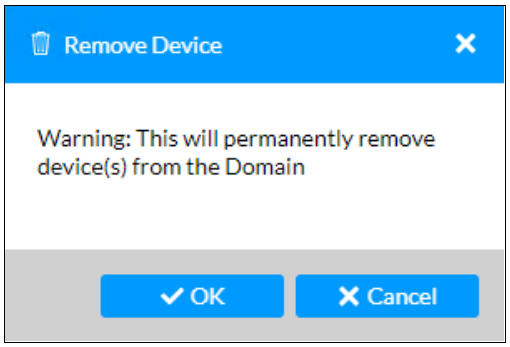
   - Double-click the endpoint. The endpoint is shaded blue.

     Removal of Endpoint by Double-Clicking



   The **Remove Device** dialog box opens, indicating that the device will permanently be removed from the domain.

Remove Device Dialog Box



2. Click **OK**.

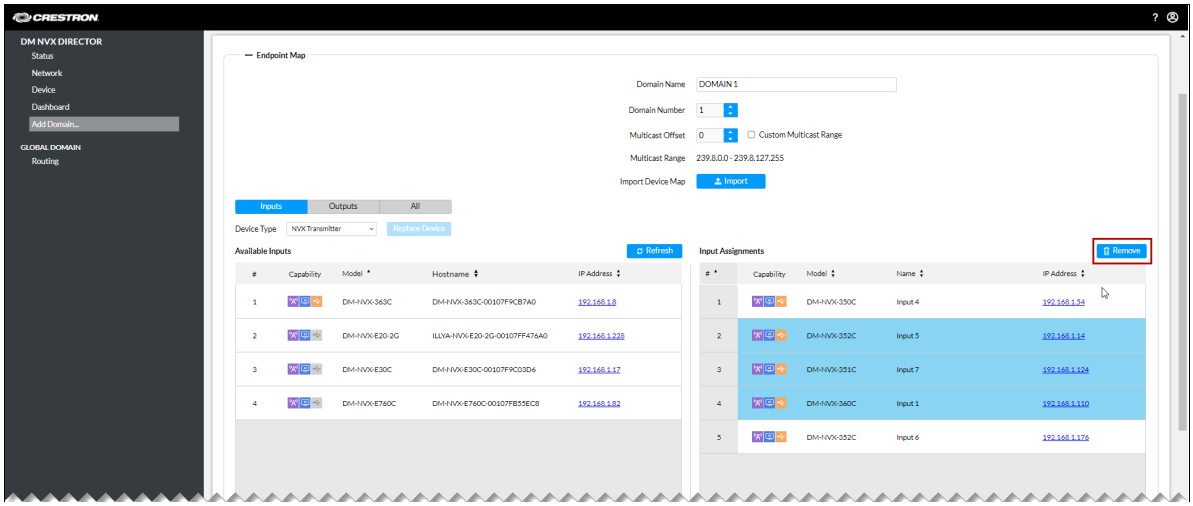
   The selected device is removed from the domain and becomes an available endpoint listed in the **Available Inputs** or **Available Outputs** table as appropriate.

Removing Multiple Endpoints Simultaneously

To remove multiple endpoints simultaneously from a domain:

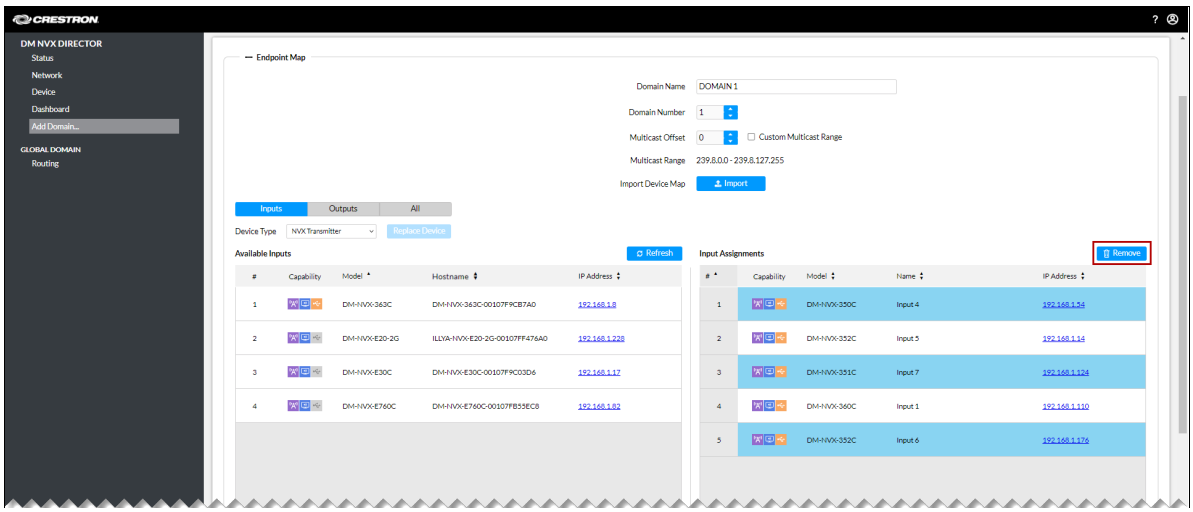
1. Do either of the following:
   - **Shift** + **click** the desired consecutive endpoints. The endpoints are shaded blue, click the **Remove** button.

     Removal of Multiple Consecutive Endpoints Using Shift + Click and Remove Button



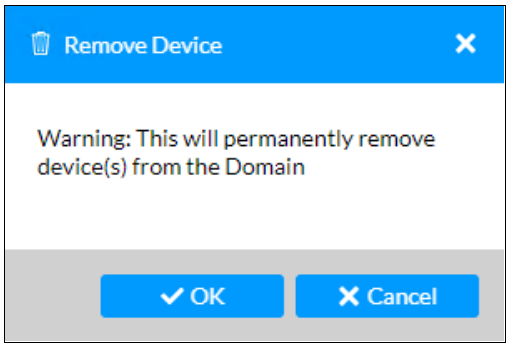
   - **Control** + **click** to select multiple endpoints on an individual basis in any order (ascending or descending). After the endpoints are shaded blue, click the **Remove** button.

     Removal of Multiple Endpoints Using Control + Click and Remove Button



   The **Remove Device** dialog box opens, indicating that the devices will permanently be removed from the domain.

Remove Device Dialog Box



2. Click **OK**.

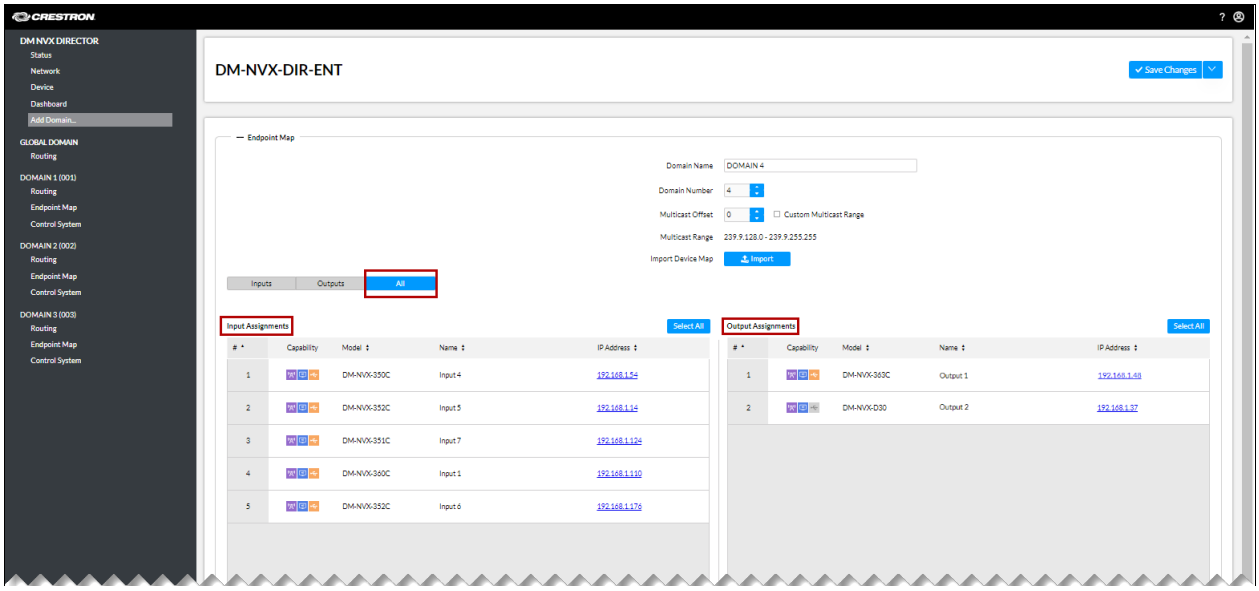
   The desired devices are removed from the domain and become available endpoints listed in the **Available Inputs** or **Available Outputs** table as appropriate.

Viewing Input and Output Assignments Simultaneously

The **Input Assignments** and **Output Assignments** tables on an endpoint map can be displayed simultaneously, enabling both input and output assignments to be viewed. In addition, an input can be reassigned as an output or an output can be reassigned as an input for endpoints that can function as either a transmitter or a receiver.

To view input and output assignments simultaneously, click the **All** button. The **Input Assignments** and **Output Assignments** tables are displayed.

Simultaneous Display of Input and Output Assignments



If desired, reassign an input as an output or an output as an input by doing the following:

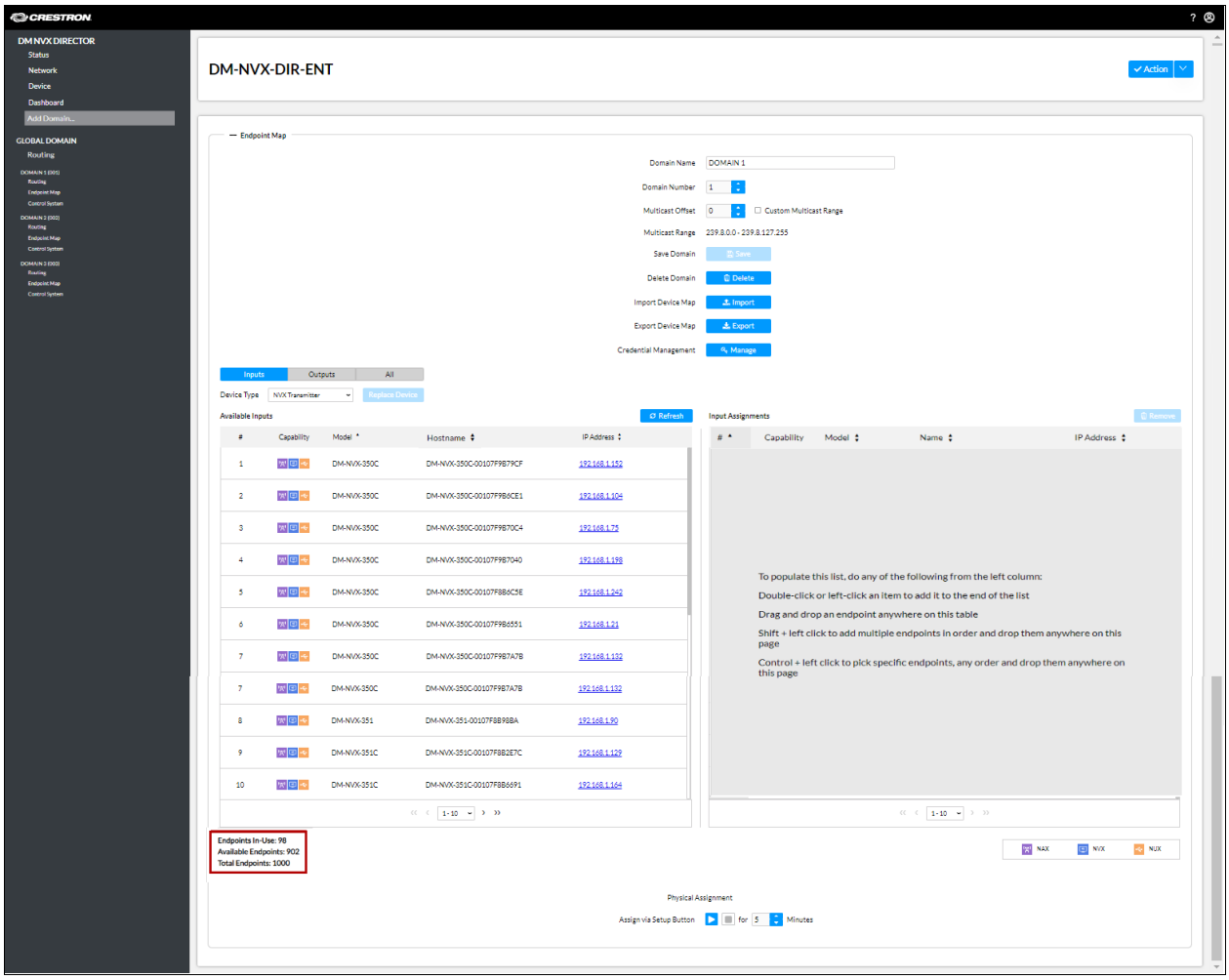
- To reassign a single endpoint, drag and drop the desired endpoint into any location—including an existing row—of the **Input Assignments** or **Output Assignments** table.

- To reassign multiple endpoints simultaneously, do either of the following:
  - To select consecutive endpoints, **Shift** + **click** the first and last endpoint in the series and then drag and drop them into any location—including an existing row—of the **Input Assignments** or **Output Assignments** table.
  - To select multiple endpoints on an individual basis in any order (ascending or descending), **Control** + **click** to select each desired endpoint, and then drag and drop them into any location—including an existing row—of the corresponding **Input Assignments** or **Output Assignments** table.

Viewing Endpoint Statistics

Endpoint statistics are provided on an endpoint map.

Endpoint Statistics Example



The statistics indicate the following information:

- **Endpoints in Use:** Indicates the total number of transmitters, transmitter placeholders, receivers, and receiver placeholders that have been assigned among existing domains.

- **Available Endpoints:** Indicates the total number of transmitters, transmitter placeholders, receivers, and receiver placeholders that are available for assignment among all domains supported by the DM NVX Director network appliance.
- **Total Endpoints:** Indicates the total number of endpoints that is supported by the DM NVX Director network appliance: **80** for the DM-NVX-DIR-80, **160** for the DM-NVX-DIR-160, and **1000** for the DM-NVX-DIR-ENT.

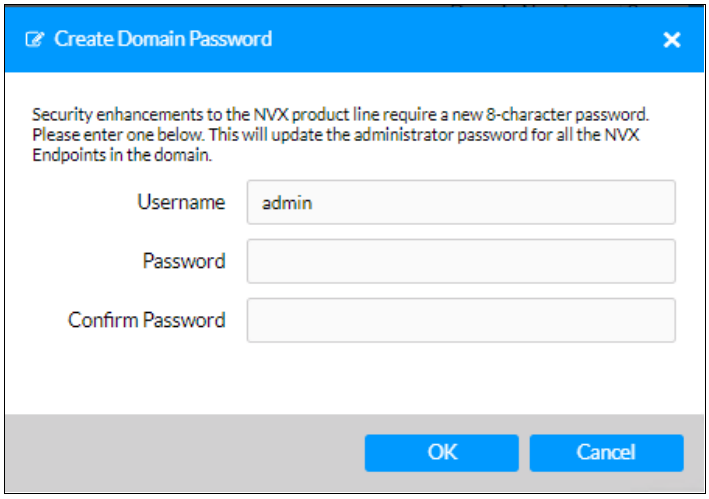
Saving a New Domain

To save a new domain:

1. In the **Action** menu, click **Save Changes**. The **Create Domain Password** dialog box opens.

   > **NOTE:** If a domain is added by importing a device map, the **Create Domain Password** dialog box does not appear. The **Confirmation** dialog box for saving the domain appears as shown at the end of step 2 below. When the **Confirmation** dialog box appears, proceed to step 3 to save the device map.

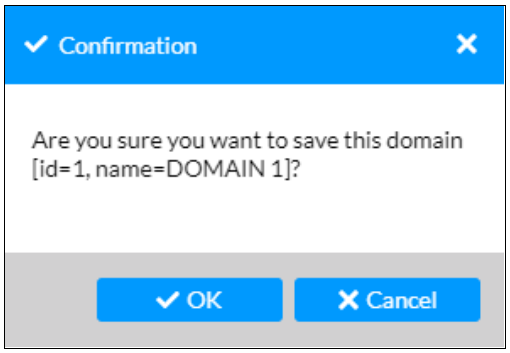
   Create Domain Password Dialog Box

2. Assign domain credentials as follows:
   a. If desired, change the current username that is displayed in the **Username** text box.
   b. In the **Password** text box, enter a password using a minimum of 8 characters. The password is case sensitive.
   c. In the **Confirm Password** text box, reenter the password for confirmation.
   d. Click **OK**.

   A **Confirmation** dialog box opens, prompting for confirmation that the domain be saved.

   Confirmation Dialog Box for Saving the Domain

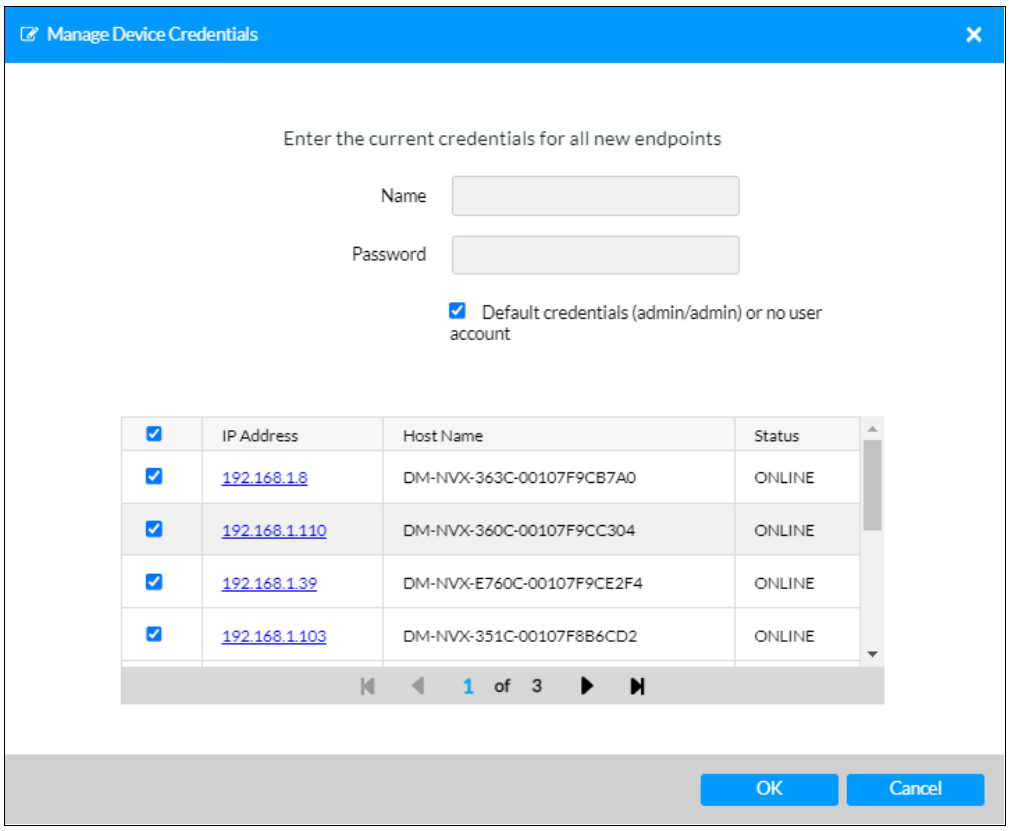
   

3. Click **OK** to save the domain.

   The saved domain is added to the navigation bar.

   If DM NVX endpoints have been assigned to the domain, the **Manage Device Credentials** dialog box opens.

   Manage Device Credentials Dialog Box



   By default, the **Default credentials (admin/admin) or no user account** checkbox is selected. The checkboxes of all DM NVX endpoints in the domain are also selected.

   Four DM NVX endpoints are listed at a time. All endpoints in the table can be viewed by using the scroll arrows at the bottom of the table. The IP address, host name, and status (ONLINE or OFFLINE) of each DM NVX endpoint is displayed. Clicking the IP address provides access to the web interface of the endpoint.

   > **NOTE:** Do not deselect the checkbox of any of the DM NVX endpoints listed in the table. The same credentials must be used for all DM NVX endpoints in the domain.

4. To be able to use the current credentials for all DM NVX endpoints listed in the table, do either of the following:

   - For DM NVX endpoints using **admin/admin** as the default credentials or no user account, ensure that the **Default credentials (admin/admin) or no user account** checkbox is selected (default setting), and then continue with step 5.

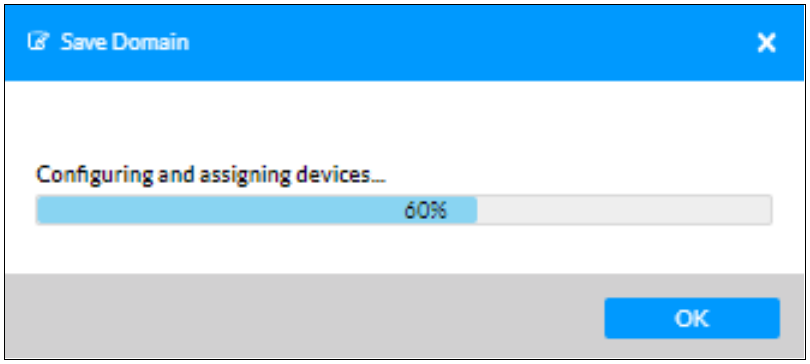
- For DM NVX endpoints with an existing user account, deselect the **Default credentials (admin/admin) or no user account** checkbox, enter the username and password, and then continue with step 5.

5. Click **OK** to assign the credentials to the DM NVX endpoints.

> **NOTE:** If, for some reason, an error occurs relating to credentials for a particular DM NVX endpoint, click the IP address of the endpoint and set the username and password using the web interface of the endpoint. The DM NVX Director network appliance is blocked from accessing the endpoint for 24 hours. To remove the block and enable the DM NVX Director network appliance to access the endpoint, issue the following console command from the endpoint:
>
> ```
> remblockedip all
> ```

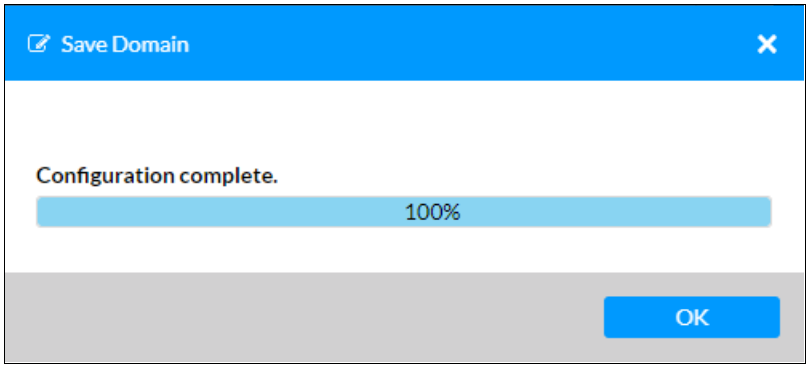
The **Save Domain** dialog box opens, indicating that the devices are being configured and assigned. A progress indicator bar is also provided.

Save Domain Dialog Box - Configuration and Assignment Progress Indicator



When the process is complete, the dialog box indicates that the configuration is complete.

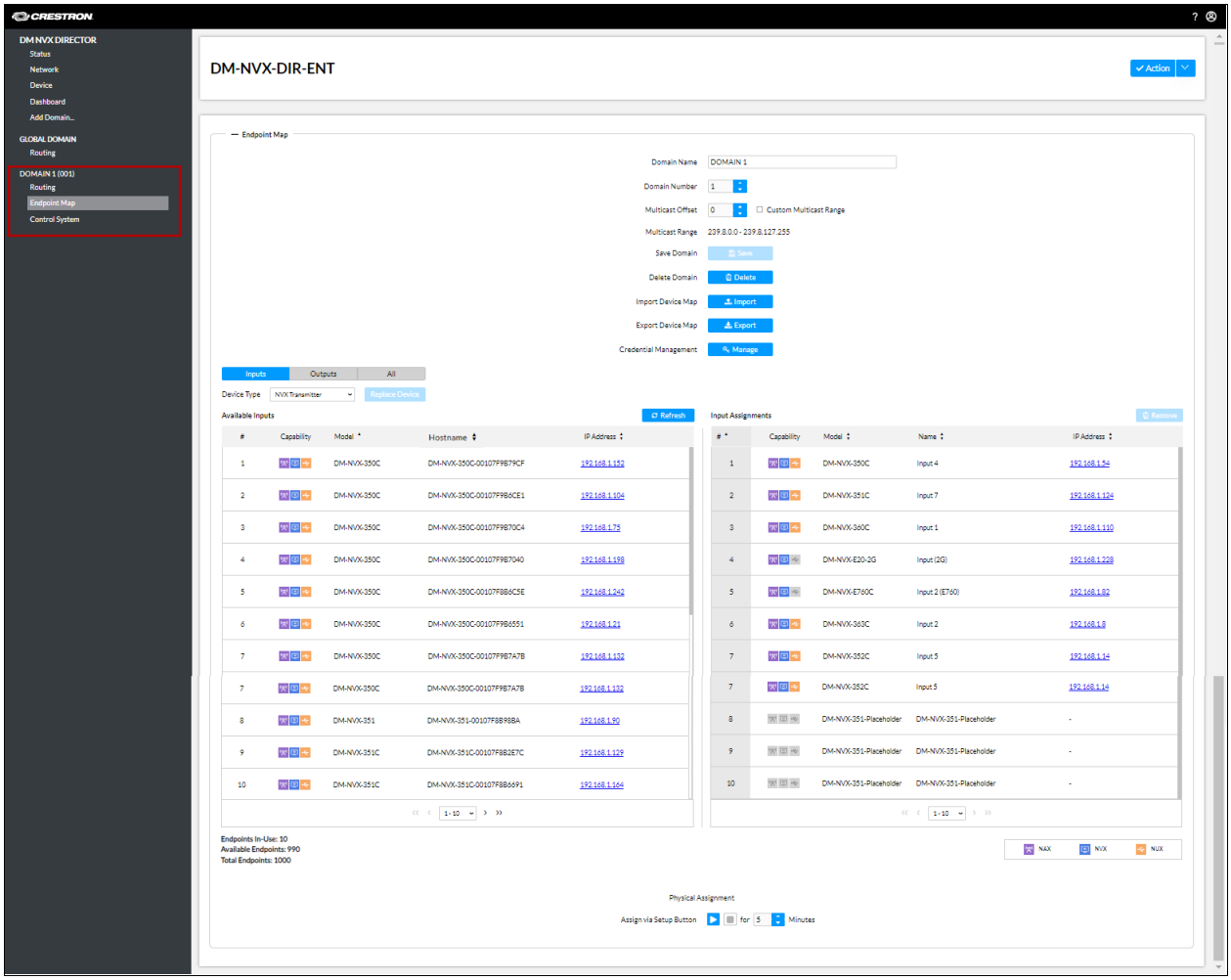
Save Domain Dialog Box - Configuration Complete



6. Click **OK** to close the dialog box.

   In the navigation bar, the added domain is indicated by the domain name followed by the domain number in parentheses. In addition, the endpoint map of the domain is displayed.

Addition of New Domain



Global Domain Routing

Global domain routing supports interdomain routing, which enables inputs (transmitters) within a single domain to be routed to outputs (receivers) of one or more other domains. Inputs within a single domain can also be routed to outputs within the same domain.

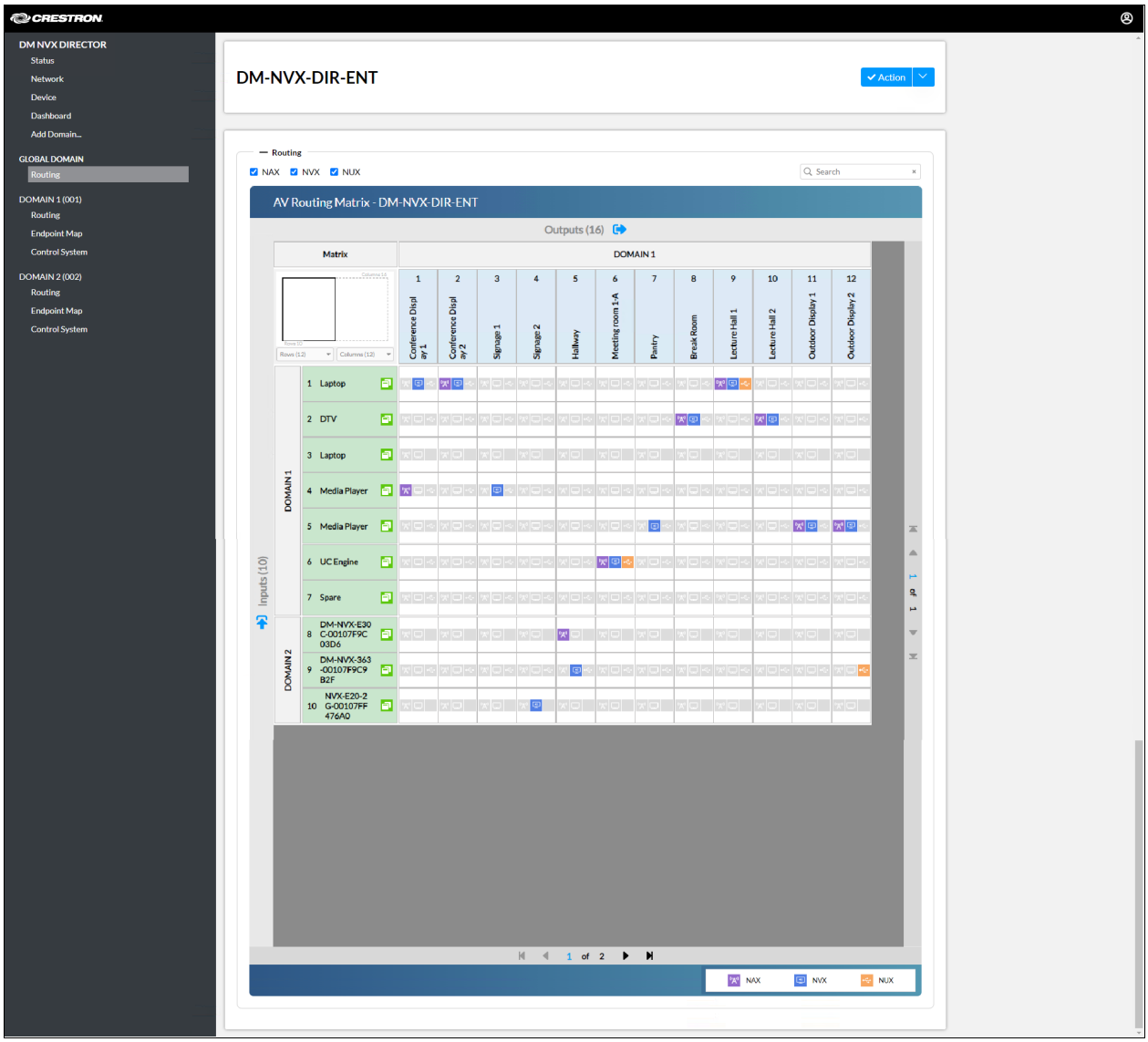
NOTES:

- If interdomain routing is not desired, routing inputs to outputs within a single domain can also be accomplished by going to the desired domain in the navigation bar and clicking **Routing**. For additional information, refer to Domain Routing.
- The DM-NVX-DIR-160 and DM-NVX-DIR-ENT support interdomain routing. Because the DM-NVX-DIR-80 supports only a single domain, interdomain routing is not applicable.

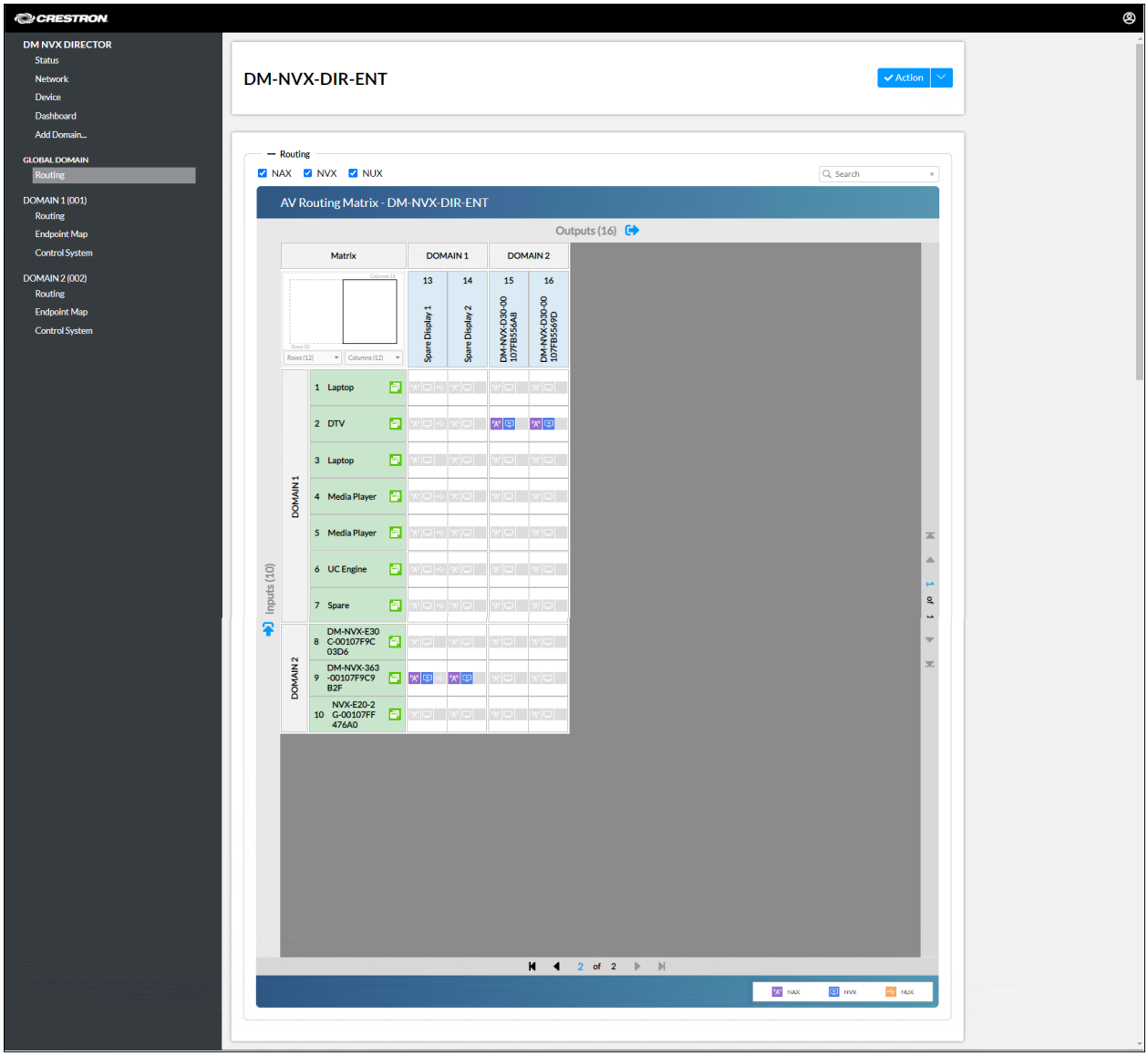
To route inputs to outputs using the global domain:

In the navigation bar, go to **GLOBAL DOMAIN** and then click **Routing**. The Global Domain Routing page opens, providing an AV routing matrix for all domains within the network. Depending on the number of inputs and outputs being viewed simultaneously, multiple Global Domain Routing pages may result. In the example shown below, Global Domain Routing spans two pages.

Global Domain Routing Page, 1 of 2 (Sample Page Shown)



Global Domain Routing Page, 2 of 2 (Sample Page Shown)



The Global Domain Routing provides an AV routing matrix consisting of inputs and outputs for one or more domains. The inputs are shaded green and are listed vertically on the left side of the matrix. The inputs are identified by the domain number and the name assigned to the input. The total number of inputs is labeled on the left side of the routing matrix.

The outputs are shaded blue and are listed horizontally at the top of the matrix. The outputs are identified by the domain number and the name assigned to the output. The total number of outputs is labeled at the top of the AV routing matrix.

To scroll through the list of inputs on multiple Routing pages, use the scroll arrows on the right side of the AV routing matrix. To scroll through the list of outputs on multiple Routing pages, use the scroll arrows at the bottom of the AV routing matrix.

A Search box is provided in the upper-right corner above the AV routing matrix. Inputs and outputs can be found by searching for input names, output names, and other data related to the endpoints.

The Routing page provides the following routing controls:

- **Signal type checkboxes: NAX** (AES67 audio), **NVX** (HDMI or analog audio and HDMI video), and **NUX** (USB) checkboxes control whether the associated signal type can be routed or unrouted. If a signal type is to be routed or unrouted, the corresponding checkbox must be selected. If a checkbox is not selected, the associated signal type cannot be routed or unrouted. By default, the **NVX** checkbox is selected, enabling only audio/video to be routed or unrouted.

  To route the signal types independently, select one checkbox at a time. To route more than one signal type at a time, select the checkboxes of all desired signal types.

  > **NOTES:**
  > - At least one signal type checkbox must be selected.
  > - NUX (USB) data is supported by certain DM NVX endpoints only.

- **Matrix:** Navigation matrix located in the upper-left corner of the AV routing matrix. Enables quick navigation to a group of inputs and outputs within the global domain. The total number of rows (inputs) in the global domain is labeled in the lower-left corner below the navigation matrix, for example, Rows 10. The total number of columns (outputs) in the global domain is labeled in the upper right corner of the navigation matrix, for example, Columns 16.

  Below the navigation matrix are **Rows** and **Columns** drop-down lists that specify the number of rows (inputs) and number of columns (outputs) to be displayed simultaneously on the Routing page.

  By default, the **Rows** and **Columns** drop-down lists are set to **12**. To change the number of rows and columns that can be displayed on the Routing page simultaneously, click the corresponding drop-down list and then click one of the following: **12** (default setting), **16**, **24**, **36**, **48**, or **Custom**. If **Custom** is selected, enter the desired number of rows or columns.

  A black outlined box in the navigation matrix represents the number of rows and columns currently displayed in the AV routing matrix. Clicking a white area outside of the black outlined box navigates to another group of rows and columns (if any) within the global domain.

- **Signal type icon buttons:** Represent the three signal types to be routed: **NAX**, **NVX**, and **NUX**. By default, the icon buttons are shaded gray indicating that the signal types are not routed.

  When the signal types are routed, the icon buttons appear as follows:

  - : Solid purple icon represents routed DM NAX audio. The **NAX** checkbox at the top of the Routing page must be selected in order to route or unroute DM NAX audio. If the signal is unrouted, the icon is shaded gray ( ).

    > **NOTE:** If the DM NAX audio icon continuously flashes purple, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.

- : Solid blue icon represents routed DM NVX audio/video, which consists of HDMI or analog audio and HDMI video. The **NVX** checkbox at the top of the Routing page must be selected in order to route or unroute HDMI or analog audio and HDMI video. If the signal is unrouted, the icon is shaded gray ( ).

  > **NOTE:** If the DM NVX icon continuously flashes blue, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.

- : Solid orange icon represents routed DM NUX (USB) data from the DEVICE or HOST port of a DM NVX endpoint. The **NUX** checkbox at the top of the Routing page must be selected in order to route or unroute USB data. If the signal is unrouted, the icon is shaded gray ( ).

  > **NOTES:**
  >
  > - If the DM NUX icon continuously flashes orange, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.
  > - If a DM NVX endpoint does not provide USB data capability, the DM NUX icon is shaded gray and is empty—the icon does not include the USB symbol ( ). Although the NUX checkbox may be selected, USB data cannot be routed for that DM NVX endpoint.

For each input and associated output, the three icon buttons are arranged horizontally in a single cell. Selecting the cell will route the signals based on the selected signal type checkboxes (discussed above). If the same signal type checkboxes are selected, selecting the cell a second time will unroute the corresponding signal types. If the same signal type checkboxes are not selected, selecting the cell a second time will unroute only the signal types whose checkboxes are selected.

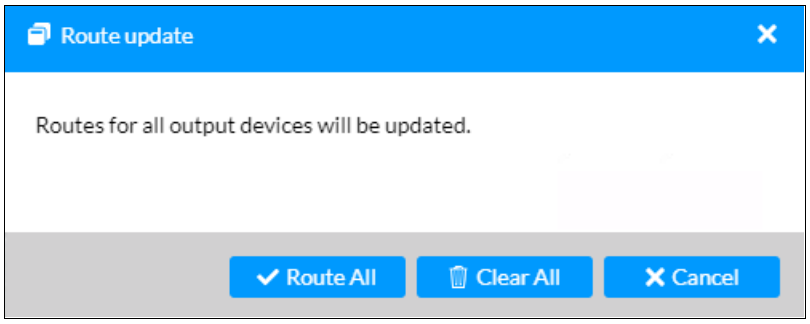
After any of the signal types have been unrouted in a cell and need to be routed again or for the first time, select the signal type checkboxes corresponding to the signal types and then select the cell.

- **Route Update icon button ( ):** Green icon button that is located to the right of each input name, which is also shaded green.

  > **NOTE:** The Route Update icon button applies to DM NVX and DM NAX signal types only and does not apply to the DM NUX signal type.

  When the **Route Update** icon button is selected, the **Route update** dialog box opens.

  Route Update Dialog Box

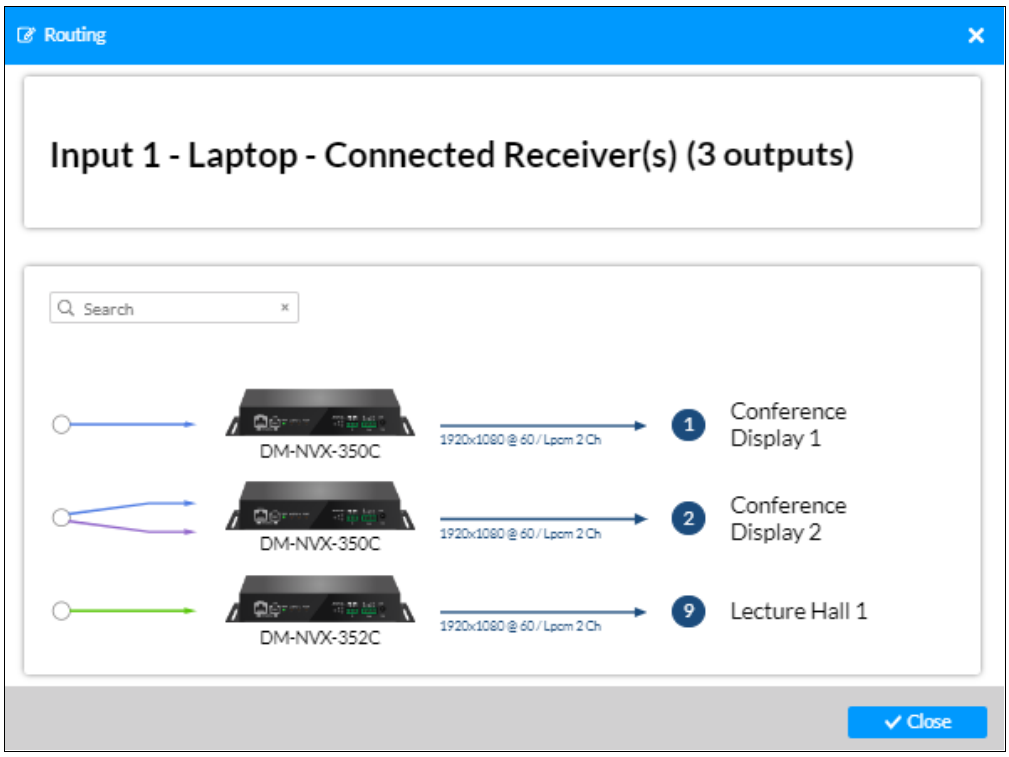


To route signals based on the selected signal types (excluding **NUX**), clicking **Route All** routes the associated signal types from the input to all outputs. To clear the signal types for all outputs, click **Clear All**.

If the **NUX** signal type checkbox is selected, **NUX** is ignored when the **Route Update** dialog box is used to route or clear signals for all outputs.

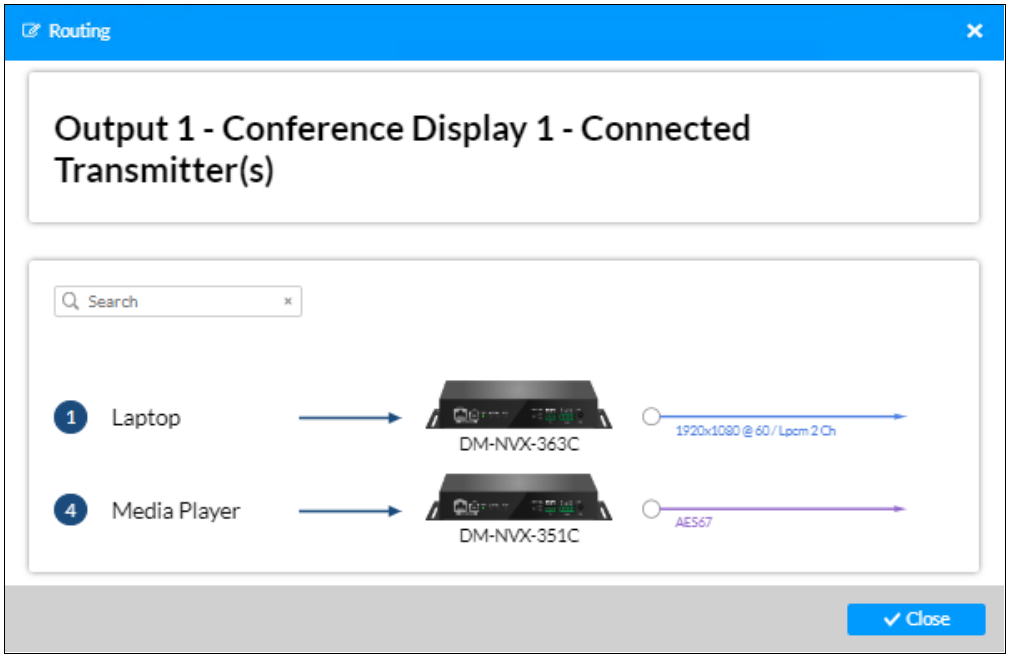
The AV routing matrix also enables a signal routing map to be viewed for each input and output. To view the signal routing map for an input, click the input (shaded green). The signal routing map for the input is displayed.

Signal Routing Map Example for an Input



To view the signal routing map for an output, click the output (shaded blue). The signal routing map for the output is displayed.

Signal Routing Map Example for an Output



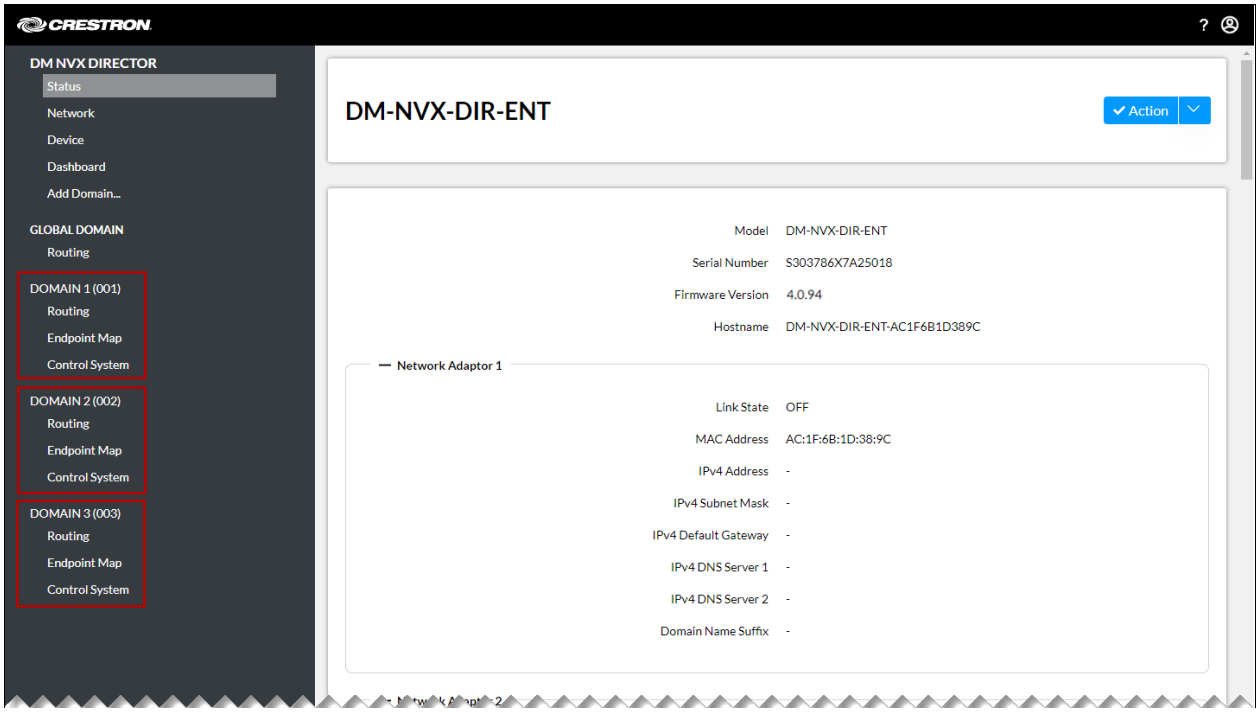
To search for an input or output, enter the input or output name in the Search box located in the upper-left corner above the map. To close the signal routing map for an input or output, click **Close**.

Modifying a Domain

After a domain is added to the DM NVX Director network appliance, the following links are provided for each domain in the navigation bar:

- Routing (refer to Domain Routing)
- Endpoint Map (refer to Domain Endpoint Map)
- Control System (refer to Domain Control System)

DM NVX Director Navigation Bar (Three Domains Shown)



Each of the links enables changes to be made to a domain on an individual basis.

Domain Routing

Domain routing enables inputs within a domain to be routed to outputs within the same domain only. Routing is accomplished for each domain on an individual basis.

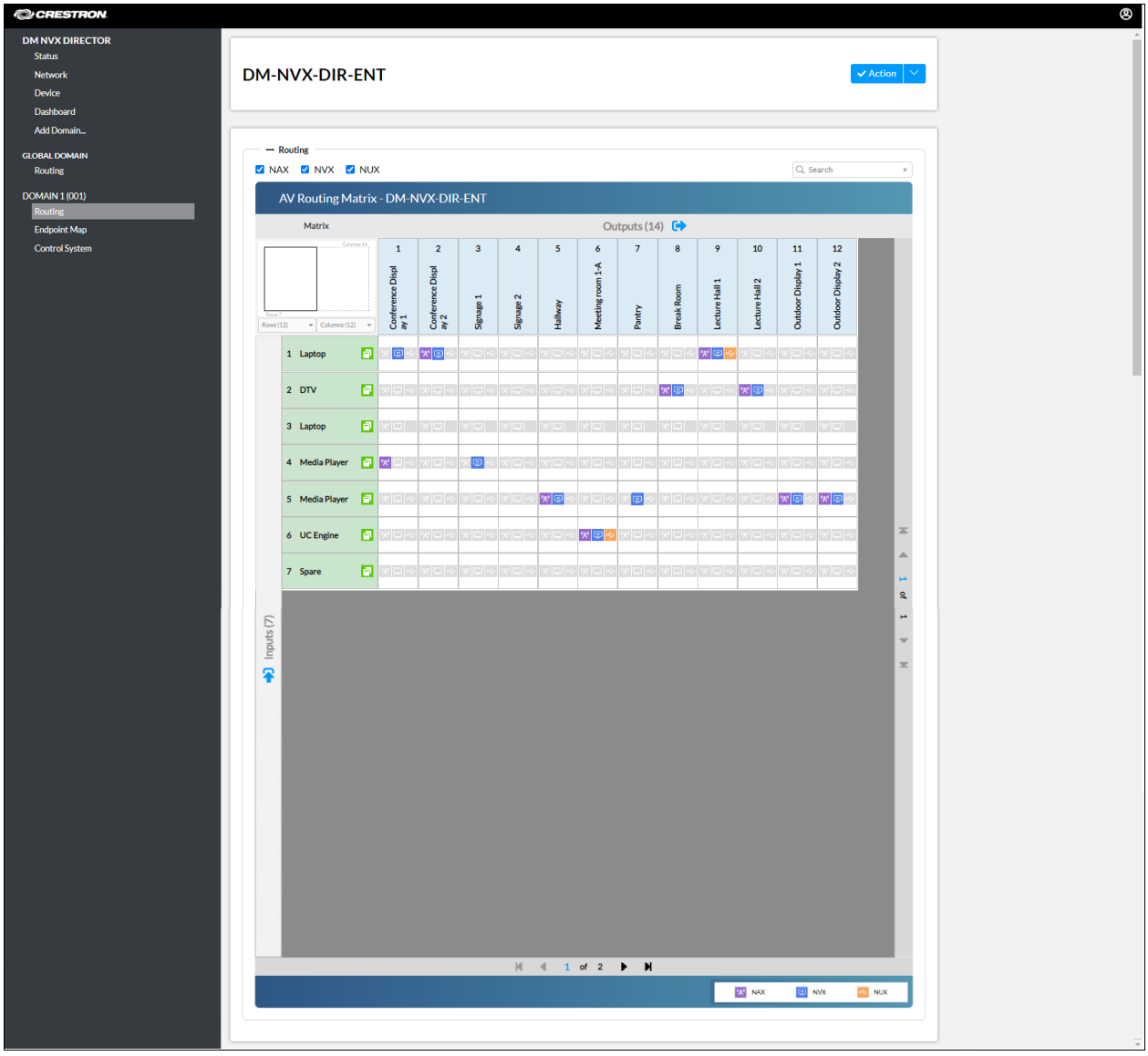
> **NOTE:** For information about interdomain routing, which enables inputs within a single domain to be routed to the outputs of one or more other domains, refer to Global Domain Routing.

To route inputs to outputs within a single domain:

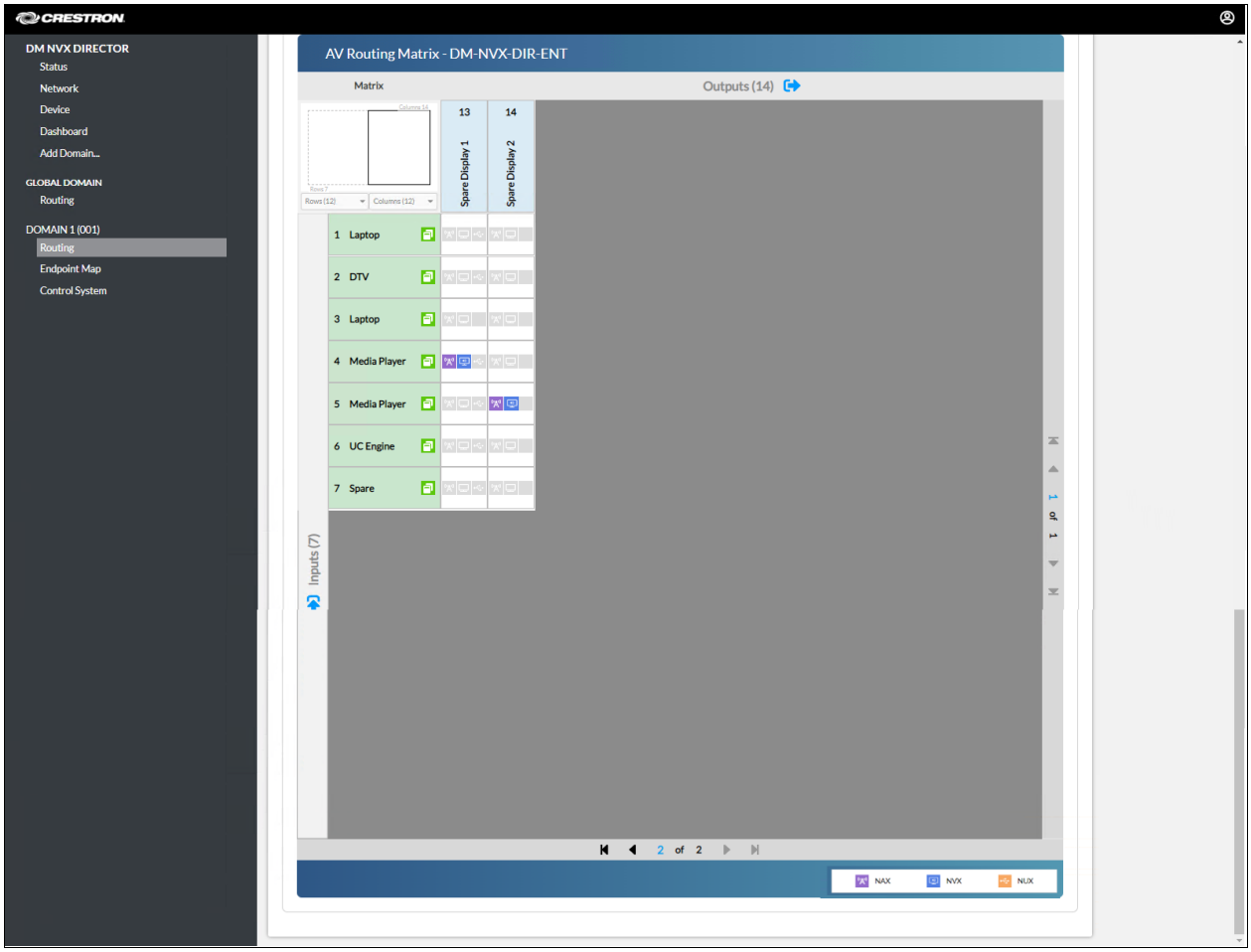
In the navigation bar, go to the desired domain, and then click **Routing**. The Domain Routing page opens, providing an AV routing matrix for the desired domain within the network. Depending on the number of inputs and outputs being viewed simultaneously, multiple Domain Routing pages may result. In the example shown below, Domain Routing spans two pages.

> **NOTE:** If Global Domain Routing is used for both routing within a single domain and interdomain routing, the Domain Routing page for a particular domain will only display the routes within that domain.

Domain Routing Page, 1 of 2 (Sample Page Shown)



Domain Routing Page, 2 of 2 (Sample Page Shown)



Domain Routing provides an AV routing matrix consisting of inputs and outputs for a single domain. The inputs are shaded green and are listed vertically on the left side of the matrix. The inputs are identified by the domain number and the name assigned to the input. The total number of inputs is labeled on the left side of the routing matrix.

The outputs are shaded blue and are listed horizontally at the top of the matrix. The outputs are identified by the domain number and the name assigned to the output. The total number of outputs is labeled at the top of the AV routing matrix.

To scroll through the list of inputs on multiple Routing pages, use the scroll arrows on the right side of the AV routing matrix. To scroll through the list of outputs on multiple Routing pages, use the scroll arrows at the bottom of the AV routing matrix.

A Search box is provided in the upper-right corner above the AV routing matrix. Inputs and outputs can be found by searching for input names, output names, and other data related to the endpoints.

The Routing page provides the following routing controls:

- **Signal type checkboxes: NAX**(AES67 audio), **NVX** (HDMI or analog audio and HDMI video), and **NUX** (USB) checkboxes control whether the associated signal type can be routed or unrouted. If a signal type is to be routed or unrouted, the corresponding checkbox must be selected. If a checkbox is not selected, the associated signal type cannot be routed or unrouted. By default, the **NVX** checkbox is selected, enabling only audio/video to be routed or unrouted.

  To route the signal types independently, select one checkbox at a time. To route more than one signal type at a time, select the checkboxes of all desired signal types.

  > **NOTES:**
  > - At least one signal type checkbox must be selected.
  > - NUX (USB) data is supported by certain DM NVX endpoints only.

- **Matrix:** Navigation matrix located in the upper-left corner of the AV routing matrix. Enables quick navigation to a group of inputs and outputs within the domain. The total number of rows (inputs) in the domain is labeled in the lower-left corner below the navigation matrix, for example, **Rows 7**. The total number of columns (outputs) in the domain is labeled in the upper-right corner of the matrix, for example, **Columns 14**.

  Below the navigation matrix are **Rows** and **Columns** drop-down lists that specify the number of rows (inputs) and number of columns (outputs) to be displayed simultaneously on the Routing page.

  By default, the **Rows** and **Columns** drop-down lists are set to **12**. To change the number of rows and columns that can be displayed on the Routing page simultaneously, click the corresponding drop-down list and then click one of the following: **12** (default setting), **16**, **24**, **36**, **48**, or **Custom**. If **Custom** is selected, enter the desired number of rows or columns.

  A black outlined box in the navigation matrix represents the number of rows and columns currently displayed in the AV routing matrix. Clicking a white area outside of the black outlined box navigates to another group of rows and columns (if any) within the domain.

- **Signal type icon buttons:** Represent the three signal types to be routed: **NAX**, **NVX**, and **NUX**. By default, the icon buttons are shaded gray indicating that the signal types are not routed.

  When the signal types are routed, the icon buttons appear as follows:

  - : Solid purple icon represents DM NAX audio. The **NAX** checkbox at the top of the Routing page must be selected in order to route or unroute DM NAX audio. If the signal is unrouted, the icon is shaded gray ( ).

    > **NOTE:** If the DM NAX audio icon continuously flashes purple, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.

  - : Solid blue icon represents routed DM NVX audio/video, which consists of HDMI or analog audio and HDMI video. The **NVX** checkbox at the top of the Routing page must be selected in order to route or unroute HDMI or analog audio and HDMI video. If the signal is unrouted, the icon is shaded gray ( ).

> **NOTE:** If the DM NVX icon continuously flashes blue, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.

- : Solid orange icon represents DM NUX (USB) data from the DEVICE or HOST port of a DM NVX endpoint. The **NUX** checkbox at the top of the Routing page must be selected in order to route or unroute USB data. If the signal is unrouted, the USB icon is shaded gray ( ).

> **NOTES:**
>
> - If the DM NUX icon continuously flashes orange, a routing problem exists, for example, a DM NVX endpoint is offline. The route cannot be made until the problem is resolved.
> - If a DM NVX endpoint does not provide USB data capability, the DM NUX icon is shaded gray and is empty—the icon does not include the USB symbol ( ). Although the **NUX** checkbox may be selected, USB data cannot be routed for that DM NVX endpoint.

For each input and associated output, the three icon buttons are arranged horizontally in a single cell. Selecting the cell will route the signals based on the selected signal type checkboxes (discussed above). If the same signal type checkboxes are selected, selecting the cell a second time will unroute the corresponding signal types. If the same signal type checkboxes are not selected, selecting the cell a second time will unroute only the signal types whose checkboxes are selected.

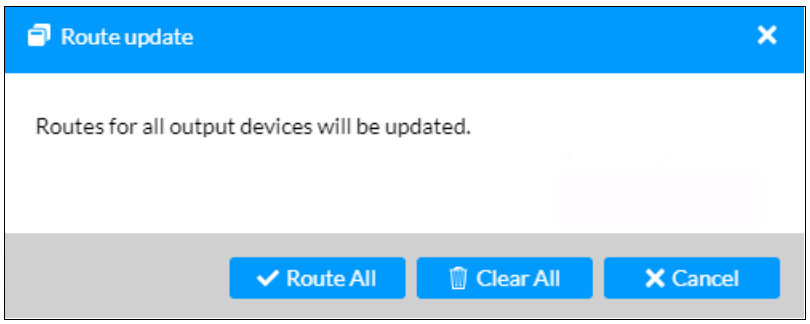
After any of the signal types have been unrouted in a cell and need to be routed again or for the first time, select the signal type checkboxes corresponding to the signal types and then select the cell.

- **Route Update icon button ( ):** Green icon button that is located to the right of each input name, which is also shaded green.

> **NOTE:** The Route Update icon button applies to DM NVX and DM NAX signal types only and does not apply to the DM NUX signal type.

When the **Route Update** icon button is selected, the **Route update** dialog box opens.

Route Update Dialog Box

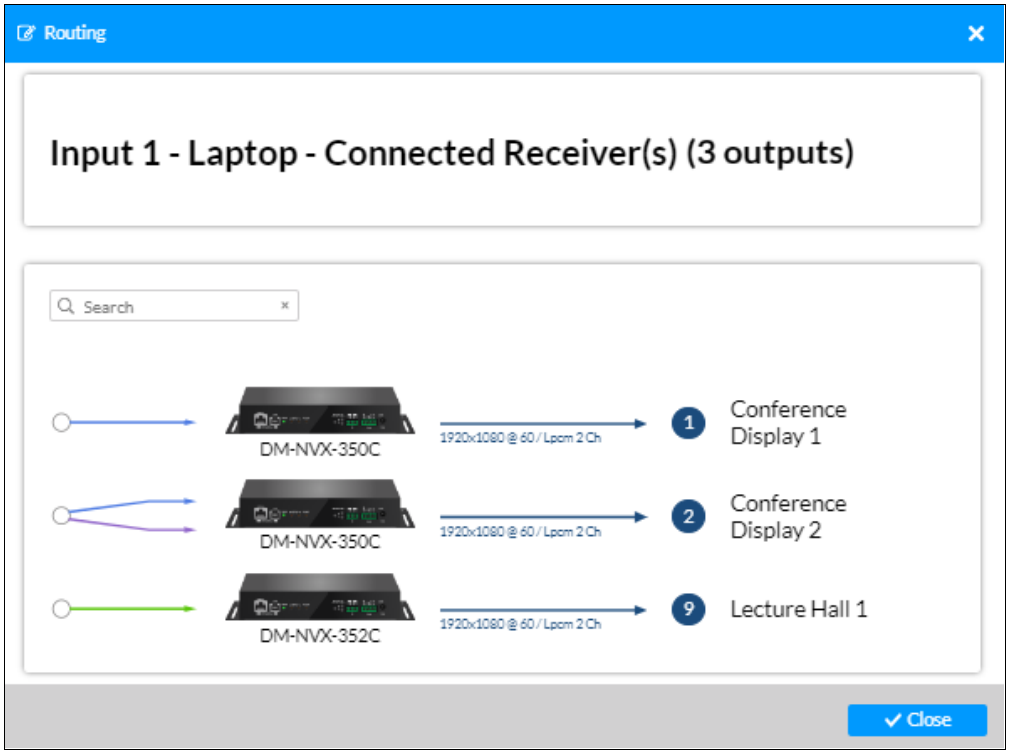


To route signals based on the selected signal types (excluding **NUX**), clicking **Route All** routes the associated signal types from the input to all outputs. To clear the signal types for all outputs, click **Clear All**.

If the **NUX** signal type checkbox is selected, **NUX** is ignored when the **Route Update** dialog box is used to route or clear USB signals for all outputs.

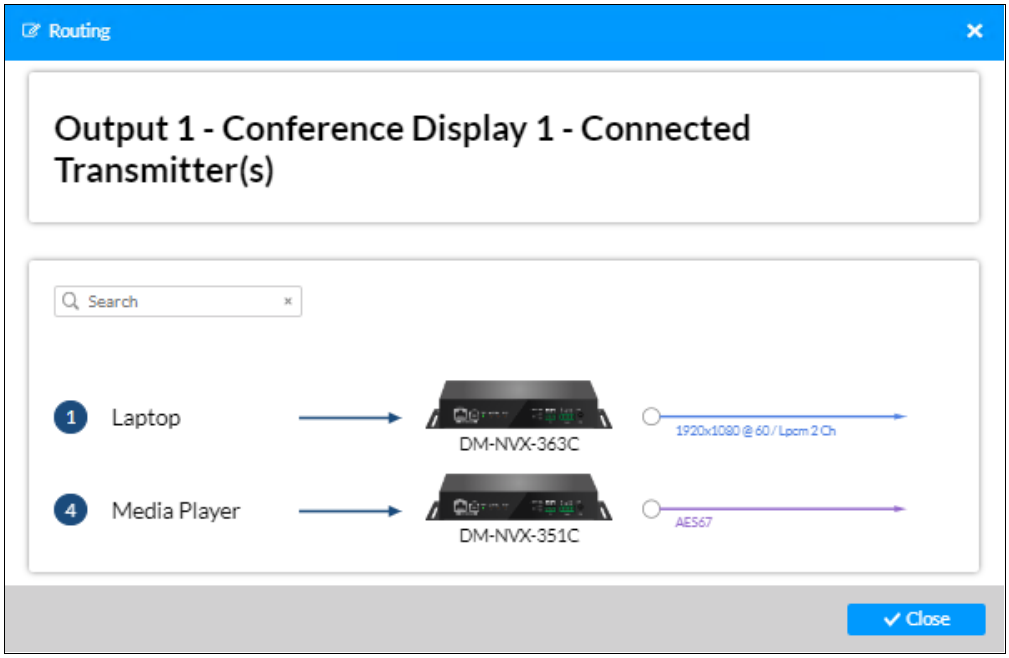
The AV routing matrix also provides a signal routing map for each input and output. To view the signal routing map for an input, select the input (shaded green). The signal routing map for the input is displayed.

Signal Routing Map Example for an Input



To view the signal routing map for an output, select the output (shaded blue). The signal routing map for the output is displayed.

Signal Routing Map Example for an Output



To search for an input or output, enter the input or output name in the Search box located in the upper-left corner above the map. To close the signal routing map for an input or output, click **Close**.

Domain Endpoint Map

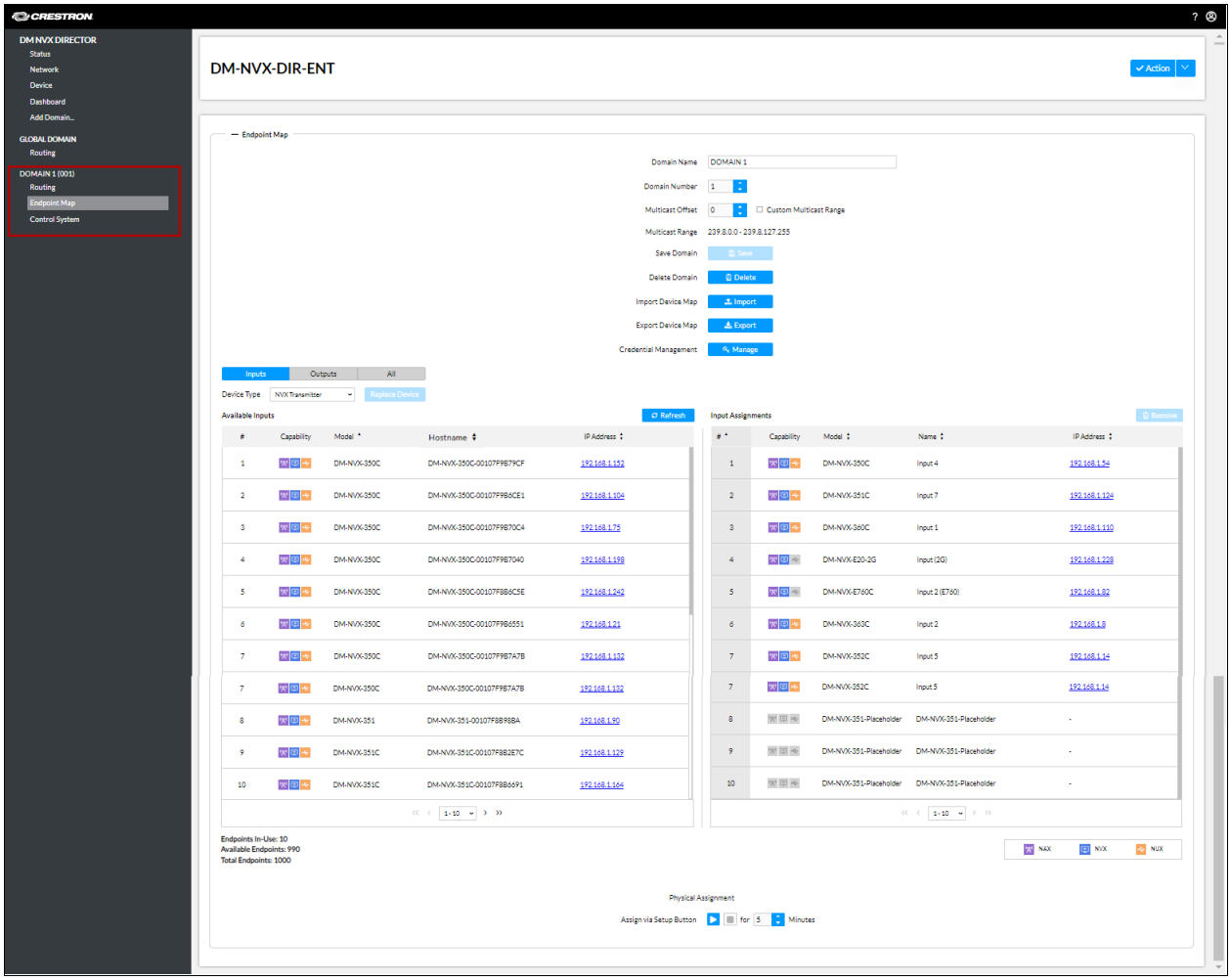
After a domain is added and saved, the domain endpoint map can be modified as necessary for each domain on an individual basis. The domain can also be deleted if required.

> **NOTE:** To simplify SIMPL programming of domains, it is recommended that domains be modified in the DM NVX Director web interface before being modified in the SIMPL program. The domain configuration in the web interface can then be referenced when modifying domains in the SIMPL program.

To modify a domain endpoint map using the DM NVX Director web interface:

In the navigation bar, go to the desired domain, and then click **Endpoint Map**. The Domain Endpoint Map page opens, providing the current configuration of the domain endpoint map.

Domain Endpoint Map Page (Sample Screen Shown for Domain 1)



> **NOTE:** To save certain changes on the Endpoint Map page, a **Save** button is provided. Depending on the change that is being made, a message appears in red below the **Save** button, indicating that the change must be saved. To save one or more changes, click the **Save** button. Alternatively, **Save Changes** in the **Action** menu can be selected to save the changes.

Using the Domain Endpoint Map page, perform any of the following tasks as required:

- Modify domain identification and multicast information.
- Delete a domain.
- Import a device map.
- Export a device map.
- Manage credentials.
- Assign endpoints.

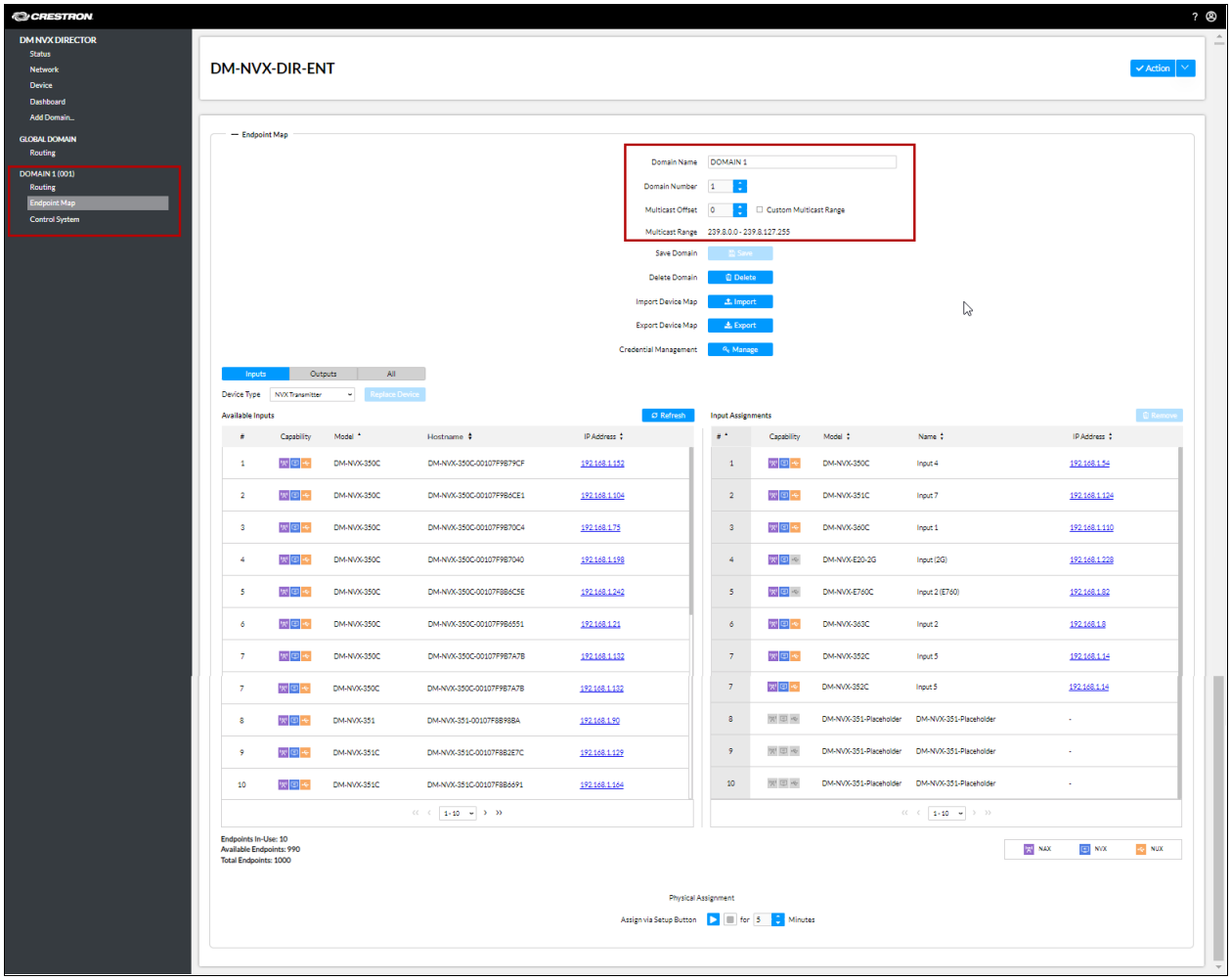
For information about saving changes, refer to Saving Changes to an Existing Domain.

Modifying Domain Identification and Multicast Information

If required, modify any of the current domain identification and multicast information settings.

In the navigation bar, go to the domain for which domain identification or multicast information is to be modified, and then click **Endpoint Map**. The Domain Endpoint Map page opens.

Domain Endpoint Map Page - Sample Domain Identification and Multicast Information Settings



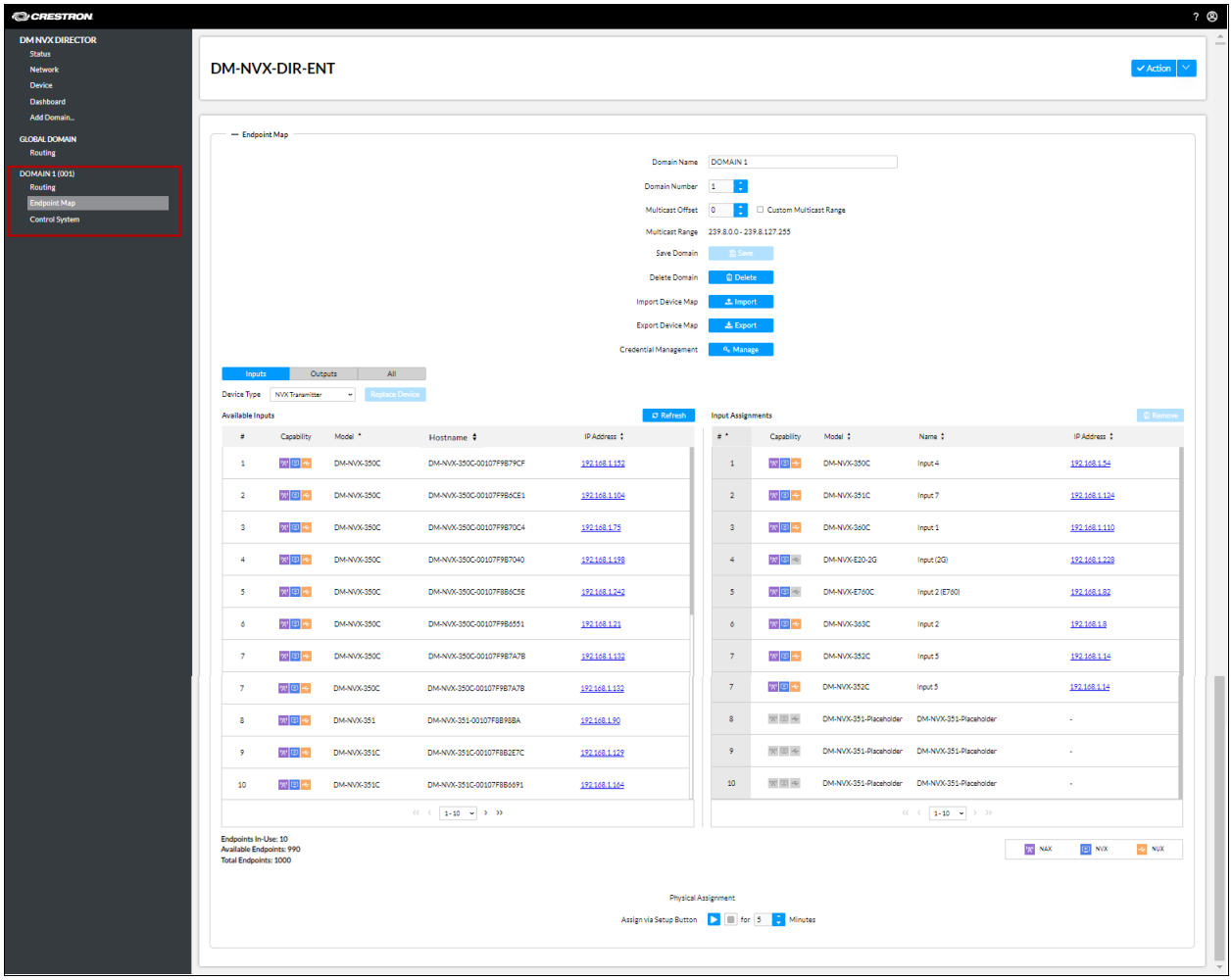
For information about domain identification and multicast settings, refer to Entering Domain Identification and Multicast Information in the Adding a Domain section of this manual.

Deleting a Domain

To delete a domain:

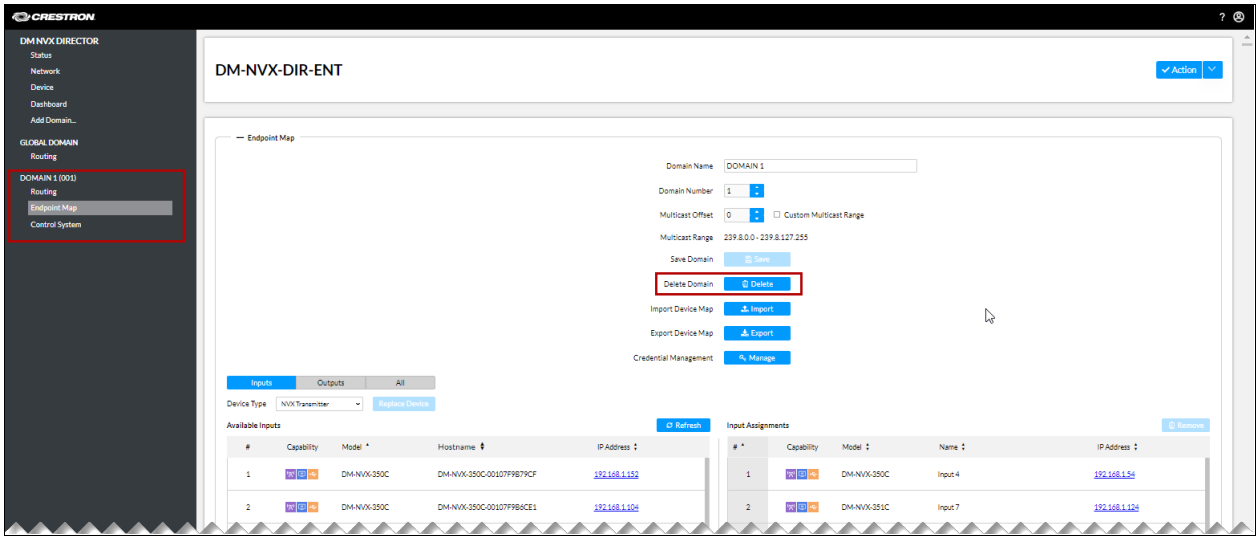
1. In the navigation bar, go to the domain to be deleted and then click **Endpoint Map**. The Domain Endpoint Map page opens.

   Domain Endpoint Map Page - Sample Screen Shown for Domain 1



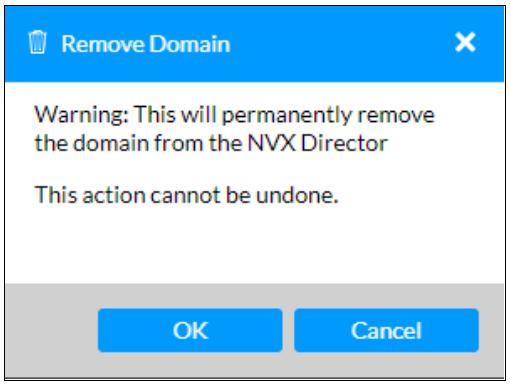
2. Click the **Delete** button.

Endpoint Map Page - Delete Domain



The **Remove Domain** dialog box opens, providing a warning that the domain will be permanently removed.

Remove Domain Dialog Box



3. Click **OK** to delete the domain.

Importing a Device Map

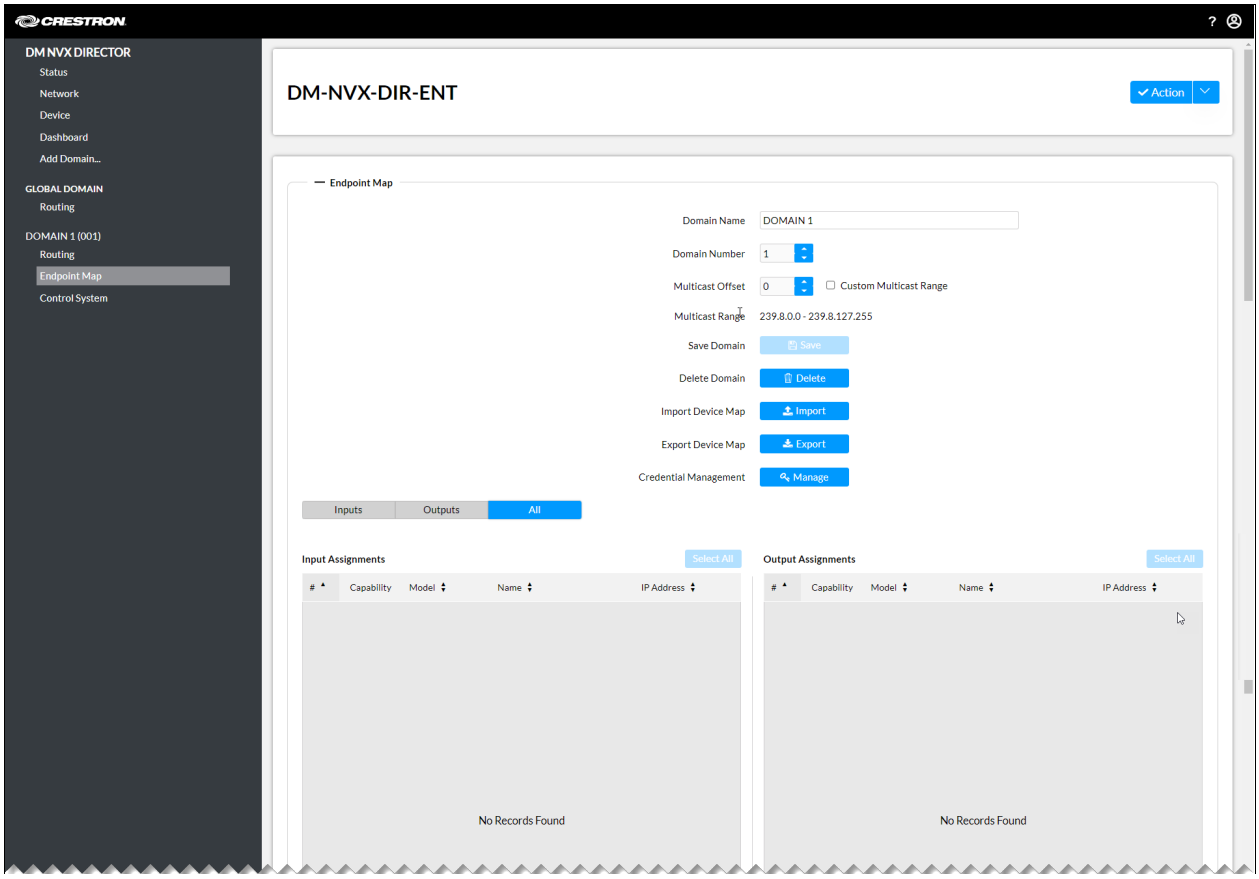
A device map can be imported on an existing Domain Endpoint Map page that does not include a domain configuration of input and output assignments.

> **CAUTION:** If the Domain Endpoint Map page already includes a domain configuration of input and output assignments, importing a device map will replace the existing configuration.

To import a device map on the Domain Endpoint Map page:

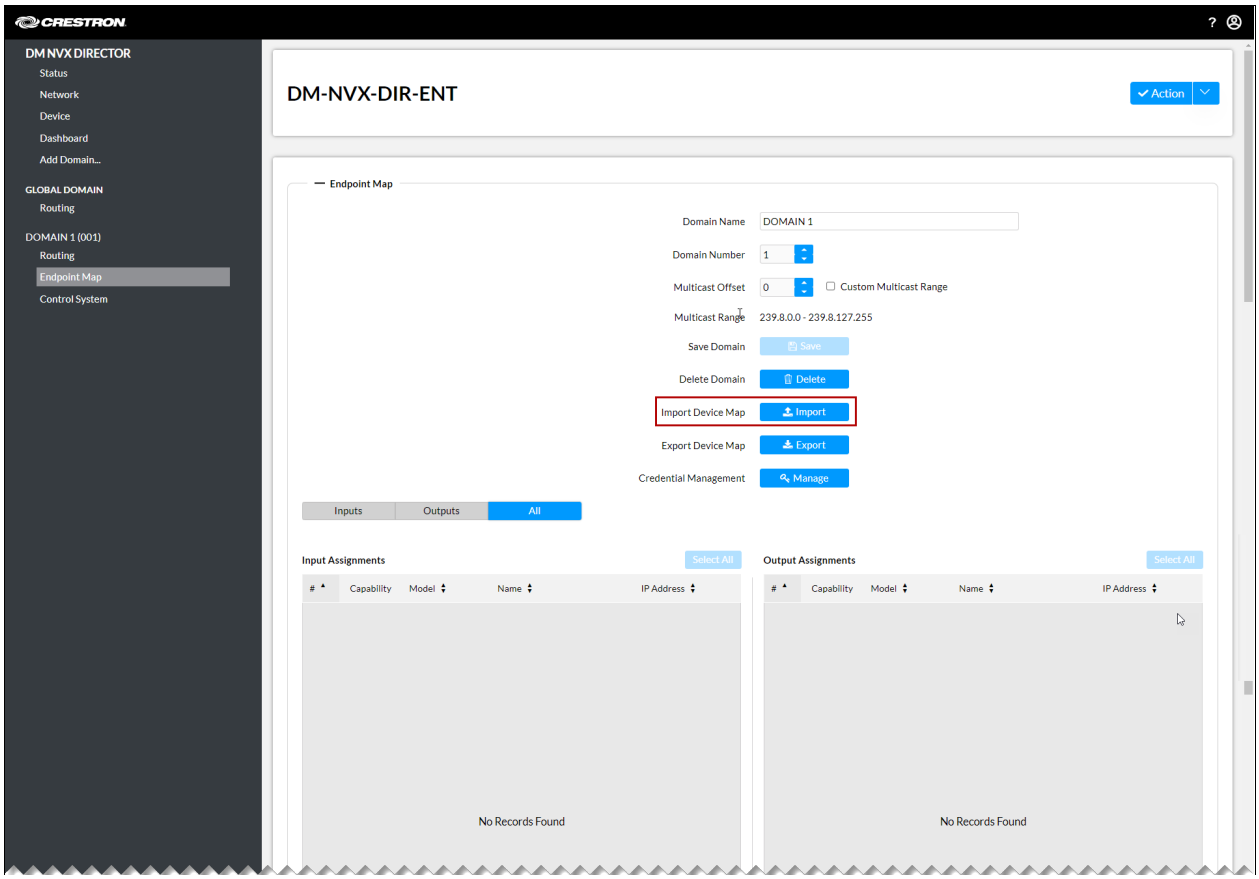
1. In the navigation bar, go to the domain for which a device map is to be imported and then click **Endpoint Map**. The Domain Endpoint Map page opens.

   Domain Endpoint Map Page (Sample Screen Shown Without Input and Output Assignments)



2. Click the **Import** button.

Domain Endpoint Map Page - Import Device Map



File Explorer opens.

3. Navigate to the location of the device map file that is to be imported, and then click **Open**.

   The device map is imported into the domain. DM NVX transmitter endpoints are automatically added to the **Input Assignments** table, and DM NVX receiver endpoints are automatically added to the **Output Assignments** table.

> **NOTE:** If the device map file is formatted incorrectly, it will not be accepted by the DM NVX Director network appliance.

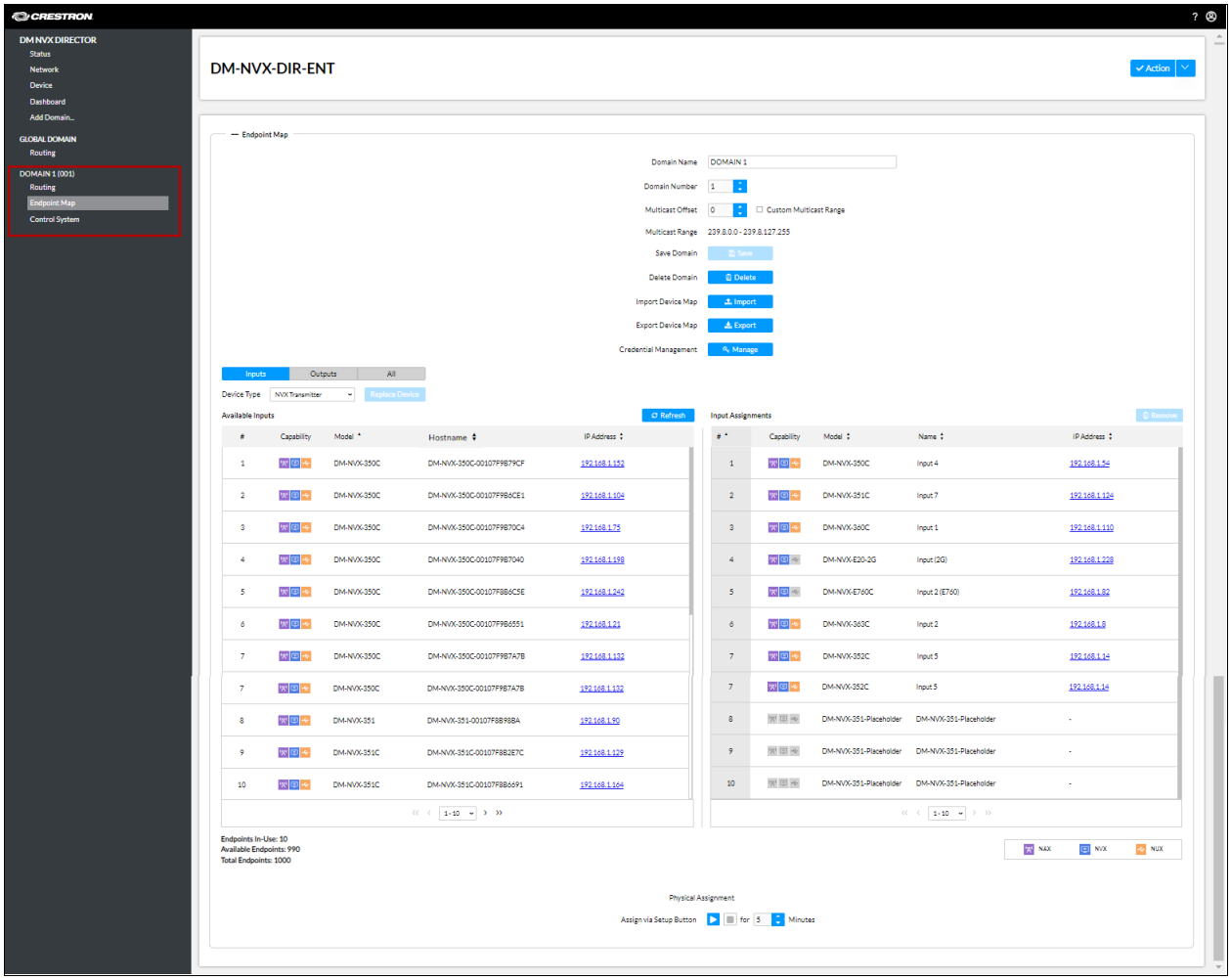
Exporting a Device Map

A device map consists of a DM NVX Director domain configuration that can be imported or exported an .xml file. A device map can be exported to your computer to provide a backup of a current domain configuration or for use by a replacement DM NVX Director network appliance if necessary.

To export a device map:

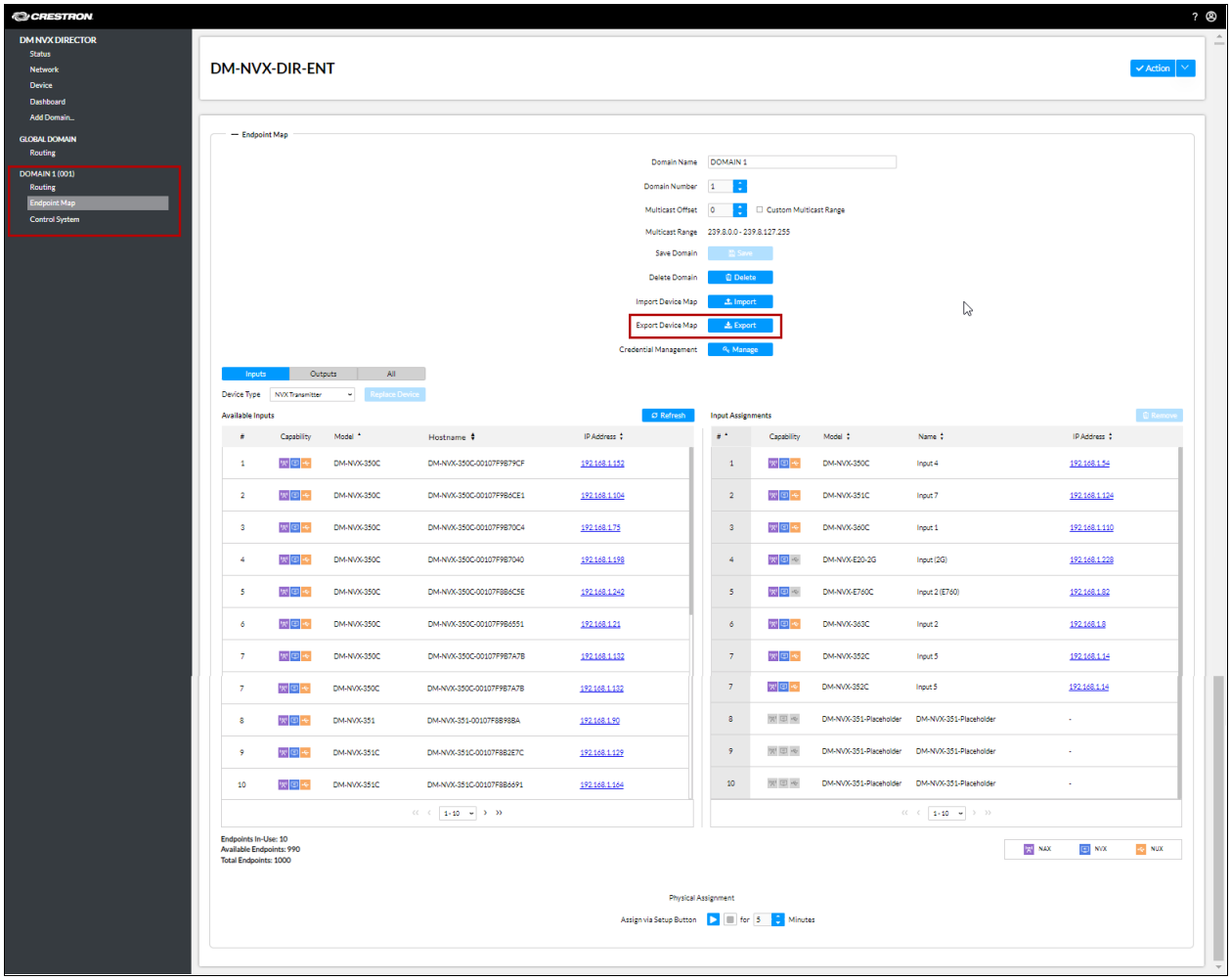
1. In the navigation bar, go to the domain from which the device map is to be exported and then click **Endpoint Map**. The Domain Endpoint Map page opens.

   Domain Endpoint Map Page (Sample Screen Shown for Domain 1)



2. Click the **Export** button.

Domain Endpoint Map Page - Export Device Map



The device map is downloaded to the **Downloads** folder of your computer.

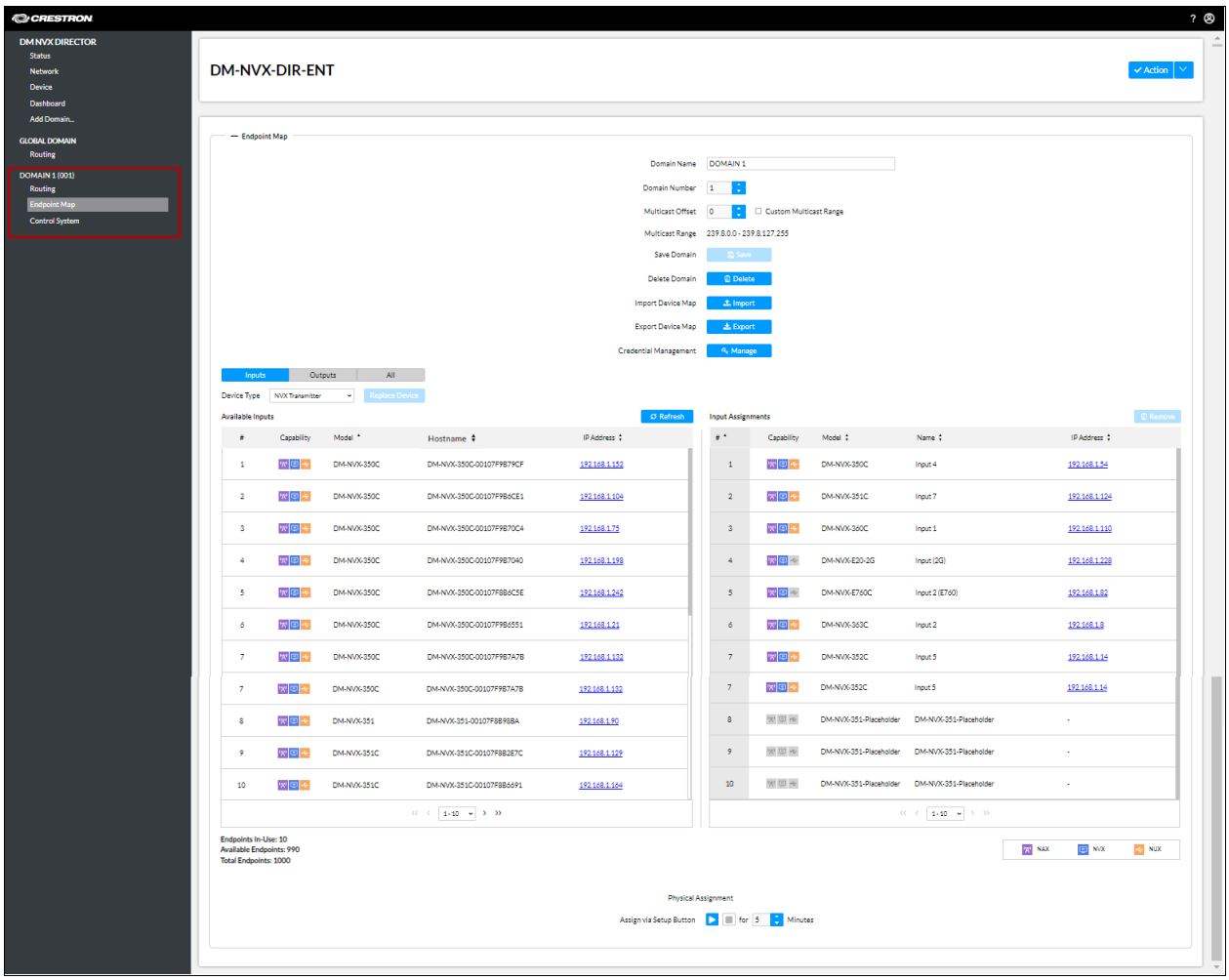
Managing Credentials

For security purposes, the password of all endpoints in a domain can be changed. Alternatively, a new user account can be created.

To change the password or to create a new user account:

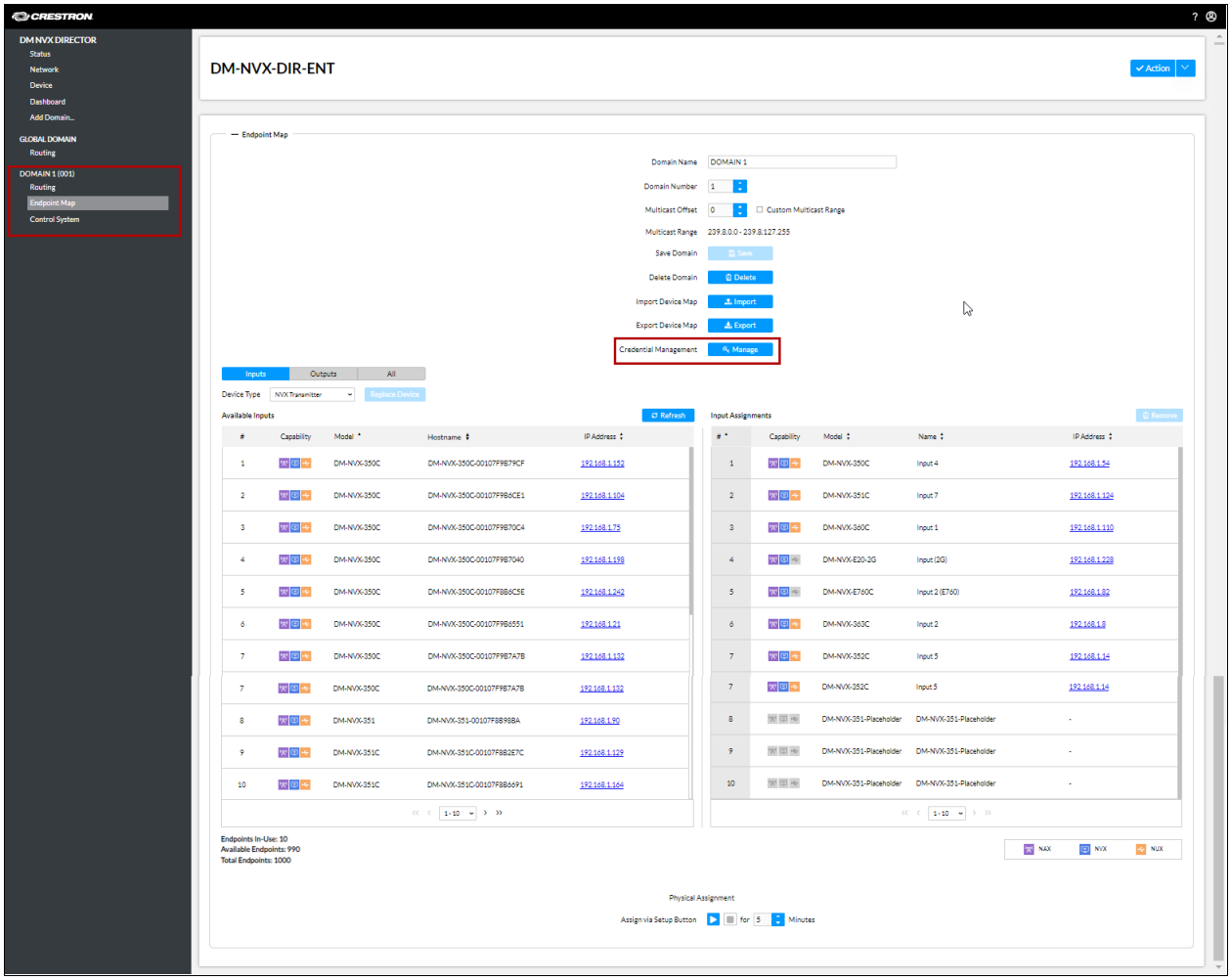
1. In the navigation bar, go to the desired domain and then click **Endpoint Map**. The Domain Endpoint Map page opens.

   Domain Endpoint Map Page (Sample Screen Shown for Domain 1)



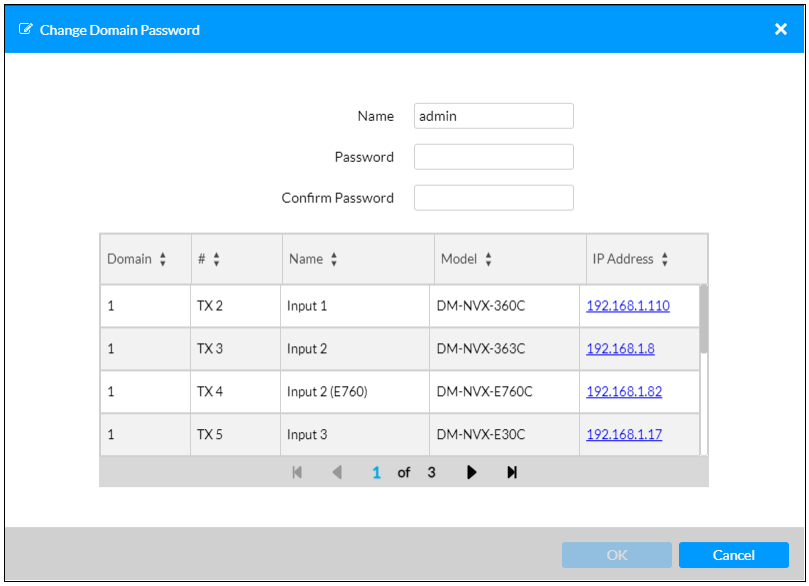
2. Click the **Manage** button.

Domain Endpoint Map Page - Credential Management



The **Change Domain Password** dialog box opens.

Change Domain Password Dialog Box



The **Change Domain Password** dialog box provides a table listing all DM NVX endpoints in the domain. For each endpoint, the following information is provided:

- **Domain:** Displays the domain number to which the endpoints are assigned
- **#:** For a transmitter, indicates **TX** followed by a number indicating the order in which the transmitter was added to the domain. For a receiver, indicates **RX** followed by a number indicating the order in which the receiver was added to the domain.

  To list the endpoints based on the ascending or descending alphanumeric order of the designations in the **#** column, use the scroll arrows to the right of the **#** heading.
- **Name:** Indicates the device name assigned to the endpoint.

  To list the endpoints based on the ascending or descending alphanumeric order of the names, use the scroll arrows to the right of the **Name** heading.
- **Model:** Indicates the model name of the endpoint.

  To list the endpoints based on the ascending or descending alphanumeric order of the model names, use the scroll arrows to the right of the **Model** heading.
- **IP Address:** Indicates the IP address of the endpoint. Clicking the IP address provides access to the web interface of the endpoint.

  To list the devices based on the ascending or descending numerical order of the IP address, use the scroll arrows to the right of the **IP Address** heading.

Four DM NVX endpoints are listed at a time. All DM NVX endpoints in the table can be viewed by using the scroll arrows at the bottom of the table to navigate through the list of endpoints.

3. Change the username and password of all DM NVX endpoints in the domain as required:
   a. In the **Name** text box, modify the current username if required. The username is not case sensitive.
   b. In the **Password** text box, enter a new password using a minimum of 8 characters. The password is case sensitive.
   c. In the **Confirm Password** text box, reenter the password for confirmation.
   d. Click **OK.**

   > **NOTE:** If, for some reason, an error occurs relating to credentials for a particular DM NVX endpoint, click the IP address of the endpoint and set the credentials using the web interface of the endpoint. The DM NVX Director network appliance is blocked from accessing the endpoint for 24 hours. To remove the block and enable the DM NVX Director network appliance to access the endpoint, issue the following console command from the endpoint:
   > ```
   > remblockedip all
   > ```

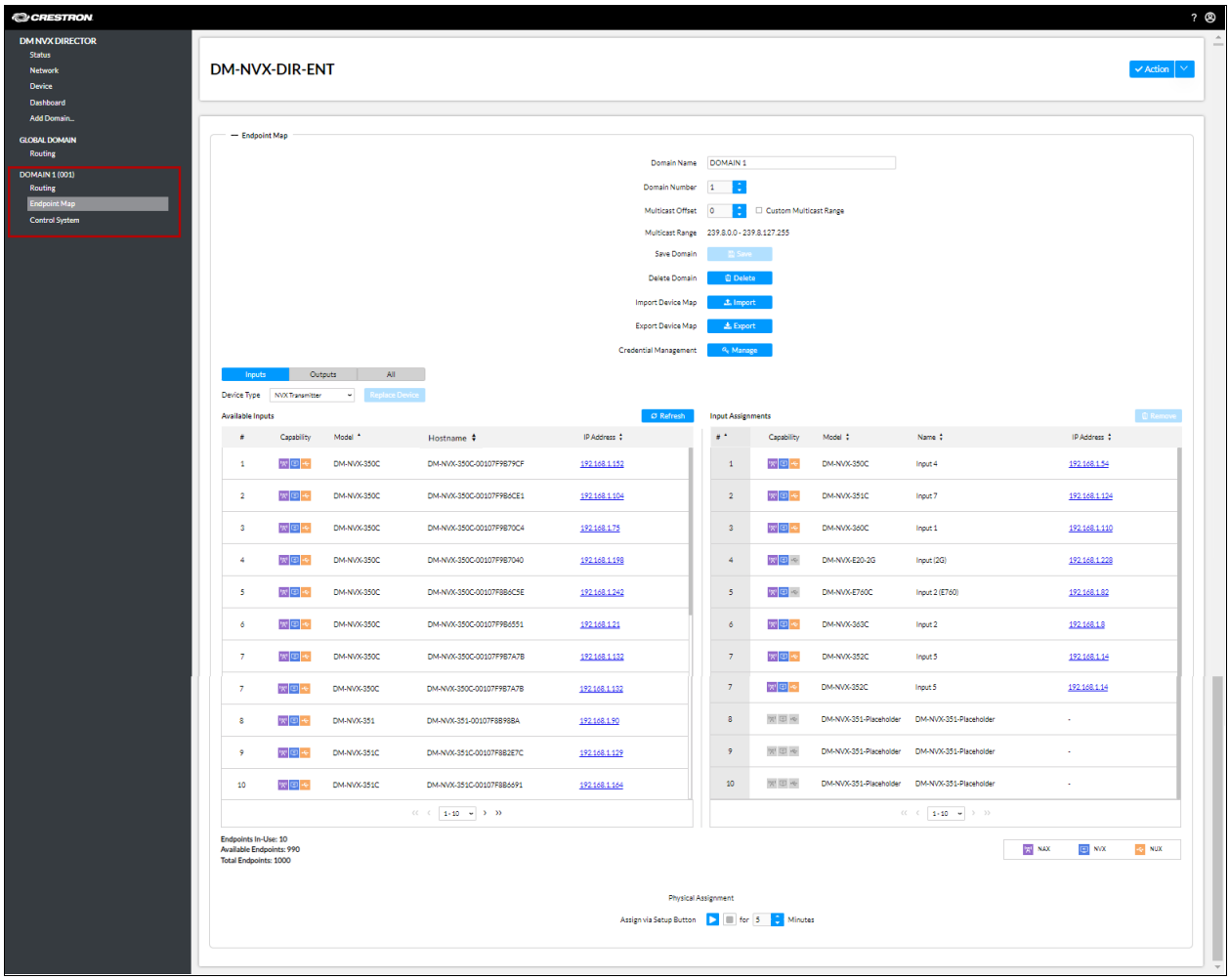
Assigning Endpoints

After a domain has been added and saved, additional endpoints can be assigned to the endpoint map as required.

To assign endpoints to an existing endpoint map of a domain:

In the navigation bar, go to the desired domain and then click **Endpoint Map**. The Domain Endpoint Map page opens.

Domain Endpoint Map Page (Sample Screen Shown for Domain 1)



The steps necessary to add endpoints on the Domain Endpoint Map page are the same as when assigning endpoints on the Add Domain page. Refer to Assigning Endpoints in the Endpoint Map and Assigning Endpoints Using the Setup Button in the Adding a Domain section for additional information.

In addition, the following tasks that can be performed on the Add Domain page can also be performed on the Domain Endpoint Map page:

- Removing an endpoint.
- Replacing an endpoint.

- Viewing input and output assignments simultaneously.
- Viewing endpoint statistics.

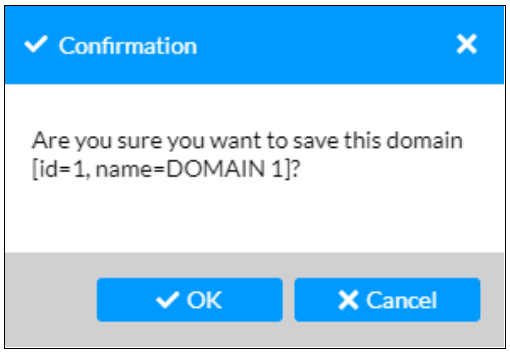
Saving Changes to an Existing Domain

To save changes to an existing domain:

1. Click the **Save** button to save the domain. (Alternatively, clicking **Save Changes** in the **Action** menu will also save the changes.)

   A **Confirmation** dialog box opens, prompting for confirmation that the domain be saved.

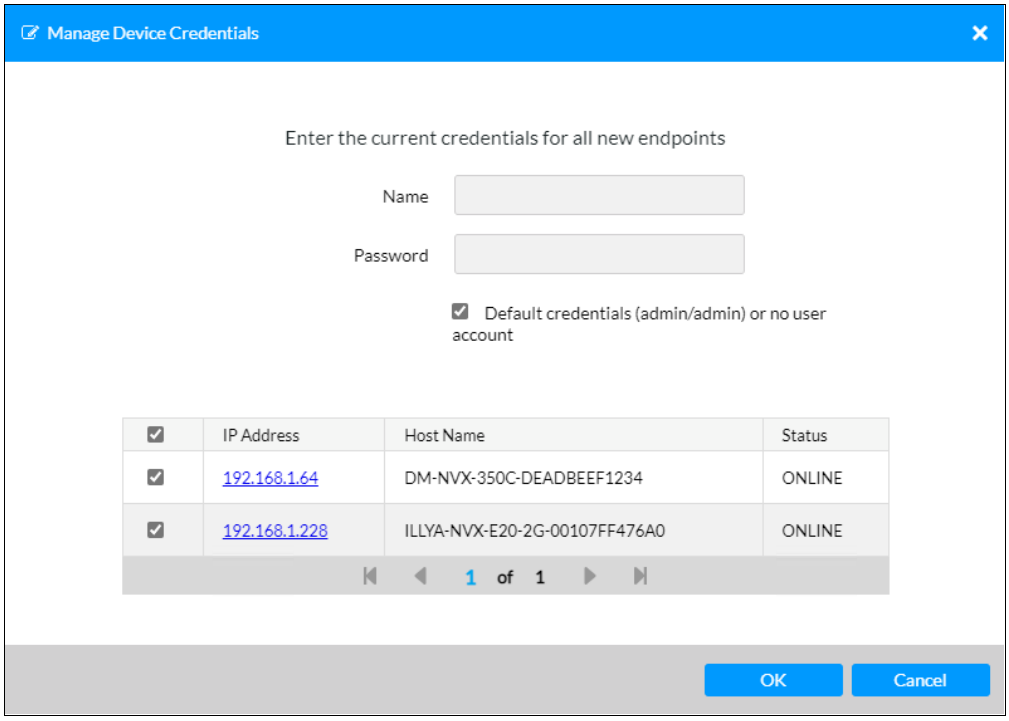
   Confirmation Dialog Box for Saving the Domain



2. Click **OK** to save the domain.

   If additional endpoints have been assigned to the domain, the **Manage Device Credentials** dialog box opens.

   Manage Device Credentials Dialog Box



By default, the **Default credentials (admin/admin) or no user account** checkbox is selected. The checkbox of all newly added DM NVX endpoints is also selected.

Four DM NVX endpoints are listed at a time. All endpoints in the table can be viewed by using the scroll arrows at the bottom of the table. The IP address, host name, and status (ONLINE or OFFLINE) of each DM NVX endpoint is displayed. Clicking the IP address provides access to the web interface of the endpoint.

> **NOTE:** Do not deselect the checkbox of any of the DM NVX endpoints listed in the table. The same credentials must be used for all DM NVX endpoints in the domain.

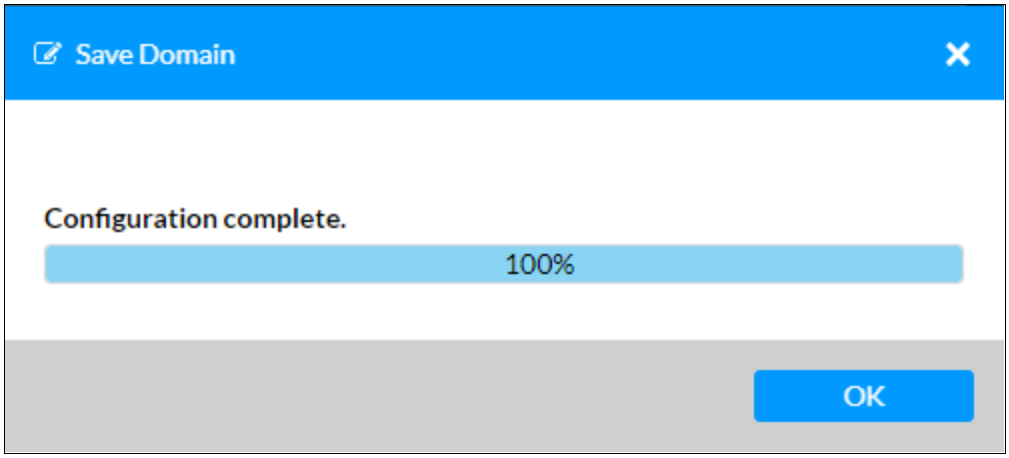
3. To be able to use the current credentials for all DM NVX endpoints listed in the table, do either of the following:
   - For DM NVX endpoints using **admin**/**admin** as the default credentials or no user account, ensure that the **Default credentials (admin/admin) or no user account** checkbox is selected (default setting), and then continue with step 6.
   - For DM NVX endpoints with an existing user account, deselect the **Default credentials (admin/admin) or no user account** checkbox, enter the username and password, and then continue with step 4.

4. Click **OK** to assign the credentials to the DM NVX endpoints.

> **NOTE:** If, for some reason, an error occurs relating to credentials for a particular DM NVX endpoint, click the IP address of the endpoint and set the username and password using the web interface of the endpoint. The DM NVX Director network appliance is blocked from accessing the endpoint for 24 hours. To remove the block and enable the DM NVX Director network appliance to access the endpoint, issue the following console command from the endpoint:
>
> ```
> remblockedip all
> ```

The **Save Domain** dialog box opens. If additional endpoints were added to the domain, the dialog box indicates that the devices are being configured and assigned. To indicate that changes to the domain are saved, the dialog box indicates that the configuration is complete.

Save Domain Dialog Box - Complete



5. Click **OK** to close the dialog box.

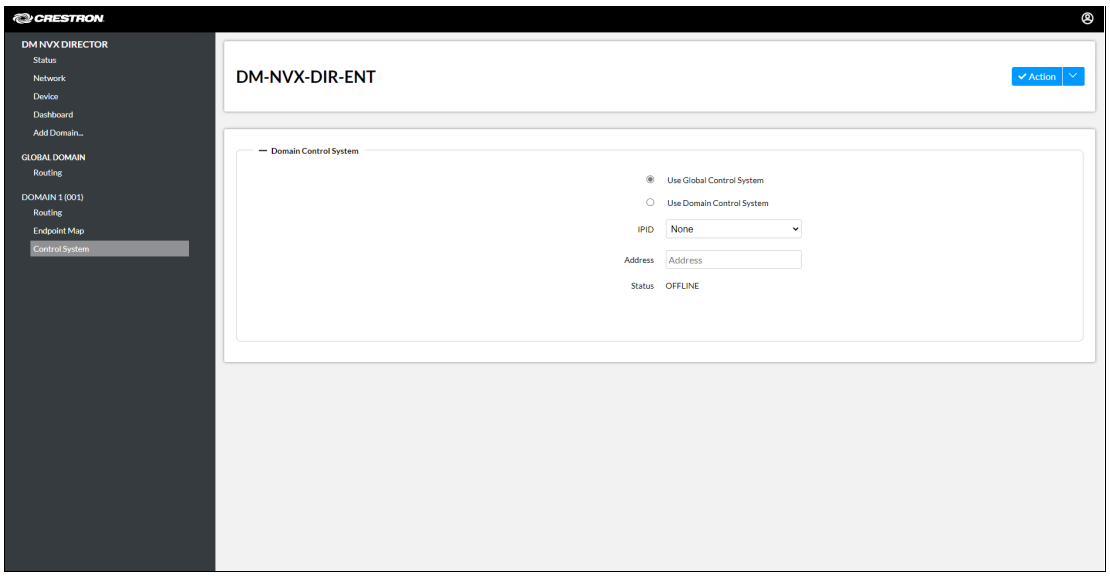
Domain Control System

A single control system, referred to as the Global Control System, can be assigned to all domains simultaneously in the **Control System** section of the Device page. In addition, support of multiple control systems enables the Global Control System or another control system, referred to as a Domain Control System, to be assigned to each domain on an individual basis.

To assign a control system to a domain on an individual basis:

1. In the navigation bar, go to the desired domain and then click **Control System**.

   Domain Control System

2. Click either of the following radio buttons:
   - **Use Global Control System:** Enables the Global Control System specified in the **Device > Control System** section of the web interface to be used. When assigning control systems on an individual basis, the Global Control System can be used for one or more domains.
   - **Use Domain Control System:** Enables a control system other than the Global Control System to be used. If **Use Domain Control System** is selected, configure the following:
     - **IPID:** In the drop-down list, click the desired IP ID for the domain.
     - **Address:** Enter the IP address of the Domain Control System. The IP address must be different from the IP address of the Global Control System and must be unique for each domain.
3. Click **Save Changes** to save the control system assigned to the domain.

Status indicates whether the control system is **ONLINE** or **OFFLINE**.

Management

DM NVX Director network appliance management functions include:

- Updating firmware
- Restoring factory default settings
- Rebooting the device
- Restarting applications
- Uploading a configuration file
- Downloading a configuration file
- Downloading message logs
- Adding a Log Marker on page 109

Updating Firmware

NOTES:

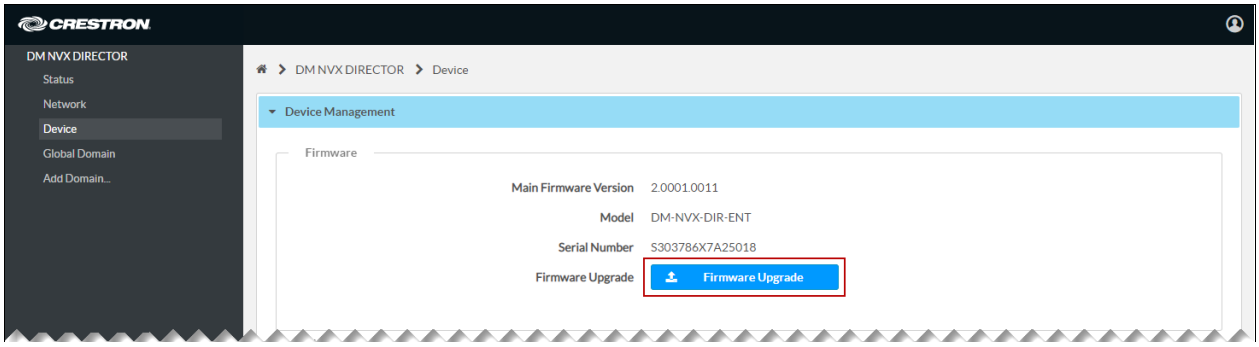
- Before updating firmware, ensure that all domain endpoint maps are saved.
- For upgrade from Release 2.0 to Release 4.0, a .dat file is provided for Release 4.0 firmware. The 4.0 .dat file is used to upgrade from Release 2.0 to Release 4.0..
- For upgrade from Release 4.0 to a later Release 4.0 maintenance release, a .csf file is provided for Release 4.0 firmware.

Updating Firmware from Release 2.0 to Release 4.0

To update firmware from Release 2.0 to Release 4.0:

1. Download the latest compressed firmware file (*.zip) from www.crestron.com/firmware to a computer.
2. Extract the Release 4.0 .dat file from the .zip file and save the file to the desired folder on your computer.
3. In the Release 2.0 web interface, go to the **Device** page, click the **Firmware Upgrade** button, and complete the firmware upgrade process.

Firmware Upgrade Button (Release 2.0)

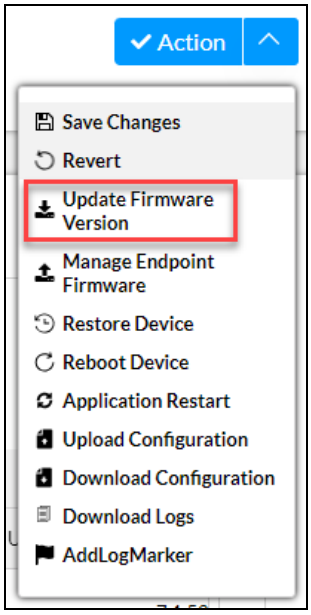


Updating Firmware from Release 4.0 to a Later Maintenance Release

To update firmware from Release 4.0 to a later Release 4.0 maintenance release:

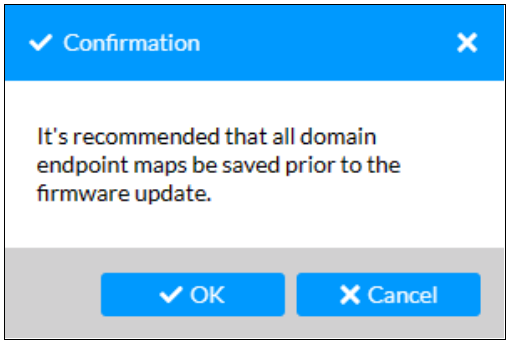
1. Download the latest compressed firmware file (*.zip) from www.crestron.com/firmware to a computer.
2. Extract the Release 4.0 .csf file from the .zip file and save the file to the desired folder on your computer.
3. In the **Action** menu located in the upper-right corner of the web interface, click **Update Firmware Version**.

   Action Menu - Update Firmware Version (Release 4.0)



   A **Confirmation** dialog box opens, recommending that all domain endpoint maps be saved prior to the firmware update.

Confirmation Dialog Box for Saving All Domain Endpoint Maps



4. Do either of the following:
   - If endpoint maps are already saved, click **OK**. File Explorer opens. Continue with step 5.
   - If endpoint maps need to be saved, click **Cancel** and then save the endpoint maps. Repeat steps 3 and 4, and then continue with step 5.
5. Navigate to the latest firmware file, select the file, and then click **Open**.

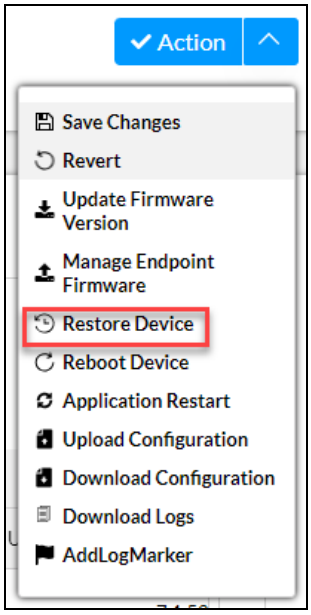
   The **Firmware Upgrade** dialog box opens, indicating the progress of the file upload and upgrade process. When the upgrade process has completed, the dialog box indicates that the process has completed successfully.

Restoring Factory Default Settings

To restore factory default settings:

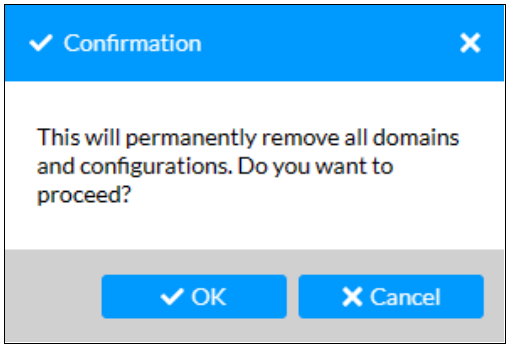
1. In the **Action** menu located in the upper-right corner of the web interface, click **Restore Device**.

   Action Menu - Restore Device

   A **Confirmation** dialog box opens, prompting for confirmation that all domains and configurations be removed.

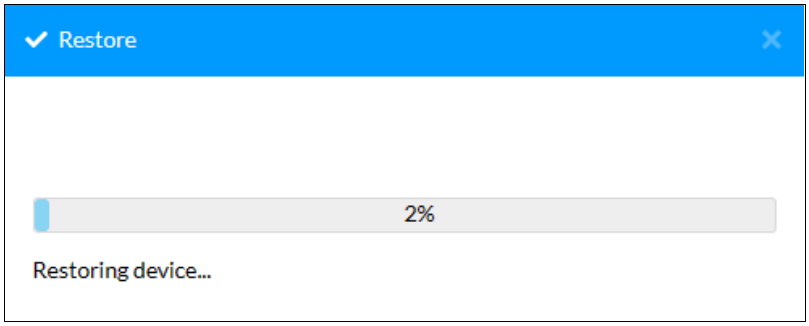
   Confirmation Dialog Box for Removing All Domains

2. Click **OK**.

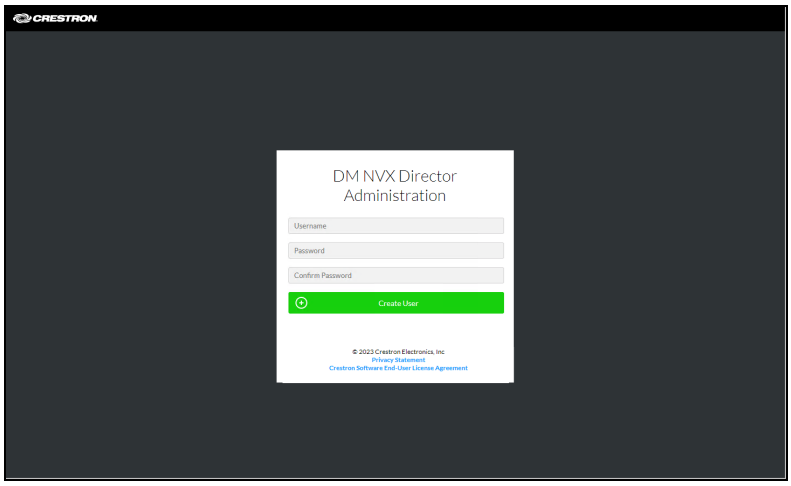
   The Restore progress bar appears, indicating the progress of restoring the device to factory default settings.

   Restore Progress Bar



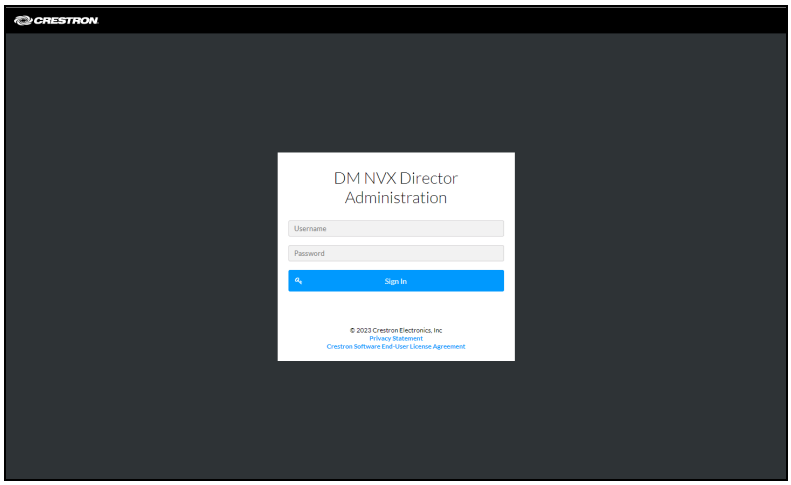
   When the process has completed, the Create User page opens, enabling a user account to be created.

   Create User Page



   After a user account is created, the Sign In page opens, enabling sign-in to the device.

Sign In Page

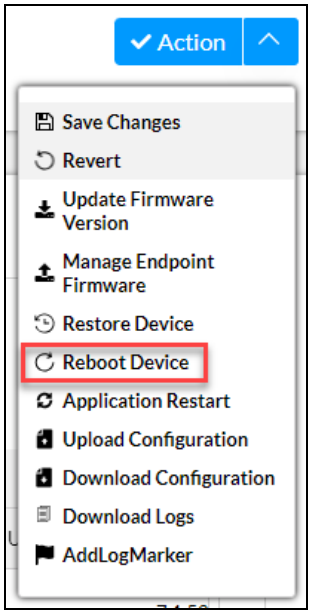

CRESTRON
DM NVX Director
Administration
Username
Password
Sign In
© 2023 Crestron Electronics, Inc
Privacy Statement
Crestron Software End-User License Agreement

Rebooting the Device

To reboot the device:

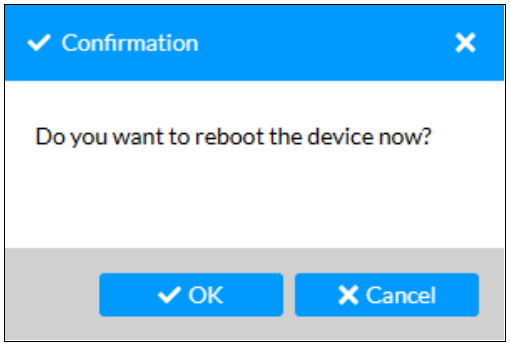
1. In the **Action** menu located in the upper-right corner of the web interface, click **Reboot Device**.

   Action Menu - Reboot Device

   A **Confirmation** dialog box opens, prompting for confirmation that the device be rebooted.

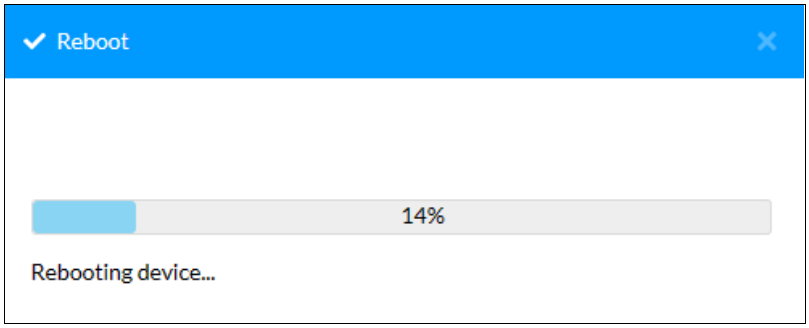
   Confirmation Dialog Box for Rebooting the Device

2. Click **OK**.

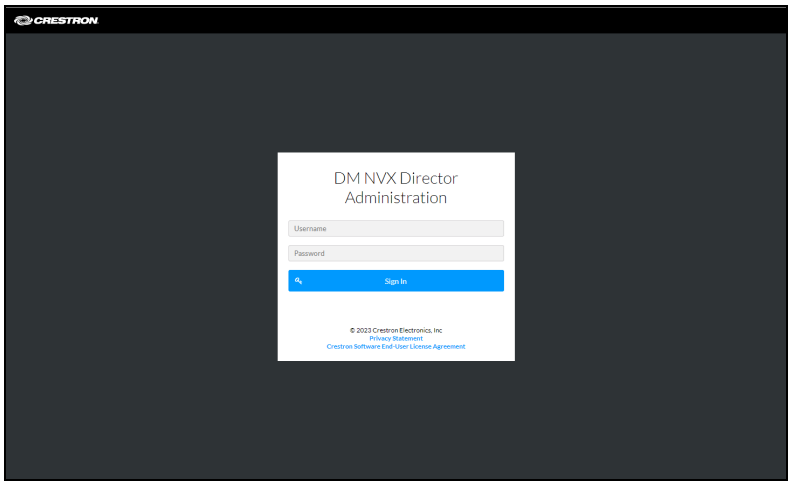
   The Reboot progress bar appears, indicating the progress of the reboot process.

   Reboot Progress Bar



   When the reboot process has completed, the Sign In page opens, enabling sign-in to the device.

   Sign In Page

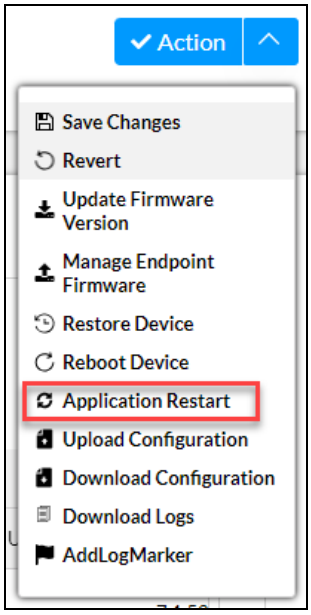


Restarting Applications

To restart applications running on the DM NVX Director network appliance:

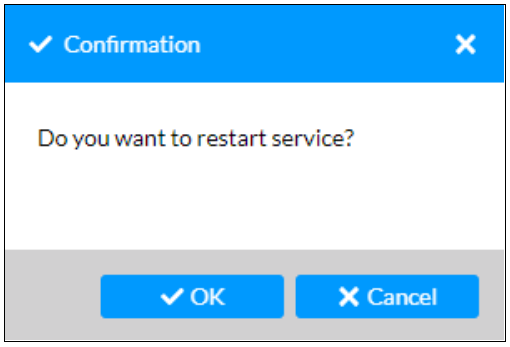
1. In the **Action** menu located in the upper-right corner of the web interface, click **Application Restart**.

   Action Menu - Application Restart

   A **Confirmation** dialog box opens, prompting for confirmation that the service be restarted.

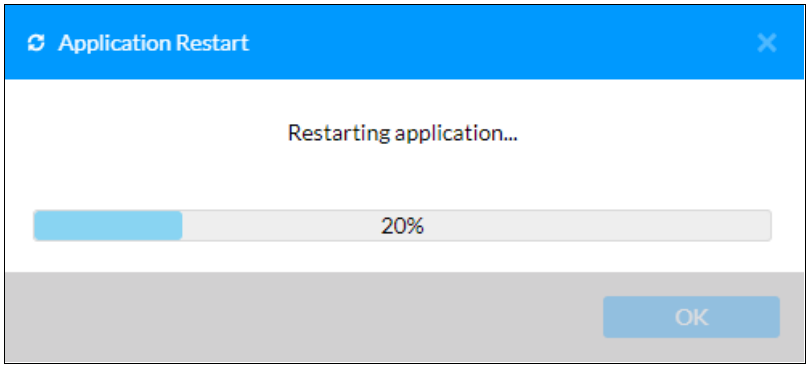
   Confirmation Dialog Box for Restarting the Service

2. Click **OK**.

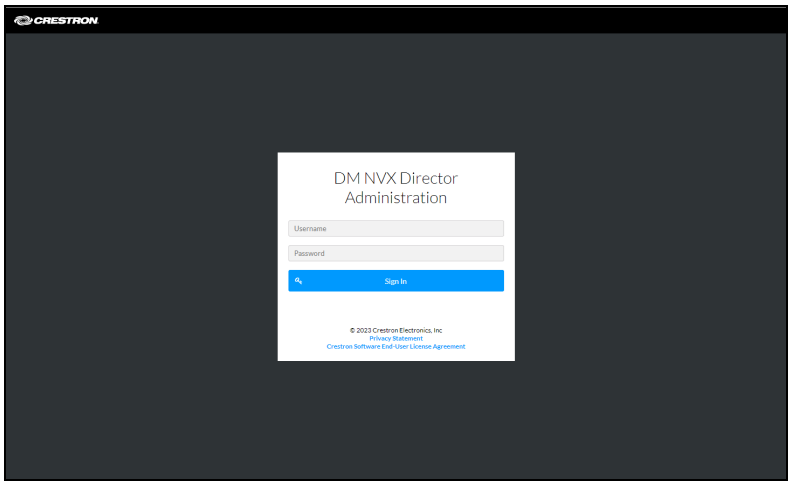
   The Application Restart progress bar appears, indicating the progress of the restart process.

   Application Restart Progress Bar



   When the restart process has completed, the Sign In page opens, enabling sign-in to the device.

   Sign In Page



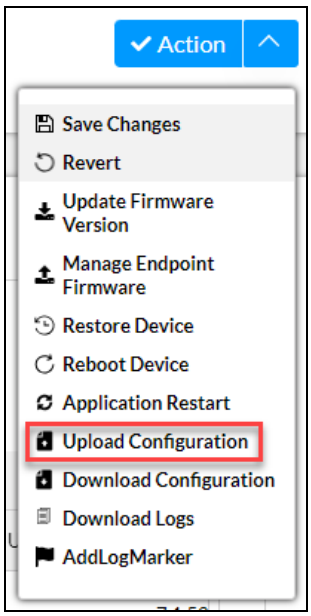
Uploading a Configuration File

A configuration file (*.tgz) consists of all domain configurations on a DM NVX Director network appliance. A configuration file that was downloaded from a DM NVX Director network appliance being replaced can be uploaded to the replacement DM NVX Director network appliance.

To upload a configuration file to a DM NVX Director network appliance:

1. In the **Action** menu located in the upper-right corner of the web interface, click **Upload Configuration**.

   Action Menu - Upload Configuration

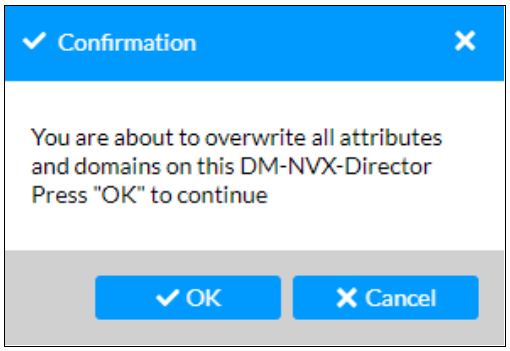
   

   File Explorer opens.

2. Navigate to the desired configuration file (*.tgz), select the file, and then click **Open**.

   A **Confirmation** dialog box opens, prompting for confirmation that all attributes and domains on the DM NVX Director network appliance be overwritten.

   Confirmation Dialog Box

3. Click **OK** to confirm that all attributes and domains (if any) can be overwritten.

   The **Uploading File** dialog box opens, indicating that the *.tgz file is being uploaded. When upload process is complete, the **Uploading File** dialog box indicates that the file is uploaded.

   Uploading File Dialog Box - File Uploaded

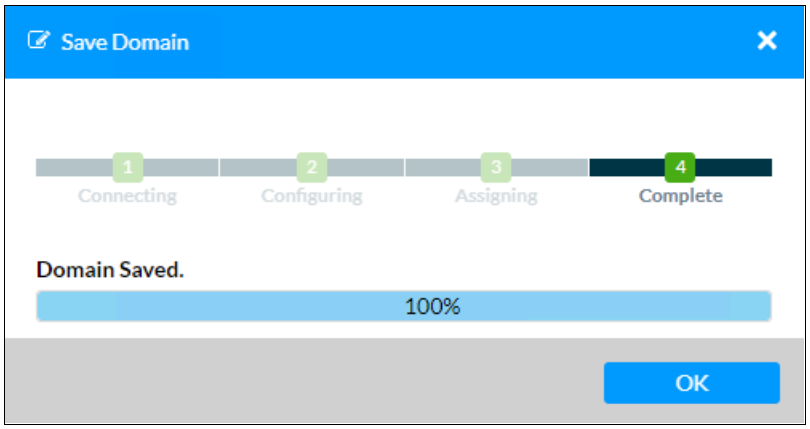
4. Click **OK**.

   The **Save Domain** dialog box opens, indicating any of the following as applicable:

   - The DM NVX Director network appliance is connecting to the endpoints.
   - The device mode (transmitter or receiver) of the endpoints is being configured.
   - Multicast addresses are being assigned.

   When the **Save Domain** process is complete, the **Save Domain** dialog box indicates that the domain is saved.

   Save Domain Dialog Box - Complete



5. Click **OK** to close the dialog box.

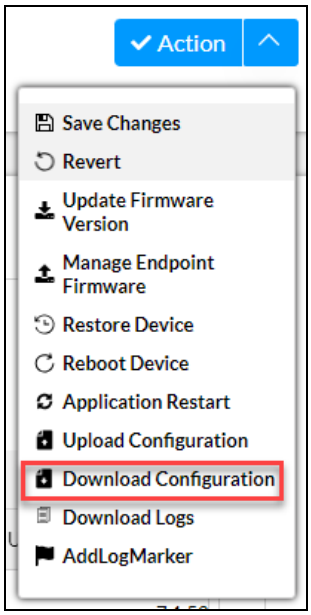
Downloading a Configuration File

A configuration file (*.tgz) consists of all domain configurations on a DM NVX Director network appliance. A configuration file can be downloaded to a computer for use as a backup configuration file or for uploading to a replacement DM NVX Director network appliance.

To download a configuration file from a DM NVX Director network appliance to a computer:

In the **Action** menu located in the upper-right corner of the web interface, click **Download Configuration**.

Action Menu - Download Configuration



The configuration file is downloaded to the **Downloads** folder of the computer using the following naming convention:

*model*_config_*yyyy-mm-dd_hh-mm-ss*.tgz

- *model* is the model name of the DM NVX Director network appliance
- *yyyy-mm-dd* is the 4-digit year, 2-digit month, and 2-digit day separated by hyphens
- *hh-mm-ss* is the 2-digit hour, 2-digit minutes, and 2-digit seconds separated by hyphens in 24-hour format

Example: DM-NVX-DIR-ENT_config_2022-12-14_14-53-49.tgz

To upload the configuration file to a replacement DM NVX Director network appliance, refer to Uploading a Configuration File.

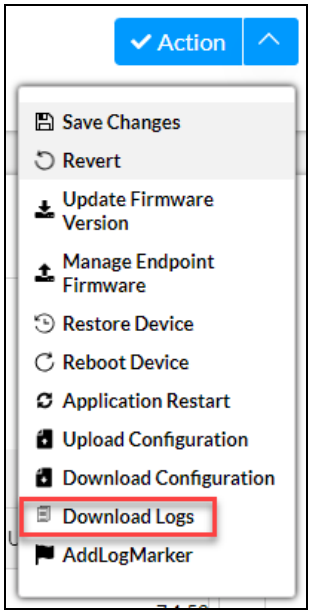
Downloading Message Logs

Message logs can be downloaded to a computer for diagnostic purposes. The message logs are compressed and downloaded as a .zip file.

To download message logs:

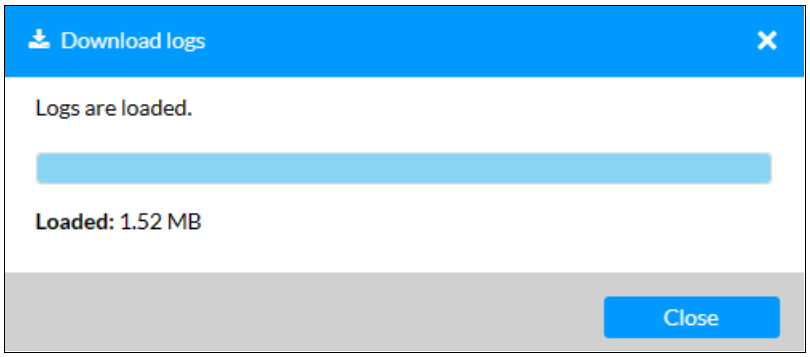
1. In the **Action** menu located in the upper-right corner of the web interface, click **Download Logs**.

   Action Menu - Download Logs

   The **Download logs** dialog box opens, indicating the progress of the process. When the process is complete, the dialog box indicates that the message logs have been downloaded.

   Download Logs Dialog Box

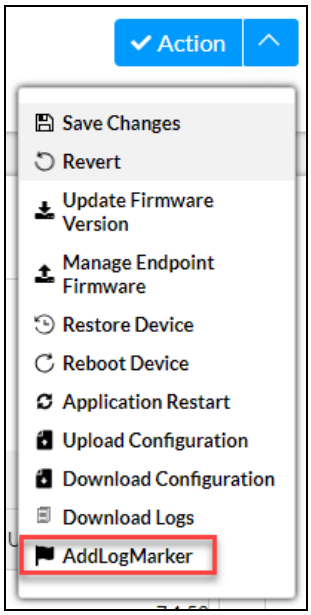
2. Click **Close** to close the dialog box.

Adding a Log Marker

A note can be added to the message log by following the instructions below.

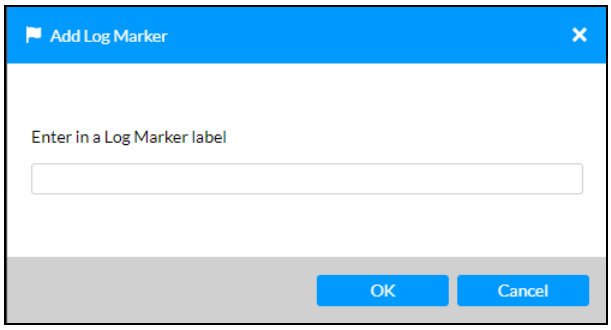
1. In the **Action** menu located in the upper-right corner of the web interface, click **AddLogMarker**. The **Add Log Marker** dialogue box appears.

   Action Menu - AddLogMarker

2. Enter the desired note in the dialogue box.

   Add Log Marker Dialog Box

3. Select **OK**.

The entered text will appear in the log.

Troubleshooting

The following table provides troubleshooting information. If additional assistance is required, contact Crestron Technical Support at www.crestron.com/Support.

DM NVX Director Network Appliance Troubleshooting

Problem	Possible Causes	Corrective Actions
A new configuration from a DM NVX Director network appliance failed to be applied to a DM NVX endpoint.	The DM NVX Director web page is disconnected from the DM NVX Director web server.	Refresh the DM NVX Director web page or sign in again to the web interface.
	The DM NVX web interface is not accessible or the DM NVX device is offline.	Reestablish a connection between the DM NVX endpoint and the DM NVX Director network appliance.
	The configuration file is formatted incorrectly.	Reformat the configuration file with the correct format.
The DM NVX Director network appliance fails to discover DM NVX endpoints.	The DM NVX web interface is not accessible or the DM NVX endpoint is offline.	Reestablish a connection between the DM NVX endpoint and the DM NVX Director network appliance.
	A network configuration error exists.	Verify that the network is configured properly. Ensure that the DM NVX Director network appliance is connected to the correct networks.
In the DM NVX web interface, the Discovery Agent is set to ON for a DM NVX transmitter or receiver; however, the endpoint is not listed in the Available Devices section on the Add Domain page of the DM NVX Director web interface.	The DM NVX endpoint cannot be discovered by the DM NVX Director network appliance.	Ensure that automatic discovery is enabled for the DM NVX Director network appliance. Ping the IP address of the DM NVX endpoint to check the connectivity. Verify that the IP address of the DM NVX endpoint is in the same IP subnet range as the DM NVX Director network appliance. Ensure that the DM NVX Director network appliance is connected to the appropriate VLAN.

Problem	Possible Causes	Corrective Actions
The DM NVX Director network appliance fails to discover a DM NVX endpoint that is in another IP subnet.	A communications failure exists between subnets.	Verify that the network is configured to allow communications across subnets. If communications across subnets does not exist, connect the DM NVX Director network appliance directly to each IP subnet using the additional LAN ports. If communications across subnets does exist but the DM NVX endpoint is not being discovered, verify that the DM NVX endpoint is online and is accessible.
The DM NVX Director network appliance does not receive an IP address on all Ethernet ports.	A network configuration error exists.	Check the Ethernet network configuration to ensure that each Ethernet port has network access.
	A packet storm exists in the network or in the DM NVX Director network appliance.	Check that each Ethernet port is connected to a different network, subnet, or VLAN (virtual LAN).
After a route is created using the DM NVX Director network appliance, the DM NVX receiver is flashing video on the display.	The DM NVX receiver is connecting to a multicast address that is configured on two or more different DM NVX transmitters.	Verify that the DM NVX transmitters are configured on only one DM NVX Director network appliance. If the same DM NVX transmitters are configured on two or more different DM NVX Director network appliances, then remove the duplicates from all additional DM NVX Director endpoint maps. On the DM NVX Director endpoint map, the Multicast Range must be unique for each DM NVX Director network appliance that is on the same network. Check the DM NVX transmitters that are not configured using the DM NVX Director network appliance to verify that the transmitters are not using duplicate multicast addresses.
The Crestron Toolbox Device Discovery Tool does not discover the DM NVX Director network appliance.	The DM NVX Director network appliance may not have sent discovery information yet.	Click the **Discover Devices** button in the Device Discovery Tool and verify that the DM NVX Director network appliance appears in the device list. If the DM NVX Director network appliance does not appear in the device list, repeat the process until the DM NVX Director network appliance is discovered.
	The DM NVX Director network appliance is not accessible or is offline.	Verify that the DM NVX Director network appliance is powered on. Verify that the DM NVX Director network appliance is connected to the same network as the discovering computer.

Problem	Possible Causes	Corrective Actions
The route for a DM NVX endpoint is set on the Routing page of the DM NVX Director web interface but the route is cleared automatically after 5 seconds.	A DM NVX transmitter may have streaming set in the Stopped state. As a result, the DM NVX receiver is not able to establish an RTSP connection with the DM NVX transmitter.	In the web interface of the DM NVX transmitter, check the stream status. If the stream is in the Stopped state, start the stream and then reestablish the route on the Routing page of the DM NVX Director web interface.
	A DM NVX receiver stream stays in the Connecting state because the IP address of the transmitter has changed.	On the Routing page of the DM NVX Director web interface, clear the existing route and then set a new route.
	A DM NVX receiver stream stays in the Connecting state because the DM NVX receiver cannot access the DM NVX transmitter.	Ensure that the DM NVX receiver and the DM NVX transmitter are in the same subnet.
	A DM NVX receiver stream stays in the Connecting state because of a timing issue.	On the Routing page of the DM NVX Director web interface, set the route again. If the DM NVX receiver stream remains in the Connecting state, restart the stream in the web interface of the DM NVX transmitter and in the web interface of the DM NVX receiver.
DM NVX endpoints controlled by a DM NVX Director network appliance do not connect to the control system	The domain configuration is incorrect.	Ensure that the domain of the DM NVX Director network appliance and the programmed domain in the SIMPL program match. Verify that the Domain Number in the web interface matches the slot number in the programmed domain in the SIMPL program.
	The IP Table entry of the DM NVX Director network appliance is incorrect.	Verify that the IP Table entry for the DM NVX Director network appliance matches the IP ID set in the SIMPL program.
	A network configuration error exists.	Verify that the network is configured properly. Ensure that the DM NVX endpoints and the control system are on the same subnet and can connect to one another.

Problem	Possible Causes	Corrective Actions
One of the DM NVX Director network adapters does not respond when a computer is connected to multiple networks using multiple network adapters.	The network is not configured to relay packets across all networks.	Correct the network configuration. For network configurations that require intersubnet communication, enable PIM (Protocol Independent Multicast) on the Ethernet switches and adjust network parameters on the DM NVX endpoints accordingly.

Resources

For additional information about DM NVX Director network appliances and related DM NVX devices, refer to the following resources.

Related Documentation

- DM NVX® AV-over-IP System Design Guide
- Crestron Online Help (OLH)

Crestron Support and Training

- Crestron True Blue Support
- Crestron Resource Library
- Crestron Training Institute (CTI) Portal

Programmer and Developer Resources

- help.crestron.com: Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- developer.crestron.com: Provides developer documentation for Crestron APIs, SDKs, and other development tools

Product Certificates

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

Crestron Electronics, Inc.
15 Volvo Drive, Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7656
www.crestron.com

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Specifications subject to
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