

# User's Guide

## EX5510-B0

Dual-Band Wireless AX Gigabit Ethernet Gateway

### Default Login Details

LAN IP Address	http://192.168.1.1
Login	admin
Password	See the device label

Version 5.15 Ed 1, 9/2019



***DRAFT***

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**IMPORTANT!**

**READ CAREFULLY BEFORE USE.**

**KEEP THIS GUIDE FOR FUTURE REFERENCE.**

Screenshots and graphics in this book may differ slightly from what you see due to differences in your product firmware or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

### **Related Documentation**

- Quick Start Guide

The Quick Start Guide shows how to connect the Zyxel Device.

- More Information

Go to **support.zyxel.com** to find other information on the Zyxel 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

- The EX5510-B0 in this user's guide may be referred to as the "Zyxel Device" in this guide.
- 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 > Routing > DNS Route** means you first click **Network Setting** in the navigation panel, then the **Routing** sub menu and finally the **DNS Route** tab to get to that screen.

## Icons Used in Figures

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

Zyxel Device 	Wireless Device 	Laptop Computer 
Switch 	Firewall 	Server 
Internet 	User 	Smartphone 

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# PART I

## User's Guide

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# CHAPTER 1

# Introducing the Zyxel Device

## 1.1 Overview

The Zyxel Device is an Ethernet gateway which provides fast Internet access. It has one 2.5 Gbps Multi-Gigabit Ethernet (GbE) WAN port that is backward compatible with standard 100 Mbps and Gigabit speeds. See [Section 1.1.1 on page 16](#) for more information on Multi-Gigabit Ethernet. It also has four 1000 Mbps Ethernet LAN ports.

It also supports dual-band 2.4G / 5G WiFi with WiFi6 that is most suitable in areas with a high concentration of users. You can schedule WiFi usage using Parental Control. See [Section on page 86](#) for more information on WiFi6.

The Zyxel Device supports Multy Pro that lets you easily extend WiFi in your home or office using a compatible WiFi Extender. See the Zyxel website for more information on Multy Pro.

### 1.1.1 Multi-Gigabit Ethernet

[A 2.5 Gigabit Ethernet port supports speeds of 2.5 Gbps if the connected device supports 2.5 Gbps.](#)

Some network devices such as gaming computers, servers, network attached storage (NAS) devices, or access points may have network cards that are capable of 2.5 Gbps connectivity.

If these devices are connected to a 1 Gbps Ethernet port, they can only transmit or receive up to 1 Gbps as speeds of 2.5 Gbps cannot be attained. Moreover, if network devices with 2.5 Gbps network cards are connected to a 2.5 Gbps Ethernet port, you must use Cat 5e or better Ethernet cables to achieve 2.5 Gbps speeds. Most buildings, at the time of writing, use Cat 5e or Cat 6 Ethernet cables.

Multi-Gigabit Ethernet ports automatically allow connections up to the speed of the connected network device (100 Mbps, 1 Gbps or 2.5 Gbps), and [you just need to use a Cat 5 or Cat 5e Ethernet cable.](#)

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

Table 1 Ethernet Cable Types

CABLE	TRANSMISSION SPEED	MAXIMUM DISTANCE	BANDWIDTH CAPACITY
Category 5	100 Mbps	100 m	100 MHz
Category 5e	1 Gbps / 2.5 Gbps	100 m	100 MHz

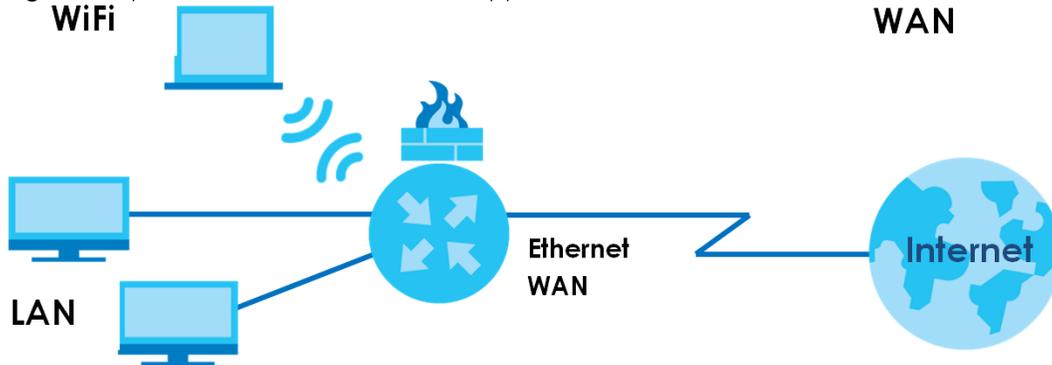
## 1.2 Example Applications

This section shows a few examples of using the Zyxel Device in various network environments. Note that the Zyxel Device in the figure is just an example Zyxel Device and not your actual Zyxel Device.

## 1.2.1 Internet Access

Your Zyxel Device has a Gigabit Ethernet port for super-fast Internet access. It provides Internet access by connecting the WAN port to your ISP. Computers can connect to the Zyxel Device's LAN ports (or wirelessly) and access the Internet simultaneously.

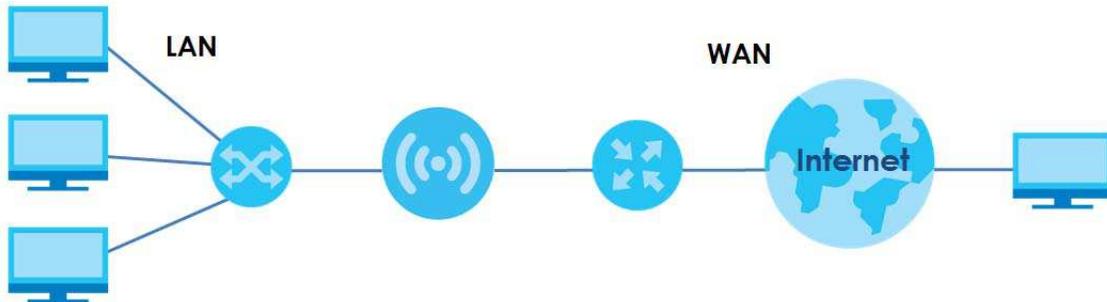
**Figure 1** Zyxel Device's Internet Access Application



When the Firewall is on, all incoming traffic from the Internet to your network is blocked by default unless it is initiated from your network. This means that probes from the outside to your network are not allowed, but you can safely browse the Internet and download files.

Connect the WAN port to the broadband modem or router. This way, you can access the Internet via an Ethernet connection and use the QoS, Firewall and parental control functions on the Zyxel Device.

**Figure 2** Zyxel Device's Internet Access Application: Ethernet WAN



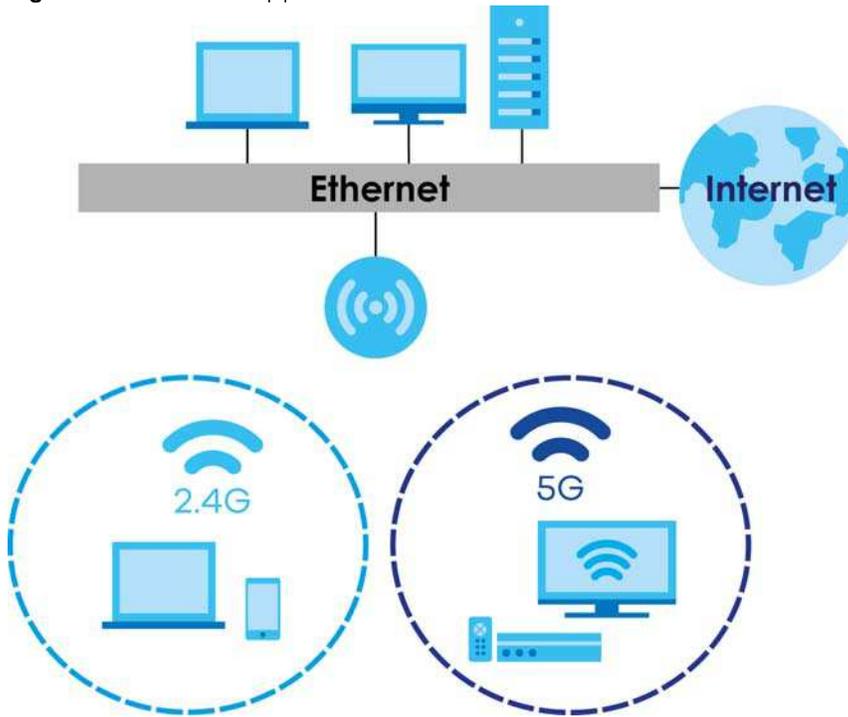
## 1.2.2 Dual-Band WiFi

By default, WiFi is enabled on the Zyxel Device. IEEE 802.11a/b/g/n/ac/ax compliant clients can wirelessly connect to the Zyxel Device to access network resources.

The Zyxel Device is a dual-band gateway that can use both 2.4G and 5G networks at the same time. You could use the 2.4 GHz band for regular Internet surfing and downloading while using the 5 GHz

band for time sensitive traffic like high-definition video, music, and gaming.

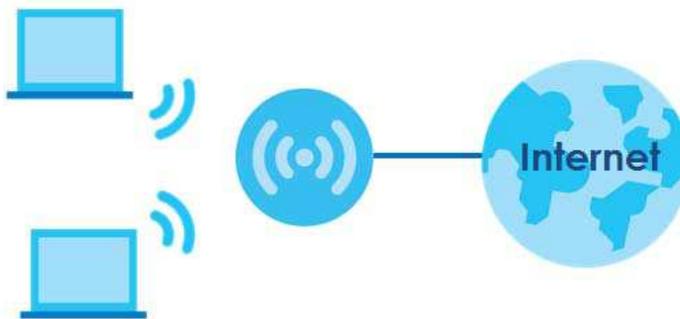
**Figure 3** Dual-Band Application



The Zyxel Device is a wireless Access Point (AP) for IEEE 802.11b/g/n/a/ac/ax wireless clients, such as notebook computers, iPads, smartphones, and so on. It allows them to connect to the Internet without having to rely on inconvenient Ethernet cables.

Your Zyxel Device supports WiFi Protected Setup (WPS), which allows you to quickly set up a wireless network with strong security.

**Figure 4** Wireless Access Example



## 1.3 Ways to Manage the Zyxel Device

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

- Web Configurator. This is recommended for management of the Zyxel Device using a (supported) web browser.

- Simple Network Management Protocol (SNMP). Use to monitor and/or manage the Zyxel Device by an SNMP manager. See ([Section 30.2 on page 252](#)).
- Secure Shell (SSH), Telnet. Use for troubleshooting the Zyxel Device by qualified personnel.
- FTP. Use FTP for firmware upgrades and configuration backup/restore.

## 1.4 Good Habits for Managing the Zyxel Device

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

- Change the WiFi and Web Configurator passwords. 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 passwords 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 Zyxel Device to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the Zyxel Device. You could simply restore your last configuration.

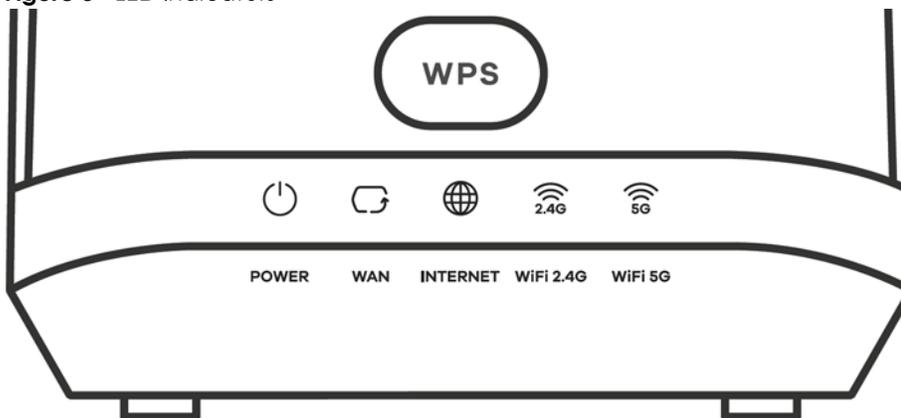
## 1.5 Hardware

This section describes the front and rear panels.

### 1.5.1 Front Panel

The LED indicators are located on the front panel.

**Figure 5** LED Indicators



None of the LEDs are on if the Zyxel Device is not receiving power.

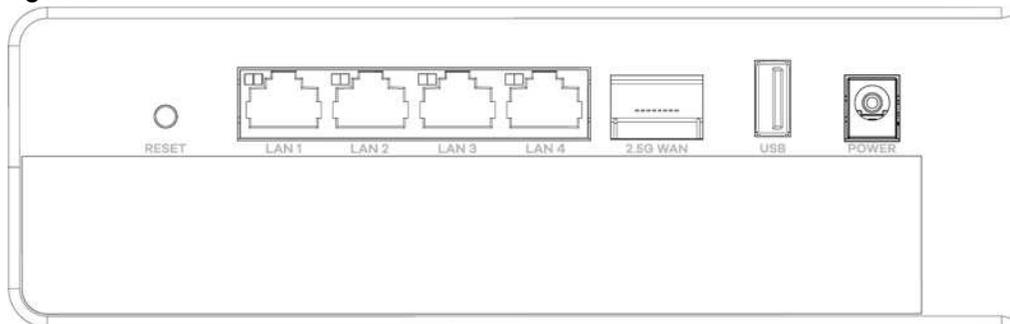
Table 2 LED Descriptions

LED	COLOR	STATUS	DESCRIPTION
POWER	Green	On	The Zyxel Device is receiving power and ready for use.
		Blinking	The Zyxel Device is self-testing.
	Red	On	The Zyxel Device detected an error while self-testing, or there is a device malfunction.
		Blinking	The Zyxel Device is upgrading firmware.
	Off	The Zyxel Device is not receiving power.	
WAN	Green	On	The Zyxel Device has a successful 100M / 1G / 2.5Gbps Ethernet connection on the WAN.
		Off	The Zyxel Device does not have an Ethernet connection with the WAN.
INTERNET	Green	On	The Zyxel Device has an IP connection but no traffic. Your device has a WAN IP address (either static or assigned by a DHCP server), PPP negotiation was successfully completed (if used).
		Blinking	The Zyxel Device is sending or receiving IP traffic.
		Off	There is no Internet connection or the gateway is in bridged mode.
	Red	On	The Zyxel Device attempted to make an IP connection but failed. Possible causes are no response from a DHCP server, no PPPoE response, PPPoE authentication failed.
2.4G WiFi	Green	On	The 2.4G wireless network is activated.
		Blinking	The Zyxel Device is communicating with 2.4G wireless clients.
		Off	The 2.4G wireless network is not activated.
5G WiFi	Green	On	The 5G wireless network is activated.
		Blinking	The Zyxel Device is communicating with 5G wireless clients.
		Off	The 5G wireless network is not activated.
WPS	Green	Blinking	The Zyxel Device is setting up a WPS connection with a wireless client.
		Off	The Zyxel Device has set up a WPS connection with a wireless client or WPS has not been enabled.

## 1.5.2 Rear Panel

The connection ports are located on the rear panel.

Figure 6 Rear Panel



The following table describes the items on the rear panel.

Table 3 Panel Ports and Buttons

LABEL	DESCRIPTION
WPS	Press the WPS button for more than one second to quickly set up a secure wireless connection between the device and a WPS-compatible client.
USB	The USB port is reserved for future development.
LAN1 ~ LAN4	Connect computers or other Ethernet devices to Ethernet ports for Internet access.
2.5G WAN	Connect an Ethernet cable to the Ethernet WAN port for Internet access.
Power	Connect the power adapter and press the power button to start the device.
Reset	Press the button to return the Zyxel Device to the factory defaults.

### 1.5.3 WPS Button

You can use the **WPS** button to quickly set up a secure wireless connection between the Zyxel Device and a WPS-compatible client by adding one device at a time.

To activate WPS:

- 1 Make sure the **POWER** LED is on and not blinking.
- 2 Press the **WPS** button for one second and release it.
- 3 Press the WPS button on another WPS-enabled device within range of the Zyxel Device within 120 seconds. The **WPS** LED flashes green while the Zyxel Device sets up a WPS connection with the other wireless device.
- 4 Once the connection is successfully made, the **WPS** LED will turn off.

### 1.5.4 RESET Button

If you forget your password or cannot access the Web Configurator, you will need to use the **RESET** button to reload the factory-default configuration file. This means that you will lose all configurations that you had previously. The password will be reset to the factory default (see the device label), and the LAN IP address will be "192.168.1.1".

- 1 Make sure the **POWER** LED is on (not blinking).
- 2 To set the device back to the factory default settings, press the **RESET** button for more than 5 seconds or until the **POWER** LED begins to blink and then release it. When the **POWER** LED begins to blink, the defaults have been restored and the device restarts.

# CHAPTER 2

## The Web Configurator

### 2.1 Overview

The Web Configurator is an HTML-based management interface that allows easy Zyxel Device setup and management via Internet browser. Use Internet Explorer 11 and later versions or Mozilla Firefox 67.0.2 and later versions or Safari 5.0 and later versions. The recommended screen resolution is 1024 by 768 pixels.

In order to use the Web Configurator you need to allow:

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

#### 2.1.1 Accessing the Web Configurator

- 1 Make sure your Zyxel Device hardware is properly connected (refer to the Quick Start Guide).
- 2 Make sure your computer has an IP address in the same subnet as the Zyxel Device. Your computer should have an IP address from 192.168.1.2 to 192.168.1.254. See [Section 37.6 on page 281](#) for details.
- 3 Launch your web browser. If the Zyxel Device does not automatically re-direct you to the login screen, go to <http://192.168.1.1>.
- 4 A login screen displays. Select the language you prefer.
- 5 To access the administrative Web Configurator and manage the Zyxel Device, type the default username **admin** and the randomly assigned default password (see the device label) in the login screen and click **Login**. If you have changed the password, enter your password and click **Login**.

**Figure 7** Login Screen

Note: The default allowable times that you can enter the **Password** is 3. If you entered the wrong password for the fourth time, by default the Web Configurator will lock itself for 5 minutes before you can try entering the correct **Password** again. You can change these settings in **Maintenance > User Account > Add New / Edit Account** (see [Section 28.2.1 on page 245](#)).

- 6 The following screen displays when you log into the Web Configurator for the first time. Enter a new password, retype it to confirm, and click **Change password**. If you prefer to use the default password, click **Skip**.

**Figure 8** Change Password Screen

- 7 The **Wizard** screen displays when you log into the Web Configurator for the first time. Use the **Wizard** screens to configure the Zyxel Device's time zone, basic Internet access, and wireless settings. See [Chapter 3 on page 31](#) for more information about the **Wizard** screens.
- 8 The **Connection Status** page appears. Use this screen to configure basic Internet access, wireless settings, and parental control settings (see [Section 5.1 on page 58](#) for details).

Figure 9 Connection Status

**Connectivity**

Diagram showing Internet (red X), Router (yellow checkmark), and Laptop (yellow checkmark) connected.

**System Info**

Model Name	EX5510-B0
Firmware Version	V5.15(ABQX.0)b5
System Uptime	0 days 0 hours 38 mins 2 secs
LAN MAC Address	02:10:18:01:00:01
WAN Status	Connection down

**WiFi Settings**

2.4G WiFi Name: Company, WiFi Password: [Redacted]

5G WiFi Name: Company, WiFi Password: [Redacted]

**Guest WiFi Settings**

2.4G WiFi Name: Zyxel08787\_guest, WiFi Password: [Redacted]

5G WiFi Name: Zyxel08787\_guest\_5G, WiFi Password: [Redacted]

**LAN**

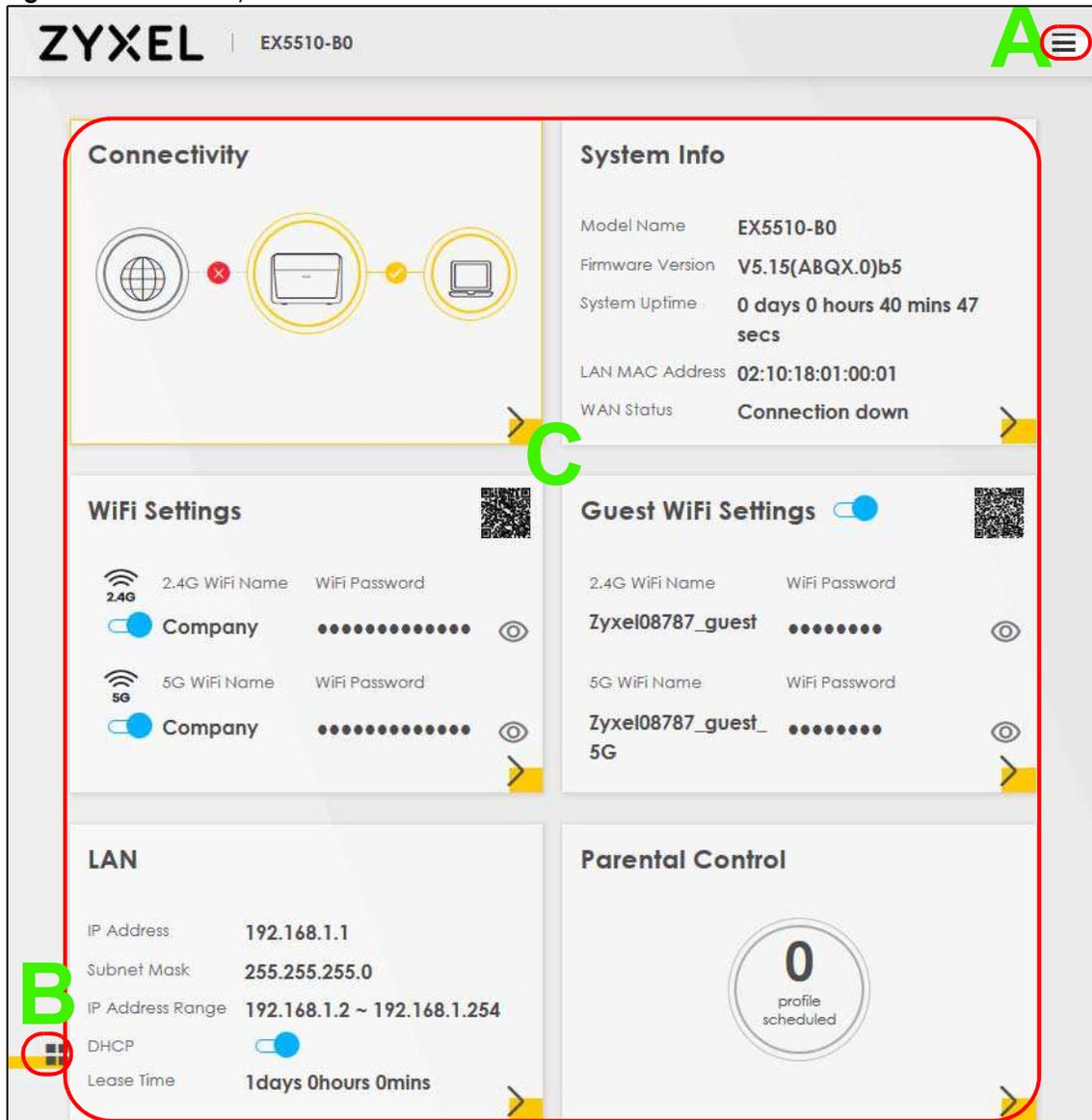
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
IP Address Range	192.168.1.2 ~ 192.168.1.254
DHCP	<input checked="" type="checkbox"/>
Lease Time	1 days 0 hours 0 mins

**Parental Control**

0 profile scheduled

## 2.2 Web Configurator Layout

Figure 10 Screen Layout

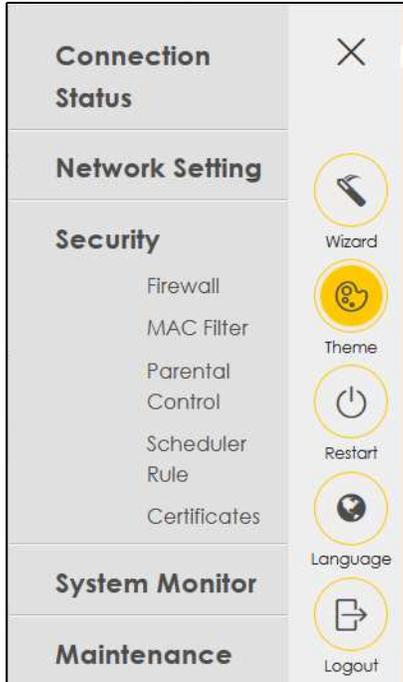


As illustrated above, the main screen is divided into these parts:

- **A** - Navigation Panel
- **B** - Layout Icon
- **C** - Main Window

### 2.2.1 Navigation Panel

Click the menu icon (☰) to display the navigation panel that contains configuration menus and icons (quick links). Click **X** to close the navigation panel.

**Figure 11** Navigation Panel

### 2.2.1.1 Configuration Menus

Use the menu items on the navigation panel to open screens to configure Zyxel Device features. The following tables describe each menu item.

Table 4 Configuration Menus Summary

LINK	TAB	FUNCTION
Connection Status		Use this screen to configure basic Internet access, wireless settings, and parental control settings. This screen also shows the network status of the Zyxel Device and computers/devices connected to it.
Network Setting		
Broadband	Broadband	Use this screen to view and configure ISP parameters, WAN IP address assignment, and other advanced properties. You can also add new WAN connections.
Wireless	General	Use this screen to configure the WiFi settings and wireless LAN authentication/security settings.
	Guest/More AP	Use this screen to configure multiple BSSs on the Zyxel Device.
	MAC Authentication	Use this screen to block or allow wireless traffic from wireless devices of certain SSIDs and MAC addresses to the Zyxel Device.
	WPS	Use this screen to configure and view your WPS (WiFi Protected Setup) settings.
	WMM	Use this screen to enable or disable WiFi MultiMedia (WMM).
	Others	Use this screen to configure advanced wireless settings.
	Channel Status	Use this screen to scan WiFi channel noises and view the results.
	EasyMesh	Use this screen to enable MESH which combines the 2.4GHz and 5GHz wireless network name, password, security type together for eliminating configuration hassles.

Table 4 Configuration Menus Summary (continued)

LINK	TAB	FUNCTION
Home Networking	LAN Setup	Use this screen to configure LAN TCP/IP settings, and other advanced properties.
	Static DHCP	Use this screen to assign specific IP addresses to individual MAC addresses.
	UPnP	Use this screen to turn UPnP and UPnP NAT-T on or off.
	Additional Subnet	Use this screen to configure IP alias and public static IP.
	STB Vendor ID	Use this screen to configure the Vendor IDs of the connected Set Top Box (STB) devices, which have the Zyxel Device automatically create static DHCP entries for the STB devices when they request IP addresses.
	Wake on LAN	Use this screen to remotely turn on a device on the local network.
	TFTP Server Name	Use DHCP option 66 to identify a TFTP server name.
Routing	Static Route	Use this screen to view and set up static routes on the Zyxel Device.
	DNS Route	Use this screen to forward DNS queries for certain domain names through a specific WAN interface to its DNS server(s).
	Policy Route	Use this screen to configure policy routing on the Zyxel Device.
	RIP	Use this screen to configure Routing Information Protocol to exchange routing information with other routers.
QoS	General	Use this screen to enable QoS and traffic prioritizing. You can also configure the QoS rules and actions.
	Queue Setup	Use this screen to configure QoS queues.
	Classification Setup	Use this screen to define a classifier.
	Shaper Setup	Use this screen to limit outgoing traffic rate on the selected interface.
	Policer Setup	Use this screen to configure QoS policers.
	Monitor	Use this screen to view statistics of QoS on WAN/LAN interface and the status of queues.
NAT	Port Forwarding	Use this screen to make your local servers visible to the outside world.
	Port Triggering	Use this screen to change your Zyxel Device's port triggering settings.
	DMZ	Use this screen to configure a default server which receives packets from ports that are not specified in the <b>Port Forwarding</b> screen.
	ALG	Use this screen to enable the ALGs (Application Layer Gateways) in the Zyxel Device to allow applications to operate through NAT.
	Address Mapping	Use this screen to change your Zyxel Device's address mapping settings.
	Sessions	Use this screen to configure the maximum number of NAT sessions each client host is allowed to have through the Zyxel Device.
DNS	DNS Entry	Use this screen to view and configure DNS routes.
	Dynamic DNS	Use this screen to allow a static hostname alias for a dynamic IP address.
IGMP/MLD	IGMP/MLD	Use this screen to configure multicast settings (IGMP for IPv4 and MLD for IPv6 multicast groups) on the WAN.
VLAN Group	VLAN Group	Use this screen to group and tag VLAN IDs to outgoing traffic from the specified interface.
Interface Grouping	Interface Grouping	Use this screen to create multiple networks on the Zyxel Device.
Security		