NETGEAR

ProSafe® Plus Switch Utility

User Guide

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Revision History

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202-10524-02	February 2010	Multiple language support added to menus, cable testing, Rate Limiting, and Broadcast Filtering features were added.
202-10524-01	September 2009	First publication.

Contents

Getting Started

1

This chapter contains the following topics:

Install the ProSafe Plus Switch Utility

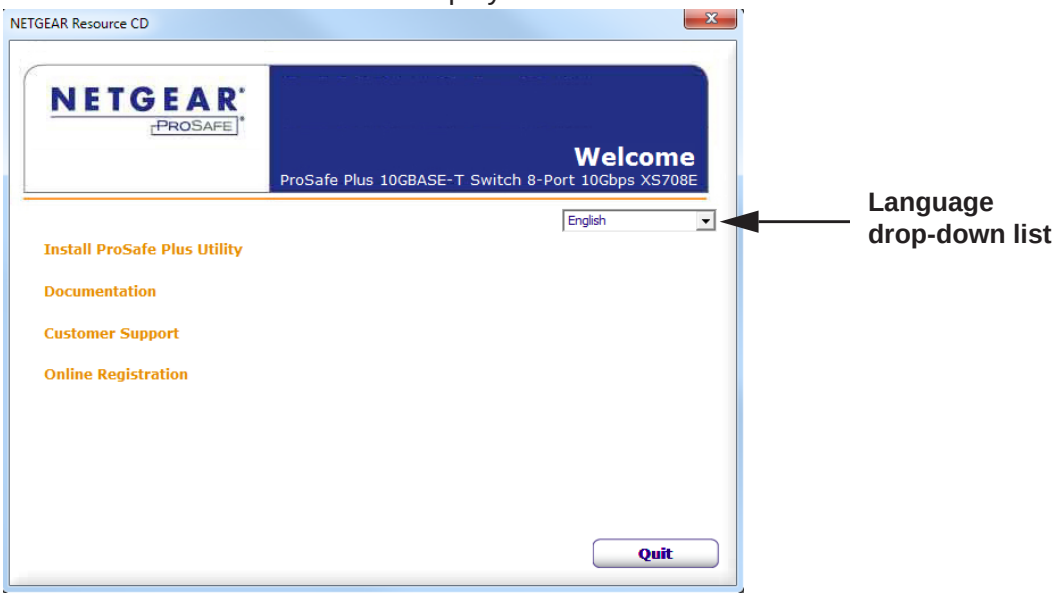
To take advantage of the enhanced features on ProSafe Plus switches, you can install and use the ProSafe Plus Switch Utility. The utility is on the Resource CD shipped with ProSafe Plus switches.

The utility is supported only on systems that use Microsoft Windows. It can be installed on any Windows computer on the same network as the switches to be managed. If an earlier version of the utility is present on your computer, installing this version replace the older version. Newer versions of the utility are backward-compatible and support all previously released ProSafe Plus switches. If the version of the utility you are trying to install is older than the one already installed on the computer, the installation is not performed.

➢ **To install the utility:**

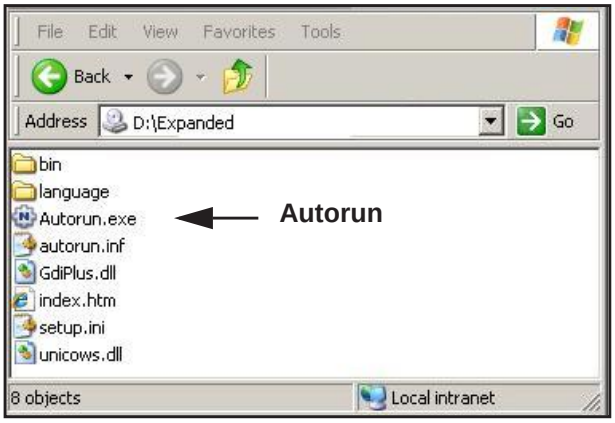
1. Insert the Resource CD that came with your switch into the computer that you want to use to manage your switches.

   The Resource CD home screen displays.



   Resource CD screens and the installation guide for the switch can be displayed in several languages. To select the desired language, use the drop-down list in the upper right corner of the resource CD home screen.

If the resource CD home screen does not display, your computer might have the Autorun feature disabled. You can enable your computer's Autorun feature or use the computer's file manager to navigate to the CD and double-click **Autorun.exe**.



Note: The utility name might vary slightly between different ProSafe Plus switch models.

2. Click the **Install ProSafe Plus Utility** link.

   The utility uses two network programs, WinPcap and Adobe AIR, to process network commands. WinPcap is used to manage FS116E and JFS524E switches. If not already installed on your computer, these two programs also are installed and placed in your program directory.

   The WinPcap and Adobe AIR programs might be used by other network applications and might already be installed on your computer. If so, a message displays asking if you want to reinstall WinPcap.

Note: WinPcap is not supported on Windows 8. If your computer uses Windows 8, a WinPcap error message displays during installation.

If you are not managing FS116E or JFS524E switches, ignore the message.

If you are managing FS116E or JFS524E switches using Windows 8, WinPcap must be re-installed using Windows 7 compatibility mode.

For more information, see the *WinPCap Workaround for Windows 8* on page 8.

a. Click **OK** if you think the currently installed WinPcap program is an older version or might be corrupted.

b. Click **Cancel** if you do not want to overwrite the program already installed. Clicking Cancel ends the WinPcap portion of installation, but the remaining components are installed.

c. If the Adobe AIR program is already installed, an “already installed” message displays. Click **Close** to end the Adobe AIR portion of installation.

3. Follow the prompts to install the utility.

   The installation process creates a NETGEAR subdirectory under the \Program Files directory on your computer, copies the utility program into the \Program Files\Netgear\ProSafe Plus Utility directory, and places a utility icon on the computer desktop.

   The installation is complete. When the **I**nstallShield Wizard Complete screen displays, select the **Launch ProSafe Plus Utility** check box if you want to launch the utility immediately. Click **Finish**. To launch the utility later, click the utility icon.

WinPCap Workaround for Windows 8

If your computer uses the Windows 8 operating system, a workaround is required.

➢ **To install WinPCap on a Windows 8 system:**

1. Download the latest WinPCap installer for Windows from *http://www.winpcap.org/* and save it on the computer.
2. Right-click the WinPCap installer program and select **Properties**.
3. Click the **Compatibility** tab and select **Run this program in compatibility mode for**:
4. Select **Windows 7**.
5. Click **Apply**.

Registration

The first time that you select a switch, the Registration screen displays. It has three buttons:

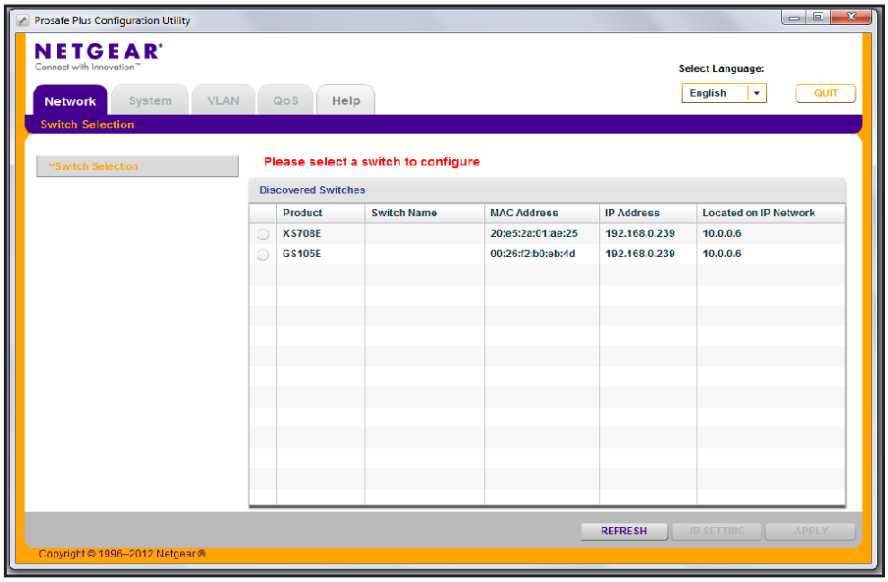
- **Turn Off**. The Registration screen closes. The pop-up screen displays again if the switch is selected 24 hours after the switch is restored to factory default settings.
- **Remind Me Later**. The Registration screen closes. If over 24 hours have passed, and you again select the switch, the Registration screen displays again.
- **Register Now**. If you have an Internet connection, you can register your product at the NETGEAR website.

Discovering Switches

When the utility is launched, it immediately searches the network for ProSafe Plus switches.

Local computer firewall applications such as Symantec Endpoint Protection can prevent the utility from communicating with the switches. If the utility is unable to discover your switches and you are using a local firewall, you must turn off the firewall function for discovery to work properly. After a few seconds, the utility discovers and lists all ProSafe Plus switches in your network or in the same broadcast domain. Discovery continues through the network until blocked by a router or firewall.

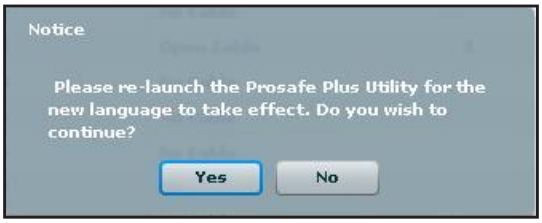
The discovered switches are listed as shown.



You can now select a switch to configure or display its status.

Note: For you log in to a switch, the computer that you are using must be on the same subnet as the switch. If you are using a standalone computer, you must either change the IP and subnet of your computer or use the IP Setting menu option on the utility to change the switch's IP and subnet.

You can select a language for the utility user interface. In the Select Language drop-down list, select a language. You are asked to restart the utility to enable the selected language.



Utility Features Overview

The utility configures switch features and provides status and support information. The features are arranged on tabs.

Note: The manager IP address and the switches to be managed *must* be in the same subnet. If they are not in the same subnet, only the Network tab and the Help tab are available for use.

Network

This screen displays all the Plus switches that the utility discovered. You can select a switch to see its IP settings, change the DHCP mode, and change the IP settings.

System

The System tab provides access to general configuration information, including the following:

- **Status**. Indicates the operational status of each port of the selected switch. If your switch supports the switch information feature, you can also display information such as the MAC address, IP address, subnet mask, and gateway address as well as changing the switch password for all switches.
- **Maintenance**. Allows you to change the administrator password, reboot the switch, reset to factory default settings, and if your switch supports it, upgrade switch firmware and save and restore configuration settings.

- **Monitoring**. Displays port statistics (bytes sent or received) and CRC error packets, tests cable connections, and allows you to mirror ports.
- **MultiCast**. Allows you to change the IGMP snooping settings.
- **Management**. Allows you to enable or disable the system-wide setting for loop detection.
- **LAG**. Allows you to enable or disable link aggregation groups (LAG).

VLAN

A VLAN is a virtual LAN network. The VLAN tab has the following options:

- **Port Based**. Allows you to assign ports to virtual networks.
- **802.1Q**. Allows you to create virtual networks using 802.1Q criteria.

QoS

The QoS (Quality of Service) tab has the following options:

- **Port Based**. Allows you to assign communication priorities to ports.
- **802.1p Based**. Uses communication priorities from 802.1p tags in the data.
- **Rate Limit**. Allows you to set maximum data rate for the device or on some devices per port.
- **Broadcast Filtering**. Protects your network from broadcast packet storms that can interfere with the processing of normal data.

Help

The Help tab has the following information:

- **Online Help**. Provides online access to technical support information and this manual.
- **About the Utility**. Provides version and copyright information.
- **Registration**. If you have an Internet connection, provides a way you can register your product at the NETGEAR website.

Switch Settings

Default settings for the management features are listed in *Appendix A, Default Settings*.

Note: It is possible to specify port settings that block further access to the switch you are configuring. You can reset the switch manually to restore access. If you do reset the switch manually, your previous settings are lost.

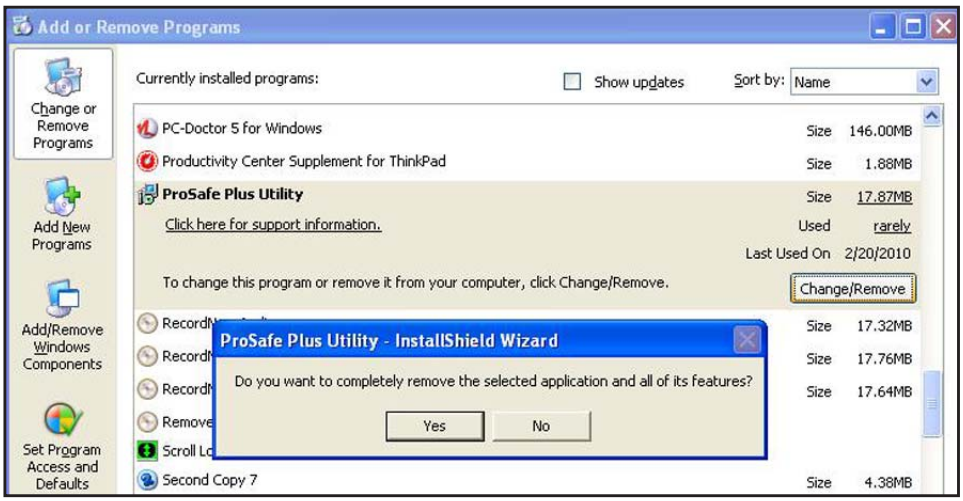
Uninstall the Utility

You can uninstall the ProSafe Plus Utility.

➢ **To uninstall the utility:**

1. Select **Start > Control Panel > Add or Remove Programs**.
2. Select ProSafe Plus Utility and click **Change/Remove**.

   You are prompted to confirm the remove command.



3. Click the **Yes** button.

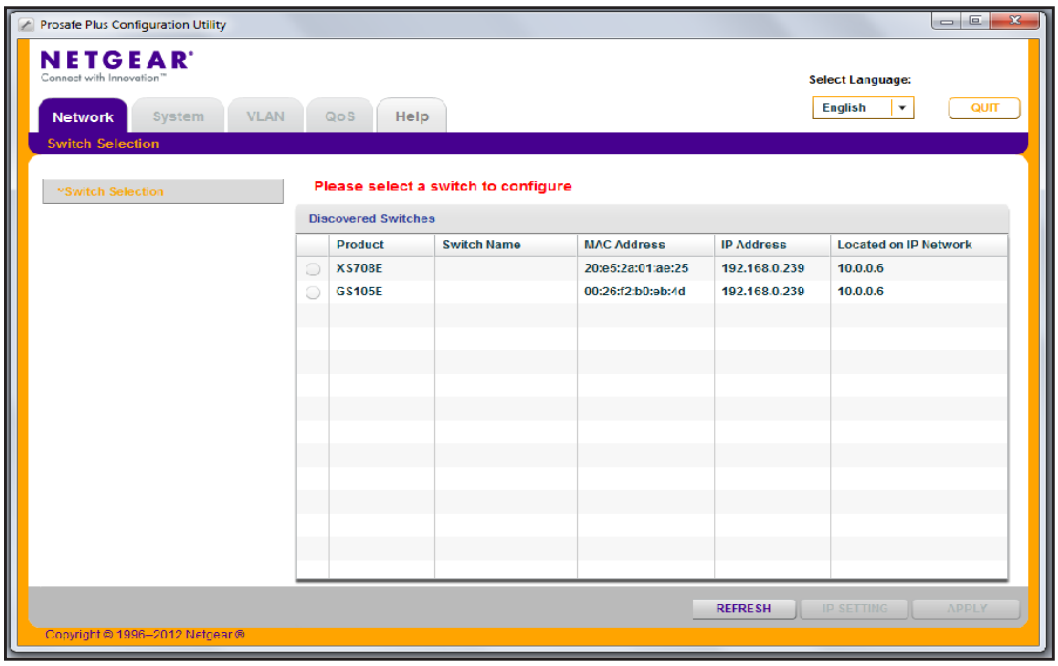
   The utility is removed.

2. Network and System Configuration

This chapter contains the following topics:

Network Switch Access

When you click the Network tab, a list of discovered Plus switches in your network displays. You can select a switch to display general information, enable DHCP, and configure the IP address, subnet mask, and gateway of the selected switch.



To access the switch information, from the Network screen, select the switch, then click the IP Setting button at the bottom right of the screen. The IP Settings screen displays.

Note: If the management IP and switch are not on the same subnet, you see an error message and cannot access the other top-level tabs except for the Help tab.

The switch selection remains in effect until you select a different switch, or quit the utility.

System Features

To access a switch for further information or configuration, you must select the switch and then click **Apply** to log in.

System features include the following:

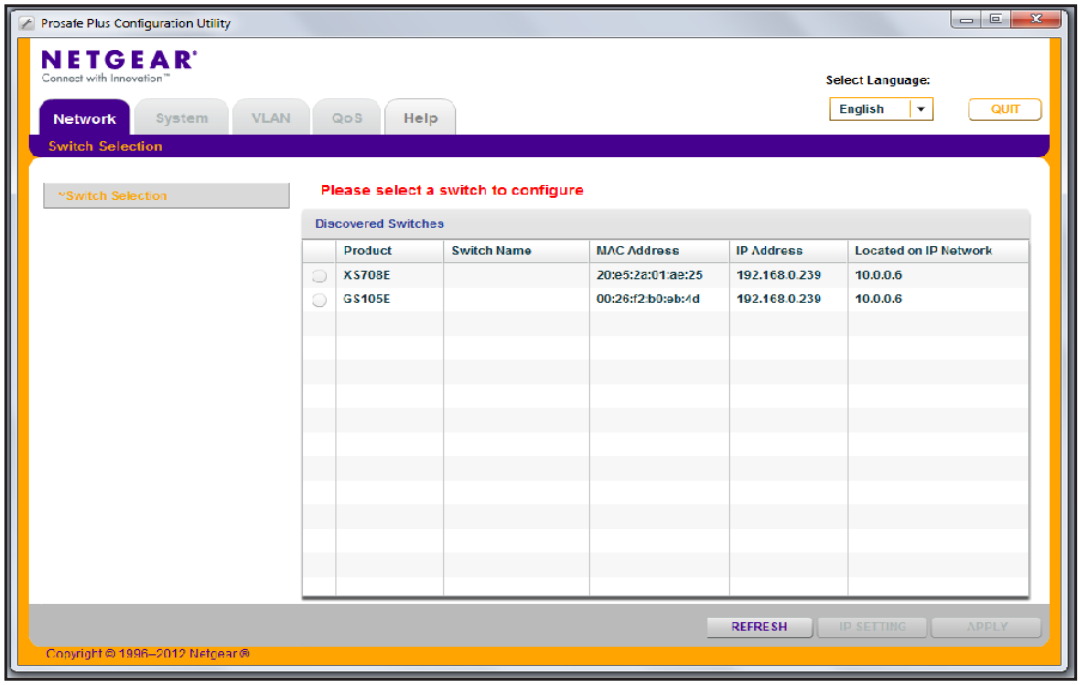
- **Status**. Indicates the selected switch and its operational status.
- **Maintenance**. Allows you to change the administrator password, reboot the switch, reset to factory default settings, and if supported by the selected switch, upgrade switch firmware and use the configuration save and restore feature.
- **Monitoring**. Displays port statistics (packets sent or received), tests cable connections, and allows you to mirror ports.
- **MultiCast**. Allows you to change the IGMP snooping settings.
- **Management**. Allows you to enable or disable the system-wide setting for loop detection.
- **LAG**. Allows you to enable or disable LAGs (link aggregation group).

Table 1. Features available from the System tab

Feature	Description
Status	
Switch Status	Displays the selected switch and the operational status of each port, and enables you to assign a name to the switch.
Switch Information	Displays general information for the selected switch and enables you to change the DHCP mode, IP address, subnet mask, and gateway address.
Maintenance	
Change Password	Changes password for the selected switch.
Device Reboot	Restarts the selected switch using configured settings.
Factory Default	Restarts the selected switch with factory default settings.
Firmware Upgrade	Updates the selected switch with a firmware update saved on the computer.
Save Configuration	Provides a field for entering the path to save the backed-up configuration settings as a file.
Restore Configuration	Provides a field for entering the path from which a saved configuration can be retrieved.
Monitoring	
Port Statistics	Displays port network traffic for the selected switch.
Mirroring	Allows a port to receive data sent to another port.
Cable Tester	Checks cable connections for the ports of the selected switch.
MultiCast	
IGMP Snooping	Allows switch to selectively forward multicast traffic.
LAG	Allows multiple Ethernet links to be combined to a single logical link. Only the JGS524E and XS708E switches support LAGs.

Network

The Network screen displays a list of the discovered Plus switches in your network. You must select a switch and click **Apply** to display further information and access it for further configuration.



Switch Selection

To use any of the System tab features, you must first select a switch.

> **Note:** To log in to a switch for further configuration, the computer that you are using must be on the same subnet as the switch. If you are using a standalone computer, you must either change the IP address and subnet of your computer or use the IP Setting menu option on the utility to change the switch's IP and subnet.

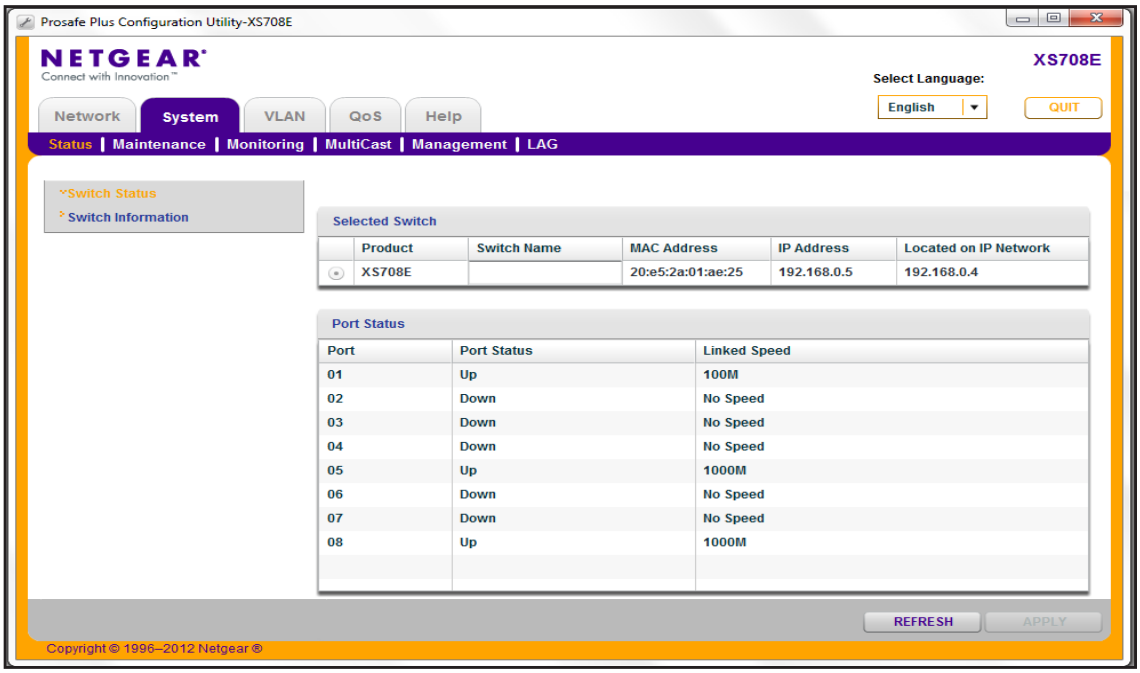
➢ **To select a switch:**

1. Select the row for the desired switch and click **Apply**.

   You are asked to enter the password. The default password for all switches is **password**.

2. Enter the switch password and click **Login**.

The port status for the switch displays.

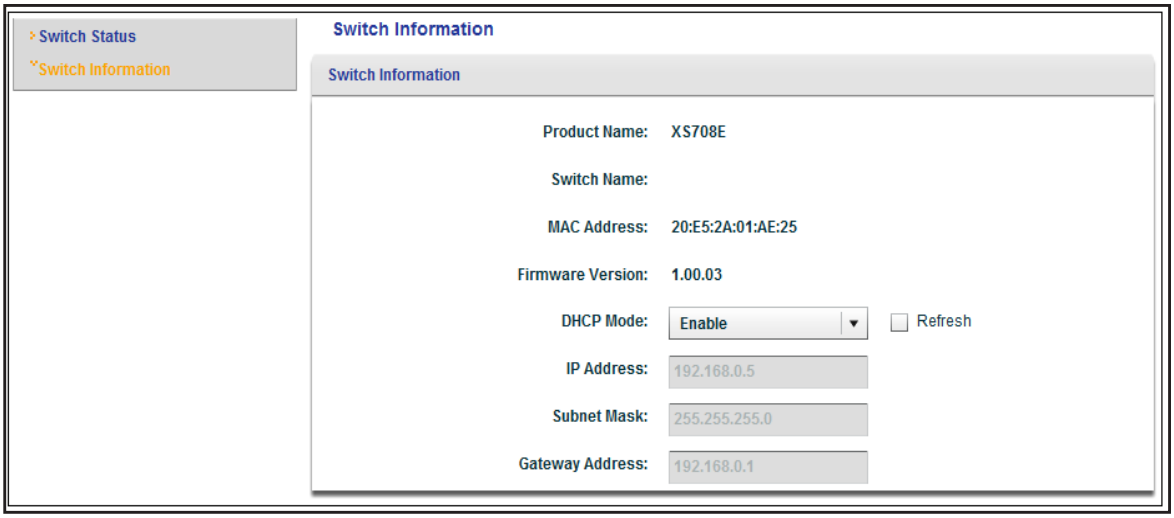


This screen displays the status (up or down) of the ports on the switch and the speed of the device connected to the port. The switch automatically senses the speed of the device connected to each port.

You can assign a name to the selected switch by entering the name in the Switch Name field. The switch name can be up to 20 characters. The switch is updated with a new name after you click **Apply**.

Switch Information

The Switch Information screen displays more information about the selected switch. This information varies depending on the switch model. If the selected switch supports the Switch Information feature, you can view or set the IP address, subnet mask, and gateway address.



DHCP Mode Selection

The Switch Information screen contains a field for DHCP (Dynamic Host Configuration Protocol) Mode selection. When you enable this feature, the switch obtains a network IP address from a DHCP server in the network. Each time the switch is powered on or reset, it requests an IP address from a DHCP server in the network. This is called a dynamic IP address. If your network does not have a DHCP server, a time-out message displays. If the switch fails to retrieve an IP address from a DHCP server, a default IP address of 192.168.0.239 is entered.

➢ **To enable DHCP operation:**

1. Select **System** > **Switch Information**.

   The Switch Information screen displays.

2. In the DHCP Mode list, select **Enable.**
3. Click **Apply**.

   The IP Address, Subnet Mask, and Gateway Address fields are disabled (grayed out).

   To disable DHCP address assignment, repeat the previous procedure and select **Disable**. When you click Apply, the IP Address, Subnet Mask, and Gateway Address information fields are enabled again.

   To have the DHCP server assign an IP address again, make sure that the DHCP Mode is enabled, then select the **Refresh** check box next to the DHCP Mode selection list and click **Apply**.

Set the IP Address Information

Enter IP address and subnet mask values for the switch as well as the address of the gateway device used by the switch.

➢ **To specify IP interface information:**

1. Select **System > Status > Switch Information**. The Switch Information screen displays.
2. In the DHCP Mode list, select **Disable**. The IP Address, Subnet Mask, and Gateway Address fields are enabled.
3. Enter the IP address, subnet mask, and if available, the gateway address, and click **Apply**.

Maintenance

The Maintenance feature allows you to change the password for the selected switch, perform a device reboot, reset the switch to its factory default settings, or upgrade the switch firmware.

Change Password

➢ **To change the password for a switch:**

1. Select **System > Maintenance**. The Maintenance menu and Change Password screen display.
2. Enter the old password (the default is password) and then enter the new password.
3. Click **Apply**.

Device Reboot

WARNING:

Rebooting the switch to briefly disrupts network traffic through the switch.

➢ **To reboot the selected switch:**

1. Select **System > Maintenance > Device Reboot**. The Device Reboot screen displays.
2. Select the check box in the Device Reboot screen.
3. Click **Apply**.

Reset Factory Defaults

WARNING:

Resetting the switch to factory defaults can briefly disrupt network traffic through the switch.

- **To reset the selected switch to factory default settings:**

1. Select **System > Maintenance > Factory Default**. The Factory Default screen.
2. Select the check box in the Factory Default screen.
3. Click **Apply**.

Firmware Upgrade

Note: After firmware downloading is complete, the switch automatically reboots. This briefly disrupts network traffic through the switch.

To upgrade switch firmware, first download a firmware upgrade file for the selected switch from the NETGEAR support website to your computer.

- **To upgrade firmware on the selected switch:**

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

   The Firmware Upgrade screen displays.
2. Click the **Browse** button and navigate to the location on your computer containing the firmware upgrade file.
3. Select the upgrade file and click **Apply**.

   The firmware is downloaded from your computer to the switch and the switch automatically reboots.

WARNING:

Do not disconnect the link or power down the switch during firmware upgrade.

Save Configuration

- **To save the current configuration on the selected switch:**

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

The Save Configuration screen displays.

2. Click the **Browse** button and navigate to the location on your computer where you want to save the configuration.
3. Click **Apply**.

   The configuration is saved in the designated file.

Restore Configuration

➢ **To restore a previously saved configuration to the selected switch:**

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

   The Restore Configuration screen displays.

2. Click the **Browse** button and navigate to the location on your computer where the desired configuration is stored.
3. Click **Apply**.

   The chosen configuration is restored to the selected switch.

Monitoring

The screen you access from the Monitoring menu provide statistics on port data volume and allow you to configure port mirroring, and on some switch models, perform cable testing.

Port Statistics

To view port statistics, select **System** > **Monitoring**. The port statistics for the selected switch are displayed in bytes received, bytes sent, and packet errors.

Port Mirroring

Port mirroring allows a port to see the data on another port.

➢ **To allow a switch port to see the data on another port:**

1. Select **Systems** > **Monitoring > Mirroring**.

   The Mirroring screen displays.

2. Enable **Mirroring**.
3. In the Source drop-down list, select the source port or ports.
4. In the Destination Port drop-down list, select the port.
5. Click **Apply**.

   Data on the source port is routed to the destination port.

Cable Test

Some switch models have a cable testing feature that allows you to check for cable faults. If a cable fault is found on a port, the cable test gives an estimate of the distance of the fault from the switch.

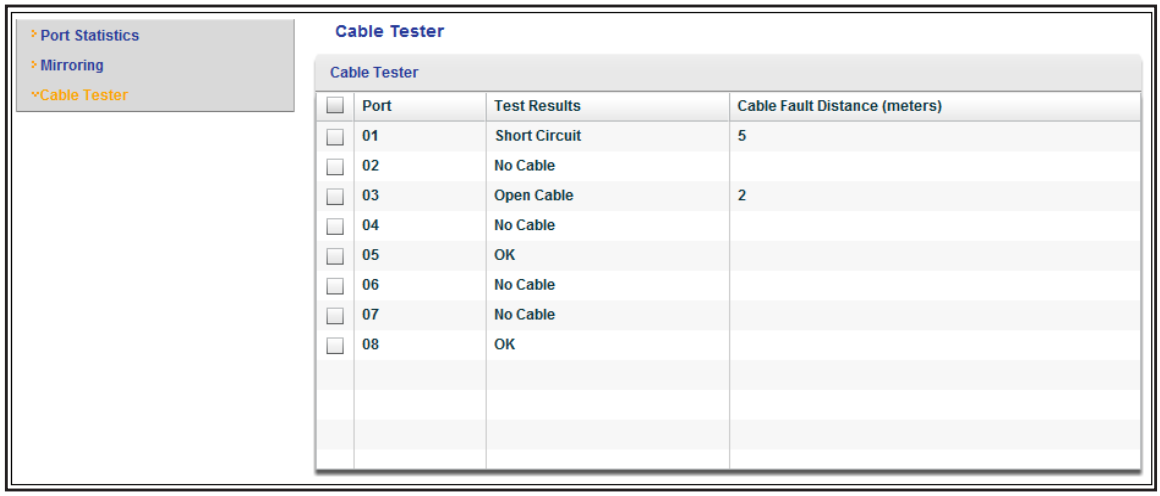
➢ **To perform a cable test:**

1. Click **System > Monitoring > Cable Tester**.

   The Cable Tester screen displays.

2. Select the ports to be tested and click **TEST SELECTED PORT**.

   If a problem with the cable is found, the approximate distance to the cable fault is displayed.



Note: The distance to the cable fault can be up to 5 meters from the actual fault.

MultiCast

IGMP Snooping

Internet Group Management Protocol (IGMP) snooping allows a switch to forward multicast traffic intelligently on the switch. Multicast IP traffic is traffic that is destined to a host group. Host groups are identified by class D IP addresses, which range from 224.0.0.0 to 239.255.255.255. Based on the IGMP query and report messages, the switch forwards traffic

only to the ports that request the multicast traffic. This feature prevents the switch from broadcasting the traffic to all ports and possibly affecting network performance.

To enable or disable IGMP snooping, in the IGMP Snooping Status list, select **Enable** or **Disable** and click **Apply**.

You can also change the VLAN for which the IGMP snooping is enabled. In the VLAN ID Enabled for IGMP Snooping field, enter a valid VLAN ID, and click **Apply**. This field is dimmed if VLAN is not enabled.

Validate IGMPv3 IP header

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

Block Unknown MultiCast Address

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

IGMP Snooping Static Router Port

You can select a port to be the dedicated IGMP snooping static router port if no IGMP query exists in the network for the switch to discover the router port dynamically. After a port is selected as the static router port, all IGMP Join and Leave reports are forwarded to it. If you select **any** in this field, IGMP Join and Leave packets are sent to every port of the switch. Only some models support the any setting in this field.

Management

Loop detection is indicated on the switch when the LEDs of a port blink at a constant speed.

- **To enable or disable loop detection:**

  1. Select **System > Management**.
  2. In the Loop Detection list, select **Enable** or **Disable**.

LAG

Link aggregation groups (LAGs) allow you to combine multiple Ethernet links to a single logical link. Network devices treat the aggregation as if it were a single link, which increases fault tolerance and load sharing. Configure the LAG members before you enable the LAG.

Note: Static LAG is available only for JGS524E and XS708E switches.

- **To enable or disable a LAG:**
  1. Select **System > LAG > LAG Configuration**.
  2. Select the LAG ID that you want to configure.
  3. In the Admin Mode list, select **Enable** or **Disable**.
  4. Click **Apply**.
- **To add ports to be LAG members:**
  1. Select **System > LAG > LAG Membership**.
  2. Select the LAG ID you want to configure.
  3. Select the ports that you want to be the LAG ID member ports.
  4. Click **Apply**.

Virtual LAN Configuration

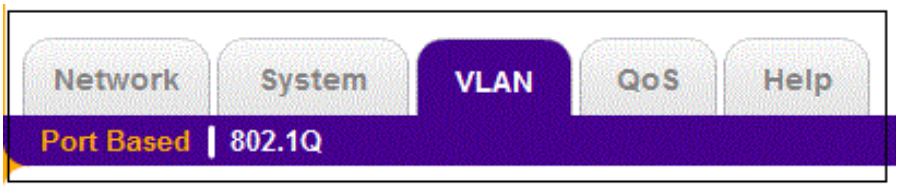
3

This chapter contains the following topics:

- *VLAN Overview*
- *Port-Based Configuration*
- *802.1Q-Based Configuration*

VLAN Overview

Virtual LANs 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. VLANs can be grouped using port-based or 802.1Q criteria.



The VLAN tab has the following options:

- **Port Based**. Allows you to assign ports to virtual networks. Data from a port that is a member of a VLAN group is restricted to other members of that VLAN group. This feature provides an easy way to partition a network into private sub networks.
- **802.1Q**. Allows you to create virtual networks using 802.1Q criteria. When using 802.1Q VLAN configuration, you configure ports to be a part of a VLAN group. When a port receives data tagged for a VLAN group, the data is discarded unless the port is a member of the VLAN group. This technique is useful for communicating with devices outside of your local network as well as still receiving data from other ports not in your VLAN group. It requires that you know the VLAN group IDs used.

Port-Based Configuration

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

Basic Port-Based VLAN Configuration

The Basic Port Based VLAN Configuration screen lets you partition your network into different segments. Ports with the same ID are grouped into the same VLAN group.

➢ **To assign members of a VLAN group:**

1. Select the switch.
2. Select **VLAN**.

   The Basic Port-Based VLAN Configuration screen displays.
3. Select **Enable**.

   A message displays asking if you want to delete previous VLAN settings.
4. Click **Yes**.

   The Basic Port Based VLAN Configuration screen displays.
5. For each port to be added to the group, enter the ID of the VLAN group.

   If all the VLAN groups share an uplink to the Internet or servers, enter **all** in the VLAN Group field for the port that you want to use for the uplink.
6. When you are finished adding ports to the VLAN group, click **Apply**.

Advanced Port-Based VLAN Configuration

The advanced port-based configuration uses a slightly different user interface to allow you to assign ports to multiple VLAN groups.

➢ **To assign members of a VLAN group:**

1. Select the switch.
2. Click the **VLAN** tab.

   The Port-Based VLAN Configuration screen displays.
3. Select **Advanced**.

   The Advanced Port-Based VLAN Configuration screen displays.
4. Select **Enable**.

   A message displays asking if you want to delete previous VLAN settings.
5. Click **Yes**.

The Advanced Port-Based VLAN Configuration screen displays.

Note: *VLAN IDs are limited to the number of ports on the switch, 1–5 for a five-port switch.*

6. Select a VLAN ID from the VLAN identifier list and select the ports that you want to add to the VLAN.
7. Click **Apply**.

   If you want to create more VLANs, repeat these steps with another VLAN ID.

802.1Q-Based Configuration

802.1Q VLAN configuration can be done using basic or advanced methods.

Basic 802.1Q VLAN Configuration

In Basic 802.1Q VLAN configuration, you configure ports to a VLAN group ID (1–4093 or all).

➢ **To configure ports using 802.1Q criteria:**

1. Select the switch.
2. Select **VLAN**.

   The Port-Based VLAN Configuration screen displays.
3. Select **802.1Q** on the menu.
4. Select **Enable**.
5. For each port to be configured, enter the VLAN group ID (1–4093 or all) in the field below the port.
6. When you are finished configuring ports, click **Apply**.

Advanced 802.1Q VLAN Configuration

In advanced 802.1Q VLAN configuration, you configure ports to a VLAN group ID (1–4093 or all). The advanced configuration feature allows you to create and update VLAN groups with more information.

VLAN Configuration

The VLAN Configuration screen lists the currently defined VLANs and the ports assigned to each.

➢ **To add VLAN groups:**

In the VLAN ID field at the bottom right of the screen, enter the VLAN ID (1-4094) for the VLAN you want to configure and click **Add**. The new VLAN group is displayed in the VLAN ID column.

7. After you create a new VLAN ID, click **VLAN Membership** to add ports to the group. See *VLAN Membership* on page 29.

➢ **To delete a VLAN group:**

1. Select the check boxes for the VLANs to be deleted.

   Selecting the check box at the top of the column selects all VLAN IDs.

2. Click **Delete**.

   The selected VLAN groups are deleted.

VLAN Membership

➢ **To add ports to a VLAN group:**

1. Select **VLAN Membership** from the menu on the left.

   The VLAN Membership screen displays.

2. In the VLAN Identifier drop-down list, select the VLAN group you want to configure.
3. Select the check boxes for the ports you want to add to the VLAN group. You can use the Group Operation commands to add all ports or clear the current selections.

Note: Some switches allow port tagging on the VLAN Membership screen. See *Port Tagging* on page 30.

4. Click **Apply**.
5. Return to the VLAN Configuration screen to verify your selections.

Port PVID

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

You can assign only one PVID to a port.

➢ **To assign a PVID to a port:**

1. Select a switch.

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

   The Port PVID screen displays.

3. Select the port you want to configure.
4. Enter the PVID you want to assign to the ports and click **Apply**.

Port Tagging

Port tagging allows a port to add VLAN ID tags to data packets sent through the port. The tag identifies the VLAN to receive the data.

Some switches allow port tagging to be done on the VLAN Membership screen. If so, the port check boxes allow you to select **U** (un tagged) or **T** (tagged) in addition to adding the port to the VLAN group. This step causes the data for an individual port to be tagged (associated) with a VLAN group.

- **To tag data from ports:**

1. Click the **VLAN** tab and select **802.1Q > Advanced > Port Tagging**.

   The Port Tagging screen displays.

2. Select the ports whose data you want tagged.
3. Select **Tagging Control**.
4. Click **Apply**.

- **To untag data from ports:**

1. Click the **VLAN** tab and select **802.1Q > Advanced > Port Tagging**.

   The Port Tagging screen displays.

2. Select the ports whose data you want untagged.
3. Select **UnTag Tagging Control**.
4. Click **Apply**.

Quality of Service

4

This chapter contains the following topics:

QoS Overview

Many different classes of data can be sent across a network. Depending on the volume of traffic on the network and the capacity of the equipment in the network, data can be delayed, or lost and retransmitted before reaching its destination. Normally, lost or delayed data is not a problem because the data is reassembled at the destination.

If the data consists of text or numeric data to be stored on the destination computer, you would not notice the delay. But if the data was voice, streaming video, or other delay-sensitive data, delays would be undesirable. Video sequences would be jerky and voice communication would have annoying gaps.

The QoS (Quality of Service) feature in the ProSafe Plus switches allows you to control the flow of data passing through the switch.

The QoS tab has these options:

- **QoS**. Assigns priorities to data.
- **Rate Limit**. Set limits on transmission rates for data passing through the switch.
- **Broadcast Filtering**. Blocks mass transmissions of broadcast packets from being forwarded to all ports. All the QoS features have default settings. It is not necessary to configure any settings to use the ProSafe Plus switches. The following table lists the default settings.

Table 2. QoS Global Configuration Default Settings

Feature	Setting
QoS Mode	802.1p Based
Port Priority	Low priority for each port
Rate Limit	
Ingress	No limit
Egress	No limit
Broadcast Filtering	Disabled

QoS Global Configuration

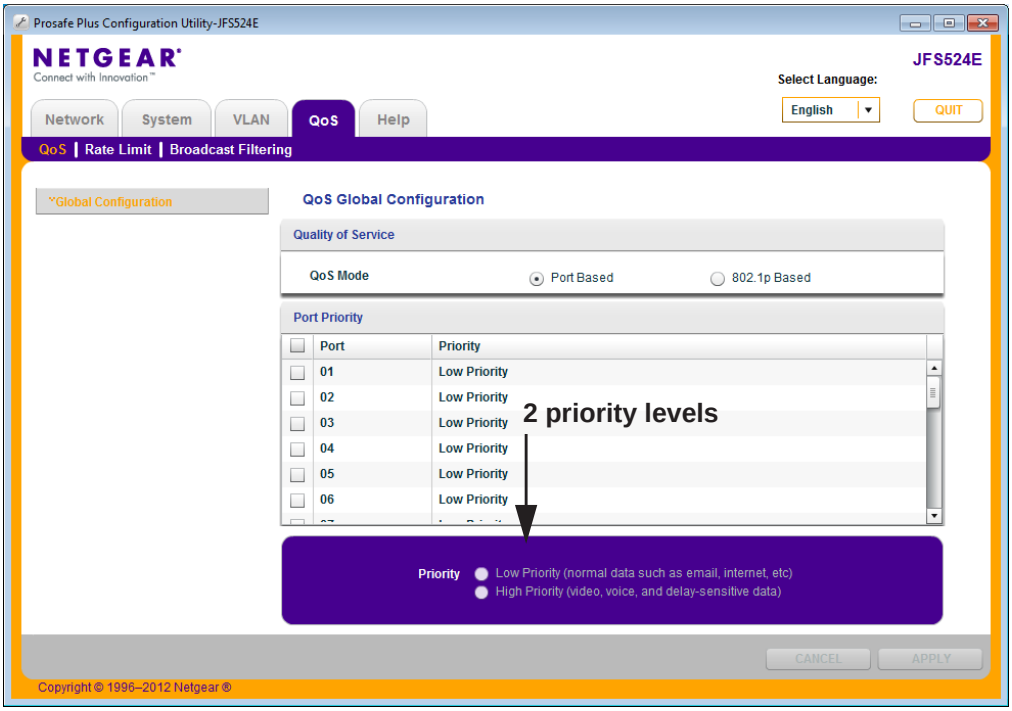
Global configuration allows you to assign priorities for how the switch transmits data. You can assign priority by port number (port based) or by the type of data being transmitted (802.1p based). You typically assign a low priority for normal classes of data (email, Internet

browsing, and ordinary data transfers) and high priority to video, voice, and other delay-sensitive data.

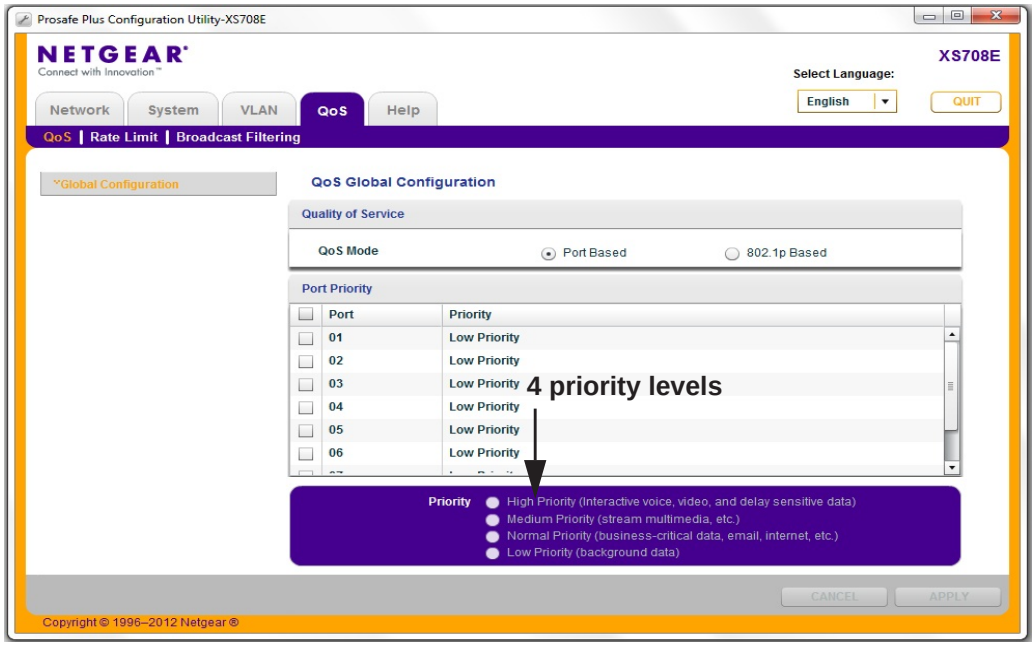
Port-Based Priority

Port-based priority works by assigning a priority to all data passing through a particular port. A higher priority transmits data with a minimum of delays. If packets arrive at several ports at the same time, the ports configured as higher priority transmit their packets first. You must determine which ports are going to carry delay-sensitive data.

Some switches allow you to select between two priority levels (High and Low).



Other switches allow four levels (High, Medium, Normal, and Low).



➢ **To assign port-based priorities:**

1. Click the **System** tab and select the radio button for the switch that you want to configure.
2. Click the **QoS** tab.

   The QoS Global Configuration screen displays.
3. Select the ports that you want to have a particular priority.
4. Select the priority level that you want to assign from the list at the bottom of the screen.
5. Click **Apply**.

   The selected ports are displayed with the new priority.
6. Repeat for the remaining ports.

802.1p-Based Priority

802.1p-based priority uses a header in the data packet that identifies the class of data in the packet (for example, voice or video). When 802.1p-based priority is used, the switch reads information in the packet header to determine the priority to assign to the packet. All ports on the switch check the packet header and transmit the packet with a priority determined by the packet content.

➢ **To assign 802.1p-based priority:**

1. Click the **System** tab and select the radio button for the switch that you want to configure.
2. Click the **QoS tab**. The QoS Global Configuration screen displays.

3. Select the **802.1p Based** radio button.

   A message displays warning you that previous QoS settings for the switch will be lost.

4. Click **Yes**.

   Data is now processed based on 802.1p priority tags in the data.

Rate Limiting

You can limit the rate at which the switch accepts incoming data and the rate that it retransmits outgoing data. You can set rate values. The rate choices vary depending on the switch model.

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

➢ **To configure rate limiting:**

1. Click the **System** tab and select the radio button for the switch that you want to configure.
2. Select **QoS > Rate Limit**.

   The QoS Rate Limit screen displays.

3. Select one or more ports, and then select ingress and egress rates.
4. Click **Apply**.

   The rates are displayed opposite the selected ports.

5. Repeat for the remaining ports.

Broadcast Filtering

A switch can be configured to block massive transmission of broadcast packets being forwarded to every port on the same VLAN. This feature is also known as broadcast storm protection.

Failure to block broadcast storm packets can cause a delay or halt to other data. Some switches allow you to select a storm control rate for each port; others assign a predetermined storm control rate for all ports on the switch.

➢ **To configure broadcast filtering:**

1. Click the **System** tab and select the radio button for the switch you want to configure.
2. Select **QoS > Broadcast Filtering**.
3. The QoS Broadcast Filtering screen displays.
4. Select **Enable**.

If the selected switch supports configuring individual ports, a Storm Control Rate screen displays. If the selected switch does not support individual port configuration, all of the ports are set to a predetermined storm control rate.

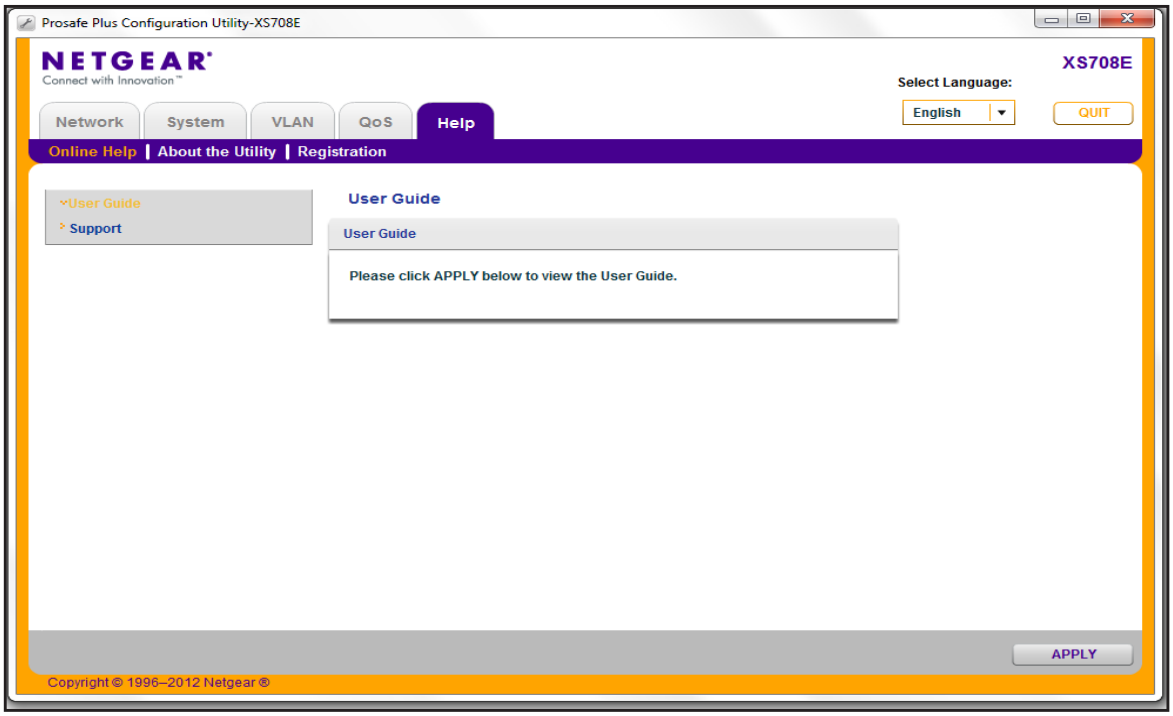
5. If the ports can be configured, select one or more ports and the desired storm control rate.
6. Click **Apply**.

5 Help

This chapter contains the following topics:

Online Help

The Help tab provides access to the NETGEAR support website and to the online user guide for the ProSafe Plus Switch Utility (the latest copy of this manual).



User Guide

If the computer running the utility has access to the Internet, you can select **User Guide** and click **Apply** to open the latest version of this user guide. You can then download a copy to your computer. After installing a new ProSafe Plus switch, check this website for the latest version of this manual.

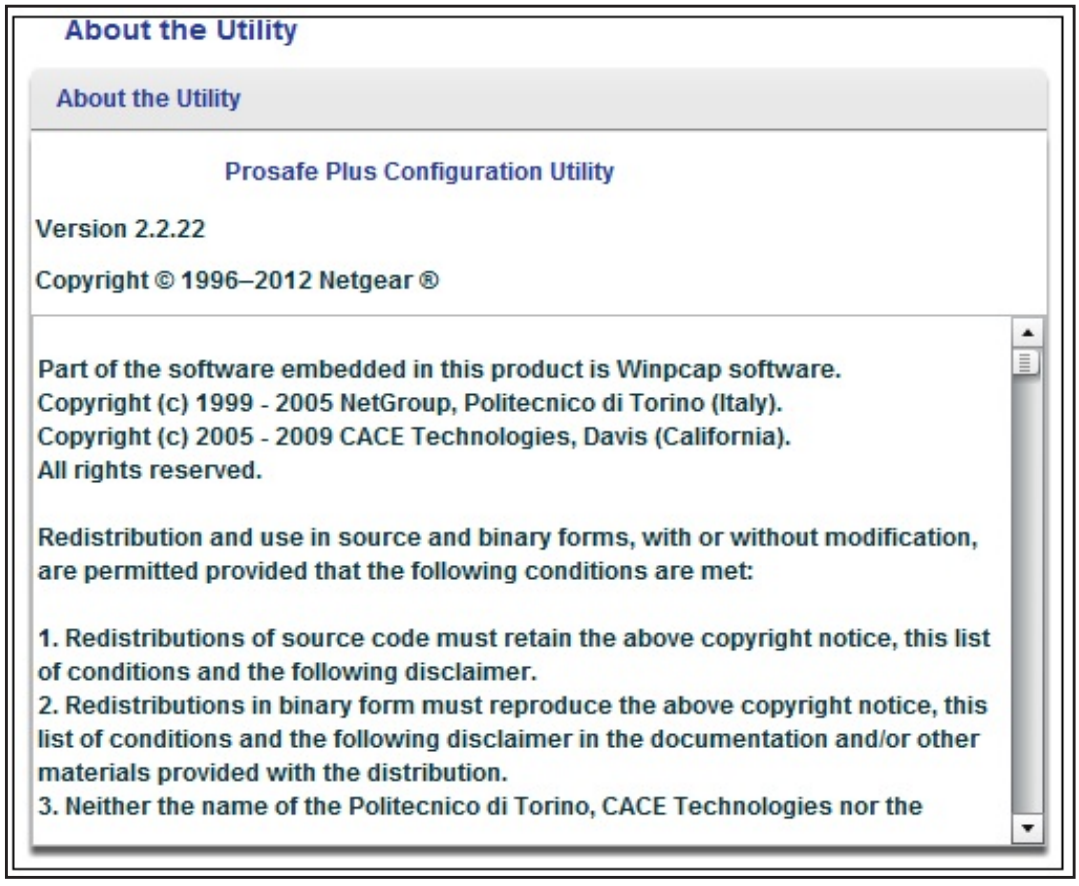
Support Information

If the computer running the utility has access to the Internet, you can display the support screen for a selected switch. Select **Support** and click **Apply**.

The support page provides access to the NETGEAR Knowledge Base, additional documentation, downloads, and product forums for the selected product.

About the Utility

To view the utility software version, select **About the Utility** on the Help screen.

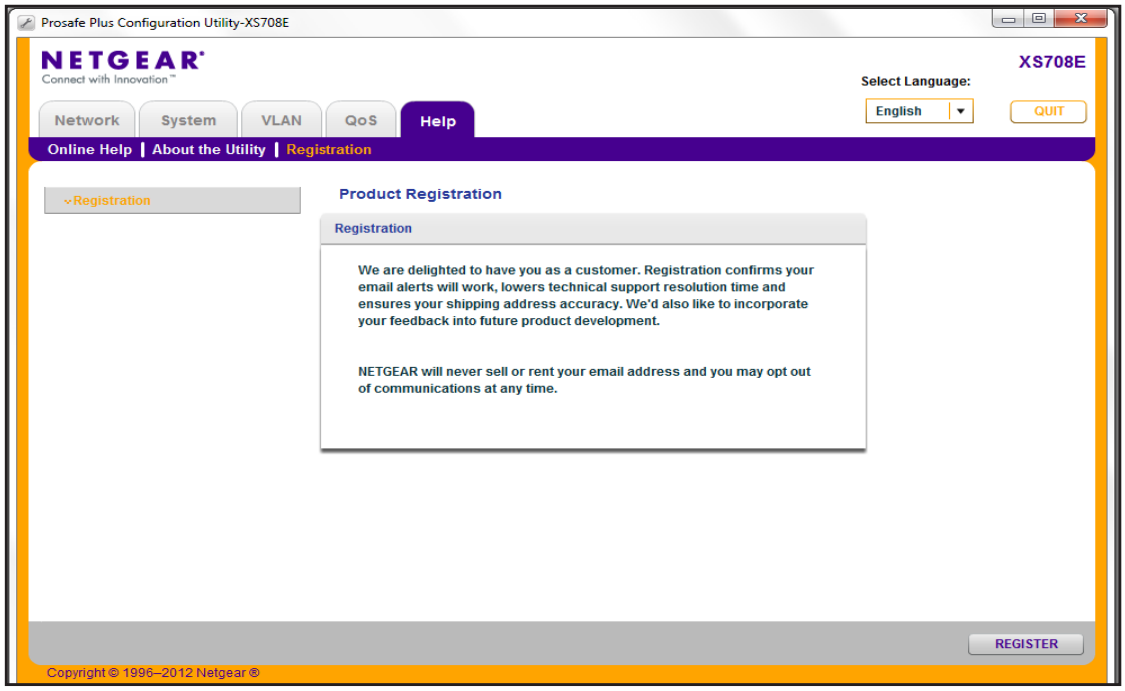


Registration

If the computer running the utility has access to the Internet, you can register your products.

➢ **To register your product:**

1. Select **Help > Registration** to display the following screen:



2. Click **REGISTER**.

   Your computer connects to NETGEAR product registration server.

3. Follow the on screen prompts.

Default Settings

A

All ProSafe Plus switch features have default settings. You do not need to configure any settings to use the ProSafe Plus switches. The following table lists the default values for switch settings.

Table 3. Default switch settings

Tab	Menu	Feature	Default Value
Network	Switch Selections	Discovers all Plus switches on network	No Switch Selected
		Password	**password** for all switches
System	Status	Names	All names blank
		Switch Information	
		DHCP Mode	Enabled
		IP Address	192.168.0.239
		Subnet Mask	255.255.255.0
		Gateway Address	192.168.0.254
	Maintenance	Change Password	All fields blank
		Device Reboot	Unchecked
		Factory Default	Unchecked
		Firmware Upgrade	Filename blank
		Save Configuration	Filename blank
		Restore Configuration	Filename blank
	Monitoring	Port Statistics	0
		Mirroring	Disabled
		Cable Tester	OK or No Cable for each port
	MultiCast	IGMP Snooping Status	Enabled

Table 3. Default switch settings (continued)

Tab	Menu	Feature	Default Value
		VLAN ID Enabled for IGMP Snooping	1 (not configurable until VLAN is enabled)
		Validate IGMPv3 IP header	Disabled
		Block Unknown Multicast Address	Disabled
		IGMP Snooping Static Router Port (GS105E only)	N/A (blank)
	Management	Loop Detection	Disabled
	LAG (JGS524E and XS708E only)	LAG Configuration and default value	Disabled
		LAG Membership	N/A (blank)
VLAN	Port Based	Basic	Disabled
		Advanced	Disabled
	802.1Q	Basic	Disabled
		Advanced	Disabled
QoS		Global Configuration	
		QoS Mode	802.1P Based
		Rate Limit	
		Ingress	No limit
		Egress	No limit
		Broadcast Filtering	Disabled
Help	Online Help	Support	-
		User Guide	-
	About the Utility	About the Utility	-
	Registration	Registration Link	-

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