

## Orbic R562L5 5G



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## 1

# Introduction and getting started

Overview

Description

Status indicators and icons

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#### Overview

Orbic R562L5 5G hotspot providing groundbreaking speeds using Verizon's 5G Ultra Wideband network. Connect with dual-band Wi-Fi (supporting up to 32 connected devices), a USB Type-C port, or an RJ45 Ethernet port for direct internet connection.

#### Key features

- Robust 5G band option support (mmW, sub-6, and C-band) for strong performance, speed, and low latency.
- Dual-band Wi-Fi supporting up to 32 wireless connected devices, as well as a USB Type-C port and an RJ45 Ethernet port for direct internet connection.
- 2.4" IPS touchscreen display allows you to manage your Hotspot environment from your device.
- Easy-to-use Admin Web UI provides additional settings and management tools, such as GPS location, advanced configuration, logs, and more.
- WPA3 Wi-Fi security support, advanced encryption, VPN passthrough, and remote connectivity to office networks.
- Rechargeable 5000 mAh battery to power you through the day\* and charge other devices.

## Description

The Orbic R562L5 5G hotspot package includes:

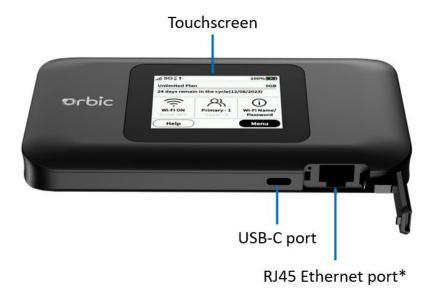
- 5G hotspot
- 5000 mAh Li-Ion battery
- 18W PD3.0 charger
- USB 3.0, type C to C cable
- Quick Start Guide

<sup>\*</sup> Battery life and activity may vary depending on the number of connected devices and activity, including use of Ethernet.

#### Display view

Press and hold the Power button for three seconds to turn your Hotspot on and off. Press and release the Power button to wake up the display.

The 2.4 inch touch screen touchscreen displays and allows you to view Wi-Fi name and password, connected devices, data usage, and more. Swipe through screens and tap the arrows, buttons, and icons to access available menu options.



#### Side view

Connect to the Quick Charge charger or tether to a device with the USB-C port.

Use the Ethernet port to connect directly to the internet.



## Status indicators and icons

The 5G hotspot use the following status indicators and display icons.

| Display Icon     | Description  |
|------------------|--|
| ⇧                | Home   |
| all              | Network Signal Strength                              |
| <b>†</b> ↓       | Data transferring between mobile network and hotspot |
| R                | Roaming  |
| ₽                | Unread message                                       |
| <u></u>          | Hotspot WIFI network                                 |
| 23               | Connected devices                                    |
| • <del>√</del> a | USB tethered   |
| <b></b>          | Battery fully charged                                |
| !                | Battery not inserted. Battery status unknown         |
|                  | Hotspot connected to and AC charger and charging     |
| 82               | Hotspot Battery Preservation Mode                    |
| A                | Ethernet port enabled                                |

## **Getting started**

**Important:** Before you use your hotspot, charge the battery for at least four hours to ensure a full initial charge. When fully charged, the battery has all day life\*.

#### Turning on and off

To turn your Hotspot on, press and hold the Power button for three seconds. The Home screen appears.



To turn your Hotspot off, press and hold the Power button for three seconds until you see the Power Off screen.



Then select **Shutdown**.

To wake up the display, press and release the Power button.

#### System requirements

Any device with Wi-Fi capability can connect to your Hotspot. You can also connect via USB or Ethernet.

The Hotspot must have proper data service to function and is compatible with all major operating systems and the latest versions of browsers.

#### Finding your Wi-Fi name and password

Tap **Wi-Fi Name/Password** on the Home screen. The name and password for your Hotspot primary network is displayed. Swipe left to see the credentials for the guest network.

**Important:** The default Admin password is the same as the primary network's default. To change either password, sign in to the Hotspot Admin Web UI.

#### Connecting devices to your Hotspot

With the Hotspot 5G UW, Wi-Fi devices and wired devices can connect simultaneously.

#### **Connecting devices wirelessly**

Your Hotspot has two Wi-Fi networks, primary and guest, and lets you connect up to 32 Wi-Fi capable devices. For added security, share your guest network instead of your primary network. The guest network is off by default. You can turn it on from either the Hotspot touchscreen (see page 22) or the Admin Web UI.

To connect devices to your Hotspot:

- 1. Turn on the device you want to connect. The Hotspot will broadcast its own wireless network and name.
- 2. On the device, open the list of available Wi-Fi networks. Select the Hotspot primary or guest networkand enter the password. Once connected to the Internet, the Hotspot Home screen displays the connected device.

**NOTE:** You can view or change Hotspot settings on the Hotspot touchscreen or by connecting to the AdminWeb UI from the primary network at <a href="http://my.mobilehotspot">http://my.mobilehotspot</a> or <a href="http://192.168.1.1">http://my.mobilehotspot</a> or <a href="http://192.168.1.1">http://my.mobilehotspot</a> or <a href="http://my.mobilehotspot">http://192.168.1.1</a>.

#### Connecting devices with USB

You can tether to a device using the USB-C port:

- 1. Connect the USB-C end of a USB cable into the USB-C port on your Hotspot.
- 2. Connect the USB-A end of a USB cable into the device you wish to connect.

#### Connecting devices with Ethernet

**NOTE:** The Ethernet port is disabled by default to extend battery life. To enable it from the touchscreen, tap **Menu > Settings** and select **Enable Ethernet Port**. To enable it from the Admin Web UI, go to **Settings > Preferences**.

You can connect wired devices such as laptops, printers, and gaming consoles via Ethernet:

- 1. Plug one end of an Ethernet cable into the 1 Gbps RJ45 Ethernet port on your Hotspot.
- 2. Plug the other end of the cable into the Ethernet port of the device you wish to connect.

Devices plugged into the Hotspot via Ethernet have direct access to the Internet.

## Caring for your Hotspot

This section provides information on charging, battery tips and replacement, replacing and unlocking the SIM card, restoring your hotspot to factory default settings, and general care.

#### Charging

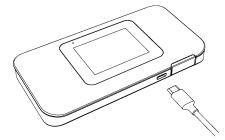
You can check the battery level and charging status of your hotspot from the Home screen.

**Important:** Before using your Hotspot, charge the battery for at least four hours to ensure a full initial charge. When fully charged, the battery has all day life<sup>\*</sup>.

#### **Charging with Quick Charge Charger**

To charge the battery with the Quick Charge charger:

1. Connect the USB-C end of the USB cable into the USB-C port of the hotspot.



2. Connect the other end of the USB cable into the Quick Charge charger and plug the charger into an appropriate electrical outlet.

#### **Charging with USB**

You can also charge your hotspot from another device, such as a computer, with

USB. To charge the battery with USB:

- 1. Connect the USB-C end of the USB cable into the USB-C port of the hotspot.
- 2. Connect the USB-A end of the USB cable into another device, such as a laptop. The USB Device Connected touchscreen appears.



3. Select Charge the R562L5 and tap OK.

<sup>\*</sup> Battery life and activity may vary depending on the number of connected devices and activity, including use of Ethernet.

#### **Charging other devices**

You can use the USB-C port on your hotspot to charge other devices, like a cell phone or

tablet. To charge another device:

- 1. Connect the USB-C end of a USB cable into the USB-C port of the hotspot.
- 2. Connect the other end of the USB cable into the device you wish to charge. The USB Device Connected touchscreen appears.



4. Select Charge Other Device and tap OK.

NOTE: Do not use the Charge Other Device feature if you want to use the battery for a full day.

#### **Charging best practices**

For optimum battery health and life, Orbic does not recommend keeping the battery fully charged for an extended period of time. As a result, hotspot includes the Battery Preservation Mode (BPM) feature, which helps prevent overcharging and preserve the integrity of your battery.

Orbic recommends the following best practices to ensure optimal battery performance and life:

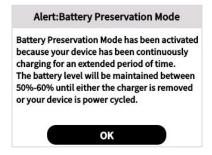
- Minimize the amount of time the battery stays at 0% or 100%.
- Charge, operate, and store the device as close to normal room temperature as possibl.
- Store your hotspot with a battery strength between 30% 80%.
- Best results are achieved by allowing Battery Preservation Mode to activate if you keep your hotspot continuously powered.

Before using your hotspot, read the Battery Preservation Mode and Battery Tips sections that follow and thebattery safety information in the Safety Hazards and Proper Battery Use and Disposal sections at the end of this guide.

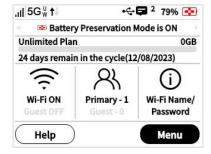
**CAUTION:** Always use official OEM batteries and chargers that have been approved by Orbic foroptimal performance and safe operation of your hotspot.

#### **Battery Preservation Mode**

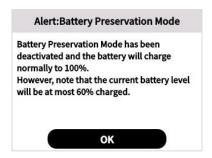
When your Hotspot has charged for more than 16 hours straight, it enters Battery Preservation Mode and battery level is maintained between 50% and 60%. This helps prevent overcharging and preserve the integrity of your battery. When Battery Preservation Mode is activated, the following message appears:



Click **OK**. The Battery Preservation Mode icon on the home screen and a message on the InfoPanel indicate that Battery Preservation Mode is on.



Battery Preservation Mode automatically deactivates when you unplug the charger or power cycle your Hotspot.



Click OK.

#### Battery tips

Before operating for a full day:

- Ensure the battery is fully charged.
- Find a location with optimal signal strength.

NOTE: Do not use the Charge Other Device feature if you want to use the battery for a full day.

**WARNING!** Always use official OEM approved batteries and chargers with your Hotspot. The warranty does not cover damage caused by non-approved batteries and/or chargers.

Do not use sharp objects or use excessive force to remove the battery or to access the

batterywell, this may damage the Hotspot and the battery.

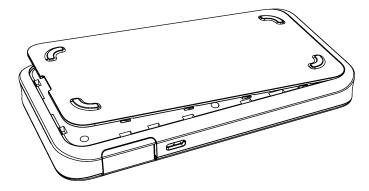
- The battery discharges more rapidly as additional devices access your Hotspot.
- Battery life depends on the network, signal strength, temperature, features, and accessories you use.
- New batteries or batteries that have been stored for a long time may take more time to charge.
- When storing your battery, keep it uncharged in a cool, dark, dry place.
- When charging your battery, keep it near room temperature.
- Never expose batteries to temperatures below -10°C or above 60°C.
- Never leave the Hotspot in an unattended vehicle where it can get too hot or too cold.
- Some batteries perform best after several full charge/discharge cycles.
- It is normal for batteries to gradually wear down and require longer charging times. If you notice a change in your battery life, it is probably time to purchase a new battery.

#### Replacing the battery

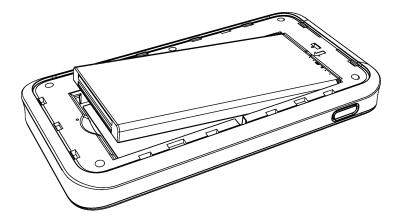
**CAUTION:** Whenever you remove or insert the battery, ensure your Hotspot is not connected to any deviceor power source. Never use tools, knives, keys, pens or any type of object to force the door open or to remove the battery. Using any of these types of objects could result in puncturing the battery.

To remove and replace the battery:

1. Insert a fingernail at the edge of the battery cover and lift and remove the battery cover. Set the cover aside.



2. Insert your finger into the battery removal divot and lift the battery out of the battery compartment.



- 3. Align the gold contacts on the new battery with the gold contacts on the Hotspot and gently slide the battery into place.
- 4. Replace the cover by setting it on the Hotspot where the notches align, then press on the cover until it clicks into place and is flat across the entire bottom surface.

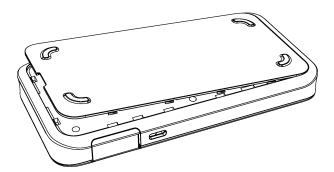
#### Replacing the SIM card

Your SIM card is a small rectangular plastic card that stores your phone number and important information about your wireless service. Your Hotspot comes with a pre-installed SIM card.

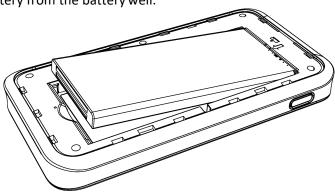
**NOTE:** Should your SIM card be lost or damaged, contact your network operator.

To remove the SIM card:

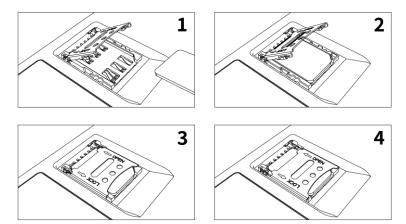
1. Insert a fingernail at the edge of the battery cover and lift and remove the battery cover. Set the cover aside.



2. Remove the battery from the battery well.



3. Locate the SIM card slot, press and hold the metal card, follow the instructions of the metal card "OPEN" direction, push and open the metal card, and put the SIM card into the slot until the card is fully inserted



4. Follow the instructions of the metal card "LOCK" direction, close and push the metal card.

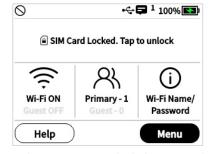
To place a new SIM card:

- 1. If necessary, remove the SIM card from the outer card, being careful not to touch the gold colored contacts.
- Insert the SIM card into the slot notch first, with the contact points facing down. Close the SIM access tab, place the battery in the battery well and replace the cover. The SIM card MUST remain in the SIM card slot when in use.

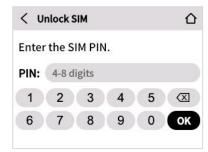
**CAUTION:** Do not bend or scratch your SIM card. Avoid exposing your SIM card to static electricity, water, or dirt.

#### Unlocking the SIM card

You can create a PIN code to lock your Hotspot SIM card on the Admin Web UI (Settings > Advanced > SIM). When the SIM is locked, your Hotspot will not have access to the internet. A display appears in the InfoPanel of the Home screen.



Tap the message to unlock the SIM card. Or you can tap Unlock SIM from the Help menu.



Enter the PIN and tap OK.

**CAUTION:** If you run out of PIN attempts, your SIM is PUK (personal unblocking key) locked and you must contact your network operator for the PUK code. You must enter the PUK code in the Admin Web UI. If you enter the wrong PUK code 10 times, your SIM card will be permanently locked.

#### Resetting your Hotspot

You can reset your Hotspot to factory settings using the Reset button on the Hotspot, from the Hotspot touch screen, or from the Admin Web UI.

**CAUTION:** Resetting returns your Hotspot to factory settings, including resetting the Wi-Fi name and password and Admin password. This disconnects all devices.

#### Resetting with the Reset button

To reset using the Reset button on the Hotspot:

1. Insert a fingernail at the edge of the battery cover and lift and remove the battery cover. Set the cover aside.

The master Reset button is in a small hole located on the bottom of the Hotspot.



2. Place one end of an unfolded paper clip into the **Reset hole** and press until the screen displays **Resetting** (about five seconds or more). Your Hotspot restarts with factory settings.

NOTE: This option may be disallowed from the Admin Web UI (Settings > Preferences).

#### Resetting from the Hotspottouch screen

To reset from the Hotspot touchscreen, tap **Menu > Settings > Factory Reset**.

NOTE: This option may be disallowed from the Admin Web UI (Settings > Preferences).

#### Resetting from the Admin Web UI

To reset the Hotspot from the Admin Web UI, select **Settings > Backup and Restore** and select **Restore Factory Defaults**.

#### Care tips

Orbic Wireless recommends the following care guidelines:

- Protect your Hotspot from liquids, dust, and excessive temperatures.
- Do not apply adhesive labels to your Hotspot; they might cause the device to potentially overheator alter the performance of the antenna.

• Store the Hotspot in a safe place when not in use.

# 2

## **Touchscreen**

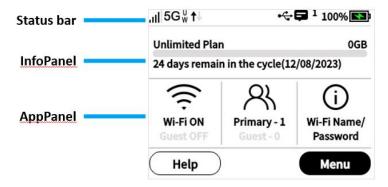
Overview
Managing Wi-Fi settings
Managing connected devices
Viewing datausage
Managing settings
Charging other devices
Viewing software update info
Viewing messages
Viewing info about your Hotspot
Viewing help

## Overview

You can view and customize your Hotspot settings directly on the Hotspot touchscreen.

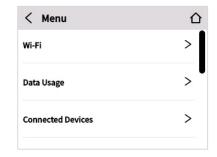
#### Home screen

The Home screen lets you see what your Hotspot is doing at a glance.



**InfoPanel:** This panel presents a carousel display of current information on your Hotspot. Initially, it displays data usage, but may also display other information, such as when Airplane mode is on, or if there is a SIM card error. Swipe left/right through the displays.

**AppPanel:** Displays whether Wi-Fi is ON or OFF (tap  $\widehat{\uparrow}$  to access the Wi-Fi menu). Displays how many devices are connected to your Hotspot Wi-Fi primary and guest network (tap  $\overset{\circ}{\sim}$  to access the Connected Devices menu). Tap  $\widehat{\bigcup}$  to view the name and password for your primary and guest networks.



Menu provides access to all menu options
Swipe up/down to scroll through options



Help provides access to info screens and tutorial

#### Navigation tips

- Tap on the arrows > to navigate through topics.
- Use  $\triangle$  to return to the Home screen.
- A multiple screen icon
   indicates there are multiple screens on that topic. Swipe left andright through screens.
- If there is a scroll bar visible on the right, swipe up or down to scroll.

## Managing Wi-Fi settings

The Wi-Fi Settings screen allows you to turn Wi-Fi ON/OFF and select primary and guest network settings.

**NOTE:** Wi-Fi settings can be locked from the Admin Web UI. If they are locked, they must be unlocked from the Admin Web UI Wi-Fi Settings page.

To manage Wi-Fi settings, tap the Wi-Fi icon  $\widehat{\varsigma}$  on the Home screen (or tap **Menu** > **Wi-Fi**).





Wi-Fi

Use the **Wi-Fi** ON/OFF slider to turn Wi-Fi ON or OFF. This selection affects primary and guest networks. **NOTE:** If Wi-Fi is OFF, the only way to connect devices to the Hotspot is by tethering with the USB cable or connecting via Ethernet.

#### **Band Selection**

Each network can be accessed over three bands: 2.4GHz, 5GHz:

- The 2.4GHz band is supported by all devices with Wi-Fi and should be used by devices that are a few years old or older. This band passes through walls better and propagates over longer distances, so it may have a longer range.
- The 5GHz band is best for newer devices. It offers better throughput, reduced interference and faster data speeds, but does not pass through walls as well as the 2.4GHz band.

NOTE: You must assign at least one band for the guest network before it can be turned on.

When you make a selection, your Hotspot notifies you that it is applying changes and returns to the screenwhen finished.

#### Wi-Fi Name/Password

Use the Wi-Fi Name/Password screens to view information on your primary and guest network and to find your passwords. (You can also access these screens by tapping the  $\bigcirc$  icon on the Home screen.)







Swipe left to view the Guest Wi-Fi Network screen and left again to view information.

To turn on your guest network, assign it at least one band in **Wi-Fi Settings > Band Selection**.

**NOTE:** You can change or hide the network name and password information shown on these screens using the Admin Web UI Wi-Fi pages.

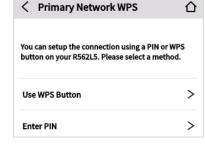
<sup>\*</sup> The SSIDs and passwords for your Hotspot are unique. Those shown here are for example only.

#### Wi-Fi Protected Setup (WPS)

Enabling Wi-Fi Protected Setup (WPS) allows compatible Wi-Fi devices to easily connect to your Hotspot primary or guest network.

NOTE: If WPS is off, you can turn it on using the Admin Web UI Wi-Fi pages.





Tap a network

Select a connection option

#### **Use WPS Button**



Press the WPS button on the connecting device. A notification appears when successful. If unsuccessful, tap Restart WPS to try again.

#### **Enter PIN**



If connecting device has a WPS PIN, enter it and tap OK.

#### **Managing connected devices**

The Connected Devices screen lists all devices currently connected to your Hotspot, along with the network they are using. You can view device details and block or unblock devices from internet access.

To manage connected devices, tap the connected devices icon  $\stackrel{\circ}{\sim}$  on the Home screen (or tap Menu > Connected Devices).







Tap a device for more details or to block devices

Tap Blocked Devices to unblock devices

#### Connected Devices (Details and Blocking)



Tap Block to block



Tap Confirm to Block the device

#### **Blocked Devices (Unblocking)**



**Tap Blocked Devices to unblock** 



Tap Unblock. The device is removed from Blocked Devices

## Viewing data usage

You can view data usage on the Home screen, or tap Menu > Data Usage.



Tap Menu Tap Data Usage

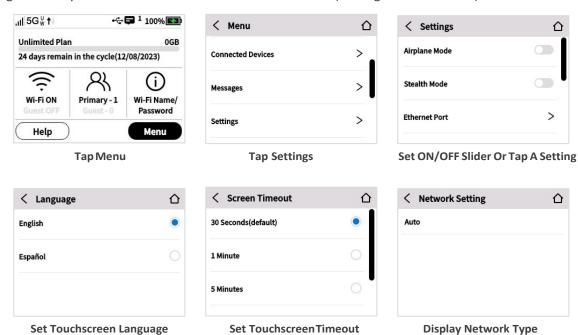
View estimated usage and plan info

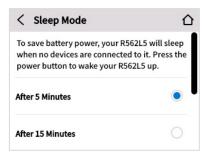
**NOTE:** Data usage estimates may not include roaming. If roaming is on, an informational screen appears. Tap **Continue** for the Data Usage screen.

## Managing settings

Use the Settings screen change various Hotspot settings or reset your Hotspot to the original factory settings.

**NOTE:** Settings can be locked from the Admin Web UI. If they are locked, you will receive an error message and they must be unlocked from the Admin Web UI (Settings > Preferences).





Set timer for sleep mode



Tap Factory Reset to restore all settings to the factory default values. Your Hotspot will turn off and then on again and all connected devices will be disconnected.

**NOTE:** Factory Reset can be locked from the Admin Web UI. If it is locked, you will receive an error message and it must be unlocked from the Admin Web UI (Settings > Preferences).

**CAUTION:** Factory Reset returns your Hotspot to factory settings, including resetting the Wi-Fi name and password and Admin password. This disconnects all devices.

## Charging other devices

You can use the USB-C port on your Hotspot to charge other devices, like a cell phone or tablet. The ChargeOther Device touchscreen provides battery and charging information.

**NOTE:** Do not use the Charge Other Device feature if you want to use the battery for a full day.



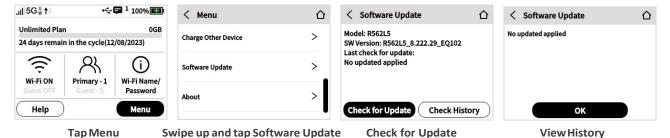
Tap Menu

Swipe up and tap Charge Other Device

View charging capability

## Viewing software update info

Software updates are delivered to the Hotspot automatically over the mobile network. Use the Software Updates screen to view the current software version, the last check for updates, update history, and tocheck for a new update.



Check for Update: Use this button to check for new software updates.

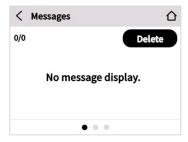
NOTE: Software updates are delivered to the Hotspot automatically over the network, so this is usually not necessary.

## Viewing messages

You can check messages on your Hotspot with the Messages screen.







Tap Menu

Swipe up and tap Messages

View and manage messages

## Viewing info about your Hotspot

You can view detailed information about your Hotspot on the About screen.







Tap Menu

Swipe up and tap About

View details about your Hotspot

The About touch screen provides the following information:

Model: R562L5.

**SW Version:** The version of the software currently installed on your Hotspot.

**Mobile Device Number:** The phone number stored in the SIM card for your Hotspot.

IMEI: The International Mobile Equipment Identity (IMEI) for this device. This is a 15 digit code used to uniquely identify an individual mobile station. The IMEI does not change when the SIM is changed.

**Battery Level:** The percentage of charge currently on the battery.

Internet Status: The current internet status.

**Technology:** The current cellular data connection, for example, 5G.

**Network:** The name of the Mobile Network Operator (MNO).

Signal Strength: The strength of the cellular signal, measured in dBm. Higher absolute values indicate a stronger signal, for example: -80 dBm is a stronger signal than -90 dBm.

SNR: Signal to Noise Ratio. A measure of the ratio between signal strength and noise level. SNR values are positive, and higher numbers are better.

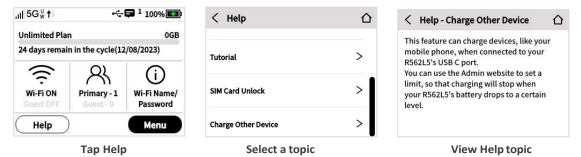
Roaming: Indicates whether roaming is on.

APN: The Access Point Name (APN) available from the network, for example: VZWINTERNET.

IP Address: Default gateway address.

## Viewing help

The Help screen provides all the help topics and a tutorial for your Hotspot.



# 3

## **Admin Web UI**

Overview
Admin password
Managing datausage
Managing Wi-Fisettings
Managing connected devices
Managing settings
Viewing info about your Hotspot
Getting help

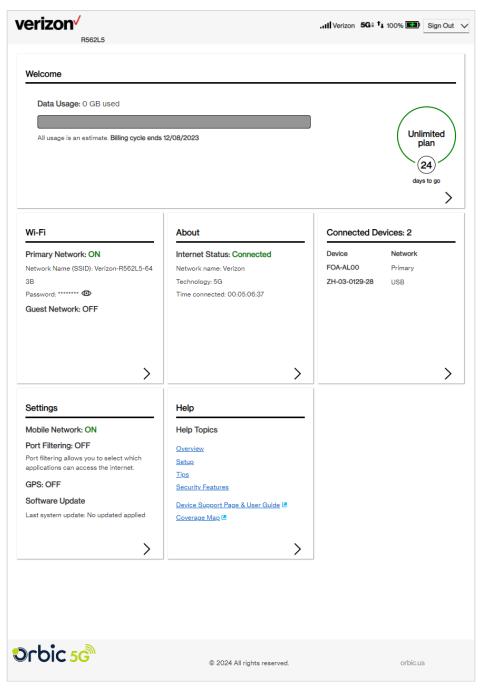
#### Overview

You can access basic and advanced Hotspot settings using the Admin Web UI. On a computer or browser-supported device connected to your Hotspot, open any Web browser and go to http://my.mobilehotspot or http://192.168.1.1.

#### Home page

The Home page is the local gateway to configuring and managing your Hotspot. It displays current data usage and Wi-Fi status, lists currently connected devices, and offers links to other pages with option settings and help.

Click in the bottom-right corner of a panel to access screens with further information and options.



#### Side menu

Each subscreen in the Hotspot Admin Web user interface (UI) includes a menu on the left, which you canuse to return to the Home page or jump to other pages. The current page is indicated by a red bar.



### Admin password

The Admin password is what you use to sign into the Hotspot Admin Web UI. Initially, it is the same as the default password for your Hotspot primary network. Tap **Wi-Fi Name/Password** on the Home touchscreen of your Hotspot to view the initial default password.

You are prompted to change the Admin password upon first login. Change the password to something easy to remember, and set up a security question.

**NOTE:** You can set up separate Wi-Fi passwords both primary and guest networks in **Wi-Fi**, but these are different from the Admin password, which is for this Web UI.

#### Changing the Admin password

To change the Admin password:

- Click the down arrow next to Sign Out in the top-right corner of any web Interface page and select Change Password > Admin Settings.
- 2. Enter your current Admin password, then click **Continue**.
- 3. Enter your current Admin password, then enter a new password and confirm it.
- 4. Select a security question from the drop-down list and type an answer to question in the **Answer** field.

NOTE: Answers are case-sensitive.

5. Click Continue.

The next time you sign in to the Admin Web UI, use the new Admin password. If you cannot remember the password, click **Forgot Admin password**. After you correctly answer the security question you

set up, the current password is displayed. Alternately, you can view the Admin password on the Hotspot touchscreen by tapping **Help > Web UI** or **Menu > Help > Web UI**.

#### Hiding the Admin password on the touchscreen

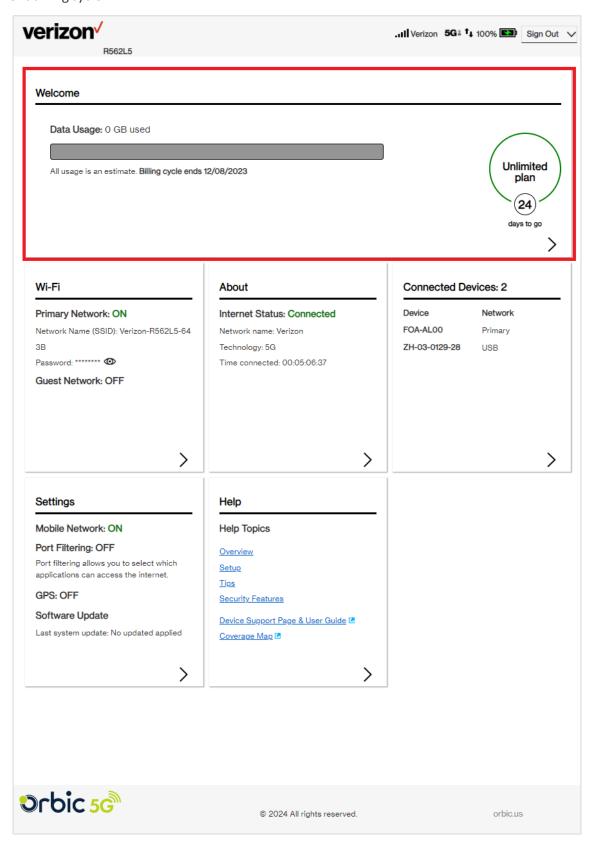
The Admin password can be viewed on the Hotspot touchscreen by tapping **Help > Web UI** or **Menu > Help > Web UI**.

To hide the Admin password:

- 1. Click the down arrow next to **Sign Out** in the top-right corner of any Web Interface page and select **Change Password**.
- 2. Move the **Hide Admin Password on the Screen ON/OFF slider** to the right to hide the Admin password on the Hotspot touchscreen. The Admin password is no longer visible on the touchscreen.

## Managing data usage

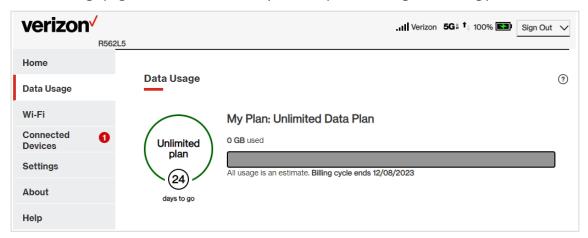
On the Web UI Home page, the Data Usage panel displays graphs of your Hotspot data usage for the current billing cycle.



To view the Data Usage page, select > from the Home page Data Usage panel (or select Data Usage from the Web UI side menu). The Data Usage page appears.

#### Data Usage page

Use the Data Usage page to view details about your Hotspot data usage and billing plan.



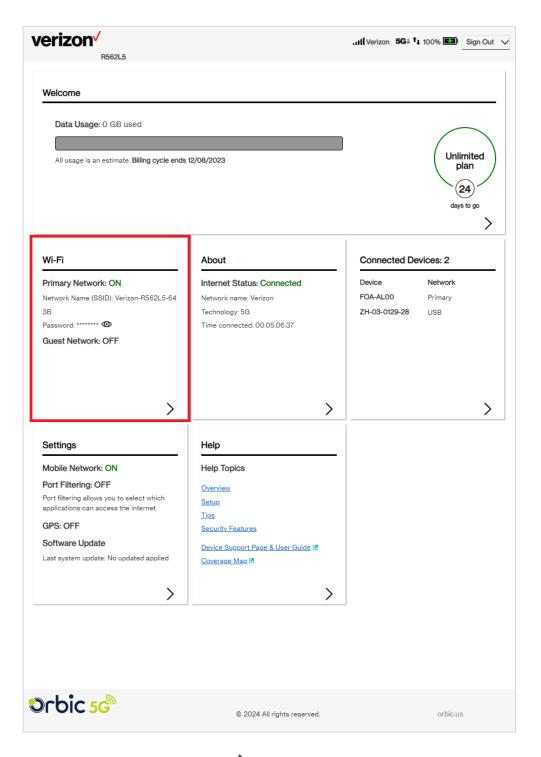
The data usage graph displays vary according to plan, but generally include:

- Estimated percentage of data remaining for the current billing cycle
- Number of days left in the billing cycle
- Data limit on your plan
- Estimated amount of data used in the current billing cycle
- Estimated amount of data remaining for the current billing cycle
- Date the billing cycle ends

## Managing Wi-Fi settings

Your Hotspot offers primary and guest networks for accessing the Internet over Wi-Fi. Each network can be accessed over three bands: 2.4GHz, 5GHz.

On the Web UI Home page, the Wi-Fi panel shows the current name (SSID) and state of primary and guest networks. Click the eye icon to view the current passwords for each.



To manage settings for these networks, select > from the Home page Wi-Fi panel (or select Wi-Fi from the Web UI side menu).

The Wi-Fi page includes three tabs:

- Settings
- Primary Network
- Guest Network

#### Settings tab

You can use the default values as they appear on this tab, or can adjust them for your environment

#### Wi-Fi Preferences

Use the **Allow Wi-Fi Devices to Connect** ON/OFF slider to turn Wi-Fi on or off. This selection affects primary and guest networks. **NOTE:** If Wi-Fi is off, the only way to connect devices to the Hotspot is by tethering with a USB cable or via Ethernet if the Ethernet port is enabled.

Use the **Allow Wi-Fi setting changes from the touchscreen** ON/OFF slider to allow or disallow setting Wi-Fi options on the Hotspot touchscreen.

Select **Change connection limit** to change the maximum number of devices allowed to connect to your Hotspot Wi-Fi. Use the slider to select a number and click **Save Changes**. The maximum number of connected devices is 32.

#### **Band Selection**

Each network can be accessed over three bands: 2.4GHz, 5GHz:

- The 2.4GHz band is supported by all devices with Wi-Fi and should be used by devices that are a few years old or older. This band passes through walls better and propagates over longer distances, so it may have a longer range.
- The 5GHz band is best for newer devices. It offers better throughput, reduced interference and faster data speeds, but does not pass through walls as well as the 2.4GHz band.

NOTE: The guest network must be assigned at least one band before it can be turned on.

#### 2.4GHz Band Settings

This section displays the 802.11 Mode in use when the 2.4GHz band is active and allows you to select a Channel.

**NOTE:** Leave the Channel set to **Automatic** unless you need to choose a particular channel for your environment.

#### **5GHz Band Settings**

This section displays the 802.11 Mode in use when the 5GHz band is active and allows you to select a Bandwidth and Channel.

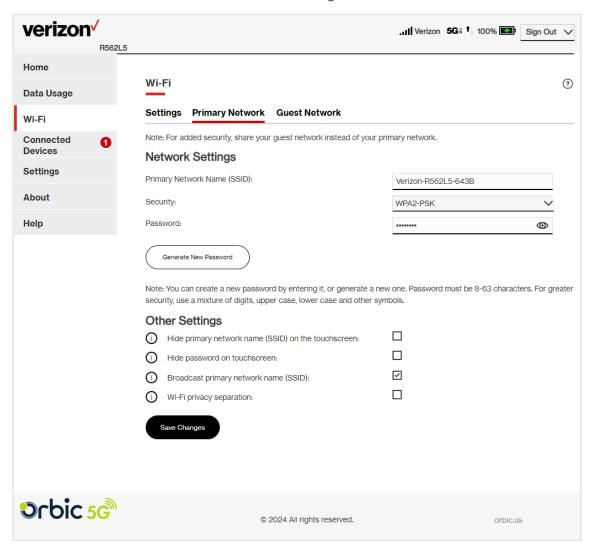
**Bandwidth:** Leave bandwidth at the default setting unless you experience interference with other Wi-Fi devices. If you experience interference, try lowering the setting to reduce the interference.

**NOTE:** Leave the **Channel** set to **Automatic** unless you need to choose a particular channel for your environment.

Select **Save Changes** to store new settings.

#### Primary Network tab

Use these settings to connect initially to the primary Wi-Fi network or change primary network information. Connected devices must use the Wi-Fi settings shown on this screen.



#### **Network Settings**

NOTE: If you change these settings, existing connected devices may lose their connection.

**Primary Network Name (SSID)**: Enter a primary network name (SSID) to set up or change the primary network name. The name can be up to 32 characters long.

Security: Select an option for Wi-Fi security:

- WPA3/WPA2 Transition is the most secure method of Wi-Fi Protected Access and should beused if possible for WPA2 and WPA3 compliant devices.
- WPA2 Personal PSK (AES) can be used for WPA2 devices.
- WPA/WPA2 Mixed Mode can be used if some of your older devices do not support WPA2.

• **None** allows anyone to connect and access Wi-Fi network and use your data plan to access the Internet. **NOTE**: This setting is not recommended.

**Password:** Enter a Wi-Fi password, or you can use the Generate new password button.

**Important:** It is recommended that you change the password from the default and use a different password from your Admin password to keep the device and your network secure.

Generate New Password: This button inserts a strong random password in the Password field.

You can click the eye icon to view the password.

#### **Other Settings**

**Hide primary network name (SSID) on the touchscreen:** Check this box to hide the Wi-Fi primary network name on the Hotspot touchscreen. If unchecked, the primary network name is visible on the touchscreen.

**Hide password on touchscreen:** Check this box to hide the Wi-Fi primary network password on the Hotspot touchscreen. If unchecked, the primary network password is visible on the touchscreen.

**Broadcast primary network name (SSID):** Check this box to display the Wi-Fi primary network in the list of available Wi-Fi networks on your connected devices. If unchecked, this network is not visible to connected devices.

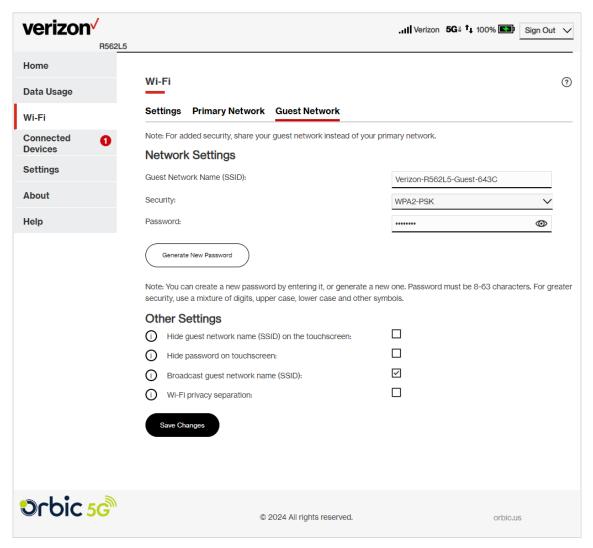
**WPS:** Check this box to use Wi-Fi Protected Setup (WPS) for the primary network. WPS allows compatible devices to connect to a Wi-Fi network without having to manually enter the password.

**Wi-Fi privacy separation:** Check this box to keep each connected device on this network isolated from all other connected devices. This provides additional security if some connected devices are unknown or not completely trusted. **NOTE:** For normal operation, this should be unchecked.

Select **Save Changes**.

#### **Guest Network tab**

The Wi-Fi guest network allows you to segregate traffic to a separate network rather than share access to your Wi-Fi primary network. Use settings on this tab to set up or change Wi-Fi guest network information. Connected devices must use the Wi-Fi settings shown on this screen to connect to the guest Hotspot Wi-Fi network.



**NOTE:** To turn the Wi-Fi guest network on, you must select at least one band for Guest Network under **Band Selection** on the **Wi-Fi Settings** tab and then select **Save Changes**.

#### **Network Settings**

**Guest Network Name (SSID)**: Enter a guest network name (SSID) to set up or change the guest network name. The name can be up to 32 characters long.

**Security:** Select an option for Wi-Fi security:

- WPA3/WPA2 Transition is the most secure method of Wi-Fi Protected Access and should beused if possible for WPA2 and WPA3 compliant devices.
- WPA2 Personal PSK (AES) can be used for WPA2 devices.

- WPA/WPA2 Mixed Mode can be used if some of your older devices do not support WPA2.
- **None** allows anyone to connect and access Wi-Fi network and use your data plan to access the Internet. **NOTE**: This setting is not recommended.

Password: Enter a Wi-Fi password, or you can use the Generate new password button.

**Important:** It is recommended that you change the password from the default and use a different password from your Admin or primary network password to keep the device and your network secure.

Generate New Password: This button inserts a strong random password in the Password field.

You can click the eye icon to view the password.

#### **Other Settings**

**Hide guest network name (SSID) on the touchscreen:** Check this box to hide the Wi-Fi guest network name on the Hotspot touchscreen. If unchecked, the guest network name is visible on the touchscreen.

**Hide password on touchscreen:** Check this box to hide the Wi-Fi guest network password on the Hotspottouchscreen. If unchecked, the guest network password is visible on the touchscreen.

**Broadcast guest network name (SSID):** Check this box to display the Wi-Fi guest network in the list of available Wi-Fi networks on your connected devices. If unchecked, this network is not visible to connected devices.

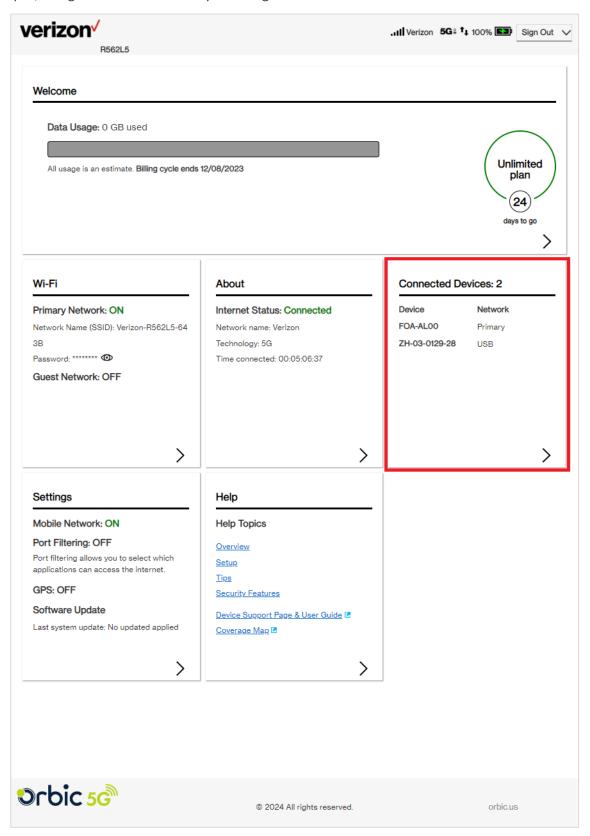
**WPS:** Check this box to use Wi-Fi Protected Setup (WPS) for the guest network. WPS allows compatible devices to connect to a Wi-Fi network without having to manually enter the password.

**Wi-Fi privacy separation:** Check this box to keep each connected device on this network isolated from all other connected devices. This provides additional security if some connected devices are unknown or not completely trusted. **NOTE:** For normal operation, this should be unchecked.

Select Save Changes.

# Managing connected devices

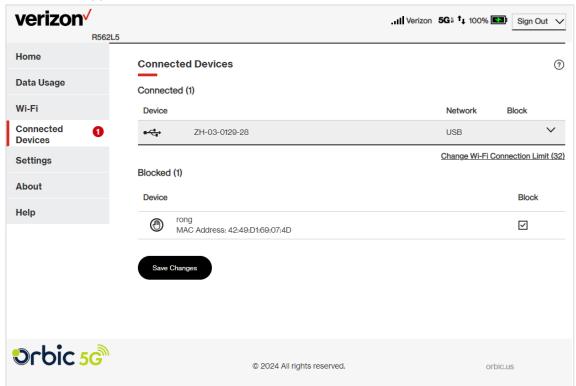
On the Web UI Home page, the Connected Devices panel lists all devices currently connected to your Hotspot, along with the network they are using.



To manage connected devices, select > from the Home page Connected Devices panel (or select Connected Devices from the Web UI side menu).

#### Connected Devices page

This page provides details about each device connected to the Hotspot and allows you to edit how device names appear in the Web UI. You can also block or unblock a device from internet access.



#### **Connected Devices**

This table lists all devices connected to the Hotspot:

**Device:** An icon indicates the connection type (Wi-Fi, USB, or Ethernet) for each device. (You canhover over the icon to read the type of connection.) The name of the connected device is usually the hostname set on the connected device. In rare cases, the hostname may be unavailable.

**Network:** Indicates whether the device is connected to the primary or guest network.

**Block:** Select this box to disconnect a device and prevent it from reconnecting. Select **Save Changes**. The device is removed from the **Connected** list and appears in the **Blocked** list below.

**NOTE:** The Block option is available only for devices connected through Wi-Fi.

To view details on a device as it appears in this Web UI, click the **down arrow icon** ✓ on the right to expand the device row. The following information appears:

• IPv4: The IP address of the connected device.

• MAC Address: The MAC Address (unique network identifier for this connected device).

Click the **up arrow icon** ^to collapse the row.

Select **Change Wi-Fi connection limit** to change the maximum number of devices allowed to connect to your Hotspot Wi-Fi. Use the slider to select a number and click **Save Changes**. The maximum number of connected devices is 32.

#### **Blocked**

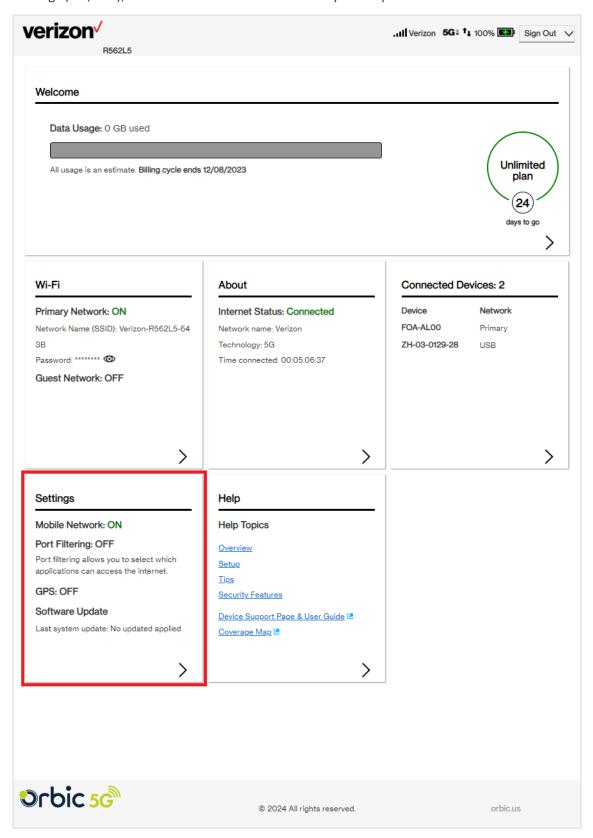
This section lists all devices blocked from connecting to the Hotspot.

**NOTE:** Since blocked devices are not currently connected, they do not have an IP address. Instead, they are identified by their name and MAC address.

To Block a blocked device, click the **Unblock** button and select **Save Changes**. The device is removed from the **Blocked** list and appears in the **Connected Devices** list above.

# Managing settings

On the Web UI Home page, the Settings panel shows the current Mobile Network, Port Filtering and GPS settings (ON/OFF), and the date and time of the last system update.



To change system settings, select > from the Home page Settings panel (or select Settings from the Web UI side menu).

The Settings page includes five tabs:

- Preferences
- Software Update
- Backup and Restore
- GPS
- Advanced

#### Preferences tab

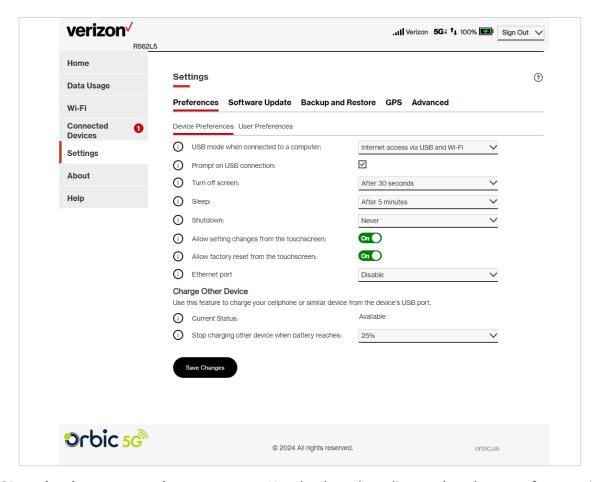
This tab allows you to configure options for the Hotspot touchscreen, notification settings, and Web Uldisplay settings.

The Preference tab includes three sub tabs:

- Device Preferences
- User Preferences

#### **Device Preferences sub tab**

Use this page to set options for the Hotspot touchscreen.



**USB mode when connected to a computer**: Use the drop-down list to select the type of connection you want for devices connecting to the Hotspot USB-C port: USB charging, internet access via USB and Wi-Fi, or internet access via USB only.

**Prompt on USB connection:** Check this box for a prompt to display on the Hotspot screen when a device connects via USB. The prompt allows selection of the USB mode of connection.

**NOTE:** A USB mode selection made on the Hotspot touchscreen does not change the setting above. The setting above acts as a default, and the choice on the Hotspot touchscreen sets the mode for the current USB session only.

**Turn off screen:** Use the drop-down list to select how long you want the Hotspot to be inactive before the touchscreen turns off.

**Sleep:** Use the drop-down list to select how long you want the Hotspot to be inactive before entering sleep mode.

**Shutdown:** Use the drop-down list to select how long you want the Hotspot to be inactive before shutting down.

**Allow Wi-Fi settings changes from the touchscreen:** Use the ON/OFF slider to allow or disallow configuration of settings on the Hotspot touchscreen. **NOTE:** If ON, settings can be configured on the Hotspot touchscreen, including Factory Reset, which resets all settings to factory default settings and disconnects all connected devices.

**Allow factory reset from the touchscreen:** Use the ON/OFF slider to allow or disallow factory reset from the Hotspot and touchscreen (Settings > Factory Reset). If ON, factory resetis

allowed from the Hotspot and touchscreen. Factory reset resets all settings to factory default settings and disconnects all connected devices. **NOTE:** If **Allow settings changes from the touchscreen** (above) is OFF, Settings > Factory Reset is not available on the touchscreen, even when this slider is ON.

**Enable Ethernet port:** Check this box to enable the Ethernet port. **NOTE:** The Ethernet port is disabled by default to extend battery life.

#### Charge Other Device

You can charge devices such as your phone or Bluetooth headset from the Hotspot by connecting the device's USB cable to the Hotspot's USB-C port.

**Current Status:** The current status of Charge Other Device:

**Charging** – A device is being charged from the Hotspot battery.

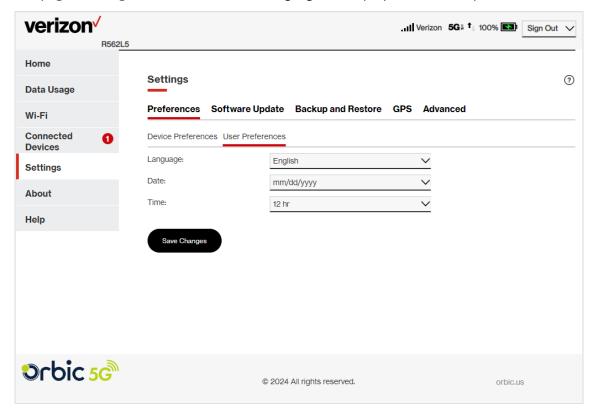
**Available** – If a device connects to the Hotspot USB-C port, it will be charged.

**Not available (low battery)** – The Hotspot battery is too low to charge a device.

**Stop charging other device when battery reaches:** Use the drop-down list to select a battery percentage for the Hotspot at which you want to stop charging other devices in order to reserve Hotspot battery power. **NOTE:** Do not use the Charge Other Device feature if you want to use the battery for a full day.

#### **User Preferences sub tab**

Use this page to change how dates, time, and language are displayed in the Hotspot Admin Web UI.



Language: Select a language for the Admin Web UI.

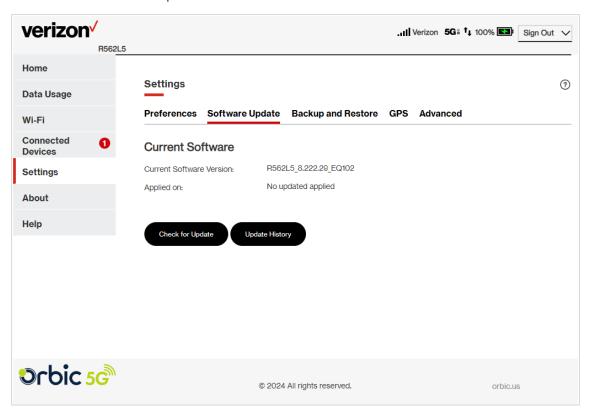
Date: Select the date format to be used throughout the Web UI (mm/dd/yyyy or dd/mm/yyyy).

Time: Select the time format to be used throughout the Web UI (12 or 24 hour).

Select your display choices from the drop-down menus and click **Save Changes** to update settings.

#### Software Update tab

Software updates are delivered to the Hotspot automatically over the mobile network. This tab displays your current software version, last system update information, software update history, and allows youto check for new software updates.



#### **Checkfor Software Update**

Last check for update: The date and time the Hotspot last checked to see if an update was available.

**Update status:** This is area is usually blank. If you check for an update, the result of that check, or the download progress of an update displays.

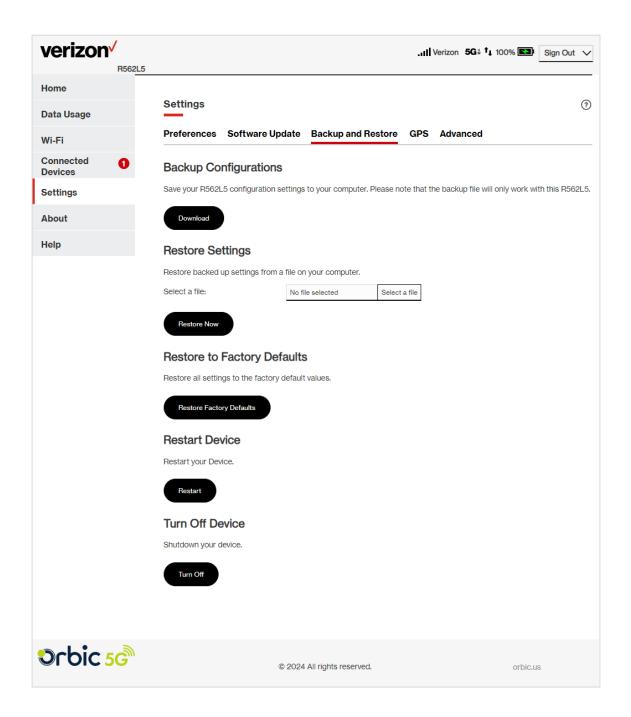
**Check for Update:** Click this button to manually check for available software updates. If a newsoftware update is available, it is automatically downloaded.

#### **Software Update History**

This section displays details of the last updates that have been downloaded and installed to this device. If no updates have been installed, this section displays the current software version.

#### Backup and Restore tab

Use this tab to back up current Hotspot settings to a file on your computer, restore (upload) a previously-saved configuration file, reset the **Hotspot** to factory defaults, or restart or turn off your Hotspot.



#### **Backup Configurations**

To back up current Hotspot settings to a file on your computer, enter your Admin password in the **Admin password** box.

If you don't remember the Admin password, click the down arrow next to **Sign Out** in the top-right corner of any Web UI page and click **Change Password**, then **Forgot Admin password?** Answer the displayed security question. The current Admin password will be displayed. Alternately, you can view the Admin password on the Hotspot touchscreen by tapping **Help > Web UI** or **Menu > Help > Web UI**.

**NOTE:** If you enter an incorrect password five times in a row, you will be locked out of the Web UI. To unlock it, restart your Hotspot.

Click the **Download** button. The file is automatically downloaded to your Downloads folder. This configuration file contains all settings for your Hotspot.

**NOTE:** The backup file cannot be edited or viewed on the downloaded system or on any other device. This file can only be restored for this model of Hotspot.

#### **Restore Settings**

**CAUTION:** Restoring settings (uploading a configuration file) changes ALL of the existing settings to match the configuration file. This may change the current Wi-Fi settings, breaking all existing connections to the Hotspot and disconnecting you from the Web UI.

To restore system settings from a backup settings file, enter your Admin password in the **Admin** password field.

In the **Select a file** field, click **Browse** and choose a backup settings file to restore.

**NOTE:** You can only restore a file that was created for this model of Hotspot.

Click the **Restore Now** button.

#### **Restore to Factory Defaults**

**Restore Factory Defaults:** This button resets all settings to their factory default values.

**CAUTION:** This initiates a restart and may change the current Wi-Fi settings, breaking all existing connections to your Hotspot and disconnecting you from the Web UI.

#### **Restart Device**

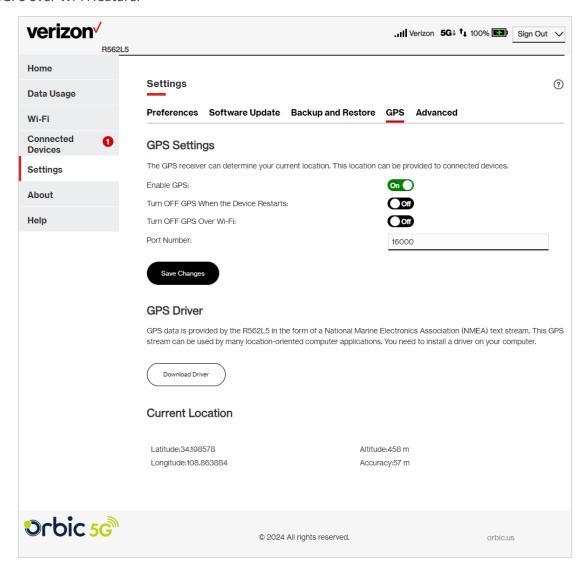
**Restart**: This button turns your Hotspot off and on again.

#### Turn offDevice

**Turn Off:** This button turns your Hotspot off.

#### **GPS** tab

The Hotspot incorporates a GPS receiver. The GPS receiver can determine your current location. Use this tab to enable GPS, view current location information, and to enable GPS streaming to devices with the GPS over Wi-Fi feature.



#### **GPS Settings**

**Enable GPS:** This setting enables or disables the GPS radio on your Hotspot. When the ON/OFF slider is ON, the device acquires GPS and makes GPS location data available on this page. A GPS Agreement appears, click **Yes** to proceed. When OFF, no GPS data is available.

**Turn OFF GPS When the Device Restarts:** This setting determines when the GPS receiver will turn off, once it is on. When the ON/OF**F** slider is ON, the GPS receiver turns off when the Hotspot is restart. You will need to turn it on again the next time the GPS receiver is needed.

**Turn OFF GPS Over Wi-Fi**: This setting determines whether location information can be shared with connected devices. When the ON/OFF slider is ON, location information can be shared. Raw GPS data is provided in the form of a National Marine Electronics Association (NMEA) text stream. You can use

third-party applications to utilize or forward the GPS data to a remote server.

**Port Number:** The TCP port number used to establish a connection to the Hotspot and obtain raw GPS data for the GPS over Wi-Fi feature. Unless there is a good reason to do so, you should not change the port number. Acceptable port values are between 15000 and 20000, The default port value is 16000.

Click Save Changes to update settings.

#### **GPS Driver**

For the GPS over Wi-Fi feature, if you want to access the GPS data stream from a virtual COM port instead of the TCP port (above), use the **Download Driver** button to download and install a GPS driver for your Windows platform. This driver creates a virtual NMEA port, obtains GPS data from the Hotspot, and makes this GPS data available to NMEA-aware third-party applications.

#### **Current Location**

Latitude: Latitude for the last location fix.

Longitude: Longitude for the last location fix.

Altitude: Altitude for the last location fix.

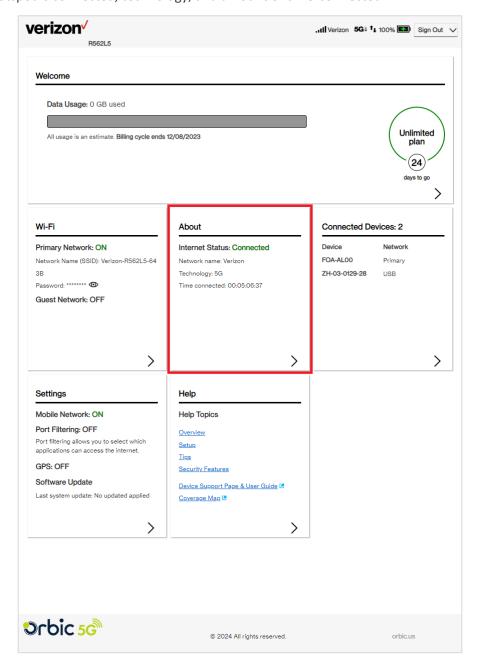
**Accuracy:** A measure of the accuracy of the horizontal position obtained by the GPS receiver.

#### Advanced tab

Advanced settings are intended only for users with advanced technical knowledge. For information about the Advanced Settings page, go to Chapter 4, Advanced Settings on page 64.

## Viewing info about your Hotspot

On the Web UI Home page, the About panel shows current internet status, the name of the network to which the Hotspot is connected, technology, and amount of time connected.



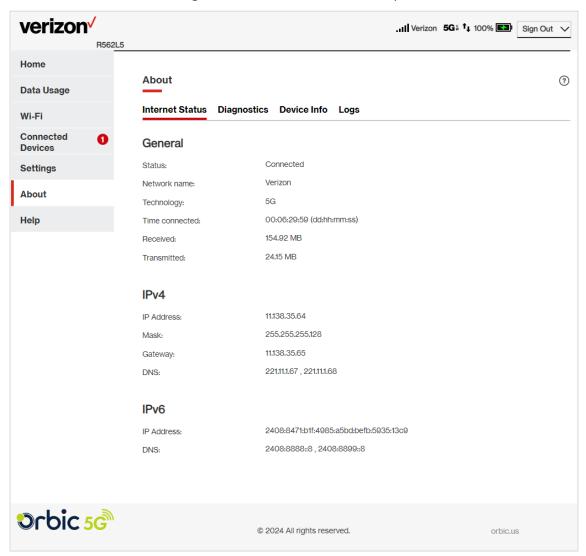
To view more detailed information about your Hotspot and its use, select > from the Home page About panel (or select About from the Web UI side menu).

The About page includes the following tabs:

- Internet Status
- Diagnostics
- Device Info
- Logs

#### Internet Status tab

Use the Internet Status tab to view general internet connection and system information.



**Status:** The current status of the Hotspot internet connection.

Network Name: The name of the network for the current internet session established.

**Technology**: Indicates the current cellular data connection, for example, 5G.

**Time Connected:** The amount of time that has elapsed since the connection for the current internet session was established.

**Received:** The amount of data received for the current internet session. This counter starts at zero when the connection is established.

**Transmitted:** The amount of data transmitted for the current internet session. This counter starts at zero when the connection is established.

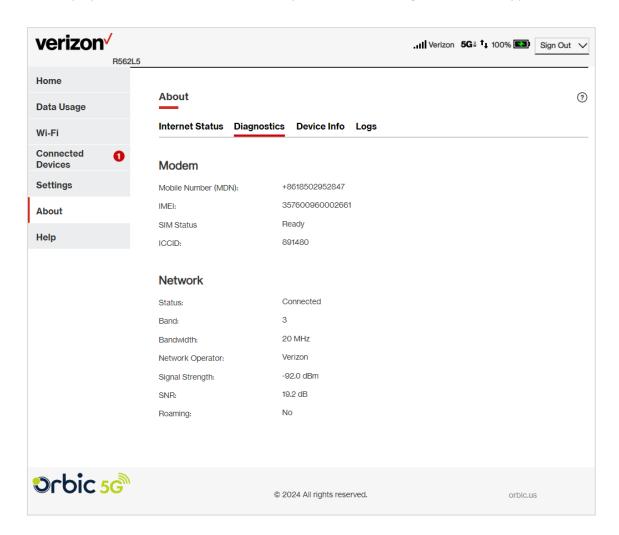
#### IPv4

- IP Address: The internet IP address assigned to the Hotspot.
- Mask: The network mask associated with the IPv4 address.
- Gateway: The gateway IP address associated with the IPv4 address.
- **DNS:** The Domain Name Server currently used by the Hotspot.

#### IPv6

- **IP Address:** The global IPv6 address for the Hotspot (blank if IPv6 is turned off or is not supported by the current network connection or operator).
- **DNS:** The Domain Name Server currently used by the Hotspot.

This tab displays detailed information used solely for troubleshooting or technical support.



#### Modem

**Mobile Number (MDN):** The phone number of your Hotspot.

**IMEI:** The International Mobile Equipment Identity (IMEI) for your Hotspot. This is a 15 digit code used touniquely identify an individual mobile station. The IMEI does not change when the SIM is changed.

**SIM Status:** Indicates the status of the SIM card. If the SIM card is missing, or there is some form of SIM error, connection to the mobile network is not possible.

**ICCID:** The unique ID number assigned to the SIM card. This field is blank if there is no SIM card installed, or a SIM error condition exists.

#### **Network**

Status: The status of the network: Not available or Available.

**Band:** The band in use for the current connection.

Bandwidth: The bandwidth in use for the current connection

**Network Operator:** The name of the Mobile Network Operator (MNO).

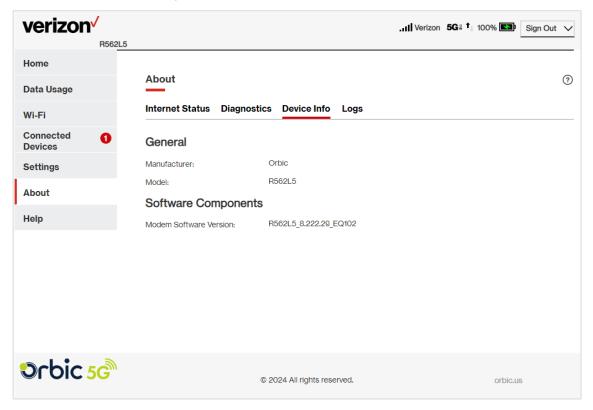
**Signal Strength (RSRP):** The strength of the cellular signal, measured in dBm. Higher absolute values indicate a stronger signal, for example: -80 dBm is a stronger signal than -90 dBm.

**SNR:** Signal to Noise Ratio. A measure of the ratio between signal strength and noise level. SNR values are positive, and higher numbers are better.

**Roaming:** Indicates whether roaming is on.

#### Device Info tab

Use this tab to view details about your internal WAN connection.



#### General

Manufacturer: Orbic.

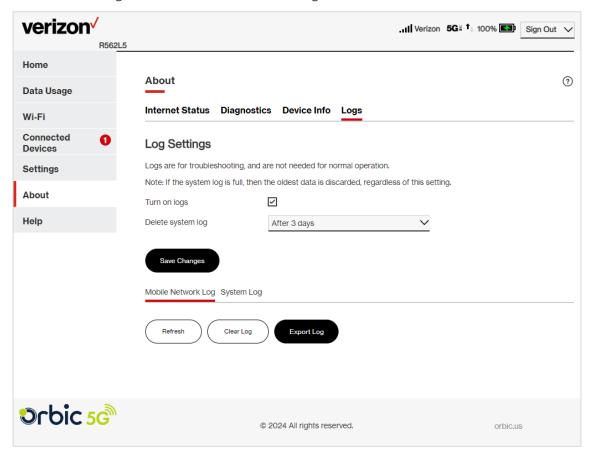
Model: R562L5.

### **Software Components**

Modem Software Version: The version of software currently installed for the modem component.

#### Logs tab

Use this tab to view log information for troubleshooting.



#### **Log Settings**

**Turn on Logs:** Check this box to turn on logs as needed.

**Delete system logs:** Use the drop-down list to select when you want system log data deleted.

NOTE: If the log is full, the oldest data is deleted regardless of this setting.

Click Save Changes to enact changes.

If logs are turned on, the following are visible:

Mobile Network Log: This tab displays the log data of connections to the mobile network.

**System Log:** This tab displays the log data of events other than mobile data connections that occurred on this device.

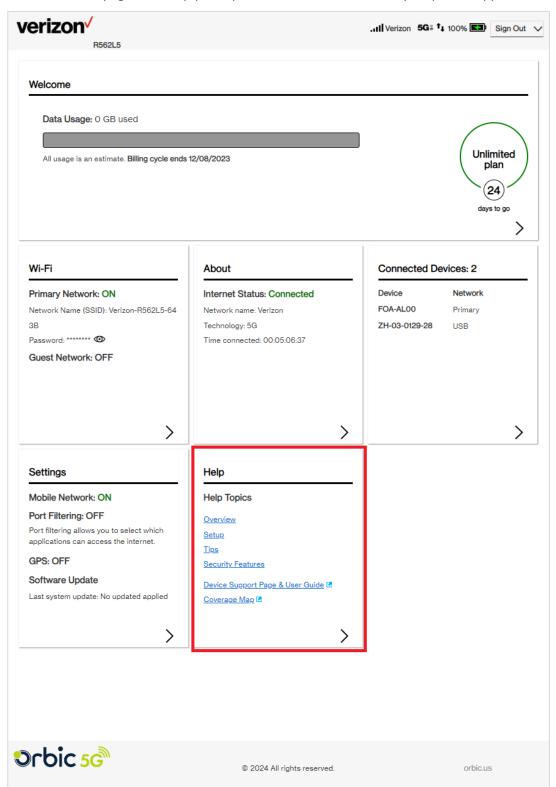
Refresh: Updates the displayed log data.

Clear Log: Deletes all existing log data. This makes new data easier to read.

**Export Log:** Allows you to download log data.

# Getting help

On the Web UI Home page, the Help panel provides links to introductory help and support.



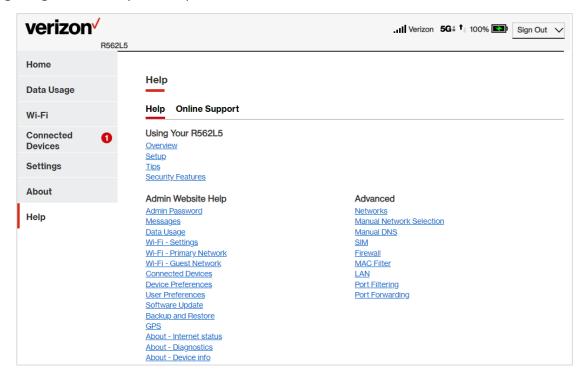
To view more detailed help information, select > from the Home page Help panel (or select Help from the Web UI side menu).

The Help page includes two tabs:

- Help
- Online Support

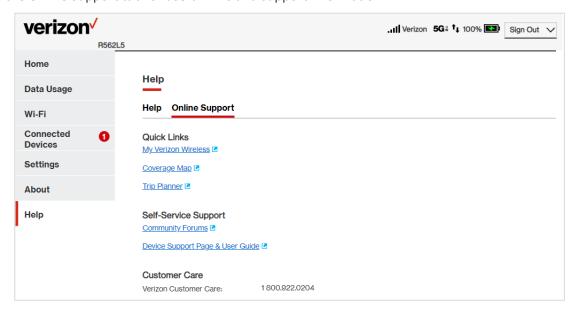
#### Help tab

This page provides links to help topics for every page of the Admin Web UI and general topics useful for getting started with your Hotspot.



#### Online Support tab

Use the Online Support tab for useful links and support information.



# 4

# **Advanced settings**

Overview Using advanced settings

#### Overview

The Advanced Settings pages on the Hotspot Admin Web UI are intended for users with technical expertise in the area of telecommunication and networking.

**WARNING!** Changing the Advanced settings may be harmful to the stability, performance, and security of the Hotspot.

# Using advanced settings

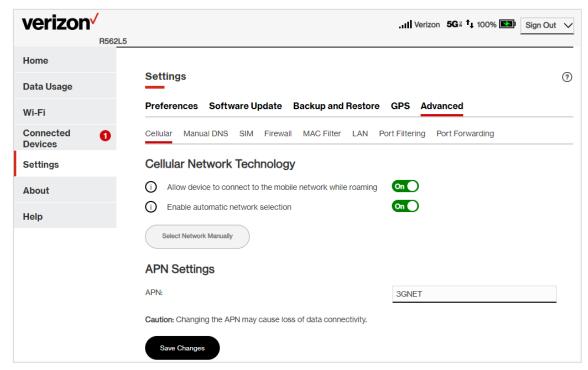
When you select the **Advanced** tab on the Settings page, a warning message appears. If you click **Continue**, the Cellular tab of the Advanced page appears.

The Advanced page includes nine tabs:

- Cellular
- Manual DNS
- SIM
- Firewall
- MAC Filter
- LAN
- Port Filtering
- Port Forwarding

#### Cellular tab

In most configurations, the Hotspot is used with a dynamic IP and SIM and the Access Point Name (APN) is available from the network, for example: VZWINTERNET.



#### CellularNetworkTechnology

**Allow device to connect to the mobile network while roaming:** Use the ON/OFF slider when necessary to turn international and domestic roaming on or off as needed. Additional data charges may apply when roaming.

**Enable automatic network selection:** When the ON/OFF slider is ON, your Hotspot automatically selects the best 5G/LTE/UMTS available network and you cannot use the **Select Network Manually** button.

**Select Network Manually:** You may wish to use this option if multiple networks are available and you have a preference. **NOTE:** This option is available only if **Enable automatic network selection** is off. Click the button to scan for available networks, then choose the preferre network.

#### **APN Settings**

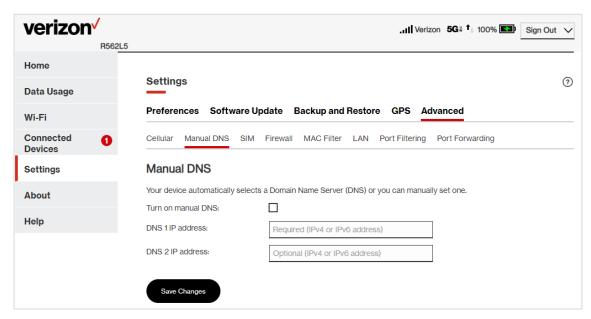
**APN:** Enter the APN for your private network.

**CAUTION:** Changing the APN may cause a loss of data connectivity and disconnect you from the Web UI.

Click Save Changes.

#### Manual DNS tab

The Hotspot automatically selects a Domain Name Server (DNS). This tab allows you to manually assign upto two DNS IP addresses.



#### **Manual DNS**

**Turn on manual DNS:** Check this box to manually select a DNS.

**DNS 1 IP address:** Enter the IP address for the primary DNS. This address is required to use the Manual DNS feature.

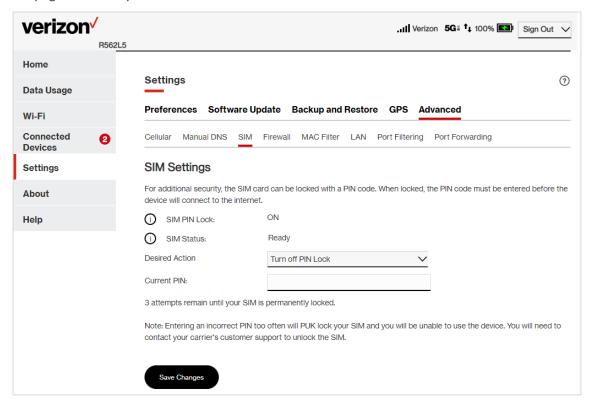
**DNS 2 IP address:** Enter the IP address for the secondary (backup) DNS. This address is optional and may be left blank if desired.

Click Save Changes.

#### SIM tab

The SIM card in your Hotspot can be locked using a PIN. If the SIM card is locked, you must enter the PIN before connecting to the mobile network. Once entered, the PIN is remembered until the next shutdown. You may also need to provide the existing PIN to change a SIM. The default PIN is available from your service provider.

Use this page to unlock your SIM or enter a SIM PIN.



#### **SIM Settings**

**SIM PIN Lock:** Indicates whether the PIN lock feature is in use. If On, the PIN lock has been turned on, and the SIM PIN must be entered to connect to the mobile network. If Off, the PIN lock feature is not turned on and the SIM PIN is not required.

SIM Status: The current status of the SIM card. Possible states include:

- Ready No SIM PIN is needed.
- PIN Locked SIM PIN must be entered before you can use the mobile network.
- **PUK Locked** PUK (personal unblocking key) for the SIM must be entered in order to continue. The PUK can be obtained from your service provider.
- **Unlocked** SIM PIN was needed, but has already been entered.
- No SIM No SIM is detected. Check that the SIM is inserted correctly.
- SIM Error SIM is detected, but is not responding as expected and cannot be used.

**Desired Actions:** The actions available depend on the SIM status. Possible operations include:

- PIN Lock If the SIM is currently PIN locked, you are prompted to enter the PIN.
   NOTE: If an incorrect PIN is entered too many times, the SIM becomes PUK locked. A counter indicates how many incorrect entries will cause PUK lock. Once PUK locked, the PUK must be obtained from your service provider.
- **PUK Lock** If the SIM is currently PUK locked, the only operation possible is to enter the PUK. **NOTE:** If an incorrect PUK is entered too many times, the SIM becomes permanently unusable. You will need to obtain a new SIM. A counter indicates how many entry attempts remain.
- **Turn on PIN Lock** Sets the SIM so that entry of a PIN is required upon startup to connect to the mobile network. To perform this operation, you must enter the current PIN.
- **Turn off PIN Lock** Turns off a PIN lock that was previously turned on so that entry of a PIN is no longer required to connect to the mobile network. To perform this operation, you must enter the current PIN.

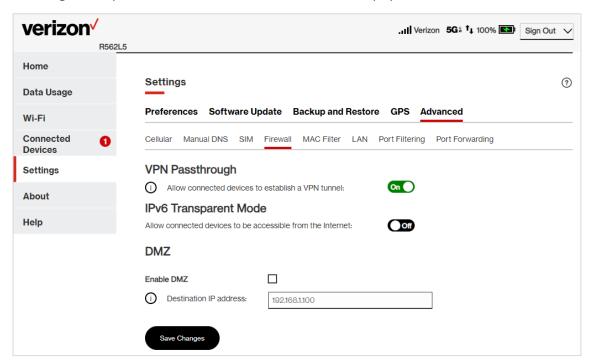
**Current PIN**: Enter the current PIN.

**NOTE:** For a Verizon Wireless SIM, the new PIN must be 4, 6 or 8 digits. The default SIM PIN is available from your service provider.

Click Save Changes.

#### Firewall tab

The Hotspot firewall determines which internet traffic is allowed to pass between the Hotspot and connecteddevices and protects your connected devices from malicious incoming traffic from the internet. The firewall cannot be turned off. Use the Firewall tab to adjust the general security level of the firewall, designate a specific device to receive all traffic, and set up specific firewall rules.



#### **VPN Passthrough**

**Allow connected devices to establish a VPN tunnel:** To use the **VPN Passthrough**, ensure the ON/OFF slider is ON. This allows you to establish a VPN tunnel while using your Hotspot.

#### **DMZ**

**NOTE:** When IP Passthrough is turned on, DMZ capabilities are set through the connected host routing system and settings in this section are not available.

DMZ allows the connected device specified as the DMZ IP address (Destination IP address) to receive all traffic that would otherwise be blocked by the firewall.

**NOTE:** Allowing DMZ may assist some troublesome network applications to function properly, but the DMZ device should have its own firewall to protect itself against malicious traffic.

**Enable DMZ:** Check this box to allow DMZ.

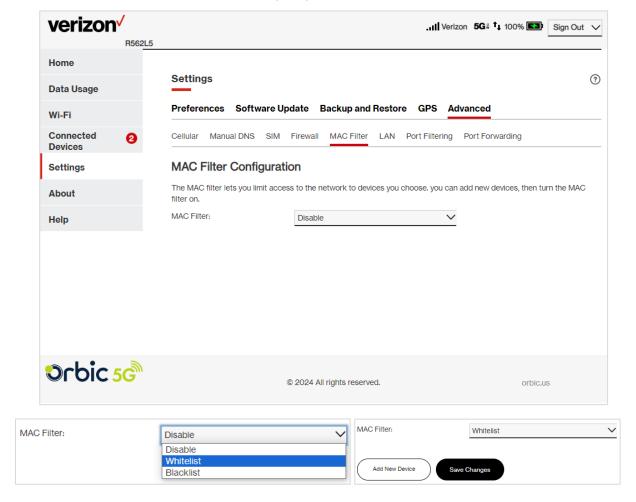
**Destination IP address:** Enter the IP address of the connected device you wish to become the DMZ device (the DMZ destination). **NOTE:** You can check the IP address of each connected device on the Connected Devices screen.

Click Save Changes.

#### **MAC** Filter tab

The MAC filter allows only selected devices to access the Hotspot primary Wi-Fi network. By default, MACfilter is turned OFF.

Use this tab to turn the MAC Filter ON and specify device access.

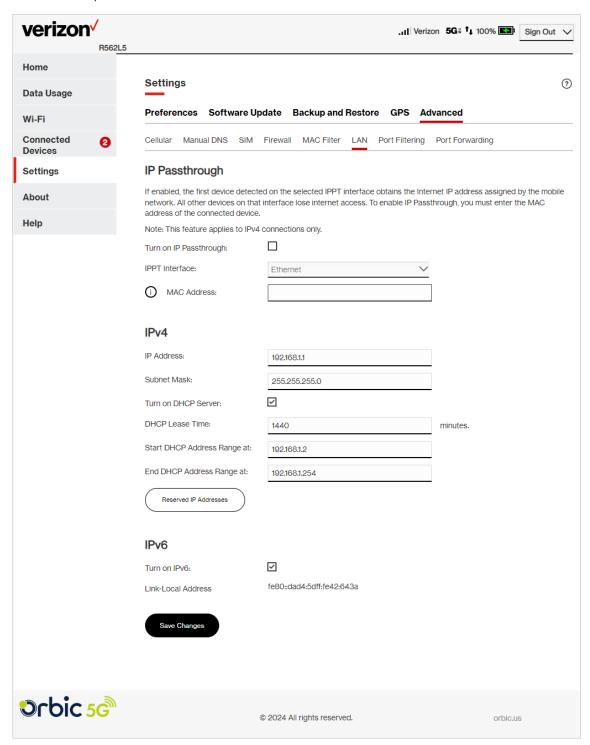


#### **MAC Filter Configuration**

The MAC filter is Disabled by default. Select Whitelist or Blacklist from the list, click Add New Device to add device(s) and click **Save Changes**.

**CAUTION:** Turning on MAC filtering immediately disconnects all devices that are not included in the filter from the primary network.

This tab provides settings and information about the Hotspot local area network (LAN). The LAN consists of the Hotspot and all Wi-Fi and USB and Ethernet connected devices.



#### **IP Passthrough**

IP Passthrough (IPPT) enables the first device detected on the specified interface to obtain the IP

address assigned by the mobile network. IPPT allows you to enable a one-to-one connection to a host routing system. **NOTE**: When IP Passthrough is on, devices on other interfaces function normally. However, when IPPT is enabled, the following capabilities are set through the host routing system and Web UI settings are not available:

- Port Forwarding
- Port Filtering
- DMZ (Firewall)

**Turn on IP Passthrough:** Check the box to enable IP Passthrough.

**IPPT Interface:** Select the interface used by the network device you wish to become the IP Passthrough device.

**Hostname:** When enabling IPPT on the USB interface, enter the hostname of the device connected for IP Passthrough. This is the only USB-connected device that can obtain the IP address assigned to the mobile network. You can view the hostname on the Home or Connected Devices page.

**MAC Address:** When enabling IPPT on the Ethernet interface, enter the MAC address of the device connected for IP Passthrough. This is the only Ethernet-connected device that can obtain the IP address assigned to the mobile network.

#### IPv4

**IP Address:** The IP address for your Hotspot, as seen from the local network. Normally, you can use the default value.

**Subnet Mask:** The subnet mask network setting for the Hotspot. The default value 255.255.255.0 is standard for small (class "C") networks. If you change the LAN IP Address, make sure to use the correct Subnet Mask for the IP address range of the LAN IP address.

**Turn on DHCP Server:** This checkbox turns the DHCP Server feature on or off. This should be left checked. The DHCP server allocates an IP address to each connected device. **NOTE:** If the DHCP Server is turned off, each connected device must be assigned a fixed IP address.

**DHCP Lease Time:** The number of minutes in which connected devices must renew the IP address assigned to them by the DHCP server. Normally, this can be left at the default value, but if you have special requirements, you can change this value.

**Start DHCP Address Range at:** The start of the IP address range used by the DHCP server. If the IP isset on the client device, use an IP address outside of this DHCP range; if the IP address is set using an IP reservation, it will usually be inside this range. **NOTE:** Only expert users should change this setting.

**End DHCP Address Range at**: The end of the IP address range used by the DHCP server. If the IP is set on the client device, use an IP address outside of this DHCP range; if the IP address is set using an IP reservation, it will usually be inside this range. **NOTE**: Only expert users should change this setting.

**Reserved IP Addresses:** Use this button to set up reserved IP addresses. Reserved IP addresses ensure that a connected device will always be allocated the same IP Address.

#### IPv6

**Turn on IPv6:** Check this box if any of your connected devices support IPv6. This enables IPv6 connected devices to make IPv6 connections to the internet.

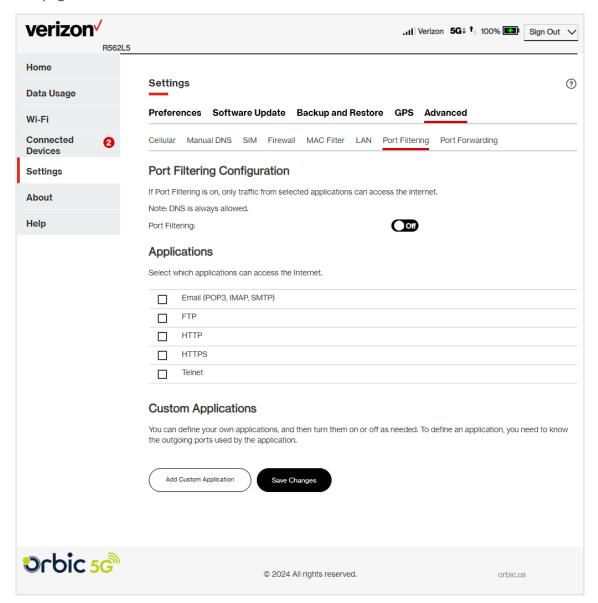
Link-Local Address: The Link-Local IPv6 address if the connected device supports IPv6.

Click **Save Changes** to activate and save new settings.

#### Port Filtering tab

Port Filtering allows you to block outgoing internet connections and permit only selected applications to access the internet. Traffic is identified by port numbers. Some applications are pre-defined. You can define additional applications if you know the details of the traffic used and generated by the applications.

**NOTE:** You can also view the current Port Filtering setting (ON/OFF) in the Settings panel on the Web UI Homepage.



**NOTE:** When IP Passthrough is turned on, port filtering capabilities are set through the connected host routing system and settings on this page are not available.

#### **Port Filtering Configuration**

**Port Filtering:** To turn on port filtering, move the ON/OFF slider to ON. To turn off port filtering, so that any application can connect to the internet, move the slider to OFF.

#### **Applications**

Select the applications you want to be able to access the internet and click **Save Changes**.

The following table provides port numbers and protocol information for each port filtering application listed.

| Application Name      | Port | TCP* | STCP* | UDP*     |
|-----------------------|------|------|-------|----------|
| Email                 |      |      |       |          |
| POP3                  | 110  | Yes  | No    | Assigned |
| POP3S                 | 995  | Yes  | No    | Yes      |
| IMAP                  | 143  | Yes  | No    | Assigned |
| IMAPS                 | 993  | Yes  | No    | Assigned |
| SMTP                  | 25   | Yes  | No    | Assigned |
| SecureSMTP            | 465  | Yes  | No    | No       |
| FTP control (command) | 21   | Yes  | Yes   | Assigned |
| FTP data transfer     | 20   | Yes  | Yes   | Assigned |
|                       |      |      |       |          |
| НТТР                  | 80   | Yes  | Yes   | Assigned |
| HTTPS                 | 443  | Yes  | Yes   | Assigned |
| Telnet                | 23   | Yes  | No    | Assigned |

<sup>\*</sup> **Yes** indicates the protocol is standardized for the port number.

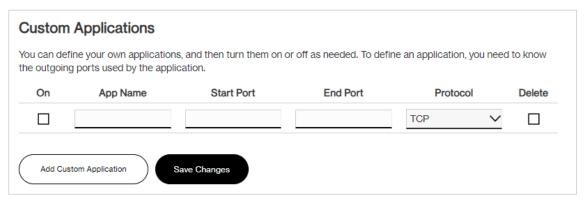
**No** indicates the protocol is standardized for the port number.

**Assigned** indicates the port number is assigned by IANA (Internet Assigned Numbers Authority) for protocol use, but may not be standardized.

#### **Custom Applications**

You can define up to 32 custom applications.

Add Custom Application: Use this button to add a new row to the custom application list.



- On: Check this box if you want the new application to be able to access the internet.
- **App Name**: Enter a name for the custom application.
- **Start Port:** Enter the beginning of the range of port numbers used by outgoing traffic for the custom application being added.
- End Port: Enter the end of the range of port numbers used by the application.

**NOTE:** If the application uses a single port instead of a range, type the same value for both the **Start Port** and the **End Port**.

- **Protocol:** Select the protocol used by the port range from the drop-down list (TCP, UDP, or both).
- **Delete:** Check this box to delete a custom application. **NOTE:** Click on the Port Filtering tab again to remove deleted custom applications from view on the screen.

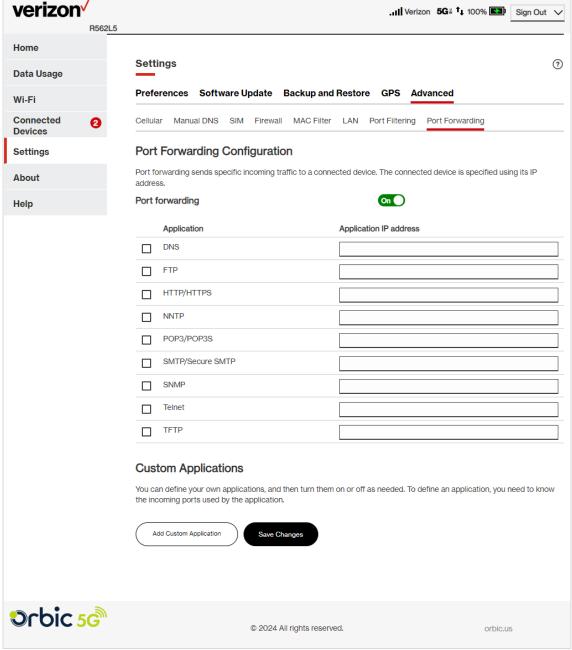
Click **Save Changes** to save any changes made to the custom applications.

#### Port Forwarding tab

Port Forwarding allows incoming traffic from the internet to be forwarded to a particular device connected to your Wi-Fi network. Normally, the built-in firewall blocks incoming traffic from the internet. Port forwarding allows internet users to access any server you are running on your computer, such as a Web, FTP, or Email server. For some online games, port forwarding must be used in order forthe games to function correctly.

**Important:** Port forwarding creates a security risk and should not be turned on unless it is required.

Some mobile networks provide you with an IP address on their own network rather than an internet IPaddress. In this case, Port Forwarding cannot be used, because internet users cannot reach your IP address.



**NOTE:** When IP Passthrough is turned on, port forwarding capabilities are set through the connected host routing system and settings on this page are not available.

#### **Port Forwarding Configuration**

**Port forwarding:** To turn on port forwarding, move the ON/OFF slider to ON. To turn off port forwarding, so that no inbound traffic is forwarded to a LAN client, move the slider to OFF.

Check the box next to each Port Forwarding application that you want to allow.

To forward all inbound WAN traffic on a specific port to a single LAN client, enter the IP address of the target device in the **Application IP address** field for the application.

Click Save Changes.

The following table provides port numbers and protocol information for each port forwarding application listed.

| Application Name      | Port | TCP*     | STCP* | UDP*     |
|-----------------------|------|----------|-------|----------|
| DNS                   | 53   | Yes      | No    | Yes      |
| FTP control (command) | 21   | Yes      | Yes   | Assigned |
| FTP data transfer     | 20   | Yes      | Yes   | Assigned |
| НТТР                  | 80   | Yes      | Yes   | Assigned |
| HTTPS                 | 443  | Yes      | Yes   | Assigned |
| NNTP                  | 119  | Yes      | No    | Assigned |
| POP3                  | 110  | Yes      | No    | Assigned |
| POP3S                 | 995  | Yes      | No    | Yes      |
| SMTP                  | 25   | Yes      | No    | Assigned |
| SecureSMTP            | 465  | Yes      | No    | No       |
| SNMP                  | 161  | Assigned | No    | Yes      |
| Telnet                | 23   | Yes      | No    | Assigned |
| TFTP                  | 69   | Assigned | No    | Yes      |

 $<sup>\</sup>ensuremath{^*}\mathbf{Yes}$  indicates the protocol is standardized for the port number.

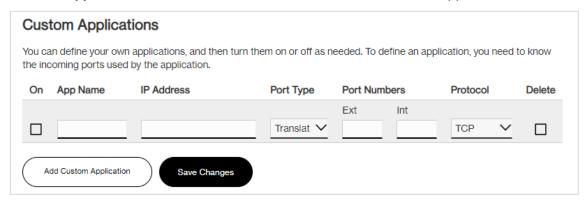
**No** indicates the protocol is standardized for the port number.

**Assigned** indicates the port number is assigned by IANA (Internet Assigned Numbers Authority) for protocol use, but may not be standardized.

#### **Custom Applications**

You can add up to 32 custom applications. Once defined, these applications can be turned on and off the same way as pre-defined applications.

**Add Custom Application:** Use this button to add a new row to the custom applications list.



- On: Check this box if you want the application to be able to access the internet (enabling port forwarding).
- App Name: Enter a name for the custom application.
- IP Address: If you want to limit service for the application to a single connected device, enter the IP address of the target device. To find the IP address of a device, go to the Connected Devices page. NOTE: To ensure the device you are forwarding to does not have a different IP address after a reboot, either statically assign the IP address on the client device, or set up a DHCP reservation.
- **Port Type:** Select Range or Translate from the drop-down list.
- **Port Numbers:** Use the **From** and **To** fields to specify the range of port numbers to be forwarded. **NOTE:** If the application uses a single port instead of a range, type the same value in both the **From** and **To** fields.
  - For translate ports, use the **Ext.** and **Int.** to specify ports. **NOTE**: Forwarding takes inbound traffic on a port to the same port on a client device. Use translate ports to send traffic to a different port on the client device. For example, instead of having inbound traffic on port 1234 forward to port 1234 of the client device, you can have it forward to port 5678.
- Protocol: Select the protocol used by the port range from the drop-down list (TCP, UDP, or both).
- **Delete:** Check this box to delete a custom application. **NOTE:** Click on the Port Forwarding tab again to remove deleted custom applications from view on the screen.

Click **Save Changes** to save any changes made to the custom applications.

# 5

# **Troubleshooting and support**

Overview

Common problems and solutions

Technical support

#### Overview

The Hotspot is a highly reliable product. Most problems are caused by one of these issues:

- System resources required by the Hotspot are being used by other devices.
- Network coverage is unavailable due to coverage area, an account problem, or a network problem.

#### First troubleshooting steps

- Make sure you are using the Hotspot in the correct geographic region.
- Ensure that your wireless coverage extends to your current location.
- Ensure you have an active data plan.
- For Hotspot optimum radio performance, DO NOT place your Hotspot on metal surfaces.

**IMPORTANT:** Before contacting support, be sure to restart both your connected device and your Hotspot, and ensure that your SIM card is inserted correctly.

# Common problems and solutions

The solutions in this section can help solve many common problems encountered while using the Hotspot.

#### My Hotspot powered off without pressing the Power button

This may occur under any of the following circumstances:

- Pressing the Reset button or Restore Factory Settings on the touchscreen or Admin Web UI
- Hotspot automatically restarting after configuration changes
- Switching profiles
- Restoring the configuration settings
- Battery depletion

To restore power, follow these steps:

- 1. Manually press and hold the Hotspot Power button for three seconds to turn it back on.
- 2. If the battery is depleted, charge the Hotspot with the wall charger.

#### No service is available

- Reorient your device. If you are inside a building or near a structure that may be blocking the signal, change the position or location of the device. For example, try moving your device close to a window.
- You are outside your coverage area, or there may be a problem with your account. Check with your network operator.
- For Hotspot optimum radio performance, DO NOT place your Hotspot on metal surfaces.

#### My Hotspot has no power/touchscreen doesn't display when I press the Power button

- Make sure the battery is properly seated in the device.
- Check that the battery is fully charged.

#### I forgot my Wi-Fi password

Tap Wi-Fi Name/Password to see your Wi-Fi name (SSID) and Wi-Fi password.

#### I forgot my Hotspot Admin Web UI password

- Your default Hotspot Admin Web UI password is the same as your Wi-Fi password. However, you're prompted to set a new password upon initial sign in. **NOTE**: If you reset your Hotspot to factory settings, use the default password.
- Once you have set an Admin password, click the down arrow next to Sign Out in the top-right corner of any Web UI page and click Change Password, then select Forgot Admin password? and answer the displayed security question. The current Admin password is displayed. Alternately, you can view the Admin password on the Hotspot touchscreen by tapping Help > Web UI or Menu > Help > Web UI.

#### I cannot connect a device to my Hotspot

On your Hotspot: Make sure the Network Signal Strength indicator **Ill** displays at least one bar and that the type of network is displayed on the Home screen (for example, 5G).

On the device you want to connect: Make sure Wi-Fi is turned on. The Hotspot will broadcast its own wireless network and name. Open the list of available Wi-Fi networks. Select the Hotspot primary or guestnetwork and enter the password.

**NOTE:** You can find the primary network name and password by tapping **Wi-Fi Name/Password** on your Hotspot • • swipe left to see the guest network name and password.

Once connected to the internet, the Hotspot Home screen displays the connected device.

#### I see other networks, but not the network name for my Hotspot

The default multi-mode settings on your Hotspot work for most Wi-Fi clients, however, some older devices require that you set one of the Wi-Fi bands to support older BGN standards:

- Access the Hotspot Admin Web UI. Tether your device to the Hotspot with the USB-C cable.
   On the Hotspot touchscreen, select Access Internet (USB & Wi-Fi) and click OK. Open any
   web browserand go to http://my.mobilehotspot or http://192.168.1.1. NOTE: If you have
   another device that can connect to your Hotspot, you can use it to access the Admin Web UI.
- Navigate to Wi-Fi > Settings. Under 2.4GHz Band Settings, use the drop-down to change the 802.11 mode to 802.11 bgnax. NOTE: This allows older devices to connect on the 2.4 GHz band, but leaves the 5GHz band in multi-mode to allow newer devices the fastest available connection.
- 3. Click **Save Changes**. Your Hotspot will reboot and the network name should be visible on all devices.

#### I see the network name, but can not connect a device to my Hotspot

Tap **Wi-Fi Name/Password** on the Hotspot Home screen to make sure you are using the correct Wi-Fi password. Swipe left to view the guest network credentials if you are connecting to the guest network.

The default network security settings on your Hotspot work for most Wi-Fi clients, however, some olderdevices may not have access. If you are entering the correct password and still unable to connect, change the network security setting to **WPA/WPA2 Mixed Mode**:

- Access the Hotspot Admin Web UI by tethering the device to the Hotspot with the USB-C cable.
  On theHotspot touchscreen, select Access Internet (USB & Wi-Fi) and click OK. Open any web
  browser and go to http://my.mobilehotspot or http://192.168.1.1. NOTE: If you have another
  device that can connect to your Hotspot, you can use it to access the Admin Web UI.
- 2. Navigate to Wi-Fi > Primary Network. In the Security drop-down, select WPA/WPA2 Mixed Mode.
- 3. Click Save Change. Your Hotspot will reboot and all devices should be able to connect.

#### I want to see how many devices are connected

On the Hotspot touchscreen: Look below the Connected Devices icon con the Home screen for the number of connected devices. Tap the icon for details on the connected devices.

On the Hotspot Admin Web UI: The Connected Devices panel on the Home page lists the number of connected devices to the right of Connected Devices. Click in the bottom-right corner of the panel for details on connected devices.

#### I want to see the firmware (software) version installed on my Hotspot

**NOTE:** Software updates are delivered to the Hotspot automatically over the mobile network.

On the Hotspot touchscreen: Tap Menu and then swipe up and tap Software Update.

On the Hotspot Admin Web UI: Click in the bottom-right corner of the Settings panel and select the Software Updates tab.

#### want to see the phone number for my Hotspot

On the Hotspot touchscreen: Tap Menu and then swipe up and tap About. Your Hotspot phone number is listed as Mobile Device Number.

On the Hotspot Admin Web UI: Click in the bottom-right corner of the About panel and select the Diagnostics tab. Your Hotspot phone number is listed as Mobile number (MDN).

#### want to see the battery level of my Hotspot

On the Hotspot touchscreen: You can view the battery icon and percentage 100% on the top right of the Homescreen.

On the Hotspot Admin Web UI: You can view the battery icon and percentage on the top right of the Home page.

#### want to turn my Hotspot off

Press and hold the Power button on the Hotspot for three seconds until you see the Power Off screen. Then select **Shutdown** and tap **OK**.

# **Technical support**

**IMPORTANT:** Before contacting Support, be sure to restart both your computer and your Hotspot, and ensure that your SIM card is inserted correctly.

Contact your service provider for assistance.

#### Get help using your Hotspot

From your computer or any connected device, visit https://www.verizon.com/support/.

#### **Customer service**

Call 800.922.0204

Twitter @VZWSupport

#### More information

To access a User Guide, go to <a href="https://sua-verizonspeedx5g.s3.amazonaws.com/User\_Guide/">https://sua-verizonspeedx5g.s3.amazonaws.com/User\_Guide/</a> User Guide.pdf.

and find your device. Or, from the Hotspot Admin Web UI, select **Help > Online Support > Device Support Page & User Guide**.

# Product specifications and regulatory information

Product specifications
Regulatory information
Product Certifications and Supplier's Declarations of Conformity
Wireless communications
Limited warranty and liability
Safety hazards
Proper battery use and disposal

# **Product specifications**

| I) | <mark>ا</mark> | /1 | $\Gamma \epsilon$ | 7 |
|----|----------------|----|-------------------|---|

| Name:       | Orbic Speed X 5G   |
|-------------|--|
| Model:      | R562L5   |
| Dimensions: | 146mm x 79mm x 19mm  |
| Weight:     | 220g   |
| Ports:      | USB-C Port – charging, tethering, charging of other external devices |
|             | 1 Gbps RJ45 Ethernet port - tethering                                |
| SIM:        | Pre-installed 5G 4FF Nano SIM  |
| Chipset:    | Qualcomm® Snapdragon™ SDX62  |
| Display:    | 2.4" Touchscreen   |
|             | PowerIndicatorLED  |
| Languages:  | English  |
|             | Spanish  |

# Environmental

| Operating temperature:        | 0° C to 40° C  |
|-------------------------------|--|
| Storage temperature:          | -20° C to 60° C  |
| Battery charging temperature: | 0° C to 40° C  |
| Relative humidity:            | The device shall be fully operational up to a maximum of 95% relative humidity (non-condensing). |
| Electrostatic discharge:      | The device shall be able to withstand the following ESD: 8kV contact / 15kV air discharge.       |

### Power

| Charging:             | 18W PD3.0 charger<br>USB 3.0, type C to C cable |
|-----------------------|---|
| Time for full charge: | 3 hours (power off)                             |
| Battery:              | 5000 mAh Li-Ion battery (Included)              |

# Network connectivity\*

| 5G Nationwide and 5G Ultra Wideband |
|-------------------------------------|
| 4G Cat 20                           |
| 3G HSPA+/UMTS                       |
| 2x2 MIMO 5G Ultra Wideband          |
| 4x4 MIMO 5G Nationwide              |
| 4x4 MIMO LTE                        |

#### Bands supported

5G Nationwide: n2, n5, n48, n66

5G Ultra Wideband: n77, n260, n261

4G: B2, B4, B5, B12, B13, B48, B66

Global & roaming network: LTE: B3, B7, B20, B28 UMTS: B1, B2, B5, B8

#### Wi-Fi

Wi-Fi: 802.11 a/ac/b/g/n/ax (2.4GHz/5.0GHz)

2x2 MIMO

Supports up to 32 Wi-Fi enabled devices

Real simultaneous dual-band Wi-Fi

Primary and guest Wi-Finetworks

#### Software

Systems supported Windows® 10 or higher

Mac OS® X 10.10 or higher

Linux® Version 5.4.226 or Higher

<sup>\*</sup> Data plan required. Coverage subject to network availability.

## Regulatory information

#### FCC ID: 2ABGH-R562L5

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.
- 2. This device must accept any interference received, including interference that may cause undesired operation.

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

This equipment has been tested and found to comply with the limits of 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/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 isconnected.
- Consult the dealer or an experienced radio/TV technician for help.

#### **RF Exposure Information**

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 10 mm during normal operation Caution:

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

# Proper battery use and disposal

#### Statement:

- 1. Do not disassemble or open crush, bend or deform, puncture or shred
- 2. Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, expose to fire, explosion or other hazard.
- 3. Only use the battery for the system for which it is specified
- 4. Only use the battery with a charging system that has been qualified with the system per CTIA Certification Requirements for Battery System Compliance to IEEE 1725. Use of an unqualified battery or charger may present a risk of fire, explosion, leakage, or other hazard.
- 5. Do not short circuit a battery or allow metallic conductive objects to contact battery terminals.
- 6. Replace the battery only with another battery that has been qualified with the system per this standard, IEEE-Std-1725. Use of an unqualified battery may present a risk of fire, explosion, leakage or other hazard.
  - Only authorized service providers shall replace battery. (If the battery is non-user replaceable).
- 7. Promptly dispose of used batteries in accordance with local regulations
- 8. Battery usage by children should be supervised.
- 9. Avoid dropping the phone or battery. If the phone or battery is dropped, especially on a hard surface, and the user suspects damage, take it to a service center for inspection.
- 10. Improper battery use may result in a fire, explosion or other hazard.
- 11. Do not replace an embedded battery pack. Improper replacement may present a risk of fire, explosion, leakage or other hazard. Contact the manufacturer for replacement instructions.
- 12. ① The structure has a specific card slot, can identify the special battery, other batteries can not be loaded.
  - ② There is an ID pin on the terminal of the appliance, which can be detected by the internal circuit whether it is dedicated.

For those host devices that utilize a USB port as a charging source, the host device's user manual shall include a statement that the phone shall only be connected to CTIA Certification certified adapters, products that bear the USB-IF logo or products that have completed the USB-IF compliance program.

# Glossary

## **Glossary**

- 4G LTE Fourth Generation Long Term Evolution. LTE is a standard for wireless data communications technology and an evolution of the GSM/UMTS standards. The goal of LTE is to increase the capacity and speed of wireless data networks using new DSP (digital signal processing) techniques and modulations that were developed around the turn of the millennium. A further goal is the redesign and simplification of the network architecture to an IP-based system with significantly reduced transfer latency compared to the 3G architecture. The LTE wireless interface is incompatible with 2G and 3G networks, so that it must be operated on a separate wireless spectrum
- **5G**—Fifth Generation. The successor to 4G LTE technology, offering greater bandwidth and higher download speeds. In addition to serving cellular networks, 5G networks can be used as internet service providers, competing with other ISPs. 5G also opens up new IoT and M2M possibilities. Wireless devices must be 5G enabled to use 5G networks.
- **802.11 (a, b, g, n,** ac, ax) A set of WLAN Wi-Fi communication standards in the 2.4 GHz, 5 GHz frequency bands.
- **APN** Access Point Name. The name of a gateway between a mobile network and another computer network, often the Internet.
- **bps** Bits per second. The rate of data flow.
- **Broadband** High-capacity high-speed transmission channel with a wider bandwidth than conventional modem lines. Broadband channel scan carry video, voice, and data simultaneously.
- **DHCP** Dynamic Host Configuration Protocol. Software found in servers and routers that automatically assigns IP addresses and other configuration data to computers, tablets, printers, and other devices connection to the IP network.
- **DHCP Server** A server or service with a server that assigns IP addresses.
- **DMZ** demilitarized zone. A sub-network that contains and exposes an organization's external-facing services to an untrusted network, usually a larger network such as the Internet.
- **DNS** Domain Name System. A system for converting host names and domain names into IP addresses on the Internet or on local networks that use the TCP/IP protocol.
- **Firmware** A computer program embedded in an electronic device. Firmware usually contains operating code for the device.
- **FTP** File Transfer Protocol. A standard network protocol used to transfer computer files between a client and server.
- **GB** Gigabyte. A multiple of the unit byte for digital information storage. Usage depends on context. When referring to disk capacities it usually means 10<sup>9</sup> bytes. It also applies to data transmission quantities over telecommunication circuits.

- **Gbps** Gigabits per second. The rate of data flow.
- **Hotspot** A Wi-Fi (802.11) access point or the area covered by an access point. Used for connecting to the internet.
- **HTTP**—Hypertext Transfer Protocol. An application-level protocol for accessing the World Wide Web over the internet.
- **IEEE** Institute of Electrical and Electronics Engineers. An international technical/professional society that promotes standardization in technical disciplines.
- **IMAP** Internet Message Access Protocol. An internet standard protocol for accessing email from a remote server from email clients. IMAP allows access from multiple client devices.
- IMEI International Mobile Equipment Identity. Used in LTE networks to identify the device. It is usually printed on the device and can often be retrieved using a USSD code.
- IP Internet Protocol. The mechanism by which packets are routed between computers on a network.
- **IP type** The type of service provided over a network.
- IP address —Internet Protocol address. The address of a device attached to an IP network (TCP/IP network).
- **ISP**—Internet Service Provider. Also referred to as the service carrier, an ISP provides internet connection service (*See* Network Operator).
- **Kbps** Kilobits per second. The rate of data flow.
- LAN Local Area Network. A type of network that lets a group of computers, all in close proximity (such as inside an office building), communicate with one another. It does not use common carrier circuits though it can have gateways or bridges to other public or private networks.
- MAC Address—Media Access Control. A number that uniquely identifies each network hardware device. MAC addresses are 12-digit hexadecimal numbers. This is also known as the physical or hardware address.
- **Mbps** Megabits per second. The rate of data flow.
- MNO —Mobile Network Operator. The vendor that provides your wireless access. Known by different names in different regions, some examples are: wireless provider, network provider, or cellular carrier.
- MSID Mobile Station IDentifier. A number for a mobile phone that identifies that phone to the network.
- **Network Operator** The vendor that provides your wireless access. Known by different names in different regions, some examples are: wireless provider, network provider, or cellular carrier.
- Network Technology
   —The technology on which a particular network provider's system is built; such as LTE or GSM.

- **NMEA port** National Marine Electronics Association port. The port through which applications can access a GPS data stream.
- **NNTP** Network News Transfer Protocol. The primary protocol used to connect to Usenet servers and transfer news articles between systems over the internet.
- **POP3** Post Office Protocol 3. A protocol in which email is received and held for you by your internet server until you download it.
- **Port** A virtual data connection used by programs to exchange data. It is the endpoint in a logical connection. The port is specified by the port number.
- **Port Forwarding** A process that allows remote devices to connect to a specific computer within a private LAN.
- **Port Number** A 16-bit number used by the TCP and UDP protocols to direct traffic on a TCP/IP host. Certain port numbers are standard for common applications.
- **PRL** Preferred Roaming List. A list that your wireless phone or device uses to determine which networks to connect with when you are roaming (Network operator specific).
- **Protocol** A standard that enables connection, communication, and data transfer between computing endpoints.
- **Proxy** A firewall mechanism that replaces the IP address of a host on the internal (protected) network with its own IP address for all traffic passing through it.
- **Router** A device that directs traffic from one network to another.
- RSSI Received Signal Strength Indicator. An estimated measure of how well a device can
  hear a signal from an access point or router. RSSI value is pulled from the device's Wi-Fi card
  (hence "received" signal strength), so it is not the same as transmit power from an access point
  or router.
- SIM Subscriber Identification Module. Found in LTE and GSM network technology, the SIM is a card containing identification information for the subscriber and their account. The SIM card can be moved to different devices.
- **SMTP** Simple Mail Transfer Protocol. The standard protocol for sending emails across the internet.
- **SNMP** Simple Network Management Protocol. An internet protocol used to manage and monitor network devices and their functions.
- **SSID** Service Set IDentifier. The name assigned to a Wi-Fi network.
- TCP/IP—Transmission Control Protocol/Internet Protocol. The set of communications protocols used for the internet and other similar networks.

- **TFTP**—Trivial File Transfer Protocol. An internet software utility for transferring files that is simpler to use than FTP, but does not provide user authentication and directory visibility supported by FTP.
- **Telnet** A user command and underlying TCP/IP protocol that allows a user on one computer to log into another computer that is part of the same network.
- TTY Text Telephones (TTY), also known as Telecommunications Device for the Deaf (TDD), are used by the deaf, hard—of—hearing, and individuals with speech impairments to communicate.
- **UDP** User Datagram Protocol (UDP) is a communications protocol that offers a limited amount of service when messages are exchanged between computers in a network that uses the Internet Protocol (IP). UDP is an alternative to the Transmission Control Protocol (TCP) and, together with IP, is sometimes referred to as UDP/IP.
- USB Universal Serial Bus. A connection type for computing device peripherals such as a printer, mobile modem, etc.
- **USB Port Types** USB ports on computers and hubs have a rectangular Type A port, and peripheral devices have a cable with a Type A connector. Peripheral devices that do not have an attached cable typically have a Type C port on the device and a separate Type A to C cable. Type B connectors have been replaced by Type C. Mini-USB connectors have largely been superseded by Micro-USB, but are still used with some cameras, music players, etc. Micro-USB connectors are used with portable devices, such as phones and battery packs, although USB-C is being adopted by most manufacturers.
- **USSD** Unstructured Supplementary Service Data (USSD), also known as "Quick code" or "Feature code", is a communications protocol used to send data between a mobile device and network service provider.
- **VPN**—Virtual Private Network. A secure private network that runs over the public internet. Commonly used to connect to an office network from elsewhere.
- Wi-Fi Any system that uses the 802.11 standard developed and released in 1997 by the IEEE.
- **Wi-Fi 5**—The fifth generation of Wireless Fidelity, using 802.11ac on 5 GHz. This standard was developed and released in 2013.
- Wi-Fi Client A wireless device that connects to the internet via Wi-Fi
- **WPA/WPA2** Wi-Fi Protected Access. A security protocol for wireless 802.11 networks from the Wi-Fi Alliance.
- WPA3—The next generation of Wi-Fi Protected Access. WPA3 simplifies security, provides more robust authentication, increased cryptographic strength, and offers additional capabilities for personal and enterprise networks. WPA3 retains interoperability with WPA2 devices.