

NETGEAR®

User Manual

Gigabit Ethernet Plus Switches

Models

- GS305EP
- GS305EPP
- GS308EP
- GS308EPP

January 2021
202-12193-02

NETGEAR, Inc.
350 E. Plumeria Drive
San Jose, CA 95134, USA

Support and Community

Visit [netgear.com/support](https://www.netgear.com/support) to get your questions answered and access the latest downloads.

You can also check out our NETGEAR Community for helpful advice at community.netgear.com.

Regulatory and Legal

Si ce produit est vendu au Canada, vous pouvez accéder à ce document en français canadien à <https://www.netgear.com/support/download/>.

(If this product is sold in Canada, you can access this document in Canadian French at <https://www.netgear.com/support/download/>.)

For regulatory compliance information including the EU Declaration of Conformity, visit <https://www.netgear.com/about/regulatory/>.

See the regulatory compliance document before connecting the power supply.

For NETGEAR's Privacy Policy, visit <https://www.netgear.com/about/privacy-policy>.

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. The PoE port is intended for intra building connection only.

Trademarks

© NETGEAR, Inc., NETGEAR, and the NETGEAR Logo are trademarks of NETGEAR, Inc. Any non-NETGEAR trademarks are used for reference purposes only.

Revision History

Publication Part Number	Publish Date	Comments
202-12193-02	January 2021	Updated product line name to Gigabit Ethernet Plus switches. Updated login procedures. Various other corrections.
202-12193-01	December 2020	First version. Not publicly released.

Contents

Chapter 1 Hardware

- Related documentation.....7
- Switch package contents.....7
- Supported switch models.....7
- Model GS305EP, GS305EPP, GS308EP, GS308EPP LEDs.....7
- Switch label.....8
- Safety instructions and warnings.....9

Chapter 2 Install and Access the Switch in Your Network

- Set up the switch in your network and power on the switch.....13
- Methods to discover or access the switch.....13
- Access the switch and discover the IP address of the switch.....14
 - Access the switch from a Mac or Windows-based computer using the NETGEAR Switch Discovery Tool.....14
- Set up a fixed IP address for the switch.....15
 - Set up a fixed IP address for the switch through a network connection.....16
 - Set up a fixed IP address for the switch by connecting directly to the switch off-network.....17
- Change the language of the device UI.....19
- Change the switch password.....19
- Register the switch.....20

Chapter 3 Optimize the Switch Performance

- Set the quality of service mode and port rate limits.....22
 - Use port-based quality of service and set port priorities.....22
 - Use 802.1P/DSCP quality of service.....24
- Manage broadcast filtering and set port storm control rate limits.....25
- Manage individual port settings.....26
 - Set rate limits for a port.....26
 - Set the priority for a port.....27
 - Manage flow control for a port.....28
 - Change the speed for a port or disable a port.....29
 - Add or change the name label for a port.....31

Chapter 4 Use VLANS for Traffic Segmentation

VLAN overview.....33
Activate the Basic Port-Based VLAN mode and assign VLANs.....35
Manage advanced port-based VLANs.....36
 Activate the Advanced Port-Based VLAN Mode.....36
 Create an advanced port-based VLAN.....37
 Change an advanced port-based VLAN.....38
 Delete an advanced port-based VLAN.....39
Manage basic 802.1Q VLANs.....40
 Activate the Basic 802.1Q VLAN mode.....40
 Create a basic 802.1Q VLAN and assign ports as members...41
 Assign the port mode in a basic 802.1Q VLAN configuration..43
 Change a basic 802.1Q VLAN.....44
 Delete a basic 802.1Q VLAN.....45
Manage advanced 802.1Q VLANs.....46
 Activate the advanced 802.1Q VLAN mode.....47
 Create an advanced 802.1Q VLAN.....48
 Change an advanced 802.1Q VLAN.....49
 Specify a port PVID for an advanced 802.1Q VLAN.....50
 Set an existing advanced 802.1Q VLAN as the voice VLAN and
 adjust the CoS value.....52
 Change the OUI table for the voice VLAN.....53
 Delete an advanced 802.1Q VLAN.....54
Deactivate a port-based or 802.1Q VLAN mode and delete all
VLANs.....55

Chapter 5 Manage the Switch in Your Network

Manage NETGEAR Switch Discovery Protocol.....58
Set up static link aggregation.....58
 Set up a link aggregation group.....59
 Make a link aggregation connection.....60
 Enable a link aggregation group.....60
Manage multicast.....61
 Manage IGMP snooping.....62
 Enable a VLAN for IGMP snooping.....62
 Manage blocking of unknown multicast addresses.....63
 Manage IGMPv3 IP header validation.....64
 Set up a static router port for IGMP snooping.....65
Change the IP address of the switch.....66
Reenable the DHCP client of the switch.....67

Chapter 6 Maintain and Monitor the Switch

Manually check for new switch firmware and update the switch..69

Gigabit Ethernet Plus Switches

Manage the configuration file.....	70
Back up the switch configuration.....	70
Restore the switch configuration.....	71
Return the switch to its factory default settings.....	72
Use the RESET button to reset the switch.....	72
Use the device UI to reset the switch.....	73
Control access to the device UI.....	73
Change or lift access restrictions to the switch.....	74
Manage the DoS prevention mode.....	75
Manage the power saving mode.....	76
Control the port LEDs.....	77
Change the switch device name.....	77
View system information.....	78
View switch connections.....	78
View the status of a port.....	79
PoE considerations for switches that support PoE.....	80
Manage the PoE ports.....	80
Display PoE port status.....	83
Power cycle the PoE ports.....	84
Chapter 7 Diagnostics and Troubleshooting	
Test cable connections.....	87
Resolve a subnet conflict to access the switch.....	87
PoE troubleshooting suggestions.....	88
Appendix A Factory Default Settings and Technical Specifications	
Factory default settings.....	90
Technical specifications.....	91
Model GS305EP and GS308EP technical specifications.....	91
Model GS305EPP and GS308EPP technical specifications.....	91
Appendix B Additional Switch Discovery and Access Information	
Access the switch from any computer.....	94

1

Hardware

This user manual is for the NETGEAR Gigabit Ethernet Plus Switches.

For a list of switch models that are supported by this manual, see [Supported switch models](#) on page 7.

This chapter covers the following topics:

- [Related documentation](#)
- [Switch package contents](#)
- [Supported switch models](#)
- [Model GS305EP, GS305EPP, GS308EP, GS308EPP LEDs](#)
- [Switch label](#)
- [Safety instructions and warnings](#)

Note: This user manual complements the installation guide that came with your switch. You can also download the installation guide 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/. You can manually check for, and download, new firmware. If the features or behavior of your product do not match what is described in this guide, see the latest firmware release notes for your switch model.

Related documentation

The following related documentation is available at netgear.com/support/download/:

- Installation guide
- Data sheet

Switch package contents

The package contains the switch, AC power adapter (power cable localized to the country of sale), and installation guide.

Supported switch models

The *Gigabit Ethernet Plus Switches User Manual* describes the switch models listed in the following table.

Table 1. Supported switch models

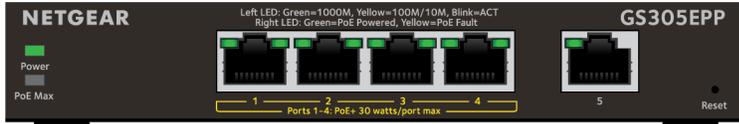
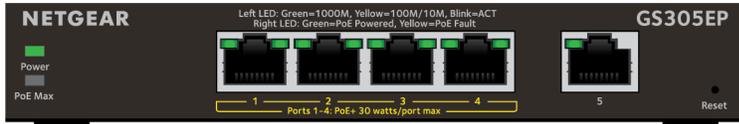
Model	Name
GS305EP	5-Port Gigabit Ethernet Plus Switch with PoE+
GS305EPP	5-Port Gigabit Ethernet Plus Switch with High-Power PoE+
GS308EP	8-Port Gigabit Ethernet Plus Switch with PoE+
GS308EPP	8-Port Gigabit Ethernet Plus Switch with High-Power PoE+

Model GS305EP, GS305EPP, GS308EP, GS308EPP LEDs

This section describes the LED designations of models GS305EP, GS305EPP, GS308EP, GS308EPP. The port LEDs are located above the ports.

On models GS305EP and GS305EPP, ports 1 through 4 are PoE+ ports. Port 5 is an Ethernet (uplink) port.

Gigabit Ethernet Plus Switches



On models GS308EP and GS308EPP, all ports 1 through 8 are PoE+ ports.

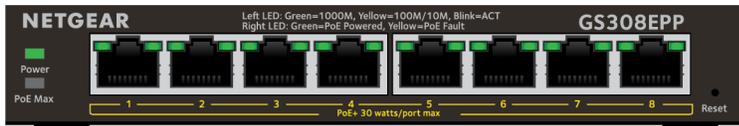


Table 2. Model GS305EP, GS305EPP, GS308EP, GS308EPP LEDs on the front panel

LED	Description
Power LED	Solid green: The switch is powered on and operating normally. Off: Power is not supplied to the switch.
PoE Max LED	Off: Sufficient (more than 7W of) PoE power is available. Solid yellow: Less than 7W of PoE power is available. Blinking yellow: At least once during the previous two minutes, less than 7W of PoE power was available.
Left port LED	Solid green: 1000 Mbps link on this port. Blinking green: 1000 Mbps activity on this port. Solid yellow: A valid 10 Mbps or 100 Mbps port link is established. Blinking yellow: 100 Mbps or 10 Mbps activity on this port. Off: No link is detected on this port.
Right port LED	Solid green: The port is delivering PoE power. Off: The port is not delivering PoE power. Solid yellow: A PoE fault occurred.

Switch label

The switch label on the bottom panel of the switch shows the serial number, MAC address, and default login information of the switch.



Safety instructions and warnings

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions:

- This product is designed for indoor use only in a temperature-controlled and humidity-controlled environment. Note the following:
 - For more information about the environment in which this product must operate, see the environmental specifications in the appendix or the data sheet.
 - If you want to connect the product 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 indoor product and the outdoor device. Failure to do so can damage the product.
 - Before connecting the product to outdoor cables or devices, see <https://kb.netgear.com/000057103> for additional safety and warranty information.

Failure to follow these guidelines can result in damage to your NETGEAR product, which might not be covered by NETGEAR's warranty, to the extent permissible by applicable law.

Gigabit Ethernet Plus Switches

- Observe and follow service markings:
 - Do not service any product except as explained in your product documentation. Some devices should never be opened.
 - If applicable to your product, opening or removing covers that are marked with the triangular symbol with a lightning bolt can expose you to electrical shock. We recommend that only a trained technician services components inside these compartments.
- If any of the following conditions occur, unplug the product from the power outlet, and then replace the part or contact your trained service provider:
 - Depending on your product, the power adapter, power adapter cable, power cable, extension cable, or plug is damaged.
 - An object fell into the product.
 - The product was exposed to water.
 - The product was dropped or damaged.
 - The product does not operate correctly when you follow the operating instructions.
- Keep the product away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your product components, and never operate the product in a wet environment. If the product gets wet, see the appropriate section in your troubleshooting guide, or contact your trained service provider.
- Do not push any objects into the openings of your product. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- If applicable to your product, allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.
- To avoid damaging your system, if your product uses a power supply with a voltage selector, be sure that the selector is set to match the power at your location:
 - 115V, 60 Hz in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
 - 100V, 50 Hz in eastern Japan and 100V, 60 Hz in western Japan
 - 230V, 50 Hz in most of Europe, the Middle East, and the Far East

Gigabit Ethernet Plus Switches

- Be sure that attached devices are electrically rated to operate with the power available in your location.
- Depending on your product, use only a supplied power adapter or approved power cable:
 - If your product uses a power adapter:
 - If you were not provided with a power adapter, contact your local NETGEAR reseller.
 - The power adapter must be rated for the product and for the voltage and current marked on the product electrical ratings label.
 - If your product uses a power cable:
 - If you were not provided with a power cable for your system or for any AC-powered option intended for your system, purchase a power cable approved for your country.
 - The power cable must be rated for the product and for the voltage and current marked on the product electrical ratings label. The voltage and current rating of the cable must be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded power outlets.
- If applicable to your product, the peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables, power adapter cables, or power cables carefully. Route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do not modify power adapters, power adapter cables, power cables or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.

2

Install and Access the Switch in Your Network

This chapter describes how you can install and access the switch in your network.

The chapter contains the following sections:

- [Set up the switch in your network and power on the switch](#)
- [Methods to discover or access the switch](#)
- [Access the switch and discover the IP address of the switch](#)
- [Set up a fixed IP address for the switch](#)
- [Change the language of the device UI](#)
- [Change the switch password](#)
- [Register the switch](#)

Set up the switch in your network and power on the switch

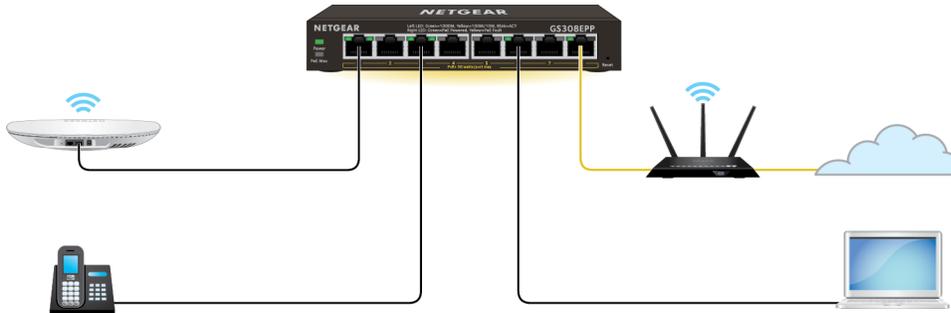


Figure 1. Example connections

To set up the switch in your network and power on the switch:

1. Connect the LAN (UPLINK) port on the switch to a LAN port on a router that is connected to the Internet.
On the GS305EP and GS305EPP, use port 5.
On the GS308EP and GS308EPP, use port 8.
2. On the switch, connect your PoE devices to the lowest lowest number ports, starting with port 1, and then connect any non-PoE devices.
For more information, see [PoE considerations for switches that support PoE](#) on page 80.
3. Connect the power adapter to the switch and plug the power adapter into an electrical outlet.
The power LED lights and the port LEDs for connected devices light.

Methods to discover or access the switch

You can use any of the following methods to discover the switch in your network or access the switch to configure and manage it:

Computer and web browser. Use a computer and a web browser to discover the switch in your network and access the device UI of the switch:

- [Access the switch from a Mac or Windows-based computer using the NETGEAR Switch Discovery Tool](#) on page 14.
- [Set up a fixed IP address for the switch](#) on page 15.

Access the switch and discover the IP address of the switch

By default, the switch receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network.

For information about setting up a fixed (static) IP address on the switch, see [Set up a fixed IP address for the switch](#) on page 15.

Access the switch from a Mac or Windows-based computer using the NETGEAR Switch Discovery Tool

The NETGEAR Switch Discovery Tool (NSDT) lets you discover the switch in your network and access the device UI of the switch from a Mac or a Windows-based computer.

To install the NSDT, discover the switch in your network, access the switch, and discover the switch IP address:

1. Download the NSDT by visiting netgear.com/support/product/netgear-switch-discovery-tool.aspx.
Download either the Mac or Windows version.
2. Temporarily disable the firewall, Internet security, antivirus programs, or all of these on the computer that you will use to configure the switch.
3. Unzip the NSDT files, double-click the **.exe** or **.dmg** file (for example, `NETGEAR+Switch+Discovery+Tool+Setup+1.2.102.exe` or `NetgearSDT-V1.2.102.dmg`), and install the program on your computer.
Depending on your computer setup, the installation process might add the **NETGEAR Switch Discovery Tool** icon to the dock of your Mac or the desktop of your Windows-based computer.
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 NSDT.

If the **NETGEAR Switch Discovery Tool** icon is in the Dock of your Mac or on the desktop of your Windows-based computer, click or double-click the icon to open the program.

The initial page displays a menu and a button.

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

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

The NSDT displays a list of switches that it discovers on the selected network.

For each switch, the tool displays the IP address.

10. To access the device UI of the switch, click the **ADMIN PAGE** button.

The login page of the device UI opens.

11. Enter the switch password.

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

The HOME page displays.

The right pane (or, depending on the size of your browser window, the middle pane) shows the IP address that is assigned to the switch.

Tip: You can copy and paste the IP address into a new shortcut or bookmark it for quick access on your computer or mobile device. However, if you restart the switch, a dynamic IP address (assigned by a DHCP server) might change the IP address, and the bookmark might no longer link to the login page for the switch. When you restart the switch, you must repeat this procedure so that you can discover the new IP address of the switch in the network and update your bookmark accordingly. You can also set up a fixed (static) IP address for the switch (see [Set up a fixed IP address for the switch](#) on page 15) to make sure that the new bookmark always links to the login page for the switch, even after you restart the switch.

Set up a fixed IP address for the switch

By default, the switch receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network. However, the DHCP server might not always issue the same IP address to the switch. For easy access to the switch device UI, you can

set up a fixed (static) IP address on the switch. This allows you to manage the switch anytime from a mobile device because the switch IP address remains the same.

To change the IP address of the switch, you can connect to the switch by one of the following methods:

- **Through a network connection.** If the switch and your computer are connected to the same network (which is the most likely situation), you can change the IP address of the switch through a network connection (see [Set up a fixed IP address for the switch through a network connection](#) on page 16).
- **Through a direct connection.** In the unlikely situation that the switch is not connected to a network, or for some reason you cannot connect to the switch over a network connection, you can change the IP address of the switch by using an Ethernet cable and making a direct connection to the switch (see [Set up a fixed IP address for the switch by connecting directly to the switch off-network](#) on page 17).

Set up a fixed IP address for the switch through a network connection

If the switch and your computer are connected to the same network (which is the most likely situation), you can change the IP address of the switch through a network connection.

To disable the DHCP client of the switch and change the IP address of the switch to a fixed IP address by using a network connection:

1. Open a web browser from a computer that is connected to the same network as the switch.
2. Enter the IP address that is assigned to the switch.
The login page displays.
3. Enter the switch password.
The default password is **password**. The password is case-sensitive.
The HOME page displays.
The right pane (or, depending on the size of your browser window, the middle pane) shows the IP address that is assigned to the switch.
4. Select **IP Address (DHCP On)**.
The button bar in the DHCP section displays green because the DHCP client of the switch is enabled.
5. Click the button in the DHCP section.
The button bar displays gray, indicating that the DHCP client of the switch is disabled, and the IP address fields become editable.

6. Enter the fixed (static) IP address that you want to assign to the switch and the associated subnet mask and gateway IP address.
You can also either leave the address in the **IP Address** field as it is (with the IP address that was issued by the DHCP server) or change the last three digits of the IP address to an unused IP address.
7. Write down the complete fixed IP address.
You can bookmark it later.
8. Click the **APPLY** button.
Your settings are saved. Your switch web session is disconnected when you change the IP address.
9. If the login page does not display, in the address field of your web browser, enter the new IP address of the switch.
The login page displays.
10. For easy access to the device UI, bookmark the page on your computer.

Set up a fixed IP address for the switch by connecting directly to the switch off-network

In the unlikely situation that the switch is not connected to a network, or for some reason you cannot connect to the switch over a network connection, you can change the IP address of the switch by using an Ethernet cable and making a direct connection to the switch.

To disable the DHCP client of the switch and change the IP address of the switch to a fixed IP address by using a direct connection:

1. Connect an Ethernet cable from your computer to an Ethernet port on the switch.
2. Change the IP address of your computer to be in the same subnet as the default IP address of the switch.
The default IP address of the switch is 192.168.0.239. This means that you must change the IP address of the computer to be on the same subnet as the default IP address of the switch (192.168.0.x).
The method to change the IP address on your computer depends on the operating system of your computer.
3. Open a web browser from a computer that is connected to the switch directly through an Ethernet cable.
4. Enter **192.168.0.239** as the IP address of the switch.
The login page displays.

5. Enter the switch password.
The default password is **password**. The password is case-sensitive.
The HOME page displays.
The right pane (or, depending on the size of your browser window, the middle pane) shows the IP address that is assigned to the switch.
6. Select **IP Address (DHCP On)**.
The button bar in the DHCP section displays green because the DHCP client of the switch is enabled.
7. Click the button in the DHCP section.
The button bar displays gray, indicating that the DHCP client of the switch is disabled, and the IP address fields become editable.
8. Enter the fixed (static) IP address that you want to assign to the switch and the associated subnet mask and gateway IP address.
9. Write down the complete fixed IP address.
You can bookmark it later.
10. Click the **APPLY** button.
Your settings are saved. Your switch web session is disconnected when you change the IP address.
11. Disconnect the switch from your computer and install the switch in your network.
For more information, see [Set up the switch in your network and power on the switch](#) on page 13.
12. Restore your computer to its original IP address.
13. Verify that you can connect to the switch with its new IP address:
 - a. Open a web browser from a computer that is connected to the same network as the switch.
 - b. Enter the new IP address that you assigned to the switch.
The login page displays.
 - c. Enter the switch password.
The default password is **password**. The password is case-sensitive.
The HOME page displays.

Change the language of the device UI

By default, the language of the device UI is set to Auto so that the switch can automatically detect the language. However, you can set the language to a specific one.

To change the language of the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch or to the switch directly through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
The login page displays.
3. Enter the switch password.
The default password is **password**. The password is case-sensitive.
The HOME page displays.
4. Select **System Info**.
The System Info fields display.
5. From the **Language** menu, select a language.
6. Click the **APPLY** button.
A pop-up warning window opens.
7. Click the **CONTINUE** button.
Your settings are saved and the language changes.

Change the switch password

The default password to access the device UI of 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 switch password:

1. Open a web browser from a computer that is connected to the same network as the switch or to the switch directly through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
The login page displays.
3. Enter the switch password.

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

The HOME page displays.

4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **CHANGE PASSWORD**.
The CHANGE PASSWORD page displays.
6. In the **Current Password** field, type the current password for the switch.
7. Type the new password in the **New Password** field and in the **Retype 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 the switch

Registering the switch allows you to receive email alerts and streamlines the technical support process. You can log in to your NETGEAR account at my.netgear.com to register your switch, or you can also register the switch through the device UI, in which case the switch must be connected to the Internet.

To register the switch through the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **PRODUCT REGISTRATION**.
The PRODUCT REGISTRATION page displays.
6. Click the **REGISTER** button.
The switch contacts the registration server.
7. Follow the onscreen process to register the switch.

3

Optimize the Switch Performance

This chapter describes how you can optimize the performance of the switch.

The chapter contains the following sections:

- [Set the quality of service mode and port rate limits](#)
- [Manage individual port settings](#)

Set the quality of service mode and port rate limits

You can manually set the Quality of Service (QoS) modes to manage traffic:

- **Port-based QoS mode.** Lets you set the priority (low, medium, high, or critical) for individual port numbers and lets you set rate limits for incoming and outgoing traffic for individual ports. If broadcast filtering is enabled, you can also set the storm control rate for incoming traffic for individual ports.
- **802.1P/DSCP QoS mode.** Applies pass-through prioritization that is based on tagged packets and lets you set rate limits for incoming and outgoing traffic for individual ports. If broadcast filtering is enabled, you can also set the storm control rate for incoming traffic for individual ports.
This QoS mode applies only to devices that support 802.1P and Differentiated Services Code Point (DSCP) tagging. For devices that do not support 802.1P and DSCP tagging, ports are not prioritized but the configured rate limit is still applied.

You can limit the rate of incoming traffic, outgoing traffic, or both on a port to prevent the port (and the device that is attached to it) from taking up too much bandwidth on the switch. Rate limiting, which you can set for individual ports in either QoS mode, simply means that the switch slows down all traffic on a port so that traffic does not exceed the limit that you set for that port. If you set the rate limit on a port too low, you might, for example, see degraded video stream quality, sluggish response times during online activity, and other problems.

Use port-based quality of service and set port priorities

802.1P/DSCP is the default QoS mode on the switch, but you can also set port-based QoS.

For each port, you can set the priority and the rate limits for both incoming and outgoing traffic:

- **Port priority.** The switch services traffic from ports with a critical priority before traffic from ports with a high, medium, or low priority. Similarly, the switch services traffic from ports with a high priority before traffic from ports with a medium or low priority. If severe network congestion occurs, the switch might drop packets with a low priority.
- **Port rate limits.** The switch accepts traffic on a port at the rate (the speed of the data transfer) that you set for incoming traffic on that port. The switch transmits traffic from a port at the rate that you set for outgoing traffic on that port. You can select each rate limit as a predefined data transfer threshold from 512 Kbps to 512 Mbps.

Note: If you set a port rate limit, the actual rate might fluctuate, depending on the type of traffic that the port is processing.

To use the Port-based QoS mode and set the priority and rate limits for ports:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING > QOS** .
The Quality of Service (QoS) page displays.
5. If the selection from the **QoS Mode** menu is **802.1P/DSCP**, do the following to change the selection to **Port-based**:
 - a. From the **QoS Mode** menu, select **Port-Based**.
A pop-up warning window opens.
 - b. Click the **CONTINUE** button.
The pop-up window closes.
6. To set the port priorities, do the following:
 - a. Click the **PRIORITY** tab.
 - b. Click the purple **pencil** icon.
The EDIT PRIORITY page displays.
 - c. For each port for which you want to set the priority, select **Low**, **Medium**, **High**, or **Critical** from the individual menu for the port.
The default selection is High.
 - d. Click the **APPLY** button.
Your settings are saved and the EDIT PRIORITY page closes.
7. To set rate limits, do the following:
 - a. In **SWITCHING > QOS**, click the **RATE LIMITS** tab.
 - b. Click the purple **pencil** icon.

The EDIT RATE LIMITS page displays.

- c. For each port for which you want to set rate limits, select the rate in Kbps or Mbps from the individual **In Limits** and **Out Limits** menus for the port.
The default selection is No Limit.
- d. Click the **APPLY** button.
Your settings are saved and the EDIT RATE LIMITS page closes.

Use 802.1P/DSCP quality of service

In the 802.1P/DSCP QoS mode, the switch uses the 802.1P or DSCP information in the header of an incoming packet to prioritize the packet. With this type of QoS, you cannot control the port prioritization on the switch because the device that sends the traffic (that is, the packets) to the switch prioritizes the traffic. However, you can set the rate limits for individual ports on the switch.

The switch accepts traffic on a port at the rate (the speed of the data transfer) that you set for incoming traffic on that port. The switch transmits traffic from a port at the rate that you set for outgoing traffic on that port. You can select each rate limit as a predefined data transfer threshold from 512 Kbps to 512 Mbps.

To use 802.1P/DSCP QoS mode and set the rate limits for ports:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING > QOS** .
The Quality of Service (QoS) page displays.
5. If the selection from the **QoS Mode** menu is **Port-based**, do the following to change the selection to **802.1P/DSCP**:
 - a. From the **QoS Mode** menu, select **802.1P/DSCP**.
A pop-up warning window opens.
 - b. Click the **CONTINUE** button.
The pop-up window closes.

Note: For information about broadcast filtering, see [Manage broadcast filtering and set port storm control rate limits](#) on page 25.

6. To set rate limits, do the following:
 - a. Click the **RATE LIMITS** tab.
If broadcast filtering is disabled, only the RATE LIMITS tab displays.
 - b. Click the purple **pencil** icon.
The EDIT RATE LIMITS page displays.
 - c. For each port for which you want to set rate limits, select the rate in Kbps or Mbps from the individual **In Limits** and **Out Limits** menus for the port.
The default selection is No Limit.
 - d. Click the **APPLY** button.
Your settings are saved and the EDIT RATE LIMITS page closes.

Manage broadcast filtering and set port storm control rate limits

A broadcast storm is a massive transmission of broadcast packets that are forwarded to every port on the switch. If they are not blocked, broadcast storm packets can delay or halt the transmission of other data and cause problems. However, you can block broadcast storms on the switch.

You can also set storm control rate limits for each port. Storm control measures the incoming broadcast, multicast, and unknown unicast frame rates separately on each port, and discards the frames if the rate that you set for the port is exceeded. By default, no storm control rate limit is set for a port. You can select each storm control rate limit as a predefined data transfer threshold from 512 Kbps to 512 Mbps.

To manage broadcast filtering and set the storm control rate limits for ports:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING > QOS** .

The Quality of Service (QoS) page displays.

5. If the selection from the **QoS Mode** menu is not the QoS mode that you want to configure, do the following to change the QoS mode:
 - a. From the **QoS Mode** menu, select **Port-Based** or **802.1P/DSCP**.
A pop-up warning window opens.
 - b. Click the **CONTINUE** button.
The pop-up window closes and the QoS mode is changed.
6. Click the **Broadcast Filtering** button.
When broadcast filtering is enabled, the button bar displays green.
7. Click the **APPLY** button.
Broadcast filtering is enabled. The **STORM CONTROL RATE** tab displays next to the **RATE LIMITS** tab.
8. To set storm control rate limits, do the following:
 - a. Click the **STORM CONTROL RATE** tab.
 - b. Click the purple **pencil** icon.
The EDIT STORM CONTROL RATE options display.
 - c. For each port for which you want to set storm control rate limits, select the rate in Kbps or Mbps from the individual menu for the port.
The default selection is No Limit.
 - d. Click the **APPLY** button.
Your settings are saved and the EDIT STORM CONTROL RATE tab displays your new settings.

Manage individual port settings

For each individual port, you can set the port priority, set rate limits for incoming and outgoing traffic, set the port speed (by default, the speed is set automatically), enable flow control, and change the port name label.

Set rate limits for a port

You can limit the rate of incoming (ingress) traffic, outgoing (egress) traffic, or both on a port to prevent the port (and the device that is attached to it) from taking up too much bandwidth on the switch. Rate limiting simply means that the switch slows down all traffic on a port so that traffic does not exceed the limit that you set for that port. If you

set the rate limit on a port too low, you might, for example, see degraded video stream quality, sluggish response times during online activity, and other problems.

You also can set port rate limits (the same feature) as part of the Quality of Service configuration on the switch (see [Set the quality of service mode and port rate limits](#) on page 22).

To set rate limits for incoming and outgoing traffic on a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The HOME page displays.
The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.
A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.
4. Select the port.
The pane displays detailed information about the port.
5. Click the **EDIT** button.
The EDIT PORT page displays for the selected port.
If the QoS mode on the switch is Port-based (the default setting), the **Priority** menu displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** menu does not display.
6. From the **In Rate Limit** menu, **Out Rate Limit** menu, or both, select the rate in Kbps or Mbps.
The default selection is No Limit.
7. Click the **APPLY** button.
Your settings are saved.

Set the priority for a port

If the QoS mode on the switch is Port-based (the default setting), you can set the priority for a port.

The switch services traffic from ports with a critical priority before traffic from ports with a high, medium, or low priority. Similarly, the switch services traffic from ports with a high priority before traffic from ports with a medium or low priority. If severe network congestion occurs, the switch might drop packets with a low priority.

You also can set the priority for a port (the same feature) as part of the Quality of Service configuration on the switch (see [Use port-based quality of service and set port priorities](#) on page 22).

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The HOME page displays.
The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.
A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.
4. Select the port.
The pane displays detailed information about the port.
5. Click the **EDIT** button.
The EDIT PORT page displays for the selected port.
If the QoS mode on the switch is Port-based (the default setting), the **Priority** menu displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** menu does not display.
6. From the **Priority** menu, select **Low**, **Medium**, **High**, or **Critical**.
The default selection is High.
7. Click the **APPLY** button.
Your settings are saved.

Manage flow control for a port

IEEE 802.3x flow control works by pausing a port if the port becomes oversubscribed (that is, the port receives more traffic than it can process) and dropping all traffic for small bursts of time during the congestion condition.

You can enable or disable flow control for an individual port. By default, flow control is disabled for all ports.

To manage flow control for a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The HOME page displays.
The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.
A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.
4. Select the port.
The pane displays detailed information about the port.
5. Click the **EDIT** button.
The EDIT PORT page displays for the selected port.
If the QoS mode on the switch is Port-based (the default setting), the **Priority** menu displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** menu does not display.
6. In the Flow Control section, enable or disable flow control by clicking the button.
When flow control is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Change the speed for a port or disable a port

By default, the port speed on all ports is set automatically (that is, the setting is Auto) after the switch determines the speed using autonegotiation with the linked device. We recommend that you leave the Auto setting for the ports. However, you can select a specific port speed setting for each port or disable a port by shutting it down manually.

To change the speed for a port or disable a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
 2. Enter the IP address that is assigned to the switch.
A login window opens.
 3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The default password is **password**. The password is case-sensitive.
The HOME page displays.
The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.
A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.
 4. Select the port.
The pane displays detailed information about the port.
 5. Click the **EDIT** button.
The EDIT PORT page displays for the selected port.
If the QoS mode on the switch is Port-based (the default setting), the **Priority** menu displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** menu does not display.
 6. Select one of the following options from the **Speed** menu:
 - **Auto**. The port speed is set automatically after the switch determines the speed using autonegotiation with the linked device. This is the default setting.
 - **Disable**. The port is shut down (blocked).
 - **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 half**. 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.

Note: You cannot select Gigabit Ethernet as the port speed. However, if the setting from the **Speed** menu is **Auto**, the switch can use autonegotiation to automatically set the port speed to Gigabit Ethernet if the linked device supports that speed.
 7. Click the **APPLY** button.
-

Your settings are saved.

Add or change the name label for a port

You can add or change a name label for a port. these name labels. Adding or changing a name label does not change the nature of a port, that is, it is just a label.

To add or change a name label for a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The HOME page displays.
The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.
A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.
4. Select the port.
The pane displays detailed information about the port.
5. Click the **EDIT** button.
The EDIT PORT page displays for the selected port.
If the QoS mode on the switch is Port-based (the default setting), the **Priority** menu displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** menu does not display.
6. In the **Port Name** field, type a name label for the port.
The name label can be from 1 to 16 characters.
7. Click the **APPLY** button.
Your settings are saved.

4

Use VLANS for Traffic Segmentation

This chapter describes how you can use VLANs to segment traffic on the switch.

The chapter contains the following sections:

- [VLAN overview](#)
- [Activate the Basic Port-Based VLAN mode and assign VLANs](#)
- [Manage advanced port-based VLANs](#)
- [Manage basic 802.1Q VLANs](#)
- [Manage advanced 802.1Q VLANs](#)
- [Deactivate a port-based or 802.1Q VLAN mode and delete all VLANs](#)

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.

You can group ports in VLANs using either 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.

If the switch is the only switch in your network and you do not need a VLAN to function across multiple network devices (such as a router, another switch, a WiFi AP, or any network device that supports VLANs), we recommend that you use a port-based VLAN. If you need a single VLAN on a single port (other than the uplink port), use the basic port-based VLAN configuration. If you need multiple VLANs on a single port, use the advanced port-based VLAN configuration.

The switch supports the following port-based VLAN modes:

- **Basic Port-Based VLAN.** In a basic port-based VLAN configuration, ports with the same VLAN ID are placed into the same VLAN. Except for the uplink port, you can assign each port to a single VLAN only. The number of VLANs is limited to the number of ports on the switch.
 - **Advanced Port-Based VLAN.** In an advanced port-based VLAN configuration, ports with the same VLAN ID are also placed into the same VLAN, but you can assign a single port to multiple VLANs.
- **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. To use an 802.1Q VLAN that is set up on another device, you must know the VLAN ID.

If you need a VLAN to function across multiple network devices (such as a router, another switch, a WiFi AP, or any network device that supports VLANs), we recommend that you use an 802.1Q VLAN. If you do not need to customize tagging on a single port and you do not need a voice VLAN, use the basic 802.1Q VLAN configuration. If you do need to customize tagging on a single port or you do need a voice VLAN, use the advanced 802.1Q VLAN configuration.

The switch supports the following 802.1Q VLAN modes:

- **Basic 802.1Q VLAN.** In a basic 802.1Q VLAN configuration, VLAN 1 is added to the switch and all ports (1 through 5 for the GS305EP or GS305EPP, and 1 through 8 for the GS308EP or GS308EPP) function in access mode as members of VLAN 1. You can change the mode for a port to trunk mode, you can add more VLANs, and you can assign a different VLAN to a port. A port that functions in access

Gigabit Ethernet Plus Switches

mode can belong to a single VLAN only and does not tag the traffic that it processes. A port that functions in trunk mode automatically belongs to all VLANs on the switch and tags the traffic that it processes.

- **Advanced 802.1Q VLAN.** In an advanced 802.1Q VLAN configuration, VLAN 1 is added to the switch and all ports (1 through 5 for the GS305EP or GS305EPP, and 1 through 8 for the GS308EP or GS308EPP) are untagged members of VLAN 1. You can tag ports, untag ports, exclude ports, add more VLANs, assign a different VLAN to a port, manage port PVIDs, and manage a voice VLAN.

The following table provides an overview of VLAN features that are supported on the switch.

Table 3. Supported VLAN modes for the GS305EP and GS305EPP

VLAN Feature	Basic Port-Based VLAN	Advanced Port-Based VLAN	Basic 802.1Q VLAN	Advanced 802.1Q VLAN
Total number of VLANs	5	5	64	64
Egress tagging	No	No	Yes (trunk port only)	Yes
Multiple VLANs on a single port	No	Yes	Yes (trunk port only)	Yes
Voice VLAN	No	No	No	Yes

Table 4. Supported VLAN modes for the GS308EP and GS308EPP

VLAN Feature	Basic Port-Based VLAN	Advanced Port-Based VLAN	Basic 802.1Q VLAN	Advanced 802.1Q VLAN
Total number of VLANs	8	8	64	64
Egress tagging	No	No	Yes (trunk port only)	Yes

Table 4. Supported VLAN modes for the GS308EP and GS308EPP (Continued)

VLAN Feature	Basic Port-Based VLAN	Advanced Port-Based VLAN	Basic 802.1Q VLAN	Advanced 802.1Q VLAN
Multiple VLANs on a single port	No	Yes	Yes (trunk port only)	Yes
Voice VLAN	No	No	No	Yes

Activate the Basic Port-Based VLAN mode and assign VLANs

By default, all types of VLANs are disabled on the switch.

When you activate the Basic Port-Based VLAN mode, all VLANs are added to the switch, and all ports are made members of VLAN 1. This is the default VLAN in the Basic Port-Based VLAN mode.

In the Basic Port-Based VLAN mode, you can assign each port (other than the uplink port) to a single VLAN only.

To activate the Basic Port-Based VLAN mode and assign VLANs:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the Basic Port-Based VLAN section, click the **ACTIVATE MODE** button.
A pop-up window opens, informing you that the current VLAN settings will be lost.
7. Click the **CONTINUE** button.

Your settings are saved and the pop-up window closes. By default, all VLANs are added and each port is a member of VLAN 1.

8. To assign one or more ports to other VLANs, do the following:
 - a. For each port that you want to assign to another VLAN, select a VLAN ID from the **VLAN** menu for the individual port.
Each port can be assigned to a single VLAN only. However, for the port that you want to use as the uplink port to the Internet connection or a server, select **All** from the **VLAN** menu for the individual port.
 - b. Click the **APPLY** button.
Your settings are saved.

Manage advanced port-based VLANs

In an advanced port-based VLAN configuration, ports with the same VLAN ID are placed into the same VLAN, but you can assign a single port to multiple VLANs.

For more information about port-based VLANs, see the following sections:

- [Activate the Advanced Port-Based VLAN Mode](#)
- [Create an advanced port-based VLAN](#)
- [Change an advanced port-based VLAN](#)
- [Delete an advanced port-based VLAN](#)

Activate the Advanced Port-Based VLAN Mode

By default, all types of VLANs are disabled on the switch.

When you activate the Advanced Port-Based VLAN mode, VLAN 1 is added to the switch and all ports are made members of VLAN 1. This is the default VLAN in the Advanced Port-Based VLAN mode.

To activate the Advanced Port-Based VLAN mode:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.

4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the Advanced Port-Based VLAN section, click the **ACTIVATE MODE** button.
A pop-up window opens, informing you that the current VLAN settings will be lost.
7. Click the **CONTINUE** button.
Your settings are saved and the pop-up window closes. By default, VLAN 1 is added and all ports are members of VLAN 1.

For information about creating an advanced port-based VLAN, see [Create an advanced port-based VLAN](#) on page 37.

Create an advanced port-based VLAN

An advanced port-based VLAN configuration lets you create VLANs and assign ports on the switch to a VLAN. The number of VLANs is limited to the number of ports on the switch. In an advanced port-based VLAN configuration, one port can be a member of multiple VLANs.

By default, all ports are members of VLAN 1, but you can change the VLAN assignment.

To create an advanced port-based VLAN and assign ports as members:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.

If you did not yet activate the Advanced Port-Based VLAN mode, see [Activate the Advanced Port-Based VLAN Mode](#) on page 36.

6. In the Advanced Port-Based VLAN section, click the **ADD VLAN** button.
7. Specify the settings for the new VLAN:
 - **VLAN Name.** Enter a name from 1 to 14 characters.
 - **VLAN ID.** Enter a number from 1 to the total number of ports on the switch.
 - **Ports.** Select the ports that you want to include in the VLAN through a combination of the following actions:
 - Click the icon for an unselected port to add the port to the VLAN.
 - Click the icon for a selected port to remove the port from the VLAN.
 - Click the **Select All** link to add all ports to the VLAN.
 - Click the **Remove All** link to remove all selected ports from the VLAN.

The icon for a selected port displays purple.

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

8. Click the **APPLY** button.

Your settings are saved. The new VLAN is added to the VLAN table, which shows the port members for each VLAN.

Change an advanced port-based VLAN

You can change the settings for an existing advanced port-based VLAN.

To change an advanced port-based VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.

A login window opens.
3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.

The QOS page displays.
5. From the menu on the left, select **VLAN**.

The VLAN page displays.

6. In the Advanced Port-Based VLAN section, click the VLAN that you want to change (you can click anywhere in the row for the VLAN) and click the **EDIT** button.

The Advanced Port-Based VLAN pane displays.

7. Change the settings for the VLAN:

- **VLAN Name.** Enter a name from 1 to 14 characters.
You cannot change the VLAN ID. If you need to change the VLAN ID, delete the VLAN and create a new VLAN with another VLAN ID.
- **Ports.** Select the ports that you want to include in the VLAN through a combination of the following actions:
 - Click the icon for an unselected port to add the port to the VLAN.
 - Click the icon for a selected port to remove the port from the VLAN.
 - Click the **Select All** link to add all ports to the VLAN.
 - Click the **Remove All** link to remove all selected ports from the VLAN.

The icon for a selected port displays purple.

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

8. Click the **APPLY** button.

Your settings are saved. The modified VLAN shows in the VLAN table.

Delete an advanced port-based VLAN

You can delete an advanced port-based VLAN that you no longer need. You cannot delete the default VLAN.

Note: If you deactivate the basic or advanced port-based VLAN mode, all port-based VLANs are deleted.

To delete an advanced port-based VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.

4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the Advanced Port-Based VLAN section, click the VLAN that you want to delete (you can click anywhere in the row for the VLAN).
7. Click the **DELETE** button.
Your settings are saved. The VLAN is deleted.

Manage basic 802.1Q VLANs

In a basic 802.1Q VLAN configuration, VLAN 1 is added to the switch and all ports function in access mode as members of VLAN 1. You can change the mode for a port to trunk mode, you can add more VLANs, and you can assign a different VLAN to a port.

After you activate the Basic 802.1Q VLAN mode, you can create VLANs, assign the VLANs to ports that function in access mode, and assign the trunk mode, which carries traffic for all VLANs.

For more information about basic 802.1Q VLANs, see the following sections:

- [Activate the Basic 802.1Q VLAN mode](#)
- [Create a basic 802.1Q VLAN and assign ports as members](#)
- [Assign the port mode in a basic 802.1Q VLAN configuration](#)
- [Change a basic 802.1Q VLAN](#)
- [Delete a basic 802.1Q VLAN](#)

Activate the Basic 802.1Q VLAN mode

By default, all types of VLANs are disabled on the switch.

When you activate the Basic 802.1Q VLAN mode, VLAN 1 is added to the switch and all ports function in access mode (rather than trunk mode) as untagged members of VLAN 1. This is the default VLAN in the Basic 802.1Q VLAN mode.

To activate the Basic 802.1Q VLAN mode:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the Basic 802.1Q VLAN section, click the **ACTIVATE MODE** button.
A pop-up window opens, informing you that the current VLAN settings will be lost.
7. Click the **CONTINUE** button.
Your settings are saved and the pop-up window closes. By default, VLAN 1 is added.
For information about adding VLANs, see [Create a basic 802.1Q VLAN and assign ports as members](#) on page 41.
For all ports, the default selection from the **Mode** menu is **Access**. For more information about access mode and trunk mode, see [Assign the port mode in a basic 802.1Q VLAN configuration](#) on page 43.
8. If you already determined which ports must function in trunk mode, for those ports, select **Trunk (uplink)** from the **Mode** menu.
9. Click the **SAVE** button.
Your settings are saved.

Create a basic 802.1Q VLAN and assign ports as members

A basic 802.1Q VLAN configuration lets you create VLANs and assign ports on the switch to a VLAN. A port that functions in access mode can be member of a single VLAN only. The number of VLANs is limited to the number of ports on the switch. You can assign a VLAN ID number in the range of 1-4093.

To create a basic 802.1Q VLAN and assign ports as members:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
If you did not yet activate the Basic 802.1Q VLAN mode, see [Activate the Basic 802.1Q VLAN mode](#) on page 40.
By default, the **Port Configuration** tab is selected and the 802.1Q-BASED PORT CONFIGURATION pane displays.
6. To add a VLAN and then assign ports as members of the VLAN, do the following:
 - a. Click the **Edit VLAN** button.
The 802.1Q-BASED VLAN CONFIGURATIONS (BASIC MODE) pane displays.
 - b. Click the **ADD VLAN** button.
The BASIC 802.1Q VLAN pop-up window opens.
 - c. In the **VLAN Name** field, enter a name from 1 to 14 characters.
 - d. In **VLAN ID** field, enter a number from 1 to 4093.
 - e. Click the **APPLY** button.
Your settings are saved. The new VLAN shows in the 802.1Q-BASED VLAN CONFIGURATIONS (BASIC MODE) pane.
 - f. Click the **Port Configuration** tab.
The 802.1Q PORT CONFIGURATIONS pane displays
 - g. For each port that you want to make a member of the new VLAN, select the VLAN from the **VLAN** menu for the individual port.

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

7. For a port that functions in access mode, to add a VLAN by using the **VLAN** menu for the individual port, do the following:
 - a. From the **VLAN** menu for the individual port, select **Add VLAN**.
The BASIC 802.1Q VLAN pop-up window opens.
 - b. In the **VLAN Name** field, enter a name from 1 to 14 characters.
 - c. In the **VLAN ID** field, enter a number from 1 to 4093.
 - d. Click the **APPLY** button.
The pop-up window closes. The VLAN is added as a possible selection in the **VLAN** menu for each individual port.
 - e. For each port that you want to make a member of the new VLAN, select the VLAN from the **VLAN** menu for the individual port.

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

8. Click the **SAVE** button.
Your settings are saved.

Note: For information about assigning the port mode, see [Assign the port mode in a basic 802.1Q VLAN configuration](#) on page 43.

Assign the port mode in a basic 802.1Q VLAN configuration

In an 802.1Q VLAN configuration, you can assign one of the following port modes:

- **Access mode.** A port that functions in access mode can belong to a single VLAN only and does not tag the traffic that it processes. You would typically use access mode for a port that is connected to an end device such as a gaming device, media device, or computer. When a port that functions in access mode receives data that is untagged, the data is delivered normally. When a port that functions in access mode receives data that is tagged for a VLAN other than the one the port belongs to, the data is discarded.
- **Trunk mode.** A port that functions in trunk mode automatically belongs to all VLANs on the switch and tags the traffic that it processes. You would typically use trunk mode for a port that is connected to another network device. For example, you would assign trunk mode for an uplink to another switch or router and for a downlink to a WiFi access point.

To assign the port mode:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
If you did not yet activate the Basic 802.1Q VLAN mode, see [Activate the Basic 802.1Q VLAN mode](#) on page 40.
By default, the **Port Configuration** tab is selected and the 802.1Q-BASED PORT CONFIGURATION pane displays.
6. For each individual port that you want to change, from the **Mode** menu, select either **Trunk (uplink)** to let the port function in trunk mode or **Access** to let the port function in access mode.
If you place a port in trunk mode, the selection from the **VLAN** menu changes to **All** because all VLANs must be supported on a trunk port.
7. Click the **SAVE** button.
Your settings are saved.

Change a basic 802.1Q VLAN

You can change an existing basic 802.1Q VLAN.

To change a basic 802.1Q VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.

4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
By default, the **Port Configuration** tab is selected and the 802.1Q-BASED PORT CONFIGURATION pane displays.
6. To change the name for the VLAN, do the following:
 - a. Click the **Edit VLAN** button.
The 802.1Q-BASED VLAN CONFIGURATIONS (BASIC MODE) pane displays.
 - b. Click the VLAN that you want to change (you can click anywhere in the row for the VLAN).
 - c. Click the **EDIT** button.
The BASIC 802.1Q VLAN pop-up window opens.
 - d. Change the VLAN name.
You cannot change the VLAN ID. If you need to change the VLAN ID, delete the VLAN and create a new VLAN with another VLAN ID.
 - e. Click the **APPLY** button.
Your settings are saved. The modified VLAN shows in the 802.1Q-BASED VLAN CONFIGURATIONS (BASIC MODE) pane.
7. To change the membership of the VLAN, for each port that you want to make a member, select the VLAN from the **VLAN** menu for the individual port in the 802.1Q-BASED PORT CONFIGURATION pane.
8. Click the **SAVE** button.
Your settings are saved.

Delete a basic 802.1Q VLAN

You can delete a basic 802.1Q VLAN that you no longer need. You cannot delete the default VLAN.

Note: If you deactivate the Basic 802.1Q VLAN mode, all 802.1Q VLANs are deleted.

To delete a basic 802.1Q VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. Click the **Edit VLAN** button.
The 802.1Q-BASED VLAN CONFIGURATIONS (BASIC MODE) pane displays.
7. Click the VLAN that you want to delete (you can click anywhere in the row for the VLAN).
8. Click the **DELETE** button.
Your settings are saved. The VLAN is deleted.

Manage advanced 802.1Q VLANs

In an advanced 802.1Q VLAN configuration, VLAN 1 is added to the switch and all ports are untagged members of VLAN 1. Advanced 802.1Q VLANs provide you with most configuration options: You can tag ports, untag ports, exclude ports, add more VLANs, assign a different VLAN to a port, manage port PVIDs, and manage a voice VLAN, including the OUI table.

For more information about advanced 802.1Q VLANs, see the following sections:

- [Activate the advanced 802.1Q VLAN mode](#)
- [Create an advanced 802.1Q VLAN](#)
- [Change an advanced 802.1Q VLAN](#)
- [Specify a port PVID for an advanced 802.1Q VLAN](#)
- [Set an existing advanced 802.1Q VLAN as the voice VLAN and adjust the CoS value](#)
- [Change the OUI table for the voice VLAN](#)

- [Delete an advanced 802.1Q VLAN](#)

Activate the advanced 802.1Q VLAN mode

By default, all types of VLANs are disabled on the switch.

When you activate the Advanced 802.1Q VLAN mode, VLAN 1 is added to the switch and all ports function as untagged members of VLAN 1. This is the default VLAN in the Advanced 802.1Q VLAN mode.

In an advanced 802.1Q VLAN configuration, you can set up VLANs to which you can add tagged or untagged ports. 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. You can also manage the VLAN IDs (PVIDs) of the ports (see [Specify a port PVID for an advanced 802.1Q VLAN](#) on page 50).

To activate the Advanced 802.1Q VLAN mode and manage port tagging for the default VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the Advanced 802.1Q VLAN section, click the **ACTIVATE MODE** button.
A pop-up window opens, informing you that the current VLAN settings will be lost.
7. Click the **CONTINUE** button.
Your settings are saved and the pop-up window closes. By default, VLAN 1 is added and all ports are made untagged members of VLAN 1.

For information about creating an advanced 802.1Q VLAN, see [Create an advanced 802.1Q VLAN](#) on page 48.

8. To change the port tagging for the default VLAN (VLAN 1), do the following:
 - a. In the table, click **1** or **Default** (you can click anywhere in the row for VLAN 1).
 - b. Click the **EDIT** button.
 - c. Select the port tags and whether ports are members of the VLAN through a combination of the following actions:
 - Click the **T** button for an individual port to make the port a tagged member of the VLAN.
 - Click the **U** button for an individual port to make the port an untagged member of the VLAN.
 - Click the **E** button for an individual port to exclude the port from the VLAN.
 - Click the **Tag All** link to make all ports tagged members of the VLAN.
 - Click the **Untag All** link to make all ports untagged members of the VLAN.
 - Click the **Exclude All** link to exclude ports from the VLAN.
 - d. Click the **APPLY** button.
Your settings are saved.

Create an advanced 802.1Q VLAN

In an advanced 802.1Q VLAN configuration, you can set up VLANs to which you can add tagged or untagged ports. 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. You can create a total of 64 advanced 802.1Q VLANs for these switches.

To create an advanced 802.1Q VLAN and assign ports as tagged or untagged members:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.

5. From the menu on the left, select **VLAN**.
The VLAN page displays.
If you did not yet activate the Advanced 802.1Q VLAN mode, see [Activate the advanced 802.1Q VLAN mode](#) on page 47.
6. In the right pane, click the **ADD VLAN** button.
The Advanced 802.1Q VLAN pane displays.
7. Specify the VLAN settings and assign ports as tagged or untagged members:
 - a. In the **VLAN Name** field, enter a name from 1 to 14 characters.
 - b. In the **VLAN ID** field, enter a number from 1 to 4094.
 - c. Select the port tags and whether ports are members of the VLAN through a combination of the following actions:
 - Click the **T** button for an individual port to make the port a tagged member of the VLAN.
 - Click the **U** button for an individual port to make the port an untagged member of the VLAN.
 - Click the **E** button for an individual port to exclude the port from the VLAN.
 - Click the **Tag All** link to make all ports tagged members of the VLAN.
 - Click the **Untag All** link to make all ports untagged members of the VLAN.
 - Click the **Exclude All** link to exclude ports from the VLAN.

Note: If ports are members of the same LAG, you must assign them to the same VLAN.
8. Click the **APPLY** button.
Your settings are saved. The new VLAN shows in the Advanced 802.1Q VLAN pane.

Change an advanced 802.1Q VLAN

You can change the settings for an existing advanced 802.1Q VLAN.

To change an advanced 802.1Q VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.

3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the table in the right pane, click the VLAN that you want to change (you can click anywhere in the row for the VLAN).
7. Click the **EDIT** button.
8. Change the VLAN settings as needed:
 - In the **VLAN Name** field, enter a name from 1 to 14 characters.
You cannot change the VLAN ID. If you need to change the VLAN ID, delete the VLAN and create a new VLAN with another VLAN ID.
 - Select the port tags and whether ports are members of the VLAN through a combination of the following actions:
 - Click the **T** button for an individual port to make the port a tagged member of the VLAN.
 - Click the **U** button for an individual port to make the port an untagged member of the VLAN.
 - Click the **E** button for an individual port to exclude the port from the VLAN.
 - Click the **Tag All** link to make all ports tagged members of the VLAN.
 - Click the **Untag All** link to make all ports untagged members of the VLAN.
 - Click the **Exclude All** link to exclude ports from the VLAN.
9. Click the **APPLY** button.
Your settings are saved. The modified VLAN shows in the Advanced 802.1Q VLAN pane.

Specify a port PVID for an advanced 802.1Q VLAN

A default port VLAN ID (PVID) is a VLAN ID tag that the switch assigns to incoming data packets that are not already addressed (tagged) for a particular VLAN. For example, if

you connect a computer to port 6 of the switch and you want it to be a part of VLAN 2, add port 6 as a member of VLAN 2 and set the PVID of port 6 to 2. This configuration automatically adds a PVID of 2 to all data that the switch receives from the computer and makes sure 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.

Note: If you did not yet create an advanced 802.1Q VLAN, all ports are assigned PVID 1 and you cannot assign another PVID to a port. In this situation, first create an advanced 802.1Q VLAN (see [Create an advanced 802.1Q VLAN](#) on page 48).

To assign a PVID to a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
If you did not yet activate the Advanced 802.1Q VLAN mode, see [Activate the advanced 802.1Q VLAN mode](#) on page 47.
6. In PVID Table section in the right pane, click the **PVID Table** link.
The Port and VLAN IDs pane displays.
7. Click the icon for a port.
A menu displays. The menu lets you select a PVID for the port.
8. From the menu, select a VLAN ID and name.
You can select only a VLAN that the selected port is a member of.
9. Click the **APPLY** button.
Your settings are saved. The Port and VLAN IDs pane displays again. The VLAN ID that is assigned as the PVID displays with an asterisk (*) next to the port.
10. Click the **BACK** button.

The Advanced 802.1Q VLAN pane displays.

Set an existing advanced 802.1Q VLAN as the voice VLAN and adjust the CoS value

The switch can support a single advanced 802.1Q VLAN as the voice VLAN to facilitate voice over IP (VoIP) traffic. Because a voice VLAN might require a single port to join to multiple VLANs as an untagged member, you can set up a voice VLAN only as an advanced 802.1Q VLAN. For information about creating an advanced 802.1Q VLAN, see [Create an advanced 802.1Q VLAN](#) on page 48.

A port that is a member of the voice VLAN sends all its voice packets through the voice VLAN but other types of packets (for example, data packets) that come in on the port are forwarding according to the PVID setting on the port.

The default Class of Service (CoS) value for the voice VLAN is 6, which you can adjust to any value from 0 (the lowest priority) to 7 (the highest priority). The voice VLAN CoS value applies to all traffic on the voice VLAN. You *can* set the default VLAN (VLAN 1) as the voice VLAN.

To set an existing advanced 802.1Q VLAN as the voice VLAN and adjust the CoS value for the voice VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
If you did not yet activate the Advanced 802.1Q VLAN mode, see [Activate the advanced 802.1Q VLAN mode](#) on page 47.
6. In the table in the right pane, click the VLAN that you want to make the voice VLAN (you can click anywhere in the row for the VLAN).
7. Click the **EDIT** button.

8. In the Voice VLAN section, click the button so that the button bar display green.
The VLAN is selected to be set as the voice VLAN.
9. From the **Class of Service** menu, select a CoS value.
A value of 0 is the lowest priority and a value of 7 is the highest priority. The default value is 6.

For information about viewing and changing the OUI settings, see [Change the OUI table for the voice VLAN](#) on page 53.
10. Click the **APPLY** button.
Your settings are saved. The voice VLAN shows in the Advanced 802.1Q VLAN pane with a telephone icon.

Change the OUI table for the voice VLAN

For the voice VLAN, the switch supports default Organizationally Unique Identifiers (OUIs), which are associated with VoIP phones of specific manufacturers. All traffic received on voice VLAN ports from VoIP phones with a listed OUI is forwarded on the voice VLAN.

You can add, change, and remove OUIs, including the default OUIs. The maximum number of OUI entries in the table is 15. The first 3 bytes of the MAC address contain a manufacturer identifier, and the last 3 bytes contain a unique station ID. You must add an OUI prefix in the format AA:BB:CC.

You can add a new OUI, change an existing OUI, and delete an OUI that you no longer need.

To change the OUI table for the voice VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.

The VLAN page displays.

6. In the table in the right pane, click **Advanced 802.1Q VLAN**.
7. Click the **EDIT** button.
8. In the OUI Table section, click the **OUI Settings** link.
The Voice VLAN pane displays and shows the OUI table.
9. To add a new OUI, do the following:
 - a. Click the **ADD OUI** button.
The OUI Entry page displays.
 - b. Enter the new OUI and description.
 - c. Click the **APPLY** button.
Your settings are saved.
10. To change an existing OUI, do the following:
 - a. Select the OUI that you want to change and click the **EDIT** button.
 - b. Change the OUI, description, or both.
 - c. Click the **APPLY** button.
Your settings are saved.
11. To delete an OUI that you no longer need, select the OUI and click the **DELETE** button.
Your settings are saved and the OUI is deleted.
12. Click the **BACK** button.
The Advanced 802.1Q VLAN pane displays and shows the voice VLAN settings.
13. Click the **APPLY** button.
Your settings are saved.

Delete an advanced 802.1Q VLAN

You can delete an advanced 802.1Q VLAN that you no longer need. You cannot delete the default VLAN. You cannot delete a VLAN that is in use as the PVID for a port either. You must first remove the VLAN as the PVID for the port before you can delete the VLAN.

Note: If you deactivate the Advanced 802.1Q VLAN mode, all 802.1Q VLANs are deleted.

To delete an advanced 802.1Q VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the table in the right pane, click the VLAN that you want to delete (you can click anywhere in the row for the VLAN).
7. Click the **DELETE** button.
Your settings are saved. The VLAN is deleted.

Deactivate a port-based or 802.1Q VLAN mode and delete all VLANs

If you activated the Basic Port-Based VLAN mode, Advanced Port-Based VLAN mode, Basic 802.1Q VLAN mode, or Advanced 802.1Q VLAN mode, you can deactivate the VLAN mode and delete the default VLAN and all other VLANs.

To deactivate a VLAN mode and delete all VLANs:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.

4. From the menu at the top of the page, select **SWITCHING**.
The QOS page displays.
5. From the menu on the left, select **VLAN**.
The VLAN page displays.
6. In the NO VLANs section, click the **ACTIVATE MODE** button.
A pop-up window opens, informing you that the current VLAN settings will be lost.
7. Click the **CONTINUE** button.
Your settings are saved, the pop-up window closes, and all VLANs are deleted.

5

Manage the Switch in Your Network

This chapter describes how you can manage the switch in your network.

The chapter contains the following sections:

- [Manage NETGEAR Switch Discovery Protocol](#)
- [Set up static link aggregation](#)
- [Manage multicast](#)
- [Change the IP address of the switch](#)
- [Reenable the DHCP client of the switch](#)

Manage NETGEAR Switch Discovery Protocol

A NETGEAR device or application that supports NETGEAR Switch Discovery Protocol (NSDP) can discover the switch in the network so that you can find the switch IP address and log in to the device UI of the switch. NSDP is enabled by default. You can disable NSDP for security reasons.

To manage NSDP:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **SWITCH DISCOVERY**.
The SWITCH DISCOVERY page displays.
6. Enable or disable NSDP by clicking the button in the NSDP section.
When NSDP is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Set up static link aggregation

Static link aggregation on the switch allows you to combine multiple Ethernet ports into a single logical link. Your network devices treat the aggregation as if it were a single link. Depending on how link aggregation is set up in your network, the link supports either increased bandwidth (a larger pipe) or fault tolerance (if one port fails, another one takes over).

The GS305EP and GS305EPP switches each support a single static link aggregation group (LAG) with up to four ports.

The GS308EP and GS308EPP switches each support two static LAGs with up to four ports each. That means that one static LAG can support a link of up to 4 Gbps.

Note: The switch does not support Link Aggregation Control Protocol (LACP).

You set up static link aggregation on the switch through a LAG in the following order:

1. Set up the LAG on the switch (see [Set up a link aggregation group](#) on page 59).
2. Connect the ports that must be members of the LAG on the switch to the ports that must be members of the LAG on *another* device in your network (see [Make a link aggregation connection](#) on page 60).
3. Enable the LAG on the switch (see [Enable a link aggregation group](#) on page 60) and on the other device.

Set up a link aggregation group

You set up static link aggregation on the switch by adding ports to a link aggregation group (LAG), and by enabling the LAG. However, for a LAG to take effect, you first must make sure that all ports that participate in the LAG (that is, the ports on both devices) use the same speed, duplex mode, and flow control setting (see [Manage individual port settings](#) on page 26 for information about changing these settings on the switch), and you must set up a physical link aggregation connection (see [Make a link aggregation connection](#) on page 60).

After you set up a link aggregation group and make a physical link aggregation connection, you can enable the link aggregation group (see [Enable a link aggregation group](#) on page 60).

To set up one or more link aggregation groups on the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **LINK AGGREGATION**.
The LINK AGGREGATION page displays.
6. To add ports to a LAG, click the port numbers that you want to add.
A selected port displays purple.

A LAG must consist of at least two ports, but can consist of all ports.

The number of LAGs that the switch supports depends on the model.

7. Click the **APPLY** button.

Your settings are saved.

Make a link aggregation connection

Before you make a physical link aggregation connection to another network device (usually a router or another switch) that also supports link aggregation, you must first set up a LAG on the switch (see [Set up a link aggregation group](#) on page 59). If you do not, the LAG cannot take effect. Whether a LAG on the switch functions to support increased bandwidth or fault tolerance depends on the LAG configuration on the other network device.

All ports that participate in a LAG (that is, the ports on both devices) must use the same speed, full duplex mode, and flow control setting. For information about changing these settings on the switch, see [Manage individual port settings](#) on page 26.

To make link aggregation connections between the switch and another network device:

Using Ethernet cables, connect each port that must be a member of the LAG on the switch to each port that must be a member of the same LAG on another network device.

The port numbers on the other network device do not matter as long as:

- The ports on the other network device are members of the same LAG.
- The LAG consists of the same total number of ports.
- The ports use the same speed, full duplex mode, and flow control setting as the ports in the LAG on the switch.

Enable a link aggregation group

After you set up a link aggregation group (see [Set up a link aggregation group](#) on page 59) and make a physical link aggregation connection (see [Make a link aggregation connection](#) on page 60), you can enable the link aggregation group.

Note: You must also enable the LAG on the other network device.

To enable a LAG on the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING > QOS** .
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **LINK AGGREGATION**.
The LINK AGGREGATION page displays.
6. Click the button under the LAG that you want to enable.
The button bar for a LAG that is enabled displays green.
7. Click the **APPLY** button.
Your settings are saved.

Manage multicast

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.

Internet Group Management Protocol (IGMP) snooping allows the switch to forward multicast traffic intelligently. Based on the IGMP query and report messages, the switch forwards traffic only to the ports that request multicast traffic, rather than to all ports, which could affect network performance.

IGMP snooping helps to optimize multicast performance and is especially useful for bandwidth-intensive IP multicast applications such as online media streaming applications.

Manage IGMP snooping

IGMP snooping is enabled by default. Under some circumstances you might want to temporarily disable IGMP snooping.

To manage IGMP snooping:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **MULTICAST**.
The MULTICAST page displays.
6. Enable or disable IGMP snooping by clicking the button in the IGMP Snooping section.
When IGMP snooping is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Enable a VLAN for IGMP snooping

You can enable IGMP for a VLAN only if you enabled a port-based VLAN mode or an 802.1Q VLAN mode (see [Use VLANS for Traffic Segmentation](#) on page 32).

To enable IGMP snooping for a VLAN:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.

4. From the menu at the top of the page, select **SWITCHING > QOS** .
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **MULTICAST**.
The MULTICAST page displays.
6. In the VLAN ID Enabled for IGMP Snooping section, enter a VLAN ID in the field.
If you enabled either a port-based VLAN mode or an 802.1Q VLAN mode, the default VLAN for IGMP snooping is VLAN 1.
7. Click the **APPLY** button.
Your settings are saved.

Manage blocking of unknown multicast addresses

As a way to limit unnecessary multicast traffic, you can block multicast traffic from unknown multicast addresses. If you do this, the switch forwards multicast traffic only to ports in the multicast group that the switch learned through IGMP snooping. By default, multicast traffic from unknown addresses is allowed.

To manage blocking of unknown multicast addresses:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **MULTICAST**.
The MULTICAST page displays.
6. Enable or disable the blocking of unknown multicast traffic by clicking the button in the Block Unknown Multicast Address section.
When the blocking of unknown multicast traffic is enabled, the button bar displays green.

7. Click the **APPLY** button.
Your settings are saved.

Manage IGMPv3 IP header validation

You can enable IGMPv3 IP header validation so that the switch inspects whether IGMPv3 packets conform to the IGMPv3 standard. By default, IGMPv3 IP header validation is disabled. If IGMPv3 IP header validation is enabled, IGMPv3 messages must include a time-to-live (TTL) value of 1 and a type of service (ToS) byte of 0xC0 (Internetwork Control). In addition, the router alert IP option (9404) must be set.

Note: If IGMPv3 IP header validation is enabled, the switch does not drop IGMPv1 and IGMPv2 traffic, but processes this traffic normally.

To manage IGMPv3 IP header validation:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING > QOS** .
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **MULTICAST**.
The MULTICAST page displays.
6. Enable or disable IGMPv3 IP header validation by clicking the button in the Validate IGMPv3 IP Header section.
When IGMPv3 IP header validation is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Set up a static router port for IGMP snooping

If your network does not include a device that sends IGMP queries, the switch cannot discover the router port dynamically. (The router port is a port on a device in the network that performs IGMP snooping in the network.) In this situation, select one port on the switch as the dedicated static router port for IGMP snooping, allowing all IGMP Join and Leave messages in the network to be forwarded to this port.

To set up a static router port for IGMP snooping:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SWITCHING**.
The Quality of Service (QoS) page displays.
5. From the menu on the left, select **MULTICAST**.
The MULTICAST page displays.
6. From the menu in the IGMP Snooping Static Router Port section, select a specific port as the router port or select **Any** to let IGMP Join and Leave messages be sent to every port on the switch.
Typically, the uplink port (that is, the port that is connected to your router or to the device that provides your Internet connection) serves as the router port.
7. Click the **APPLY** button.
Your settings are saved.

Change the IP address of the switch

By default, the switch receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network.

To disable the DHCP client of the switch and change the IP address of the switch to a fixed IP address:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. Select **IP Address (DHCP On)**.
The IP address fields display, but you cannot change them yet. The button bar in the DHCP section displays green because the DHCP client of the switch is enabled.
5. Click the button in the DHCP section.
The button bar displays gray, indicating that the DHCP client of the switch is disabled, and you can now change the IP address fields.
6. Enter the fixed (static) IP address that you want to assign to the switch and the associated subnet mask and gateway IP address.
7. Click the **APPLY** button.
A pop-up window displays a message.
8. Click the **X** in the pop-up window.
Your settings are saved. Your switch web session is disconnected and you must log back in to the device UI.

Reenable the DHCP client of the switch

If you disabled the DHCP client of the switch and changed the IP address of the switch to a fixed (static) IP address, you can reverse the situation.

To reenable the DHCP client on the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. Select **IP Address (Fixed IP)**.
The button bar in the DHCP section displays gray because the DHCP client of the switch is disabled.
5. Click the button in the DHCP section.
The button bar displays green, indicating that the DHCP client of the switch is enabled. You can no longer change the IP address fields.
6. Click the **APPLY** button.
A pop-up window displays a message.
7. Click the **X** in the pop-up window.
Your settings are saved. The switch receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network. Your switch web session might be disconnected when you enable the DHCP client of the switch.

6

Maintain and Monitor the Switch

This chapter describes how you can maintain and monitor the switch.

The chapter contains the following sections:

- [Manually check for new switch firmware and update the switch](#)
- [Manage the configuration file](#)
- [Return the switch to its factory default settings](#)
- [Control access to the device UI](#)
- [Change or lift access restrictions to the switch](#)
- [Manage the DoS prevention mode](#)
- [Manage the power saving mode](#)
- [Control the port LEDs](#)
- [Change the switch device name](#)
- [View system information](#)
- [View switch connections](#)
- [View the status of a port](#)
- [PoE considerations for switches that support PoE](#)
- [Manage the PoE ports](#)
- [Display PoE port status](#)
- [Power cycle the PoE ports](#)

Manually check for new switch firmware and update the switch

You can manually check for the latest firmware version, download the firmware, and upload it to the switch. If firmware release notes are available with new firmware, read the release notes to find out if you must reconfigure the switch after updating.

To manually check for new switch firmware and update the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the IP address that is assigned to the switch.
A login window opens.
4. From the menu at the top of the page, select **SETTINGS**.
The CONFIGURATION FILE page displays.
5. From the menu on the left, select **FIRMWARE**.
The FIRMWARE page displays. The page also shows the UPDATE FIRMWARE section.
The FIRMWARE VERSION displays the current firmware version of the switch.
6. To check if new firmware is available, click the **netgear.com** link in the FIRMWARE section.
A NETGEAR web page opens.
7. Click the **Downloads** button.
8. If new firmware is available, download the firmware file to your computer.
If the file does not end in `.bin` or `.image`, you might need to unzip the file. For example, if the file ends in `.rar`, you must unzip the file.
9. In the FIRMWARE UPDATE section, click the purple file icon, navigate to the firmware file that you just downloaded, and select the file.
An example of a firmware file name is `GS308EPP_V1.0.0.1.bin`.
10. Click the **UPDATE** button.
A pop-up window displays a warning and the firmware update process starts.

WARNING: Do not interrupt the network connection or power to the switch during the firmware update process. Do not disconnect any Ethernet cables or power off the switch until the firmware update process and switch reboot are complete.

Your switch web session is disconnected and you must log back in to the device UI.

Manage the configuration file

The configuration settings of the switch are stored within the switch in a configuration file. You can back up (save) this file to your computer or restore it from your computer to the switch.

Back up the switch configuration

You can save a copy of the current configuration settings. If necessary, you can restore the configuration settings later.

To back up the configuration settings switch of the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **CONFIGURATION FILE**.
The RESTORE CONFIGURATION page displays.
6. Click the **BACKUP** tab.
The BACKUP CONFIGURATION page displays.
7. Click the **BACKUP** button.
8. Follow the directions of your browser to save the file.
The name of the backup file is based on the switch model, for example:
`GS308EPP.cfg`.

Restore the switch configuration

If you backed up the configuration file, you can restore the configuration from this file.

To restore the configuration settings of the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **CONFIGURATION FILE**.
The RESTORE CONFIGURATION page displays.
6. Click the purple file icon and navigate to and select the saved configuration file.
The name of the saved configuration file is based on the switch model, for example: SG308EPP.cfg.
The **RESTORE** button changes to the **APPLY CONFIGURATION** button.
7. Click the **APPLY CONFIGURATION** button.
A pop-up window displays a warning.
8. Click the **CONTINUE** button.
The configuration is uploaded to the switch.

WARNING: Do not interrupt the network connection or power to the switch during the restoration process. Do not disconnect any Ethernet cables or power off the switch until the restoration process and switch reboot are complete.

Your switch web session is disconnected and you must log back in to the device UI.

Return the switch to its factory default settings

Under some circumstances (for example, if you lost track of the changes that you made to the switch settings or you move the switch to a different network), you might want to erase the configuration and reset the switch to factory default settings.

To reset the switch to factory default settings, you can either use the **RESET** button on the front of the switch or use the reset function in the device UI. However, if you changed and lost the password and cannot access the switch, you must use the **RESET** button.

After you reset the switch to factory default settings, the password is password and the switch's DHCP client is enabled. For more information, see [Factory default settings](#) on page 90.

Use the RESET button to reset the switch

You can use the **RESET** button to return the switch to its factory default settings.

CAUTION: This process erases all settings that you configured on the switch.

To reset the switch to factory default settings:

1. On the front of the switch, locate the recessed **RESET** button.
2. Using a straightened paper clip, press and hold the **RESET** button for more than 10 seconds or until all port LEDs start blinking red.
3. Release the **RESET** button.

All port LEDs blink red five times and the configuration is reset to factory default settings. When the reset is complete, the switch reboots. This process takes about one minute.

WARNING: Do not interrupt the network connection or power to the switch during the reset process. Do not disconnect any Ethernet cables or power off the switch until the reset process and switch reboot are complete.

Use the device UI to reset the switch

CAUTION: This process erases all settings that you configured on the switch.

To reset the switch to factory default settings using the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **FACTORY DEFAULT**.
The FACTORY DEFAULT page displays.
6. Click the **RESTORE DEFAULT SETTINGS** button.
A warning pop-up window opens.
7. Click the **CONTINUE** button.
The switch is reset to factory default settings and reboots.

WARNING: Do not interrupt the network connection or power to the switch during the reset process. Do not disconnect any Ethernet cables or power off the switch until the reset process and switch reboot are complete.

Control access to the device UI

You can control which IP address or IP addresses are allowed to access the switch through the device UI for management purposes.

To control management access to the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.

3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **ACCESS CONTROL**.
The ACCESS CONTROL page displays.
6. Click the **ADD** button.
7. Specify the IP address or IP addresses:
 - **IP Address.** Enter a single IP address or a network IP address.
Enter a network IP address in the format x.x.x.0, for example, 192.168.100.0.
 - **Mask.** If you enter a single IP address, enter **255.255.255.255** as the mask. If you enter a network IP address, enter **255.255.255.0** as the mask.
8. Click the **APPLY** button.
Your settings are saved.
9. To enter more IP addresses, repeat the previous three steps.

Change or lift access restrictions to the switch

If you set up IP addresses that are allowed to access the switch through the device UI for management purposes, you can remove one or more IP addresses, or you can remove all IP addresses to lift the access restrictions.

If you lift access restrictions, any IP address can access the device UI of the switch. (The user still must enter a password to access the device UI.)

To change or lift access restrictions to the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.

4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **ACCESS CONTROL**.
The ACCESS CONTROL page displays.
6. Click the IP address that you want to remove.
The DELETE button displays.
7. Click the **DELETE** button.
The IP address is removed and can no longer access the device UI of the switch.
8. To remove more IP addresses, repeat the previous step.
If you remove all IP addresses, all access restrictions are removed and any IP address can access the device UI of the switch.

Manage the DoS prevention mode

You can enable the Denial of Service (DoS) prevention mode so that the switch automatically blocks malicious packets. By default, this mode is disabled.

To manage the DoS prevention mode:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the switch password.
The default password is **password**. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **DOS PREVENTION**.
The DOS PREVENTION page displays.
6. Enable or disable the DoS prevention mode by clicking the button.
When the DoS prevention mode is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Manage 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:

- **IEEE 802.3az.** Combines the Energy Efficient Ethernet (EEE) 802.3 MAC sublayer with the 100BASE-TX, 1000BASE-T, and 10GBASE-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.

By default, the power saving mode is disabled.

To manage the power saving mode on the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. From the menu at the top of the page, select **SETTINGS**.
5. From the menu on the left, select **POWER SAVING**.
The POWER SAVING pop-up window opens.
6. Enable or disable the power saving mode by clicking the button.
When the power saving mode is enabled, the button bar displays green.
7. Click the **APPLY** button.
Your settings are saved.

Control the port LEDs

You can turn the port LEDs on the switch on and off by using the device UI.

By default, a port LED lights when you connect a powered-on device to the port. When the switch functions with its LEDs off, we refer to it as Stealth Mode.

To control the port LEDs through the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. Select **Port LEDs**.
The **Port LEDs** button displays.
5. Disable or enable the port LEDs by clicking the button.
When the port LEDs are enabled, the button bar displays green. When the ports LEDs are disabled (Stealth Mode), the button bar displays gray.
6. Click the **APPLY** button.
Your settings are saved.

Change the switch device name

By default, the device name of the switch is the same as the model number. This device name shows in, for example, Windows Explorer and Bonjour. You can change the device name, which can be up to 20 characters.

To change the device name of the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.

4. Select **System Info**.

The System Info fields display.

5. In the **Switch Name** field, enter a new name for the switch.

6. Click the **APPLY** button.

Your settings are saved.

View system information

You can view basic information about the switch, such as the firmware version, switch name, MAC address, serial number, and model number.

To view basic information about the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.

2. Enter the IP address that is assigned to the switch.

A login window opens.

3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.

4. Select **System Info**.

The system information fields display.

View switch connections

You can see the number of connections that are established on the switch.

To see the number of connections on the switch:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.

2. Enter the IP address that is assigned to the switch.

A login window opens.

3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.

The password is case-sensitive.

The HOME page displays.

The switch connections show in the upper left of the page.

View the status of a port

You can view the status of and details about a port.

To view the status of a port:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.

2. Enter the IP address that is assigned to the switch.

A login window opens.

3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.

The password is case-sensitive.

The HOME page displays.

The switch connections show in the upper left of the page.

The PORT STATUS pane displays on the right or the bottom of the HOME page, depending on the size of your browser window.

A port that is in use shows as UP. A port that is not in use shows as AVAILABLE.

4. To view details about a port, select the port.

The pane displays detailed information about the port.

If the QoS mode on the switch is port-based (the default setting), the **Priority** field displays on the page. If the QoS mode is 802.1P/DSCP, the **Priority** field does not display.

For information about setting rate limits for incoming and outgoing traffic, setting the port priority (if the QoS mode on the switch is port-based), setting the port speed (by default, the speed is set automatically), enabling flow control, and changing the port name label, see [Manage individual port settings](#) on page 26

PoE considerations for switches that support PoE

A switch that supports Power over Ethernet (PoE) prioritizes the PoE power that it supplies in ascending port order (that is, from the lowest-numbered port to the highest-numbered port), up to its total power budget. If the power requirements for the attached powered devices (PDs) exceed the total power budget of the switch, the PD on the highest-numbered port is disabled to make sure that the PDs that are connected to the higher-priority, lower numbered ports are supported first.

Just because a PD is listed as an 802.3at PoE powered device does not necessarily mean that it requires the maximum power limit of the specification. Many PDs require less power, allowing all PoE ports to be active simultaneously.

The following table describes the PoE classes and the PoE power that a switch allocates.

Table 5. PoE classes and PoE power allocations

Device Class	Standard	Class Description	Minimum Power Allocated to the Powered Device	Range of Power Delivered to the Powered Device
0	PoE and PoE+	Default power (full)	0.44W	0.44W-12.95W
1	PoE and PoE+	Very low power	4.0W	0.44W-3.84W
2	PoE and PoE+	Low power	7.0W	3.84W-6.49W
3	PoE and PoE+	Mid power	15.4W	6.49W-12.95W
4	PoE+ only	High power	30.0W	12.95W-25.5W

Manage the PoE ports

You can turn the port on the switch on and off by using the device UI.

To power cycle the PoE ports through the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.

3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. Select **POE**.
The Power over Ethernet (PoE) page displays.
5. To enable or disable the uninterrupted PoE feature, click the **Uninterrupted POE** button:
 - **Disabled**: The button bar displays gray and the button is positioned on the left.
 - **Enabled**: The button bar displays green and the button is positioned on the right.

By default, the uninterrupted PoE feature is disabled, causing the switch to stop providing PoE power while it is rebooting. If you enable the uninterrupted PoE feature, the switch continues to provide PoE power to any attached PDs while the switch is rebooting, even if it is rebooting after a regular firmware update.

However, note the following situations during which the switch temporarily stops providing PoE:

 - The switch reboots because you reset it to factory default settings.
 - The switch reboots because you upgrade the switch firmware with a change in the configuration structure, an update to the chip driver, or a change to the default PoE settings.
6. On the **SETTING** menu, open the menu for the port number.
The port settings display.
7. Click the **EDIT** button.
8. From the **Port Power** menu, select one of the following options:
 - **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.
9. From the **Port Priority** menu, select the priority for the port in relation to other ports if the total power that the switch is capable of delivering exceeds the total power budget:
 - **Low**: Low priority. This is the default setting.
 - **High**: High priority.
 - **Critical**: Critical priority.

The port priority determines which ports can still deliver power after the total power delivered by the switch exceeds the total power budget. (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.

10. From the **Power Mode** menu, select the PoE mode in which the port must function:

- **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 the switch performs 2-event Layer 1 classification.
- **802.3at:** The port is powered in the IEEE 802.3at mode and is backward compatible with IEEE 802.3af. The 802.3at mode is the default mode. In this mode, if the switch detects that the attached PD requests more power than IEEE 802.3af but is not an IEEE 802.3at Class 4 device, the PD does not receive power from the switch.

11. From the **Power Limit Type** menu, select one of the following options:

- **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 doesn't report its class correctly, these options can preserve PoE power by preventing the switch from delivering more power than the PD requires. However, depending on which option you select, a PD that doesn't report its class correctly might now power up at all.

Note: Power Limit (W) displays a fixed power of 31.2 Watts, and you cannot change it.

12. From the **Detection Type** menu, select one of the following options:
 - **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.
13. Click the **APPLY** button.

Your settings are saved.

Display PoE port status

You can display the PoE port status, including the amount of power delivered to the powered device (PD) and the fault status.

To display the PoE port status through the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.

A login window opens.
3. Enter the device management password.

The password is the one that you specified the first time that you logged in. The password is case-sensitive.

The HOME page displays.
4. Select **POE**.

The Power over Ethernet (PoE) page displays.
5. Click on **STATUS**.

The ports display.
6. Select the port whose status you want to view.

Port status information displays:

 - **Output Voltage (V)**: The voltage that is delivered to the PD in volts.
 - **Output Current (mA)**: The current that is delivered to the PD in milliamps.
 - **Output Power (W)**: The power that is delivered to the PD in watts.

- **Temperature:** The temperature in degrees Celcius.
- **Fault Status:** The error description when the PoE port is in a fault state:
 - **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.
 - **Startup Failure:** The PD that is connected to the port failed to start up. In this condition, the port does not provide power.
 - **Over Voltage:** The port was denied power because of a over-voltage lockout.
 - **Under Voltage:** The port was denied power because of an under-voltage lockout.
 - **Thermal Shutdown:** The port detected a thermal temperature fault, preventing the port from providing power.

Power cycle the PoE ports

You can turn the port LEDs on the switch on and off by using the device UI.

To power cycle the PoE ports through the device UI:

1. Open a web browser from a computer that is connected to the same network as the switch, or connected directly to the switch through an Ethernet cable.
2. Enter the IP address that is assigned to the switch.
A login window opens.
3. Enter the device management password.
The password is the one that you specified the first time that you logged in. The password is case-sensitive.
The HOME page displays.
4. Select **POE**.

Gigabit Ethernet Plus Switches

The Power over Ethernet (PoE) page displays.

5. Forcibly reset a PoE port by clicking the port number.
When the port is selected, the port button displays solid purple.
6. Click the **APPLY** button.
The PoE on the port is forcibly reset.

7

Diagnositics and Troubleshooting

This chapter covers the following topics:

- Test cable connections
- Resolve a subnet conflict to access the switch
- PoE troubleshooting suggestions

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 cable connections:

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.
The login window opens.
4. Enter the switch password.
The password is the one that you specified the first time that you logged in. The user name and password are case-sensitive.
The Home page displays.
5. Select **Diagnostics > Cable Test**.
6. Select one or more ports to test the cable that is attached to the port.
7. Click the **NEXT** button.
The switch tests the cable connection for the selected ports and displays the results. This process might take up to a few minutes.
8. Click the **DONE** button to dismiss the test results.
You can run another cable test if desired.

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 access the switch:

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

To resolve this subnet conflict:

1. Disconnect the Ethernet cable between the switch and your network.
2. Shut down power to the switch.
3. Reconnect the Ethernet cable between the switch and your network.
4. Reapply power to the switch.

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

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

- 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.
- 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 listed in the following table.

Table 6. 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

Factory Default Settings and Technical Specifications

This appendix contains the following sections:

- [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 **Reset** button on the front panel of the switch for at least ten seconds. The switch resets and returns to the factory settings that are shown in the following table.

Table 7. Factory default settings

Feature	Setting
Switch password	password
IP address	192.168.0.239 (if the switch is not connected to a network with a DHCP server)
Subnet mask	255.255.255.0
DHCP mode	Enabled
IGMP snooping	Enabled
LAGs	None configured
VLANs	Disabled. If enabled, by default, all ports are members of VLAN 1.
802.1p/DSCP-based QoS	Enabled
Port-based QoS	Disabled
Rate limiting	Disabled
Broadcast filtering	Disabled
Loop detection	Disabled
Port speed	Autonegotiation
Flow control	Disabled
Port mirroring	Disabled

Technical specifications

This section describes the technical specifications for each switch model.

Model GS305EP and GS308EP technical specifications

The following table shows the technical specifications for models GS305EP and GS308EP.

Table 8. Models GS305EP and GS308EP technical specifications

Feature	Description
Network interface	RJ-45 connector for 10BASE-T, 100BASE-TX, or 1000BASE-T
Network cable	Category 5e (Cat 5e) or higher-rated Ethernet cable
Ethernet ports	5 for GS305EP, 8 for GS308EP
Power input	54V, 1.25A DC input
Power consumption	GS305EP: 4.9W (no PoE), 74.7W (with PoE max) GS308EP: 6.0W (no PoE), 74.4W (with PoE max)
Dimensions (W x D x H)	6.2 x 4.0 x 1.1 in (158 x 101 x 27 mm)
Weight	GS305EP: 0.86 lb (0.39 kg) GS308EP: 1.08 lb (0.49 kg)
Operating temperature	32° to 104°F (0° to 40°C)
Operating humidity	10-90% maximum relative humidity, noncondensing
Electromagnetic compliance	KC Class B, FCC part 15 Class B, RCM Class B, CE Class B, VCCI Class B, BSMI, CAN ICES-3 (B)/NMB-3(B)
Safety agency approvals	CB, CE LVD, CSA, BSMI

Model GS305EPP and GS308EPP technical specifications

The following table shows the technical specifications for model GS305EPP and GS308EPP.

Gigabit Ethernet Plus Switches

Table 9. Models GS305EPP and GS308EPP technical specifications

Feature	Description
Network interface	RJ-45 connector for 10BASE-T, 100BASE-TX, or 1000BASE-T
Network cable	Category 5e (Cat 5e) or higher-rated Ethernet cable
Ethernet ports	5 for GS305EPP and 8 for GS308EPP
Power input	54V, 2.4A DC input
Power consumption	GS305EPP: 4.5W (no PoE), 137.8W (with PoE max) GS308EPP: 5.9W (no PoE), 141.4W (with PoE max)
Dimensions (W x D x H)	6.2 x 4.0 x 1.1 in (158 x 101 x 27 mm)
Weight	GS305EPP: 0.88 lb (0.40 kg) GS308EPP: 1.08 lb (0.49 kg)
Operating temperature	32° to 104°F (0° to 40°C)
Operating humidity	10-90% maximum relative humidity, noncondensing
Electromagnetic compliance	KC Class B, FCC part 15 Class B, RCM Class B, CE Class B, VCCI Class B, BSMI, CAN ICES-3 (B)/NMB-3(B)
Safety agency approvals	CB, CE LVD, CSA, BSMI

B

Additional Switch Discovery and Access Information

This appendix provides additional information about how you can discover and access the switch in your network.

The appendix contains the following section:

- [Access the switch from any computer](#)

Access the switch from any computer

This procedure requires you to use an IP scanner application. Such applications are available on the Internet, and some of them are free of charge.

To discover the switch IP address and access the switch from a computer:

1. From a computer that is connected to your network, run the IP scanner application in your network.

The IP address that is assigned to the switch displays in the IP scanner application.

Note: You can also access the DHCP server (or the router that functions as a DHCP server) in your network and determine the IP address that is assigned to the switch.

2. Open a web browser, and in the address bar, type the IP address of the switch. The login page of the device UI opens.

3. Enter the switch password.

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

The HOME page displays.

The right pane (or, depending on the size of your browser window, the middle pane) shows the IP address that is assigned to the switch.

Tip: You can copy and paste the IP address into a new shortcut or bookmark it for quick access on your computer or mobile device. However, if you reboot the switch, a dynamic IP address (assigned by a DHCP server) might change and the bookmark might no longer link to the login page for the switch. In this case, you must repeat [Step 1](#) through [Step 3](#) so that you can discover the new IP address of the switch in the network and update your bookmark accordingly. You can also set up a fixed (static) IP address for the switch (see [Set up a fixed IP address for the switch](#) on page 15) to make sure that the new bookmark always links to the login page for the switch, even after you reboot the switch.