5G Internet Gateway User Guide (LV55IHP)

Version 6

Section 2.1

Federal Communication Commission Interference Statement

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.

FCC Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF Exposure Statement

To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons (indoor), at least 54cm from all persons (outdoor), and must not be co-located or operating in conjunction with any other antenna or transmitter.

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 Internet Gateway:

This unit must be powered by Delta Electronics, model ADP-120VH DD or equivalent UL listed power source rated @ output 20Vdc, Maximum 6A.

Caution

Ensure to connect the power cord of power adapter to a socket-outlet with grounding connection.

Table of Contents

Chapter 1
Introduction

Verizon's 5G Internet Gateway provides Verizon customers with an improved solution for 5G home service. The innovative design of the 5G Internet Gateway allows customers to connect their favorite devices to Verizon's 5G Network.
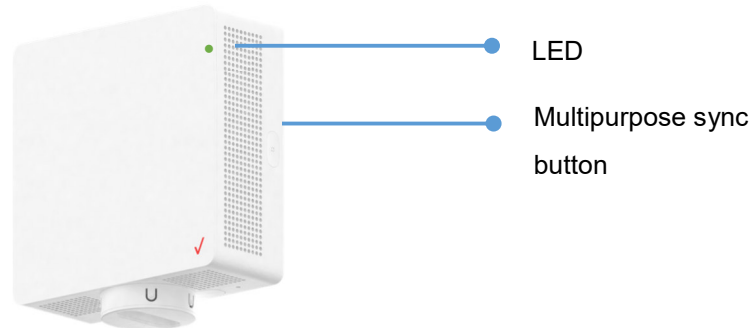
1.1 Unboxing Information

Inside the product package for the 5G Internet Gateway, you should find the following items:

- 5G Internet Gateway × 1
- Bracket × 1
- Power adaptor × 1
- AC power cable × 1
- Cable clip (S) × 3
- Cable clip (L) × 1
- Cable tie × 1
- Window wedge × 1
- Window wipe × 2
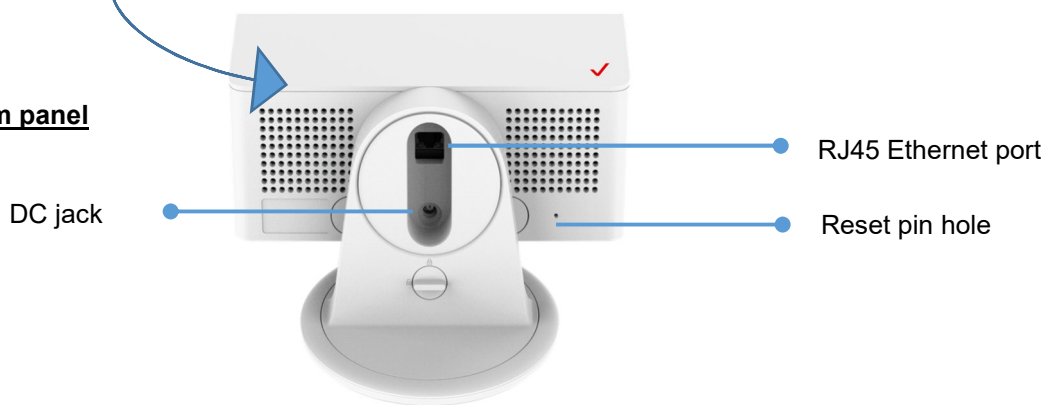- Screw bag × 1

1.2 Bottom and Side Panel

Side panel

LED

Multipurpose sync button

Bracket

Bottom panel

DC jack

RJ45 Ethernet port

Reset pin hole

Part	Description
LED	The LED lights up in different ways to indicate the connectivity status of the 5G Internet Gateway.
Multipurpose sync button	Press this button once to connect the 5G Internet Gateway to Wi-Fi Extender or Wi-Fi Extender Mini devices via WPS or Bluetooth®. After the pairing is successful, the LED light will stop blinking blue.
RJ45 port	Connect the 5G Internet Gateway to PC or switch via an Ethernet cable.
DC jack	Connect the power adaptor to the DC jack to provide power to the 5G Internet Gateway from an electrical outlet.
Reset pin hole	Factor reset the device by pressing the pin hole for 5 seconds.

1.3 LED and Audio Behavior

Status	Front LED		Sound
Device is booting up Soft Fade in-out White	○ ● ○	∿	**Not Applicable**
Bluetooth® pairing mode **(Default-automatic)** Starts automatically when power is on	🔵 ● 🔵	⊓⊔	**Not Applicable**
Bluetooth® pairing mode **(Manual option)** Single press the multifunction sync button to establish connection	🔵 ● 🔵	⊓⊔	**Not Applicable**
WPS/Bluetooth® is paired Blue blinking ceases			**Click sound** Plays once immediately after establishing connection
Activation completed INSTALLATION MODE Device successfully connected to LTE, is activated and will start searching for 5G signal			**Click sound** Plays once immediately after activation
No 5G signal INSTALLATION MODE Device cannot detect 5G signal immediately after activation	🔴	⌐	**Error sound** Plays once immediately after switching to operational mode
Poor 5G signal INSTALLATION MODE 5G signal is detected after activation but signal strength is not strong enough.	🟠	⌐	**Error sound** Plays once immediately after switching to operational mode

Passing 5G signal INSTALLATION MODE Good 5G signal has been detected for installation.	🟢	⌐	**Good signal sound** Plays once immediately after switching to operational mode and finding passing signal
Firmware update/Factory reset in progress	⬭ ⬬ ⬭ ⬬ ⬭	ЛЛЛ	Not Applicable
Error (Fault) Hardware or software issue	🔴 ⚫ 🔴	ЛЛ	**Error sound** INSTALLATION MODE Plays once immediately after incident
Working as advertised REGULAR USAGE MODE Device setup is completed and Internet is active. Show solid white light and then dims to 50% brightness after 60 seconds.	⚪	⌐	Not Applicable
Wi-Fi is disabled Amber blinking ceases until Wi-Fi is enabled.	🟡 ⚫ 🟡	ЛЛ	Not Applicable

Chapter 2
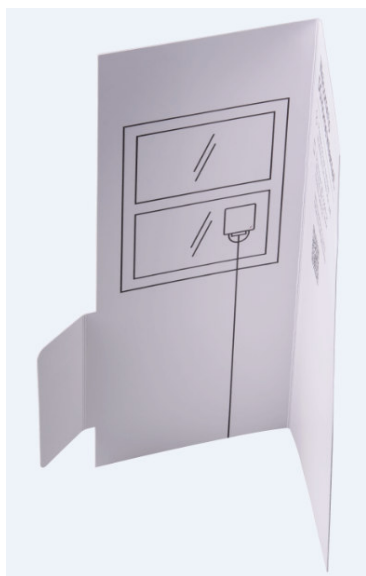# Self-Setup and Activation

2.1   Installation, Activation, and Setup

Please download the My Verizon Mobile app for installation, activation and setup of your 5G Internet Gateway. Take out the set up guide print from the gift box.

Back side	**Front side**
This side should be printed with URL/QR code	

Please do not remove anything from the box yet.

Scan the QR code to visit the URL on your mobile device or access

http://setup.verizon.com/5Ginternetgateway

When installing the 5G Internet Gateway, make sure that the back side of the device faces towards the direction of the 5G signal.

Back side:
This side should face the 5G signal

Front side:
**This side should face inside the home.**

2.2 WPS Connection

WPS can be used to pair your 5G Internet Gateway to the Wi-Fi Extender or Extender Mini by following these steps:

1. Short press the multipurpose sync button on your 5G Internet Gateway.

2. Short press the multipurpose sync button on the Wi-Fi Extender or Extender Mini, making sure the device is within range of the 5G Internet Gateway.

3. The 5G Internet Gateway will play a sound to indicate pairing success.

2.3 Speed Test after Installation is Completed

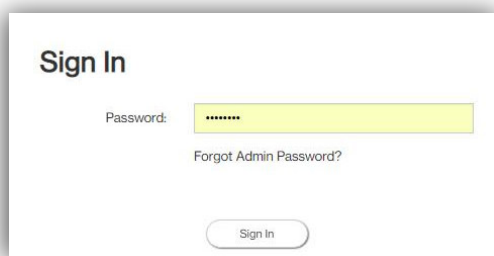After the installation is completed, run a speed test to check your upload and download speeds.
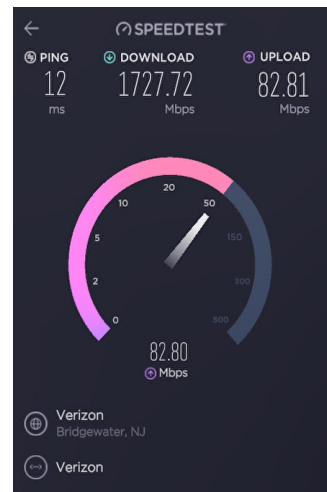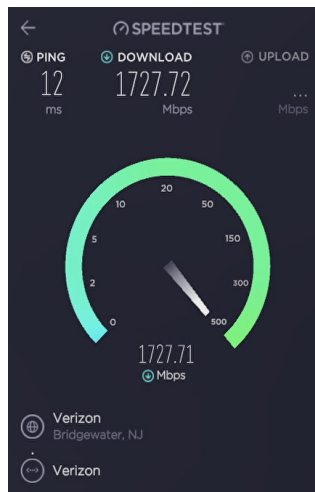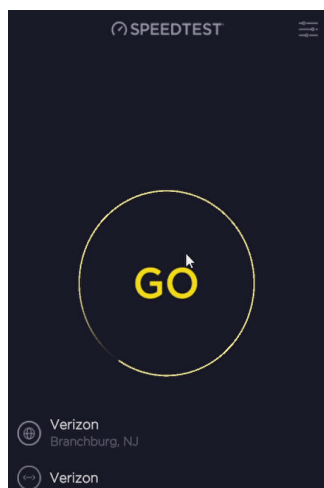
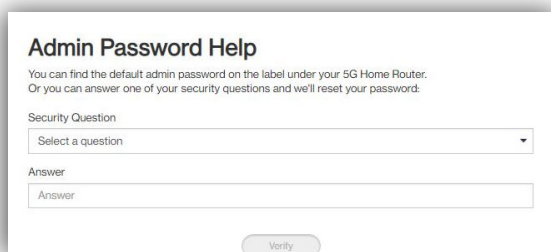# Chapter 3
Accessing the Web User Interface

3.1   Login

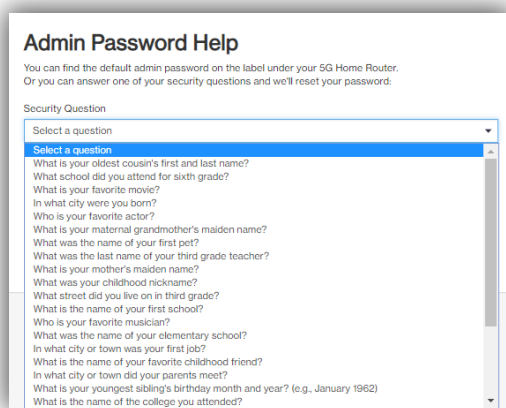After connecting and turning on the 5G Internet Gateway, a **Sign In** screen will appear.

Enter your admin password to log into the **Home Page** of the 5G Internet Gateway'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 5G Internet Gateway.

3.2   Home Page/Main Section

After logging in, the **Home Page** of the 5G Internet Gateway will appear.
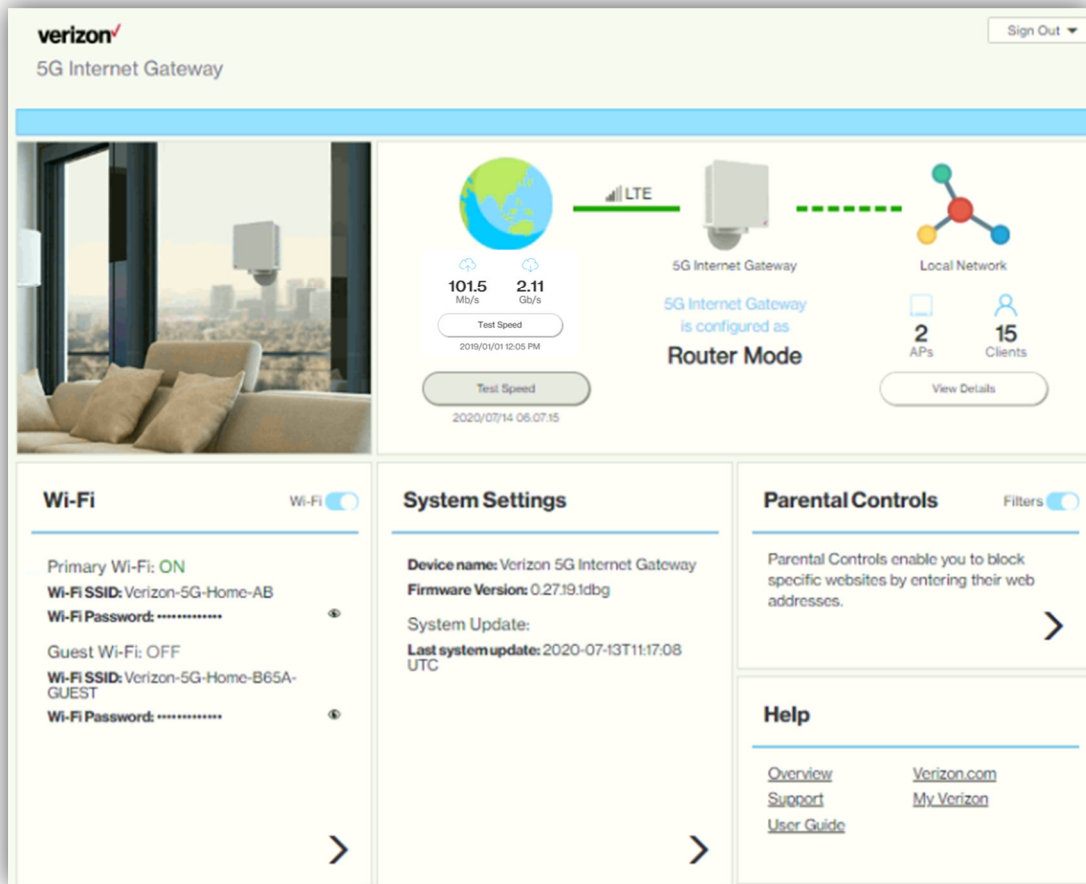
The **Home Page** is where users can check the connection status between the 5G Internet Gateway and the Internet/mesh network, conduct network speed tests, and adjust settings such as Wi-Fi options, parental controls, and more. In the upper right panel of the screen, the **Network Map** presents a list of devices that are currently connected to the 5G Internet Gateway. Below that, the screen is divided into three columns: **Wi-Fi** on the left, **System Settings** in the middle, and **Parental Controls** 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 Internet Gateway**, 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 5G Internet Gateway 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 5G Internet Gateway 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 5G Internet Gateway'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.

If the password you enter contains three consecutive or repeating alphanumeric characters, a window will pop up as a warning of insufficient password strength.
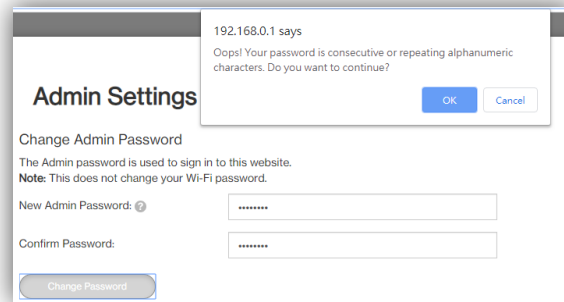
In the Security Questions section, you can choose three security questions, then enter the answer for each question. If a user forgets his/her admin password, one of the questions will be used to revert the admin password to factory default settings. Click **Save** to save your changes. Click **Close** 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 Internet Gateway

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

3.2.5   Sign Out

Click **Sign Out** to log off the 5G Internet Gateway.
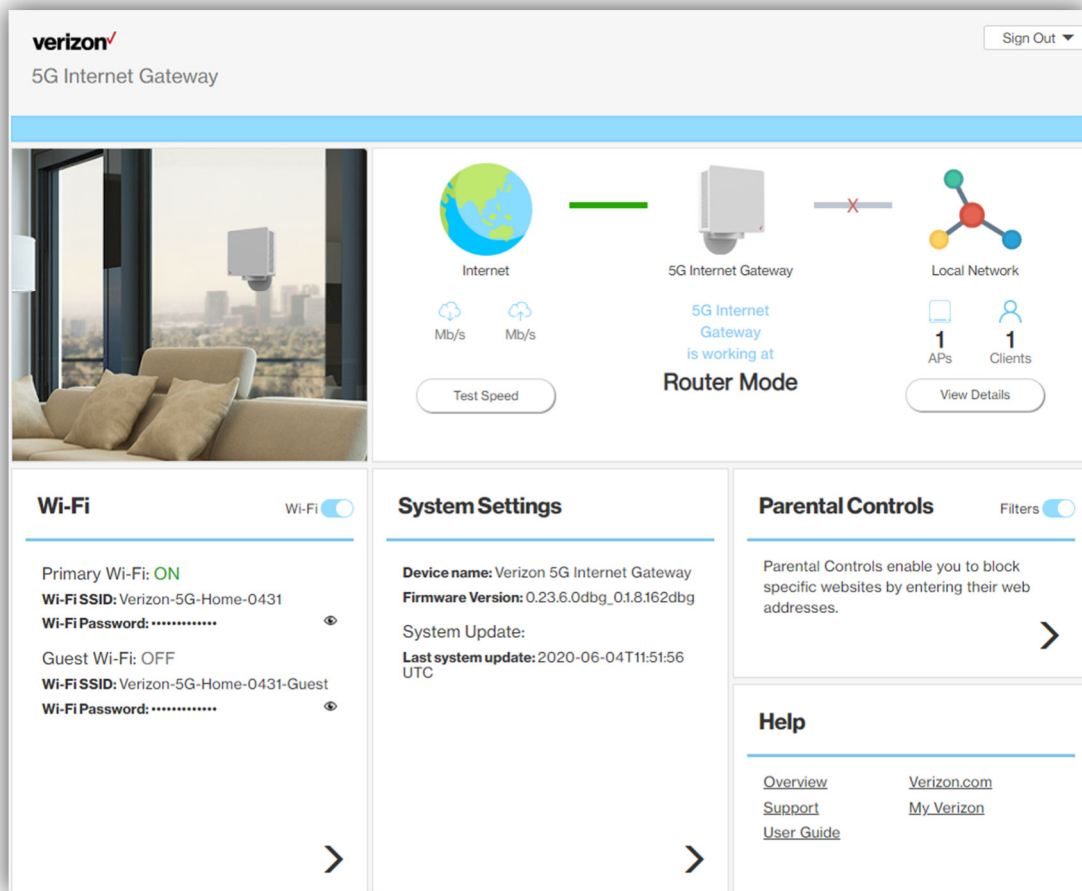
3.3 Wi-Fi Settings

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.
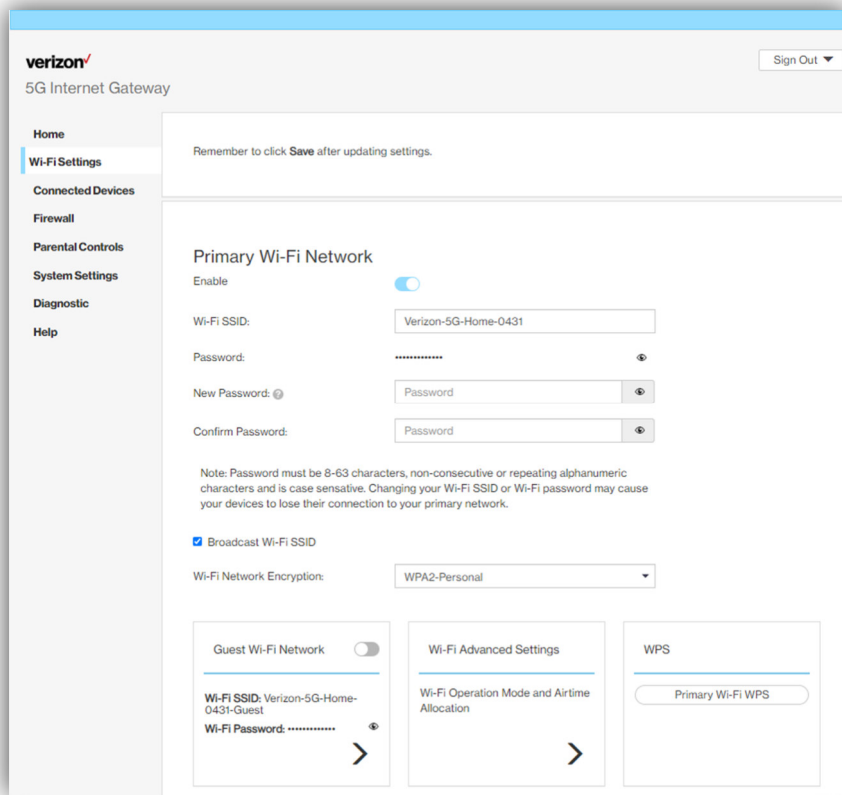
3.3.1 Primary Wi-Fi Network

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.
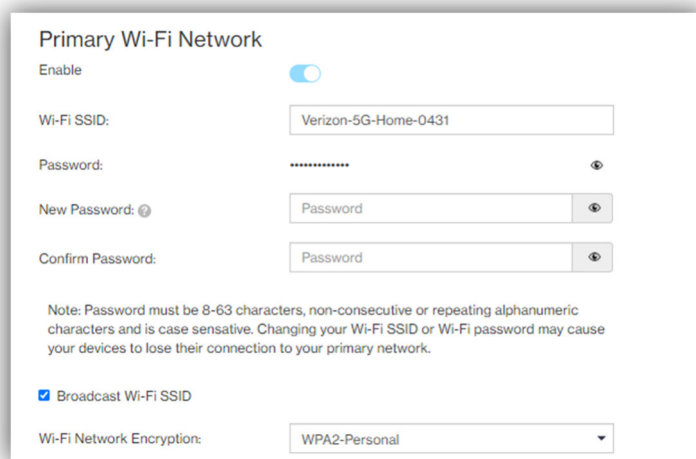
1. Wi-Fi name (SSID)

The Wi-Fi name (SSID) is the name of the wireless network broadcasting from the 5G Internet Gateway. 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.

2. Password

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

3. New Password

Enter a new password here for the SSID.

4. 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.
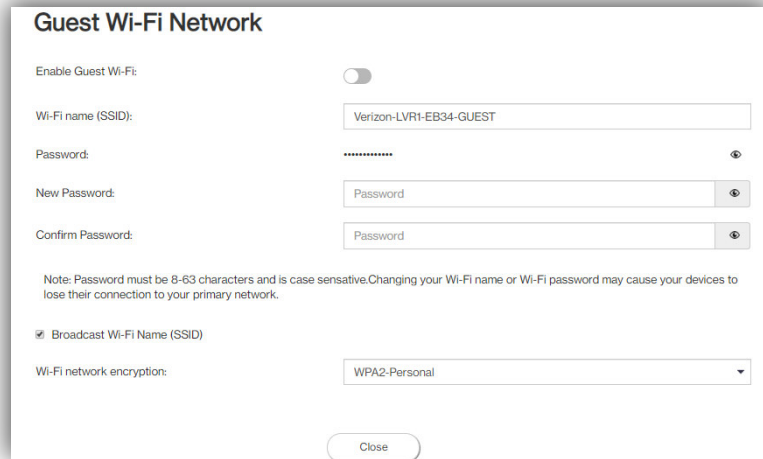
5. Broadcast Wi-Fi Name (SSID)

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

6. 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.

3.3.2 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.

7. Wi-Fi name (SSID)

The Wi-Fi name (SSID) is the name of the wireless network broadcasting from the 5G Internet Gateway. 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.

8. Password

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

9. New Password

Enter a new password here for the SSID.

10. 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.
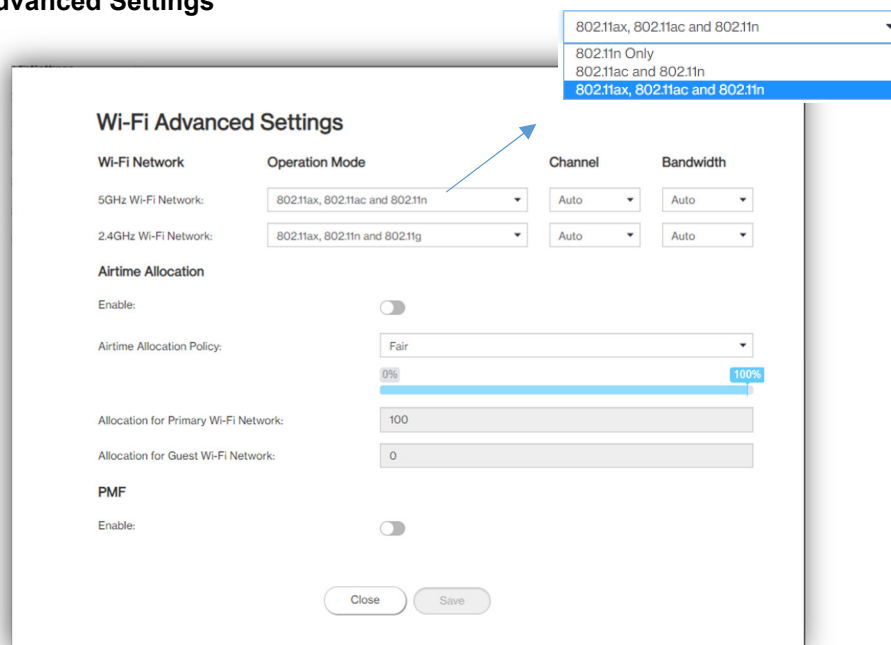
11. Broadcast Wi-Fi Name (SSID)

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

12. 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

13. Wi-Fi Network Operation Mode

On this page, you may adjust the operation mode, channel, and bandwidth 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:
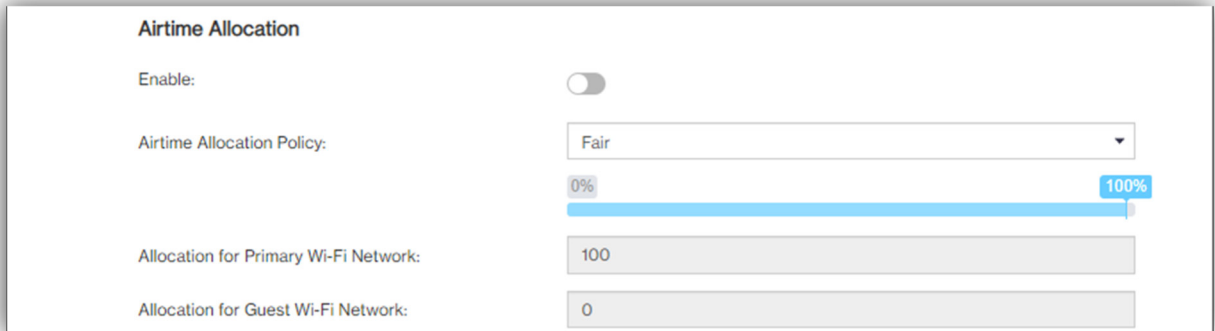
802.11n only
802.11ac and 802.11n
802.11ax, 802.11ac and 802.11n

The options for the 2.4 GHz primary Wi-Fi network include:

802.11n and 802.11g
802.11ax, 802.11n and 802.11g
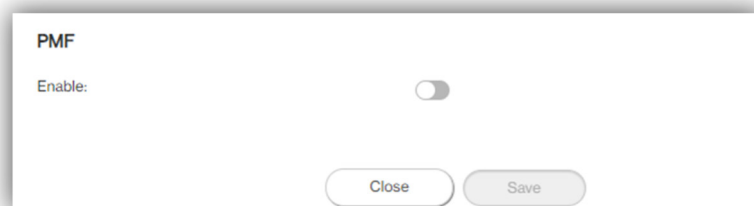
14. Airtime Allocation

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.
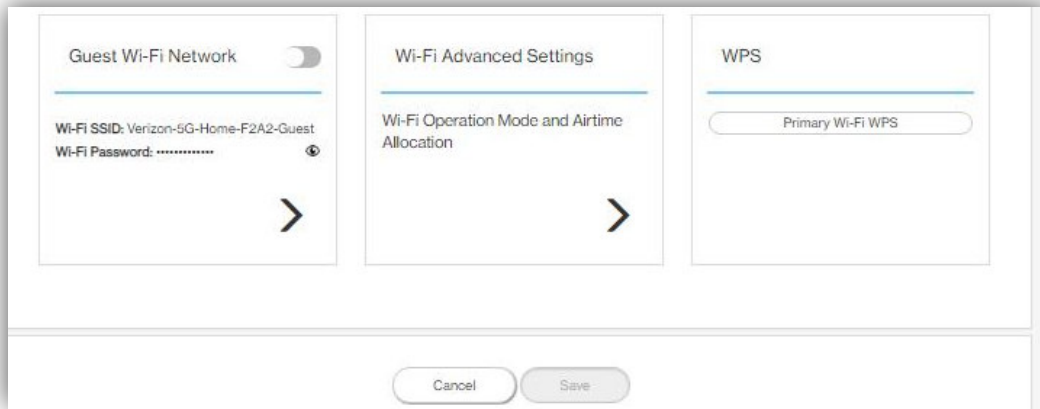
15. PMF

Slide the switch to the right to enable PMF (protected management frames) on your 5G Internet Gateway.

3.3.4 WPS

16. Primary Wi-Fi WPS

WPS allows rapid wireless connection between the 5G Internet Gateway and other WPS-compatible devices. You can trigger the WPS function on Primary Wi-Fi by clicking on the **Primary Wi-Fi WPS** button.

3.4 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.
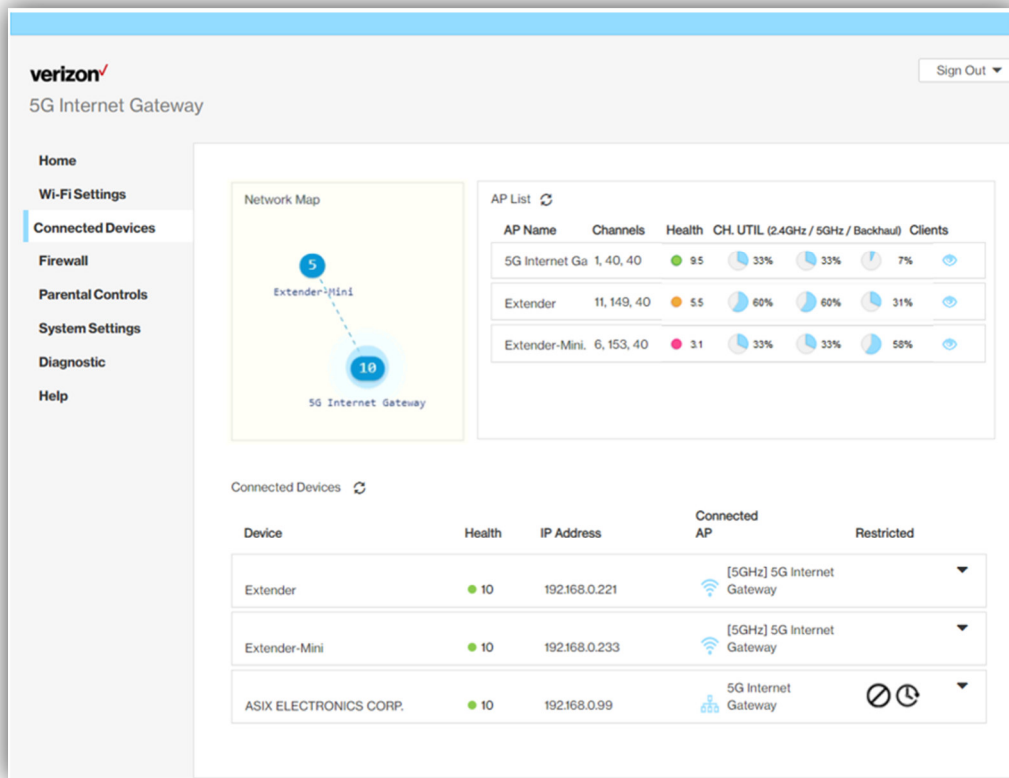
3.4.1 Network Map

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.

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.
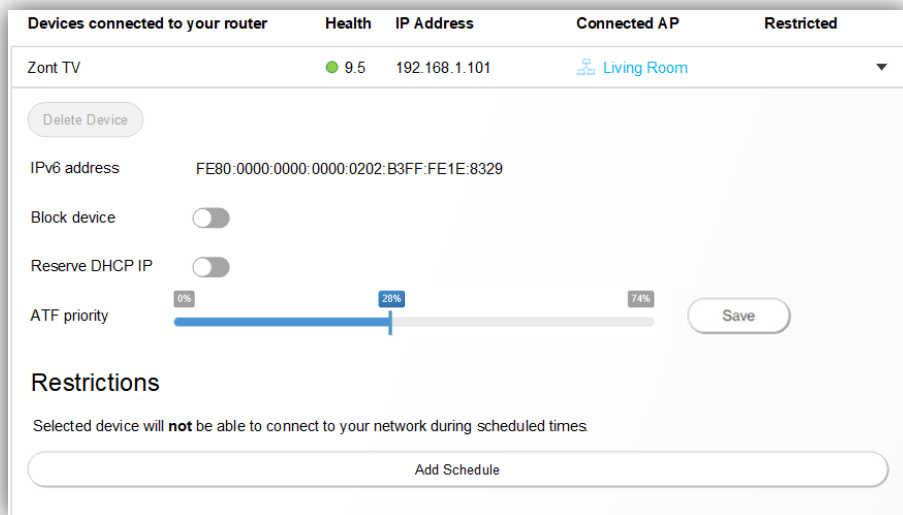
3.4.3   Connected Devices

The name of each device that has been connected/is currently connected to the 5G Internet Gateway 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 5G Internet Gateway. Once removed, the computer/device will not be displayed on this page.

The **Block Device** switch allows you to block or allow computers or devices from establishing a connection to the 5G Internet Gateway. 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 5G Internet Gateway 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

21
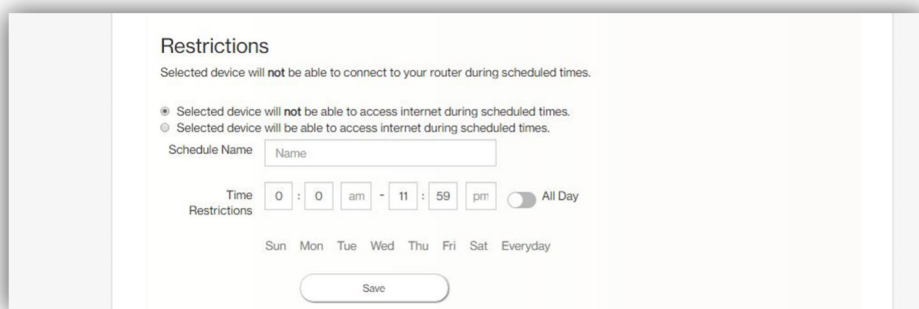
This section enables you to set restriction policies for the selected device. You can specify the time during which the selected device will not be able to access Internet. Alternatively, you may also specify the time during which the selected device will be able to access Internet. The settings you 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.

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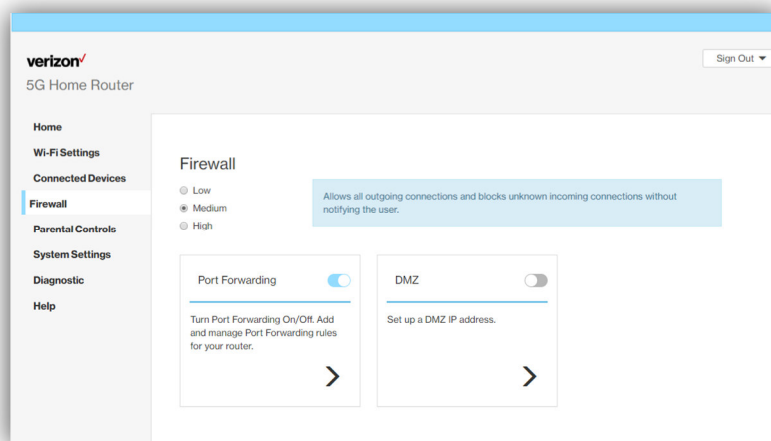
A firewall is used to prevent traffic from entering and/or leaving the areas of your network. In this section you can select **Low** for minimum level of security, **Medium** for typical level of security, and **High** for maximum level of security.

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.

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:

Add Rules

17. Rule Name

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

18. From Port

Type the value of the WAN port from which you want to forward packets. Please note that only a single port (for instance, 3000) or range (for instance, 3000–3005) can be specified. 0 would mean any port.

19. Protocol

Choose the protocol to be used for port forwarding.

20. IP Address

The local server's IP address.

21. To Port

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

Configured Ports

This table displays the ports that have been configured.

22. Application

The created rule name will be displayed here.

23. Port From

This shows the value of the start port.

24. Protocol

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

25. IP Address

This shows the local server's IP address.

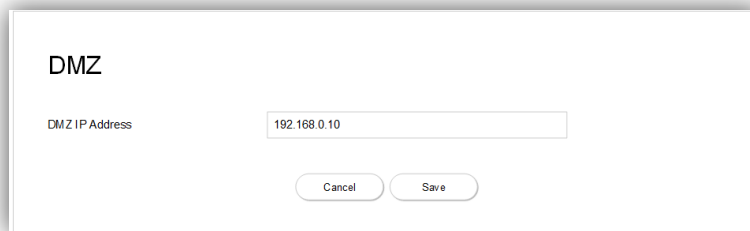26. Port To

This shows the value of the end port.

27. Enabled

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

28. Remove

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

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.

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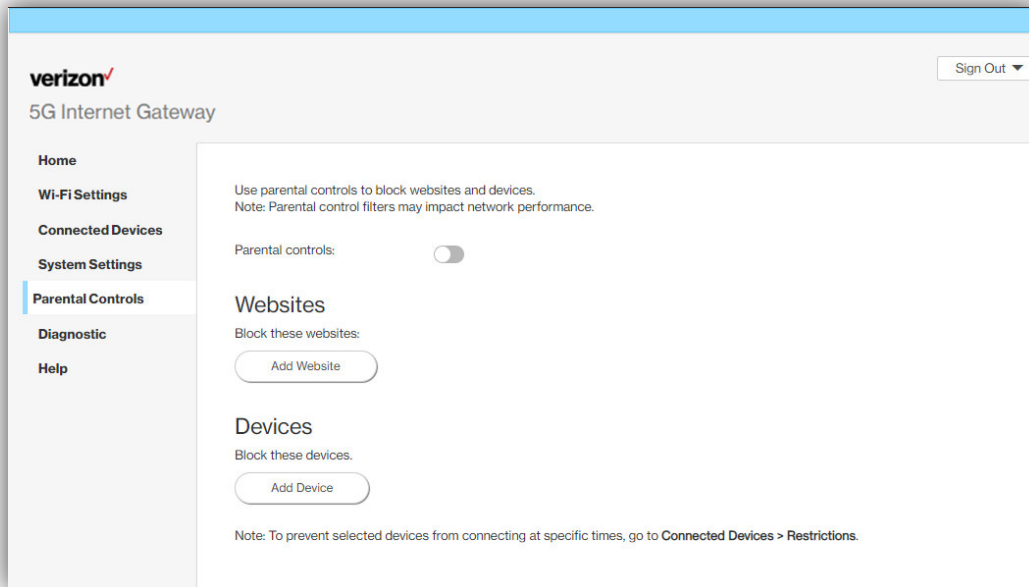
By creating Internet access policies, Parental Controls allow you to control and monitor Internet access. Parental Controls can be activated on the Home page by sliding the Filters switch in the Parental Controls column.

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 5G Internet Gateway. 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 5G Internet Gateway 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.
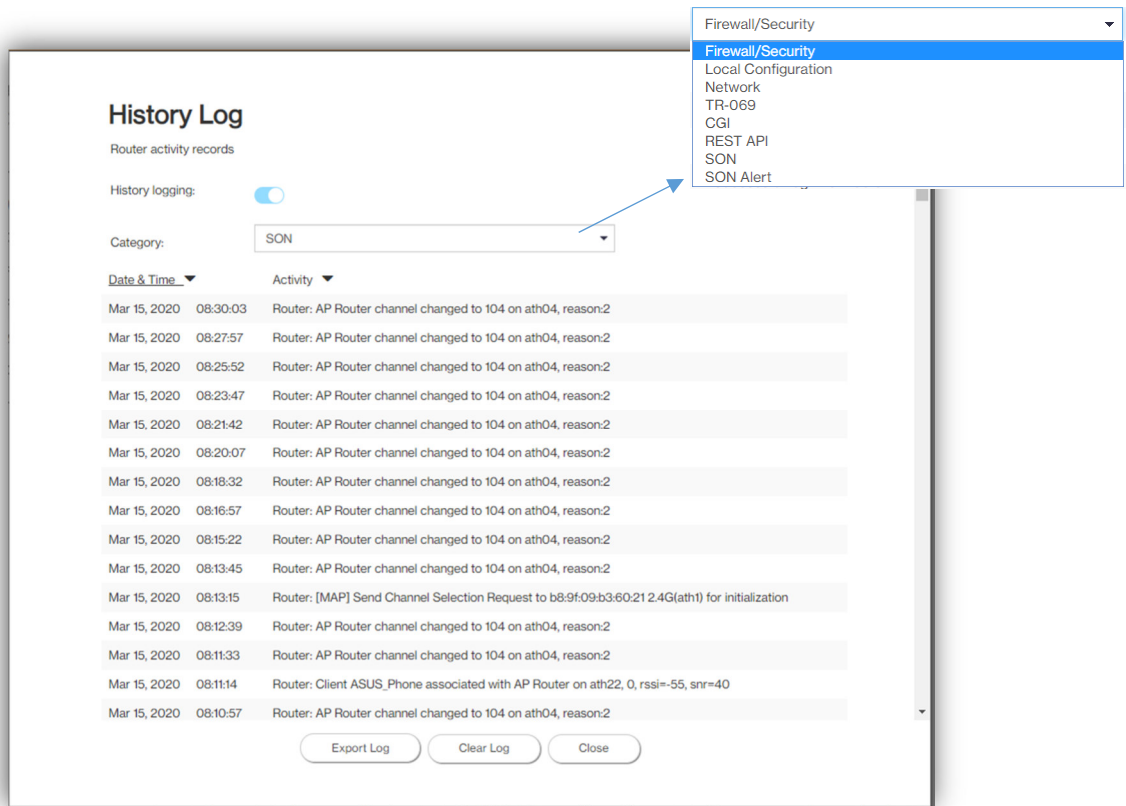
3.7   System Settings

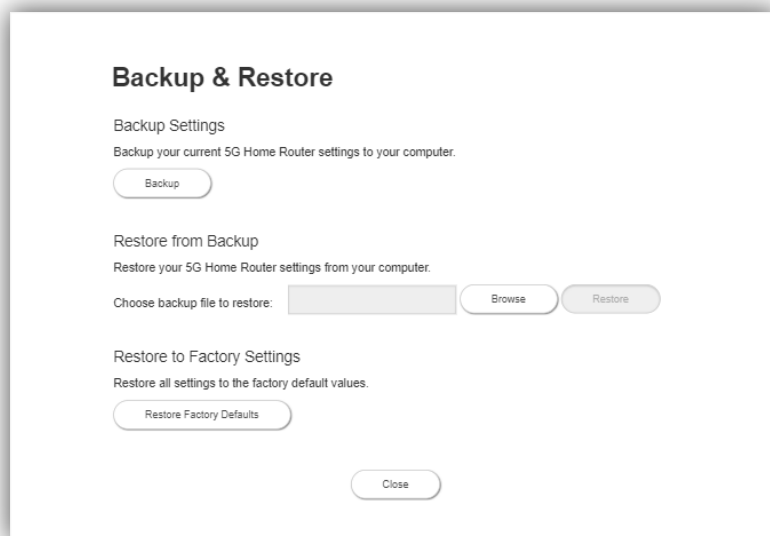
3.7.1   General Information

The **General Information** page provides device information on the 5G Internet Gateway, including the device name, IMEI, model, and more.

3.7.2   History Log

The **History Log** page provides various activity records of your 5G Internet Gateway. To access this page, click **History Log** on the General Information page.

3.7.3   Backup & Restore

The **Backup & Restore** page covers functions for backing up/restoring the settings on your 5G Internet Gateway 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 5G Internet Gateway. 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:

29. 5G Internet Gateway IP address

Specify a range of IP addresses the 5G Internet Gateway may assign to devices. The default LAN IP configuration is 192.168.0.1.

30. 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.

31. DNS Server

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

DHCP

DHCP assigns LAN IP addresses for connected devices. You can specify the range of IP addresses the 5G Internet Gateway 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:

32. DHCP Start Address

Specify the address that starts the range for the pool of IP addresses in the same subnet as the 5G Internet Gateway.

33. DHCP End Address

Specify the address that ends the range for the pool of IP addresses in the same subnet as the 5G Internet Gateway.

34. Lease Time

You can specify a period of time after which an assigned IP address will be retrieved from devices.

UPnP

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.

35. 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.

3.8 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.
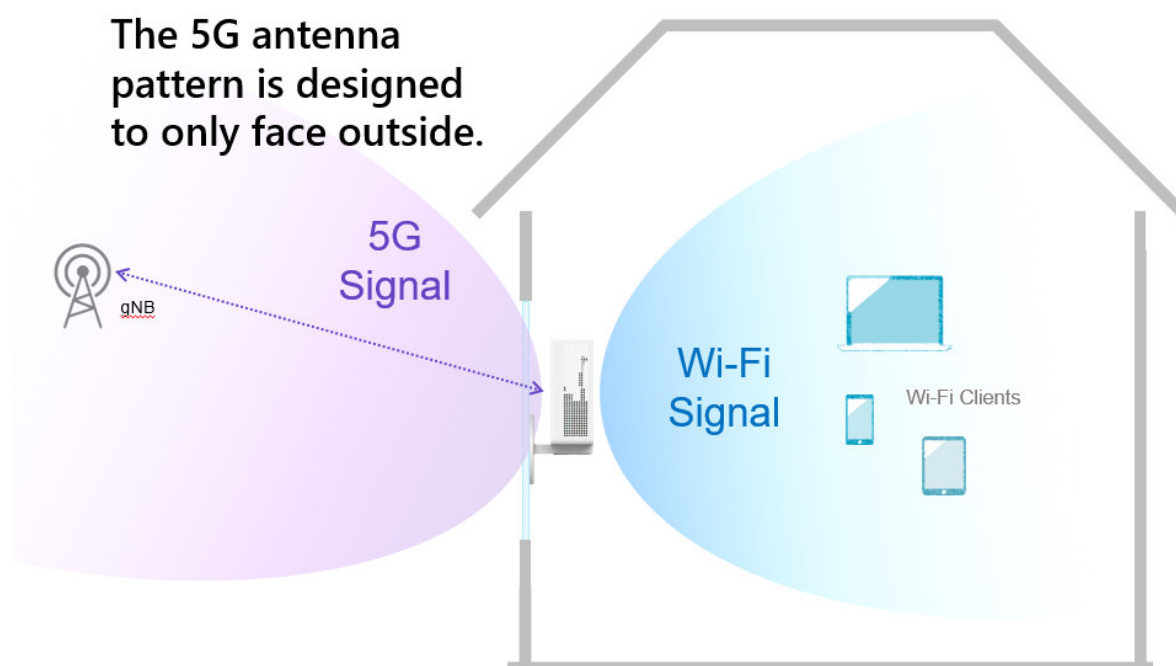
Chapter 4
Product Specifications

5G	・ 5G n260/n261 ・ 5G n2/n5/n66
4G	・ LTE CAT16, Band 2/4/5/13/48/66
Wi-Fi	・ 2.4GHz 802.11ax 2x2 MIMO ・ 5GHz 802.11ax 4x4 MIMO ・ Backward compatible with 11ac/11n/11b
IoT	・ Bluetooth® 5.0
Memory	・ 5G Internet Gateway: DDR4 RAM 1GB ・ Router: DDR4 RAM 1GB
Storage	・ 5G Internet Gateway: NAND 1GB ・ Router: NAND 1GB
Dimensions	・ 220 x 220 x 86 mm
Weight	・ 1.9 KG
Connector	・ 2.5GbE LAN port × 1 ・ DC Jack × 1
Button	・ Multipurpose sync button x 1 ・ Reset pinhole x 1
Operating Temperature	・ 0 °C–40 °C

Appendix
Installation Guide

Operational Communication Signal

The 5G antenna pattern is designed to only face outside.

5G Signal

gNB

Wi-Fi Signal

Wi-Fi Clients

Self-installation - Quick Start Guide

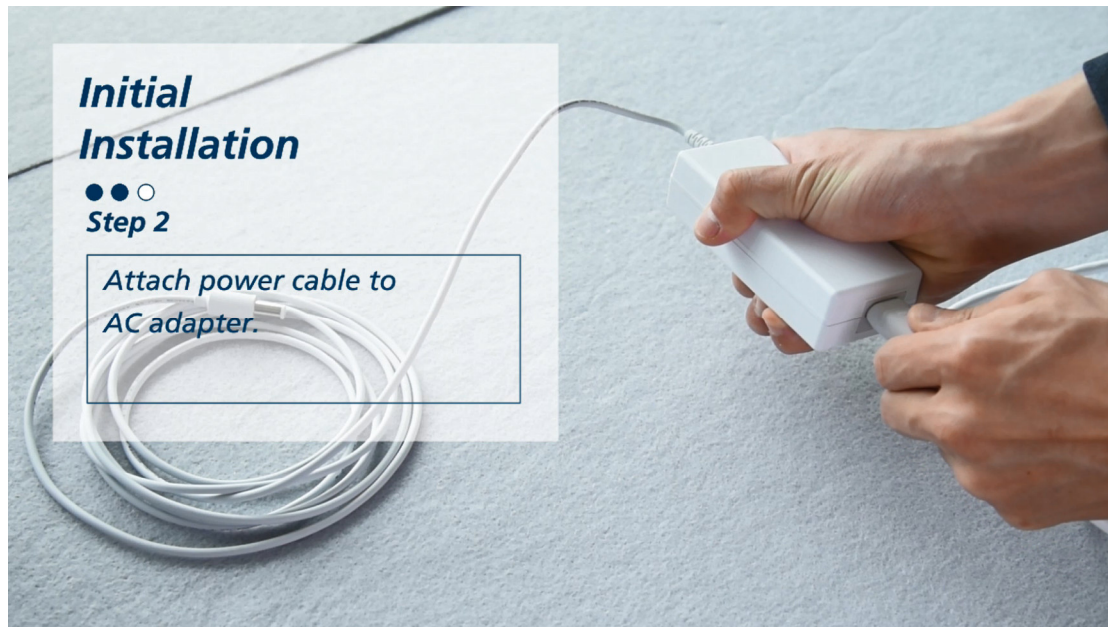**Initial Installation**

Step 1 –

Attach the bracket to the 5G Internet Gateway before plugging in the power cable.

Step 2 & 3 –

Attach the power cable to the AC adapter and plug the cable into an electrical outlet.

Boot up & Paring

LED indicator will turn soft fade in-out White.

Signal Scanning

Hold the 5G Internet Gateway close to the window to perform signal scanning.

Step 1 –

Confirm the signal orientation. The LED will change to one of the follow status:

- ➢ **Good signal: Solid green**

- ➢ **Poor signal: Solid yellow**

- ➢ **No/Bad signal: Solid red**

Window Installation

Step 1 –

Use window wipes to clean the chosen installation location.

Step 2 –

Press the bracket for 30 seconds to make sure that it is fully adhered to the window.

Step 3 –

Adjust the angle of your 5G Internet Gateway.

Window Installation
Step3

Adjust bracket alignment as required.

Turn the tab at the bottom to lock the 5G Internet Gateway in a specific angle.

Window Installation

Step3

Adjust bracket alignment as required.