ProSafe® Plus Switch Utility
User Guide
# Table of Contents

## Chapter 1  Getting Started

- Installing the ProSafe Plus Switch Utility ........................................ 4
- Discovering Switches ........................................................................ 6
- Utility Features Overview ................................................................. 7
  - System (General Configuration and Information) .............................. 7
  - VLAN (Virtual LAN networks) ......................................................... 7
  - QoS (Quality of Service) ................................................................. 7
  - Help ............................................................................................... 7
  - Switch Settings .............................................................................. 8
  - Default Settings ............................................................................ 9
- Uninstalling the Utility ...................................................................... 11

## Chapter 2  System Configuration

- System Features ................................................................................ 13
- Status ................................................................................................ 14
  - Switch Selection ........................................................................... 14
  - Switch Information ....................................................................... 14
  - DHCP Mode Selection .................................................................... 15
  - Manually Setting the IP Address Information ................................. 15
- Maintenance ...................................................................................... 16
  - Change Password .......................................................................... 16
  - Device Reboot .............................................................................. 16
  - Reset Factory Defaults ................................................................ 16
  - Firmware Upgrade ......................................................................... 17
- Monitoring ........................................................................................ 18
  - Port Statistics ............................................................................... 18
  - Port Mirroring ............................................................................... 18
  - Cable Test ..................................................................................... 19
  - MultiCast ...................................................................................... 20
  - IGMP Snooping ............................................................................. 20

## Chapter 3  Virtual LAN Configuration

- VLAN Overview .............................................................................. 22
- Port Based Configuration ................................................................. 23
  - Basic Port Based VLAN Configuration ........................................... 23
  - Advanced Port Based VLAN Configuration .................................... 23
- 802.1Q Based Configuration ............................................................. 24
  - Basic 802.1Q VLAN Configuration ................................................ 24
Chapter 4   Quality of Service Configuration

QoS Overview ................................................................. 28
QoS Global Configuration .............................................. 29
Rate Limiting ................................................................. 31
Broadcast Filtering .......................................................... 32

Chapter 5   Help

Online Help ................................................................. 34
User Guide ................................................................. 34
Support Information ...................................................... 34
About the Utility ............................................................ 34

Index
Getting Started

This chapter contains the following topics:

• Installing the ProSafe Plus Switch Utility
• Discovering Switches
• Utility Features Overview
• Default Settings
• Uninstalling the Utility
Installing 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.

**Note:** The utility is only supported on MS Windows and can be installed on any Windows PC(s) on the network containing the switches to be managed.

If an earlier version of the utility is already present on the PC, it will be replaced by the newer version. Newer versions of the utility are backwards-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 PC, the installation will not be performed.

**To install the utility:**

1. Insert the Resource CD that came with your switch into the PC that you want to use to manage your switches. The Resource CD home page displays.

   Resource CD pages, and the installation guide for the switch can be displayed in several languages. Use the pull-down menu in the upper right corner of the Resource CD home screen to select the desired language.
2. Click **Install ProSafe® Plus Utility** to install the utility program on your PC.

   If the Resource CD home page does not display, your PC may have the Autorun feature disabled. You can enable your PC’s Autorun feature or use the PC’s file manager to navigate to the CD and double click on Autorun.exe.

   ![Autorun](image)

   **Note:** The utility name may vary slightly between different ProSafe® Plus switch models.

The utility uses two network programs, WinPcap and Adobe AIR, to process network commands. If not already installed on your PC, these two programs will also be installed, and will be placed in your program directory.

3. Click **Install Utility**.

   This creates a NETGEAR subdirectory under the \Program Files directory on your PC. Installation then copies the utility program into the \Program Files\Netgear\ProSafe Plus Utility directory, and places a utility icon on the PC desktop.

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

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

   b. Click **Cancel** if you do not want to overwrite the program already installed. Clicking Cancel will end the WinPcap portion of installation and will continue installing the remaining components.

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

4. Installation is complete. When the **InstallShield Wizard Complete** screen displays, check the box to launch the utility or just click **Finish** if you do not want to launch the utility at this time. Use the utility icon on your desktop to launch the utility in the future.
Discovering Switches

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

**Note:** Local PC 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 will need to turn off the firewall function in order for discovery to work.

Within a few seconds the utility will discover and list all ProSafe® Plus switches in your network or in the same broadcast domain. Discovery will continue through the network until blocked by a router or firewall.

The discovered switches are displayed as shown below.

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

At this point you can select an alternate language for the Utility user interface. Click on the **Select Language** pull down menu and click on the desired language. You will be 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 as shown in the following figure:

System (General Configuration and Information)

**Status** - indicates which switches are present and if they are operational. If your switch supports the switch information feature you can display additional information such as IP Address, Subnet Mask, and Gateway Address.

**Maintenance** - allows you to change administrator password, reboot the switch, reset to factory default settings, and if your switch supports it, upgrade switch firmware.

**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.

VLAN (Virtual LAN networks)

**Port Based** - allows you to assign ports to virtual networks.

**802.1Q** - allows you to create virtual networks using 802.1Q criteria.

QoS (Quality of Service)

**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

**Online Help** - online access to technical support information and this manual.

**About** - version and copyright information.
Switch Settings

It is possible to make port settings that block further access to the switch you are configuring. If this occurs you can reset the switch manually to restore access. If you do this, your previous settings will be lost.

The features on each tab are explained in the following chapters:

- Chapter 2 System Configuration - describes general management features
- Chapter 3 Virtual LAN Configuration - describes how to create and configure VLAN groups
- Chapter 4 Quality of Service (QoS) - describes how to set data priorities using Global Configuration, Rate Limiting, and Broadcast filtering
- Chapter 5 Help - describes how to get online support information
Default Settings

All ProSafe® Plus Switch features have default settings. You do not need to configure any settings in order to use the ProSafe® Plus switches. The following table lists the default values for switch settings. Shaded features are not configurable on all switches.

<table>
<thead>
<tr>
<th>Tab</th>
<th>Menu</th>
<th>Feature</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Status</td>
<td>Switch Selection</td>
<td>No switch selected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Names</td>
<td>All names blank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Passwords</td>
<td>“password” for all switches</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Switch Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DHCP Mode</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IP Address</td>
<td>192.168.0.239</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subnet Mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gateway Address</td>
<td>192.168.0.254</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td>Change Password</td>
<td>All fields blank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Device Reboot</td>
<td>Unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Factory Default</td>
<td>Unchecked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Firmware Upgrade</td>
<td>Filename blank</td>
</tr>
<tr>
<td></td>
<td>Monitoring</td>
<td>Port Statistics</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mirroring</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cable Tester</td>
<td>OK or No Cable for each port</td>
</tr>
<tr>
<td></td>
<td>MultiCast</td>
<td>IGMP Snooping Status</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VLAN ID Enabled for IGMP Snooping</td>
<td>1 (not configurable until VLAN is enabled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Validate IGMPv3 IP header</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Block Unknown Multicast Address</td>
<td>Enabled</td>
</tr>
<tr>
<td>Tab</td>
<td>Menu</td>
<td>Feature</td>
<td>Default Value</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>VLAN</td>
<td>Port Based</td>
<td>Basic</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>802.1Q</td>
<td>Basic</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced</td>
<td>Disabled</td>
</tr>
<tr>
<td>QoS</td>
<td>QoS</td>
<td>Global Configuration</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>QoS Mode</td>
<td>802.1P based</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rate Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingress</td>
<td>No limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Egress</td>
<td>No limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Broadcast Filtering</td>
<td>Disabled</td>
</tr>
<tr>
<td>Help</td>
<td>Online Help</td>
<td>Support</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User Guide</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>About the Utility</td>
<td>About the Utility</td>
</tr>
</tbody>
</table>
Uninstalling the Utility

To uninstall the utility:

1. Use your PC’s Add or Remove Programs command, **Start > Control Panel > Add or Remove Programs**.
2. Select ProSafe Plus Utility and click **Change/Remove**.
3. When you are asked if you want to completely remove the selected application, click **Yes**.
4. You can also remove the WinPcap and AIR programs if they are not needed by another program.
This chapter contains the following topics:

- System Features
- Status
- Maintenance
- Monitoring

- The System tab lets you select a switch to manage, display general information about the switch, perform basic switch maintenance, and monitor data flow through the switch.
- System features are:
  - Status: indicates which switches are present and if they are operational.
  - Maintenance: allows you to change administrator password, reboot the switch, reset to factory default settings and if the feature is available on the selected switch, upgrade switch firmware.
  - Monitoring: displays port statistics (packets sent or received), tests cable connections, and allows you to mirror ports.
- All of the features have default settings. You do not need to configure any settings in order to use the ProSafe® Plus switches. Refer to “Default Settings” on page 1-8 for a list of default system settings.

System Features

Table 2-1 lists features available on the System tab.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Indicates which switches are present and if they are operational.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Allows you to change administrator password, reboot the switch, reset to factory default settings and if the feature is available on the selected switch, upgrade switch firmware.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Displays port statistics (packets sent or received), tests cable connections, and allows you to mirror ports.</td>
</tr>
</tbody>
</table>

This chapter contains the following topics:

- System Features
- Status
- Maintenance
- Monitoring
System Features

The System tab lets you select a switch to manage, display general information about the switch, perform basic switch maintenance, and monitor data flow through the switch. The switch selection remains in effect until you select a different switch, or quit the utility.

System features are:

**Status** - indicates which switches are present and if they are operational.

**Maintenance** - allows you to change administrator password, reboot the switch, reset to factory default settings and if the supported by the selected switch, upgrade switch firmware.

**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.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td></td>
</tr>
<tr>
<td>Switch Selection</td>
<td>Selects a switch to configure</td>
</tr>
<tr>
<td>Switch Information</td>
<td>Displays general information for the selected switch</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td>Change Password</td>
<td>Changes password for the selected switch</td>
</tr>
<tr>
<td>Device Reboot</td>
<td>Restarts the selected switch using configured settings</td>
</tr>
<tr>
<td>Factory Default</td>
<td>Restarts the selected switch with factory default settings</td>
</tr>
<tr>
<td>Firmware Upgrade</td>
<td>Updates the selected switch with a firmware update saved on the PC</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
</tr>
<tr>
<td>Port Statistics</td>
<td>Displays port network traffic for the selected switch</td>
</tr>
<tr>
<td>Mirroring</td>
<td>Allows a port to receive data sent to another port</td>
</tr>
<tr>
<td>Cable Tester</td>
<td>Checks cable connections for the ports of the selected switch</td>
</tr>
<tr>
<td>MultiCast</td>
<td></td>
</tr>
<tr>
<td>IGMP snooping</td>
<td>Allows switch to selectively forward multicast traffic</td>
</tr>
</tbody>
</table>
Status

The Status menu allows you to select a switch and display switch information.

Switch Selection

In order to use any of the System tab features you must first select a switch. Click on the radio button for the desired switch. You will be asked to enter the password for the selected switch. The default password for all switches is “password”. When you enter the switch password and click on Login, the port status for the switch will be displayed. You can then select Switch Information for additional switch status, or select Maintenance, or Monitoring for other switch features. When you select a switch, the Status menu 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 when you press the Enter key before leaving the Switch Name field.

Switch Information

The Switch Information feature displays additional information about the selected switch. This information will vary depending on the model of the selected switch. If the selected switch supports the Switch Information feature, you can use it to display or configure 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 setting the switch will obtain a network IP address from a DHCP server in the network. Each time the switch is powered on or reset, it will request an IP address from a DHCP Server in the Network. This is called a Dynamic IP address. If there is no DHCP server in the network, a time out message will be displayed. If the switch fails to retrieve an IP address from a DHCP server, a default IP address of 192.168.0.239 will be entered.

To enable DHCP operation:
1. Select System > Switch Information. The Switch Information screen will display.
2. Click the list arrow in the DHCP Mode list box.
3. Select Enable then click Apply.

The IP Address, Subnet Mask, and Gateway Address fields will be disabled (greyed out).

To disable DHCP address assignment, repeat the previous procedure and select Disable. When you click Apply, you will be able to manually enter IP Address, Subnet Mask, and Gateway Address information.

Manually Setting the IP Address Information

You can manually enter IP address and subnet mask values for the switch as well as the address of the Gateway device to be used by the switch.

To define an IP interface information:
1. Click System > Status > Switch Information. The Switch Information screen displays.
2. Select Disable for the DHCP Mode. The IP Address, Subnet Mask, and Gateway Address fields will be enabled.
3. Enter the IP Address, Subnet Mask, and if available 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 feature will display.
2. Enter the old password (default is “password”) and the new password.
3. Click Apply.

Device Reboot

WARNING!

Rebooting the switch will briefly disrupt network traffic through the switch.

To reboot the selected switch:

1. Select System > Maintenance > Device Reboot. The Device Reboot dialog will display.
2. Check the box in the Device Reboot dialog.
3. Click Apply.

Reset Factory Defaults

WARNING!

Resetting the factory defaults may briefly disrupt network traffic through the switch.

To reset the factory default settings on the selected switch:

1. Select System > Maintenance > Factory Default. The Factory Default dialog will display.
2. Check the box in the Factory Default dialog.
3. Click Apply.
Firmware Upgrade

**Note:** After firmware downloading is complete, the switch will automatically reboot. This will briefly disrupt network traffic through the switch.

In order to upgrade switch firmware you must first download a firmware upgrade file for the selected switch from the NETGEAR support website to your PC.

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

1. Select **System > Maintenance > Firmware Upgrade**.
   
The Firmware Upgrade dialog will display.

2. Click the **Browse** button and navigate to the location on your PC containing the firmware upgrade file.

3. Select the upgrade file and click **Apply**.
   
The firmware will be downloaded from your PC to the switch and the switch will automatically reboot.
Monitoring

The Monitoring menu provides statistics on port data volume, allows you to configure port mirroring and on some switch models perform cable testing.

Port Statistics

To view port statistics:

1. Select System > Monitoring.

   The Port Statistics for the selected switch will display in bytes received, bytes sent, and packet errors.

Port Mirroring

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

To have a switch port see the data on another port:

1. Select System > Status, and select the switch.
2. Select Monitoring > Mirroring to display the Mirroring page.
3. Enable Mirroring.
4. Select the Source Port or ports.
5. Select the Destination Port from the pull down list.
6. Click Apply.

   Data on the source port will now also be 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 will give 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 will display.
2. Select the port(s) to be tested and click **TEST SELECTED PORT**. The approximate distance to the cable fault will be 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 is a feature that 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 prevents the switch from broadcasting the traffic to all ports and possibly affecting network performance.

To enable or disable IGMP snooping:

• Select Disable or Enable for IGMP Snooping Status and click Apply.

or

• You can also change the VLAN for which the IGMP Snooping to be enabled by entering a valid VLAN ID for the field "VLAN ID Enabled for IGMP Snooping"; and clicking Apply.

This field is greyed out if VLAN is not enabled.

Validate IGMPv3 IP header:

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

Block Unknown MultiCast Address:

When enabled, multicast packets are forwarded only to the ports that are in the Multicast group learnt from IGMP snooping. All unknown multicast packets are dropped.
Virtual LAN Configuration

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 grouped together logically into separate networks. The Switch Configuration Utility allows you to 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.

Port Based - allows you to assign ports to virtual networks. Data from a port that is a member of a VLAN group will be restricted to other members of that VLAN group. This is 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 will be discarded unless the port is a member of the VLAN group. This technique is useful if you need to communicate 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. The Basic Port Based VLAN Configuration page is designed to help you to partition your network into different segments. Ports with the same ID are grouped into the same VLAN group. If all the VLAN groups share the same uplink to the Internet or servers, enter ‘all’ in the VLAN Group field for the port that you want to use for the uplink.

Basic Port Based VLAN Configuration

To assign members of a VLAN group using Basic Port-Based configuration:

1. Select the switch.
2. Select VLAN. This will display the Basic Port-Based VLAN configuration page.
3. Select Enable. A message will display asking if you want to delete previous VLAN settings.
4. Click Yes. The Basic Port Based VLAN Configuration screen will display.
5. For each port to be added to the group, select the port and then the VLAN Group.
6. When you are finished adding ports to a particular 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 using Advanced Port-Based Configuration:

1. Select the switch.
2. Click on the VLAN tab. This will display the Port-Based VLAN configuration page.
3. Select Advanced. This will display the Advanced Port-Based VLAN configuration page.
4. Select Enable. A message will display asking if you want to delete previous VLAN settings.
5. Click Yes. The Advanced Port-Based VLAN configuration screen will display.
6. VLAN IDs are limited to the number of ports on the switch, 1-5 for a five port switch. Select a VLAN ID from the VLAN identifier field and check the ports that you want to add to the VLAN and click Apply. If you want to create more VLANs, repeat this step 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. This will display the Port-Based VLAN configuration page.
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 additional information.

VLAN Configuration

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

To add VLAN groups:
1. Enter the VLAN ID (1-4094) for the VLAN you want to configure in the VLAN ID field at the bottom right of the screen and click Add. The new VLAN group will be displayed in the VLAN ID column.
2. Once you have created a new VLAN ID click on VLAN Membership to add ports to the group. See VLAN Membership on page 25.

To delete a VLAN group:
1. Select the boxes for the VLANs to be deleted. Selecting the box at the top of the column will select all VLAN IDs.
2. Click Delete. The selected VLAN groups will be 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. Select the VLAN group you want to configure from the VLAN Identifier pull down list.
3. Check the 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 25.

4. Click on **Apply**. 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 will assign to data packets it receives that are not already addressed (tagged) for a particular VLAN group. If you have a PC on port 6 and you want it to be a part of VLAN group 2, you would configure port 6 to automatically add a PVID of 2 to all data received from the PC. This will ensure that the data from the PC on port 6 can only be seen by other members of VLAN group 2.

You can only assign 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 that should 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 causes the data for an individual port to be tagged (associated) with a VLAN group.
To tag data from ports:

1. Click on the VLAN tab and then select 802.1Q > Advanced > Port Tagging. The Port Tagging screen displays.
2. Select the ports whose data you want tagged, select the Tag Tagging Control, and click Apply.

To untag data from ports:

1. Click on the VLAN tab and then select 802.1Q > Advanced > Port Tagging. The Port Tagging screen displays.
2. Select the ports whose data you want untagged, select the UnTag Tagging Control, and click Apply.
Quality of Service Configuration

This chapter contains the following topics:

• QoS Overview
• Rate Limiting
• Broadcast Filtering
QoS Overview

There are many different classes of data that 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 this is not a problem since the data is reassembled at the destination.

If the data consists of text or numeric data to be stored on the destination computer, the user 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.

- **QoS** global configuration assigns priorities to data.
- **Rate Limit** sets 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 of the QoS features have default settings. It is not necessary to configure any settings in order to use the ProSafe® Plus switches.

The following table lists the default settings.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Configuration</td>
<td></td>
</tr>
<tr>
<td>QoS Mode</td>
<td>Port based</td>
</tr>
<tr>
<td>Port Priority</td>
<td>Low priority for each port</td>
</tr>
<tr>
<td>Rate Limit</td>
<td></td>
</tr>
<tr>
<td>Ingress</td>
<td>No limit</td>
</tr>
<tr>
<td>Egress</td>
<td>No limit</td>
</tr>
<tr>
<td>Broadcast Filtering</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
QoS Global Configuration

Global configuration allows you to assign priorities for how data will be transmitted by the switch. Priority can be assigned either by port number (Port Based) or by the type of data being transmitted (802.1p based). You would typically want to 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 will transmit data with a minimum of delays. If packets arrive at several ports at the same time, the ports configured as higher priority will transmit their packets first. This means that you need to determine which ports are going to carry delay sensitive data.

Some switches allow you to select between two priority levels (High and Low). Others allow four levels (High, Medium, Normal, and Low).
To assign Port Based priorities:

1. Select System and click on the radio button for the switch you want to configure.
2. Select QoS. The QoS Global Configuration screen displays.
3. Select the ports that you want to have that priority.
4. Select a priority level that you want to assign from the list at the bottom of the display.
5. Click Apply. The selected ports will be 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. When 802.1p Based Priority is used, all ports on the switch check the packet header and transmit the packet with a priority determined by the packet content.

To select 802.1p Based priority:

1. Select System and click on the radio button for the switch you want to configure.
2. Select QoS. The QoS Global Configuration screen displays.
3. Select the 802.1p Based radio button. A message will display warning you that previous QoS settings for the switch will be lost.
4. Click Yes. Data will now be 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 will restrict the acceptance or retransmission of data to the values configured.

To configure Rate Limiting:

1. Select **System** and click on the radio button for the switch you want to configure.
2. Select **QoS > Rate Limit**. The QoS Rate Limit screen displays.
3. Select one or more ports then select ingress and egress rates to assign.
4. Click **Apply**. The rates will be 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 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. Select System and click the radio button for the switch you want to configure.
2. Select QoS > Broadcast Filtering to display the QoS Broadcast Filtering screen.
3. Select Enable.
   - If the selected switch supports configuring individual ports, a Storm control rate screen will be displayed. If the selected switch does not support individual port configuration, all of the ports will be set to a predetermined Storm control rate.
4. If the ports can be configured, select one or more ports, and the desired Storm control rate.
5. Click Apply.
This chapter contains the following topics:

- Online Help
Online Help

The Help tab provides access to the NETGEAR Support web site and to the online user guide for the ProSafe® Plus Switch Configuration Utility (the latest copy of this manual).

User Guide

If the PC running the utility program has access to the internet, selecting User Guide, then clicking Apply will open the latest version of this user guide. You can then download a copy of the User Guide to your PC. After installing a new ProSafe® Plus Switch you should check this website for the latest version of this manual.

Support Information

If the PC running the utility program has access to the internet, you can display the support page for a selected switch. Selecting Support, then clicking Apply will open a NETGEAR support page for the selected switch model.

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

About the Utility

Selecting About the Utility on the Help tab displays the utility software version for the ProSafe® Plus Configuration Utility.
Index

Numerics
802.1p-based priority 29
802.1Q 21
802.1Q VLAN 23

A
about 33
Adobe AIR 5
assign members 22

B
broadcast filtering 31
broadcast storm protection 31

C
cable test 18
change password 16

D
default settings 9
DHCP 15

F
factory defaults 16
features 7
firewall applications 6
firmware upgrade 17

H
Help 7, 33

I
IGMP snooping 20
installation 4
InstallShield Wizard 5

L
LAN 21

M
maintenance 7, 13, 16
monitoring 7, 13, 18
MultiCast 20

P
password 16
port based 21
port mirroring 18
port statistics 18
port tagging 24
port-based priority 28
PVID 24

Q
QoS 7, 27
QoS global configuration 28

R
rate limiting 30
reboot device 16
reset 16

S
settings 8
status 7, 13
status menu 14
support 33
switch discovery 6
switch selection 14
system tab 13