Verizon 5G Home Router User Guide

Version Information

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Federal Communication Commission

Interference Statement

This 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.

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25 GHz band are restricted to indoor usage only.

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Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 31cm between the radiator & your body.

Safety Warnings

Adapter

Do not use any other power adaptor except the one that accompanies this unit or a power adaptor identified in the list below.

Use of another adapter could result in damage to the unit.

The following power adaptor is qualified for use with this Verizon 5G Home Router:

This unit must be powered by LUCENT TRANS, model 1A95 or equivalent UL listed power source rated @ output 19Vdc, Maximum 2.37A.

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Document History

Version	Date	Change	Verizon POC

Document Approvals

Name	Title	Company	Date of Approval

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Table of Contents

Chapter 1
Introduction

This chapter includes a list of items included with the LVR1 5G Router, an overview of the Router's features, and a description of the user interface and ports on the Router.

▮▮▮▮▮▮ Unboxing Information

Inside the product package for the LVR1 5G Router, you should find the following items:

- LVR1 5G Router × 1
- AC adaptor × 1
- Flat Ethernet cable × 1 (length: 10 ft.)
- Wi-Fi Collateral Card

▮▮▮▮▮▮ Key Features

- 4x4 5GHz high band, 4x4 5GHz low band, 4x4 2.4GHz
- Two 2.5GbE ports and two 1GbE ports.
- Built-in mic and speaker for Alexa Voice Service
- Bluetooth for music playback and Verizon App
- Touch panel

▮▮▮▮▮▮ Top Panel (LEDs)

- Touchpad

    A circular touchpad is located on the top panel of the LVR1 5G Router. This is the main interface for setting up the Router.

    Note: Please remove the clear protective film from the top before use.

- Action Button

    A touch-sensitive action button is located in the center of the touchpad on top of the Router. You can use this button to turn off alerts, wake up Alexa, interrupt an Alexa response, or reset the Alexa Voice Service (AVS). To reset AVS, press

and hold down the button for 5 seconds.

- Volume Adjustment Buttons

    Touch-sensitive volume adjustment buttons are located on the left and right sides of the touchpad on top of the Router. The "+" button raises volume, while the "-" button lowers volume.

- Mute Button

    A touch-sensitive mute button is located near the upper edge of the touchpad above the action button.

- Microphones

    Four microphones are located on the touchpad, arranged in a square pattern to determine the direction of the user's voice.

- Circular LED Light

    A recessed circular LED light surrounds the touchpad on top of the Router. The LED will light up in different ways to indicate the connectivity status of the Router.

LED Light Guide

Function	Status	LED Ring
Pairing (WPS / Bluetooth®)	Not paired to Receiver (CPE)	Animation Red *Until changed to other state*
	Pairing mode active **(WPS or Ethernet pairing)** **Ethernet cable to be used for pairing Router and extender if WPS fails**	Animation Blue *Lit towards the pairing button side* *Until pairing period ends*
	Pairing success **(WPS or Ethernet pairing)**	Animation Blue *For 2 seconds*
	Pairing fail **The Router displays White after 2 seconds of red hard blink.**	Animation Red *For 2 seconds*
Wi-Fi and Internet	Router connected to CPE and Internet is active, but Wi-Fi is turned Off.	Solid Amber *Until changed to other state*
	Wi-Fi quality between IDU and Router is poor.	Animation

		Yellow and white ring *Until changed to other state*
	Router connected to CPE, but no Internet connection (5G node might be down)	Animation Red *Until changed to other state*
	Router connected to CPE, Wi-Fi and Internet working well.	Solid White *Until changed to other state*
Usual Functions	Firmware upgrade Blinks during upgrade installation (FOTA)	Fast Blink White *Until firmware is updated*
	Hard reset / Reboot Triggered through app / FOTA	Fast Blink White *(For 1–2 seconds before turning OFF)*
	Turn ON device (when device turns on)	Animation White to Red/Blue *Until changed to other state*
Alexa Voice Service	The Router is on and waiting for your request.	Al lights are off.
	The device is starting up.	Solid Blue *With spinning cyan lights*
	Alexa is busy processing your request.	Solid Blue *With cyan pointing in direction of person speaking*
	The device is responding.	Solid Blue and Cyan *Alternating between blue and cyan*
	You have turned off the microphones on your device. Press the Microphone button to turn on the microphones.	Solid Red
	A message or notification is waiting for you. Say, "Play my messages" or "What are my notifications?"	Pulsing Yellow
	You are adjusting the volume level on your device.	White
	Do Not Disturb is enabled. To learn more, go to *Use Do Not Disturb for Alexa*.	Single flash Purple *(After an interaction with Alexa)*

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▮▮▮▮Back Panel

- WAN Port

  The WAN Port (the red Ethernet port) connects the Router to a 5G CPE using an Ethernet cable.

- LAN Ports

  Three LAN ports (one 2.5 Gbps port on the rightmost and two 1 Gbps ports in the middle) enable you to connect devices to the Router via Ethernet cables.

- Power Jack

  Connect the AC adaptor (power source rated @ output 19Vdc, maximum 2.37A) to the Power Jack to provide power to the Router from an electrical outlet.

- Multi-purpose Pairing Button

  Press this button once to connect the Router to other devices via WPS or Bluetooth®.

- Hard reset Button

  Press and hold this button for 5 seconds to reset the Router to factory defaults.

Chapter 2
Connecting the Router

This section describes how to set up and configure your Router.

Setting up the Router

1. Unbox the Router, AC adaptor, and Ethernet cable.

2. Plug the AC adaptor into an electrical outlet, then connect the other end to the power jack on the back of the Router.

3. Plug an Ethernet cable into the WAN port on the back of the Router.

4. Plug the other end of the Ethernet cable into an Ethernet port on your IDU (such as a 5G CPE).

5. Use Wi-Fi (recommended) or Ethernet cables to connect the Router to other devices.

Configuring the Router

Connect a computer to the Router and open a web browser. Type 192.168.0.1 in the address text box, or http://my.router in the address bar, and press Enter (on the computer's keyboard). A login screen will then appear.

Type in your password, which is printed on the product label, to enter a configuration screen.

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Connecting Other Devices

The Router can connect to other devices via Ethernet and via wireless connection.

<u>Ethernet</u>

1. Take an Ethernet cable and plug one end into one of the LAN ports on the back of the Router.

2. Plug the other end of the Ethernet cable into an Ethernet port on one of the other devices.

3. Repeat these steps to connect more devices to the Router via Ethernet.

<u>Wireless</u>

1. Ensure that the devices you wish to connect wirelessly to the Router have Wi-Fi capability.

2. Make sure the devices are using the same SSID and password as the Router by launching each of the devices' wireless applications.

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Chapter 3
Accessing the Web User Interface

█████Login

After connecting and turning on the Router, a **Sign In** screen will appear.
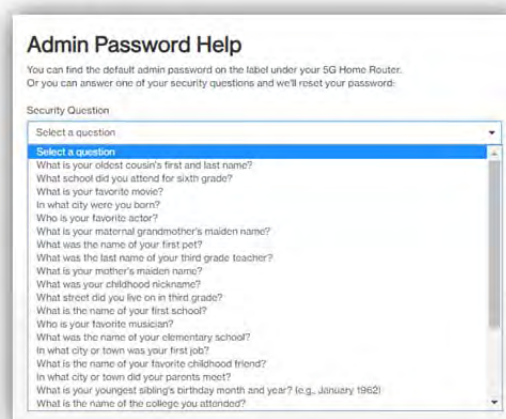
Enter your admin password to log into the **Home Page** of the Router's Web GUI. If you forget your password, you can answer one of the security questions to reset the password to factory default settings.

You can find the default password on the label under the LVR1 5G Router.

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███ Home Page/Main Section

After logging in, the **Home Page** of the Router will appear.
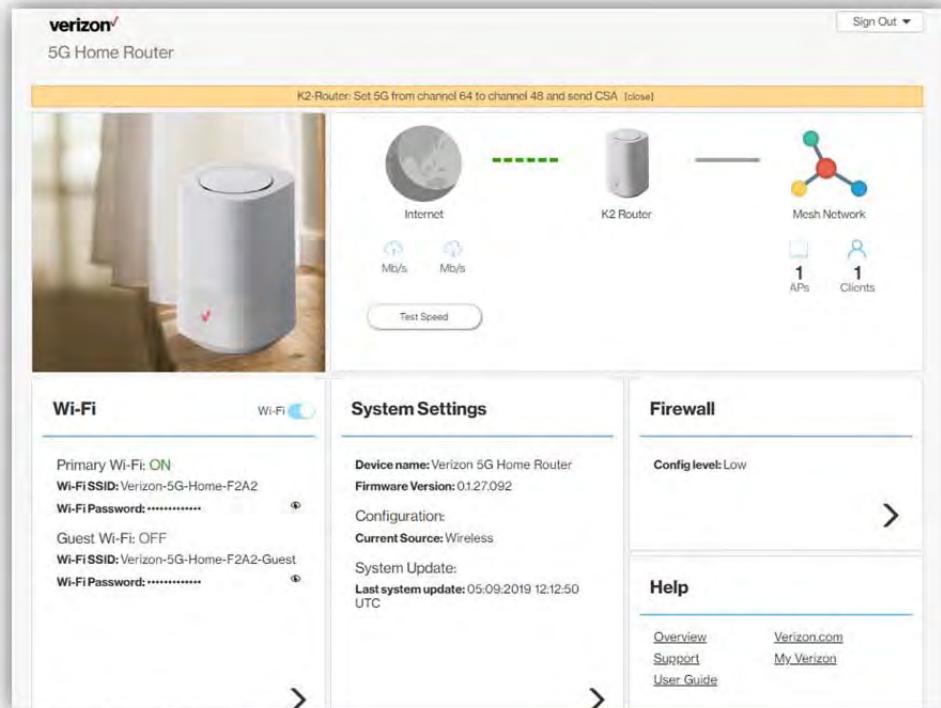
The **Home Page** is where users can check the connection status between the Router and the Internet/mesh network, conduct network speed tests, and adjust settings such as Wi-Fi options, parental controls, and more. In the upper right panel of the screen, the **Network Map** presents a list of devices that are currently connected to the Router. Below that, the screen is divided into three columns: **Wi-Fi** on the left, **System Settings** in the middle, and **Firewall** and **Help** on the right.

The drop-down menu on the upper right of the **Home Page** includes selections such as **Admin Settings**, **My Verizon**, **Restart 5G Home Router**, and **Sign Out**.

3.2.1   Network Map (Speed test, Mesh network)
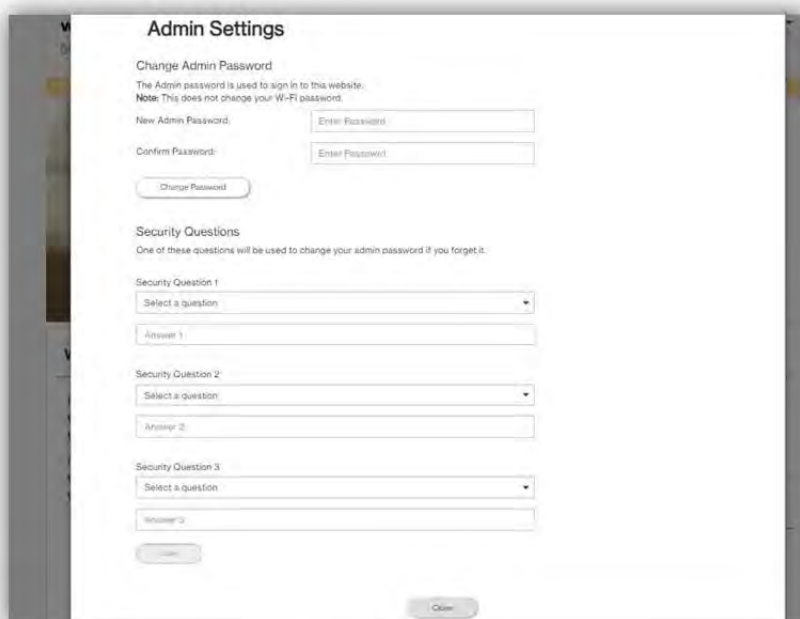
The **Network Map** is located in the upper-right section of the **Home Page**. The lines between the Router and the Internet/mesh network/devices on the map indicate the connection status between them. A solid green line indicates a wired connection, a dashed line indicates a Wi-Fi connection, and a gray line with a red x in the middle indicates that there is no connection.

To test the connection speed between the Router and the Internet/other networks, click the "Test Speed" button on the lower left of the **Network Map**.

The number of APs and clients currently connected to the network are indicated in the lower right section of the **Network Map**.

3.2.2   Admin Settings

The Change Admin Password section enables you to change the Admin password that is used to sign in to the Router's **Home Page**. Type the desired admin password in the New Admin Password field, then type the admin password again in the Confirm Password field. Click **Change Password** to apply the new password.

In the Security Questions section, you can choose three security questions, then enter the answer for each question. If a user forgets his/her admin password, one of the questions will be used to revert the admin password to factory default settings. Click **Save** to save your changes. Click **Close** to close the Admin Settings window.

3.2.3   My Verizon

You will be directed to My Verizon, where you can manage your account online. With My Verizon, you can also pay your bill, check your usage and view your order status.

3.2.4   Restarting the 5G Home Router

To restart the Router, click the drop-down arrow and select **Restart 5G Home Router**. A window will appear on the screen. Click **Restart** to restart the Router.

3.2.5   Sign Out

Click **Sign Out** to log off the Router.
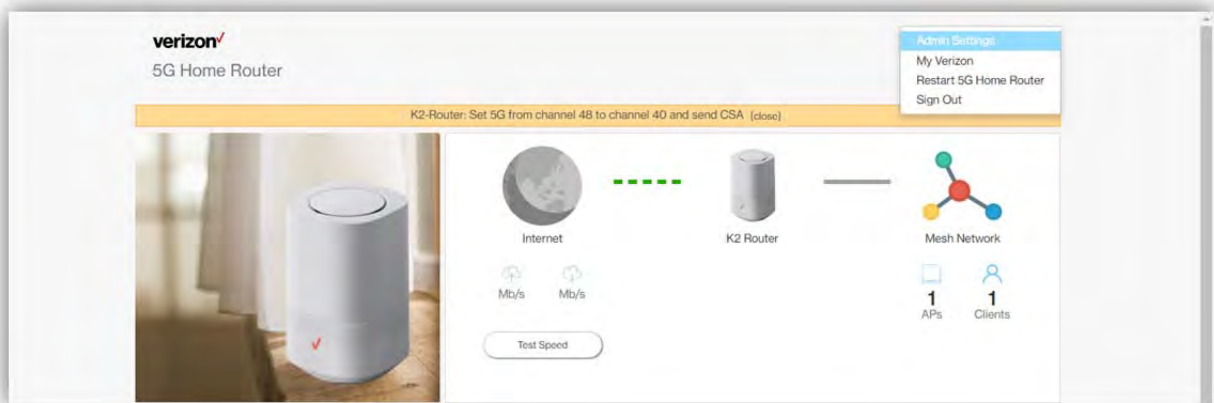
▓▓▓   Wi-Fi Settings

Click the **>** arrow on the bottom-right side of the **Wi-Fi** column in the **Home Page** to bring up the Wi-Fi page. On this page, you can adjust settings for the Primary Wi-Fi Network, Guest Wi-Fi Network, Wi-Fi Advanced Settings, and WPS.

3.3.1   Primary Wi-Fi Network

Slide the **Enable** switch to the right to activate the Primary Wi-Fi network. The switch will turn blue to indicate that the selected Wi-Fi network is turned on. To turn off the Primary Wi-Fi network, slide the switch to the left.

- Wi-Fi name (SSID)

    The Wi-Fi name (SSID) is the name of the wireless network broadcasting from the Router. In order for devices to connect to the local network over a wireless link, they must select this network name from the list of detected wireless networks in the area.

- Password

    Specify a password for your wireless network. Click the 👁 icon to display the selected password for the SSID.

- New Password

    Enter a new password here for the SSID.

- Confirm Password

    Type your new password here.

    Note: Passwords must be 8–63 characters long and are case sensitive. Changing your Wi-Fi name or password may cause devices to lose their connection to the primary network.
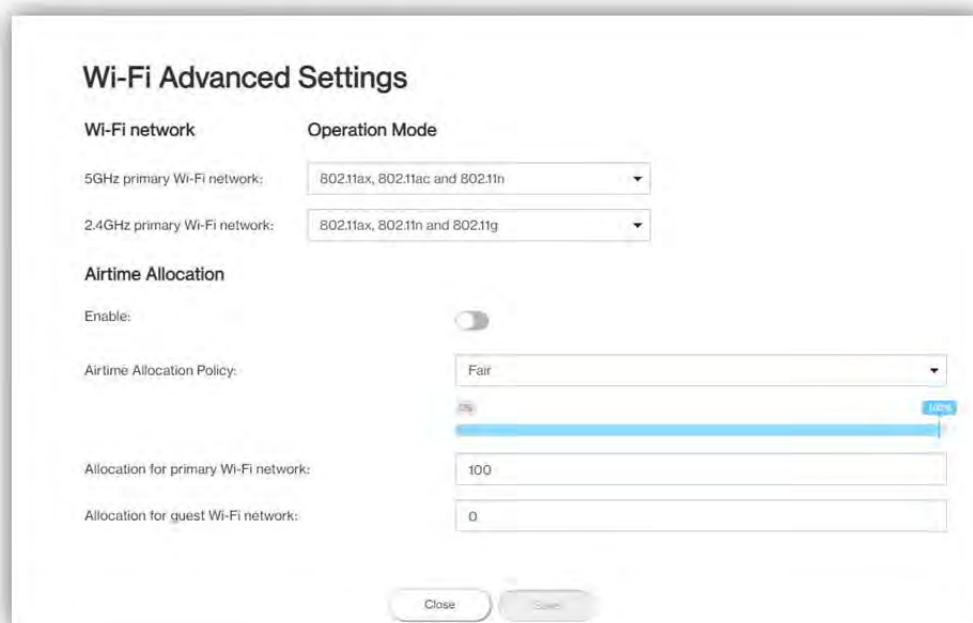
- Broadcast Wi-Fi Name (SSID)

    Check this box if you want to broadcast your SSID. The SSID will be displayed when you search for available networks.

- Wi-Fi network encryption

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Select one security method from the drop-down menu. The encryption types include None, WEP-64, WPA2-Personal, and WPA-WPA2-Personal.

3.3.2   Guest Wi-Fi Network

Slide the **Enable** switch to the right to activate the Guest Wi-Fi network. The switch will turn blue when the guest network is enabled. To turn off the Guest Wi-Fi network, slide the switch to the left.

- Wi-Fi name (SSID)

  The Wi-Fi name (SSID) is the name of the wireless network broadcasting from the Router. In order for devices to connect to the local network over a wireless link, they must select this network name from the list of detected wireless networks in the area.

- Password

  Specify a password for your wireless network. Click the 👁 icon to display the selected password for the SSID.

- New Password

  Enter a new password here for the SSID.

- Confirm Password

  Retype the new password here.

  Note: Passwords must be 8–63 characters long and are case sensitive. Changing your Wi-Fi name or password may cause devices to lose their connection to the primary network.

- Broadcast Wi-Fi Name (SSID)

Check the box if you want to broadcast the SSID. The SSID will be displayed when you search for available networks.

- Wi-Fi network encryption

Select one security method from the drop-down menu. The encryption types include None, WEP-64, WPA2-Personal, and WPA-WPA2-Personal.

3.3.3   Wi-Fi Advanced Settings

- Wi-Fi Network Operation Mode

On this page, you may adjust the operation mode for the 5 GHz and 2.4 GHz primary Wi-Fi networks as well as adjust airtime allocation.

The options provided for the 5 GHz primary Wi-Fi network include:

802.11n only
802.11ac and 802.11n
802.11ax, 802.11ac and 802.11n
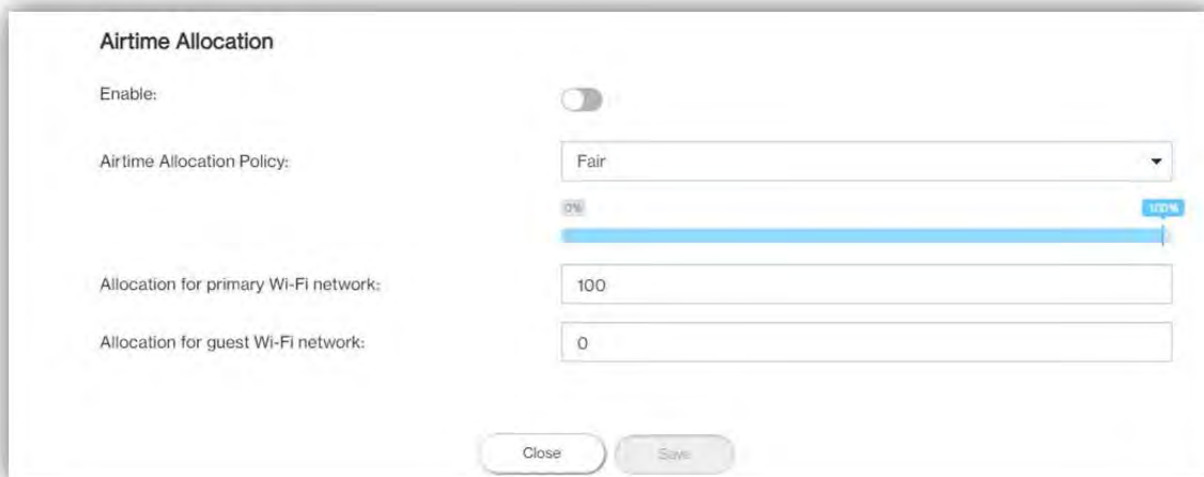
The options for the 2.4 GHz primary Wi-Fi network include:

802.11n and 802.11g
802.11ax, 802.11n and 802.11g

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- Airtime Allocation
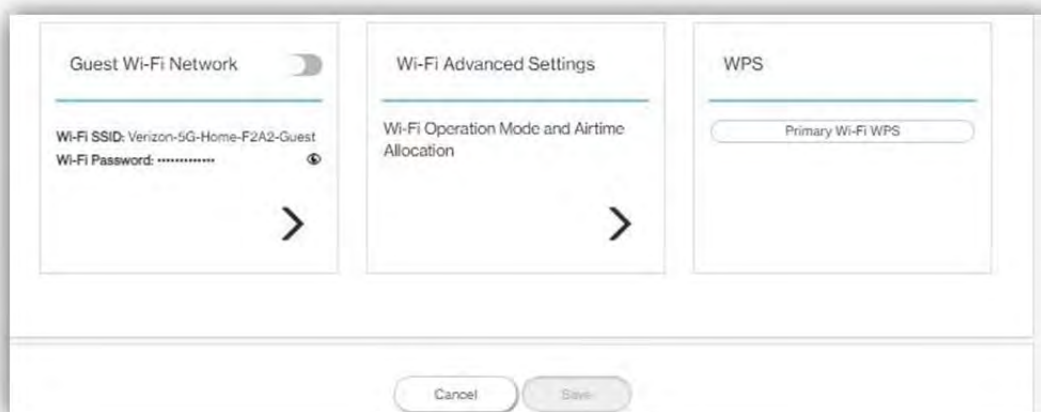
Slide the **Enable** switch to the right to activate this function. The switch will turn blue when airtime allocation is enabled. To disable airtime allocation, slide the switch to the left.

When ATF is enabled, the system needs to be restarted for it to take effect.

In the Airtime Allocation Policy pull-down menu, two policy options are available: Fair and Strict.

Use the slider below the Airtime Allocation Policy pull-down menu to adjust the percentage of resources allocated to the primary and guest Wi-Fi networks. Sliding the bar to the right increases the allocation percentage for the primary Wi-Fi network, while sliding the bar to the left increases the allocation percentage for the guest Wi-Fi network. The allocation percentages for the primary and guest Wi-Fi networks are shown in the two fields on the bottom of the page, and change in real-time when the slider is adjusted.

3.3.4   WPS

- Primary Wi-Fi WPS

  WPS allows rapid wireless connection between the Router and other WPS-compatible devices. You can trigger the WPS function on Primary Wi-Fi by clicking on the **Primary Wi-Fi WPS** button.

  Connected Devices

  This section displays information about the devices connected to the APs, illustrated through a Network Map, as well as the AP list and Connected Devices table.
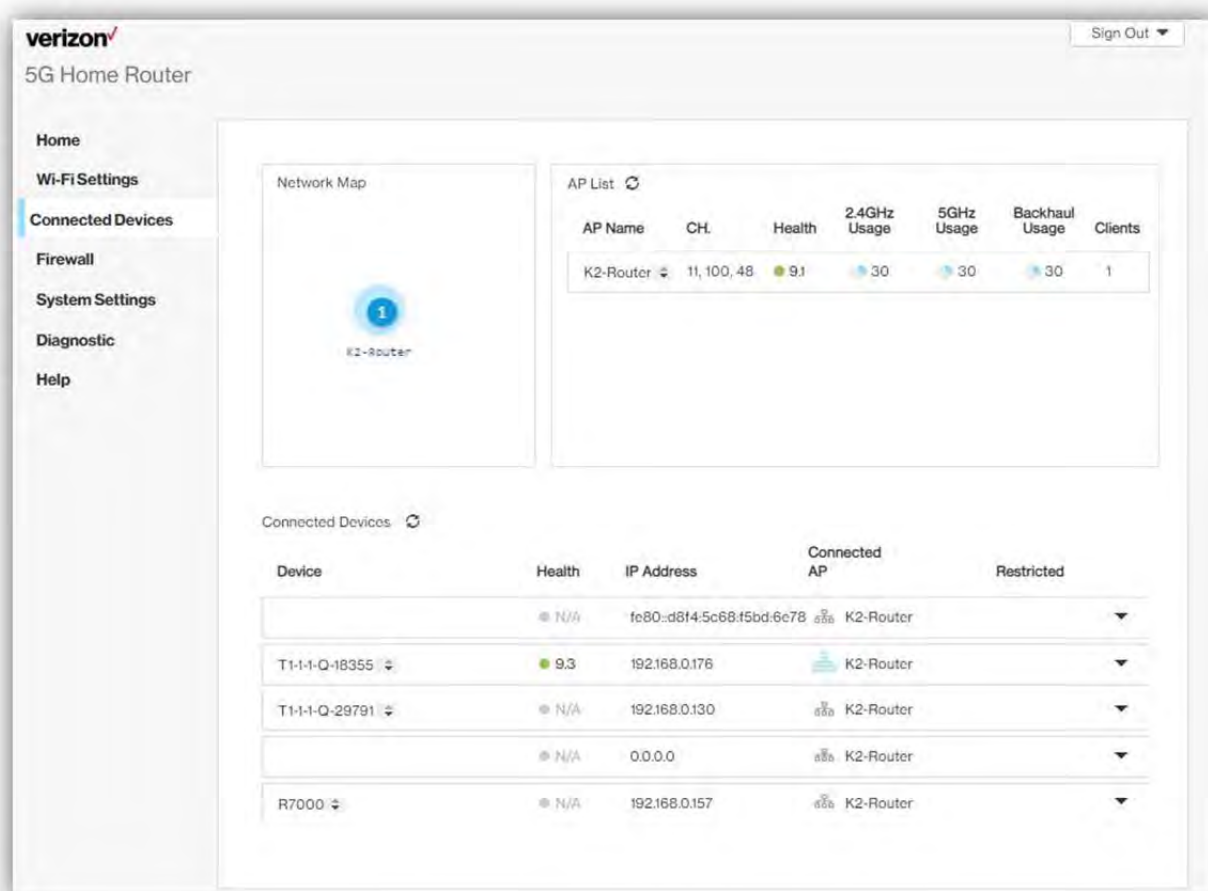
3.4.1   Network Map

The Network Map illustrates the mesh network comprising the connected APs, their names, as well as their respective connection status.

The number in the circle indicate the number of clients currently connected to the AP.

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3.4.2 AP List

The section presents detailed information of each AP, including the name of the AP, wireless radio channel information, health of the connection status, usage of the 2.4 GHz and 5 GHz Wi-Fi, backhaul usage, and the number of connected clients.

3.4.3 Connected Devices

The name of each device that has been connected/is currently connected to the Router is displayed here. Also displayed are the health of their connection status, their IP addresses, which AP a device is connected to, and the restriction policies related to each device (if any).

Select the arrow icon "▼"on the right that correspond to a connected device, and related information and settings for the device will be displayed, including its IPv6 address, whether to delete the device, block the device, or reserve DHCP IP.

The **Delete Device** button enables you to remove the selected device which has connected to the Router. Once removed, the computer/device will not be displayed on this page.

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The **Block Device** switch allows you to block or allow computers or devices from establishing a connection to the Router. To block a device, slide the **Block Device** switch to the right. The switch will be blue when the feature is enabled.

The **Reserve DHCP IP** switch enables the Router to assign the same IP address to a specific device whenever that device connects to your network. To reserve DHCP IP, slide the **Reserve DHCP IP** switch to the right.

When a Wi-Fi client is connected and the **Airtime Allocation** feature is enabled, you will be able to adjust the airtime percentage for each client. It is recommended that you use 90% to leave margin for other clients that are not set with a non-zero ATF percentage.

Restrictions

This section enables you to set restriction policies for the selected device. You can specify the time during which the selected device will not be able to access Internet. Alternatively, you may also specify the time during which the selected device will be able to access Internet. The settings you can perform in this section include the name of the schedule and the time period for the restriction policy. Click **Save** to save your settings. The ⊘ icon indicates that the selected device is blocked permanently. The 🕒 icon indicates that the device is only restricted during the specified periods of time.

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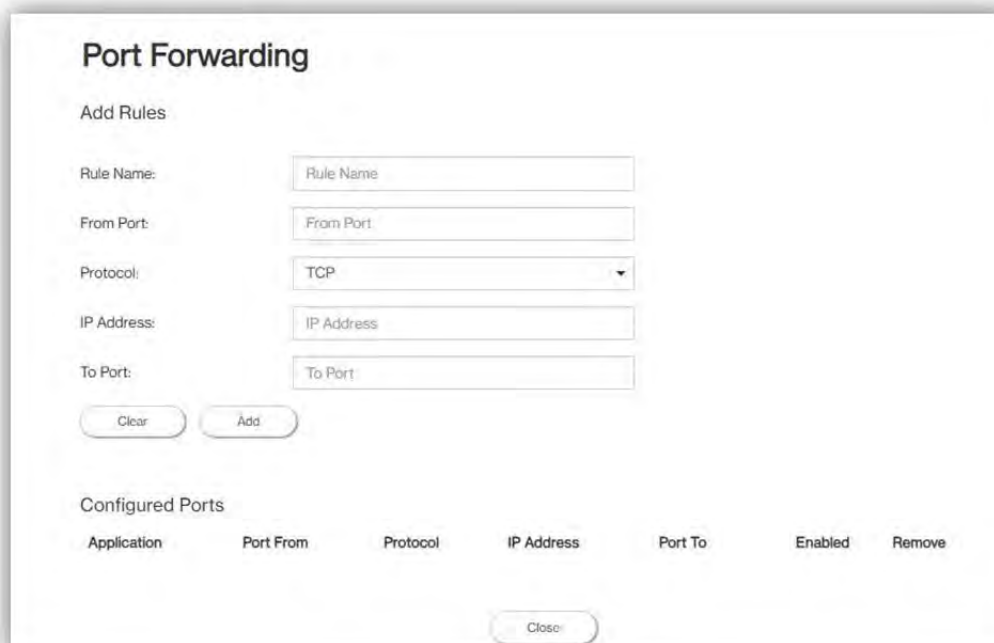
███ Firewall

A firewall is used to prevent traffic from entering and/or leaving the areas of your network. In this section you can select **Low** for minimum level of security, **Medium** for typical level of security, and **High** for maximum level of security.

3.5.1 Port Forwarding

Port Forwarding can be used to open certain ports of a device to communicate with an Internet service. To turn on Port Forwarding, slide the Port Forwarding switch on the bottom right of the General Information page to the right. The switch turns blue to indicate that the function is turned on. To turn off this function, slide the switch to the left. To access this page, click Port Forwarding on the General Information page.

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From the Port Forwarding page, enter the appropriate forwarding options listed on the page, then click Add to save your changes, or click Cancel to discard any changes you made. Click Close to close this page. The options include:

<u>Add Rules</u>

- Rule Name
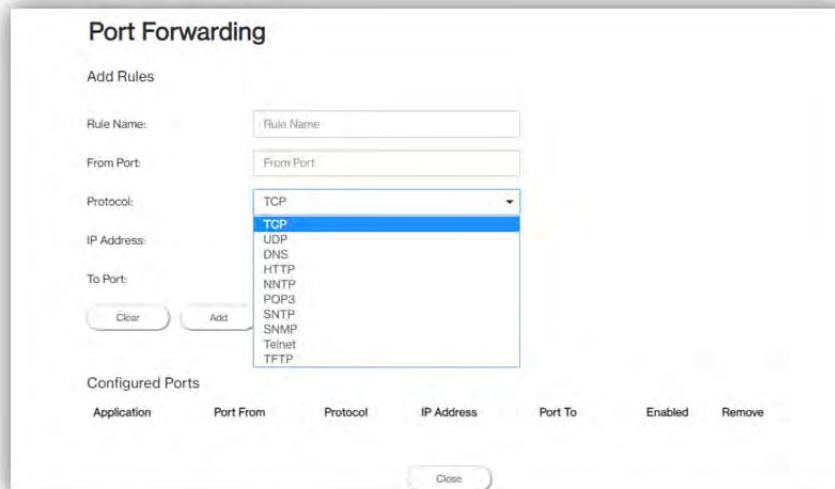
  Type the name of the service for which the port forwarding rule has been created in the Rule Name text field.

- From Port

  Type the value of the WAN port from which you want to forward packets.

- Protocol

  Choose the protocol to be used for port forwarding.

- IP Address

  The local server's IP address.

- To Port

  Type the value of the LAN port to which you want to receive the forwarded packets.

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Configured Ports

This table displays the ports that have been configured.

- Application

  The created rule name will be displayed here.

- Port From

  This shows the value of the start port.

- Protocol

  This shows the protocol selected for the corresponding port forwarding rule.

- IP Address

  This shows the local server's IP address.

- Port To

  This shows the value of the end port.

- Enabled

  The ✔ icon indicates that the corresponding port forwarding rule has been enabled.

- Remove

  Click on the x icon to delete a port forwarding rule.

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3.5.2   DMZ
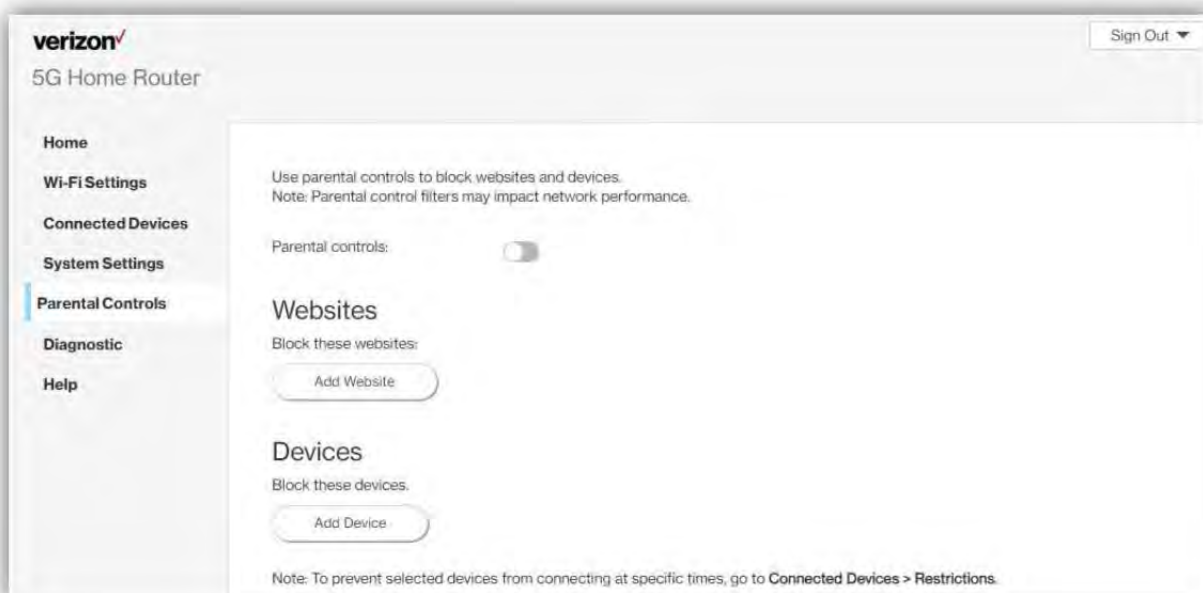
DMZ (De-Militarized Zone) allows you to specify a DMZ host IP to redirect requests to a virtual DMZ host in order to enhance the security of the local area network. To enable DMZ, slide the **DMZ enable** switch to the right. If this function is enabled, threats from external networks will be directed to the DMZ instead of the network. The **DMZ IP address** field indicates the IP address of the host DMZ. To designate a device as a DMZ host, enter its IP address in the **DMZ IP Address** field. Click **Save** to apply the changes, or click **Cancel** to undo your configuration.

██████ Parental Controls

By creating Internet access policies, Parental Controls allow you to control and monitor Internet access. Parental Controls can be activated on the Home page by sliding the Filters switch in the Parental Controls column.

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You can also enable or disable the function after you enter the Parental Controls page. Slide the Parental controls switch to the right. When the switch is blue, parental control of websites and devices is enabled. To turn off this function, slide the switch to the left.

3.6.1   Websites

This function can be used to block computers or devices from accessing certain websites through the Router. The websites that have been blocked are displayed on the screen. To add a website to the block list, click **Add Website** and enter the website in the input field. Click **Add** to save your changes, or click on the 🗑 icon to remove the selected website from the block list.

3.6.2   Devices

To add a device to the block list, click **Add Device.** A drop-down list will display the devices that are currently connected to the Router and their MAC address. Select the device that you want to block, then click **Include.** The devices that appear on this list will be not be able to access any of the websites listed in the Websites section.

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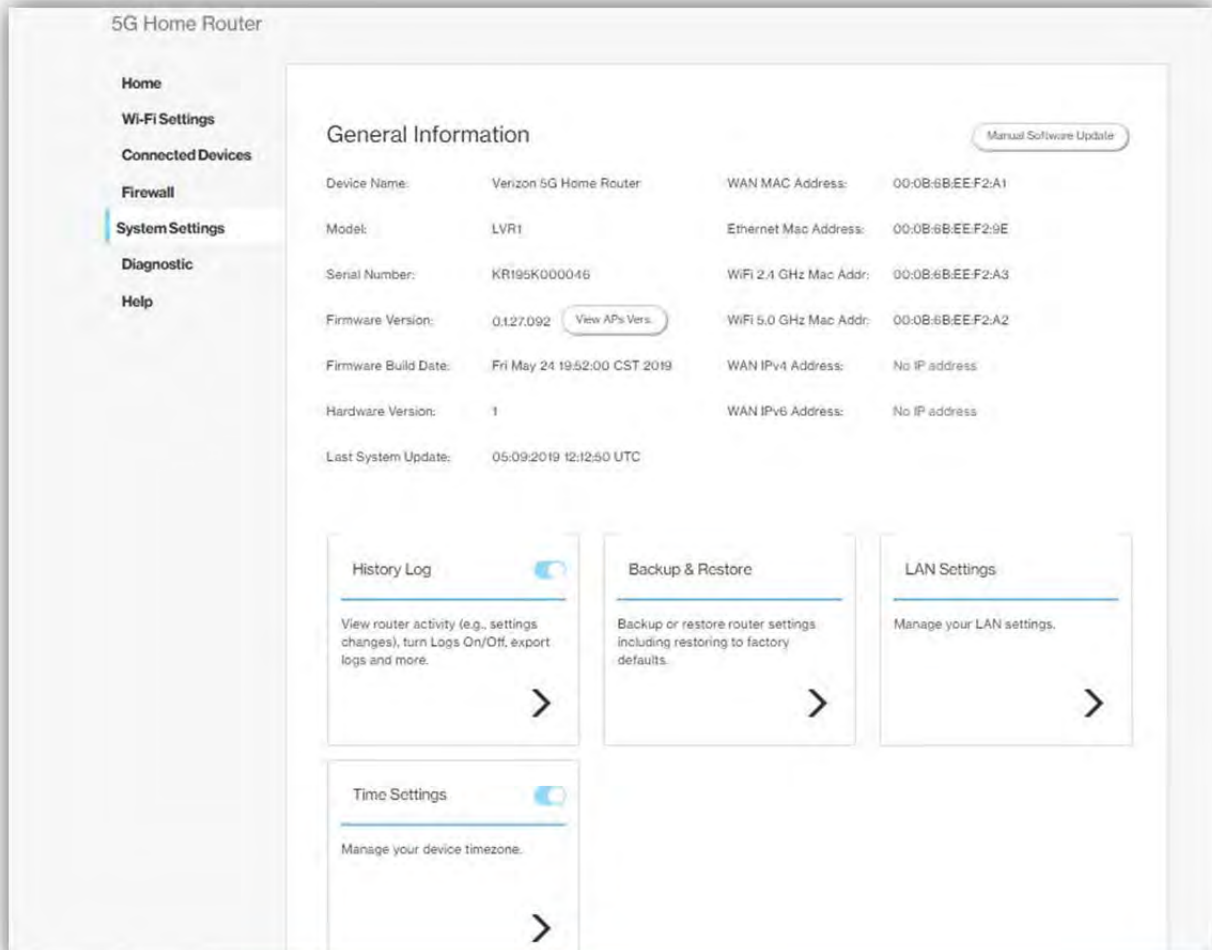
3.7.1   General Information

The **General Information** page provides device information on the Router, including the device name, IMEI, model, and more.

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3.7.2 History Log

The **History Log** page provides various activity records of your Router. To access this page, click **History Log** on the General Information page.

3.7.3 Backup & Restore

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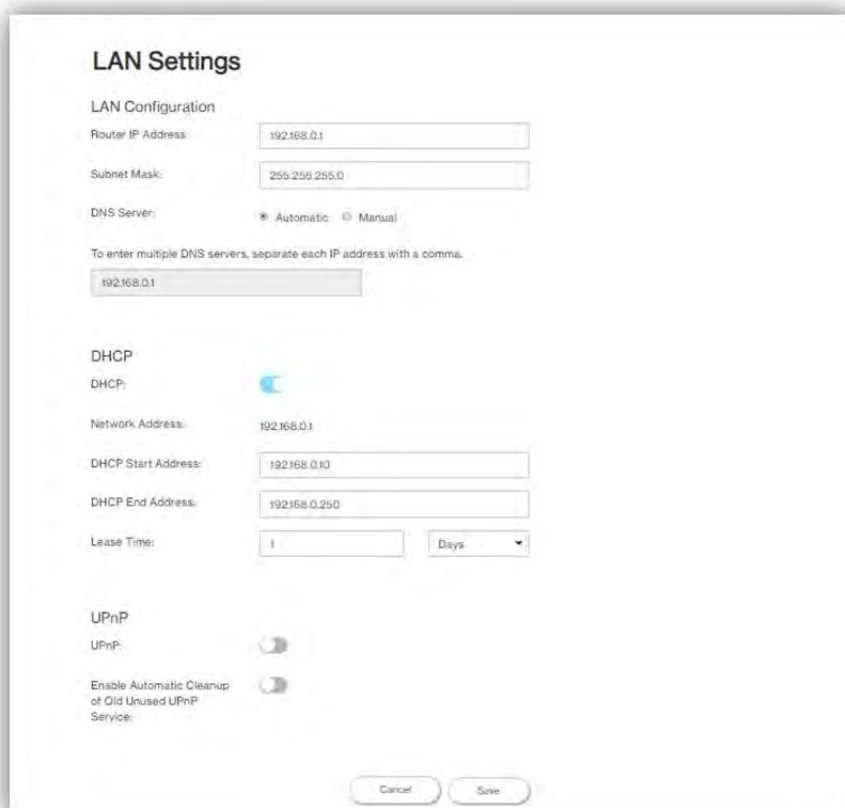
The **Backup & Restore** page covers functions for backing up/restoring the settings on your Router and resetting it to factory settings. To access this page, click **Backup & Restore** on the **General Information** page.

3.7.4   LAN Settings

The LAN Settings page includes settings to configure advanced LAN settings (e.g., IP address, Subnet mask, DHCP) for your Router. To access this page, click LAN Settings on the General Information page.

LAN Configuration

In this section, enter the desired info in the following fields:

- Router IP address

  Specify a range of IP addresses the Router may assign to devices. The default LAN IP configuration is 192.168.0.1.

- Subnet Mask

  The subnet mask along with the previously configured IP address defines the network. The default value for subnet mask is 255.255.255.0.

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- DNS Server

  Use this function to toggle whether the DNS server is set automatically or manually.

  <u>DHCP</u>

  DHCP assigns LAN IP addresses for connected devices. You can specify the range of IP addresses the Router may assign to devices. Click the DHCP switch to turn the DHCP function on or off. You can also enter the desired information in the following fields:

- DHCP Start Address

  Specify the address that starts the range for the pool of IP addresses in the same subnet as the router.

- DHCP End Address

  Specify the address that ends the range for the pool of IP addresses in the same subnet as the router.

- Lease Time

  You can specify a period of time after which an assigned IP address will be retrieved from devices.
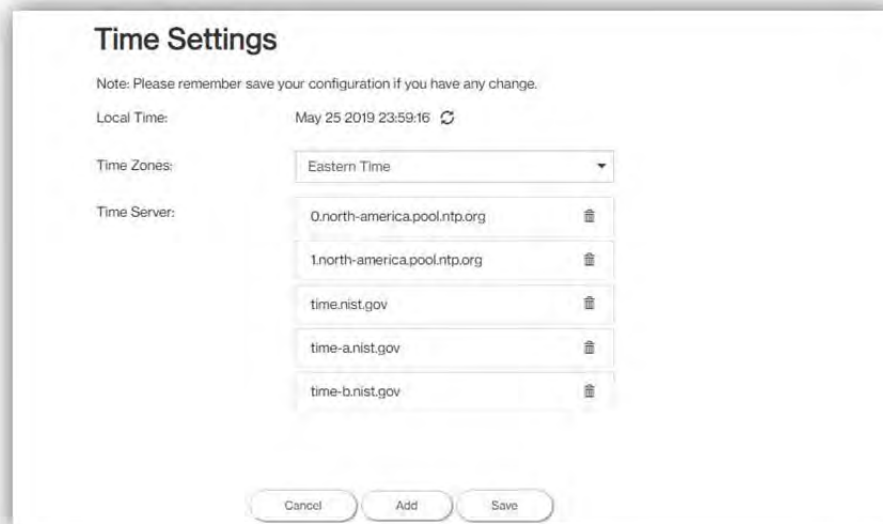
  <u>UPnP</u>

  For devices that support Universal Plug and Play (UPnP), enabling the UPnP function will allow automatic port forwarding that helps your UPnP devices communicate with the Internet.

  Slide the **UPnP** switch to the right to enable the feature. Slide the **Enable Automatic Cleanup of Old Unused UPnP Service** switch to enable the automatic cleanup of invalid rules. When enabled, old and unused UPnP defined services will be removed.

- Static Leases

  Click on the **Add Static Lease** button to add a new one. Enter the MAC address of a device, and give each one a host name, then assign a corresponding IP address.

3.7.5   Time Settings

Use this function to set the time zone and enable automatic time updates. In the **Time Zones** field, select your local time zone. The Router automatically detects daylight saving times for selected time zone. Define the time server addresses by clicking **Add**.

3.7.6   Amazon Alexa

The feature will be available soon.

3.7.7   LED Brightness

The feature will be available soon.

■■■■■■ Diagnostic

You can perform a throughput test between two APs here. Select AP1 and AP2 and click the **Run** button to begin the throughput test. The results will be displayed in the Results section, which also shows Ping, throughput from AP1 to AP2 and vice versa.

Chapter 4
Product Specifications

Wi-Fi	·	2.4GHz 802.11ax 4x4 MIMO
	·	5GHz low band 802.11ax 4x4 MIMO
	·	5GHz high band 802.11ax 4x4 MIMO
	·	Backward compatible with 11ac/11n/11b
IoT	·	Bluetooth
Processors	·	Qualcomm IPQ8074 + QCN5054 + QCN5024
Memory	·	DDR4 RAM 2GB
Storage	·	eMMC 8GB
Dimension	·	Height: 235.8 mm
	·	Diameter: 144.0 mm
Weight	·	1.4 KG
Connector	·	2.5GbE/1GbE/100Mbps/10Mbps WAN port × 1
	·	1GbE/100Mbps/10Mbps LAN port × 2
	·	2.5GbE/1GbE/100Mbps/10Mbps LAN port × 1
	·	DC Jack × 1
Button	·	Multipurpose sync button x 1
	·	Factory reset button x 1
Touch panel	·	Capacitive touch
	·	Multiple color LEDs
Speaker	·	Capacitive touch
	·	Multiple color LEDs
Mic	·	10W/4Ω Speaker
	·	Build-in 4 Microphones for ASR