



GS1200 Series

Web Managed GbE PoE Switch

Version 1
Edition 1, 6/2016

User's Guide

Default Login Details

| | |
|----------------|---|
| LAN IP Address | http://192.168.1.3 |
| Password | 1234 |

IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

This is a User's Guide for a series of products. Not all products support all firmware features. Screenshots and graphics in this book may differ slightly from your product due to differences in your product firmware or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

Related Documentation

- Quick Start Guide

The Quick Start Guide shows how to connect the Switch and access the Web Configurator.

- More Information

Go to support.zyxel.com to find other information on the Switch.



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PART I

User's Guide

Getting to Know Your Switch

1.1 Introduction

This chapter introduces the main features and applications of the Switch. The GS1200 Series consists of the following models:

- GS1200-5HP
- GS1200-8HP

Referring to Switch in this User's Guide applies to both models, GS1200-5HP and GS1200-8HP.

The Switch has 5/8 ports. You can easily connect different devices, such as computers, network storage devices, IP cameras, print servers to your home network. The ports support IEEE802.3at High Power over Ethernet (PoE) and IEEE802.3af PoE standard, to provide power to IP CAM, wall mounted AP, and other devices that may be far from a power outlet.

For an advanced user, the Switch also provides a utility like web configurator to give you an easy configuration for VLAN, QoS, basis system management, and firmware upgrade. The Switch is compliant with IEEE802.3az (Energy Efficient Ethernet Standard), and provides power-saving benefits without compromising performance.

Key feature differences between Switch models are as follows. Other features are common to all models.

Table 1 GS1200 Series Comparison Table

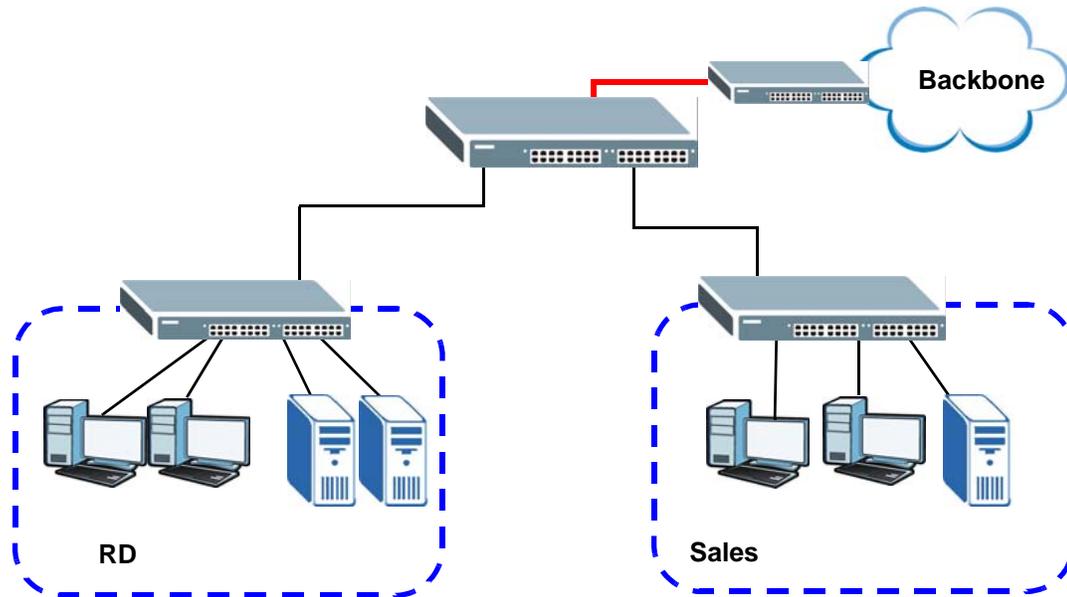
| MODEL | GS1200-5HP | GS1200-8HP |
|---------------------------------------|--|--|
| 10/100/1000 Mbps PoE Ports | 4 | 4 |
| 10/100/1000 Mbps Ethernet Ports | 1 | 4 |
| PoE Feature | IEEE 802.3 af PoE IEEE 802.3at High Power over Ethernet (PoE) | IEEE 802.3 af PoE IEEE 802.3at High Power over Ethernet (PoE) |
| Power ON/OFF Switch | v | v |
| 802.1Q VLAN and Port-Based VLAN | v | v |
| 802.1p QoS and Port-Based QoS | v | v |
| IGMP Snooping v1/v2 and v3 Compatible | v | v |
| Broadcast Storm Control | v | v |
| Firmware Upgrade | v | v |
| Configuration Restore and Backup | v | v |

This section shows a few examples of using the Switch in various network environments.

1.1.1 Bridging Application

In this example the Switch connects different company departments (**RD** and **Sales**) to the corporate backbone. It can alleviate bandwidth contention and eliminate server and network bottlenecks. All users that need high bandwidth can connect to high-speed department servers via the Switch.

Figure 1 Bridging Application



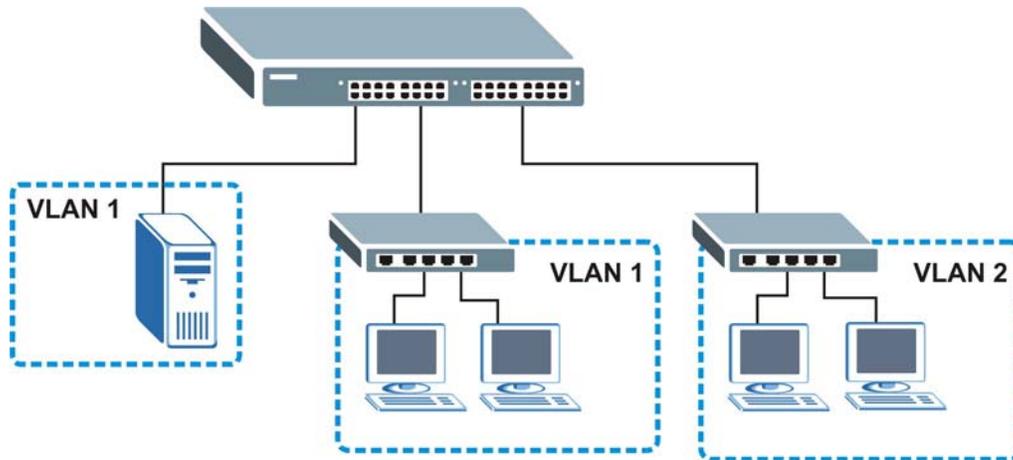
1.1.2 IEEE 802.1Q VLAN Application Example

A VLAN (Virtual Local Area Network) allows a physical network to be partitioned into multiple logical networks. Stations on a logical network belong to one or more groups. With VLAN, a station cannot directly talk to or hear from stations that are not in the same group(s) unless such traffic first goes through a router.

1.1.2.1 Tag-based VLAN Example

Ports in the same VLAN group share the same frame broadcast domain, thus increasing network performance by reducing broadcast traffic. VLAN groups can be modified at any time by adding, moving or changing ports without any re-cabling.

Shared resources such as a server can be used by all ports in the same VLAN as the server. In the following figure only ports that need access to the server need to be part of VLAN1. Ports can belong to other VLAN groups too.

Figure 2 Shared Server Using VLAN Example

1.2 Ways to Manage the Switch

Use any of the following methods to manage the Switch.

- Web Configurator. This allows easy Switch setup and management using a (supported) web browser. See [Chapter 4 on page 14](#).

1.3 Good Habits for Managing the Switch

Do the following things regularly to make the Switch more secure and to manage the Switch more effectively.

- Change the password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.
- Write down the password and put it in a safe place.
- Back up the configuration (and make sure you know how to restore it). Restoring an earlier working configuration may be useful if the device becomes unstable or even crashes. If you forget your password, you will have to reset the Switch to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the Switch. You could simply restore your last configuration.

Hardware Installation

2.1 Installation Scenarios

This chapter shows you how to install and connect the Switch.

The Switch can be placed on a desktop. Use the rubber feet in a desktop installation.

2.2 Desktop Installation Procedure

- 1 Make sure the Switch is clean and dry.
- 2 Set the Switch on a smooth, level surface strong enough to support the weight of the Switch and the connected cables. Make sure there is a power outlet nearby.
- 3 Make sure there is enough clearance around the Switch to allow air circulation and the attachment of cables and the power cord.

Hardware Panels

This chapter describes the front panel and rear panel of the Switch and shows you how to make the hardware connections.

3.1 Front Panel

The following figures show the front panels of the Switch.

Figure 3 Front Panel: GS1200-5HP



Figure 4 Front Panel: GS1200-8HP



3.2 Rear Panel

The following figures show the rear panels of the Switch.

Figure 5 Rear Panel: GS1200-5HP



Figure 6 Rear Panel: GS1200-8HP



3.2.1 Power Connector

Note: Make sure you are using the correct power source as shown on the panel.

To connect power to the Switch, insert the female end of the power cord to the AC power receptacle on the rear panel. Connect the other end of the supplied power cord to a power outlet. Make sure that no objects obstruct the airflow of the fans (located on the side of the unit).

3.3 LEDs

After you connect the power to the Switch, view the LEDs to ensure proper functioning of the Switch and as an aid in troubleshooting.

Table 2 LED Descriptions

| LED | COLOR | STATUS | DESCRIPTION |
|----------|----------------------|---------------|---|
| PWR/SYS | Green | On | The system power is on. |
| | | Off | The system power is off. |
| LINK/ACT | Green (1000 Mbps) | On | The port has a successful 10/100 Mbps or 1000Mbps connection. |
| | Orange (10/100 Mbps) | Fast Blinking | The system is transmitting data through the port. |
| | | Off | The port is disconnected or disabled. |
| PoE | Green | On | PoE is enabled and power is supplied to the connected PoE device. |
| | | Off | PoE is disabled or power is not being supplied. |
| PoE Max | Green | On | PoE power output is over 90% of the power budget. |
| | | Off | PoE power output is under 90% of the power budget. |

The Web Configurator

4.1 Overview

This section introduces the configuration and functions of the web configurator.

The web configurator is an HTML-based management interface that allows easy Switch setup and management via Internet browser. Use Internet Explorer 10.0 and later versions, Mozilla Firefox 46.0.1 and later versions, or Google Chrome 50.0 and later versions. The recommended screen resolution is 1024 by 768 pixels.

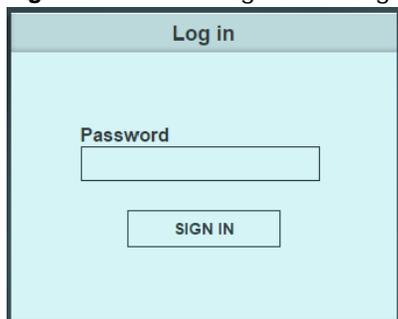
In order to use the web configurator you need to allow:

- Web browser pop-up windows from your device.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

4.2 System Login

- 1 Start your web browser.
- 2 Type "http://" and the IP address of the Switch (for example, the default management IP address is 192.168.1.3) in the **Location** or **Address** field. Press [ENTER]. Your computer must be in the same subnet in order to access this website address.
- 3 The login screen appears. The default password is **1234**.

Figure 7 Web Configurator: Login



The screenshot shows a web browser window with a light blue background. At the top, there is a dark blue header with the text "Log in" in white. Below the header, there is a text input field with the label "Password" above it. Below the input field, there is a button with the text "SIGN IN" in all caps.

- 4 Click **SIGN IN** to view the first web configurator screen.

4.3 The Web Configurator Layout

The **System** screen is the first screen that displays when you access the web configurator.

This guide uses GS1200-8HP screens as an example. The screens may vary slightly for different models.

The following figure shows the navigating components of a web configurator screen.

Figure 8 Web Configurator Layout

ZyXEL GS1200-8HP

A

System | Switch MGMT | VLAN | QoS | Storm Control | IGMP Snooping | PoE

B

System Information

| Model Name | Device Name | Firmware Version | Loop Status | PoE Status |
|------------|-------------|------------------|-------------|------------|
| GS1200-8HP | GS1200-8HP | V1.00(AAFF.0)b3 | No Loop | Off |

| MAC Address | IP Address | Subnet Mask |
|-------------------|-------------|---------------|
| 00:10:18:55:66:4B | 192.168.1.3 | 255.255.255.0 |

Per Port Status

| Port | Link status | TX | RX | Flow Control | Loop Status | Loop Unlock |
|------|-------------|-----|-----|--------------------------|-------------|--------------------------|
| 1 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 2 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 3 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 4 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 5 | 100 Mbps | 107 | 436 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 6 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 7 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 8 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |

Refresh | Clear Counters | Apply

A - Click the menu items to open the screen in the main window.

B - Click this link to log out of the web configurator.

The following table describes the links in the navigation panel.

Table 3 Navigation Panel Links

| LINK | DESCRIPTION |
|---------------|--|
| System | This link takes you to a screen that displays general system information and individual port statistics . You can also configure the IP address and subnet mask, and unlock a port |
| Switch MGMT | This link takes you to screens where you can change the system login password, perform firmware and configuration file maintenance as well as reboot the system. |
| VLAN | This link takes you to a screen where you can configure port-based or 802.1Q VLAN. |
| QoS | This link takes you to a screen where you can configure port-based or IEEE 802.1p QoS. |
| Storm Control | This link takes you to a screen to enable broadcast storm control and loop prevention/detection. Loop prevention/detection is not available on the GS1200-5HP. |
| IGMP Snooping | This link takes you to a screen where you can configure IGMP snooping. |
| PoE | This link takes you to a screen where you can enable or disable PoE on a PoE port. |

4.3.1 Change Your Password

After you log in for the first time, it is recommended you change the default administrator password. Click **Switch MGMT** to display the next screen.

Figure 9 Change Administrator Login Password

The screenshot shows the ZyXEL GS1200-8HP web configurator interface. The 'Switch MGMT' tab is selected in the navigation panel. The main content area is titled 'Device Setting' and contains several sections: 'Management' with 'Reset' and 'Reboot' buttons; 'Configuration Restore/Backup' with a 'path' input field and 'Restore' and 'Backup' buttons; and 'Firmware Upgrade' with a 'path' input field and an 'Upgrade' button. A red box highlights the 'Change Password' section, which includes three input fields for 'Old Password', 'New Password', and 'Confirm Password'. Below these fields is a password policy note: 'Password can only use "a-z","A-Z","0-9" add the length is at least 4, max is 15.' and a 'Confirm' button at the bottom right.

4.4 Switch Lockout

You could block yourself (and all others) from managing the Switch if you do one of the following:

- 1 Remove all ports from the management VLAN (default is VLAN 1).

- 2 Forget the password and/or IP address.

Note: Be careful not to lock yourself and others out of the Switch.

4.5 Resetting the Switch

If you forget the administrator password or cannot access the Web Configurator, you will need to use the **Reset** button at the front panel of the device to reset the Switch back to the factory defaults.

This means that you will lose all configurations that you had previously and the password will be reset to "1234".

- 1 Make sure the **PWR/SYS** LED is on (not blinking).
- 2 To set the device back to the factory default settings, press the **Reset** button for ten seconds or until the **PWR/SYS** LED begins to blink and then release it. When the **PWR/SYS** LED begins to blink, the defaults have been restored and the device restarts.

4.6 Logging Out of the Web Configurator

Click the **Logout** icon in a screen to exit the web configurator. You have to log in with your password again after you log out. This is recommended after you finish a management session for security reasons.

Initial Setup Example

5.1 Overview

This chapter shows how to set up the Switch for an example network.

The following lists the configuration steps for the initial setup:

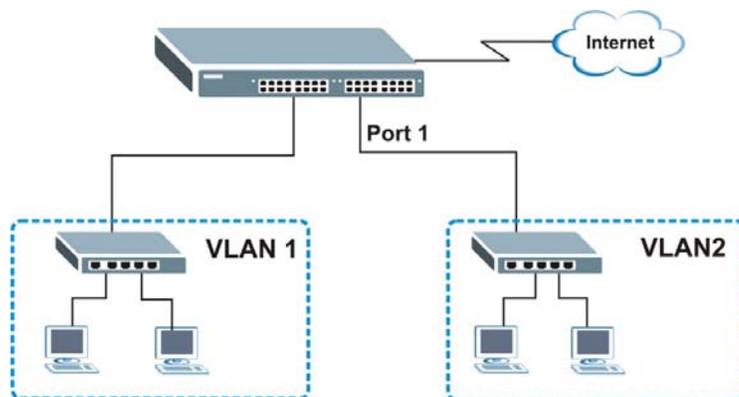
- Create a VLAN
- Set port VLAN ID

5.1.1 Creating a VLAN

VLANs confine broadcast frames to the VLAN group in which the port(s) belongs. You can do this with port-based VLAN or tagged static VLAN with fixed port members.

In this example, you want to configure port 1 as a member of VLAN 2.

Figure 10 Initial Setup Network Example: VLAN



- 1 Click **VLAN** in the navigation panel and select the **IEEE 802.1Q VLAN** option. Click the **Create New VLAN** button.

System | Switch MGMT | **VLAN** | QoS | Storm Control | IGMP Snooping | PoE

IEEE 802.1Q VLAN Port-Based VLAN

PVID

| Port | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|------|----|----|----|----|----|----|----|----|
| PVID | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Apply

Maximum number of IEEE 802.1Q VLAN: 8

| VLAN ID | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | Modify | Delete |
|---------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------|--------|
| 1 | <input checked="" type="checkbox"/> | Modify | Delete |

Non-Member
 Tag Egress Member
 Untag Egress Member

Click on button to change member state or remove vlan.

Create New VLAN

- Enter 2 in the **VLAN ID** field for the VLAN2 network.
- Since the VLAN2 network is connected to port 1 on the Switch, configure port 1 to be a permanent member of the VLAN. To ensure that VLAN-unaware devices (such as computers and hubs) can receive frames properly, set the port's box color to green to set the Switch to remove VLAN tags before sending.
- Change the box color of other ports to gray.
- Click **Apply** to save the settings.

System | Switch MGMT | **VLAN** | QoS | Storm Control | IGMP Snooping | PoE

IEEE 802.1Q VLAN

| VLAN ID | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|---------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Non-Member
 Tag Egress Member
 Untag Egress Member

Click on box to change member state.

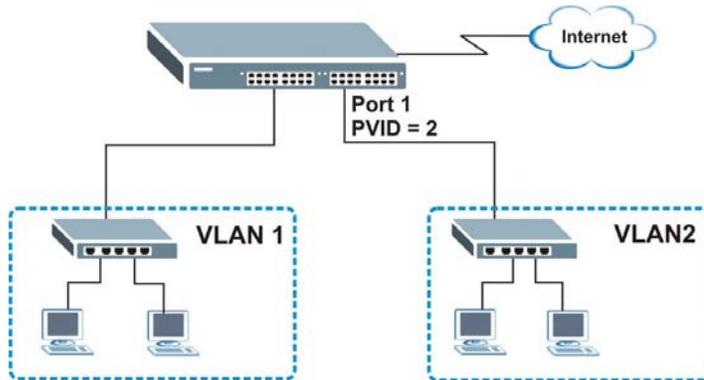
Apply Cancel

5.1.2 Setting Port VID

Use PVID to add a tag to incoming untagged frames received on that port so that the frames are forwarded to the VLAN group that the tag defines.

In the example network, configure 2 as the port VID on port 1 so that any untagged frames received on that port get sent to VLAN 2.

Figure 11 Initial Setup Network Example: Port VID



- 1 Click **VLAN** in the navigation panel.
- 2 Enter 2 in the **PVID** field for port 2 and click **Apply** to save your changes back to the Switch.

The screenshot shows the 'VLAN' configuration page. The 'PVID' section has a table with the following data:

| Port | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|------|----|----|----|----|----|----|----|----|
| PVID | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

The 'Apply' button is circled in red. Below the PVID table, the 'Maximum number of IEEE 802.1Q VLAN: 8' is displayed. A table shows the member states for VLANs 1 and 2:

| VLAN ID | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | Modify | Delete |
|---------|----|----|----|----|----|----|----|----|--------|--------|
| 1 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | Modify | Delete |
| 2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | Modify | Delete |

Legend: ■ Non-Member, ■ Tag Egress Member, ■ Untag Egress Member

Click on button to change member state or remove vlan. Create New VLAN

PART II

Technical Reference

6.1 Overview

This chapter describes the screens for system status, and port details.

6.2 System Screen

The **System** screen displays when you log into the Switch or click **System** at the top of the web configurator. The **System** screen displays the Switch's general device information, system status, IP address and the port statistics.

Figure 12 System

| System Information | | | | | | |
|--------------------|----------------------------|-----------------------------|-------------------------------|--------------------------|-------------|--------------------------|
| Model Name | Device Name | Firmware Version | Loop Status | PoE Status | | |
| GS1200-8HP | GS1200-8HP | V1.00(AAFF.0)b5 | No Loop | Off | | |
| MAC Address | | IP Address | Subnet Mask | | | |
| 00:10:18:55:66:4B | | 192.168.1.3 | 255.255.255.0 | | | |
| Per Port Status | | | | | | |
| Port | Link status | TX | RX | Flow Control | Loop Status | Loop Unlock |
| 1 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 2 | 100 Mbps | 17626 | 4751 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 3 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 4 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 5 | 100 Mbps | 2704 | 16277 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 6 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 7 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |
| 8 | Down | 0 | 0 | <input type="checkbox"/> | Normal | <input type="checkbox"/> |

The following table describes the labels in this screen.

Table 4 System

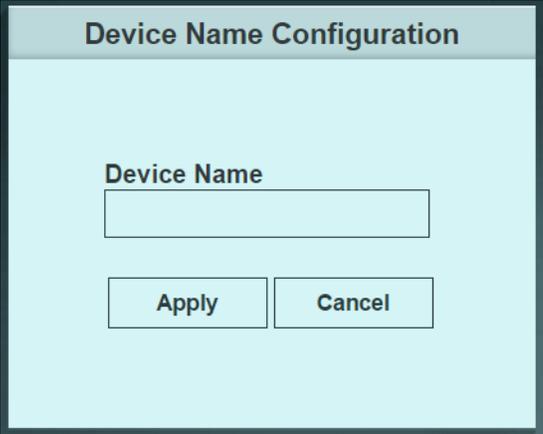
| LABEL | DESCRIPTION |
|--------------------|--|
| System Information | |
| Model Name | This field displays the model name of this Switch. |
| Device Name | <p>This field displays the name used to identify the Switch on any network. The device name is a link that you can click to open a screen where you can change the name.</p>  |
| Firmware Version | This field displays the version number and date of the firmware the Switch is currently running. |
| Loop Status | This field displays whether the Switch is in a loop state. |
| PoE Status | This field displays On when a powered device (PD) is receiving power from the Switch. Otherwise, it displays Off . |
| MAC Address | This field displays the MAC addresses of the Switch. |
| IP Address | <p>The Switch needs an IP address for it to be managed over the network. The factory default IP address is 192.168.1.3.</p> <p>This field displays the Switch's current IPv4 address. The IP address is a link that you can click to open a screen where you can change the IP address and subnet mask.</p>  |
| Subnet Mask | <p>The subnet mask specifies the network number portion of an IP address. The factory default subnet mask is 255.255.255.0.</p> <p>This field displays the Switch's subnet mask. The subnet mask is a link that you can click to open a screen where you can change the IP address and subnet mask.</p> |
| Per Port Status | |

Table 4 System (continued)

| LABEL | DESCRIPTION |
|----------------|--|
| Port | This identifies the Ethernet port on the Switch. |
| Link | This field displays the current status or speed (either 10Mbps, 100Mbps or 1000Mbps) of each port. |
| TX | This field shows the number of transmitted frames on this port. |
| RX | This field shows the number of received frames on this port. |
| Flow Control | <p>A concentration of traffic on a port decreases port bandwidth and overflows buffer memory causing packet discards and frame losses. Flow Control is used to regulate transmission of signals to match the bandwidth of the receiving port.</p> <p>The Switch uses IEEE802.3x flow control in full duplex mode and backpressure flow control in half duplex mode.</p> <p>IEEE802.3x flow control is used in full duplex mode to send a pause signal to the sending port, causing it to temporarily stop sending signals when the receiving port memory buffers fill.</p> <p>Back Pressure flow control is typically used in half duplex mode to send a "collision" signal to the sending port (mimicking a state of packet collision) causing the sending port to temporarily stop sending signals and resend later. Select the check box to enable it.</p> |
| Loop Status | <p>This field is available only on the GS1200-8HP.</p> <p>It displays Loop when the Switch detects a loop on the port. Otherwise, it displays Normal.</p> |
| Loop Unlock | <p>This field is available only on the GS1200-8HP. It is configurable when you enable loop detection in the Storm Control screen and the port is shut down to break a loop.</p> <p>Select this option and click Apply to enable the port.</p> |
| Refresh | Click this button to update the information in this screen. |
| Clear Counters | Click this button to return the screen to its last-saved settings. |
| Apply | Click this button to save your changes to the Switch. |

Switch Management

7.1 Overview

This chapter explains how to configure the screen that lets you maintain the firmware and configuration files, and change the system password.

7.2 Switch Management Screen

Use this screen to upload the latest firmware, upload a stored device configuration file, save your configurations for later use or change the administrator system password.

An administrator is someone who can both view and configure Switch changes. The default administrator password is **1234**.

Note: It is highly recommended that you change the default administrator password (**1234**).

Click **Switch MGMT** in the navigation panel to open the following screen.

Figure 13 Switch Management

The screenshot displays the Switch Management interface, divided into two main sections: **Device Setting** and **Change Password**.

Device Setting includes:

- A **Management** icon (person silhouette) with the label "Management" below it.
- Buttons for **Reset** and **Reboot**.
- Configuration Restore/Backup** section: A text input field followed by a **path** button, and buttons for **Restore** and **Backup**.
- Firmware Upgrade** section: A text input field followed by a **path** button, and an **Upgrade** button.

Change Password section includes:

- Old Password** input field.
- New Password** input field.
- Confirm Password** input field.
- A note: "Password can only use 'a-z','A-Z','0-9' add the length is at least 4, max is 15."
- A **Confirm** button at the bottom right.

The following table describes the labels in this screen.

Table 5 Switch Management

| LABEL | DESCRIPTION |
|------------------------------|--|
| Device Setting | |
| Reset | Click this button to clear all Switch configuration information you configured and return to the factory defaults. If you want to access the Switch web configurator again, you may need to change the IP address of your computer to be in the same subnet as that of the default Switch IP address (192.168.1.3). |
| Reboot | Click this button to restart the Switch without physically turning the power off. |
| Configuration Restore/Backup | Type the path and file name of the configuration file you wish to restore in the text box or click path to locate it. |
| Restore | Click Restore to restore a previously saved configuration from your computer to the Switch. Note: "config" is the name of the configuration file on the Switch, so your backup configuration file is automatically renamed when you restore using this screen. |
| Backup | Click Backup to save and store your current device settings. |
| Firmware Upgrade | Type the path and file name of the firmware file you wish to upload to the Switch in the text box or click path to locate it. |
| Upgrade | Click Upgrade to load the new firmware. |
| Change Password | |
| Old Password | Type the existing system password (1234 is the default password when shipped). |
| New Password | Enter your new system password. |
| Confirm Password | Retype your new system password for confirmation |
| Confirm | Click this button to save your new password. |

8.1 Overview

This chapter shows you how to configure 802.1Q tagged and port-based VLANs.

8.1.1 What You Need to Know

Read this section to know more about VLAN and how to configure the screens.

8.1.1.1 IEEE 802.1Q Tagged VLANs

A tagged VLAN uses an explicit tag (VLAN ID) in the MAC header to identify the VLAN membership of a frame across bridges - they are not confined to the switch on which they were created. The VLANs can be created statically by hand or dynamically through GVRP. The VLAN ID associates a frame with a specific VLAN and provides the information that switches need to process the frame across the network. A tagged frame is four bytes longer than an untagged frame and contains two bytes of TPID (Tag Protocol Identifier, residing within the type/length field of the Ethernet frame) and two bytes of TCI (Tag Control Information, starts after the source address field of the Ethernet frame).

The CFI (Canonical Format Indicator) is a single-bit flag, always set to zero for Ethernet switches. If a frame received at an Ethernet port has a CFI set to 1, then that frame should not be forwarded as it is to an untagged port. The remaining twelve bits define the VLAN ID, giving a possible maximum number of 4,096 VLANs. Note that user priority and VLAN ID are independent of each other. A frame with VID (VLAN Identifier) of null (0) is called a priority frame, meaning that only the priority level is significant and the default VID of the ingress port is given as the VID of the frame. Of the 4096 possible VIDs, a VID of 0 is used to identify priority frames and value 4095 (FFF) is reserved, so the maximum possible VLAN configurations are 4,094.

| | | | |
|---------|---------------|-------|---------|
| TPID | User Priority | CFI | VLAN ID |
| 2 Bytes | 3 Bits | 1 Bit | 12 bits |

Forwarding Tagged and Untagged Frames

Each port on the Switch is capable of passing tagged or untagged frames. To forward a frame from an 802.1Q VLAN-aware switch to an 802.1Q VLAN-unaware switch, the Switch first decides where to forward the frame and then strips off the VLAN tag. To forward a frame from an 802.1Q VLAN-unaware switch to an 802.1Q VLAN-aware switch, the Switch first decides where to forward the frame, and then inserts a VLAN tag reflecting the ingress port's default VID. The default PVID is VLAN 1 for all ports, but this can be changed.

A broadcast frame (or a multicast frame for a multicast group that is known by the system) is duplicated only on ports that are members of the VID (except the ingress port itself), thus confining the broadcast to a specific domain.

8.1.1.2 Port-based VLANs

Port-based VLANs are VLANs where the packet forwarding decision is based on its associated port.

A port can only belong to one port-based VLAN. Subscriber ports in different port-based VLANs cannot talk to each other.

Port-based VLANs are specific only to the Switch on which they were created.

Note: When you activate port-based VLAN, the Switch uses a default VLAN ID of 1. You cannot change it.

8.2 VLAN Screen

Use this screen to view and configure VLAN settings for the Switch. Click **VLAN** in the navigation panel to open the following screen.

The VLAN screen changes depending on whether you choose **IEEE 802.1Q VLAN** or **Port-Based VLAN** in this screen.

Note: You could block yourself (and all others) from managing the Switch if you remove all ports from the management VLAN (VLAN 1 by default).

Make sure the port through which you connect your computer and access the Switch's web configurator is in VLAN 1.

8.2.1 IEEE 802.1Q VLAN

Figure 14 VLAN: IEEE 802.1Q Tagged VLAN

IEEE 802.1Q VLAN Port-Based VLAN

PVID

| Port | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| PVID | <input type="text" value="1"/> |

[Apply](#)

Maximum number of IEEE 802.1Q VLAN: 8

| VLAN ID | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | Modify | Delete |
|---------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|------------------------|------------------------|
| 1 | ■ | Modify | Delete |

Non-Member Tag Egress Member Untag Egress Member

Click on button to change member state or remove vlan. [Create New VLAN](#)

The following table describes the labels in this screen.

Table 6 VLAN: IEEE 802.1Q Tagged VLAN

| LABEL | DESCRIPTION |
|------------------------------------|--|
| PVID | |
| Port | This field displays the port number. |
| PVID | A PVID (Port VLAN ID) is a tag that adds to incoming untagged frames received on a port so that the frames are forwarded to the VLAN group that the tag defines. Enter a number between 1 and 4094 as the port VLAN ID. |
| Apply | Click this button to save your PVID settings to the Switch. |
| Maximum number of IEEE 802.1Q VLAN | This shows the maximum number of IEEE 802.1Q VLANs you can have on the Switch. |
| VLAN ID | This is the ID number of the VLAN group. |
| 01 ~ 08 01 ~ 05 | This displays the ports that are participating in a VLAN. A tagged port is orange, an untagged port is green and ports not participating in a VLAN are gray. |
| Modify | Click Modify to edit the VLAN settings. |
| Delete | Click Delete to remove the VLAN group. You cannot delete the default VLAN. |
| Create New VLAN | Click this button to configure a new IEEE 802.1Q VLAN for the Switch. |

How to add ports to an IEEE 802.1Q VLAN

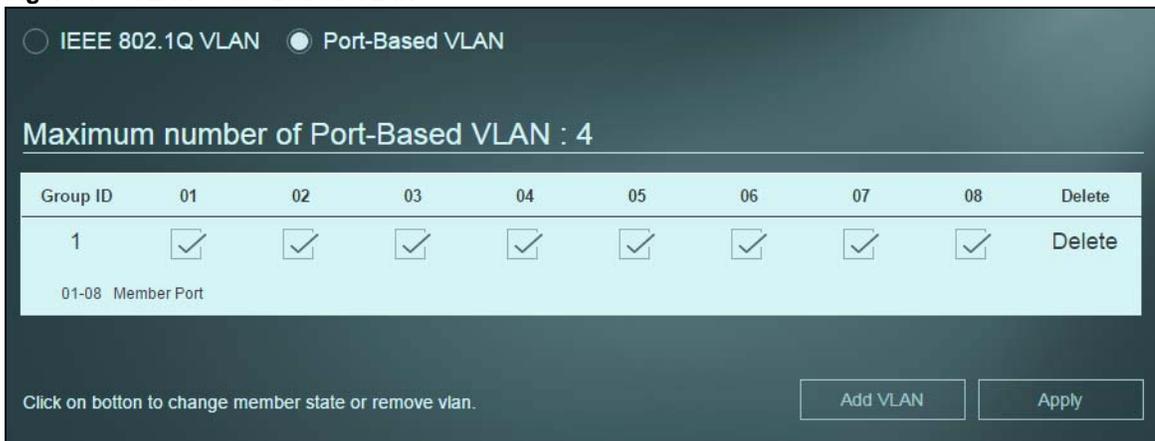
By default, all ports on the Switch are in VLAN 1. If you want to have a port belong to another VLAN as well, say VLAN 123, you need to create a VLAN first, and then add the port to the VLAN.

- 1 Select the **IEEE 802.1Q VLAN** option in the **VLAN** screen.
- 2 Click **Create New VLAN** and enter a VLAN ID number (123 in this example).
- 3 Click the port's check box to add it to the VLAN group by changing the box color to green (untagging) or orange (tagging). Set the port's box color to gray if the port is not a member of the VLAN group.
- 4 Click **Apply** to save your changes.



8.2.2 Port-Based VLAN

Figure 15 VLAN: Port-Based VLAN



The following table describes the labels in this screen.

Table 7 VLAN: Port-Based VLAN

| LABEL | DESCRIPTION |
|-----------------------------------|---|
| Maximum number of Port-Based VLAN | This shows the maximum number of port-based VLANs you can have on the Switch. |
| Group ID | This is the ID number of the VLAN group. |
| 01 ~ 08 01 ~ 05 | This displays the ports that are participating in a VLAN. Select a port's check box to add it to the VLAN. A port can only belong to one port-based VLAN. |
| Delete | Click Delete to remove the VLAN group. You cannot delete the default VLAN. |
| Add VLAN | Click this button to configure a new port-based VLAN for the Switch. |
| Apply | Click this button to save your changes to the Switch. |

How to add ports to a Port-Based VLAN

By default, all ports on the Switch are in VLAN 1. A port can only belong to one port-based VLAN.

If you want to have a port belong to another VLAN, say VLAN 2, you need to remove the port from VLAN 1 first before adding the port to VLAN 2.

- 1 Select the **Port-Based VLAN** option in the **VLAN** screen.
- 2 Clear the check box of the port and click **Apply**.
- 3 Click **Create VLAN**. The VLAN ID number is generated automatically. The ID number of the user-defined port-based VLAN starts at 2 and increases by 1.
- 4 Click the port's check box to add it to the VLAN group. A port-based VLAN must contain at least two ports.
- 5 Click **Apply** to save your changes.

Maximum number of Port-Based VLAN : 4

| Group ID | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |
|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

01-08 Member Port

Click on checkbox to choose group member.

Apply Cancel

9.1 Overview

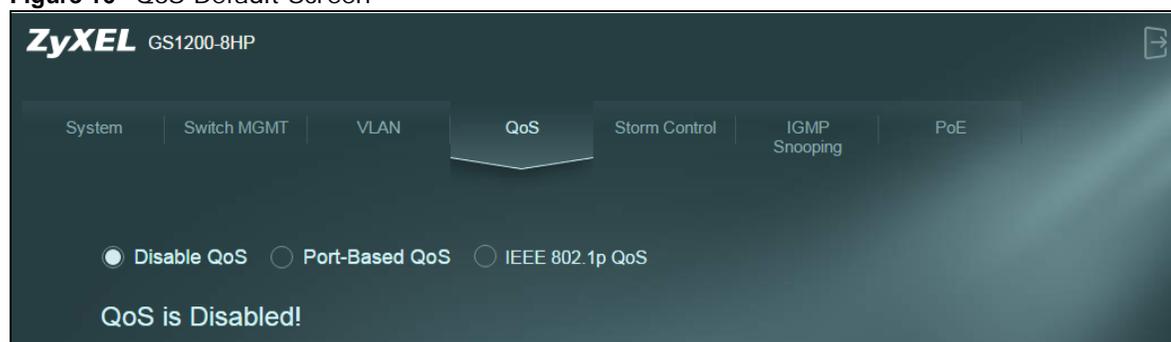
This chapter introduces the configuration and functions of the **QoS** (Quality of Service) screen.

The QoS (Quality of Service) feature allows you to prioritize the flow of data passing through the Switch. Occasionally, data might be delayed, depending on the volume of traffic and the capacity of the equipment. Numeric and text data are usually not affected by delays, because they are reassembled at the destination. However, when VoIP and streaming videos are reassembled, they might have some troublesome gaps. Without QoS, all traffic data is equally likely to be dropped when the network is congested. This can cause a reduction in network performance and make the network inadequate for time-critical applications such as VOD (Video on Demand).

You can enable QoS to have the Switch assign each packet a priority and then queues the packet accordingly. Packets assigned a high priority are processed more quickly than those with low priority if there is congestion, allowing time-sensitive applications to flow more smoothly. Time-sensitive applications include both those that require a low level of latency (delay) and a low level of jitter (variations in delay) such as Voice over IP (VoIP) or Internet gaming, and those for which jitter alone is a problem such as Internet radio or streaming video.

The QoS feature in the Switch is disabled by default.

Figure 16 QoS Default Screen



9.2 What You Need to Know

The Switch can put packets into the queues according to the port on which the packet is received or the priority tag in the packet.

9.2.1 Port-Based QoS

The Port-Based QoS feature assigns priority to data transmitted through a particular port. When the data arrives to a port it begins a queue. Therefore the Switch has a queue for each port. If data arrives at the same time to all ports, ports with higher priority will be first to transmit the data received. The higher the priority of the port, the less delays the data passing through will have.

9.2.2 IEEE 802.1p QoS

IEEE 802.1p defines a 3-bit field called PCP (Priority Code Point) within the IEEE 802.1Q VLAN tag, which is also referred to as a CoS (Class of Service) value and indicates the frame priority level. IEEE 802.1p QoS uses the priority value (from 0 to 7) to define up to eight traffic types. That is, each priority level defines a class of service. The table below shows the IEEE recommendations for traffic types, these may vary or be reassigned.

Table 8 IEEE Priority to Traffic Type Mapping Recommendations

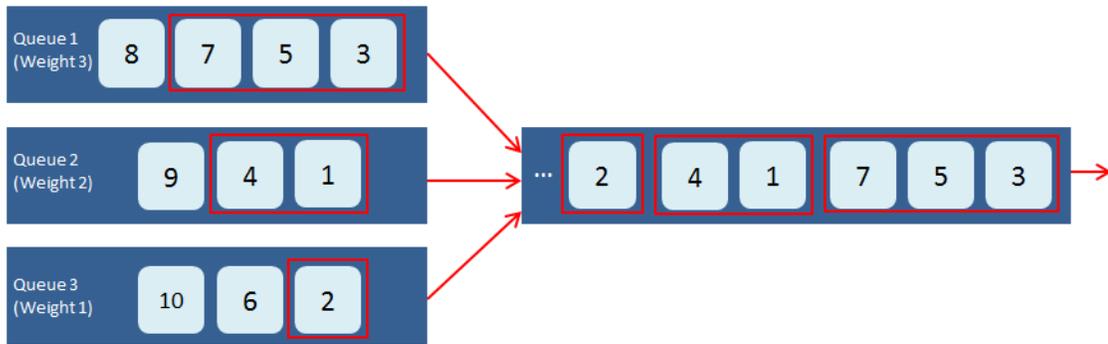
| PCP | PRIORITY | ACRONYM | TRAFFIC TYPES |
|-----|-------------|---------|-----------------------------------|
| 1 | 0 (lowest) | BK | Background |
| 0 | 1 (default) | BE | Best Effort |
| 2 | 2 | EE | Excellent Effort |
| 3 | 3 | CA | Critical Applications |
| 4 | 4 | VI | Video, <100 ms latency and jitter |
| 5 | 5 | VO | Voice, <10 ms latency and jitter |
| 6 | 6 | IC | Internetwork Control |
| 7 | 7 (highest) | NC | Network Control |

Note: Frames without an explicit priority tag are treated as system traffic and assigned to **Queue0**.

9.2.3 Weighted Round Robin Scheduling (WRR)

Round Robin Scheduling services queues on a rotating basis and is activated only when a port has more traffic than it can handle. A queue is a given amount of bandwidth irrespective of the incoming traffic on that port. This queue then moves to the back of the list. The next queue is given an equal amount of bandwidth, and then moves to the end of the list; and so on, depending on the number of queues being used. This works in a looping fashion until a queue is empty.

Weighted Round Robin Scheduling (WRR) uses the same algorithm as round robin scheduling, but services queues based on their priority and queue weight (the number you select in the queue **Weight** field) rather than a fixed amount of bandwidth. WRR is activated only when a port has more traffic than it can handle. The bandwidth is divided across the different traffic queues according to their weights. Queues with larger weights get more service than queues with smaller weights. This queueing mechanism is highly efficient in that it divides any available bandwidth across the different traffic queues and returns to queues that have not yet emptied.

Figure 17 WRR Application Example

9.3 Port-Based QoS Screen

The Switch's default settings for Port-Based QoS are shown in the next figure.

Figure 18 QoS > Port-Based QoS

| Port | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Weight |
|--------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|--------|
| Queue0 | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 1 |
| Queue1 | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 2 |
| Queue2 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | 4 |
| Queue3 | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | 8 |

Queue0 : Low Priority Queue1 : Normal Priority Queue2 : Medium Priority Queue3 : High Priority

Apply

The Switch allows four priority levels, shown in the table below.

Table 9 Priority Queuing Levels in QoS

| QUEUE NAME | PRIORITY LEVEL |
|------------|-----------------|
| Queue0 | Low Priority |
| Queue1 | Normal Priority |
| Queue2 | Medium Priority |
| Queue3 | High Priority |

To apply Port-Based QoS to the Switch, follow these steps:

- 1 Choose which ports will carry the sensitive data, using the priority queuing levels given. Click on each port's radio button to assign a priority queue.

- Assign the weight (the number you select in the queue **Weight** field) to each priority. Remember the weight is based on WRR Scheduling, explained in [Section 9.2.3 on page 33](#). Bandwidth is divided across the different traffic queues according to their weights. Queues with larger weights get more service than queues with smaller weights.
- Click the **Apply** button after you are finished assigning priorities to the ports.

9.4 IEEE 802.1P QoS Screen

Both Port-Based QoS and IEEE 802.1P QoS use the same priority queuing levels, shown in [Table 9 on page 34](#). Remember the difference amongst both features relies on how the priority queuing is assigned. Lets recap, Port-Based QoS assigns priority queuing by port, whereas IEEE 802.1P QoS assigns queuing by PCP priority tags.

The Switch's default settings for IEEE 802.1P QoS are shown in the next figure. The numbers from 0 to 7 refer to the priority tags for each traffic type. Refer to [Table 8 on page 33](#).

Figure 19 QoS > IEEE 802.1P QoS

| Priority | 0 (low) | 1 | 2 | 3 | 4 | 5 | 6 | 7 (high) | Weight |
|----------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|--------|
| Queue0 | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 1 |
| Queue1 | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 2 |
| Queue2 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | 4 |
| Queue3 | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> | 8 |

Queue0 : Low Priority Queue1 : Normal Priority Queue2 : Medium Priority Queue3 : High Priority

To apply IEEE 802.1P QoS to the Switch, follow these steps:

- Choose which priority tags will carry the sensitive data, using the priority queuing levels given. Click on each priority tag's radio button to assign a priority queue.
- Assign the weight (the number you select in the queue **Weight** field) to each priority. Remember the weight is based on WRR Scheduling, explained in [Section 9.2.3 on page 33](#). Bandwidth is divided across the different traffic queues according to their weights. Queues with larger weights get more service than queues with smaller weights.
- Click the **Apply** button after you are finished assigning priorities to the priority tags.

Storm Control

10.1 Overview

This chapter introduces and shows you how to configure the broadcast storm control feature and use loop prevention or loop detection to prevent loops in your network.

Broadcast storm control limits the number of broadcast packets the Switch receives per second on the ports. When the maximum number of allowable broadcast packets is reached per second, the subsequent packets are discarded. Enable this feature to reduce broadcast packets in your network.

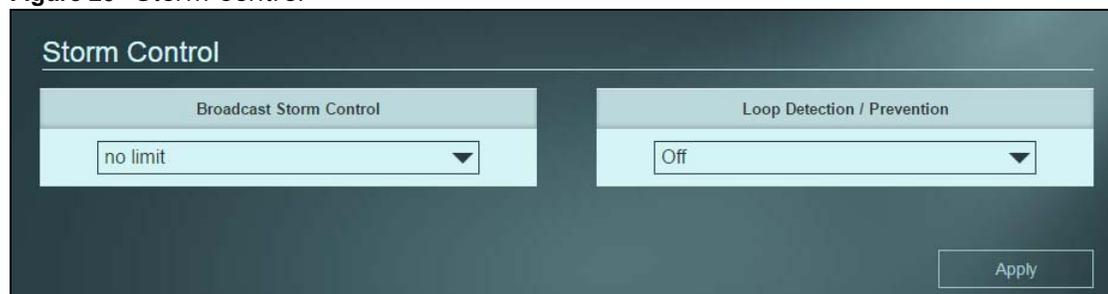
Loop state occurs as a result of human error. It happens when two ports on a switch are connected with the same cable. When a switch in loop state sends out broadcast messages the messages loop back to the switch and are re-broadcast again and again causing a broadcast storm. Loop detection or loop prevention allows you to configure the Switch to shut down a port if it detects that packets sent out on that port loop back to the Switch.

Note: At the time of writing, the GS1200-5HP doesn't support loop detection/prevention.

10.2 Storm Control Screen

Click **Storm Control** in the navigation panel to display the screen as shown next.

Figure 20 Storm Control



The following table describes the labels in this screen.

Table 10 Storm Control

| LABEL | DESCRIPTION |
|-----------------------------|--|
| Broadcast Storm Control | Enable traffic storm control on the Switch by specifying how many broadcast packets a port receives per second. Otherwise, select no limit to disable this feature. |
| Loop Detection / Prevention | This field is available only on the GS1200-8HP. Select Loop Detection to allow the Switch to shut down a port automatically when it detects a loop on the port. The port becomes active when the loop disappears. Select Loop Prevention to allow the Switch to shut down a port automatically when it detects a loop on the port. After resolving the loop problem on your network, you need to enable the port manually in the System screen. Select Off to disable this feature. |
| Apply | Click Apply to save your changes to the Switch. |

IGMP Snooping

11.1 Overview

This chapter shows you how to configure various multicast features.

Traditionally, IP packets are transmitted in one of either two ways - Unicast (1 sender to 1 recipient) or Broadcast (1 sender to everybody on the network). Multicast delivers IP packets to just a group of hosts on the network.

IGMP (Internet Group Management Protocol) is a network-layer protocol used to establish membership in a multicast group - it is not used to carry user data. Refer to RFC 1112, RFC 2236 and RFC 3376 for information on IGMP versions 1, 2 and 3 respectively.

IGMP Snooping

A Switch can passively snoop on IGMP packets transferred between IP multicast routers/switches and IP multicast hosts to learn the IP multicast group membership. It checks IGMP packets passing through it, picks out the group registration information, and configures multicasting accordingly. IGMP snooping allows the Switch to learn multicast groups without you having to manually configure them.

The Switch forwards multicast traffic destined for multicast groups (that it has learned from IGMP snooping or that you have manually configured) to ports that are members of that group. IGMP snooping generates no additional network traffic, allowing you to significantly reduce multicast traffic passing through your Switch.

11.2 IGMP Snooping Screen

Click **IGMP Snooping** in the navigation panel to display the screen as shown next.

Figure 21 IGMP Snooping

IGMP Snooping

Blocking Unknown Multicast

Enable IGMP Snooping

IGMP Static Router Port

Port 5

Note : When LACP function is enable, the last two port can set to "Trunk Port".

Apply

The following table describes the labels in this screen.

Table 11 IGMP Snooping

| LABEL | DESCRIPTION |
|----------------------------|---|
| Blocking Unknown Multicast | Select this option to discard the frame when the Switch receives an unknown multicast frame. Otherwise, the Switch sends the frame to all ports. |
| Enable IGMP Snooping | Select this option to enable IGMP Snooping to forward group multicast traffic only to ports that are members of that group. |
| IGMP Static Router Port | Select a port to be used as an IGMP query port. The Switch treats an IGMP query port as being connected to an IGMP multicast router (or server). The Switch forwards IGMP join or leave packets to an IGMP query port. |
| Apply | Click Apply to save your changes to the Switch. |

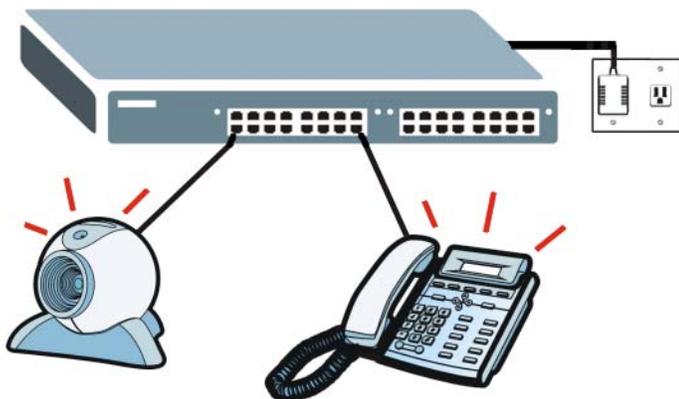
12.1 Overview

This chapter shows you how to configure the PoE feature on the Switch.

The Switch supports both the IEEE 802.3af Power over Ethernet (PoE) and IEEE 802.3at High Power over Ethernet (PoE) standards. The Switch is Power Sourcing Equipment (PSE), because it provides a source of power via its Ethernet ports. A powered device (PD) is a device such as an access point or a switch, that supports PoE (Power over Ethernet) so that it can receive power from another device through an Ethernet port.

In the figure below, the IP camera and IP phone get their power directly from the Switch. Aside from minimizing the need for cables and wires, PoE removes the hassle of trying to find a nearby electric outlet to power up devices.

Figure 22 Powered Device Example



Note: The PoE devices that supply or receive power and their connected Ethernet cables must all be completely indoors.

12.2 PoE Screen

Click **PoE** in the navigation panel to display the PoE screen.

12.2.1 PoE Global Settings

You can use this screen to view the amount of power that PDs can receive from the Switch and the temperature of the PoE IC, click **PoE > PoE Global Settings**.

Figure 23 PoE > Global Settings

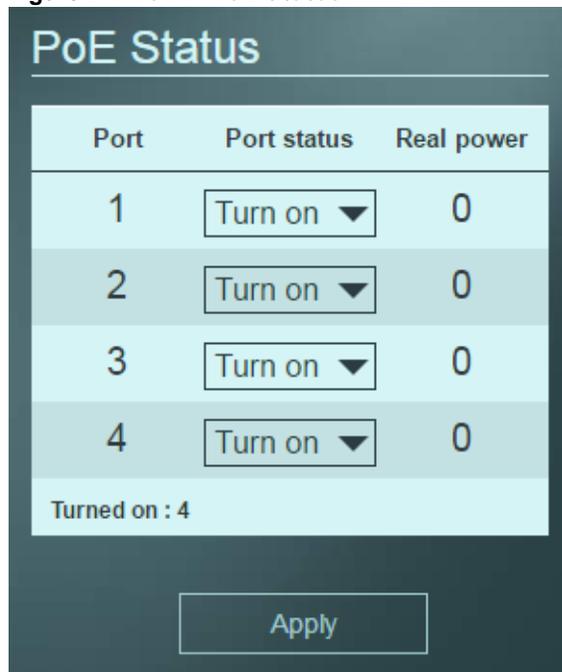
Each field is described in the table below.

Table 12 PoE > PoE Global Settings

| LABEL | DESCRIPTION |
|------------------------------|---|
| PoE Total Power (W) | This field displays the total power the Switch can provide to the connected PoE-enabled devices on the PoE ports. |
| PoE MAX LED Power (W) | This field displays the point when the LED will turn on, indicating the Switch is reaching its maximum power. |
| PoE IC Real Temperature (°C) | This field displays the PoE IC (Internal Circuit) current temperature. The maximum temperature is 158°C. |

12.2.2 PoE Status

You can use this screen to enable or disable PoE on a port.

Figure 24 PoE > PoE Status

Each field is described in the table below.

Table 13 PoE > PoE Status

| LABEL | DESCRIPTION |
|----------------|---|
| Port | This is the number of the PoE port on the Switch. |
| PoE Status | Select whether you want to enable the Switch to provide power to the connected PoE-enabled device on this port. |
| Real Power (W) | This field displays the current consumption that the PoE-enabled device connected to this port draws from the Switch. |
| Turned On | This field displays the number of ports through which the connected devices can receive power using PoE. |
| Apply | Click Apply to save your changes to the Switch. |

Troubleshooting

This chapter offers some suggestions to solve problems you might encounter. The potential problems are divided into the following categories.

- [Power, Hardware Connections, and LEDs](#)
- [Switch Access and Login](#)

13.1 Power, Hardware Connections, and LEDs

The Switch does not turn on. None of the LEDs turn on.

- 1 Make sure you are using the power adaptor or cord included with the Switch.
- 2 Make sure the power adaptor or cord is connected to the Switch and plugged in to an appropriate power source. Make sure the power source is turned on.
- 3 Disconnect and re-connect the power adaptor or cord to the Switch.
- 4 If the problem continues, contact the vendor.

One of the LEDs does not behave as expected.

- 1 Make sure you understand the normal behavior of the LED. See [Section 3.3 on page 13](#).
- 2 Check the hardware connections. See [Section 13.1 on page 43](#).
- 3 Inspect your cables for damage. Contact the vendor to replace any damaged cables.
- 4 Disconnect and re-connect the power adaptor or cord to the Switch.
- 5 If the problem continues, contact the vendor.

13.2 Switch Access and Login

I forgot the IP address for the Switch.

- 1 The default IP address is **192.168.1.3**.
- 2 If this does not work, you have to reset the device to its factory defaults. See [Section 4.5 on page 17](#).

I forgot the password.

- 1 The default password is **1234**.
- 2 If this does not work, you have to reset the device to its factory defaults. See [Section 4.5 on page 17](#).

I cannot see or access the **Login** screen in the web configurator.

- 1 Make sure you are using the correct IP address.
 - The default IP address is [192.168.1.3](#).
 - If you changed the IP address, use the new IP address.
 - If you changed the IP address and have forgotten it, see the troubleshooting suggestions for [I forgot the IP address for the Switch](#).
- 2 Check the hardware connections, and make sure the LEDs are behaving as expected. See [Section 3.3 on page 13](#).
- 3 Make sure your Internet browser does not block pop-up windows and has JavaScripts and Java enabled.
- 4 Make sure your computer is in the same subnet as the Switch. (If you know that there are routers between your computer and the Switch, skip this step.)
- 5 Reset the device to its factory defaults, and try to access the Switch with the default IP address. See [Section 4.5 on page 17](#).
- 6 If the problem continues, contact the vendor, or try one of the advanced suggestions.

I can see the **Login** screen, but I cannot log in to the Switch.

- 1 Make sure you have entered the password correctly. The default password is **1234**.
- 2 Disconnect and re-connect the cord to the Switch.
- 3 If this does not work, you have to reset the device to its factory defaults. See [Section 4.5 on page 17](#).

Pop-up Windows, JavaScripts and Java Permissions

In order to use the web configurator you need to allow:

- Web browser pop-up windows from your device.
- JavaScripts (enabled by default).
- Java permissions (enabled by default).

Customer Support

In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a ZyXEL office for the region in which you bought the device.

See <http://www.zyxel.com/homepage.shtml> and also http://www.zyxel.com/about_zyxel/zyxel_worldwide.shtml for the latest information.

Please have the following information ready when you contact an office.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

Corporate Headquarters (Worldwide)

Taiwan

- ZyXEL Communications Corporation
- <http://www.zyxel.com>

Asia

China

- ZyXEL Communications (Shanghai) Corp.
- ZyXEL Communications (Beijing) Corp.
- ZyXEL Communications (Tianjin) Corp.
- <http://www.zyxel.cn>

India

- ZyXEL Technology India Pvt Ltd
- <http://www.zyxel.in>

Kazakhstan

- ZyXEL Kazakhstan
- <http://www.zyxel.kz>

Korea

- ZyXEL Korea Corp.
- <http://www.zyxel.kr>

Malaysia

- ZyXEL Malaysia Sdn Bhd.
- <http://www.zyxel.com.my>

Pakistan

- ZyXEL Pakistan (Pvt.) Ltd.
- <http://www.zyxel.com.pk>

Philippines

- ZyXEL Philippines
- <http://www.zyxel.com.ph>

Singapore

- ZyXEL Singapore Pte Ltd.
- <http://www.zyxel.com.sg>

Taiwan

- ZyXEL Communications Corporation
- <http://www.zyxel.com/tw/zh/>

Thailand

- ZyXEL Thailand Co., Ltd
- <http://www.zyxel.co.th>

Vietnam

- ZyXEL Communications Corporation-Vietnam Office
- <http://www.zyxel.com/vn/vi>

Europe

Austria

- ZyXEL Deutschland GmbH
- <http://www.zyxel.de>

Belarus

- ZyXEL BY
- <http://www.zyxel.by>

Belgium

- ZyXEL Communications B.V.
- <http://www.zyxel.com/be/nl/>
- <http://www.zyxel.com/be/fr/>

Bulgaria

- ZyXEL България
- <http://www.zyxel.com/bg/bg/>

Czech Republic

- ZyXEL Communications Czech s.r.o
- <http://www.zyxel.cz>

Denmark

- ZyXEL Communications A/S
- <http://www.zyxel.dk>

Estonia

- ZyXEL Estonia
- <http://www.zyxel.com/ee/et/>

Finland

- ZyXEL Communications
- <http://www.zyxel.fi>

France

- ZyXEL France
- <http://www.zyxel.fr>

Germany

- ZyXEL Deutschland GmbH
- <http://www.zyxel.de>

Hungary

- ZyXEL Hungary & SEE
- <http://www.zyxel.hu>

Italy

- ZyXEL Communications Italy
- <http://www.zyxel.it/>

Latvia

- ZyXEL Latvia
- <http://www.zyxel.com/lv/lv/homepage.shtml>

Lithuania

- ZyXEL Lithuania
- <http://www.zyxel.com/lt/lt/homepage.shtml>

Netherlands

- ZyXEL Benelux
- <http://www.zyxel.nl>

Norway

- ZyXEL Communications
- <http://www.zyxel.no>

Poland

- ZyXEL Communications Poland
- <http://www.zyxel.pl>

Romania

- ZyXEL Romania
- <http://www.zyxel.com/ro/ro>

Russia

- ZyXEL Russia
- <http://www.zyxel.ru>

Slovakia

- ZyXEL Communications Czech s.r.o. organizacna zlozka
- <http://www.zyxel.sk>

Spain

- ZyXEL Communications ES Ltd
- <http://www.zyxel.es>

Sweden

- ZyXEL Communications
- <http://www.zyxel.se>

Switzerland

- Studerus AG

- <http://www.zyxel.ch/>

Turkey

- ZyXEL Turkey A.S.
- <http://www.zyxel.com.tr>

UK

- ZyXEL Communications UK Ltd.
- <http://www.zyxel.co.uk>

Ukraine

- ZyXEL Ukraine
- <http://www.ua.zyxel.com>

Latin America

Argentina

- ZyXEL Communication Corporation
- <http://www.zyxel.com/ec/es/>

Brazil

- ZyXEL Communications Brasil Ltda.
- <https://www.zyxel.com/br/pt/>

Ecuador

- ZyXEL Communication Corporation
- <http://www.zyxel.com/ec/es/>

Middle East

Israel

- ZyXEL Communication Corporation
- <http://il.zyxel.com/homepage.shtml>

Middle East

- ZyXEL Communication Corporation
- <http://www.zyxel.com/me/en/>

North America

USA

- ZyXEL Communications, Inc. - North America Headquarters
- <http://www.zyxel.com/us/en/>

Oceania

Australia

- ZyXEL Communications Corporation
- <http://www.zyxel.com/au/en/>

Africa

South Africa

- Nology (Pty) Ltd.
- <http://www.zyxel.co.za>

Legal Information

Copyright

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Regulatory Notice and Statement

United States of America



The following information applies if you use the product within USA area.

Federal Communications Commission (FCC) EMC Statement

- This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference.
 - (2) This device must accept any interference received, including interference that may cause undesired operations.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

The following information applies if you use the product within Canada area

Industry Canada ICES statement

CAN ICES-3 (A)/NMB-3(A)

European Union



The following information applies if you use the product within the European Union.

CE EMC statement

This is Class A Product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

List of National Codes

| COUNTRY | ISO 3166 2 LETTER CODE | COUNTRY | ISO 3166 2 LETTER CODE |
|----------------|------------------------|----------------|------------------------|
| Austria | AT | Liechtenstein | LI |
| Belgium | BE | Lithuania | LT |
| Bulgaria | BG | Luxembourg | LU |
| Croatia | HR | Malta | MT |
| Cyprus | CY | Netherlands | NL |
| Czech Republic | CR | Norway | NO |
| Denmark | DK | Poland | PL |
| Estonia | EE | Portugal | PT |
| Finland | FI | Romania | RO |
| France | FR | Serbia | RS |
| Germany | DE | Slovakia | SK |
| Greece | GR | Slovenia | SI |
| Hungary | HU | Spain | ES |
| Iceland | IS | Sweden | SE |
| Ireland | IE | Switzerland | CH |
| Italy | IT | Turkey | TR |
| Latvia | LV | United Kingdom | GB |

Safety Warnings

- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Do not expose your device to dampness, dust or corrosive liquids.
- Do not store things on the device.
- Do not obstruct the device ventilation slots as insufficient airflow may harm your device. For example, do not place the device in an enclosed space such as a box or on a very soft surface such as a bed or sofa.
- Do not install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do not open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. Only qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Do not remove the plug and connect it to a power outlet by itself; always attach the plug to the power adaptor first before connecting it to a power outlet.
- Do not allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Please use the provided or designated connection cables/power cables/ adaptors. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe). If the power adaptor or cord is damaged, it might cause electrocution. Remove it from the device and the power source, repairing the power adapter or cord is prohibited. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- Caution: Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instruction. Dispose them at the applicable collection point for the recycling of electrical and electronic device. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- Use ONLY power wires of the appropriate wire gauge for your device. Connect it to a power supply of the correct voltage.
- Fuse Warning! Replace a fuse only with a fuse of the same type and rating.
- The POE (Power over Ethernet) devices that supply or receive power and their connected Ethernet cables must all be completely indoors.
- The following warning statements apply, where the disconnect device is not incorporated in the device or where the plug on the power supply cord is intended to serve as the disconnect device,
 - For permanently connected devices, a readily accessible disconnect device shall be incorporated external to the device;
 - For pluggable devices, the socket-outlet shall be installed near the device and shall be easily accessible.
- This device must be grounded. Never defeat the ground conductor or operate the device in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.
- When connecting or disconnecting power to hot-pluggable power supplies, if offered with your system, observe the following guidelines:
 - Install the power supply before connecting the power cable to the power supply.
 - Unplug the power cable before removing the power supply.
 - If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supply.

Environment Statment

European Union - Disposal and Recycling Information

The symbol below means that according to local regulations your product and/or its battery shall be disposed of separately from domestic waste. If this product is end of life, take it to a recycling station designated by local authorities. At the time of disposal, the separate collection of your product and/or its battery will help save natural resources and ensure that the environment is sustainable development.

Die folgende Symbol bedeutet, dass Ihr Produkt und/oder seine Batterie gemäß den örtlichen Bestimmungen getrennt vom Hausmüll entsorgt werden muss. Wenden Sie sich an eine Recyclingstation, wenn dieses Produkt das Ende seiner Lebensdauer erreicht hat. Zum Zeitpunkt der Entsorgung wird die getrennte Sammlung von Produkt und/oder seiner Batterie dazu beitragen, natürliche Ressourcen zu sparen und die Umwelt und die menschliche Gesundheit zu schützen.

El símbolo de abajo indica que según las regulaciones locales, su producto y/o su batería deberán depositarse como basura separada de la doméstica. Cuando este producto alcance el final de su vida útil, llévelo a un punto limpio. Cuando llegue el momento de desechar el producto, la recogida por separado éste y/o su batería ayudará a salvar los recursos naturales y a proteger la salud humana y medioambiental.

Le symbole ci-dessous signifie que selon les réglementations locales votre produit et/ou sa batterie doivent être éliminés séparément des ordures ménagères. Lorsque ce produit atteint sa fin de vie, amenez-le à un centre de recyclage. Au moment de la mise au rebut, la collecte séparée de votre produit et/ou de sa batterie aidera à économiser les ressources naturelles et protéger l'environnement et la santé humaine.

Il simbolo sotto significa che secondo i regolamenti locali il vostro prodotto e/o batteria deve essere smaltito separatamente dai rifiuti domestici. Quando questo prodotto raggiunge la fine della vita di servizio portarlo a una stazione di riciclaggio. Al momento dello smaltimento, la raccolta separata del vostro prodotto e/o della sua batteria aiuta a risparmiare risorse naturali e a proteggere l'ambiente e la salute umana.

Symbolen innebär att enligt lokal lagstiftning ska produkten och/eller dess batteri kastas separat från hushållsavfallet. När den här produkten när slutet av sin livslängd ska du ta den till en återvinningsstation. Vid tiden för kasseringen bidrar du till en bättre miljö och mänsklig hälsa genom att göra dig av med den på ett återvinningsställe.



Environmental Product Declaration

| Български (Bulgarian) | Čeština (Czech) | Dansk (Danish) | Deutsch (German) |
|---|--|---|---|
| <p>Екологична продуктова декларация</p> <p>RoHS Директива 2011/65/EC WEEE Директива 2012/19/EC PPW Директива 94/62/EC REACH РЕГЛАМЕНТ (ЕО) № 1907/2006</p> <p>Име/ титла : Richard Hsu / Quality Management Подпис : Division Senior Manager Дата (dd/mm/yyyy): 01/10/2014</p>   | <p>Environmentální prohlášení o produktu</p> <p>RoHS Směrnice 2011/65/EU WEEE Směrnice 2012/19/EU PPW Směrnice 94/62/ES REACH Nařízení (ES) č. 1907/2006</p> <p>Jméno/ titul : Richard Hsu / Quality Management Podpis : Division Senior Manager Datum (dd/mm/yyyy): 01/10/2014</p>   | <p>Miljøvederklæring</p> <p>RoHS Direktiv 2011/65/EU WEEE Direktiv 2012/19/EU PPW Direktiv 94/62/EF REACH Forordning (EF) nr. 1907/2006</p> <p>Navn/ titel : Richard Hsu / Quality Management Underskrift : Division Senior Manager Dato (dd/mm/åååå): 01/10/2014</p>   | <p>Produkt-Umweltdeklaration</p> <p>RoHS Richtlinie 2011/65/EU WEEE Richtlinie 2012/19/EU PPW Richtlinie 94/62/EG REACH VERORDNUNG (EG) Nr.1907/2006</p> <p>Name/ titel : Richard Hsu / Quality Management Unterschrift : Division Senior Manager Datum (jjj/mm/tt): 2014/10/01</p>   |
| Eesti keel (Estonian) | English | Español (Spanish) | Français (French) |
| <p>Toote keskkonnadeklaratsiooni</p> <p>RoHS Direktiiv 2011/65/EL WEEE Direktiiv 2012/19/EL PPW Direktiiv 94/62/EU REACH MÄÄRUS (EÜ) nr 1907/2006</p> <p>Nimi/ pealkiri : Richard Hsu / Quality Management Allkiri : Division Senior Manager Kuupäev (pp/kk/aaaa): 01/10/2014</p>   | <p>Environmental product declaration</p> <p>RoHS Directive 2011/65/EU WEEE Directive 2012/19/EU PPW Directive 94/62/EC REACH Regulation (EC) No 1907/2006</p> <p>Name/ title : Richard Hsu / Quality Management Signature : Division Senior Manager Date (dd/mm/yyyy): 01/10/2014</p>   | <p>Declaraciones Ambientales de Producto</p> <p>RoHS Directiva 2011/65/UE WEEE Directiva 2012/19/UE PPW Directiva 94/62/CE REACH REGLAMENTO (CE) nº 1907/2006</p> <p>Nombre/ título : Richard Hsu / Quality Management Firma : Division Senior Manager Fecha (aaaa/mm/dd): 2014/10/01</p>   | <p>Profil environnemental de produit</p> <p>RoHS Directive 2011/65/UE WEEE Directive 2012/19/UE PPW Directive 94/62/CE REACH REGLEMENT (CE) N° 1907/2006</p> <p>Nom/ titre : Richard Hsu / Quality Management Signature : Division Senior Manager Date (aaaa/mm/jj): 2014/10/01</p>   |
| Hrvatski (Croatian) | Italiano (Italian) | Latviešu valoda (Latvian) | Lietuvių kalba (Lithuanian) |
| <p>Deklaraciju o zbrinjavanju proizvoda</p> <p>RoHS Direktiva 2011/65/EU WEEE Direktiva 2012/19/EU PPW Direktiva 94/62/EZ REACH Uredbe (EZ) br. 1907/2006</p> <p>Ime/ naslov : Richard Hsu / Quality Management Potpis : Division Senior Manager Datum (dd/mm/yyyy): 01/10/2014</p>   | <p>Dichiarazione ambientale di prodotto</p> <p>RoHS Direttiva 2011/65/UE WEEE Direttiva 2012/19/UE PPW Direttiva 94/62/CE REACH REGOLAMENTO (CE) n. 1907/2006</p> <p>Nome/ titolo : Richard Hsu / Quality Management Firma : Division Senior Manager Data (aaaa/mm/gg): 2014/10/01</p>   | <p>Produkta vides ietekmējuma deklarācija</p> <p>RoHS Direktīva 2011/65/ES WEEE Direktīva 2012/19/ES PPW Direktīva 94/62/EK REACH Regula (EK) Nr. 1907/2006</p> <p>Nosaukum s/ tītuls : Richard Hsu / Quality Management Paraksts : Division Senior Manager Datums (dd/mm/gggg): 01/10/2014</p>   | <p>Aplinkosauginę gaminių deklaraciją</p> <p>RoHS Direktyva 2011/65/ES WEEE Direktyva 2012/19/ES PPW Direktyva 94/62/EB REACH REGLAMENTAS (EB) Nr. 1907/2006</p> <p>Vardas/ titulas : Richard Hsu / Quality Management Parašas : Division Senior Manager Data (dd/mm/mmmmm): 01/10/2014</p>   |
| Magyar (Hungarian) | Malta (Maltese) | Nederlands (Dutch) | Polski (Polish) |
| <p>Környezetvédelmi terméknyilatkozatot</p> <p>RoHS 2011/65/EU irányelve WEEE 2012/19/EU irányelve PPW 94/62/EK irányelve REACH 1907/2006/EK Rendelet</p> <p>Név/ cím : Richard Hsu / Quality Management Aláírás : Division Senior Manager Dátum (éééé/hh/nn): 2014/10/01</p>   | <p>Dikjarazzjoni Ambjentali dwar il-Prodott</p> <p>RoHS Direttiva 2011/65/UE WEEE Direttiva 2012/19/UE PPW Direttiva 94/62/KE REACH REGOLAMENTO (KE) NRU 1907/2006</p> <p>Isem/ titolu : Richard Hsu / Quality Management Firma : Division Senior Manager Data (ssss/xx/jj): 2014/10/01</p>   | <p>Milieuproductverklaring</p> <p>RoHS Richtlijn 2011/65/EU WEEE Richtlijn 2012/19/EU PPW Richtlijn 94/62/EG REACH Verordening (EG) nr. 1907/2006</p> <p>Naam/ titel : Richard Hsu / Quality Management Handtekening : Division Senior Manager Datum (dd/mm/jaar): 01/10/2014</p>   | <p>Deklarację środowiskową produktu</p> <p>RoHS Dyrektywa 2011/65/UE WEEE Dyrektywa 2012/19/UE PPW Dyrektywa 94/62/WE REACH Rozporządzenie (WE) nr 1907/2006</p> <p>Nazwisko /tytuł : Richard Hsu / Quality Management Podpis : Division Senior Manager Data (rrr/mm/vdd): 2014/10/01</p>   |
| Português (Portuguese) | Română (Romanian) | Slovenčina (Slovak) | Slovenščina (Slovene) |
| <p>Declaração ambiental do produto</p> <p>RoHS Directiva 2011/65/UE WEEE Directiva 2012/19/UE PPW Directiva 94/62/CE REACH Regulamento (CE) n.º 1907/2006</p> <p>Nome/ título : Richard Hsu / Quality Management Assinatura : Division Senior Manager Data (dd/mm/aaaa): 01/10/2014</p>   | <p>Declarație de mediu privind produsele</p> <p>RoHS Directiva 2011/65/UE WEEE Directiva 2012/19/UE PPW Directiva 94/62/CE REACH REGULAMENTUL (CE) NR 907/2006</p> <p>Numele/ titlu : Richard Hsu / Quality Management Semnătura : Division Senior Manager Data (zz/ll/aaaa): 01/10/2014</p>   | <p>Vyhlasenie o environmentálnom výrobku</p> <p>RoHS Smernica 2011/65/EU WEEE Smernica 2012/19/EU PPW Smernica 94/62/ES REACH Nariadenie (ES) č. 1907/2006</p> <p>Menó/ titul : Richard Hsu / Quality Management Podpis : Division Senior Manager Dátum (dd/mm/yyyy): 01/10/2014</p>   | <p>Okoljsko deklaracijo izdelka</p> <p>RoHS Direktiva 2011/65/EU WEEE Direktiva 2012/19/EU PPW Direktiva 94/62/ES REACH Uredba (ES) št. 1907/2006</p> <p>Ime/ naziv : Richard Hsu / Quality Management Podpis : Division Senior Manager Datum (dd/mm/llll): 01/10/2014</p>   |
| Suomi (Finnish) | Svenska (Swedish) | Ελληνικά (Greek) | Norsk (Norwegian) |
| <p>Standardiin perustuva ympäristötueteseloste</p> <p>RoHS Direktiivi 2011/65/EU WEEE Direktiivi 2012/19/EU PPW Direktiivi 94/62/EY REACH ASETUS (EY) N:o 1907/2006</p> <p>Nimi/ otsikko : Richard Hsu / Quality Management Allekirjoitus : Division Senior Manager Päivämäärä (pp/kk/vvvv): 01/10/2014</p>   | <p>Miljöproduktdeklaration</p> <p>RoHS Direktiv 2011/65/EU WEEE Direktiv 2012/19/EU PPW Direktiv 94/62/EG REACH Förordning (EG) nr 1907/2006</p> <p>Namn/ titel : Richard Hsu / Quality Management Namnteckning : Division Senior Manager Datum (dd/mm/åååå): 01/10/2014</p>   | <p>Περιβαλλοντική δήλωση προϊόντος</p> <p>RoHS Οδηγία 2011/65/ΕΕ WEEE Οδηγία 2012/19/ΕΕ PPW Οδηγία 94/62/ΕΚ REACH Κανονισμός (ΕΚ) αριθ. 1907/2006</p> <p>Όνομα/ τίτλος : Richard Hsu / Quality Management Υπογραφή : Division Senior Manager Ημερομηνία (ηη/μμ/εεεε): 01/10/2014</p>   | <p>Miljødeklarasjon</p> <p>RoHS Direktiv 2011/65/EU WEEE Direktiv 2012/19/EU PPW Direktiv 94/62/EF REACH Forordning (EF) nr. 1907/2006</p> <p>Navn/ tittel : Richard Hsu / Quality Management Signatur : Division Senior Manager Dato (dd/mm/åååå): 01/10/2014</p>   |

台灣

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。」

安全警告

為了您的安全，請先閱讀以下警告及指示：

- 請勿將此產品接近水、火焰或放置在高溫的環境。
- 避免設備接觸
任何液體 - 切勿讓設備接觸水、雨水、高濕度、污水腐蝕性的液體或其他水份。
灰塵及污物 - 切勿接觸灰塵、污物、沙土、食物或其他不合適的材料。
- 雷雨天氣時，不要安裝、使用或維修此設備。有遭受電擊的風險。
- 切勿重摔或撞擊設備，並勿使用不正確的電源變壓器。
- 若接上不正確的電源變壓器會有爆炸的風險。
- 請勿隨意更換產品內的電池。
- 如果更換不正確之電池型式，會有爆炸的風險，請依製造商說明書處理使用過之電池。
- 請將廢電池丟棄在適當的電器或電子設備回收處。
- 請勿將設備解體。
- 請勿阻礙設備的散熱孔，空氣對流不足將會造成設備損害。
- 請插在正確的電壓供給插座 (如：北美 / 台灣電壓 110V AC，歐洲是 230V AC)。
- 假若電源變壓器或電源變壓器的纜線損壞，請從插座拔除，若您還繼續插電使用，會有觸電死亡的風險。
- 請勿試圖修理電源變壓器或電源變壓器的纜線，若有毀損，請直接聯絡您購買的店家，購買一個新的電源變壓器。
- 請勿將此設備安裝於室外，此設備僅適合放置於室內。
- 請勿隨一般垃圾丟棄。
- 請參閱產品背貼上的設備額定功率。
- 請參考產品型錄或是彩盒上的作業溫度。
- 設備必須接地，接地導線不允許被破壞或沒有適當安裝接地導線，如果不確定接地方式是否符合要求可聯繫相應的電氣檢驗機構檢驗。
- 如果您提供的系統中有提供熱插拔電源，連接或斷開電源請遵循以下指導原則
 - 先連接電源線至設備連，再連接電源。
 - 先斷開電源再拔除連接至設備的電源線。
 - 如果系統有多個電源，需拔除所有連接至電源的電源線再關閉設備電源。
- 產品沒有斷電裝置或者採用電源線的插頭視為斷電裝置的一部分，以下警語將適用：
 - 對永久連接之設備，在設備外部須安裝可觸及之斷電裝置；
 - 對插接式之設備，插座必須接近安裝之地點而且是易於觸及的。

Viewing Certifications

Go to <http://www.zyxel.com> to view this product's documentation and certifications.

ZyXEL Limited Warranty

ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in material or workmanship for a specific period (the Warranty Period) from the date of purchase. The Warranty Period varies by region. Check with your vendor and/or the authorized ZyXEL local distributor for details about the Warranty Period of this product. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

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