ZYXEL
COMMUNICATIONS

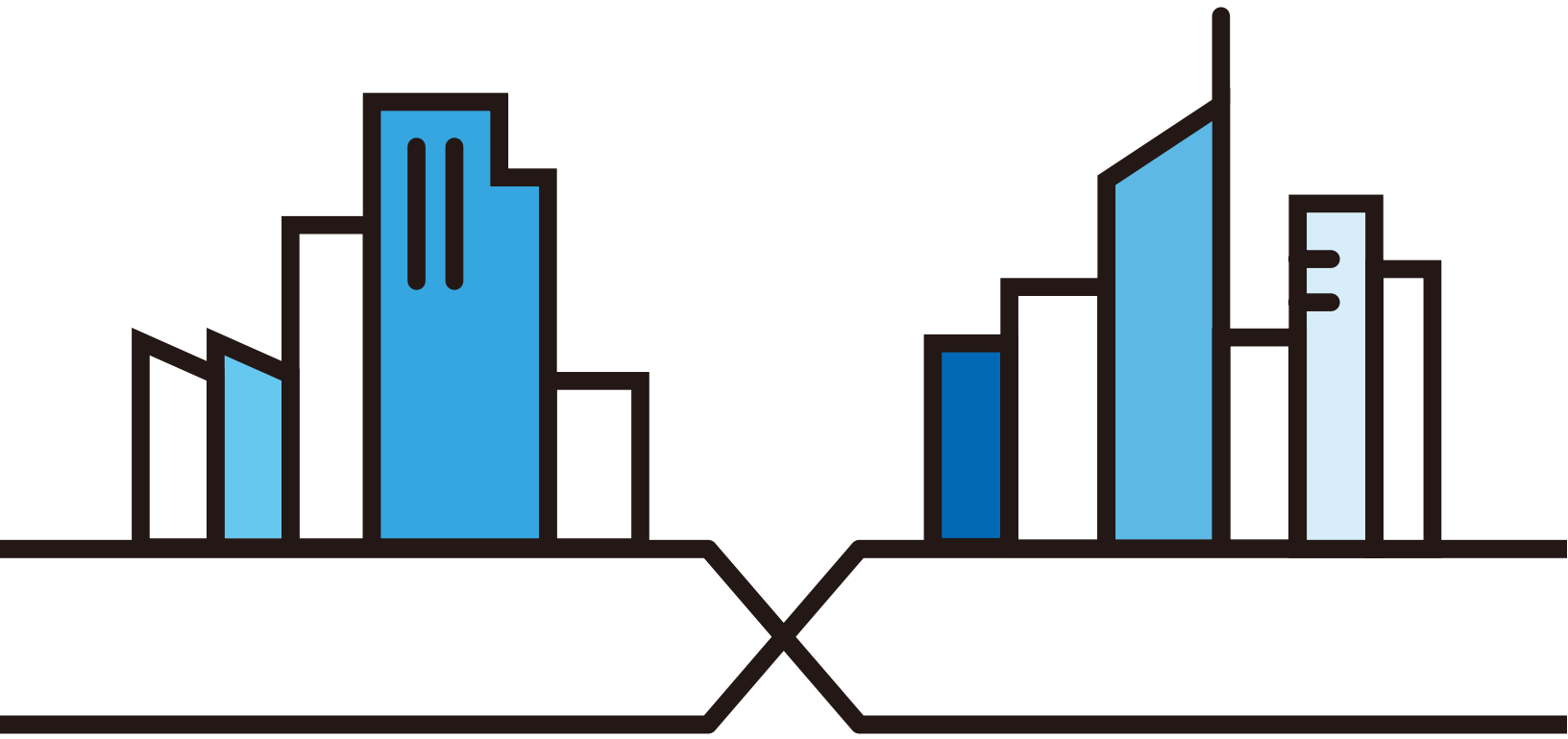
User's Guide

PM7513-R0 / PM7516-R0

XGS-PON VoIP Bridge ONT with 10G LAN

Default Login Details	
IP Address	https:\\192.168.0.1
User Name	admin
Password	See the device label

Version 1.00 Edition 2, 07/2025



IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

This User's Guide is for the platform version listed on the cover. 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.

Note: The version number on the cover page refers to the PM Device's latest firmware version to which this User's Guide applies.

Related Documentation

- Quick Start Guide

  The Quick Start Guide shows how to connect the PM Device and get up and running right away.

- More Information

  Go to *https://www.zyxel.com/service-provider/global/en/tech-support* to find other information on the PM Device.

Document Conventions

Warnings and Notes

These are how warnings and notes are shown in this guide.

Warnings tell you about things that could harm you or your device.

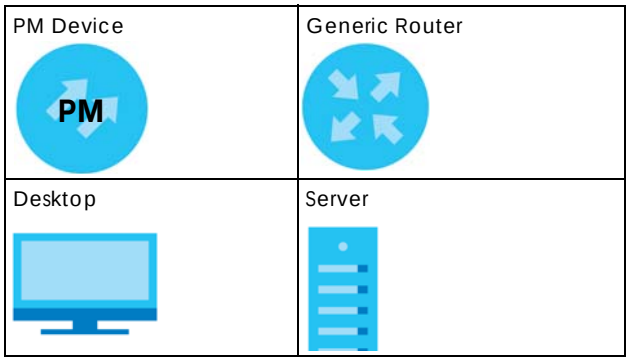
Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

Syntax Conventions

- Product labels, screen names, field labels and field choices are all in **bold** font.
- A right angle bracket (>) within a screen name denotes a mouse click. For example, **Network Setting > LAN** means you first click **Network Setting** in the navigation panel, then the **LAN** sub menu to get to that screen.

Icons Used in Figures

Figures in this user guide may use the following generic icons. The PM Device icon is not an exact representation of your device.



Accessibility and Compatibility

Introduction

This User's Guide complies with the accessibility requirements set out in EAA (European Accessibility Act) (EU) 2019/882.

Accessibility makes this User's Guide usable for people with disabilities, including those with visual, auditory, motor, and cognitive impairments. Compatibility ensures this User's Guide works well with a wide range of devices, software, and assistive technologies.

Accessibility Feature – Screen Reader Support

The visually impaired may use screen readers, such as NVDA to read contents.

To use the screen reader, do the following:

1. Open your screen reader software.
2. Navigate to this User's Guide; the screen reader should automatically start reading the contents.
3. Use the keyboard shortcuts to navigate through this User's Guide (refer to the screen reader documentation).

Accessibility Feature – Keyboard Navigation

Keyboard navigation allows you to read the contents in this User's Guide without a mouse. Use the following keys.

- **Tab** key: navigate between interactive elements (for example, buttons, links, fields).
- **Enter** key: select or activate the highlighted item.
- Arrow keys: move between options in menus or lists.
- **Esc** (Escape) key: close pop-up windows or cancel actions.

How to Get Support

If you are an Internet Service Provider (ISP), please contact your Zyxel sales or service representative for direct support.

If you obtained your PM Device from an ISP, please contact your ISP's support team directly, as the PM Device may have custom configurations.

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PART I
User's Guide

CHAPTER 1
Introduction

1.1 Overview

The PM Devices are Symmetric Passive Optical Network (XGSPON) VoIP Bridge Optical Network Terminals (ONT). The PM7516-R0 and PM7513-R0 have one 10G Ethernet port.

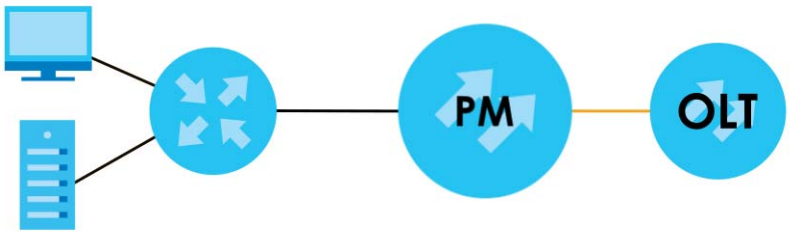
1.1.1 Network Bridge

The Ethernet port on the PM Device acts as a bridge. You can connect a switch or router to it. In the example figure below, the service provider (OLT) uses one physical fiber line to provide service for the Ethernet port on the PM Device. The PM Device's Ethernet port provides a 10G service to the devices behind a switch or router.

Table 1 PM Device Comparison Table

	PM7513-R0	PM7516-R0
LAN	10G LAN	10G LAN
PON	YES	YES
UPS	YES	YES
VoIP	YES	YES

Figure 1 PM Deviceas a Network Bridge



1.1.2 Internet Access

Your PM Device provides Internet access by connecting a fiber optic line provided by the Internet Service Provider (ISP) to the PON port. It supports OMCI (ONU Management and Control Interface) for provisioning and management by the ISP's OLT (Optical Line Terminal).

1.1.3 Multi-Gigabit

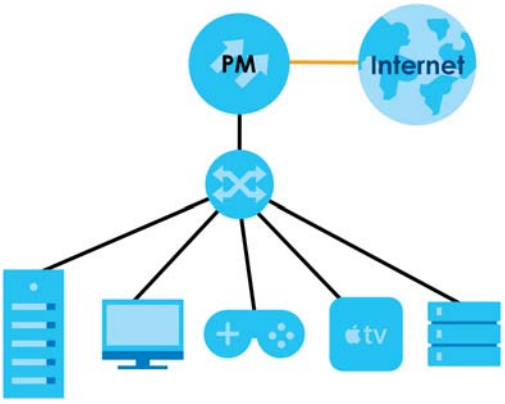
Multi-Gigabit Ethernet supports network speeds of 1 Gbps, 2.5 Gbps, 5 Gbps, and 10 Gbps. Not all Multi-Gigabit ports support all speeds.

Some network devices, such as gaming computers, servers, NAS devices, or access points, support 2.5 Gbps or 5 Gbps connectivity. The Multi-Gigabit Ethernet technology enables the PM Device to automatically detect and adjust to the required speed of the connected network device. A non-Multi-Gigabit 10G port would connect to a 2.5 Gbps or 5 Gbps device at just 1 Gbps.

Actual speeds also depend on the type of Ethernet cable used. See (Table number: Ethernet Cable Types) for the correct Ethernet cable type.

Actual speeds also depend on the type of Ethernet cable used. See Table 2 on page 11 for the correct Ethernet cable type.

Figure 2 Multi-Gigabit Application



See the following table for the cables required and distance limitation to attain the corresponding speed.

Table 2 Ethernet Cable Types

CABLE	TRANSMISSION SPEED	MAXIMUM DISTANCE	BANDWIDTH CAPACITY
Category 5	100M	100 m	100 MHz
Category 5e	1G / 2.5G / 5G	100 m	100 MHz
Category 6	5G / 10G	100 m / 55 m	250 MHz
Category 6a	10G	100 m	500 MHz
Category 7	10G	100 m	600 MHz
* A high quality Category 5e cable can support 5 Gbps and up to 100 m with no electromagnetic interference.			

1.2 Ways to Manage the PM Device

Use any of the following methods to manage the PM Device.

- Web Configurator. This is recommended for management of the PM Device using a (supported) web browser.
- Secure Shell (SSH). Use for troubleshooting the PM Device by qualified personnel.

1.3 Good Habits for Managing the PM Device

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

- Change the Web Configurator password. Use a password that is 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 PM Device to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the PM Device. You could simply restore your last configuration.

CHAPTER 2 Hardware

2.1 Overview

This section describes the front and rear panels for each model. Refer to the PM Device's Quick Start Guides to see the product drawings and how to make the hardware connections.

2.2 LEDs Indicators Panel

The following shows the LED indicator panel and the LED behaviors of the PM Device. None of the LEDs are on if the PM Device is not receiving power. All the LEDs are off if the PM Device is not powered.

XGS-PON VoIP Bridge ONT with 10G LAN

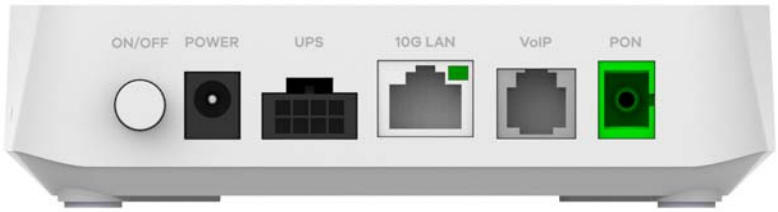
- PM7513-R0
- PM7516-R0

PM7513-R0

Figure 3 LED Indicators (PM7513-R0)

The 10G LAN port is on the rear panel of the PM Device.

Figure 4 LED for 10G LAN Port on the Real Panel (PM7513-R0)



The following table are the LED descriptions for your PM Device.

Table 3 LED Descriptions (PM7513-R0)

LED	COLOR	STATUS	DESCRIPTION
POWER	Green	On	The PM Device is receiving power and finished booting.
		Blinking	The PM Device is under the process of power-on self-test (POST) and booting.
	Red	On	System failure.
		Blinking	The firmware is upgrading.
	Off		The PM Device is not receiving power.

Table 3 LED Descriptions (PM7513-R0) (continued)

LED	COLOR	STATUS	DESCRIPTION
UPS	Green	On	The AC power is off and the UPS (battery backup) is providing power normally.
		Blinking	The battery is working abnormally, such as the voltage going outside the expected range.
	Off		The battery is not in use or cannot be recharged.
PON	Green	On	The PON link to the OLT is up. The PM Device is receiving an optical signal of normal strength.
		Blinking	The PM Device is attempting to link with OLT.
	Red	On	The PON link to the OLT is down.
		Blinking	The received optical signal is too weak.
VoIP	Green	On	A SIP account for outgoing calls is enabled and registered. The phone is on-hook and idle.
		Blinking	The phone is off-hook or ringing for an incoming call.
	Amber	On	The phone is on-hook and idle and there is a voice message. A SIP account for outgoing calls is enabled and registered.
		Blinking	The phone is off-hook or ringing for an incoming call and there is a voice message.
	Off		The PM Device is powered off, the VoIP function is turned off, or the phone port does not have a SIP account registered.
10G LAN	Green	On	The PM Device's 10 Gbps LAN connection is ready.
		Blinking	The PM Device is transmitting or receiving data.
		Off	No Ethernet device connected.

PM7516-R0

Figure 5 LED Indicators (PM7516-R0)

The 10G LAN port is on the rear panel of the PM Device.

Figure 6 LED for 10G LAN Port on the Real Panel (PM7516-R0)

The following table are the LED descriptions for your PM Device.

Table 4 LED Descriptions (PM7516-R0)

LED	COLOR	STATUS	DESCRIPTION
POWER	Green	On	The PM Device is receiving power and finished booting.
		Blinking	The PM Device is under the process of power-on self-test (POST) and booting.
	Red	On	System failure.
		Blinking	The firmware is upgrading.
	Off		The PM Device is not receiving power.
UPS	Green	On	The AC power is off and the UPS (battery backup) is providing power normally.
		Blinking	The battery is working abnormally, such as the voltage going outside the expected range.
	Off		The battery is not in use or cannot be recharged.
PON	Green	On	PON link to the OLT is up. Receiving an optical signal of normal strength.
		Blinking	Attempting to link with OLT.
	Red	On	The link is down.
		Blinking	The received optical signal is too weak.
VoIP	Green	On	A SIP account for outgoing calls is enabled and registered. The phone is on-hook and idle.
		Blinking	The phone is off-hook or ringing for an incoming call.
	Amber	On	The phone is on-hook and idle and there is a voice message. A SIP account for outgoing calls is enabled and registered.
		Blinking	The phone is off-hook or ringing for an incoming call and there is a voice message.
	Off		The PM Device is powered off, the VoIP function is turned off, or the phone port does not have a SIP account registered.
10G LAN	Green	On	The PM Device's 10 Gbps LAN connection is ready.
		Blinking	The PM Device is transmitting or receiving data.
		Off	No Ethernet device connected.

2.3 Ports Panel

The following shows the PM Device ports panel and connection ports.

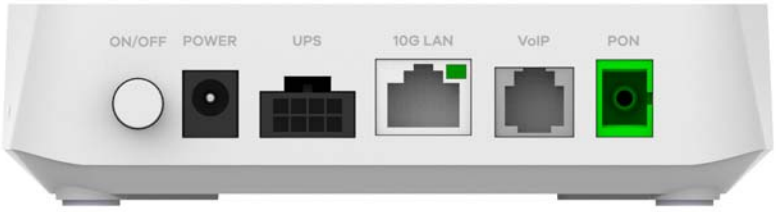
XGS-PON VoIP Bridge ONT with 10G LAN

- PM7513-R0
- PM7516-R0

PM7513-R0

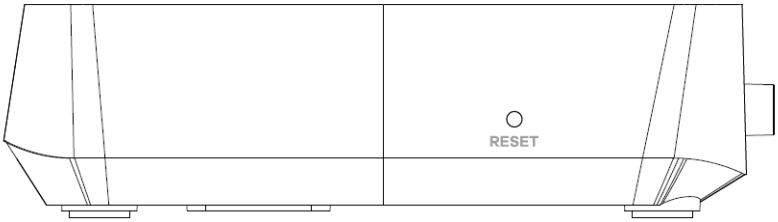
Place the PM Device with the ports and buttons facing you, and the **ON/OFF** button located near to the left side. The PON port and the 10G LAN port are on the rear panel of the PM Device.

Figure 7 10G LAN Port on the Real Panel (PM7513-R0)



For PM7513-R0, the **RESET** button is on the left hand side of the PM Device with the ports facing you.

Figure 8 Reset Button on the Left Hand Side of the PM Device (PM7513-R0)



The following table describes the items on the PM Device's rear panel.

Table 5 Rear Panel (PM7513-R0)

LABEL	DESCRIPTION
POWER	Connect the power adapter and press the **ON/OFF** button to start the device.
UPS	Connect a UPS (Uninterruptible Power Supply) to the **UPS** port to have a backup power source when the main power fails.
10G LAN	Connect computers, IPTVs, gaming consoles, and other Ethernet devices to this port for up to 10 Gbps Internet access.
VoIP	Connect an analog phone to the **VoIP** port to make phone calls.
PON	Connect the fiber optic cable to the PON (Passive Optical Network) port for Internet access.
RESET	Press the recessed button for more than 5 seconds (or until the **POWER** LED starts to blink), then release it to return the PM Device to the factory defaults (the randomly assigned default password, LAN IP address 192.168.0.1 etc.)

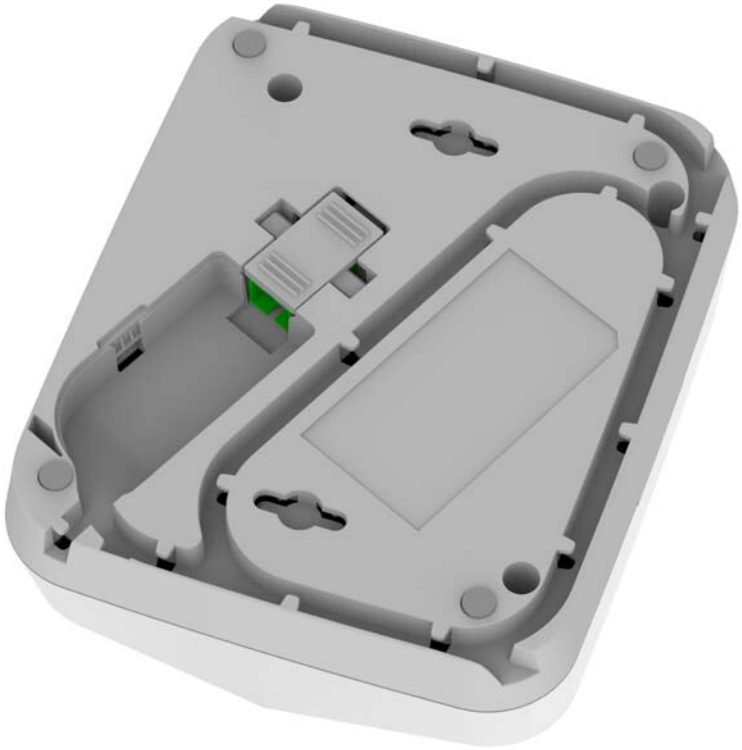
PM7516-R0

Place the PM Device with the ports and buttons facing you, and the PON port at the bottom. The PON port is on the bottom of the PM Device.

Figure 9 Real Panel (PM7516-R0)

The PON port of the PM Device is at the bottom panel.

Figure 10 PON port at the Bottom Panel (PM7516-R0)



The following table describes the items on the PM Device's rear panel.

Table 6 Rear Panel (PM7516-R0)

LABEL	DESCRIPTION
POWER	Connect the power adapter and press the **ON/OFF** button to start the device.
UPS	Connect a UPS (Uninterruptible Power Supply) to the **UPS** port to have a backup power source when the main power fails.
RESET	Press the recessed button for more than 5 seconds (or until the **POWER** LED starts to blink), then release it to return the PM Device to the factory defaults (the randomly assigned default password, LAN IP address 192.168.0.1 etc.)
10G LAN	Connect computers, IPTVs, gaming consoles, and other Ethernet devices to this port for up to 10 Gbps Internet access.

Table 6 Rear Panel (continued)(PM7516-R0)

LABEL	DESCRIPTION
VoIP	Connect an analog phone to the **VoIP** port to make phone calls.
PON	Connect the fiber optic cable to the PON (Passive Optical Network) port for Internet access.

2.3.1 UPS Port

You can connect a UPS to the **UPS** port to keep the PM Device running in case the main power fails. The following diagram and chart show the pin assignments of the **UPS** port on the PM Device.

Note: The main power and UPS cannot be used at the same time.

Figure 11 UPS Port Pin Layout

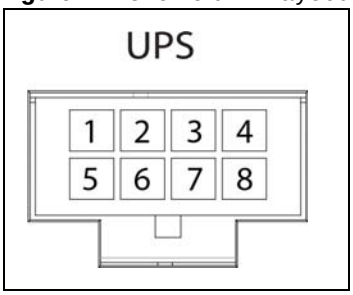


Table 7 UPS Port Pin Assignment

PIN	UPS PORT
1	VCC_12VDC
2	UPS status: On battery
3	UPS status: Battery missing
4	GND
5	GND
6	UPS status: Replace battery
7	UPS status: Low battery
8	NA

2.3.2 Reset Button

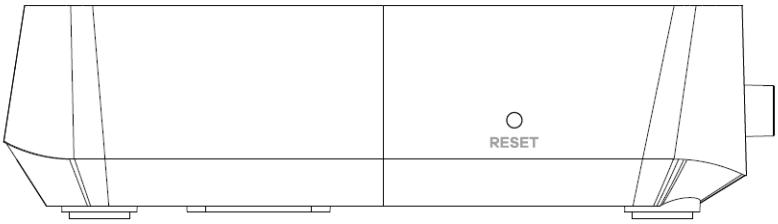
If you forget your password or cannot access the Web Configurator, you will need to use the **RESET** button on the rear panel of the device to reload the factory system configuration. This means that you will lose all configurations that you had previously and the password will be reset to the default.

1 Make sure the **POWER** LED is on (not blinking).

2 Press the **RESET** button for more than 5 seconds or until the **POWER** LED begins to blink. Wait for the **POWER** LED to turn solid green. At this point, the device is reset to factory default settings.

For PM7513-R0, the RESET button is on the left hand side of the PM Device with the ports facing you.

Figure 12 Reset Button on the left hand side of the PM Device (PM7513-R0)



For PM7516-R0, the RESET button is on the rear panel of the PM Device.

Figure 13 Reset Button (PM7516-R0)

CHAPTER 3
The Web Configurator

3.1 Overview

The Web Configurator HTML-based management interface allows easy system setup and management through an Internet browser such as Internet Explorer 11, Mozilla Firefox, or Google Chrome. In order to use the Web Configurator you need to allow:

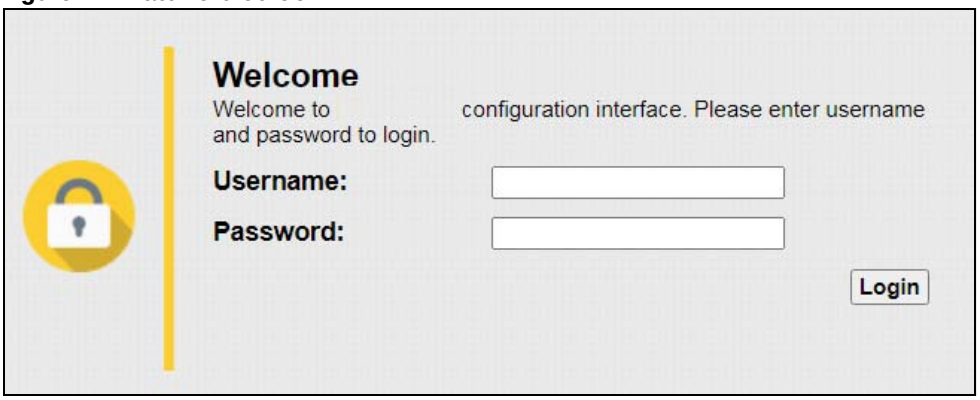
- Web browser pop-up windows from your PM Device. Web pop-up blocking is enabled by default in Windows 10.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

3.1.1 Accessing the Web Configurator

The following uses PM7516-R0 screens as examples.

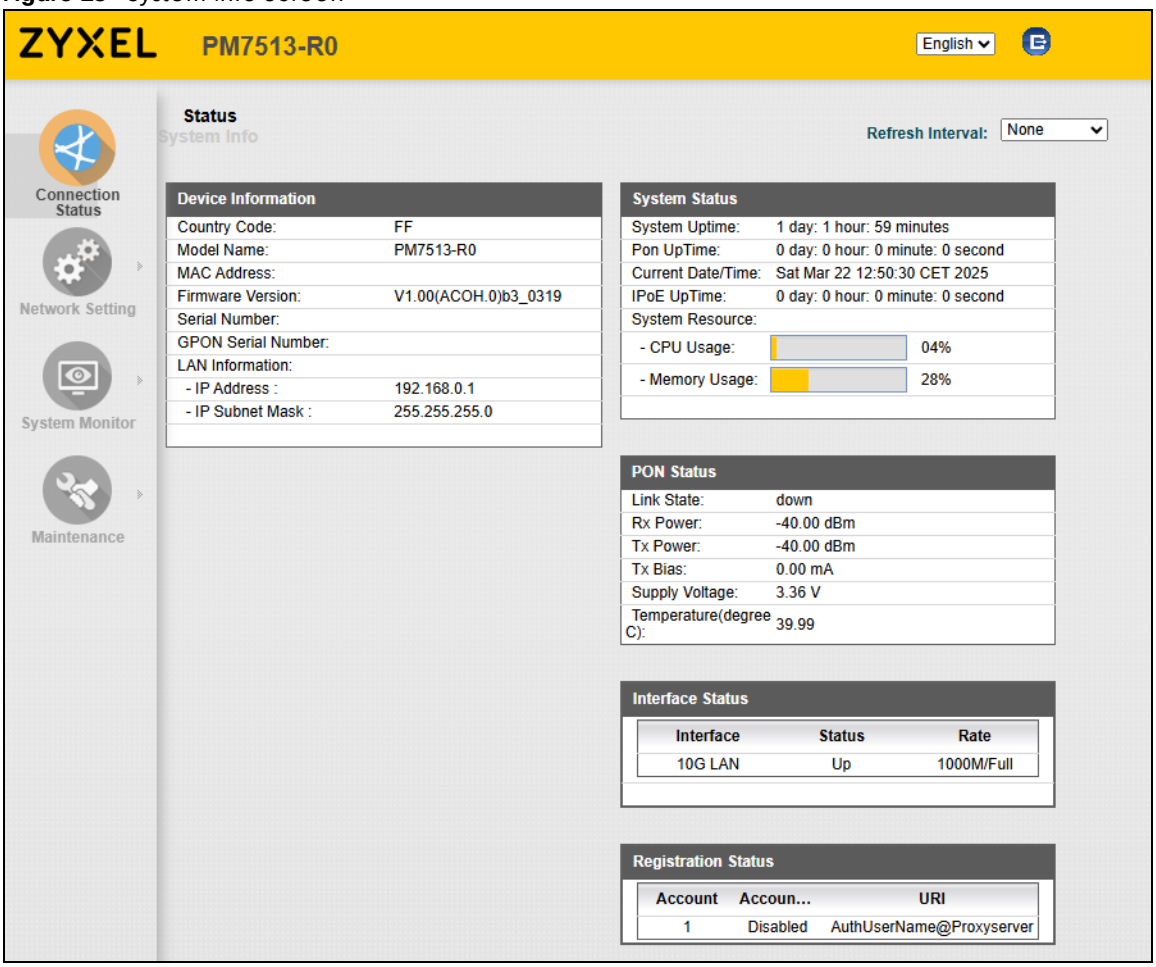
1. Make sure your PM Device hardware is properly connected (refer to the Quick Start Guide).
2. Manually configure your computer's IP address to 192.168.0.X (X represents any number from 2 to 254. For example, 192.168.0.25. Then set the subnet mask as 255.255.255.0.
3. Launch your web browser. If the PM Device does not automatically redirect you to the login screen, go to https://192.168.0.1.
4. A login screen displays.
5. Type the default username **admin** and the default password from the device label and click **Login**. If you have changed the password, enter your password and click **Login**.

Figure 14 Password Screen



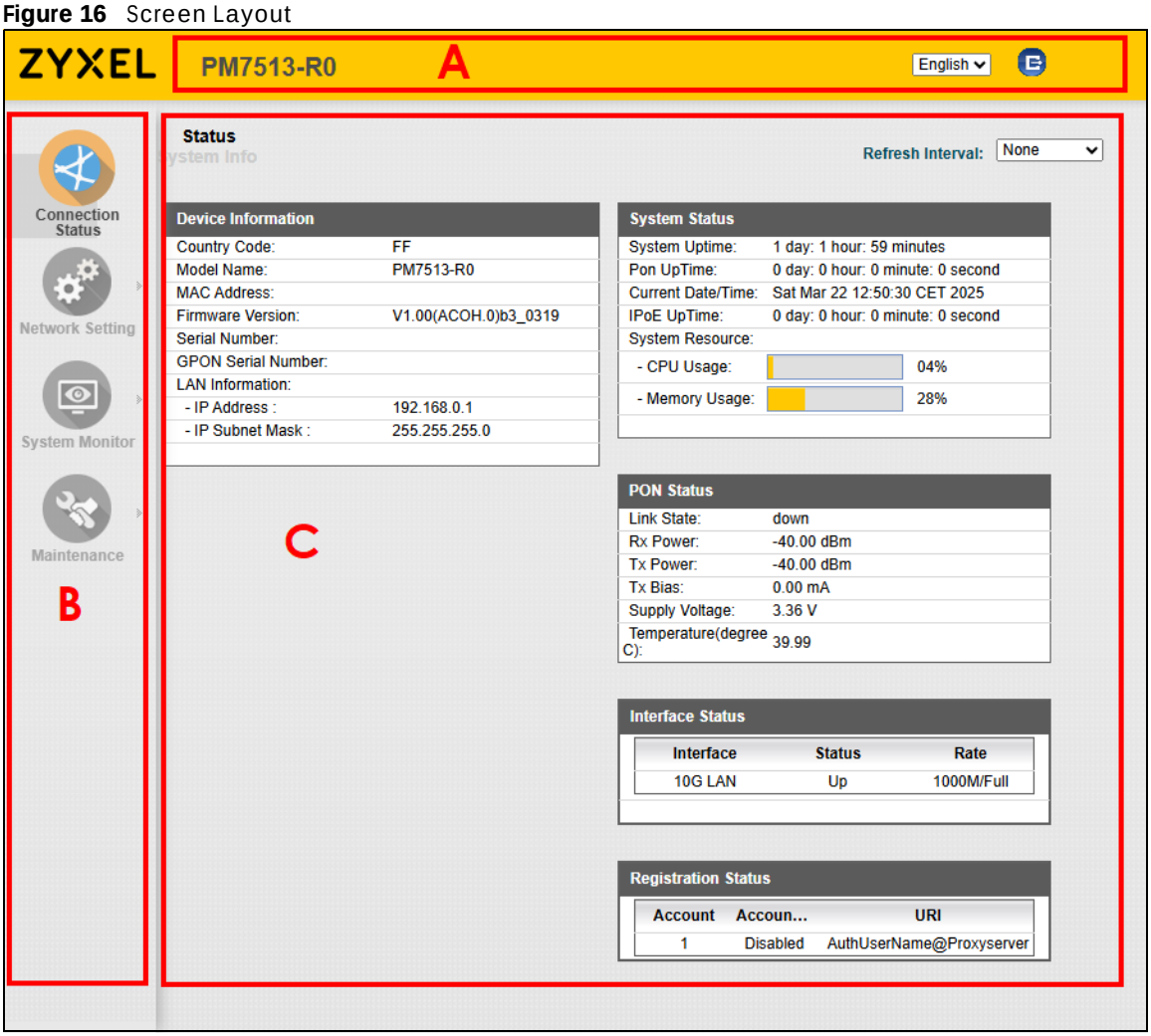
6. After you log in, the **System Info** page appears, where you can view the PM Device's interface and system information.

Figure 15 System Info Screen



3.2 Web Configurator Layout

Figure 16 Screen Layout



As illustrated above, the main screen is divided into these parts:

- **A** - Title bar: this shows the Zyxel logo and device model name. Click the logout icon to log out of the web configurator.
- **B** - Navigation Panel: see Section 3.2.1 on page 23 for more information.
- **C** - Main window: this displays information and configuration fields.

3.2.1 Navigation Panel

Use the menu items on the navigation panel to open the following status and configuration screens.

Figure 17 Navigation Panel

3.2.1.1 Screens

Use the menu items on the navigation panel to open status and configuration screens. The following table describes the menu items.

Table 8 Screens Summary(PM7513-R0)

LINK	TAB	FUNCTION
Connection Status		Displays the **System Info** screen which shows the PM Device's general device and network status information.
Network Setting		
LAN		Use this screen to set the Local Area Network IP address and subnet mask of your ZyXEL Device.
System Monitor		
Log	System Log	Use this screen to view the status of events that occurred to the PM Device. You can export the logs to your computer.
Traffic Status	WAN	Use this screen to view the status of all network traffic going through the WAN port of the PM Device.
	LAN	Use this screen to view the status of all network traffic going through the LAN port of the PM Device.
VoIP Status	VoIP Status	Use this screen to view VoIP registration, current call status and phone numbers for the phone ports.
Maintenance		
User Account	User Account	Use this screen to change the user password on the PM Device.
System	System	Use this screen to set the length of inactive time before the PM Device automatically logs the user out of the Web Configurator.
Time Setting	Time Setting	Use this screen to change your PM Device's time and date.
Log Settings	Log Setting	Use this screen to change your PM Device's log settings.
Firmware Upgrade	Firmware Upgrade	Use this screen to upload firmware to your PM Device.
Restore to default	Restore to default	Use this screen to restore your PM Device's configuration (settings) or reset the factory default settings.

Table 9 Screens Summary(PM7516-R0)

LINK	TAB	FUNCTION
Connection Status		Displays the **System Info** screen which shows the PM Device's general device and network status information.
Network Setting		
LAN		Use this screen to set the Local Area Network IP address and subnet mask of your ZyXEL Device.
System Monitor		
Log	System Log	Use this screen to view the status of events that occurred to the PM Device. You can export the logs to your computer.
Traffic Status	WAN	Use this screen to view the status of all network traffic going through the WAN port of the PM Device.
	LAN	Use this screen to view the status of all network traffic going through the LAN port of the PM Device.
VoIP Status	VoIP Status	Use this screen to view VoIP registration, current call status and phone numbers for the phone ports.
Maintenance		
User Account	User Account	Use this screen to change the user password on the PM Device.
Time Setting	Time Setting	Use this screen to change your PM Device's time and date.
Log Settings	Log Setting	Use this screen to change your PM Device's log settings.
Firmware Upgrade	Firmware Upgrade	Use this screen to upload firmware to your PM Device.
Reboot	Reboot	Use this screen to reboot the PM Device without turning the power off.

CHAPTER 4
Web Tutorials

4.1 Overview

This chapter provides Web Configurator tutorials for setting up a secure WiFi network for your PM Device.

4.2 What You Can Do

- How to Change an Interface IP
- How to Change the Admin Password
- How to Upgrade the Firmware
- How to Reset the PM Device to the Factory Defaults
- How to View Logs

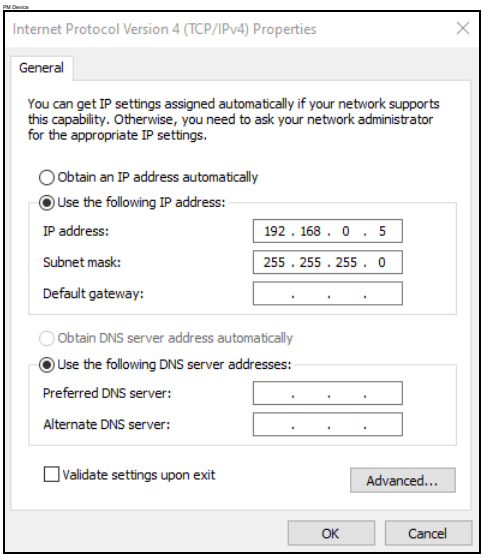
4.3 Device Settings

This section shows you how to change an interface IP and change the admin password.

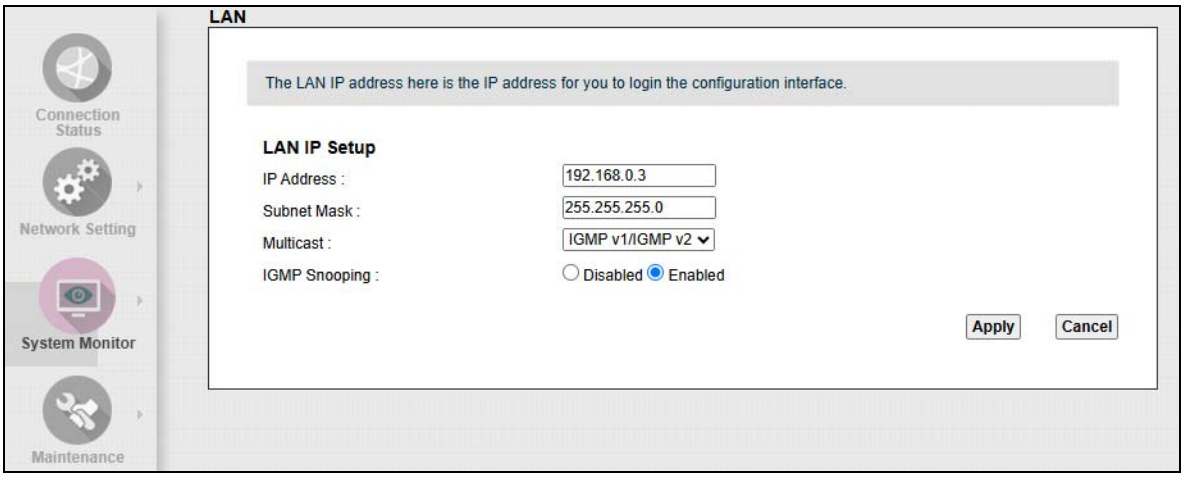
4.3.1 How to Change an Interface IP

Duplicated IP addresses in the network environment may cause failure to connect to the PM Device. To change the interface IP of your PM Device, please follow the steps below:

1 Change your computer's IP address to the same subnet mask as the PM Device. For example, if the default static IP address of the PM Device is 192.168.0.1. Set your computer IP address between 192.168.0.2 and 192.168.0.254.



2 Log into the PM Device using the default IP address “192.168.0.1” Go to **Network Setting > LAN.** Enter your preferred IPv4 address in the IP Address field. For instance, “192.168.0.3”. Click **Apply** and the web configurator will be disconnected due to the IP address change.

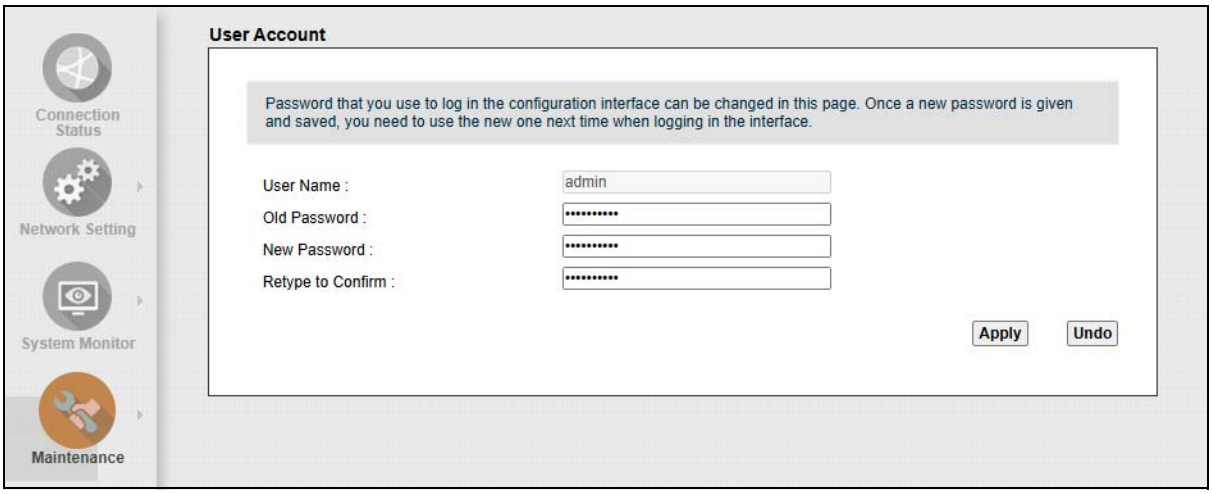


3 Enter the new IP address “192.168.0.3” in the address bar to see if you can access the PM Device’s web configurator.

4.3.2 How to Change the Admin Password

Change the Web Configurator login password regularly to secure your account. To change the admin password, follow the steps below:

1 Go to the **Maintenance > User Account** screen. Enter your old and new passwords in the corresponding field.



2 Retype the password to confirm, then click **Apply**.

Note: Type your new system password (up to 256 characters). Note that as you type a password, the screen displays a (*) for each character you type. After you change the password, use the new password to access the PM Device.

4.4 Device Maintenance

This section shows you how to upgrade the firmware and reset the device to the factory default.

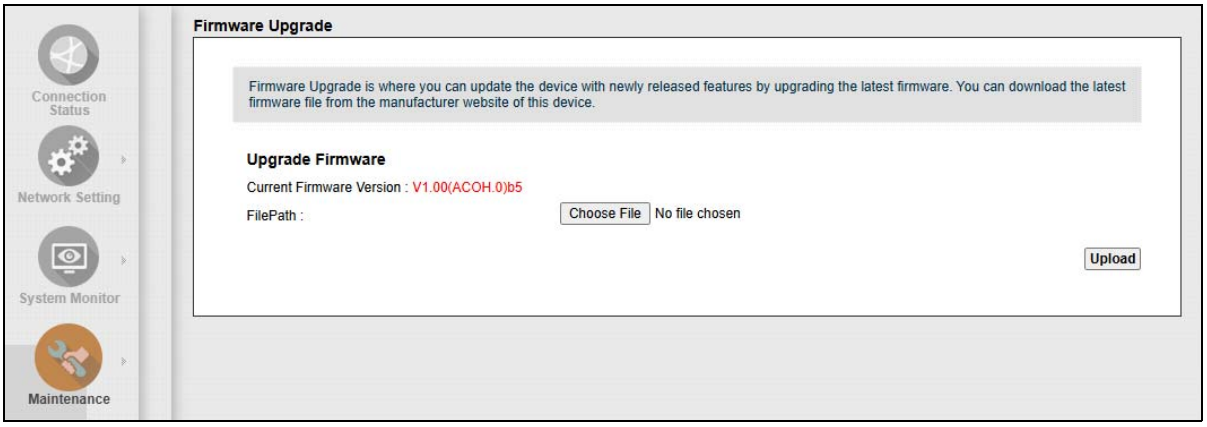
4.4.1 How to Upgrade the Firmware

Upload the firmware to the PM Device for feature enhancements.

1 Download the firmware file at *www.zyxel.com* in a compressed file. Decompress the file.

2 Go to the **Maintenance > Firmware Upgrade** screen.

3 Click **Choose File** and select a .bin file to upload. Click **Upload**.

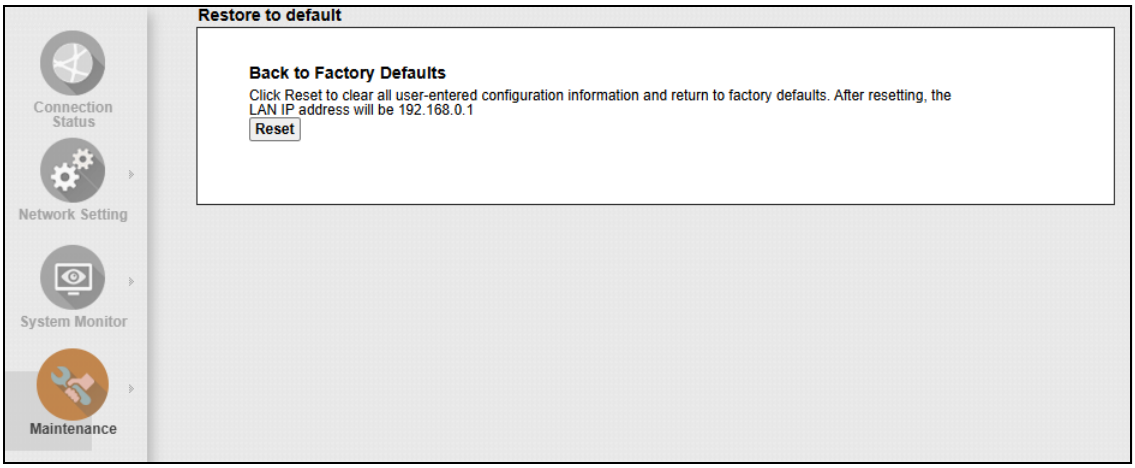


4 This process may take up to 2 minutes to finish. After 2 minutes, log in again and check your new firmware version in the **Connection Status** screen.

4.4.2 How to Reset the PM Device to the Factory Defaults

To reset the PM Device, you can press the **RESET** button on the rear panel for more than 5 seconds. Alternatively, you can use the web configurator to reset the PM Device.

Go to **Maintenance > Restore to default** and click the **Reset** button. The PM Device will reset to factory defaults and the LAN IP address will be set to the default IP address.



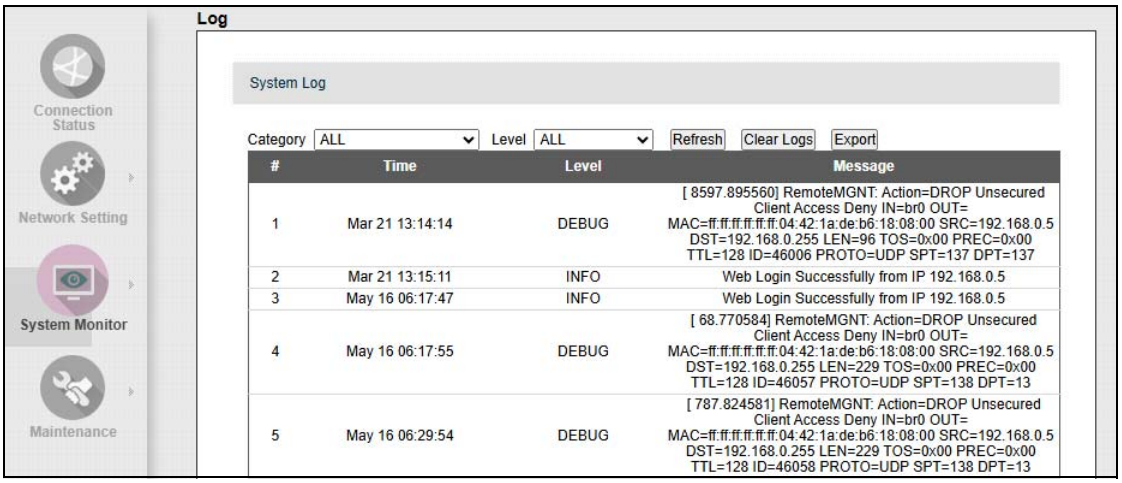
4.5 System Log

This section will show you how to view logs of the device.

4.5.1 How to View Logs

1 To view the system log of the PM Device, go to **System Monitor > Log**.

2 Select the **Category** to filter the log by different features. Select the **Level** to filter the log by severity. If you want to download the Log file on your local computer, click **Export Log** to download the PM Device's system log to your local computer.


Log
Connection Status
Network Setting
System Monitor
Maintenance
System Log
Category ALL
Level ALL
Refresh
Clear Logs
Export
Time Level Message
1 Mar 21 13:14:14 DEBUG [8597.895560] RemoteMGNT: Action=DROP Unsecured Client Access Deny IN=br0 OUT= MAC=ff:ff:ff:ff:ff:ff:04:42:1a:de:b6:18:08:00 SRC=192.168.0.5 DST=192.168.0.255 LEN=96 TOS=0x00 PREC=0x00 TTL=128 ID=46006 PROTO=UDP SPT=137 DPT=137
2 Mar 21 13:15:11 INFO Web Login Successfully from IP 192.168.0.5
3 May 16 06:17:47 INFO Web Login Successfully from IP 192.168.0.5
4 May 16 06:17:55 DEBUG [68.770584] RemoteMGNT: Action=DROP Unsecured Client Access Deny IN=br0 OUT= MAC=ff:ff:ff:ff:ff:ff:04:42:1a:de:b6:18:08:00 SRC=192.168.0.5 DST=192.168.0.255 LEN=229 TOS=0x00 PREC=0x00 TTL=128 ID=46057 PROTO=UDP SPT=138 DPT=13
5 May 16 06:29:54 DEBUG [787.824581] RemoteMGNT: Action=DROP Unsecured Client Access Deny IN=br0 OUT= MAC=ff:ff:ff:ff:ff:ff:04:42:1a:de:b6:18:08:00 SRC=192.168.0.5 DST=192.168.0.255 LEN=229 TOS=0x00 PREC=0x00 TTL=128 ID=46058 PROTO=UDP SPT=138 DPT=13

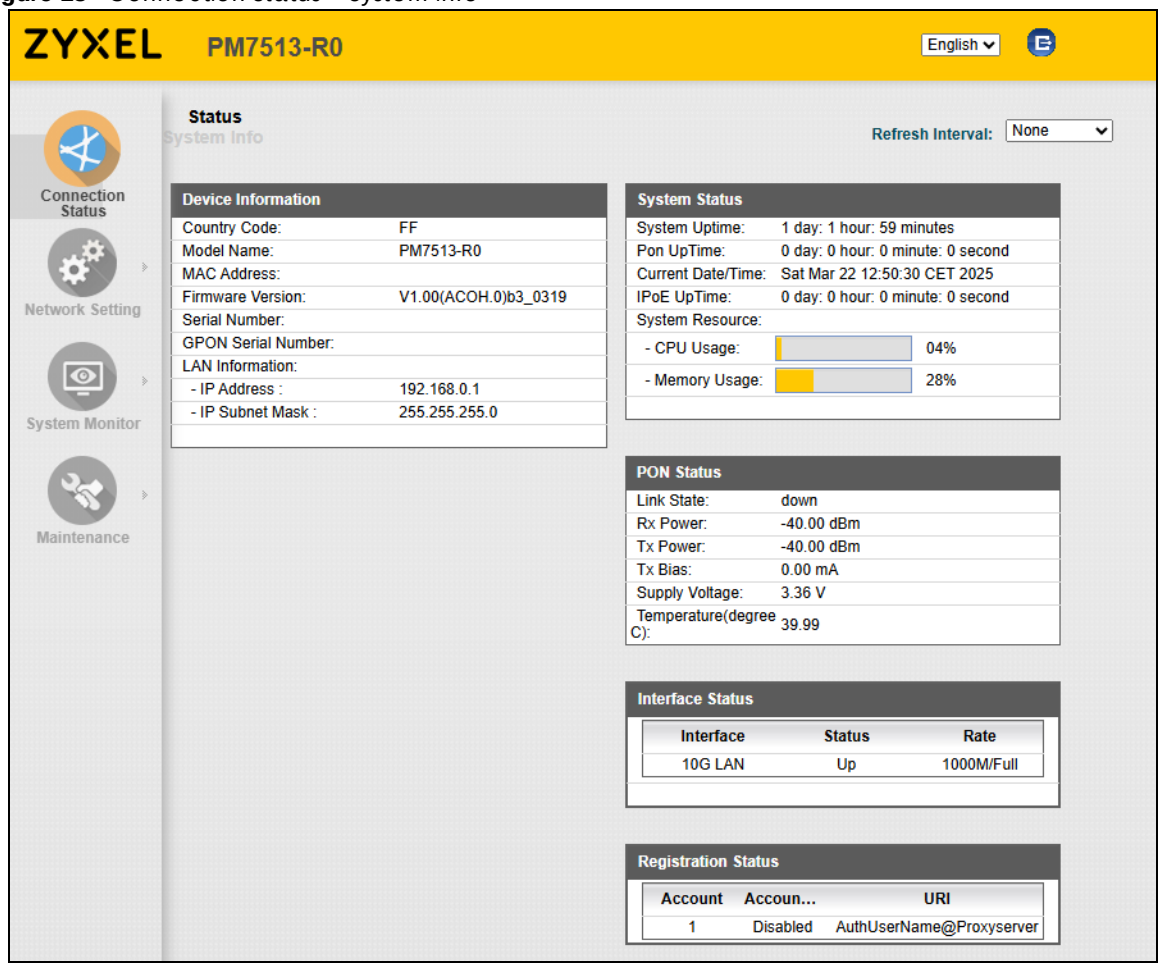
PART II
Technical Reference

CHAPTER 5
System Information

5.1 System Info

The **Connection Status** screen appears when you log into the Web Configurator or click **Connection Status** in the navigation panel. The **System Info** screen shows the current status of the PM Device, its system status, and interfaces.

Figure 18 Connection Status > System Info



Each field is described in the following table.

Table 10 Connection Status > System Info

LABEL	DESCRIPTION
Device Information	
Country Code	This shows where the PM Device is located/installed.

Table 10 Connection Status > System Info (continued)

LABEL	DESCRIPTION
Model Name	This shows the model number of your PM Device.
MAC Address	This is the MAC (Media Access Control) address unique to your PM Device. The MAC address uses six pairs of hexadecimal notation and follows an industry standard that ensures no other adapter has the same address.
Firmware Version	The firmware on each PM Device is identified by the firmware trunk version, followed by a unique code which identifies the model, and then the release number after the period. For example, V1.00 (ACOH.0) is a firmware for the 1.00 version trunk, the ACOH code identifies the PM7513-R0 model, and '.0' is the first firmware release for the model.
GPON Serial Number	This field displays the serial number the PM Device uses for its GPON connection.
Serial Number	This field displays the serial number of the PM Device.
LAN Information	
IP Address	This is the current IP address of the PM Device in the LAN.
IP Subnet Mask	This is the current subnet mask in the LAN.
System Status	
System Uptime	This field displays how long the PM Device has been running since it last started up. The PM Device starts up when you plug it in and turn it ON, when you restart it (**Maintenance > Reboot**), or when you reset it.
Pon Up Time	This field displays the duration of the PON connection of the PM Device.
Current Date/ Time	This field displays the date and time of your PM Device. Each time you reload this page, the PM Device synchronizes the time with the time server
IPoE Up Time	This field displays the duration of the Ethernet WAN connection established using the IPoE protocol on the Ethernet WAN interface.
System Resource:	
CPU Usage	This field displays what percentage of thePM Device's processing ability is currently used. When this percentage is close to 100%, the PM Device is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications.
Memory Usage	This field displays what percentage of the PM Device's memory is currently used. Usually, this percentage should not increase much. If memory usage does get close to 100%, the PM Device is probably becoming unstable, and you should restart the device or turn off the device (unplug the power) for a few seconds.
PON Status	
Link State	This field displays **Up** when the interface has a connection with OLT (fiber terminal) and **Down** when it does not.
Rx Power	This displays the optical transceiver's optical receiving power in dBm.
Tx Power	This displays the optical transceiver's optical transmitting power in dBm.
Tx Bias	This field displays the transceiver's bias current in mA.
Supply Voltage	This field displays the transceiver's voltage in Volts.
Temperature (degree C)	This field displays the transceiver's temperature in Celsius.
Interface Status	
Interface	This field displays the port type.
Status	This field displays **Up** when the GPON connection is up or connected and displays **Down** when the connection is down.
Rate	This field displays the port speed and duplex setting.
Registration Status	

Table 10 Connection Status > System Info (continued)

LABEL	DESCRIPTION
Account	This column displays each SIP account in the PM Device.
Action	If the SIP account is already registered with the SIP server, the **Account Status** field displays **Registered**. Click **Unregister** to delete the SIP account's registration in the SIP server. This does not cancel your SIP account, but it deletes the mapping between your SIP identity and your IP address or domain name. If the SIP account is not registered with the SIP server, the **Account Status** field displays **Not Registered**. Click **Register** to have the PM Device attempt to register the SIP account with the SIP server. The button is grayed out if the SIP account is disabled.
Account Status	This field displays the current registration status of the SIP account. You have to register SIP accounts with a SIP server to use VoIP.
URI	This field displays the account number and service domain of the SIP account.

CHAPTER 6
LAN

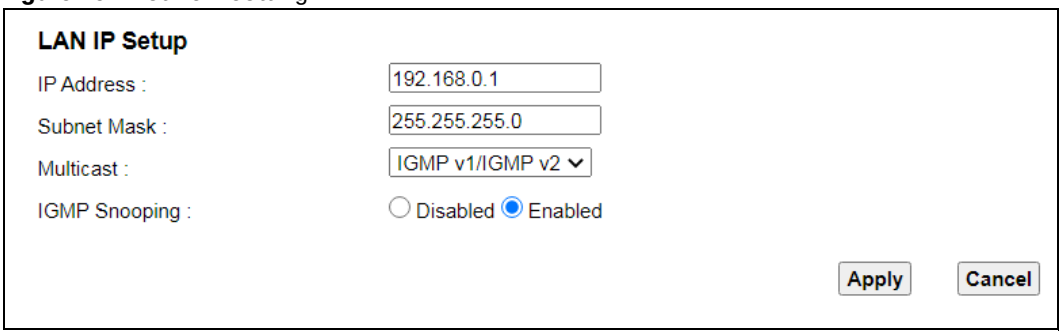
6.1 Overview

A Local Area Network (LAN) is a shared communication system to which many networking devices are connected. It is usually located in one immediate area such as a building or floor of a building.

6.2 LAN Setup

A LAN IP address is the IP address of a networking device in the LAN. You can use the PM Device's LAN IP address to access its Web Configurator from the LAN. Click **Network Setting** to open the **LAN** screen. Use this screen to set the Local Area Network IP address, subnet mask, multicast, and IGMP snooping of your PM Device.

Figure 19 Network Setting > LAN



The following table describes the fields on this screen.

Table 11 Network Setting > LAN

LABEL	DESCRIPTION
LAN IP Setup	
IP Address	Enter the LAN IPv4 address you want to assign to your PM Device in dotted decimal notation, for example, 192.168.0.1 (factory default).
Subnet Mask	Type the subnet mask of your network in dotted decimal notation, for example 255.255.255.0 (factory default). Your PM Device automatically computes the subnet mask based on the IP address you enter, so do not change this field unless you are instructed to do so.
Multicast	Multicast packets are sent to a group of computers on the LAN and are an alternative to unicast packets (packets sent to one computer) and broadcast packets (packets sent to every computer). Devices use the IGMP (Internet Group Management Protocol) network-layer protocol to establish membership in a multicast group. The PM Device supports **IGMP v1/IGMP v2**. Select **None** to disable it.

Table 11 Network Setting > LAN (continued)

LABEL	DESCRIPTION
IGMP Snooping	Select **Enabled** to enable IGMP snooping to forward group multicast traffic only to ports that are members of that group. Otherwise, select **Disabled**.
Apply	Click **Apply** to save your changes.
Cancel	Click **Cancel** to restore your previously saved settings.

CHAPTER 7
Log

7.1 Overview

The Web Configurator allows you to choose which categories of events and/or alerts to have the PM Device log and then display the logs or have the PM Device send them to an administrator (as e-mail) or to a syslog server.

7.1.1 What You Need To Know

The following terms and concepts may help as you read this chapter.

Alerts and Logs

An alert is a type of log that warrants more serious attention. They include system errors, attacks (access control) and attempted access to blocked web sites.

Syslog Overview

The syslog protocol allows devices to send event notification messages across an IP network to syslog servers that collect the event messages. A syslog-enabled device can generate a syslog message and send it to a syslog server.

Syslog is defined in RFC 3164. The RFC defines the packet format, content and system log related information of syslog messages. Each syslog message has a facility and severity level. The syslog facility identifies a file in the syslog server. Refer to the documentation of your syslog program for details. The following table describes the syslog severity levels.

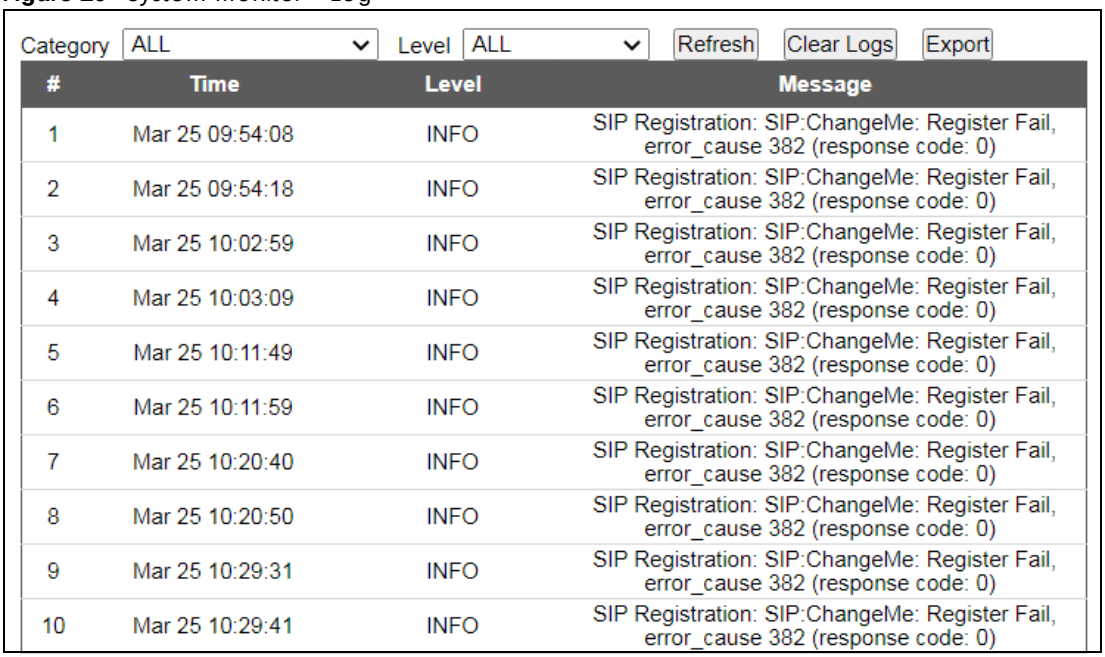
Table 12 Syslog Severity Levels

CODE	SEVERITY
0	Emergency: The system is unusable.
1	Alert: Action must be taken immediately.
2	Critical: The system condition is critical.
3	Error: There is an error condition on the system.
4	Warning: There is a warning condition on the system.
5	Notice: There is a normal but significant condition on the system.
6	Informational: The syslog contains an informational message.
7	Debug: The message is intended for debug-level purposes.

7.2 Log

Use the **System Log** screen to see the system logs. You can filter the entries by selecting a severity level and/or category. Click **System Monitor** > **Log** to open the **System Log** screen.

Figure 20 System Monitor > Log



The following table describes the fields on this screen.

Table 13 System Monitor > Log

LABEL	DESCRIPTION
Category	Select the type of logs to display.
Level	Select a severity level from the drop-down list box. This filters search results according to the severity level you have selected. When you select a severity, the PM Device searches through all logs of that severity or higher.
Refresh	Click this to renew the log screen.
Clear Logs	Click this to delete all the logs.
Export	Click this to export the selected log(s).
#	This field is a sequential value and is not associated with a specific entry.
Time	This field displays the time the log was recorded.
Level	This field displays the severity level of the log.
Message	This field states the reason for the log.

CHAPTER 8
Traffic Status

8.1 Overview

Use the **Traffic Status** screens to look at network traffic statistics of the WAN and LAN interfaces.

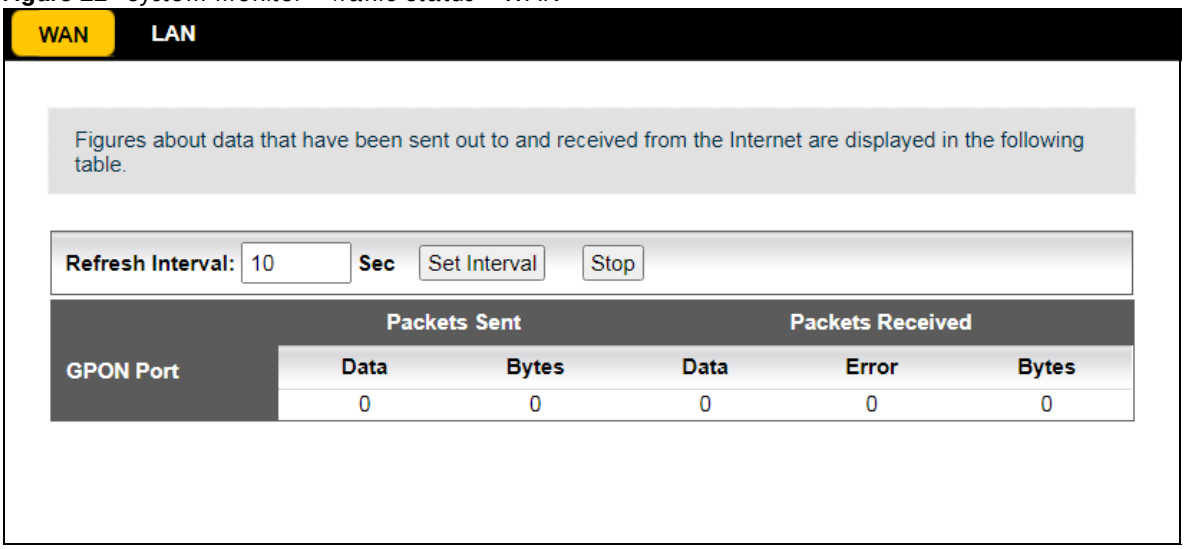
8.1.1 What You Can Do in this Chapter

- Use the **WAN** screen to view the WAN traffic statistics (Section 8.2 on page 39).
- Use the **LAN** screen to view the LAN traffic statistics (Section 8.3 on page 40).

8.2 WAN Status

Click **System Monitor > Traffic Status** to open the **WAN** screen.

Figure 21 System Monitor > Traffic Status > WAN



The following table describes the fields on this screen.

Table 14 System Monitor > Traffic Status > WAN

LABEL	DESCRIPTION
Refresh Interval	Select how often you want the PM Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
Stop	Click **Stop** to stop refreshing statistics.
Packets Sent	

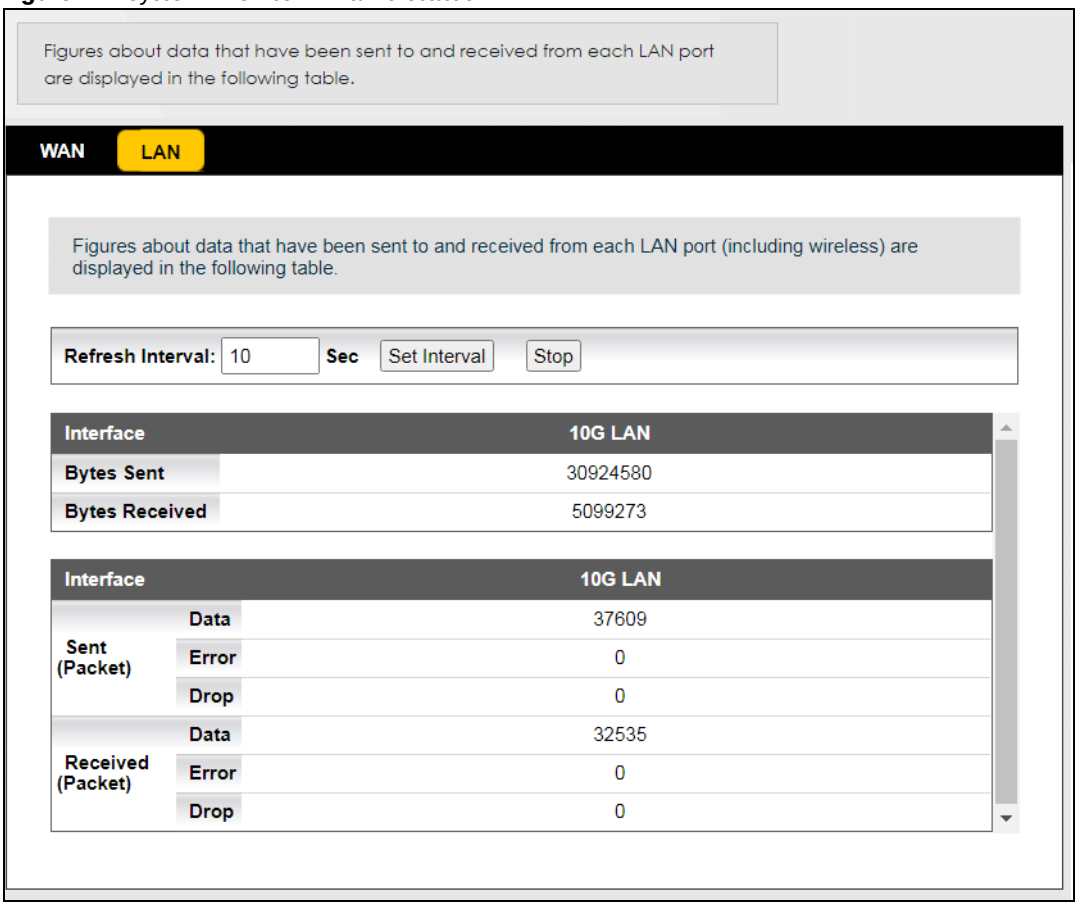
Table 14 System Monitor > Traffic Status > WAN (continued)

LABEL	DESCRIPTION
Data	This indicates the number of transmitted packets on this interface.
Bytes	This indicates the number of bytes transmitted on this interface.
Packets Received	
Data	This indicates the number of received packets on this interface.
Error	This indicates the number of frames with errors received on this interface.
Bytes	This indicates the number of bytes received on this interface.

8.3 LAN Status

Click **System Monitor > Traffic Status > LAN** to open the following screen. This screen displays LAN interface statistics.

Figure 22 System Monitor > Traffic Status > LAN



The following table describes the fields on this screen.

Table 15 System Monitor > Traffic Status > LAN

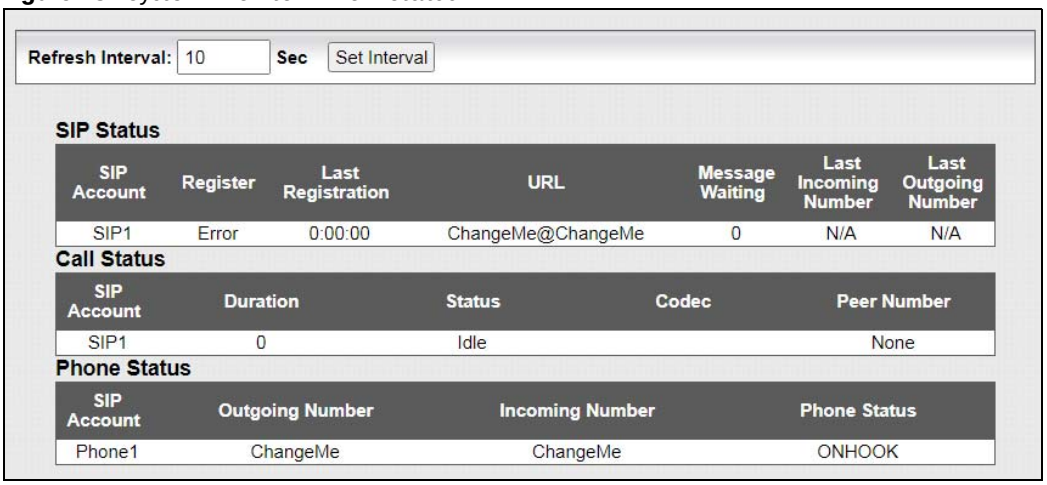
LABEL	DESCRIPTION
Refresh Interval	Select how often you want the PM Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
Stop	Click **Stop** to stop refreshing statistics.
Interface	This shows the LAN interface.
Bytes Sent	This indicates the number of bytes transmitted on this interface.
Bytes Received	This indicates the number of bytes received on this interface.
Interface	This shows the LAN interface.
Sent (Packet)	
Data	This indicates the number of transmitted packets on this interface.
Error	This indicates the number of frames with errors transmitted on this interface.
Drop	This indicates the number of outgoing packets dropped on this interface.
Received (Packet)	
Data	This indicates the number of received packets on this interface.
Error	This indicates the number of frames with errors received on this interface.
Drop	This indicates the number of received packets dropped on this interface.

CHAPTER 9
VoIP Status

9.1 VoIP Status

Click **System Monitor** > **VoIP Status** to open the following screen. You can view the VoIP registration, current call status, and phone numbers on this screen.

Figure 23 System Monitor > VoIP Status



The following table describes the fields on this screen.

Table 16 System Monitor > VoIP Status

LABEL	DESCRIPTION
Refresh Interval	Select how often you want the PM Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
SIP Status	
SIP Account	This column displays each SIP account in the PM Device.
Register	This field displays the current registration status of the SIP account.
Last Registration	This field displays the last time the PM Device successfully registered the SIP account on the SIP server.
URL	This field displays the account number and service domain of the SIP account, which is used to identify the SIP account on the SIP server.
Message Waiting	This field indicates the number of new voice messages on the SIP server waiting for the SIP account.
Last Incoming Number	This field displays **N/A** if no number has ever dialed the SIP account.
Last Outgoing Number	This field displays **N/A** if the SIP account has never dialed a number.
Call Status	
SIP Account	This column displays each SIP account in the PM Device.

Table 16 System Monitor > VoIP Status (continued)

LABEL	DESCRIPTION
Duration	This field displays how long the current VoIP call has lasted.
Status	This field displays the current state of the VoIP phone call. Idle - There are no current VoIP calls, incoming calls or outgoing calls being made. Calling - You made an outgoing VoIP call and the callee's phone is ringing. Ringing - The phone is ringing for an incoming VoIP call. InCall - There is a VoIP call in progress. Hold - The VoIP call is on hold and you can make another VoIP call.
Codec	This field displays what voice codec is being used for a current VoIP call through a phone port.
Peer Number	This field displays the SIP number of the party that is currently engaged in a VoIP call through a phone port.
Phone Status	
SIP Account	This field displays the phone accounts of the PM Device.
Outgoing Number	This field displays the SIP number that you use to make calls on this phone port.
Incoming Number	This field displays the SIP number that you use to receive calls on this phone port.
Phone Status	This field shows whether or the phone connected to the subscriber port is on-hook (**ONHOOK**) or off-hook (**OFFHOOK**).

CHAPTER 10
User Account

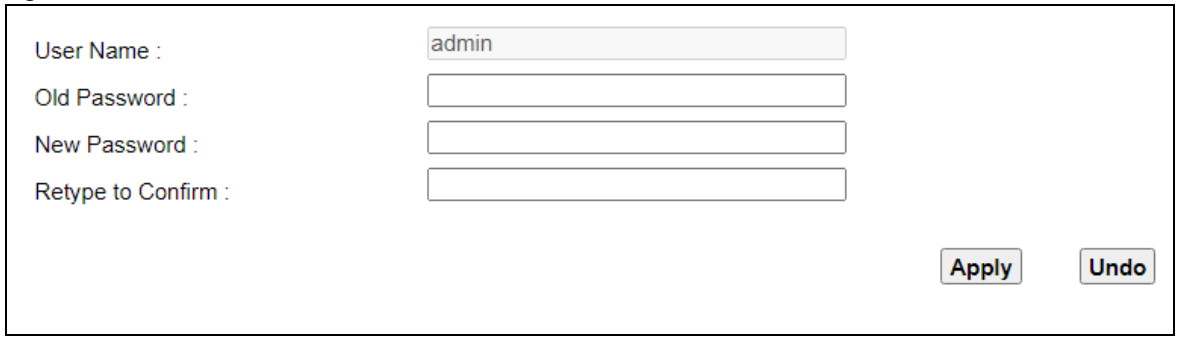
10.1 Overview

In the **User Account** screen, you can view the settings of the admin user account that you use to log in the PM Device.

10.2 User Account

Click **Maintenance > User Account** to open the following screen.

Figure 24 Maintenance > User Account



The following table describes the labels on this screen.

Table 17 Maintenance > User Account

LABEL	DESCRIPTION
User Name	This field displays the name of the account used to log into the PM Device Web Configurator.
Old Password	Type the default password or the existing password used to access the PM Device Web Configurator.
New Password	Type your new system password (up to 256 characters). Note that as you type a password, the screen displays a (*) for each character you type. After you change the password, use the new password to access the PM Device.
Retype to Confirm	Type the new password again for confirmation.
Apply	Click this to save your changes and to apply them to the PM Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 11
System

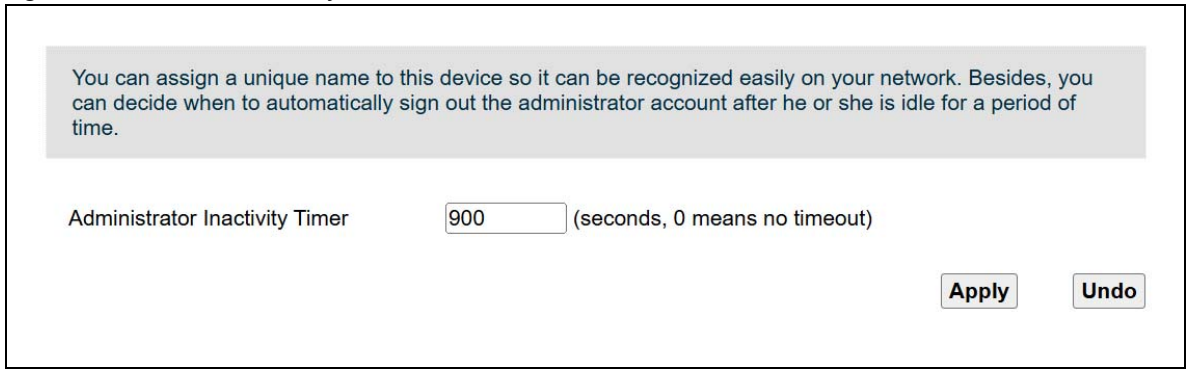
11.1 Overview

On the system screen, you can set the duration of inactivity before the PM Device automatically logs the admin user out of the Web Configurator.

11.2 System

Click **Maintenance > System** to open the following screen.

Figure 25 Maintenance > System



The following table describes the labels on this screen.

Table 18 Maintenance > System

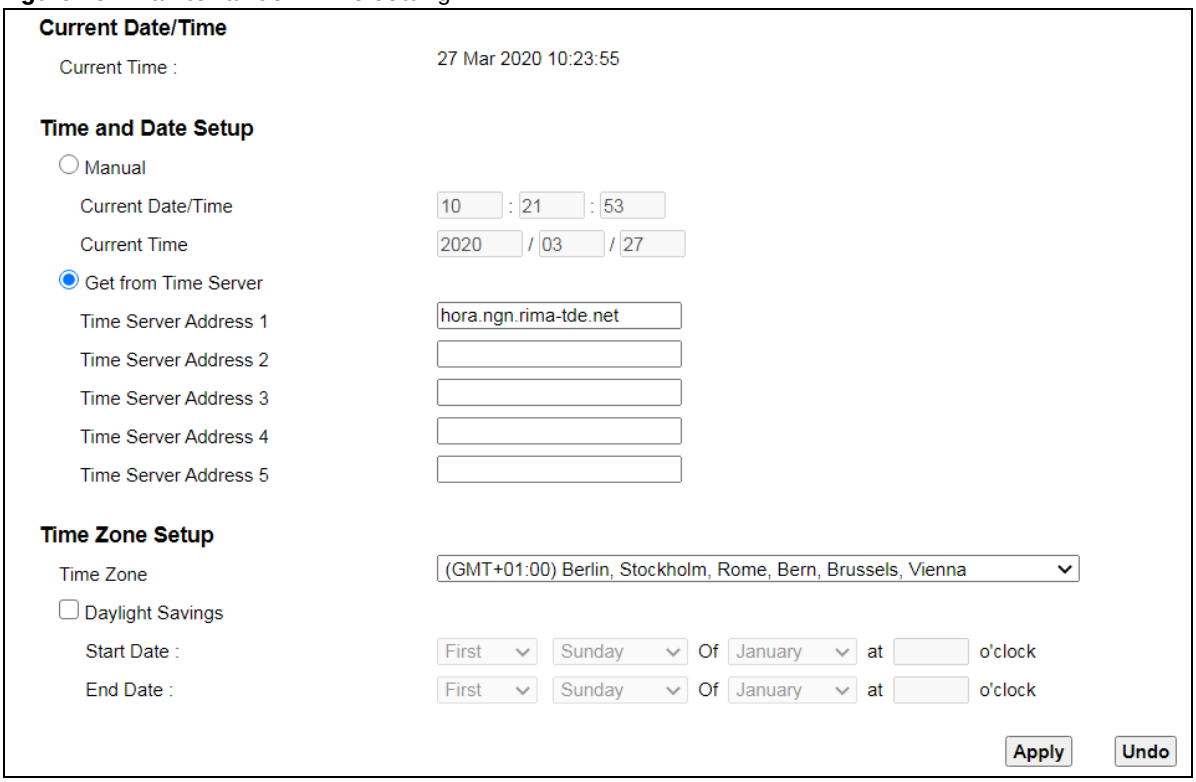
LABEL	DESCRIPTION
Administrator Inactivity Timer	Enter the inactivity timeout in seconds before the PM Device automatically logs the admin user out of the Web Configurator. Enter 0 for no timeout.
Apply	Click this to save your changes and to apply them to the PM Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 12
Time Setting

12.1 Time Setting

To change your PM Device's time and date, click **Maintenance > Time Setting**. The screen appears as shown. Use this screen to configure the PM Device's time based on your local time zone.

Figure 26 Maintenance > Time Setting



The following table describes the fields on this screen.

Table 19 Maintenance > Time Setting

LABEL	DESCRIPTION
Current Date/Time	
Current Time	This field displays the date and time of your PM Device. Each time you reload this page, the PM Device synchronizes the date and time with the time server.
Time and Date Setup	
Manual	Select this radio button to enter the time and date manually. If you configure a new time and date, Time Zone and Daylight Saving at the same time, the new time and date you entered has priority and the Time Zone and Daylight Saving settings do not affect it.

Table 19 Maintenance > Time Setting (continued)

LABEL	DESCRIPTION
Current Date/Time Current Time	This field displays the last updated time from the time server or the last time configured manually. When you set **Time and Date Setup** to **Manual**, enter the new time in this field and then click **Apply**.
Get from Time Server	Select this radio button to have the PM Device get the time and date from the time server you specified below.
Time Server Address 1~5	Enter the IP address or URL of your time server. Check with your ISP/network administrator if you are unsure of this information.
Time Zone Setup	
Time Zone	Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).
Daylight Savings	Daylight Saving Time is a period from late spring to early fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening.
Start Date	Configure the day and time when Daylight Saving Time starts if you enabled Daylight Saving. You can select a specific date in a particular month or a specific day of a specific week in a particular month. The **Hour** field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time starts in most parts of the United States on the second Sunday of March. Each time zone in the United States starts using Daylight Saving Time at 2 A.M. local time. So in the United States, set the day to **Second**, **Sunday**, the month to **March** and the time to **2** in the **Hour** field. Daylight Saving Time starts in the European Union on the last Sunday of March. All of the time zones in the European Union start using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would set the day to **Last**, **Sunday** and the month to **March**. The time you select depends on your time zone. In Germany for instance, you would select **2** in the **Hour** field because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
End Date	Configure the day and time when Daylight Saving Time ends if you enabled Daylight Saving. You can select a specific date in a particular month or a specific day of a specific week in a particular month. The **Time** field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time ends in the United States on the first Sunday of November. Each time zone in the United States stops using Daylight Saving Time at 2 A.M. local time. So in the United States you would set the day to **First**, **Sunday**, the month to **November** and the time to **2** in the **Time** field. Daylight Saving Time ends in the European Union on the last Sunday of October. All of the time zones in the European Union stop using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would set the day to **Last**, **Sunday**, and the month to **October**. The time you select depends on your time zone. In Germany for instance, you would select **2** in the **Time** field because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
Apply	Click this to save your changes and to apply them to the PM Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 13
Log Setting

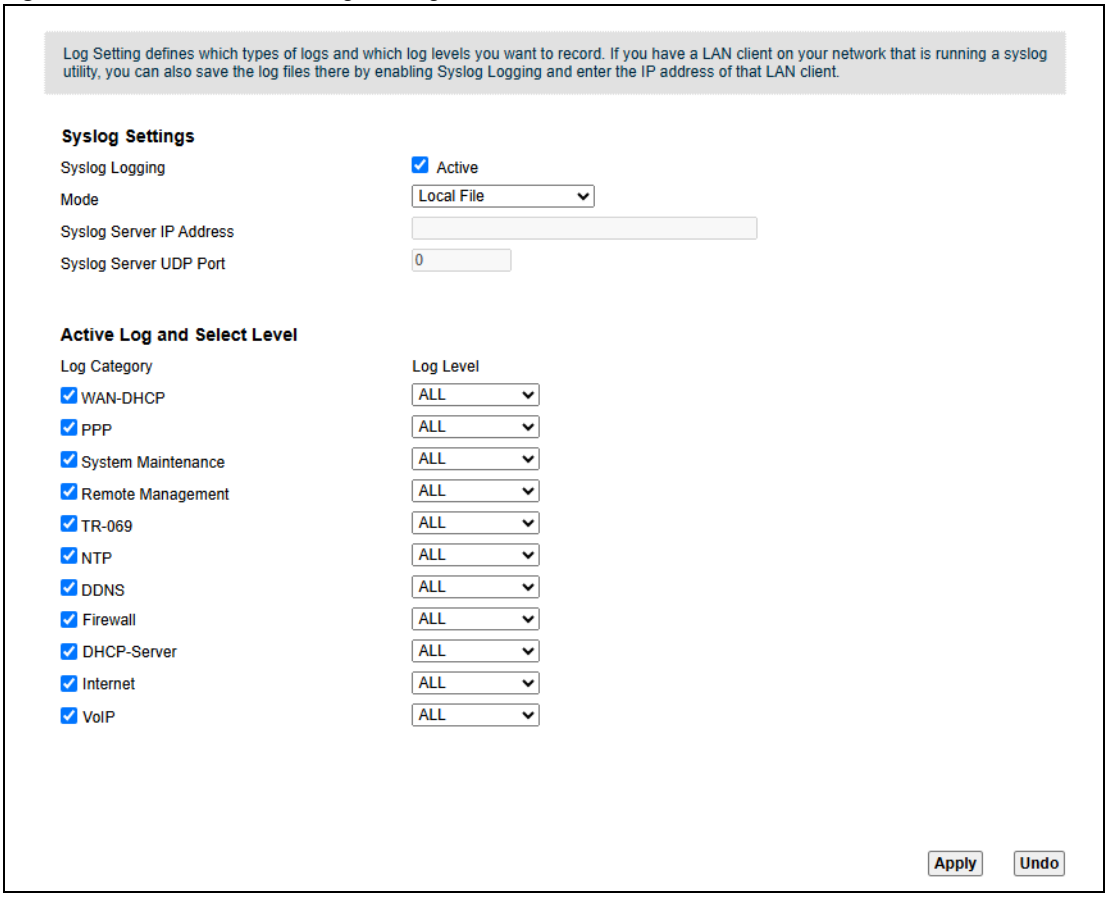
13.1 Overview

You can configure where the PM Device sends logs and which logs and/or immediate alerts the PM Device records in the **Logs Setting** screen.

13.2 Log Setting

To change your PM Device's log settings, click **Maintenance > Log Setting**. The screen appears as shown.

Figure 27 Maintenance > Log Setting



The following table describes the fields on this screen.

Table 20 Maintenance > Log Setting

LABEL	DESCRIPTION
Syslog Settings	
Syslog Logging	Select **Active** to enable syslog logging.
Mode	Select the syslog destination from the drop-down list box. If you select **Local File**, the log(s) will be saved in a local file. If you want to send the log(s) to a remote syslog server and save it in a local file, select **Local File and Remote**.
Syslog Server IP Address	Enter the server name or IP address of the syslog server that will log the selected categories of logs.
Syslog Server UDP Port	Enter the port number used by the syslog server.
Active Log and Select Level	
Log Category	Select the categories of logs to record.
Log Level	Select the severity levels of the logs that you want the PM Device to send to this syslog server.
Apply	Click this to save your changes and to apply them to the PM Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 14
Firmware Upgrade

14.1 Overview

This chapter explains how to upload new firmware to your PM Device. You can download new firmware releases from your nearest Zyxel FTP site (or www.zyxel.com) to use to upgrade your device's performance.

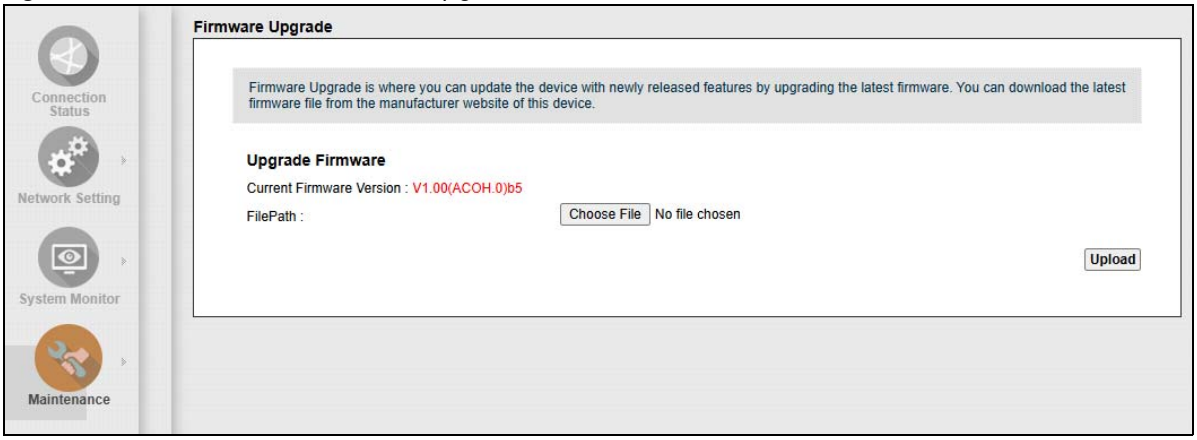
Only use firmware for your device's specific model. Refer to the label on the bottom of your PM Device.

14.2 Firmware

Click **Maintenance > Firmware Upgrade** to open the following screen. The upload process uses HTTP (Hypertext Transfer Protocol) and may take up to two minutes. After a successful upload, the system will reboot.

Do NOT turn off the PM Device while firmware upload is in progress.

Figure 28 Maintenance > Firmware Upgrade



The following table describes the labels on this screen. After you see the firmware updating screen, wait two minutes before logging into the PM Device again.

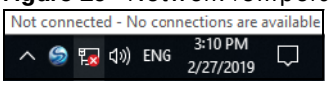
Table 21 Maintenance > Firmware Upgrade

LABEL	DESCRIPTION
Upgrade Firmware	
Current Firmware Version	The firmware on each PM Device is identified by the firmware trunk version, followed by a unique code which identifies the model, and then the release number after the period. For example, V1.00 (ACOH.0) is a firmware for the 1.00 version trunk, the ACOH code identifies the PM7513-R0 model, and .0 is the first firmware release for the model.
File Path	Click **Choose File** and navigate to the location of the .bin file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
Upload	Click this to begin the upload process. This process may take up to two minutes.

After you see the firmware updating screen, wait a few minutes before logging into the PM Device again.

The PM Device automatically restarts in this time causing a temporary network disconnect. In some operating systems, you may see the following icon on your desktop.

Figure 29 Network Temporarily Disconnected



After two minutes, log in again and check your new firmware version in the **System Info** screen.

CHAPTER 15
Restore/Reboot

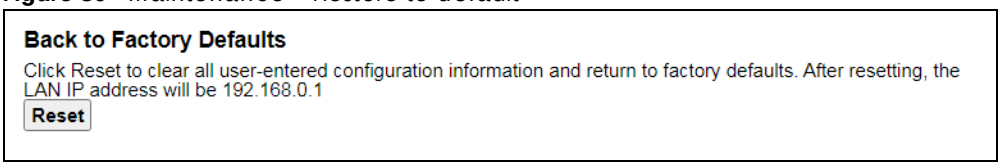
15.1 Overview

The **Restore to default** screen allows you to reset your device settings back to the factory default.

15.2 Restore

Click **Maintenance > Restore to default**. Information related to restoring configuration appears on this screen, as shown below.

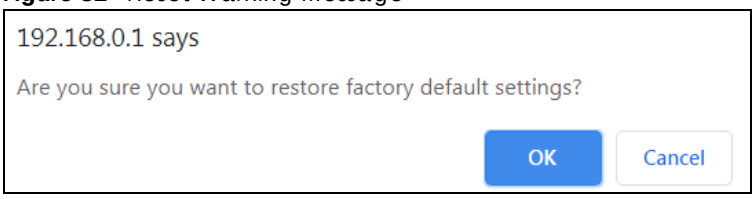
Figure 30 Maintenance > Restore to default



Back to Factory Default Settings

Click the **Reset** button to clear all user-entered configuration information and return the PM Device to its factory defaults. The following warning screen appears.

Figure 31 Reset Warning Message



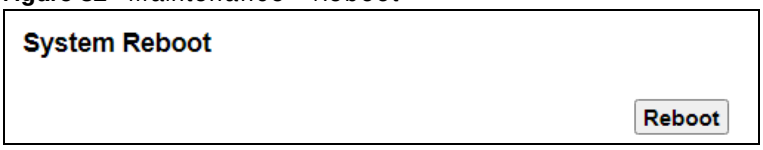
You can also press the **RESET** button on the rear panel to reset the factory defaults of your PM Device. Refer to Section 2.3.2 on page 19 for more information on the **RESET** button.

15.3 Reboot

System restart allows you to reboot the PM Device remotely without turning the power off. You may need to do this if the PM Device hangs, for example.

Click **Maintenance > Reboot**. Click **Reboot** to have the PM Device reboot. This does not affect the PM Device's configuration.

Figure 32 Maintenance > Reboot



CHAPTER 16
Troubleshooting

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

- Accessibility and Compatibility
- Power, Hardware Connections, and LEDs
- PM Device Access and Login
- Internet Access

16.1 Accessibility and Compatibility

Screen reader not reading content

- Ensure the latest version of the screen reader is installed.
- Check if the screen reader's accessibility settings are enabled.

Web browser not displaying correctly

- Clear your web browser cache.
- Ensure that JavaScript is enabled.
- Try using a different supported web browser.

16.2 Power, Hardware Connections, and LEDs

The PM Device does not turn on. None of the LEDs turn on.

1. Make sure the PM Device is turned on.
2. Make sure you are using the power adaptor or cord included with the PM Device.

3 Make sure the power adaptor or cord is connected to the PM Device and plugged in to an appropriate power source. Make sure the power source is turned on.

4 Turn the PM Device off and on.

5 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 2.1 on page 13.

2 Check the hardware connections.

3 Inspect your cables for damage. Contact the vendor to replace any damaged cables.

4 Turn the PM Device off and on.

5 If the problem continues, contact the vendor.

16.3 PM Device Access and Login

I forgot the IP address for the PM Device.

1 The default LAN IP address is https://192.168.0.1.

I forgot the password.

1 See the cover page and device label for the default login name and associated password.

2 If those do not work, you have to reset the device to its factory defaults. See Section 2.3.2 on page 19.

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 https://192.168.0.1.
- Manually configure your computer's IP address to 192.168.0.X (X represents any number from 2 to 254. For example, 192.168.0.25. Then set the subnet mask as 255.255.255.0.
- If you changed the IP address (Section 6.2 on page 35), 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 PM Device.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See Section 2.1 on page 13.

3 Make sure your Internet browser does not block pop-up windows and has JavaScripts and Java enabled.

4 Reset the device to its factory defaults and try to access the PM Device with the default IP address. See Section 2.3.2 on page 19.

5 If the problem continues, contact the network administrator or vendor.

I can see the **Login** screen, but I cannot log into the PM Device.

1 Make sure you have entered the password correctly. See the cover page and device label for the default login name and associated password. The field is case-sensitive, so make sure [Caps Lock] is not on.

2 Turn the PM Device off and on.

3 If this does not work, you have to reset the device to its factory defaults. See Section 16.2 on page 54.

I cannot use FTP to upload / download the configuration file. / I cannot use FTP to upload new firmware.

See the troubleshooting suggestions for I cannot see or access the **Login screen in the Web Configurator.** Ignore the suggestions about your browser.

16.4 Internet Access

I cannot access the Internet.

1 Check the hardware connections, and make sure the LEDs are behaving as expected. See the **Quick Start Guide** and Section 2.1 on page 13.

The **PON** LED is off if the optical transceiver has malfunctioned or the fiber cable is not connected or is broken or damaged enough to break the PON connection.

See Section 2.1 on page 13 for details about the other LEDs.

2 Disconnect the power, LAN, and phone cables from your device and reconnect them.

3 If the problem continues, contact your ISP.

I cannot access the PM Device anymore. I had access to the PM Device, but my connection is not available anymore.

1 Your session with the PM Device may have expired. Try logging into the PM Device again.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See the **Quick Start Guide** and Section 2.1 on page 13.

3 Turn the PM Device off and on.

4 If the problem continues, contact your vendor.

PART III
Appendices

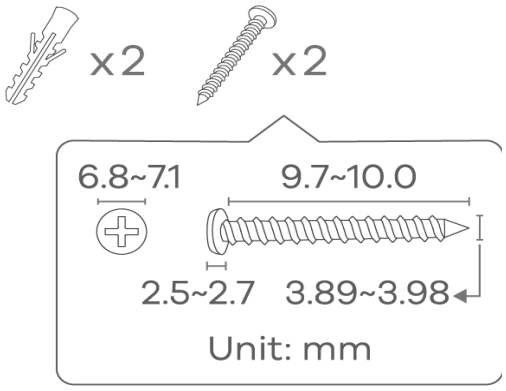
Appendices contain general information. Some information may not apply to your device.

APPENDIX A
Wall Mounting

Follow the steps below to mount your PM Device on a wall.

1 Use screws and anchors of the size as shown below.

Figure 33 Screws and Anchors Size



2 Drill two holes in the wall with their centers either 85.5 mm or 60.0 mm apart.

Figure 34 Drill Holes (85.5 mm Apart)

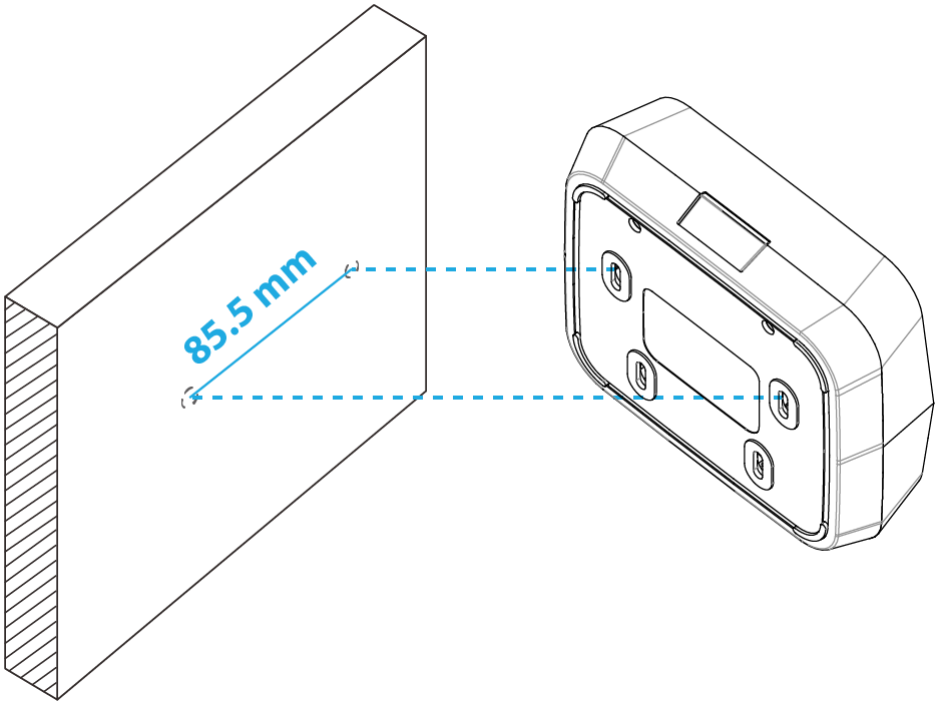
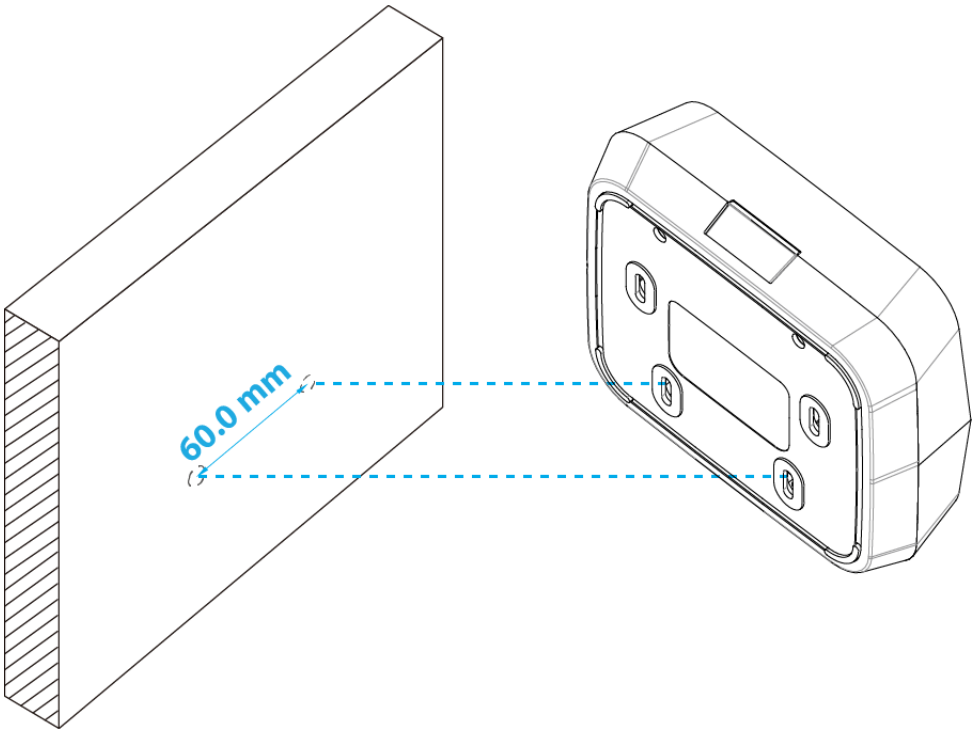
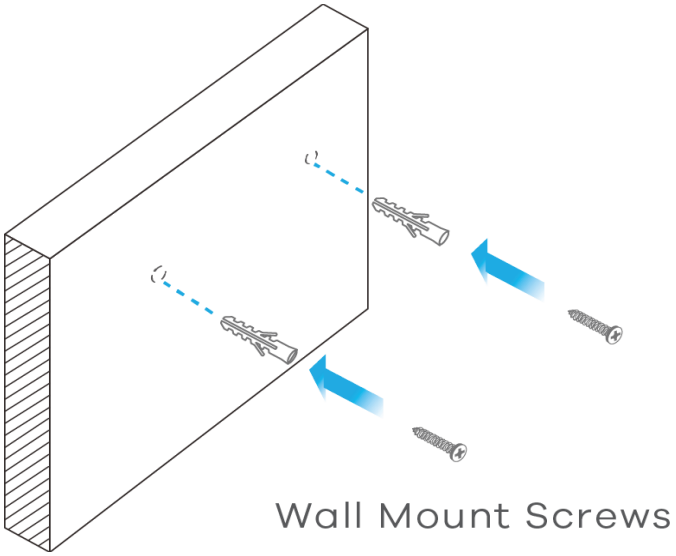


Figure 35 Drill Holes (60.0 mm Apart)



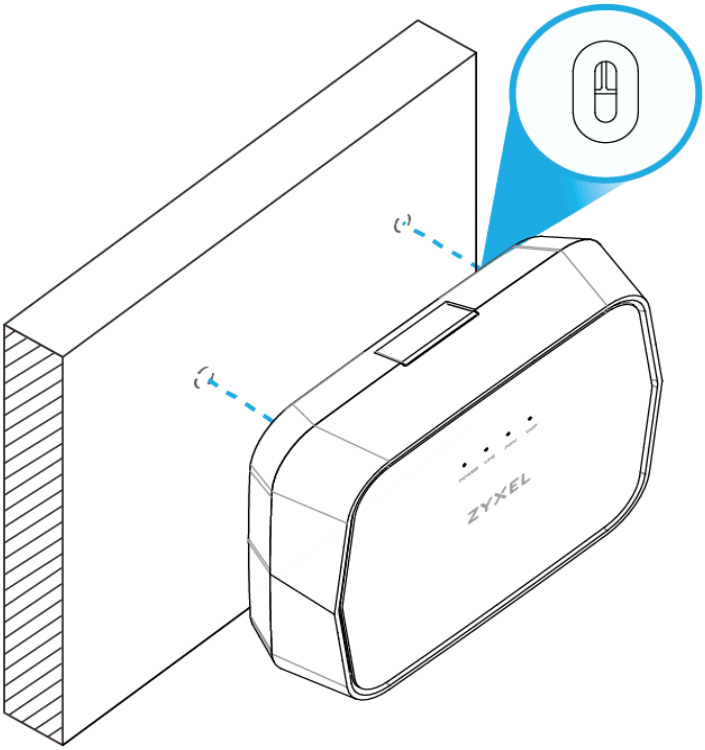
3 Insert screw anchors and screws (not provided) into the holes.

Figure 36 Insert Screw Anchors and Screws



4 Place the PM Device so the wall mount holes line up with the screws. Slide the PM Device down gently to fix it into place.

Figure 37 Placing the PM Device



APPENDIX B
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 PM Device.

For Zyxel Communication offices, see *https://service-provider.zyxel.com/global/en/contact-us* for the latest information.

For Zyxel Network offices, see *https://www.zyxel.com/index.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 PM Device.
- Brief description of the problem and the steps you took to solve it.

Corporate Headquarters (Worldwide)

Taiwan

- Zyxel Communications (Taiwan) Co., Ltd.
- *https://www.zyxel.com*

Asia

China

- Zyxel Communications Corporation–China Office
- *https://www.zyxel.com/cn/sc*

India

- Zyxel Communications Corporation–India Office
- *https://www.zyxel.com/in/en-in*

Kazakhstan

- Zyxel Kazakhstan
- *https://www.zyxel.com/ru/ru*

Korea

- Zyxel Korea Co., Ltd.
- *http://www.zyxel.kr/*

Malaysia

- Zyxel Communications Corp.
- *https://www.zyxel.com/global/en*

Philippines

- Zyxel Communications Corp.
- *https://www.zyxel.com/global/en*

Singapore

- Zyxel Communications Corp.
- *https://www.zyxel.com/global/en*

Taiwan

- Zyxel Communications (Taiwan) Co., Ltd.
- *https://www.zyxel.com/tw/zh*

Thailand

- Zyxel Thailand Co., Ltd.
- *https://www.zyxel.com/th/th*

Vietnam

- Zyxel Communications Corporation–Vietnam Office
- *https://www.zyxel.com/vn/vi*

Europe

Belarus

- Zyxel Communications Corp.
- *https://www.zyxel.com/ru/ru*

Belgium (Netherlands)

- Zyxel Benelux
- *https://www.zyxel.com/nl/nl*
- https://www.zyxel.com/fr/fr

Bulgaria

- Zyxel Bulgaria

- *https://www.zyxel.com/bg/bg*

Czech Republic

- Zyxel Communications Czech s.r.o.
- *https://www.zyxel.com/cz/cs*

Denmark

- Zyxel Communications A/S
- *https://www.zyxel.com/dk/da*

Finland

- Zyxel Communications
- *https://www.zyxel.com/fi/fi*

France

- Zyxel France
- *https://www.zyxel.com/fr/fr*

Germany

- Zyxel Deutschland GmbH.
- *https://www.zyxel.com/de/de*

Hungary

- Zyxel Hungary & SEE
- *https://www.zyxel.com/hu/hu*

Italy

- Zyxel Communications Italy S.r.l.
- *https://www.zyxel.com/it/it*

Norway

- Zyxel Communications A/S
- *https://www.zyxel.com/no/no*

Poland

- Zyxel Communications Poland
- *https://www.zyxel.com/pl/pl*

Romania

- Zyxel Romania
- *https://www.zyxel.com/ro/ro*

Russian Federation

- Zyxel Communications Corp.
- *https://www.zyxel.com/ru/ru*

Slovakia

- Zyxel Slovakia
- *https://www.zyxel.com/sk/sk*

Spain

- Zyxel Iberia
- *https://www.zyxel.com/es/es*

Sweden

- Zyxel Communications A/S
- *https://www.zyxel.com/se/sv*

Switzerland

- Studerus AG
- *https://www.zyxel.com/ch/de-ch*
- *https://www.zyxel.com/fr/fr*

Turkey

- Zyxel Turkey A.S.
- *https://www.zyxel.com/tr/tr*

UK

- Zyxel Communications UK Ltd.
- *https://www.zyxel.com/uk/en-gb*

Ukraine

- Zyxel Ukraine
- *https://www.zyxel.com/ua/uk-ua*

South America

Argentina

- Zyxel Communications Corp.
- *https://www.zyxel.com/co/es-co*

Brazil

- Zyxel Communications Brasil Ltda.

- *https://www.zyxel.com/br/pt*

Colombia

- Zyxel Communications Corp.
- *https://www.zyxel.com/co/es-co*

Ecuador

- Zyxel Communications Corp.
- *https://www.zyxel.com/co/es-co*

South America

- Zyxel Communications Corp.
- *https://www.zyxel.com/co/es-co*

Middle East

Israel

- Zyxel Communications Corp.
- *https://il.zyxel.com*

North America

USA

- Zyxel Communications, Inc. – North America Headquarters
- *https://www.zyxel.com/us/en-us*

APPENDIX C
IPv6

Overview

IPv6 (Internet Protocol version 6), is designed to enhance IP address size and features. The increase in IPv6 address size to 128 bits (from the 32-bit IPv4 address) allows up to 3.4 x 10^{38} IP addresses.

IPv6 Addressing

The 128-bit IPv6 address is written as eight 16-bit hexadecimal blocks separated by colons (:). This is an example IPv6 address `2001:0db8:1a2b:0015:0000:0000:1a2f:0000`.

IPv6 addresses can be abbreviated in two ways:

- Leading zeros in a block can be omitted. So `2001:0db8:1a2b:0015:0000:0000:1a2f:0000` can be written as `2001:db8:1a2b:15:0:0:1a2f:0`.
- Any number of consecutive blocks of zeros can be replaced by a double colon. A double colon can only appear once in an IPv6 address. So `2001:0db8:0000:0000:1a2f:0000:0000:0015` can be written as `2001:0db8::1a2f:0000:0000:0015`, `2001:0db8:0000:0000:1a2f::0015`, `2001:db8::1a2f:0:0:15` or `2001:db8:0:0:1a2f::15`.

Prefix and Prefix Length

Similar to an IPv4 subnet mask, IPv6 uses an address prefix to represent the network address. An IPv6 prefix length specifies how many most significant bits (start from the left) in the address compose the network address. The prefix length is written as "/x" where x is a number. For example,

```
2001:db8:1a2b:15::1a2f:0/32
```

means that the first 32 bits (`2001:db8`) is the subnet prefix.

Link-local Address

A link-local address uniquely identifies a device on the local network (the LAN). It is similar to a "private IP address" in IPv4. You can have the same link-local address on multiple interfaces on a device. A link-local unicast address has a predefined prefix of fe80::/10. The link-local unicast address format is as follows.

Table 22 Link-local Unicast Address Format

1111 1110 10	0	Interface ID
10 bits	54 bits	64 bits

Global Address

A global address uniquely identifies a device on the Internet. It is similar to a "public IP address" in IPv4. A global unicast address starts with a 2 or 3.

Unspecified Address

An unspecified address (0:0:0:0:0:0:0:0 or ::) is used as the source address when a device does not have its own address. It is similar to “0.0.0.0” in IPv4.

Loopback Address

A loopback address (0:0:0:0:0:0:0:1 or ::1) allows a host to send packets to itself. It is similar to “127.0.0.1” in IPv4.

Multicast Address

In IPv6, multicast addresses provide the same functionality as IPv4 broadcast addresses. Broadcasting is not supported in IPv6. A multicast address allows a host to send packets to all hosts in a multicast group.

Multicast scope allows you to determine the size of the multicast group. A multicast address has a predefined prefix of ff00::/8. The following table describes some of the predefined multicast addresses.

MULTICAST ADDRESS	DESCRIPTION
FF01:0:0:0:0:0:0:1	All hosts on a local node.
FF01:0:0:0:0:0:0:2	All routers on a local node.
FF02:0:0:0:0:0:0:1	All hosts on a local connected link.
FF02:0:0:0:0:0:0:2	All routers on a local connected link.
FF05:0:0:0:0:0:0:2	All routers on a local site.
FF05:0:0:0:0:0:1:3	All DHCP severs on a local site.

The following table describes the multicast addresses which are reserved and cannot be assigned to a multicast group.

MULTICAST ADDRESS
FF00:0:0:0:0:0:0:0
FF01:0:0:0:0:0:0:0
FF02:0:0:0:0:0:0:0
FF03:0:0:0:0:0:0:0
FF04:0:0:0:0:0:0:0
FF05:0:0:0:0:0:0:0
FF06:0:0:0:0:0:0:0
FF07:0:0:0:0:0:0:0
FF08:0:0:0:0:0:0:0
FF09:0:0:0:0:0:0:0
FF0A:0:0:0:0:0:0:0
FF0B:0:0:0:0:0:0:0
FF0C:0:0:0:0:0:0:0
FF0D:0:0:0:0:0:0:0
FF0E:0:0:0:0:0:0:0
FF0F:0:0:0:0:0:0:0

Subnet Masking

Both an IPv6 address and IPv6 subnet mask compose of 128-bit binary digits, which are divided into eight 16-bit blocks and written in hexadecimal notation. Hexadecimal uses four bits for each character (1 – 10, A – F). Each block's 16 bits are then represented by four hexadecimal characters. For example, FFFF:FFFF:FFFF:FFFF:FC00:0000:0000:0000.

Interface ID

In IPv6, an interface ID is a 64-bit identifier. It identifies a physical interface (for example, an Ethernet port) or a virtual interface (for example, the management IP address for a VLAN). One interface should have a unique interface ID.

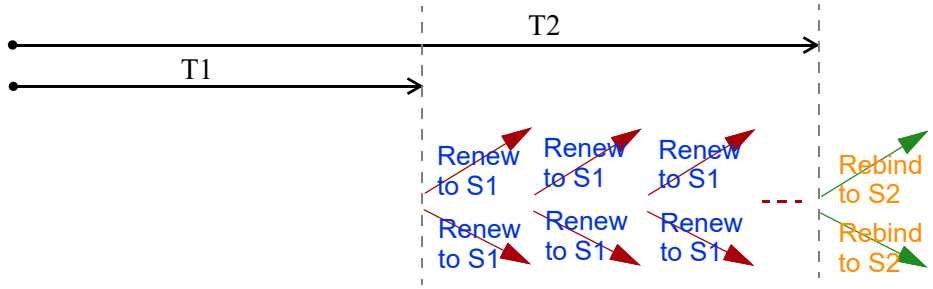
EUI-64

The EUI-64 (Extended Unique Identifier) defined by the IEEE (Institute of Electrical and Electronics Engineers) is an interface ID format designed to adapt with IPv6. It is derived from the 48-bit (6-byte) Ethernet MAC address as shown next. EUI-64 inserts the hex digits fffe between the third and fourth bytes of the MAC address and complements the seventh bit of the first byte of the MAC address. See the following example.

MAC	00	:	13	:	49	: 12	:	34	:	56	
EUI-64	02	:	13	:	49	: FF	:	FE	: 12	: 34	: 56

Identity Association

An Identity Association (IA) is a collection of addresses assigned to a DHCP client, through which the server and client can manage a set of related IP addresses. Each IA must be associated with exactly one interface. The DHCP client uses the IA assigned to an interface to obtain configuration from a DHCP server for that interface. Each IA consists of a unique IAID and associated IP information.
The IA type is the type of address in the IA. Each IA holds one type of address. IA_NA means an identity association for non-temporary addresses and IA_TA is an identity association for temporary addresses. An IA_NA option contains the T1 and T2 fields, but an IA_TA option does not. The DHCPv6 server uses T1 and T2 to control the time at which the client contacts with the server to extend the lifetimes on any addresses in the IA_NA before the lifetimes expire. After T1, the client sends the server (**S1**) (from which the addresses in the IA_NA were obtained) a Renew message. If the time T2 is reached and the server does not respond, the client sends a Rebind message to any available server (**S2**). For an IA_TA, the client may send a Renew or Rebind message at the client's discretion.



DHCP Relay Agent

A DHCP relay agent is on the same network as the DHCP clients and helps forward messages between the DHCP server and clients. When a client cannot use its link-local address and a well-known multicast address to locate a DHCP server on its network, it then needs a DHCP relay agent to send a message to a DHCP server that is not attached to the same network.

The DHCP relay agent can add the remote identification (remote-ID) option and the interface-ID option to the Relay-Forward DHCPv6 messages. The remote-ID option carries a user-defined string, such as the system name. The interface-ID option provides slot number, port information and the VLAN ID to the DHCPv6 server. The remote-ID option (if any) is stripped from the Relay-Reply messages before the relay agent sends the packets to the clients. The DHCP server copies the interface-ID option from the Relay-Forward message into the Relay-Reply message and sends it to the relay agent. The interface-ID should not change even after the relay agent restarts.

Prefix Delegation

Prefix delegation enables an IPv6 router to use the IPv6 prefix (network address) received from the ISP (or a connected uplink router) for its LAN. The PM Device uses the received IPv6 prefix (for example, 2001:db2::/48) to generate its LAN IP address. Through sending Router Advertisements (RAs) regularly by multicast, the PM Device passes the IPv6 prefix information to its LAN hosts. The hosts then can use the prefix to generate their IPv6 addresses.

ICMPv6

Internet Control Message Protocol for IPv6 (ICMPv6 or ICMP for IPv6) is defined in RFC 4443. ICMPv6 has a preceding Next Header value of 58, which is different from the value used to identify ICMP for IPv4. ICMPv6 is an integral part of IPv6. IPv6 nodes use ICMPv6 to report errors encountered in packet processing and perform other diagnostic functions, such as "ping".

Neighbor Discovery Protocol (NDP)

The Neighbor Discovery Protocol (NDP) is a protocol used to discover other IPv6 devices and track neighbor's reachability in a network. An IPv6 device uses the following ICMPv6 messages types:

- Neighbor solicitation: A request from a host to determine a neighbor's link-layer address (MAC address) and detect if the neighbor is still reachable. A neighbor being "reachable" means it responds to a neighbor solicitation message (from the host) with a neighbor advertisement message.
- Neighbor advertisement: A response from a node to announce its link-layer address.
- Router solicitation: A request from a host to locate a router that can act as the default router and forward packets.
- Router advertisement: A response to a router solicitation or a periodical multicast advertisement from a router to advertise its presence and other parameters.

IPv6 Cache

An IPv6 host is required to have a neighbor cache, destination cache, prefix list and default router list. The PM Device maintains and updates its IPv6 caches constantly using the information from response messages. In IPv6, the PM Device configures a link-local address automatically, and then sends a neighbor solicitation message to check if the address is unique. If there is an address to be resolved or verified, the PM Device also sends out a neighbor solicitation message. When the PM Device receives a

neighbor advertisement in response, it stores the neighbor's link-layer address in the neighbor cache. When the PM Device uses a router solicitation message to query for a router and receives a router advertisement message, it adds the router's information to the neighbor cache, prefix list and destination cache. The PM Device creates an entry in the default router list cache if the router can be used as a default router.

When the PM Device needs to send a packet, it first consults the destination cache to determine the next hop. If there is no matching entry in the destination cache, the PM Device uses the prefix list to determine whether the destination address is on-link and can be reached directly without passing through a router. If the address is unlink, the address is considered as the next hop. Otherwise, the PM Device determines the next-hop from the default router list or routing table. Once the next hop IP address is known, the PM Device looks into the neighbor cache to get the link-layer address and sends the packet when the neighbor is reachable. If the PM Device cannot find an entry in the neighbor cache or the state for the neighbor is not reachable, it starts the address resolution process. This helps reduce the number of IPv6 solicitation and advertisement messages.

Multicast Listener Discovery

The Multicast Listener Discovery (MLD) protocol (defined in RFC 2710) is derived from IPv4's Internet Group Management Protocol version 2 (IGMPv2). MLD uses ICMPv6 message types, rather than IGMP message types. MLDv1 is equivalent to IGMPv2 and MLDv2 is equivalent to IGMPv3.

MLD allows an IPv6 switch or router to discover the presence of MLD listeners who wish to receive multicast packets and the IP addresses of multicast groups the hosts want to join on its network.

MLD snooping and MLD proxy are analogous to IGMP snooping and IGMP proxy in IPv4.

MLD filtering controls which multicast groups a port can join.

MLD Messages

A multicast router or switch periodically sends general queries to MLD hosts to update the multicast forwarding table. When an MLD host wants to join a multicast group, it sends an MLD Report message for that address.

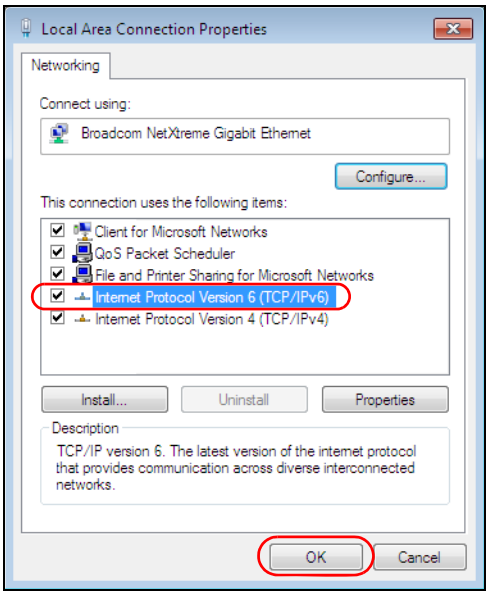
An MLD Done message is equivalent to an IGMP Leave message. When an MLD host wants to leave a multicast group, it can send a Done message to the router or switch. The router or switch then sends a group-specific query to the port on which the Done message is received to determine if other devices connected to this port should remain in the group.

Example – Enabling IPv6 on Windows 7

Windows 7 supports IPv6 by default. DHCPv6 is also enabled when you enable IPv6 on a Windows 7 computer.

To enable IPv6 in Windows 7:

1. Select **Control Panel** > **Network and Sharing Center** > **Local Area Connection**.
2. Select the **Internet Protocol Version 6 (TCP/IPv6)** checkbox to enable it.
3. Click **OK** to save the change.



4 Click **Close** to exit the **Local Area Connection Status** screen.

5 Select **Start** > **All Programs** > **Accessories** > **Command Prompt**.

6 Use the `ipconfig` command to check your dynamic IPv6 address. This example shows a global address (2001:b021:2d::1000) obtained from a DHCP server.

```
C:\>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2001:b021:2d::1000
   Link-local IPv6 Address . . . . . : fe80::25d8:dcab:c80a:5189%11
   IPv4 Address. . . . . . . . . . . : 172.16.100.61
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::213:49ff:feaa:7125%11
                                       172.16.100.254
```

APPENDIX D
Legal Information

Copyright

Disclaimer

Zyxel does not assume any liability arising out of the application or use of any products, or software described herein. Neither does it convey any license under its patent rights nor the patent rights of others. Zyxel further reserves the right to make changes in any products described herein without notice. This publication is subject to change without notice.

Regulatory Notice and Statement

United States of America

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

FCC EMC Statement

- The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

  (1) This device may not cause harmful interference, and

  (2) This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

Canada

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

Innovation, Science and Economic Development Canada ICES Statement

CAN ICES(B) / NMB(B)

Safety Warnings

- Do not put the device in a place that is humid, dusty or has extreme temperatures as these conditions may harm your device.
- Please refer to the device back label, datasheet, box specifications or catalog information for the power rating of the device and operating temperature.
- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- The Power Supply is not waterproof, avoid contact with liquid. Handle the Power Supply with care; do not pry open, nor pull or press the pins on it.
- 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 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. 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, 120V 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 devices. 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.
- 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.
- CLASS 1 CONSUMER LASER PRODUCT EN 60825-1: 2014+A11:2021 & EN 50689:2021
- CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

Environment Statement

ErP (Energy-related Products)

Zyxel products put on the EU and United Kingdom market in compliance with the requirement of the European Parliament and the Council published Directive 2009/125/EC and UK regulation establishing a framework for the setting of ecodesign requirements for energy-related products (recast), so called as "ErP Directive (Energy-related Products directive) as well as ecodesign requirement laid down in applicable implementing measures, power consumption has satisfied regulation requirements which are:

- Network standby power consumption < 8W, and/or
- Off mode power consumption < 0.5W, and/or
- Standby mode power consumption < 0.5W.

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 når 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.

台灣

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。
- 請使用隨貨提供或指定的連接線 / 電源線 / 電源變壓器，將其連接到合適的供應電壓 (如 : 台灣供應電壓 110 伏特)。
- 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。
- 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。

About the Symbols

Various symbols are used in this product to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meaning of these symbols are described below. It is important that you read these descriptions thoroughly and fully understand the contents.

Explanation of the Symbols

SYMBOL	EXPLANATION
	Alternating current (AC): AC is an electric current in which the flow of electric charge periodically reverses direction.
	Direct current (DC): DC if the unidirectional flow or movement of electric charge carriers.
	Earth; ground: A wiring terminal intended for connection of a Protective Earthing Conductor.
	Class II equipment: The method of protection against electric shock in the case of class II equipment is either double insulation or reinforced insulation.

Viewing Certifications

Go to *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

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. Zyxel shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor.

Enquiries

Go to *https://www.zyxel.com/service-provider/global/en/download-enquiry* to request a User's Guide for configuration assistance and related safety warnings.

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Open Source Licenses

This product may contain in part some free software distributed under GPL license terms and/or GPL-like licenses.

To request the source code covered under these licenses, please go to: *https://service-provider.zyxel.com/global/en/gpl-oss-software-notice*

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