NETGEAR®

User Manual

8-Port and 16-Port Gigabit Ethernet Plus Click Switch

Model GSS108EPP, GSS108E, and GSS116E

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See the regulatory compliance document before connecting the power supply.

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By using this device, you are agreeing to NETGEAR's Terms and Conditions at https://www.netgear.com/about/terms-and-conditions. If you do not agree, return the device to your place of purchase within your return period.

Do not use this device outdoors. For products that support Power over Ethernet (PoE), the PoE source is intended for intra building connection only.

Applicable to 6 GHz devices only: Only use the device indoors. The operation of 6 GHz devices is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet. Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

This switch is designed for indoor use only. If you want to connect to a device located outdoors, the outdoor device must be properly grounded and surge protected, and you must install an Ethernet surge protector inline between the switch and the outdoor device. Failure to do so can damage the switch.

WARNING: Before connecting this switch to outdoor cables or devices, see https://kb.netgear.com/000057103 for safety and warranty information.

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Revision History.

Publication Part Number	Publish Date	Comments
202-11690-05	September 2021	We removed "Smart Managed" from the product name.
202-11690-04	August 2021	• Changed the Regulatory and Legal section on this page, including the addition of a statement that this switch is designed for indoor use and a warning about connecting the switch to outdoor cables. • Removed information about the NETGEAR Insight app. • Revised Add Devices to the Access Control Table on page 52. • Published the manual in a new format.
202-11690-03	October 2018	• Changed the name of switch in this manual from *ProSAFE 8-Port and 16-Port Gigabit Web Managed Click Switch* to *8-Port and 16-Port Gigabit Ethernet Smart Managed Plus Click Switch*. • Changed Configure the Switch. • Changed Access the Switch Using a Web Browser.

(continued) 202-11690-03	(continued) October 2018	(continued) • Changed Access the Switch With the ProSAFE Plus Configuration Utility and the subsections. • Added Use the NETGEAR Switch Discovery Tool to Access the Switch. • Changed Register Your Product. • Changed View Switch Information or Change the Switch Device Name. • Changed Add Devices to the Access Control Table. • Added PoE Troubleshooting Suggestions for Model GSS108EPP. • Removed references to the resource CD. • Made multiple minor changes.
202-11690-02	January 2017	Made a minor change to Enable Port Mirroring.
202-11690-01	December 2016	Initial publication.

Contents

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Get Started

This user manual is for the 8-Port and 16-Port Gigabit Ethernet Plus Click Switch, models GSS108E, GSS116E, and GSS108EPP. Model GSS108EPP can provide Power over Ethernet (PoE).

This chapter covers the following topics:

- Configure the Switch
- Access the Switch Using a Web Browser
- Access the Switch With the ProSAFE Plus Configuration Utility
- Use the NETGEAR Switch Discovery Tool to Access the Switch
- Change the Password
- Register Your Product

Note: For more information about the switch, see the installation guide and the hardware installation guide, which you can download by visiting netgear.com/support/download/.

Note: For more information about the topics covered in this manual, visit the support website at netgear.com/support.

Note: Firmware updates with new features and bug fixes are made available from time to time at netgear.com/support/download/. Some products can regularly check the site and download new firmware, or you can check for and download new firmware manually. If the features or behavior of your product does not match what is described in this guide, you might need to update your firmware.

Configure the Switch

Gigabit Ethernet Plus Click switches are plug-and-play, so they can be used without any configuration. Just connect power, connect to your network and to your other devices, and you're done. You can also configure and manage additional advanced features of the switch either by using your computer's web browser or by installing the ProSAFE® Plus Utility on your Windows-based computer.

For easiest access, we recommend that you cable the switch to a network with a router or DHCP server that assigns IP addresses, power on the switch, and then use a computer that is connected to the same network as the switch (on-network). However, it is also possible to configure the switch connected directly only to the computer that you are using to configure it, and not connected to the network (off-network).

You can configure and manage advanced features of the switch either by using your computer's web browser and accessing the switch at its IP address or by installing the ProSAFE Plus Utility on your Windows-based computer.

If you use a Mac or a 64-bit Windows-based computer, you can use the NETGEAR Switch Discovery Tool to discover the switch in your network and access the local browser interface of the switch.

Access the Switch Using a Web Browser

This manual describes the local browser–based management interface, referred to as the local browser interface.

You can access and configure the switch directly by entering the IP address of the switch in the address bar of a web browser and accessing the local browser interface of the switch. When you use the local browser interface, the simplest way to configure the switch is not connected to your network (off-network). You can also configure the switch with it connected to your network, router, or modem, (on-network) but you must be able to determine the IP address of the switch if your network uses DHCP.

Access a Switch Connected to a Network

By default, the DHCP client of the switch is enabled. To access the switch, use the IP address that the DHCP server assigned to the switch.

To determine the IP address of the switch, do one of the following:

- If you use a Windows-based computer, use the ProSAFE Plus Utility to detect the IP address (see Access the Switch With the ProSAFE Plus Configuration Utility). You can also access and configure the switch from the utility.

- If you use a Mac or a 64-bit Windows-based computer, use the NETGEAR Switch Discovery Tool to detect the IP address (see Use the NETGEAR Switch Discovery Tool to Access the Switch on page 11).
- Access the DHCP server.
- Use an IP scanner utility.

To use your web browser to configure a switch that is connected to a network:

1. Cable the switch to a network with a router or DHCP server that manages IP addresses.
2. Power on the switch.

   The DHCP server assigns the switch an IP address.

3. Connect your computer to the same network as the switch.
4. Determine the IP address of the switch.

   DHCP is enabled on the switch by default. Use the IP address that the DHCP server assigned to the switch. If you are unsure how to determine the IP address of the switch, you can use the ProSAFE Plus Configuration Utility or an IP scanner utility.

5. Open a web browser, and enter the IP address of the switch.
6. When prompted, enter the password.

   The default password is **password**.

7. Click the **Login** button.

   You can now configure additional options for the switch through the local browser interface.

Access a Switch That Is Off-Network

To use your web browser to configure a switch that is not connected to a network:

1. Record your computer's TCP/IP configuration settings, and then configure the computer with a static IP address of 192.168.0.210 and 255.255.255.0 as the subnet mask.

   Note: If you are unsure how to do this, visit netgear.com/support and search for Static IP address on computer.

2. Plug the switch into a power outlet and then connect your computer to the switch using an Ethernet cable.

   You can connect the Ethernet cable to any port on the switch.

3. Open a web browser, and enter **http://192.168.0.239**.

   This is the default address of the switch.

4. When prompted, enter the password.

   The default password is **password**.

5. Click the **Login** button.

   You can now configure additional options for the switch through the local browser interface.

6. After you complete the configuration of the switch, reconfigure the computer that you used for this process to its original TCP/IP settings.

You can now connect your switch to your network using an Ethernet cable.

Access the Switch With the ProSAFE Plus Configuration Utility

The ProSAFE Plus Configuration Utility runs on Windows-based computers. You can install the utility to select additional options to manage and customize the switch for your network. Visit netgear.com/support/product/PCU to download the utility and its user manual.

Install the ProSAFE Plus Utility

Note: The ProSAFE Plus Utility requires WinPcap and Adobe Air. If WinPcap and Adobe Air are not detected during ProSAFE Plus Utility installation, you are prompted to allow them to be installed.

To install the ProSAFE Plus Utility:

1. Visit netgear.com/support/product/PCU.
2. Select and download the latest version of the utility to your computer.
3. Unzip the downloaded file to extract the utility installation file.
4. Install the utility on your computer.
5. If prompted, allow WinPcap and Adobe Air to be installed.

Note: We recommend that you reboot your computer after installing the ProSAFE Plus Utility.

Access the Switch Using the ProSAFE Plus Utility

For easiest access, we recommend that you cable the switch to a network with a router or DHCP server that assigns IP addresses, power on the switch, and then use a computer that is connected to the same network as the switch.

By default, the switch management mode allows management through the ProSAFE Plus Utility. For more information, see Change the Switch Management Mode on page 51.

Note: You can also access and configure the switch directly using a web browser. See Access the Switch Using a Web Browser on page 7.

To configure the switch using the ProSAFE Plus Utility:

1. Cable the switch to a network with a router or DHCP server that manages IP address.

2. Power on the switch.

   The DHCP server assigns the switch an IP address.

3. Connect your computer to the same network as the switch.

   You can use a WiFi or wired connection. The computer and the switch must be on the same Layer 2 network.

   Note: You can use the ProSAFE Plus Utility to upgrade the firmware on the switch. In that situation, do not use a WiFi connection to the switch but use only a direct wired connection over an Ethernet cable. That is, configure a computer with an IP address in the same subnet as the switch and connect directly to the switch using an Ethernet cable before you start the firmware upgrade using the ProSAFE Plus Utility.

4. Double-click the **ProSAFE Plus Utility** icon.

   The configuration home page displays a list of Web Managed (Plus) Switches that it discovers on the local network.

   Note: To use the ProSAFE Plus Utility, you must configure your computer's security software to allow broadcast UDP packets to go through UDP remote and source (local and destination) ports 63321 through 63324. To allow this traffic, you can create a rule in your computer's security software, or temporarily disable the firewall, Internet security, antivirus programs, or all of these on the computer that you use to configure the switch. If you temporarily disable any security services, be sure to reenable those services once configuration is complete.

5. Select the switch that you want to configure.

   If you do not see the switch, click the **REFRESH** button.

6. Click the **APPLY** button.

   The login window displays.

7. When prompted, enter the password.

   The default password is **password**.

The Switch Information page displays.

8. Use the utility to configure the switch settings.

9. When you are finished with the configuration, return the computer's firewall, Internet security, and antivirus programs to their usual settings.

For a description of the ProSAFE Plus Switch Utility features, see the *ProSAFE Plus Switch Utility User Guide*. You can access the user guide through links on the **Help** tab of the utility or you can download it by visiting <u>netgear.com/support/download/</u>.

Use the NETGEAR Switch Discovery Tool to Access the Switch

For easiest access, we recommend that you cable the switch to a network with a router or DHCP server that assigns IP addresses, power on the switch, and then use a computer that is connected to the same network as the switch.

The NETGEAR Switch Discovery Tool lets you discover the switch in your network and access the local browser interface of the switch from a Mac or a 64-bit Windows-based computer.

To install the NETGEAR Switch Discovery Tool, discover the switch in your network, and access the local browser interface of the switch:

1. Download the Switch Discovery Tool by visiting
<u>netgear.com/support/product/netgear-switch-discovery-tool.aspx</u>.

   Depending on the computer that you are using, download either the Mac version or the version for a 64-bit Windows-based computer.

2. Temporarily disable the firewall, Internet security, antivirus programs, or all of these on the computer that you use to configure the switch.

3. Unzip the Switch Discovery Tool files, double-click the `.exe` or `.dmg` file (for example, `NETGEAR+Switch+Discovery+Tool+Setup+1.2.101.`exe or `NetgearSDT-V1.2.101.dmg`), and install the program on your computer.

   The installation process places a **NETGEAR Switch Discovery Tool** icon on your desktop.

4. Reenable the security services on your computer.

5. Power on the switch.

   The DHCP server assigns the switch an IP address.

6. Connect your computer to the same network as the switch.

   You can use a WiFi or wired connection. The computer and the switch must be on the same Layer 2 network.

7. Open the Switch Discovery Tool.

To open the program, double-click the **NETGEAR Switch Discovery Too**l icon on your desktop.

The initial page displays a menu and a button.

8. From the **Choose a connection** menu, select the network connection that allows the Switch Discovery Tool to access the switch.

9. Click the **Start Searching** button.

The Switch Discovery Tool displays a list of Plus Switches that it discovers on the selected network.

For each switch, the tool displays the IP address.

10. To access the local browser interface of the switch, click the **ADMIN PAGE** button.

The login page of the local browser interface opens.

11. Enter the switch password.

The default password is **password**. The password is case-sensitive.

The Switch Information page displays.

Change the Password

The default password to access the switch is **password**. We recommend that you change this password to a more secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It can be up to 20 characters.

To change the password:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **Maintenance > Change Password**.

The Change Password page displays.

6. In the **Old Password** field, type the current password for the switch.

7. Type the new password in the **New Password** field and in the **Re-type New Password** field.

8. Click the **Apply** button.

    Your settings are saved. Keep the new password in a secure location so that you can access the switch in the future.

Register Your Product

Registering your product allows you to receive email alerts and streamlines the technical support process. For you to register the switch, the switch must be connected to the Internet.

To register your product through the local browser interface:

1. Connect your computer to the same network as the switch.

    You can use a WiFi or wired connection.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

    If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

    The login window opens.

4. Enter the switch's password in the **password** field.

    The switch's default password is **password**.

    The Switch Information page displays.

5. Select **Help > Registration**.

    The Product Registration page displays.

6. Click the **Register** button.

7. Follow the onscreen process to register your product.

2

Network Settings

This chapter covers the following topics:

- Specify IP Address Settings for the Switch
- Manage Multicast Traffic With IGMP Snooping
- Set Up Link Aggregation Groups

Specify IP Address Settings for the Switch

By default, the switch IP address works as follows:

- If you cable the switch to a network with a DHCP server before you power on the switch, the DHCP server assigns an IP address to the switch when the switch is powered on.

- If you power on the switch when it is not connected to a network with a DHCP server, the switch uses its default IP address, which is 192.168.0.239.

  You can disable the DHCP mode feature in the switch and enter IP address and subnet mask values for the switch as well as the address of the gateway device used by the switch.

Use Browser-Based Access to Specify the Switch IP Address

To specify IP address settings for the switch:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. In the **DHCP Mode** menu, select **Disable**.

The previous figure shows GSS108EPP as the product name. However, the product name depends on your switch model.

The **IP Address**, **Subnet Mask**, and **Gateway Address** fields are enabled.

6. Enter the IP address, subnet mask, and if available, the gateway address.

7. Click the **Apply** button.

Your settings are saved.

Use the ProSAFE Plus Utility to Specify the Switch IP Address

To specify IP address settings for a switch:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Double-click the **ProSAFE Plus Utility** icon.

The Switch Selection page displays a list of Web Managed (Plus) switches that it discovers on the local network.

3. Select the switch.

If you do not see the switch, click the **REFRESH** button.

4. Click the **IP Setting** button.

The IP Setting page displays.

> **Note:** To navigate to this page, select **Network**, select the switch, and click the **IP Setting** button.

5. In the **DHCP Mode** menu, select **Disable**.

The previous figure shows GSS108EPP as the product name. However, the product name depends on your switch model.

The **IP Address**, **Subnet Mask**, and **Gateway Address** fields are enabled.

6. Enter the IP address, subnet mask, and if available, the gateway address.

7. Enter the switch's password in the **Password** field.

The switch's default password is **password**.

8. Click the **APPLY** button.

Your settings are saved.

Manage Multicast Traffic With IGMP Snooping

Internet Group Management Protocol (IGMP) snooping allows a switch to forward multicast traffic intelligently on the switch. Multicast IP traffic is traffic that is destined to a host group. Host groups are identified by Class D IP addresses, which range from 224.0.0.0 to 239.255.255.255. Based on the IGMP query and report messages, the switch forwards traffic only to the ports that request the multicast traffic. This feature prevents the switch from broadcasting the traffic to all ports and possibly affecting network performance.

The switch maintains a map that shows which links need which IP multicast streams. The switch forwards multicast traffic only to the links that requested them and cuts multicast traffic from links that do not contain a multicast listener. Essentially, IGMP snooping helps optimize multicast performance at Layer 2 and is especially useful for bandwidth-intensive IP multicast applications such as IPTV.

Customize IGMP Snooping

By default, IGMP snooping is enabled. You can customize the settings for your network.

To customize IGMP snooping:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Multicast**.

6. Make sure that the IGMP Snooping Status **Enable** radio button is selected.

   By default, the **Enable** radio button is selected.

7. (Optional) Select the Validate IGMPv3 IP header **Enable** radio button.

   Some network devices might not conform to the IGMPv3 standard. When the Validate IGMPv3 IP header option is enabled, IGMP messages are required to include TTL = 1 and ToS Byte = 0xC0 (Internetwork Control), and the router alert IP option (9404) must be set. Otherwise, the packets are ignored.

8. (Optional) Select the Block Unknown MultiCast Address **Enable** radio button.

   When this feature is enabled, multicast packets are forwarded only to the ports that are in the multicast group learned from IGMP snooping. All unknown multicast packets are dropped.

9. (Optional) Select any item in the **IGMP Snooping Static Router Port** menu.

You can select a port to be the dedicated IGMP snooping static router port if no IGMP query exists in the network for the switch to discover the router port dynamically. After a port is selected as the static router port, all IGMP Join and Leave reports are forwarded to this port.

10. Click the **Apply** button.

Your settings are saved.

Specify a VLAN for IGMP Snooping

To specify a VLAN for IGMP snooping:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.
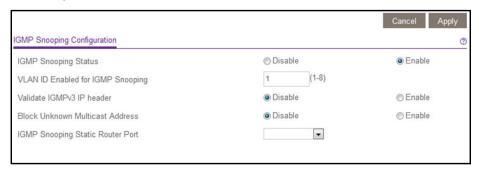
   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Multicast**.

6. Make sure that the IGMP Snooping Status **Enable** radio button is selected.

   By default, the **Enable** radio button is selected.

7. In the **VLAN ID Enabled for IGMP Snooping** field, enter the ID of the VLAN.

   By default, if you enable IGMP snooping, snooping occurs on VLAN 1. However, you can enable snooping on any VLAN as follows:

   • For port-based VLANs, you can enter a VLAN ID that depends on the switch model:

     - **Models GSS108E and GSS108EPP**. You can enter a VLAN ID from 1 to 8.

- **Model GSS116E**. You can enter a VLAN ID from 1 to 16.
- For 802.1Q-based VLANs, you can enter a VLAN ID from 1 to 4094.

8. Click the **Apply** button.

Your settings are saved.

Set Up Link Aggregation Groups

Link aggregation groups (LAGs) allow you to combine multiple Ethernet links into a single logical link. Network devices treat the aggregation as if it were a single link, which increases fault tolerance and load sharing. Specify LAG membership before you enable the LAG. The switch supports up to two static LAGs.

Note: LAGs are supported on switch models GSS108EPP and GSS116E, but they are not supported on switch model GSS108E.

To specify LAG membership and enable one or both LAGs:

- Connect your computer to the same network as the switch.

    You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

9. Launch a web browser.
10. In the address field of your web browser, enter the IP address of the switch.

    If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

    The login window opens.

11. Enter the switch's password in the **password** field.

    The switch's default password is **password**.

    The Switch Information page displays.

12. Select **System > LAG > LAG Membership**.

Note: Model GSS108EPP provide 8 ports and can support up to 4 ports per LAG. Model GSS116E provides 16 ports and can support up to 8 ports per LAG.

13. For each LAG, select the ports for the LAG by selecting the associated check boxes under the port numbers.

   A LAG must consist of at least two ports. The ports that you can select depend on the switch model:

   - **Model GSS108EPP.** For LAG 1, you can select a combination of ports 1 through 4. For LAG 2, you can select a combination of ports 5 through 8.
   - **Model GSS116E**. For LAG 1 and LAG 2 you can select a combination of ports 1 through 16.

14. Click the **Apply** button.

   Your settings are saved.

15. Select **System > LAG > LAG Configuration**.

16. Select the ID of the LAG for which you just set up the port membership or select both LAG IDs.

17. In the **Admin Mode** menu, select **Enable**.

18. Click the **Apply** button.

   Your settings are saved.

3
Optimize Performance With Quality of Service

This chapter covers the following topics:

- Enable 802.1p/DSCP-Based Quality of Service
- Enable Port-Based Quality of Service
- Set Up Rate Limiting
- Set Up Broadcast Filtering

Enable 802.1p/DSCP-Based Quality of Service

802.1p/DSCP-based priority uses a field in the data packet header that identifies the class of data in the packet (for example, voice or video). When 802.1p/DSCP-based priority is used, the switch reads information in the packet header to determine the priority to assign to the packet. The switch reads both 802.1p tag information and DSCP and ToS tag information. If an ingress packet contains an 802.1p tag and a DSCP or ToS tag, the switch gives precedence to the 802.1p tag.

All ports on the switch check the packet header and transmit the packet with a priority determined by the packet content.

To enable 802.1p/DSCP-based QoS:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

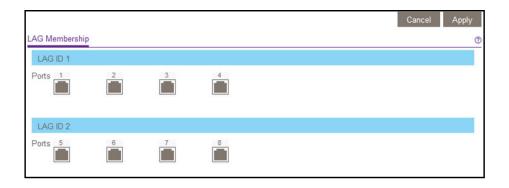   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **QoS**.

   The Quality of Service page displays.

6. Select the **802.1p/DSCP-based** radio button.

   A pop-up window opens, informing you that the current QoS settings will be lost.

7. Click the **YES** button.

   The pop-up window closes.

8. Click the **Apply** button.

   Your settings are saved.

Enable Port-Based Quality of Service

You can assign a priority to all data passing through a particular port. Data with a higher priority is transmitted faster. If packets arrive at several ports at the same time, the ports configured as higher priority transmit their packets first. You must determine which ports will carry delay-sensitive data.

To enable port-based QoS:

1. Connect your computer to the same network as the switch.

    You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

    If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

    The login window opens.

4. Enter the switch's password in the **password** field.

    The switch's default password is **password**.

    The Switch Information page displays.

5. Select **QoS**.

    The Quality of Service page displays.

6. If this is the first time that you are setting up port-based QoS, select the **Port-based** radio button and continue with <u>Step 7</u>.

    Otherwise, see <u>Step 9</u>.

    A pop-up window opens, informing you that the current QoS settings will be lost.

7. Click the **YES** button.

    The pop-up window closes.

8. Click the **Apply** button.

    Your settings are saved and the Port Priority table displays.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

9. To set the port priority for one or more ports, do the following:

   a. Select one or more ports.

   b. In the **Priority** menu, select the priority.

   The options are **High Priority**, **Medium Priority**, **Normal Priority**, and **Low Priority**. The default setting is Low Priority.

   c. Click the **Apply** button.

   Your settings are saved. The same priority is applied to all ports that you selected.

10. To set a different port priority for one or more other ports, repeat Step 9.

Set Up Rate Limiting

You can limit the rate at which the switch accepts incoming data and the rate that it retransmits outgoing data.

Rate limiting can be set for a port in addition to other QoS settings. If the port rate limit is set, the switch restricts the acceptance or retransmission of data to the values configured.

To set up rate limiting:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **QoS > Rate Limit**.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. Set the ingress (incoming) and egress (outgoing) traffic rates by doing the following:

   a. Select one or more ports.

   b. In the **Ingress Rate** menu, select the maximum rate.

      You can set a rate from 512 Kbps to 512 Mbps. By default, no limit is set.

   c. In the **Egress Rate** menu, select the maximum rate.

      You can set a rate from 512 Kbps to 512 Mbps. By default, no limit is set.

   d. Click the **Apply** button.

      Your settings are saved.

7. To set different rates for one or more other ports, repeat Step 6.

Set Up Broadcast Filtering

You can configure the switch to block broadcast storms (massive transmission of broadcast packets forwarded to every port on the same VLAN). If they are not blocked, broadcast storm packets can delay or halt the transmission of other data. Some switches allow you to select a storm control rate for each port. Others assign a predetermined storm control rate for all ports on the switch.

If broadcast traffic on any port exceeds the threshold that you set, the switch temporarily blocks (discards) the broadcast traffic.

To set up broadcast filtering:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.
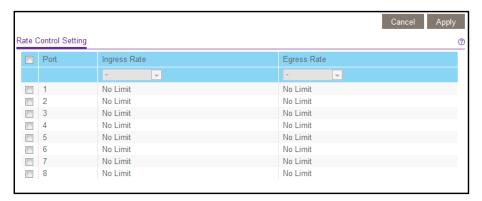
   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **QoS > Broadcast Filtering**.

   The Broadcast Filtering page displays.

6. If this is the first time that you are setting up broadcast filtering, select the **Enable** radio button and continue with Step 7.

   Otherwise, see Step 8.

7. Click the **Apply** button.

   Your settings are saved and the Storm Control Rate table displays.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

8. Set the storm control rate by doing the following:

    a. Select one or more ports.

    b. In the **Storm Control Rate** menu, select the maximum rate.

       You can set a rate from 512 Kbps to 512 Mbps. By default, no limit is set.

    c. Click the **Apply** button.

       Your settings are saved.

9. To set a different rate for one or more other ports, repeat <u>Step 8</u>.

4

Use VLANS for Traffic Segmentation

This chapter covers the following topics:

- VLAN Overview
- Create a Basic Port-Based VLAN
- Assign Ports to Multiple VLAN Groups
- Create 802.1Q-Based VLANs in a Basic Configuration
- Create 802.1Q-Based VLANs in an Advanced Configuration
- Add Tagged or Untagged Ports to an 802.1Q-Based VLAN
- Specify a Port PVID for an 802.1Q-Based VLAN
- Manage the Voice VLAN

VLAN Overview

Virtual LANs (VLANs) are made up of networked devices that are grouped logically into separate networks. You can group ports on a switch to create a virtual network made up of the devices connected to the ports.

Ports can be grouped in VLANs using port-based or 802.1Q criteria:

- **Port-based VLANs**. Assign ports to virtual networks. Ports with the same VLAN ID are placed in the same VLAN. This feature provides an easy way to partition a network into private subnetworks.

- **802.1Q VLANs**. Create virtual networks using the IEEE 802.1Q standard. 802.1Q uses a VLAN tagging system to determine which VLAN an Ethernet frame belongs to. You can configure ports to be a part of a VLAN. When a port receives data tagged for a VLAN, the data is discarded unless the port is a member of that VLAN. This technique is useful for communicating with devices outside your local network as well as receiving data from other ports that are not in the VLAN. However, to use an 802.1Q VLAN, you must know the VLAN ID.

Create a Basic Port-Based VLAN

A port-based VLAN configuration lets you assign ports on the switch to a VLAN. The number of VLANs is limited to the number of ports on the switch. In a basic port-based VLAN configuration, ports with the same VLAN ID are placed into the same VLAN.

You can also assign ports to multiple VLANs (see <u>Assign Ports to Multiple VLAN Groups on page 32</u>).

By default, all ports are members of VLAN 1.

To create a basic port-based VLAN:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.
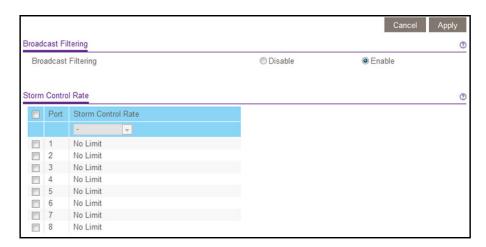
The Switch Information page displays.

5. Select **VLAN**.

    The Basic Port-based VLAN Status page displays.

6. If this is the first time that you are accessing the Basic Port-based VLAN Status page or if you are changing the VLAN assignment method, select the **Enable** radio button and continue with <u>Step 7</u>.

    Otherwise, see <u>Step 9</u>.

    A pop-up window opens, informing you that the current VLAN settings will be lost.

7. Click the **YES** button.

    The pop-up window closes.

8. Click the **Apply** button.

    Your settings are saved.

    The Basic Port-based VLAN Group table displays.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

9. Under each port to be added to a VLAN, enter the VLAN ID of the VLAN.

    For models GSS108E and GSS108EPP, you can enter a VLAN ID from 1 to 8. For model GSS116E, you can enter a VLAN ID from 1 to 16. If all the VLANs share an uplink to the Internet or servers, enter **all** in the **VLAN ID** field for the port that you want to use for the uplink.

    Note: If ports are members of the same LAG, you must assign them to the same VLAN.

10. Click the **Apply** button.

    Your settings are saved.

Assign Ports to Multiple VLAN Groups

Port-based virtual LAN configuration assigns ports on the selected switch to a virtual LAN group. The number of VLANs that can be created is limited to the number of ports on the switch.

You can also create a basic port-based VLAN in which ports with the same ID are grouped into the same VLAN group (see Create a Basic Port-Based VLAN on page 30).

By default, all ports are members of VLAN 1.

To assign ports to multiple VLAN groups in a port-based VLAN:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > Port Based > Advanced**.

   The Advanced Port-based VLAN Status page displays.

6. If this is the first time that you are accessing the Advanced Port-based VLAN Status page or if you are changing the VLAN assignment method, select the **Enable** radio button and continue with Step 7.

   Otherwise, see Step 9.

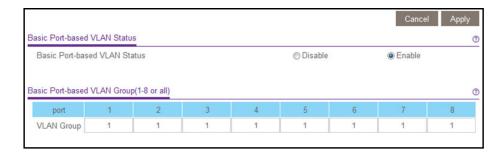   A pop-up window opens, informing you that the current VLAN settings will be lost.

7. Click the **YES** button.

   The pop-up window closes.

8. Click the **Apply** button.

   Your settings are saved.

   The VLAN Configuration and VLAN Membership sections display.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

9. In the **VLAN identifier** menu, select the VLAN.

10. Select the ports that you want to add to the VLAN by doing the following:

   a. (Optional) In the **Group Operation** menu, select either **Select All** or **Remove All**.

      All ports are either added to the VLAN or removed from the VLAN.

   b. Select or remove individual ports by selecting the check box under the port numbers.

   Note: If ports are members of the same LAG, you must assign them to the same VLAN.

   c. Click the **Apply** button.

      Your settings are saved. In the VLAN Membership table, the ports display as members of the VLAN.

11. To select ports for another VLAN, repeat Step 9 and Step 10.

Create 802.1Q-Based VLANs in a Basic Configuration

A 802.1Q-based VLAN configuration lets you assign ports on the switch to a VLAN with an ID number in the range of 1–4093. By default, all ports are members of VLAN 1.

In an advanced 802.1Q-based VLAN configuration, you can set up VLANs to which you can add tagged or untagged ports and you can use port VLAN ID (PVID). For more information, Create 802.1Q-Based VLANs in an Advanced Configuration on page 35.

To create 802.1Q-based VLANs in a basic configuration:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > 802.1Q**.

   The Basic 802.1Q VLAN page displays.

6. If this is the first time that you are accessing the Basic 802.1Q VLAN Status page or if you are changing the VLAN assignment method, select the **Enable** radio button and continue with Step 7.

   Otherwise, see Step 9.

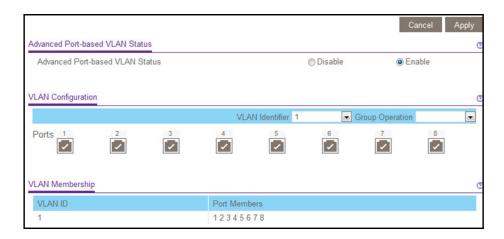   A pop-up window opens, informing you that the current VLAN settings will be lost.

7. Click the **YES** button.

   The pop-up window closes.

8. Click the **Apply** button.

   Your settings are saved.

   The Basic 802.1Q VLAN Identifier table displays.

			Cancel	Apply
Basic 802.1Q VLAN Status				⑦
Basic 802.1Q VLAN Status		⊙ Disable	⦿ Enable	

Basic 802.1Q VLAN Identifier(1-4093 or all)								⑦
port	1	2	3	4	5	6	7	8
VLAN ID	1	1	1	1	1	1	1	1

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

9. Under each port to be added to a VLAN, enter the VLAN ID of the VLAN.

You can enter a VLAN ID from 1 to 4093. If all the VLANs share an uplink to the Internet or servers, enter **all** in the **VLAN ID** field for the port that you want to use for the uplink.

> **Note:** If ports are members of the same LAG, you must assign them to the same VLAN.

10. Click the **Apply** button.

Your settings are saved.

Create 802.1Q-Based VLANs in an Advanced Configuration

In an advanced 802.1Q-based VLAN configuration, you can assign ports on the switch to a VLAN with an ID number in the range of 1–4093 and you can add tagged or untagged ports to a VLAN. In addition, you can use port VLAN IDs (PVIDs). By default, all ports are untagged members of VLAN 1.

To create 802.1Q-based VLANs in an advanced configuration:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > 802.1Q > Advanced > VLAN Configuration**.

   The Advanced 802.1Q VLAN Status page displays.

6. If this is the first time that you are accessing the Advanced 802.1Q VLAN Status page or if you are changing the VLAN assignment method, select the **Enable** radio button and continue with Step 7.

   Otherwise, see Step 9.

   A pop-up window opens, informing you that the current VLAN settings will be lost.

7. Click the **YES** button.

The pop-up window closes.

8. Click the **Apply** button.

Your settings are saved.

The VLAN Identifier Setting table displays.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

9. In the **VLAN ID** field, enter a VLAN ID.

You can enter a VLAN ID from 1 to 4094.

10. Click the **Add** button.

The new VLAN is added to the VLAN Identifier Setting table.

After you create a new VLAN ID, use the VLAN membership option to add ports to the VLAN. (Select **VLAN > 802.1Q > Advanced > VLAN Membership**. See also Add Tagged or Untagged Ports to an 802.1Q-Based VLAN on page 36.)

Note: To delete a VLAN, select the check box for the VLAN and click the **Delete** button.

Add Tagged or Untagged Ports to an 802.1Q-Based VLAN

After you define a VLAN ID using the advanced 802.1Q VLAN option (see Create 802.1Q-Based VLANs in an Advanced Configuration on page 35), you must add ports to the VLAN.

While you add ports to a VLAN, you can specify whether the ports must be tagged or untagged. Port tagging allows a port to be associated with a particular VLAN and allows the

VLAN ID tag to be added to data packets that are sent through the port. The tag identifies the VLAN that must receive the data.

By default, all ports are untagged.

To add tagged or untagged ports to an 802.1Q-based VLAN:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > 802.1Q > Advanced > VLAN Membership**.

   You can select **VLAN Membership** only if you already enabled the advanced 802.1Q VLAN option (see Create 802.1Q-Based VLANs in an Advanced Configuration on page 35).

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. In the **VLAN ID** menu, select the VLAN.

7. Select the ports that you want to add to the VLAN by doing the following:

   a. (Optional) In the **Group Operation** menu, select **Untag All**, **Tag all**, or **Remove all**.

      All ports are either added to the VLAN (tagged or untagged) or removed from the VLAN.

   b. Select individual ports and assign them as tagged (T) or untagged (U) ports or remove individual ports by selecting the check box under the port numbers.

      By default, all ports are untagged.

   c. Click the **Apply** button.

Your settings are saved. In the VLAN Membership table, the ports display as members of the VLAN.

8. To select ports for another VLAN, repeat Step 6 and Step 7.

9. To verify your selections, select **VLAN > 802.1Q > Advanced > VLAN Configuration**.

The Advanced 802.1Q VLAN Status page displays. In the VLAN Identifier Setting table, the ports display next to the VLAN or VLANs to which they were added.

Specify a Port PVID for an 802.1Q-Based VLAN

A default port VLAN ID (PVID) is a VLAN ID tag that the switch assigns to data packets it receives that are not already addressed (tagged) for a particular VLAN. If you connect a computer on port 6 and you want it to be a part of VLAN 2, configure port 6 to automatically add a PVID of 2 to all data received from the computer. This step ensures that the data from the computer on port 6 can be seen only by other members of VLAN 2. You can assign only one PVID to a port.

To assign a PVID to one or more ports:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.
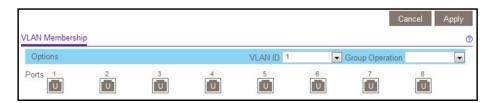
   The login window opens.
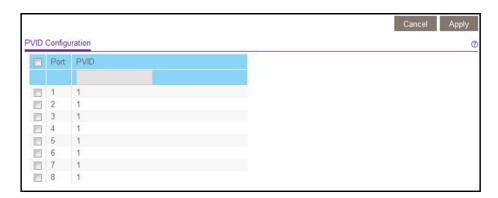
4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > 802.1Q > Advanced > Port PVID**.

   You can select **Port PVID** only if you already enabled the advanced 802.1Q VLAN option (see Create 802.1Q-Based VLANs in an Advanced Configuration on page 35).

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. Select the check boxes for one or more ports.

7. Enter the PVID.

 You can enter a PVID only for a VLAN that already exists.

8. Click the **Apply** button.

 Your settings are saved.

Manage the Voice VLAN

Note: The voice VLAN and voice VLAN features are supported on model GSS108EPP only. Models GSS108E and GSS116E do not support a voice VLAN.

You can select one VLAN as the voice VLAN, select the Class of Service (CoS) for voice traffic, and enable or disable the voice VLAN for specific ports that carry traffic from IP phones.

The voice VLAN feature can help ensure that the sound quality of an IP phone is safeguarded from deteriorating when the data traffic on the port is high.

The following are two operational modes for IP phones:

- IP phones that are configured with the VLAN mode enabled ensure that the phone uses tagged packets for all communications.
- IP phones that are configured with the VLAN mode disabled ensure that the phone uses untagged packets for all communications.

Select the Voice VLAN and Class of Service

On the GSS108EPP switch, a single VLAN can function as the voice VLAN. By default, VLAN 1 is the voice VLAN. If you created other VLANs, you can select another VLAN as the voice VLAN.

To select the voice VLAN and Class of Service:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser</u> on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > Voice VLAN > Properties**.

   The Voice VLAN Properties page displays.

6. In the **Voice VLAN ID** menu, select the voice VLAN.

   By default, VLAN 1 is the voice VLAN.

7. In the **Class of Service** menu, select the Class of Service (CoS) tag that applies to traffic on the voice VLAN.

   The CoS tag is a value from 0 to 7 that must be reassigned for packets that are received on the voice VLAN. The default value is 6.

8. Click the **Apply** button.

   Your settings are saved.

Enable the Voice VLAN for Ports

On the GSS108EPP switch, by default, the voice VLAN is disabled for all ports.

To enable the voice VLAN for one or more ports:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > Voice VLAN > Port Settings**.

6. Select the check boxes for one or more ports.

   To select all ports, select the check box in the table heading.

7. In the **Voice VLAN Mode** menu, select **Enable**.

8. Click the **Apply** button.

   Your settings are saved.

Manage the OUI Table

Device hardware manufacturers can include an Organizationally Unique Identifier (OUI) in a network adapter to help identify a hardware device. The OUI is a unique 24-bit number assigned by the IEEE registration authority. The switch comes preconfigured with OUIs that identify the IP phone manufacturer.

On the GSS108EPP switch, you can change an existing OUI, add a new OUI and description to identify the IP phones on your network, or remove an OUI that you no longer need.

Add an OUI Prefix to the OUI Table

To add an OUI prefix to the OUI table:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

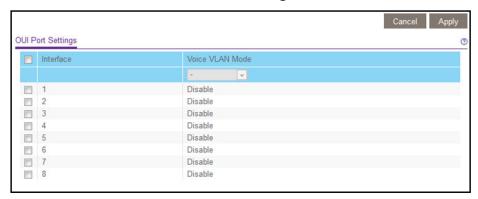   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **VLAN > Voice VLAN > OUI Table**.

6. In the **Telephony (OUIs)** field, specify the OUI prefix to be added in the format AA:BB:CC.

7. In the **Description** field, enter the description for the OUI prefix.

   The maximum length of description is 32 characters.

8. Click the **Add** button.

   Your settings are saved. The OUI prefix is added.

Change an OUI Prefix in the OUI Table

To change an existing OUI prefix in the OUI table:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **VLAN > Voice VLAN > OUI Table**.

6. Select the check box for the OUI prefix.

7. In the **Telephony (OUIs)** field, change actual prefix.

The prefix must remain in the format AA:BB:CC.

8. In the **Description** field, change the description.

The maximum length of description is 32 characters.

9. Click the **Apply** button.

Your settings are saved.

Delete One or More OUI Prefixes From the OUI Table

To delete one or more OUI prefixes from the OUI table:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

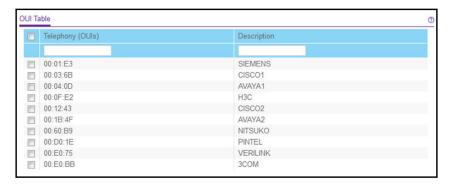If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **VLAN > Voice VLAN > OUI Table**.

The OUI Table page displays.

6. Select the check boxes for one or more OUI prefixes.

7. Click the **Delete** button.

   Your settings are saved. The OUI prefixes are removed.

5

Manage and Monitor the Switch

This chapter covers the following topics:

- Manage Flow Control
- Manage the Port Speed
- Specify a Port Description
- Enable Loop Detection
- Control the Port LEDs
- Enable the Power Saving Mode
- Change the Switch Management Mode
- Manage Access Control
- Upgrade the Firmware
- Reboot the Switch
- Save the Switch Configuration
- Restore a Saved Switch Configuration
- Restore Factory Default Settings
- Enable Port Mirroring
- View Switch Information or Change the Switch Device Name
- View Port Statistics

Manage Flow Control

Flow control works by pausing a port if the port becomes oversubscribed and dropping all traffic for small bursts of time during the congestion condition. You can enable or disable IEEE 802.3x flow control. By default, flow control is disabled.

To manage flow control:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

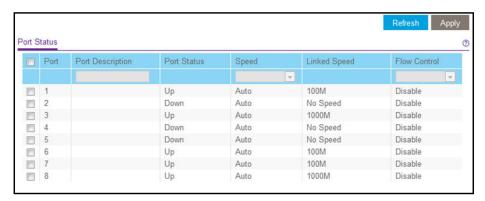   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Port Status**.

	Port	Port Description	Port Status	Speed	Linked Speed	Flow Control
	1		Up	Auto	100M	Disable
	2		Down	Auto	No Speed	Disable
	3		Up	Auto	1000M	Disable
	4		Down	Auto	No Speed	Disable
	5		Down	Auto	No Speed	Disable
	6		Up	Auto	100M	Disable
	7		Up	Auto	100M	Disable
	8		Up	Auto	1000M	Disable

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. Select the check boxes for one or more ports.

7. In the **Flow Control** menu, select **Enable** or **Disable**.

8. Click the **Apply** button.

   Your settings are saved.

Manage the Port Speed

By default, the port speed on all ports is set automatically after the switch determines the speed using autonegotiation with the link partner. You can select a specific port speed setting for each port, or disable a port by shutting it down manually.

To specify the port speed or shut down ports:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

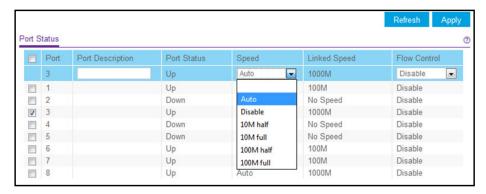   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Port Status**.

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. Select the check boxes for one or more ports.

7. In the **Speed** menu, select one of the following options:

   • **Auto**. The port speed is set automatically after the switch determines the speed using autonegotiation with the link partner. This is the default setting.

   • **Disable**. The port is shut down.

   • **10M half**. The port is forced to function at 10 Mbps with half-duplex.

- • **10M full**. The port is forced to function at 10 Mbps with full-duplex.
- • **100M hull**. The port is forced to function at 100 Mbps with half-duplex.
- • **100M full**. The port is forced to function at 100 Mbps with full-duplex.

8. To configure other ports with a different setting, repeat <u>Step 6</u> and <u>Step 7</u>.

9. Click the **Apply** button.

   Your settings are saved.

Specify a Port Description

You can add a description for a port. By default, no port descriptions exist and the ports are indicated by their numbers only.

To specify a port description:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Port Status**.

> **Note:** Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E
> provides 16 ports.

6. Select the check box for a port.

7. In the **Port Description** field, enter a description.

8. Click the **Apply** button.

   Your settings are saved.

Enable Loop Detection

If loop detection is enabled and the switch detects a loop, both LEDs of a port blink at a
constant speed. By default, loop detection is disabled.

To enable loop detection:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is
   off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web
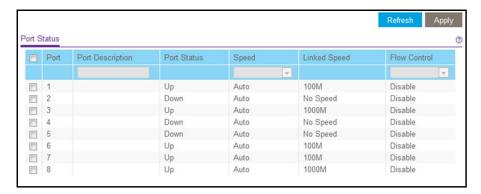   Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Loop Detection**.

   The Loop Detection page displays.

6. Select the **Enable** radio button.

7. Click the **Apply** button.

   Your settings are saved.

Control the Port LEDs

By default, the port Link Speed LED and port Activity LED light when a port is in use. You can
turn off the port LEDs entirely or you can turn off the port Activity LED only.

To control the switch LEDs:

1. Connect your computer to the same network as the switch.

    You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

    If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

    The login window opens.

4. Enter the switch's password in the **password** field.

    The switch's default password is **password**.

    The Switch Information page displays.

5. Select **System > Management > Port LED Control**.

6. Select one of the following radio buttons:
    *   **Link Speed + Activity**. The port Link Speed LED and port Activity LED light when a port is in use. This is the default setting.
    *   **Link Speed Only**. The port Link Speed LED lights when a port is in use but the port Activity LED remains off.
    *   **Off**. Both the port Link Speed LED and port Activity LED remain off when a port is in use.

7. Click the **Apply** button.

    Your settings are saved.

Enable the Power Saving Mode

The power saving mode enables the IEEE 802.3az Energy Efficient Ethernet (EEE) function, cable length power saving, and link-up and link-down power saving:

*   **EEE**. Combines the Energy Efficient Ethernet (EEE) 802.3 MAC sublayer with the 100BASE-TX, and 1000BASE-T physical layers to support operation in Low Power Idle (LPI) mode. When LPI mode is enabled, systems on both sides of the link can disable portions of their functionality and save power during periods of low link utilization.

*   **Short Cable Power Saving**. Dynamically detects and adjusts power that is required for the detected cable length.

- **Link-Down Power Saving**. Reduces the power consumption considerably when the network cable is disconnected. When the network cable is reconnected, the switch detects an incoming signal and restores normal power.

To manage the power saving mode:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Power Saving Mode**.

   The Power Saving Mode page displays.

6. Select one of the following radio buttons:
   - **Enable**. The power saving mode is enabled. This is the default setting.
   - **Disable**. The power saving mode is disabled.

7. Click the **Apply** button.

   Your settings are saved.

Change the Switch Management Mode

By default, you can manage the switch through a web browser by accessing the local browser interface or through the ProSAFE Plus Utility. You can change the switch management mode so that only management through a web browser is enabled and access through the ProSAFE Plus Utility is disabled. Even if you disable management through the ProSAFE Plus Utility, the switch and its IP address on the network are still discoverable through the ProSAFE Plus Utility.

To change the switch management mode:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Management > Switch Management Mode**.

6. Select one of the following radio buttons:

   • **Web browser Only**. You can configure the switch through a web browser by accessing the local browser interface. You cannot configure the switch through the ProSAFE Plus Utility.

   • **Web browser GUI and ProSAFE Utility**. You can configure the switch through a web browser by accessing the local browser interface or through the ProSAFE Plus Utility. This is the default setting.

7. Click the **Apply** button.

   Your settings are saved.

Manage Access Control

Access control allows you to control which devices can access the switch over a web browser for management purposes. By default, access control is disabled. By adding one or more devices to the Access Control table, access control is enabled and only devices in the table are allowed to access the local browser interface of the switch.

Add Devices to the Access Control Table

If you add devices to the he Access Control table, use the mask to allow one IP address or a range of IP addresses to access the local browser interface of the switch. Consider the following examples:

• If the mask is 255.255.255.255, only the device for which you specify the host IP address in the Source IP Address field can access the local browser interface.

- If the host IP address in the Source IP Address field is 192.168.100.x (in which x can be any number from 0 to 255) and the mask is 255.255.255.0, any device in the range from 192.168.100.0 to 192.168.100.255 can access the local browser interface.

- If the host IP address in the Source IP Address field is 192.168.100.y (in which y can be any number from 0 to 7) and the mask is 255.255.255.248, any device in the range from 192.168.100.0 to 192.168.100.7 can access the local browser interface.

> ⚠️ **CAUTION:**
>
> Add the IP address and subnet mask for the device from which you are accessing the switch to the Access Control table before you add any other devices to the table. Otherwise, you are locked out from the local browser interface of the switch.

To add devices to the Access Control table:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

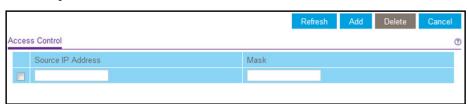   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Maintenance > Access Control**.

6. Configure the following settings:
   - **Source IP Address**. Enter the IP address of the devices or range of devices that must be allowed to access the switch over a web browser.
   - **Mask**. Enter the subnet mask that is associated with the IP address.

7. Click the **Add** button.

   Your settings are saved. Access control is now enabled.

Remove Devices From the Access Control Table

You can remove a device from the Access Control table. If you remove all devices from the table, access control is disabled.

To remove devices from the Access Control table:

1. Connect your computer to the same network as the switch.

    You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

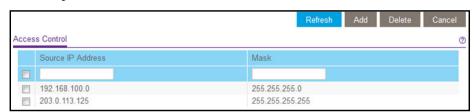   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

    The login window opens.

4. Enter the switch's password in the **password** field.

    The switch's default password is **password**.

    The Switch Information page displays.

5. Select **System > Maintenance > Access Control**.

6. Select the check boxes for one or more devices.

    To select all devices in the table, select the check box in the table heading.

7. Click the **Delete** button.

    Your settings are saved. If you removed all devices from the table, access control is disabled.

Upgrade the Firmware

You can check for the latest firmware version for your switch by visiting <u>netgear.com/support/download/</u> and entering in your product model number in the **Enter a Product Name/Model Number** field and then clicking the magnifying glass to search.

Read the new firmware release notes to find out if you must reconfigure the switch after upgrading. The firmware upgrade method depends on the current firmware and boot loader versions on your switch.

To upgrade the firmware:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Maintenance > Firmware Upgrade**.

   The Firmware Upgrade page displays.

6. Click the **Browse** button and locate and select the new firmware image file.

7. Click the **Apply** button.

   The upgrade starts.

> ⚠️ **WARNING:**
>
> **To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not turn off the switch or disconnect it.**

When the upgrade is complete, your switch restarts. The upgrade process typically takes about three minutes.

Reboot the Switch

You can reboot the switch remotely.

To reboot the switch:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > Maintenance > Device Reboot**.

The Device Reboot page displays.

6. Select the check box.

7. Click the **Apply** button.

The switch reboots.

Save the Switch Configuration

You can save the switch configuration as a file. We recommend that you save the configuration. Then you can quickly restore the switch configuration if you change the settings and then decide to return the switch to its previous settings.

To save the switch configuration:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > Maintenance > Save Configuration**.

The Save Configuration page displays.

6. Click the **Save** button.

A pop-up window opens. Depending on the settings of your browser, you can select a location to save the switch configuration file (a `.cfg` file).

Follow the directions of your browser to save the switch configuration.

Restore a Saved Switch Configuration

You can restore switch configuration that you saved.

To restore the switch configuration that you saved:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Maintenance > Restore Configuration**.

   The Restore Configuration page displays.

6. Click the **Browse** button and locate and select the saved configuration file (a `.cfg` file).

7. Click the **Apply** button.

   The saved configuration is restored to the switch.

Restore Factory Default Settings

You can return the switch to its factory settings.

To restore factory settings:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > Maintenance > Factory Default**.

The Factory Default page displays.

6. Select the check box.

7. Click the **Apply** button.

The switch returns to its factory settings. The switch reboots to load the restored configuration.

Enable Port Mirroring

Port mirroring lets you mirror the incoming (ingress) and outgoing (egress) traffic of one or more ports (the source ports) to a predefined destination port.

To enable port mirroring:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > Monitoring > Mirroring**.

Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. In the Destination Port section, select the destination port by selecting the check box under the port number.

   You can select a single destination port only. You cannot select a destination port that is a member of a LAG.

7. In the Source Port section, select one or—depending on the model—more source ports by selecting the check boxes under the port numbers.

   For models GSS108E and GSS108EPP, you can select one source port only. For model GSS116E, you can select more than one source port.

   You cannot select a source port that is a member of a LAG.

8. Select the Mirror Status **Enable** radio button.

9. Click the **Apply** button.

   Your settings are saved.

View Switch Information or Change the Switch Device Name

You can view the switch product name (model), switch name, MAC address, firmware version, DHCP mode, and IP address information.

You can also change the switch device name. This device name shows in, for example, Windows Explorer and Bonjour.

To view information about the switch or change the switch device name:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.
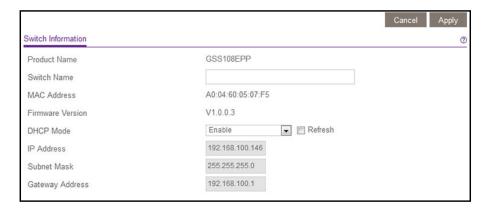
2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

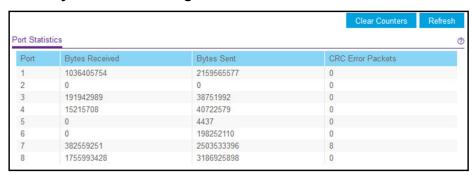   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

The previous figure shows GSS108EPP as the product name. However, the product name depends on your switch model.

Note: To navigate to the Switch Information page when you are already logged in to the switch, select **System > Management > Switch Information**.

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5. To change the switch device name, do the following:

   a. In the **Switch Name** field, enter a name of up to 20 characters.

   b. Click the **Apply** button.

   Your settings are saved.

View Port Statistics

You can view port statistics and reset the port counters.

To view port statistics or clear the port counters:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

5. Select **System > Monitoring > Port Statistics**.

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

   For each port, the page displays the following information:

   - **Bytes Received**. The total number of data bytes received on the port.
   - **Bytes Sent**. The total number of data bytes sent from the port.
   - **CRC Error Packets**. The total number of packets with a CRC error received on the port.

6. To clear all port counter, click the **Clear Counters** button.

   The port counters are reset to 0.

6

Manage Power over Ethernet

This chapter covers the following topics:

Note: Power over Ethernet (PoE) is supported on model GSS108EPP only and the information that is provided in this chapter applies to model GSS108EPP only. Models GSS108E and GSS116E do not support PoE.

PoE Overview

The GSS108EPP switch includes four Power over Ethernet plus (PoE+) ports. The switch can supply up to 30W PoE+ (IEEE 802.3at) to an individual PoE+ port, with a total maximum PoE power budget of 47W across all active PoE+ ports.

By default, supplied power is prioritized in ascending port order, up to the total power budget of the device. If the power requirements for the attached devices exceed the total power budget of the switch, the power to the device on the highest-numbered PoE+ port is disabled to make sure that the devices connected to the higher-priority, lower-numbered PoE+ ports are supported first.

It is important to note that although a device is listed as an 802.3at (PoE+) powered or 802.3af (PoE) powered device, it might not require the maximum power limit that is specified. Many devices require less power, allowing all four PoE ports to be active simultaneously, when the devices correctly report their PoE class to the switch.

Device Class Power Requirements

PoE and PoE+ use Ethernet cables to supply power to PoE-capable devices on the network, such as WiFi access points, IP cameras, VoIP phones, and switches. The GSS108EPP switch is compliant with the IEEE 802.3at standard (PoE+) and backward compatible with the IEEE 802.3af standard (PoE). The switch can pass power through to any powered device (PD) that supports these standards. PoE and PoE+ let you power such devices without the need for a separate power supply.

The switch supports a Plug-and-Play process by which it detects the type of device that is connected to one of its PoE+ ports and whether that device needs power and how much so that the switch can provide the correct power to the device.

During the Plug-and-Play process, the connected device can provide its Class response to the switch in many ways, depending on how the vendor programmed the device.

The following table shows the device classes for PoE+ devices adhering to the IEEE 802.3at standard. The device classes for PoE devices adhering to the IEEE 802.3af standard are identical with the exception that Device Class 4 is not supported.

Table 1. PoE and PoE+ device class power allocation

Device Class	Standard	Range of Power Delivered to the Powered Device	Minimum Output at PoE Switch Port (Minimum Allocated)	Maximum Output at PoE Switch Port (Maximum Allocated)
0	PoE and PoE+	0.44W–12.95W	15.4W	16.2W
1	PoE and PoE+	0.44W–3.84W	4.0W	4.2W
2	PoE and PoE+	3.84W–6.49W	7.0W	7.4W

Table 1. PoE and PoE+ device class power allocation (continued)

Device Class	Standard	Range of Power Delivered to the Powered Device	Minimum Output at PoE Switch Port (Minimum Allocated)	Maximum Output at PoE Switch Port (Maximum Allocated)
3	PoE and PoE+	6.49W–12.95W	15.4W	16.2W
4	PoE+ only	12.95W–25.5W	30.0W	31.6W

Power Allocation and Power Budget

The GSS108EPP switch is a smart switch in that it can allocate the required power to a connected device by using a prioritization scheme: By default, power is supplied in ascending port order (that is, lower port numbers are served first) until the power budget is consumed and insufficient power remains to allocate to the next device. When less than 7W of PoE power is available on a port, the port PoE LED lights yellow, and the attached device does not receive power from the port. However, the switch continues to send data through the port connection.

The GSS108EPP switch is also a smart switch in that it can override the IEEE power classification of a powered device (PD): If the PD consumes less power than required by its power classification, the GSS108EPP switch provides only the power that the PD consumes instead of the power that is required by the PD's power classification.

The total available power budget for all four PoE+ ports is 47W. If some PoE+ ports are in use and deliver power, you can calculate the available power budget for the other PoE+ ports by subtracting the consumed (that is, delivered power) from the total available power budget.

An example:
Port 1 delivers 4.4W to a PD. The available power budget is 42.6W (47W–4.4W).

Another example:
A Class 4 PD is attached to Port 1, a Class 2 PD to Port 2, and another Class 4 PD to Port 3. However, the PDs consume less power than defined by their classes: The PD attached to Port 1 consumes 7.3W, the PD attached to Port 2 consumes 4.7W, and the PD attached to Port 3 consumes 8.9W. So even though the switch provides power to two Class 4 devices and one Class 3 device, the available power budget is 26.1W (47W–7.3–4.7–8.9W).

To determine the delivered power by PoE+ ports:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

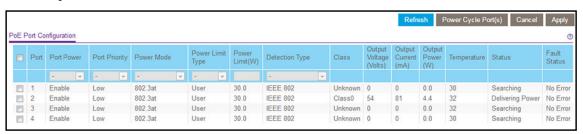If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > PoE**.

The delivered power is stated in the Output Power (W) column (4.4W for Port 2 in the previous figure).

Manage and View the PoE Port Configuration

The GSS108EPP switch provides four PoE+ ports (1–4) that comply with the IEEE 802.3at standard (PoE+) and are backward compatible with the IEEE 802.3af standard (PoE).

To configure and view the PoE+ port settings:

1. Connect your computer to the same network as the switch.

You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

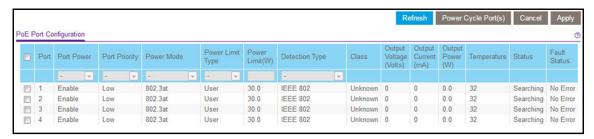If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

The login window opens.

4. Enter the switch's password in the **password** field.

The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > PoE**.

	Port	Port Power	Port Priority	Power Mode	Power Limit Type	Power Limit(W)	Detection Type	Class	Output Voltage (Volts)	Output Current (mA)	Output Power (W)	Temperature	Status	Fault Status
		-	-	-	-		-							
	1	Enable	Low	802.3at	User	30.0	IEEE 802	Unknown	0	0	0.0	32	Searching	No Error
	2	Enable	Low	802.3at	User	30.0	IEEE 802	Unknown	0	0	0.0	32	Searching	No Error
	3	Enable	Low	802.3at	User	30.0	IEEE 802	Unknown	0	0	0.0	32	Searching	No Error
	4	Enable	Low	802.3at	User	30.0	IEEE 802	Unknown	0	0	0.0	32	Searching	No Error

6. Select the check boxes for the PoE+ ports that you want to configure or select the check box in the heading to configure all four PoE+ ports.

7. Configure the settings as described in the following table.

The settings that you configure apply to all selected PoE+ ports.

Menu Item	Description
Port Power	Select the administrative mode of the port: • **Enable**. The port's capacity to deliver power is enabled. This is the default setting. • **Disable**. The port's capacity to deliver power is disabled.
Port Priority	The port priority determines which ports can still deliver power after the total power delivered by the switch exceeds the total power budget of 47W. (In such a situation, the switch might not be able to deliver power to all connected devices.) If the same priority applies to two ports, the lower-numbered port receives higher priority. Select one of the following priorities: • **Low**. Low priority. This is the default setting. • **High**. High priority. • **Critical**. Critical priority.
Power Mode	Select the one of the following power modes: • **802.3af**. The port is powered in and limited to the IEEE 802.3af mode. A PD that requires IEEE 802.3at does not receive power if the port functions in IEEE 802.3af mode. • **Legacy**. The port is powered using high-inrush current, which is used by legacy PDs that require more than 15W to power up. • **Pre-802.3at**. The port is initially powered in the IEEE 802.3af mode and, before 75 msec pass, is switched to the high-power IEEE 802.3at mode. Select this mode if the PD does not perform Layer 2 classification or if switch performs 2-event Layer 1 classification. • **802.3at**. The port is powered in the IEEE 802.3at mode. This is the default mode. In this mode, if the switch detects that the attached PD is not a Class 4 device, the PD does not receive power from the switch.

Menu Item	Description
Power Limit Type	The power limit type controls the maximum power that a port can deliver. Select one of the following types: • **None**. The port draws up to Class 0 maximum power in low power mode and up to Class 4 maximum power in high power mode. • **Class**. The port power limit is equal to the class of the attached PD. • **User**. The port power limit is equal to the value that is specified in the **Power Limit(W)** field. This is the default setting. **Note:** If a PD does not report its class correctly, use of these options can preserve additional PoE power by preventing the switch from delivering more power than the PD requires. However, depending on which option you select, a PD that does not report its class correctly might not power up at all.
Power Limit (W)	Enter the maximum power (in watts) that the port can deliver. The range is 3.0–30.0W, with 0.1W steps. The default is 30W.
Detection Type	The detection type specifies how the port detects the attached PD. Select one of the following types: • **IEEE 802**. The port performs a 4-point resistive detection. This is the default setting. • **4pt 802.3af + Legacy**. The port performs a 4-point resistive detection, and if required, continues with legacy detection. • **Legacy**. The port performs legacy detection.

8. Click the **Apply** button.

   Your settings are saved.

   The following table describes the nonconfigurable fields on the PoE Port Configuration page.

Field	Description
Class	The class defines the range of power a powered device (PD) is drawing from the switch. The class definitions are as follows: • **0**: 0.44–16.2W • **1**: 0.44–4.2W • **2**: 0.44–7.4W • **3**: 0.44–16.2W • **4**: 0.44–31.6W • **Unknown**. The class cannot be detected, or no PD is attached to the port.
Output Voltage (Volts)	The voltage that is delivered to the PD in volts.
Output Current (mA)	The current that is delivered to the PD in mA.
Output Power (W)	The power that is delivered to the PD in watts.
Temperature	The temperature detected at the port, measured in degrees Celsius.

Field	Description
Status	The operational status of the port. The possible values are as follows: • **Disabled**. No power is delivered. • **Delivering Power**. Power is being drawn by the PD. • **Requesting Power**. The port is requesting power. • **Fault**. A problem occurred with the power. • **Test**. The port is in test mode. • **Other Fault**. The port is idle because of an error condition. • **Searching**. The port is not in one of the other states in this list.
Fault Status	The error description when the PoE port is in a fault state. The possible values are as follows: • **No Error**. The port is not in any error state and can provide power. • **MPS Absent**. The port detected the absence of the main power supply, preventing the port from providing power. • **Short**. The port detected a short circuit condition, preventing the port from providing power. • **Overload**. The PD that is connected to the port attempts to draw more power than allowed by the port's settings, preventing the port from providing power at all. • **Power Denied**. The port was denied power because of a shortage of power or because of an administrative condition. In this condition, the port cannot provide power.

Reset One or More PoE+ Ports

You can forcibly reset one or more PoE+ ports on the GSS108EPP switch. If a PoE device is attached to the port, the device restarts. Resetting a PoE+ port does not affect its data link, so if a non-PoE device is attached to the port, the device is not affected and does not restart.

To configure PoE+ port settings:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

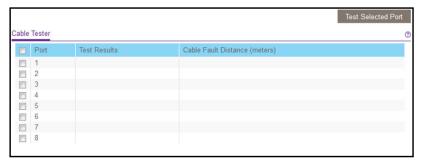   If you do not know the IP address of the switch, see <u>Access the Switch Using a Web Browser on page 7</u>.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

The Switch Information page displays.

5. Select **System > PoE**.

    The PoE Port Configuration page displays.

6. Select the check boxes for the PoE+ ports that you want to reset or select the check box in the heading to reset all four PoE+ ports.

7. Click the **Power Cycle Port(s)** button.

    The ports are reset.

7
Diagnostics and Troubleshooting

This chapter covers the following topics:

- Test Cable Connections
- Resolve a Subnet Conflict to Access the Switch
- PoE Troubleshooting Suggestions for Model GSS108EPP

Test Cable Connections

You can use the cable diagnostic feature to easily find out the health status of network cables. If any problems exist, this feature helps quickly locate the point where the cabling fails, allowing connectivity issues to be fixed much faster, potentially saving technicians hours of troubleshooting.

If an error is detected, the distance at which the fault is detected is stated in meters. (This is the distance from the port.)

To test a cable connection:

1. Connect your computer to the same network as the switch.

   You can use a WiFi or wired network connection, or connect directly to a switch that is off-network using an Ethernet cable.

2. Launch a web browser.

3. In the address field of your web browser, enter the IP address of the switch.

   If you do not know the IP address of the switch, see Access the Switch Using a Web Browser on page 7.

   The login window opens.

4. Enter the switch's password in the **password** field.

   The switch's default password is **password**.

   The Switch Information page displays.

5. Select **System > Monitoring > Cable Tester**.

   Note: Models GSS108E and GSS108EPP provide 8 ports. Model GSS116E provides 16 ports.

6. Select one or more check boxes.

7. Click the **Test Selected Port** button.

   The switch tests the cable connection for the selected ports and displays the results. This process might take up to a few minutes.

Resolve a Subnet Conflict to Access the Switch

If you power on the switch before you connect it to a network that includes a DHCP server, the switch uses its own default IP address of 192.168.0.239. This subnet might be different from the subnet used in your network. You might see the following message if you try to use the ProSAFE Plus Utility to access the switch:

```
The switch and manager IP address are not in the same subnet.
```

To fix this subnet conflict:

1. Disconnect the Ethernet cable between the switch and your network.
2. Unplug the switch's power cord.
3. Reconnect the Ethernet cable between the switch and your network.
4. Plug the switch's power cord into an electrical outlet.

   The switch powers on. The network DHCP server discovers the switch and assigns it an IP address that is in the correct subnet for the network.

PoE Troubleshooting Suggestions for Model GSS108EPP

Here are some tips for correcting Power over Ethernet (PoE) problems that might occur on model GSS108EPP:

- Make sure that the PoE Max LED is off. If the PoE Max LED is solid amber, disconnect one or more PoE devices to prevent PoE oversubscription. Start by disconnecting the device from the highest-numbered port.
- Make sure that the Ethernet cables are plugged in correctly. For each powered device (PD) that is connected to the switch, the associated PoE port LED on the switch lights

solid green. If the associated PoE port LED lights solid amber, a PoE fault occurred and PoE halted because of one of the conditions that are listed in the following table.

Table 2. PoE fault conditions and possible solutions

PoE Fault Condition	Possible Solution
A PoE-related short circuit occurred on the port.	The problem is most likely with the attached PD. Check the condition of the PD or restart the PD by disconnecting and reconnecting the PD.
The PoE power demand of the PD exceeded the maximum level that the switch permits. The maximum level is 15.4W for a PoE connection or 30W for a PoE+ connection.	
The PoE current on the port exceeded the classification limit of the PD.	
The PoE voltage of the port is outside the range that the switch permits.	Restart the switch to see if the condition resolves itself.

A

Supplemental Information

This appendix covers the following topics:

- Factory Default Settings
- Technical Specifications

Factory Default Settings

You can return the switch to its factory settings. Use the end of a paper clip or some other similar object to press and hold the **Factory Defaults** button on the back panel of the switch for at least four seconds. The switch resets and returns to the factory settings that are shown in the following table.

Table 3. Factory default settings

Setting	Value or Description
Switch name	None (empty)
Switch password	password
IP address	192.168.0.239
Subnet mask	255.255.255.0
DHCP mode	Enabled
Port speed	Auto negotiation
Flow control	Disabled
Loop detection	Disabled
Port LED control	Link speed and activity
Power saving mode (model GSS108EPP only)	Enabled
Switch management mode	Through a web browser by accessing the local browser interface or the ProSAFE Plus Utility
Access control (model GSS108EPP only)	Disabled
Port mirroring	Disabled
IGMP snooping	• **Enabled**. IGMP snooping status • **Disabled**. Validation of IGMPv3 IP headers • **Disabled**. Blocking of unknown multicast addresses
PoE	• **Port Power**. Enabled • **Port priority**. Low • **Power mode**. 802.3at • **Power limit type**. User • **Power limit**. 30.0W • **Detection type**. IEEE 802
LAGs	Disabled **Note:** LAGs are supported on switch models GSS108EPP and GSS116E, but they are not supported on switch model GSS108E.

Table 3. Factory default settings (continued)

Setting	Value or Description
Port-based VLANs	Disabled
802.1Q VLANs	Disabled
Voice VLAN	**1**. Voice VLAN ID **6**. Class Of Service **Disabled**. Port voice VLAN mode **Note:** The voice VLAN is supported on switch model GSS108EPP, but it is not supported on switch models GSS108E and GSS116E.
QoS	802.1p/DSCP based
Rate limiting	Disabled
Broadcast filtering	Disabled

Technical Specifications

The technical specification differ for each model.

Technical Specifications Model GSS108E

Table 4. Technical specifications model GSS108E

Specification	Value or Description
Network interfaces	RJ-45 connectors supporting 10BASE-T, 100BASE-TX, or 1000BASE-T
Network cable	Category 5e (Cat 5e) or better Ethernet cable
Ethernet ports	8
USB ports (provides power only)	2
USB power	10W maximum per port, 15W maximum total
USB max current	Up to 1.5A maximum on a single port, not to exceed 2A total across both ports
Power	100–240 VAC 50/60 Hz, 1.0A maximum
Power consumption	20.14W maximum
Weight	0.43 kg (0.94 lb)
Dimensions (W X D x H)	305 mm x 65 mm x 35 mm (12 in. x 2.6 in. x 1.4 in.)
Operating temperature	0–40°C (32–104°F)

Table 4. Technical specifications model GSS108E (continued)

Specification	Value or Description
Operating humidity	0%–90% relative humidity, noncondensing
Electromagnetic	CE Class B, FCC Class B, VCCI Class B, RCM Class B
Safety agency approvals	CE mark, CB UL

Technical Specifications Model GSS116E

Table 5. Technical specifications model GSS116E

Specification	Value or Description
Network interfaces	RJ-45 connectors supporting 10BASE-T, 100BASE-TX, or 1000BASE-T
Network cable	Category 5e (Cat 5e) or better Ethernet cable
Ethernet ports	16
Power	100–240 VAC 50/60 Hz, 0.5A maximum
Power consumption	8.36W maximum
Weight	1.3 kg (2.64 lb)
Dimensions (W X D x H)	407 mm x 70 mm x 36 mm (16.02 in. x 2.7 in. x 1.39 in)
Operating temperature	0–40°C (32–104°F)
Operating humidity	0%–90% relative humidity, noncondensing
Electromagnetic	CE Class B, FCC Class B, VCCI Class B, RCM Class B
Safety agency approvals	CE mark, CB UL

Technical Specifications Model GSS108EPP

Table 6. Technical specifications model GSS108EPP

Specification	Value or Description
Network interfaces	RJ-45 connectors supporting 10BASE-T, 100BASE-TX, or 1000BASE-T
Network cable	Category 5e (Cat 5e) or better Ethernet cable
Ethernet ports	8
Power	100–240 VAC 50/60 Hz, 1.4A maximum
Power consumption	5.31W maximum without PoE 57.35W maximum with PoE
PoE+ (802.3at) ports	Ports 1–4

Table 6. Technical specifications model GSS108EPP (continued)

Specification	Value or Description
Total PoE power budget (across all PoE+ ports)	30W maximum per PoE+ port, up to 47W total PoE power for the switch. For more information, see Chapter 6, Manage Power over Ethernet.
Weight	0.93 kg (2.05 lb)
Dimensions (W X D x H)	305 mm x 65 mm x 35 mm (12 in. x 2.6 in. x 1.4 in.)
Operating temperature	0–40°C (32–104°F)
Operating humidity	0%–90% relative humidity, noncondensing
Electromagnetic	CE Class B, FCC Class B, VCCI Class B, RCM Class B, KCC, BSMI, and EAC
Safety agency approvals	CE mark, CB UL