# CEN-SWPOE-16

## 16-Port Managed PoE Switch

Supplemental Guide

Crestron Electronics, Inc.

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# Contents

**Introduction** 1

**Configuration** 2

Accessing the Configuration Utility ..... 2
Using Crestron Toolbox Software ..... 2
Using a Web Browser ..... 4
Navigating the Configuration Utility ..... 5
Device Status ..... 6
Device Settings ..... 7
Port Settings ..... 10
PoE Settings ..... 11
Port Mirroring ..... 12
VLAN Settings ..... 13

# CEN-SWPOE-16: 16-Port Managed PoE Switch

## Introduction

The CEN-SWPOE-16 is a 16-port PoE (Power over Ethernet) switch that can power a complete Ethernet network of touch screens, control processors, servers, and other devices in a single-space rack mount package. All 16 ports are gigabit capable to ensure maximum bandwidth for multimedia and critical control data. All ports are located on the rear of the unit, while the front panel provides clear indication of each port's status; this configuration provides an ideal form factor for use in a typical 19" AV equipment rack. Customizable front labeling also allows one to designate each port with a descriptive name.

For more information on the CEN-SWPOE-16, refer to the CEN-SWPOE-16 DO Guide (Doc. 7941) at www.crestron.com/manuals.

# Configuration

The CEN-SWPOE-16 provides a web-based configuration utility. Certain functions can be accessed from a Web browser, and certain functions can be accessed from Crestron Toolbox™ software.

## Accessing the Configuration Utility

NOTE: Configuration of the CEN-SWPOE-16 must be performed from a computer whose IP address is on the same IP subnet. The default configuration of the switch allows the IP address of the switch to be automatically assigned by a DHCP (Dynamic Host Configuration Protocol) server on the local area network. If a DHCP server does not exist on the network and two minutes have elapsed since power was applied to the switch, the IP address of the switch defaults to "0.0.0.0" and the subnet mask defaults to" 255.255.255.0."

The configuration utility can be accessed from Crestron Toolbox software or from a web browser. The functionality differs depending on the method of access:

- Crestron Toolbox: The configuration utility can be accessed from Crestron Toolbox software if the switch is configured to operate in DHCP mode (the default configuration). Crestron Toolbox software automatically discovers the IP address of the switch. Accessing the switch through Crestron Toolbox software allows for firmware updates and modification of the Ethernet settings and the IP table. This access also can create a connection between the switch and a control system, allowing the switch to be controlled with a Crestron Studio® software program or a SIMPL Windows program. For additional information, refer to the “Using Crestron Toolbox Software” section below.
- Web Browser: The configuration utility can be accessed from a web browser if the IP address or host name of the switch is known. Web browser access allows full control over the features of the switch, including settings for the username and password, the IP address, PoE enabling, port enabling, and port mirroring. This access does not allow for firmware updates. For additional information, refer to “Using a Web Browser” on page 4 and “Navigating the Configuration Utility” on page 5.

  NOTE: The default host name of the switch is “CEN-SWPOE-16.”

### *Using Crestron Toolbox Software*

To access the configuration utility from Crestron Toolbox software, complete the following steps. Crestron Toolbox software can be downloaded from www.crestron.com/software.

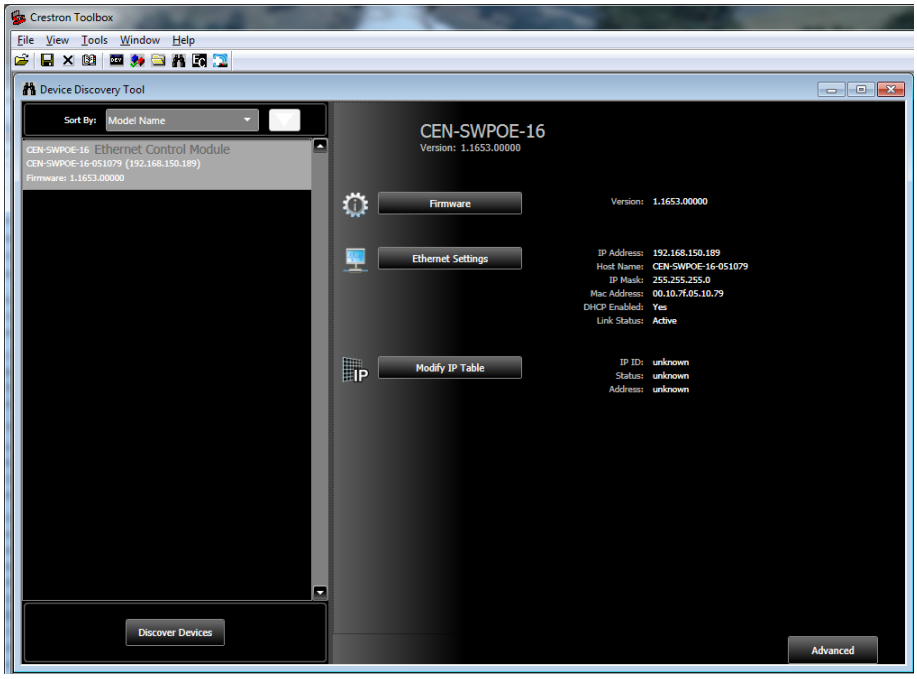
NOTE: Crestron software and any files on the website are for authorized Crestron dealers and Crestron Service Providers (CSPs) only. New users must register to obtain access to certain areas of the site (including the FTP site).

1. Using the included USB cable, connect the CEN-SWPOE-16 (via the COMPUTER port on the front panel of the device) to a computer with Crestron Toolbox software installed.
2. Open Crestron Toolbox software
3. Select Tools > Device Discovery Tool

4. From the device list on the left side of the window, select the name of the switch. The default name is "CEN-SWPOE-16."

No login is required for accessing the switch through Crestron Toolbox software. After the device is selected, options for upgrading firmware and modifying the Ethernet settings and IP table appear on the window as shown below. Refer to the embedded Crestron Toolbox software help files for more information about using these features.

*Crestron Toolbox – Device Discovery Tool Window*




Click **Firmware** to upgrade device firmware. The **Firmware** window displays the model of the device and the current firmware version.

- To upgrade, click **Browse** and select the file containing the new firmware from the Crestron FTP website.
- Click **Upgrade** to start the firmware upgrade process. The switch reboots automatically when the upgrade is complete.

NOTE: Read the release notes before upgrading the firmware.

NOTE: For 48 hours after a firmware upgrade, the browser cache must be cleared after each login to the web-based configuration utility. If the cache is not cleared, the browser may not display the login page.

Click **Ethernet Settings** to modify the device's Ethernet settings. The **Ethernet Addressing** window allows enabling or disabling of Ethernet, DHCP, and WINS. If DHCP is disabled, this window allows manual changes to the IP address, the IP subnet mask, and the default router. This window also allows changes to the hostname, the domain name, the ports, and the DNS (Domain Name System) servers.

Click **Modify IP Table** to set up a connection between a control system and the switch, allowing the switch to be controlled with a Crestron Studio software program or a SIMPL Windows program.

## *Using a Web Browser*

To access the configuration utility from a web browser:

1. Using the included USB cable, connect the CEN-SWPOE-16 (via the COMPUTER port on the front panel of the device) to a computer with Crestron Toolbox software installed.
2. Start the web browser.
3. Enter the IP address or host name of the switch in the browser URL field.

   NOTE: If the default web management port number of 80 has been changed, append the port number to the IP address by entering a colon followed by the new port number. If, for example, the IP address is 192.168.100.16 and the web management port number has been changed from 80 to 150, navigate to http://192.168.100.16:150.

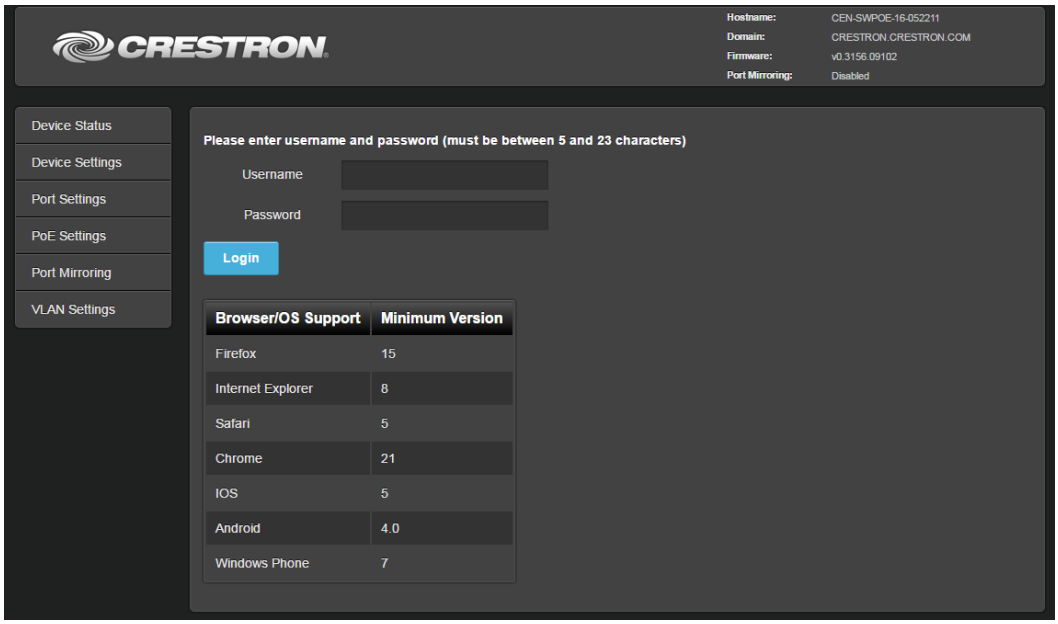
   NOTE: For 48 hours after a firmware upgrade, the browser cache must be cleared after each login to the web-based configuration utility. If the cache is not cleared, the browser may not display the login page. Refer to the release notes for more details.

4. Log in to the utility by entering the username and password on the **Login** page. The default username is "admin" and the default password is "admin."

   NOTE: Both the username and the password are case sensitive.

   NOTE: For enhanced security, changing the default username and password is strongly recommended. For more information about changing the username and password, refer to “Login Information” on page 9.

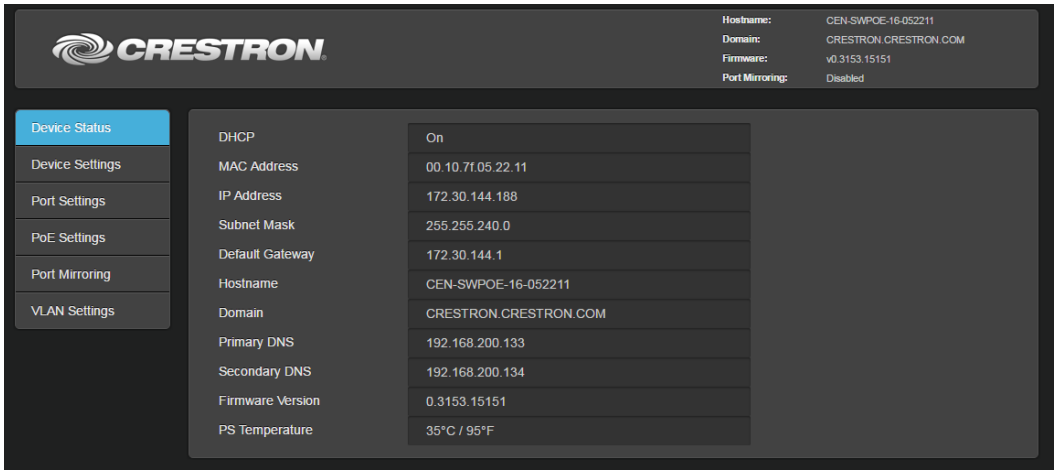
*Login Page*




NOTE: The **Login** page lists minimum versions of browsers and operating systems that are fully supported by the web-based configuration. Be sure to use a supported browser to log in to the switch.

5. Click **Login**. The **Device Status** page (the default page of the switch) opens.

*Device Status Page (Default)*

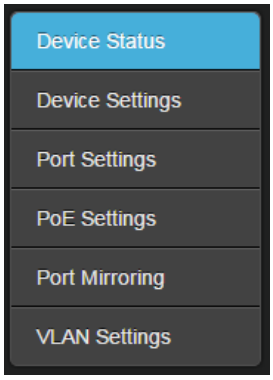



## Navigating the Configuration Utility

Use the navigation menu on the left side of the page to navigate the configuration utility. The menu is always visible on the left side of the page, with the currently selected page highlighted in blue. The menu provides six selections:

- Device Status
- Device Settings
- Port Settings
- PoE Settings
- Port Mirroring
- VLAN Settings

*Navigation Menu*

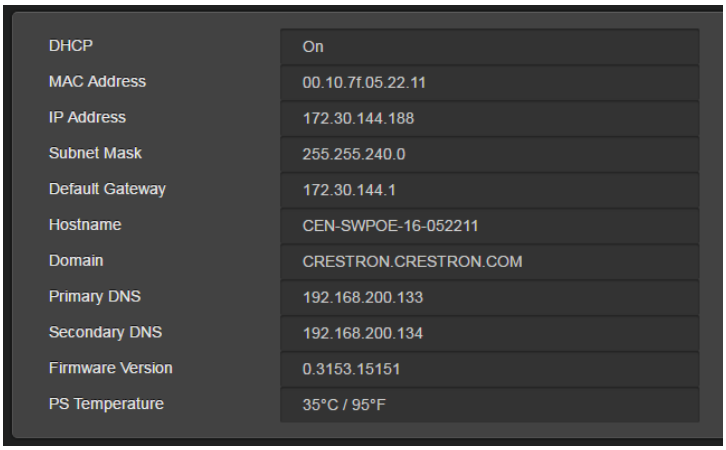



The **Device Status** page is the default page that appears upon logging in, as shown in the image above.

## *Device Status*

Select **Device Status** from the navigation menu to display system information about the switch. The following illustration shows an example of a typical **Device Status** page. These settings are configured using the **Device Settings** page (see page 7).

*Device Status Page*



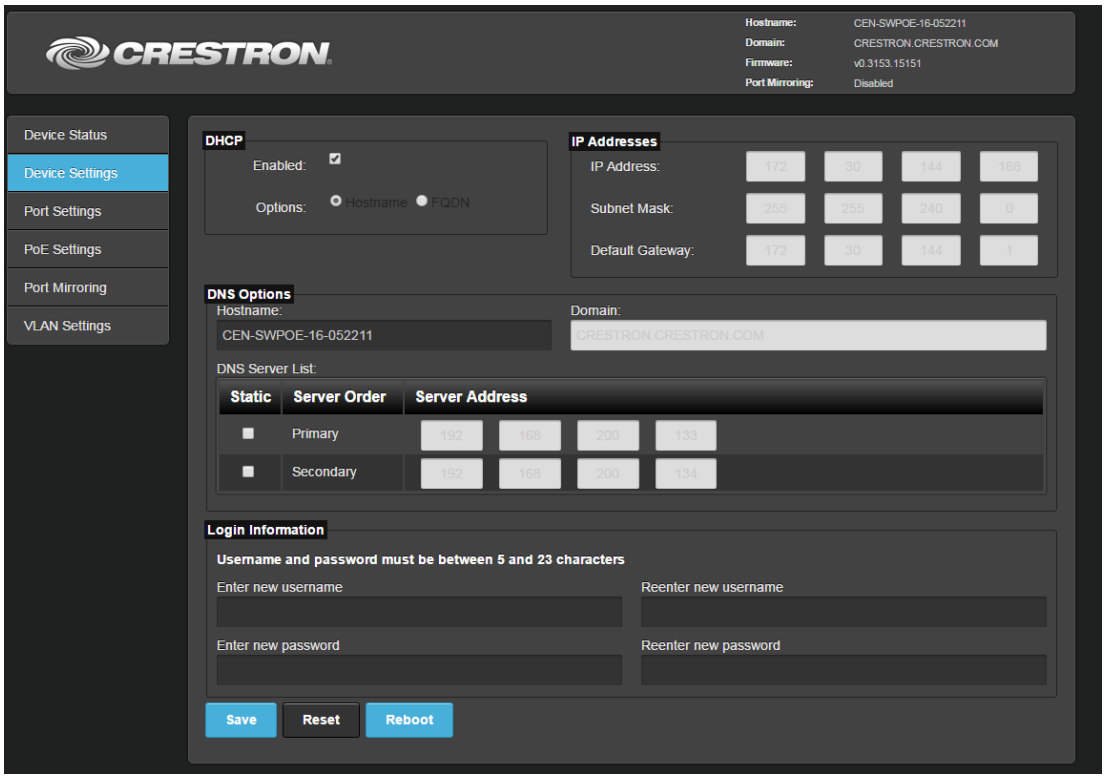

The **Device Status** page displays the following information:

- **DHCP**: Displays whether DHCP is turned on or off (The default is on.)
- **MAC Address**: Displays the unique address assigned to each switch
- **IP Address**: Displays the IP address assigned to the switch (The default IP address is "0.0.0.0".)
- **Subnet Mask**: Displays the address code that determines the size of the network
- **Default Gateway**: Displays the address of the switch that forwards Internet traffic from the local area network
- **Hostname**: Displays the hostname of the switch
- **Domain:** Displays the domain name set by DHCP or set by the user (There is no default value.)
- **Primary DNS**: Displays the DNS used to resolve the domain name to an IP address
- **Secondary DNS**: Displays the DNS used if the primary DNS fails
- **Firmware Version**: Displays the version of the firmware installed in the switch
- **PS Temperature**: Displays the power supply temperature (in Celsius and Fahrenheit)

## *Device Settings*

Select **Device Settings** from the navigation menu to make changes to DHCP settings, IP addresses, the DNS settings, and login information or to reboot the switch.

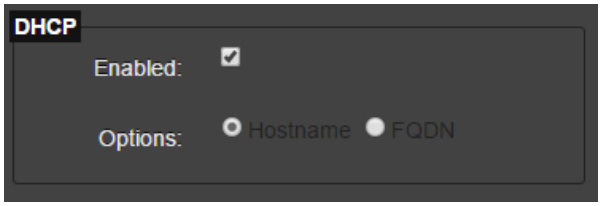
*Device Settings Page*




## *DHCP*

The default configuration of the switch allows its IP address to be automatically assigned by a DHCP (Dynamic Host Configuration Protocol) server on the local area network. If a DHCP server does not exist on the network and two minutes have elapsed since power was applied to the switch, the IP address of the switch defaults to "0.0.0.0". Edit the DHCP settings in the **DHCP** section of the **Device Settings** page.

*Device Settings – DHCP*



The following options are available:

- Enable DHCP: If this option is checked, an IP address is obtained from a DHCP server (Dynamic Host Configuration Protocol). If DHCP is enabled, IP does not function until a reply has been received from the server. Requests are broadcasted periodically by the switch for an IP address. DHCP values can include the IP address, subnet mask, and default gateway.

  NOTE: If DHCP is enabled, users cannot manually change the IP address, subnet mask, default gateway, or domain name.

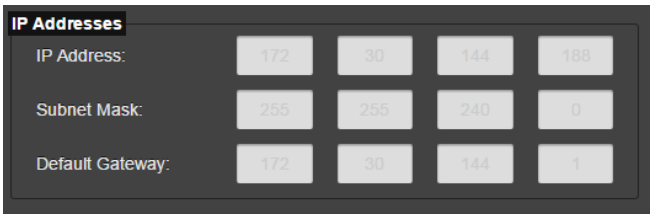
- Options: Selects whether to use a Hostname or FQDN (fully qualified domain name).

Click Save at the bottom of the page to save the configuration. Click Reset to clear any pending changes.

### *IP Addresses*

IP addresses can be manually configured only if DHCP is disabled. To manually configure IP settings, set an IP address and a subnet mask that are compatible with the network. Establishing a default gateway between the switch and management sections that exist on another network segment may also be necessary. An IP address may be used for management access to the switch over the network. Edit these settings in the IP Addresses section of the Device Settings page.

*Device Settings – IP Addresses*




The following IP address settings can be changed:

- IP Address: The address of the VLAN interface that is allowed management access (Valid IP addresses consist of four octets, 0 to 255, separated by periods; the default is "0.0.0.0".)
- Subnet Mask: Identifies the host address bits used for routing to specific subnets (The default is "255.255.255.0".)
- Default Gateway: The IP address of the gateway router between this device and management stations that exist on other network segments (The default is "0.0.0.0".)

Click Save at the bottom of the page to save the configuration. The switch must be restarted for the changes to take effect. Click Reset to clear any pending changes.

## *DNS Options*

Use the **DNS Options** section of the **Device Settings** page to change the hostname, domain name, and primary and secondary DNS.

***Device Settings – DNS Options***

The following settings can be changed:

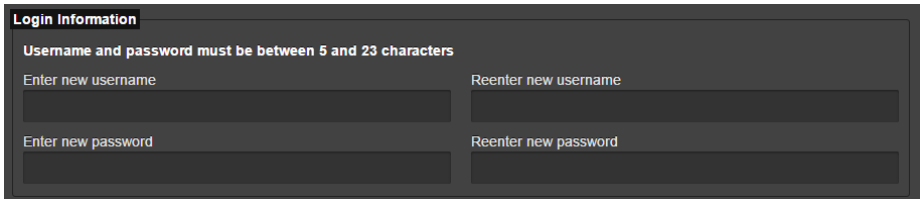
- **Hostname**: Displays the name of the switch
- **Domain**: The fully qualified domain name consisting of the hostname and the DNS suffix
- **Primary DNS**: Displays the DNS used to resolve the domain name to an IP address (The default is "0.0.0.0".)
- **Secondary DNS**: Displays the DNS used if the Primary DNS fails (The default is "0.0.0.0".)
- **Static**: Selects whether DNS servers are added manually or received through DHCP (If this option is not selected, the device uses DNS servers received using DHCP.)

Click **Save** at the bottom of the page to save changes to these settings. The switch must be restarted for the changes to take effect. Click **Reset** to clear any pending changes.

## *Login Information*

For security reasons, it is recommended to change both the default username and the default password of the switch. Configure username and password settings in the **Login Information** section of the **Device Settings** page.

***Device Settings – Login Information***




NOTE: Both the username and the password are case sensitive.

To change the username, enter a new username into both username fields. The two fields must match, and the proposed username must be between 5 and 23 characters long.

To change the password, enter a new password into both password fields. The two fields must match, and the proposed password must be between 5 and 23 characters long.

Click **Save** to save changes to the username and password. After the new username or password is saved, the connection to the switch is reset, and it must be restarted. Click **Reboot** and log in using the new login information. Attempting to change any other settings before restarting the switch results in an error message. Click **Reset** to clear any pending changes.

### *Reboot*

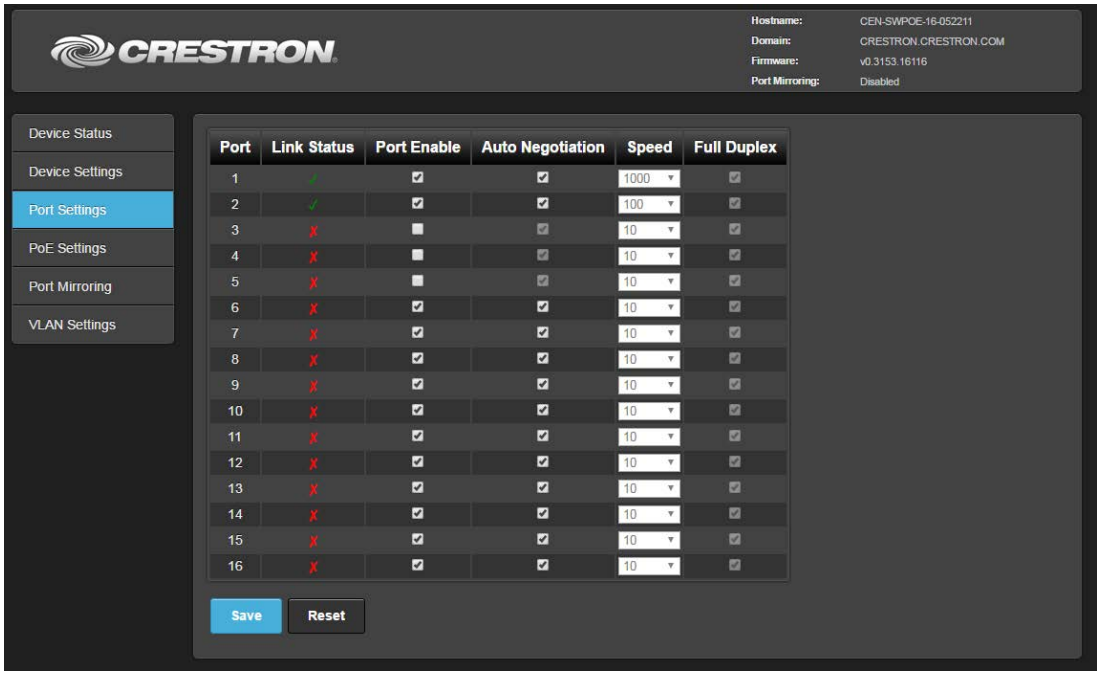
The **Device Settings** page contains a **Reboot** button to restart the switch remotely.

## *Port Settings*

The switch can be set to manually configure the speed and duplex mode used on specific ports or can be set to use autonegotiation to detect the connection settings used by the attached device. Use the full duplex mode on ports whenever possible to double the throughput of switch connections.

To configure the ports on the switch, select **Port Settings** from the navigation menu. The **Port Settings** page opens. Refer to the illustration that follows.

*Port Settings Page*




This page displays the following information and options:

- **Port**: Displays the port number (1 to 16)
- **Link Status**: Indicates the link status (A red x (✗) indicates that no link is active, while a green check (✓) indicates that a link is active.)
- **Port Enable**: Allows enabling or disabling of the Ethernet link, which starts or stops all Ethernet traffic
- **Auto Negotiation**: Enables or disables auto negotiation
- **Speed**: Selects the speed of the port (10, 100, or 1,000 Mpbs)

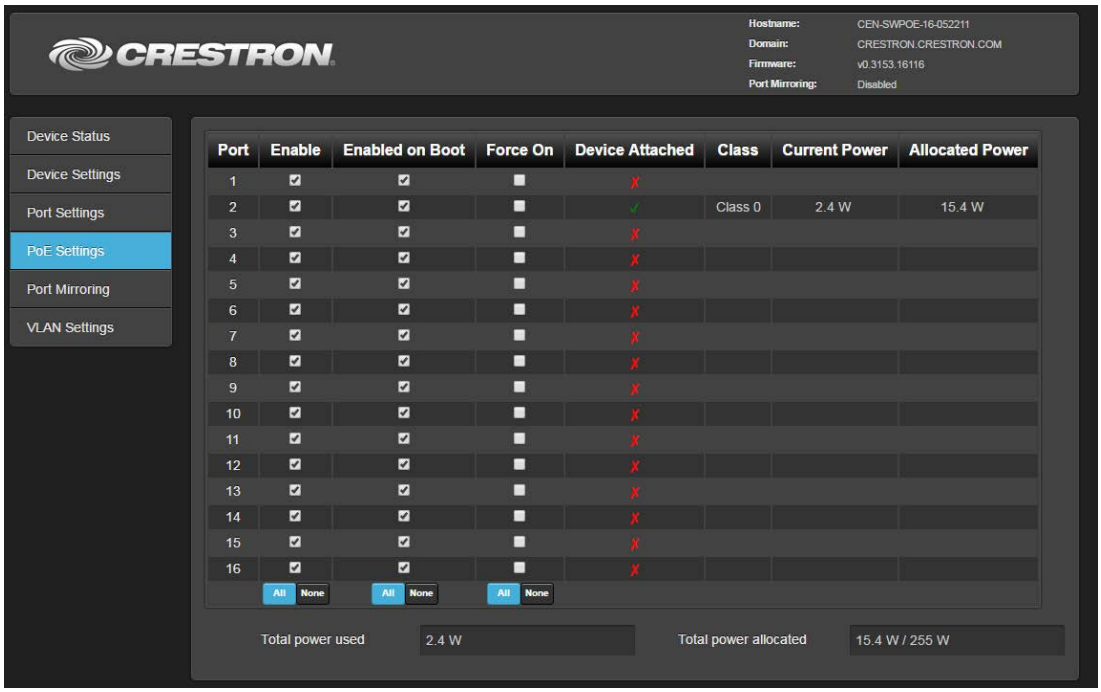
- **Full Duplex**: Check to enable full duplex (Disabling full duplex enables half duplex operation; full and half duplex are available for all speeds.)

Click **Save** at the bottom of the page to save changes to these settings. Click **Reset** to clear any pending changes.

## *PoE Settings*

Select **PoE Settings** from the navigation menu to view the **PoE Settings** page. The following columns display information and options for each port on the switch. Refer to the illustration below.

*PoE Settings Page*




- **Port**: Displays the port number (1 to 16)
- **Enable**: Selects which ports should have PoE enabled
- **Enabled on Boot**: Selects which ports should have PoE automatically enabled when the device starts
- **Force On**: Forces power on any devices that do not meet IEEE PoE requirements (While this mode is enabled, the port is not IEEE compliant.)

NOTE: For the **Enable**, **Enabled on Boot**, and **Force On** options, click **All** to select all ports at once or select **None** to disable all ports at once.

- **Device Attached**: Displays either a red x (✗), indicating that no PoE device is connected to the port, or a green check (✓), indicating that a PoE device is connected to the port

The following will only display if a PoE device is connected to the port. Nothing is displayed if a non-PoE device is connected to the port or if no device is connected.

- Class: Displays the class of the device:
  - Classes 0–3 are displayed for type 1 (regular PoE) devices.
  - Class 4 is displayed for type 2 (PoE+) devices.
- Current Power: Displays the power currently being used by the device (in watts)
- Allocated Power*:* Displays the power reserved for the device (in watts)

NOTE: PoE settings take effect immediately and are automatically saved.

The PoE Settings page also displays the total power used and the total power allocated for PoE devices. If no PoE devices are connected to the switch, these display "0.0 W."

## *Port Mirroring*

The switch can mirror traffic from any source port to a selected capture port for real-time analysis. The switch can then attach a logic analyzer or RMON probe to the target port and can study the traffic crossing the source port in an unobtrusive manner.

NOTE: Capture port speed should match or exceed port speed; otherwise, traffic may be dropped from the monitor port.

NOTE: All mirror sessions must share the same destination port.

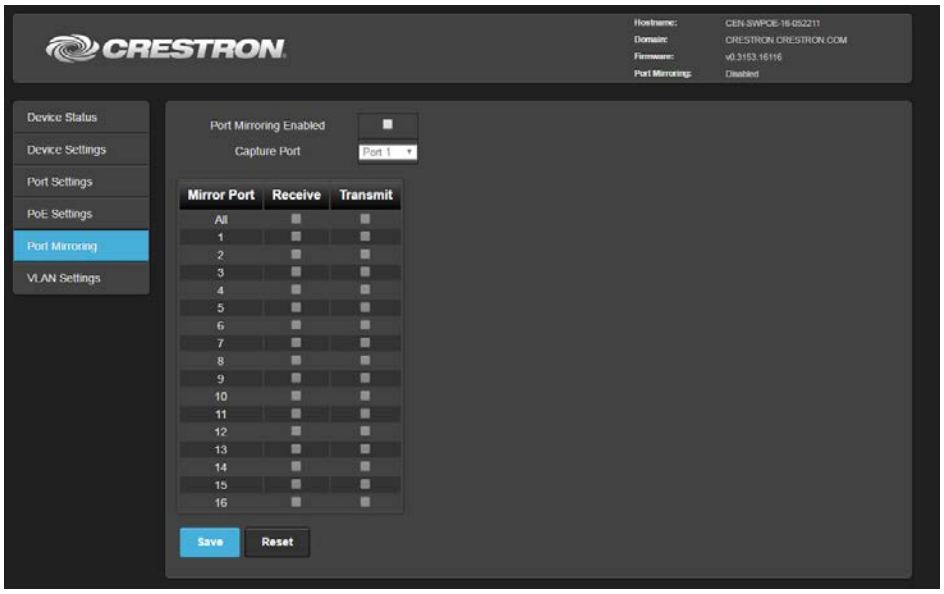
To configure port mirroring in a network, select Port Mirroring from the navigation menu to display the Port Mirroring page. Click the Port Mirroring Enabled check box to enable port mirroring.

Set the following attributes for port mirroring:

- Capture Port: Selects the port that acts as the destination port
- Transmit: Selects which ports mirror transmitted traffic to the capture port
- Receive: Selects which ports mirror received traffic to the capture port

Click Save to save the configuration or click Reset to clear any pending changes.

*Port Mirroring Page*

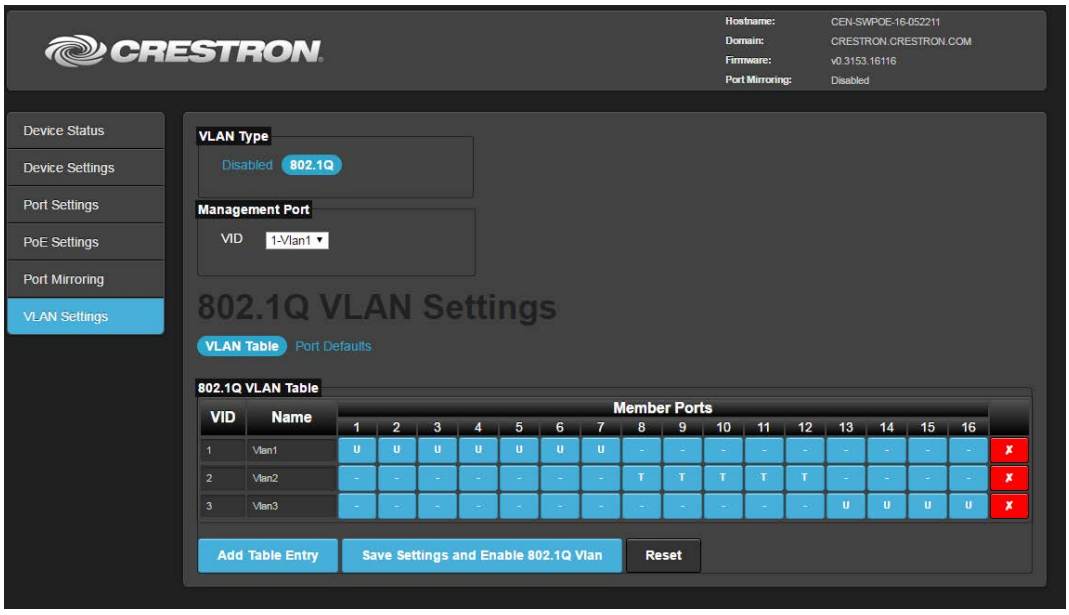



## *VLAN Settings*

The CEN-SWPOE-16 supports virtual LAN (VLAN) configurations, including settings for configuring 802.1Q VLANs.

Select **VLAN Settings** from the navigation menu to view the **VLAN Settings** page. The following columns display information and options for each port on the switch. Refer to the illustration below.

*VLAN Settings Page*



### *802.1Q VLAN*

Click **802.1Q** under **VLAN Type** to configure an 802.1Q VLAN on the CEN-SWPOE-16. The following options are available.

- **Management Port:** Selects which port is the management port for the VLAN
- **VLAN Table:** Displays information about any saved 802.1Q VLAN configurations

  Click the red x ( ) button next to a table entry to remove that entry. Each table entry contains the following information.

  - **VID:** The 802.1Q VLAN's VLAN identifier (VID)
  - **Name:** The user-defined name of the 802.1Q VLAN
  - **Member Ports:** The ports that are part of the VLAN based on the user's settings.

    Each port can be configured for following VLAN tagging settings.

    - **U** (untagged): Indicates that the packets at this port are not VLAN-tagged (The outgoing VLAN information is not contained in the Ethernet frame.)
    - **T** (tagged): Indicates that the packets at this port are VLAN-tagged (The outgoing VLAN information is contained in the Ethernet frame.)
    - **-**: Indicates that the packets at this port are allowed to be forwarded to the destination port's corresponding bits set

  Click **Add Table Entry** to enter a new 802.1Q VLAN configuration. Click **Save Settings and Enable 802.1Q Vlan** to save all current table entries and to enable the current VLAN configuration(s). Click **Reset** to clear any pending changes.

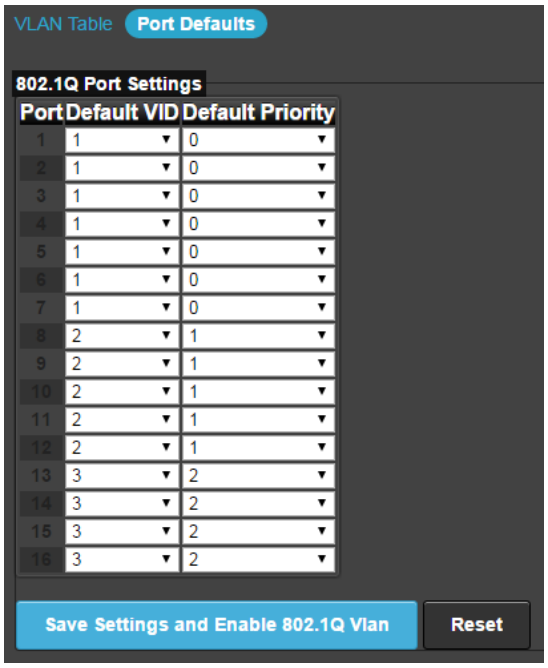
- **Port Details:** Displays the following information about the 802.1Q VLAN port defaults.

  Each table entry contains the following information.

  - **Port [1-16]:** The corresponding port on the CEN-SWPOE-16.
  - **Port Default VID:** The default VLAN identifier (VID) for the port (select the desired VID from the dropdown menu)
  - **Default Priority:** The default priority bit for the port (select the desired default priority bit number from the dropdown menu)

    NOTE: When the incoming packet is a nonpriority frame or a non-802.1Q frame, the default priority bit is used as the priority bit for the port (if 802.1Q VLAN is enabled). Default priority bit values are between 0 and 7. An incoming packet with a higher priority is handled first.

*VLAN Settings – Port Detail*




Click **Add Table Entry** to enter a new 802.1Q VLAN configuration. Click **Save Settings and Enable 802.1Q Vlan** to save all current table entries and to enable the current VLAN configuration(s). Click **Reset** to clear any pending changes.

### *Disabled*

Click **Disabled** under **VLAN Type** to disable VLAN on the CEN-SWPOE-16.

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