

USER GUIDE

**VERIZON JETPACK™ MOBILE HOTSPOT
MiFi®4510L**

90026384 R3



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Please visit www.verizonwireless.com for the latest information about your device.

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1

Getting Started

Overview
Components
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Caring for Your Device

Overview

Congratulations on your purchase of the Verizon Jetpack™ Mobile Hotspot - MiFi® 4510L for 4G LTE™ and Wi-Fi!

With the MiFi 4510L you can access 4G LTE networks for faster apps, uploads and downloads. Connect up to five Wi-Fi enabled devices to the Internet at once - laptops, tablets, e-readers, gaming consoles and more* - and experience download speeds of up to 100 Mbps**.

The MiFi 4510L is also compatible with 3G networks, ensuring reliable connectivity when and where you need it.

Features

- **Connect to 4G LTE High-Speed Wireless Data**
- **Wi-Fi Connectivity**
- **Manage Wireless Network Activity**
 - **MiFi Settings** is an easy-to-use web-based interface that allows you to manage, monitor, and customize your Wi-Fi and 4G LTE connection.
- **Advanced embedded antenna design**
- **VPN capability**
- **Auto connectivity options**

Package Contents

The Verizon Wireless MiFi 4510L package includes:

- MiFi 4510L
- 1500mAh Standard Lithium Ion Battery
- Wall Charger
- USB Cable
- Protective Pouch
- Verizon Wireless Brochures

* When multiple users are connected to the MiFi 4510L, all of their data usage will be aggregated and applied to the mobile broadband customer.

** Manufacturer's rated peak theoretical speed. Actual speeds may vary.

System Requirements

- Compatible with all major operating systems
- Works with the latest versions of browsers, including Android™, Chrome™, Firefox®, Internet Explorer®, Safari™ and Mobile Safari™

To use Wi-Fi mode, your computer needs Wi-Fi capability and Internet browser software.



Your device must have proper data service to function properly. (See [Using the Device for the First Time](#) on page 11.)

Components







- ❶ **Micro USB Connector** — Connects to the A/C and car chargers.
- ❷ **Master Reset Button** — Insert a paperclip in the small hole to reset the device to factory settings. (See [How do I reset the MiFi 4510L device back to factory settings?](#) on page 61.)
- ❸ **Service Status Indicator (LED)** — Indicates whether the device has service or not. (See [Service Status Indicator \(LED\) States](#) on page 5.)
- ❹ **Power Button** — Powers the device on and off.
- ❺ **Status Display** — Provides connection and battery status, network signal strength, roaming status, and the number of users connected with Wi-Fi. (See [Service Display States](#) on page 6.)
- ❻ **Network Name and Password Label** (not shown) — Shows pre-configured network name (SSID) and Wi-Fi/Admin password (on device back cover as well as on the front of the Connect Card).

Service Status Indicator (LED) States

LED Color	Status	Description
No Light	 Off	The device is powered off or otherwise is not receiving power.
Yellow	Solid	The device is in power down mode.
	Blinking	The device is powered off and also charging the battery.
Green	Solid	The device is powered on; 4G LTE service is available but not connected or connected while dormant.
	Blinking	The device is powered on and connected to the 4G LTE network and transmitting data.
Violet	Solid	The device is powered on; 3G 1X or EV-DO service is available but not connected or connected while dormant.
	Blinking	The device is powered on and connected to a 3G 1X or EV-DO network and transmitting data.
Red	Blinking	If this occurs during power up, no SIM Card is inserted. All other times, this indicates an error or a SIM Card failure.
White	 Blinking	The device is powered on and the firmware is being upgraded. This LED only applies to over-the-air firmware updates.

Service Display States

Display Icon	Status	Description
No icons	The display is off, and the LED is also off.	The device is powered off or otherwise is not receiving power.
Network signal strength 	An antenna with 0-4 bars.	More bars indicate stronger signal.
Roaming indicator 	Present or not present.	If the icon is present, the device is roaming on another carrier's network.
Battery status 	<p>A battery outline filled with bars; while charging, the bars cycle from 0-4 bars. When fully charged, the bars don't move.</p> <p>When the battery is very low, the battery outline blinks on and off every two seconds. Charge the battery immediately.</p>	<p>More bars indicate more battery life.</p> <p>Charge immediately.</p>
Number of Wi-Fi users connected 	Number of dots shown.	The number of dots indicates the number of Wi-Fi users connected to the device.

Power Management

Your device will work from its battery or when plugged into a power source.

- **Battery** — Charge the battery by plugging in the wall charger. While the battery is charging the battery icon on the Status Display cycles from one to four bars. When the battery is fully charged, the battery icon is solid.
- **Wall charger** — You can use the device when the charger is plugged into a wall socket. The MiFi battery charges while it is plugged in.

Before using the MiFi 4510L, read the battery safety information in the "Safety Hazards" section of this guide. (See [Proper Battery Use and Disposal](#) on page 79.)

Caring for Your Device

Like any electronic device, the MiFi 4510L must be handled with care to ensure reliable operation. Verizon Wireless recommends the following guidelines:

- Protect the device from liquids, dust, and excessive temperatures.
- Do not apply adhesive labels to the device; they might cause the device to potentially overheat or alter the performance of the antenna.
- Use only batteries, chargers and accessories with your device that have been approved by Verizon Wireless. The failure to use approved batteries, chargers and accessories may increase the risk that your device will overheat, catch fire, or explode, resulting in serious bodily injury, death, or property damage, and may void the product warranty.
- Store the device in a safe place when not in use.

Using the MiFi 4510L

Accessing the Network
Using the Device for the First Time
Connecting to the MiFi Device
Using the Device After Setup is Complete
Accessing the User Guide

Accessing the Network

4G LTE

With LTE bandwidth (700 MHz) you can get the broadband-like speed you require to work efficiently outside the home or office. You can connect to the Internet, access your corporate intranet, check your email and download attachments at speeds that are up to 10 times faster than 3G.

4G Mobile Broadband with LTE*

- Download: typical download speeds of 100 DL/50 UL.
- Upload: typical upload speeds of 100 DL/50 UL.

3G Mobile Broadband with EVDO Rev. A**

- Download: typical download speeds of 600 kbps–1.4 Mbps with bursts up to 3.1 Mbps.
- Upload: typical upload speeds of 500-800 kbps with bursts up to 1.8 Mbps.

GSM Mobile Broadband with HSPA+, WCDMA, EDGE and GPRS***

- Download and upload speeds depend on the roaming network.

Wi-Fi 802.11b/g/n

- 802.11b uses the 2.4 GHz frequency with a bandwidth of 11 Mbps.
- 802.11g uses the 2.4 GHz frequency with a bandwidth of 54 Mbps.
- 802.11n uses the 2.4 GHz frequency with a bandwidth of 150 Mbps.

* Speeds shown are those published by Verizon Wireless, Inc. and are theoretical in nature. Actual throughput speed and coverage may vary by network operator. Speed claims not applicable when roaming.

** Mobile Broadband Rev.A speed claim based on Verizon Wireless network tests with 5 MB FTP data files without compression. Your Mobile Broadband Rev. A-enabled device will indicate coverage when you are in a Mobile Broadband Rev. A service area. When outside the Rev. A service area, your wireless device will revert to Mobile Broadband Rev. 0 (typical download speeds will be 400–700 Kbps and upload speeds will be 60–80 Kbps).

*** Subject to Customer Agreement, Calling Plan, credit approval, and other service terms.

Using the Device for the First Time

To get started, follow these steps:

- ① Confirm your computer meets the minimum system requirements. (See [System Requirements](#) on page 3.)
- ② Assemble the wall charger. (See [Assemble the Wall Charger](#) on page 12.)
- ③ Install the 4G LTE SIM Card. (See [Install the 4G LTE SIM Card](#) on page 12.)
- ④ Insert and charge the battery. (See [Insert and Charge the Battery](#) on page 14.)
- ⑤ Turn on the device. (See [Power the MiFi 4510L On and Off](#) on page 18.)
- ⑥ Connect the device to your computer using Wi-Fi. (See [Connecting to the MiFi Device](#) on page 19.)
- ⑦ Connect to MiFi Settings. (See [Connect to MiFi Settings](#) on page 19.)

IMPORTANT The MiFi 4510L requires an activated account with a network operator to function.

Assemble the Wall Charger

The wall charger comes with a removable plug. You need to connect it before using the MiFi device for the first time. To assemble the wall charger, follow these steps:

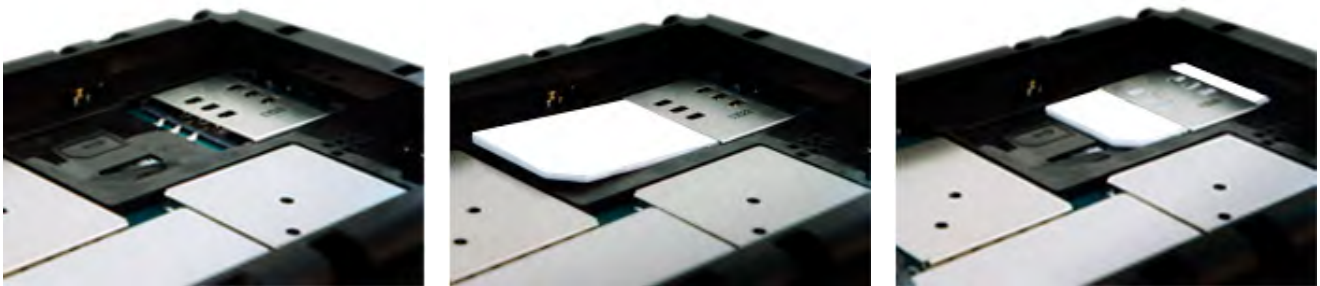
- 1 Remove the plug and the wall charger from the package.
- 2 Slide the plug into the wall charger.



Install the 4G LTE SIM Card

To install your new 4G SIM Card, follow these steps:

- 1 Open the cover located on the underside of the MiFi 4510L.
- 2 Remove SIM Card from the outer card, being careful not to touch the gold-colored contacts.
- 3 Hold the card as shown, with the gold-colored contact points facing down.
- 4 Insert the SIM Card into the slot. The 4G LTE SIM Card MUST remain in the SIM Card slot when in use.



Your SIM (Subscriber Identity Module) card is a small rectangular plastic card that stores your phone number and important information about your wireless service.

CAUTION! Do not bend or scratch your SIM Card. Avoid exposing your SIM Card to static electricity, water, or dirt.

Remove the 4G LTE SIM Card

To remove the 4G LTE SIM Card, follow these steps:

- ① Open the SIM Card cover located on the underside of the MiFi 4510L. Press down on the small black tab to the left side of the SIM Card slot.
- ② Gently remove the SIM Card from the SIM Card slot.

NOTE Should your 4G LTE SIM Card be lost or damaged, contact your network operator.

Insert and Charge the Battery

IMPORTANT Before you use your device, be sure to charge the battery for at least three hours to ensure a full initial charge.

To insert and charge the battery, follow these steps:

- 1 Press the button and then slide the cover to open the battery compartment, located on the bottom of the device. Set the cover aside.



- 2 Align the gold-colored contacts on the battery with the gold-colored contacts on the device and gently slide the battery into place.



- 3 Replace the cover by setting it on the device where the notches align, and then gently slide the cover back toward the release button until it clicks into place.



- 4 Connect the micro USB end of the wall charger to the micro USB port on the device.



IMPORTANT When connecting the MiFi 4510L to your computer, it is recommended that a good quality shielded USB cable that is equal to or less than 1 m (~3'3") in length be used.

- 5 Plug the other end of the wall charger into the appropriate electrical outlet. Charge for at least three hours.

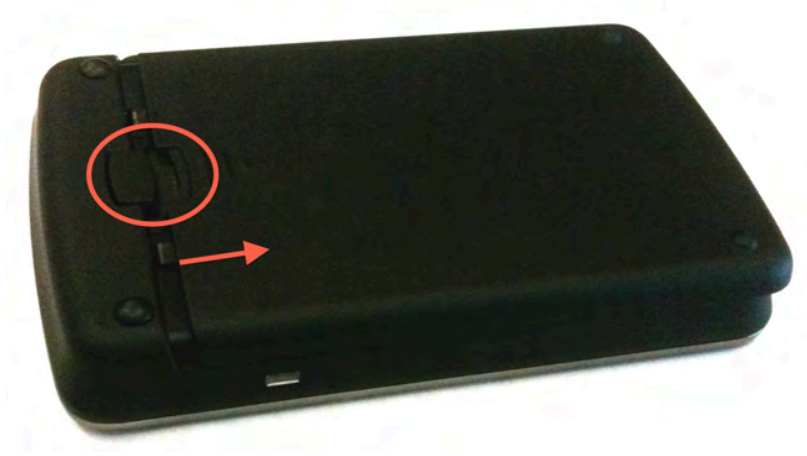
WARNING! Use only batteries and chargers with your device that have been approved by Verizon Wireless. The failure to use approved batteries and chargers may increase the risk that your device will overheat, catch fire, or explode, resulting in serious bodily injury, death, or property damage.

You are now ready to connect your computer or other Wi-Fi enabled device to the MiFi 4510L.

Remove the Battery

To remove or replace the battery, follow these steps:

- 1 Press the button and then slide the cover to open the battery compartment, located on the bottom of the device. Set the cover aside.



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



Battery Tips

WARNING! Use only batteries and chargers with your device that have been approved by Verizon Wireless. Always use Verizon Wireless original batteries and chargers. The warranty does not cover damage caused by non-Verizon Wireless batteries and/or chargers.

- It normally takes at least three hours to fully charge the battery with the wall charger.
- Do not use sharp objects to access the battery well. Doing so may damage the device and the battery.
- Do not use excessive force to remove the battery or to access the battery well.
- The battery discharges more rapidly as additional devices access your MiFi device.
- Battery life depends on the network, signal strength, temperature, features, and accessories you use.
- Your device also works with an approved car charger.
- New batteries or batteries stored for a long time may take more time to charge.
- When charging your battery, keep it near room temperature.
- When storing your battery, keep it uncharged in a cool, dark, dry place.
- Never expose batteries to temperatures below -20°C (40°F) or above 60°C (140°F).
- Never leave the device in an unattended vehicle due to uncontrollable temperatures that may be outside the desired temperature for this device.
- 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.

IMPORTANT Whenever you remove or insert either the battery or the SIM Card, ensure your MiFi device is not connected to any device or 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 MiFi battery.

WARNING! The failure to use approved batteries and chargers may increase the risk that your device will overheat, catch fire, or explode, resulting in serious bodily injury, death, or property damage. To avoid risk of explosion, never dispose of batteries in a fire.

Power the MiFi 4510L On and Off

Power On

- Press the Power Button until the LED turns green or violet.

Power Off

- Press and hold the Power Button until the display turns white and the LED turns amber.

Connecting to the MiFi Device

Now you can connect your computer to your MiFi device using Wi-Fi.

Connect to MiFi Settings

To connect to the MiFi device, follow these steps:

- 1 Turn on your computer and turn on the MiFi 4510L.

The MiFi 4510L's LED should be solid green or violet, indicating the device is in service and ready to connect. The MiFi 4510L broadcasts its own wireless network.

- 2 On your computer, use the Wi-Fi manager (Windows) or the AirPort menu bar icon (Mac OS X) to connect wirelessly to the MiFi 4510L wireless network.

Tip!

The steps to connect to a Wi-Fi network vary depending on your operating system and whether you use the native application or third-party software. Generally, you click an icon in the Windows notification area where you can select **View Available Wireless Networks**, or click the AirPort icon in the menu bar on a Mac. If you are unfamiliar with wireless networking on your computer, consult the computer's help system.

- 3 Connect to the network name found on the sticker that appears on the back of the MiFi device as well as on the front of the Connect Card. The network name or SSID is in the format Verizon MIFI4510L XXXX Secure, where XXXX are four digits unique to your device.
- 4 Enter the Wi-Fi/Admin password. The password appears on the back of the MiFi device as well as on the front of the Connect Card.

NOTE If you are entering the SSID manually, please add the word "Secure" after the SSID. For example, "Verizon MIFI4510L 1A3B Secure".

- 5 To change device settings, connect to the MiFi Settings on-device web page. (See [Configuring MiFi Settings](#) on page 22.)

IMPORTANT Charge the battery completely before you connect your computer to your MiFi device. (See [Insert and Charge the Battery](#) on page 14.)

Using the Device After Setup is Complete

You can use the MiFi 4510L as a wireless mobile hotspot to connect your computer and/or (up to a total of five) other Wi-Fi enabled devices to the mobile broadband network.

You can customize the MiFi 4510L's settings using MiFi Settings. (See [Configuring MiFi Settings](#) on page 22.)

Normal Use

- The MiFi 4510L is powered on as soon as you press the power button and the display turns on.
- The LED on the device becomes green for 4G or violet for 3G and blinks according to the connection speed.

Setting up a Temporary Hotspot

(See [Setting Up a Temporary Hotspot](#) on page 32.) for more information about setting up a temporary hotspot.

Security for the MiFi 4510L

The MiFi 4510L comes from the factory with security enabled. A sticker on the back of the device as well as the front of the Connect Card includes the name of the wireless network (SSID) and the network password. You can change the security settings in the MiFi Settings Wi-Fi screen. (See [Wi-Fi](#) on page 30.)

MiFi Settings

Configuring MiFi Settings

Login

Home

Wi-Fi

LAN

WWAN

Security

Advanced

Configuring MiFi Settings

You can configure the Wi-Fi settings on your device using the easy-to-use MiFi Settings Web-based User Interface (MiFi Settings). It allows you to manage, monitor, and customize your Wi-Fi and 4G LTE Mobile Broadband connection.

The following sections describe how to connect to MiFi Settings, as well as each screen and the corresponding functionality.

Connect to MiFi Settings

To connect to MiFi settings, follow these steps:

- 1 Turn on your computer and turn on the MiFi 4510L device.

MiFi 4510L's LED should be solid green (4G) or violet (3G), indicating the device is in service and ready to connect. MiFi 4510L broadcasts its own wireless network.

- 2 On your computer, use the Wi-Fi manager (Windows) or the AirPort menu bar icon (Mac OS X) to connect wirelessly to the MiFi 4510L wireless network.

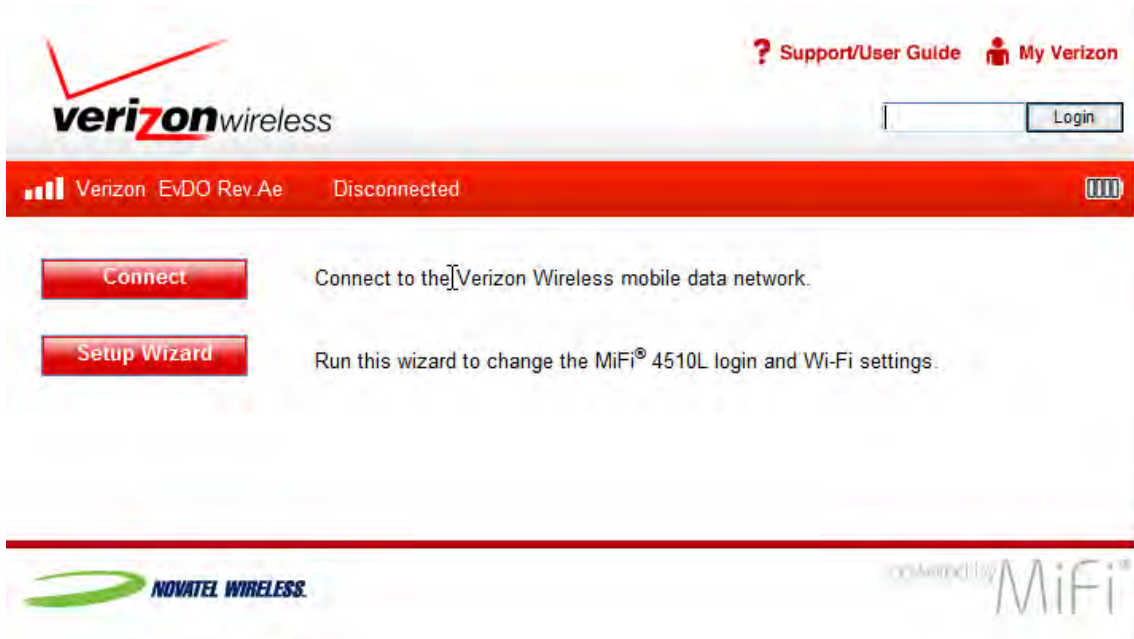
Tip!

The steps to connect to a Wi-Fi network vary depending on your operating system and whether you use the native application or third-party software. Generally, you click an icon in the Windows notification area where you can select **View Available Wireless Networks**, or click the Airport icon in the menu bar on a Mac. If you are unfamiliar with wireless networking on your computer, consult the computer's help system.

- 3 Connect to the SSID or network name that appears on the back of the MiFi device as well as on the front of the Connect Card. The network name or SSID is in the format Verizon MIFI4510L XXXX Secure, where XXXX are four digits unique to your device.
- 4 Click **Connect** and enter the Wi-Fi/Admin password. The password appears on the back of the MiFi device as well as on the front of the Connect Card.
- 5 Open your browser and type <http://admin.mifi> or <http://192.168.1.1> into the address bar. Then press the **Enter** or **Return** key. The Welcome Page opens. (See [Login](#) on page 23.)
- 6 Type your Wi-Fi/Admin password in the Login field in the upper right corner of the window and click **Login**. The Welcome Page changes to the Home Page. (See [Home](#) on page 25.)

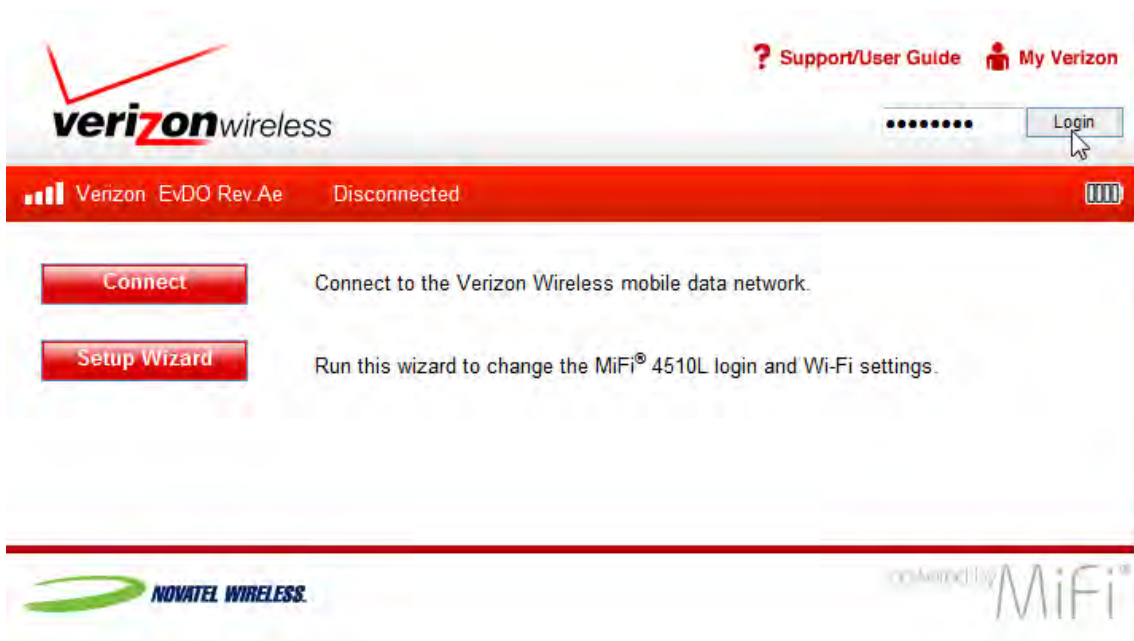
Login

The Login page is the first page you see after connecting and prior to logging in. It contains the status bar, the **Connect/Disconnect** button, and the **Setup Wizard**. You can access more information after you log in.



Login

Type the password (the default password is found on the sticker on the back of the MiFi device, or on the front of the Connect Card) in the Login field at the top right corner of the window.



Menu Bar

The Menu Bar is the primary navigation for MiFi Settings. You can access each feature under the appropriate menu.



Home

The Home page is the first screen you see after logging in to MiFi Settings. It is similar to the Login page, but adds more options in the status bar. It is the main point of entry for everything you do in the browser interface. You can also launch the Setup Wizard from this screen to change your login and Wi-Fi settings.



Setup Wizard

The MiFi 4510L Setup Wizard is a quick and convenient way to change your login and Wi-Fi settings. right after you login on the Login page. To launch the Setup Wizard, click the **Setup Wizard** button on the Home page.



The first screen of the Setup Wizard is the MiFi device Password screen. To change your existing MiFi password:

- 1 Type your new password in the **New Password** field.
- 2 Type your new password a second time in the **Verify New Password** field.
- 3 Click **Next** to accept the new password and display the Wi-Fi Settings screen.

The screenshot shows the Verizon Wireless Setup Wizard interface. At the top, the Verizon Wireless logo is on the left, and 'Help' and 'Logout' links are on the right. Below the logo is a red status bar with 'Verizon 4G LTE' and 'Dormant' text, and a battery icon on the right. The main heading is 'Setup Wizard'. A central dialog box titled 'MiFi® device Password' contains the text 'This password is used to login to this MiFi device.' Below this are two input fields: 'New Password' with a character count '(4 ~ 64 characters)' and 'Verify New Password'. At the bottom of the dialog are 'Next' and 'Cancel' buttons. The bottom of the screen features the Novatel Wireless logo on the left and the 'powered by MiFi' logo on the right.

The Wi-Fi Settings screen allows you to change your Wi-Fi profile settings and customize your security options. To change your Wi-Fi Settings:

- 1 Check the **Change Wi-Fi Settings** check box.
- 2 Select your preferred security option from the **Security** drop down menu.
- 3 Click **Next** to accept the new security settings and display the final Setup Wizard screen where you can finalize all the changes you have made.

The screenshot shows the Verizon Wireless Setup Wizard interface. At the top, there is a Verizon Wireless logo and navigation links for 'Help' and 'Logout'. Below the logo is a red status bar displaying 'Verizon 4G LTE' and 'Dormant'. The main heading is 'Setup Wizard'. The central panel is titled 'Wi-Fi Settings' and contains the following elements:

- A message: "These Wi-Fi settings are saved in the 'Secure' profile and will be applied when you complete this Wizard."
- A checked checkbox labeled "Change Wi-Fi Settings".
- A "Network Name (SSID)" field containing "Verizon MiFi4510L" and "Secure". Below this field is the instruction: "Connect to this Wi-Fi network to use the MiFi device for Internet access."
- A "Security" dropdown menu set to "WPA2 Personal/PSK", with "Encryption: AES" displayed below it.
- A "Network Key" field with a masked password and the instruction "8 ~ 63 ASCII characters" below it.

At the bottom of the settings panel are three buttons: "Back", "Next", and "Cancel". The footer of the screen features the Novatel Wireless logo on the left and the text "powered by MiFi" on the right.

The Finish screen is where you will confirm and apply the changes you have made using the Setup Wizard. To confirm and apply your changes click **Finish**.



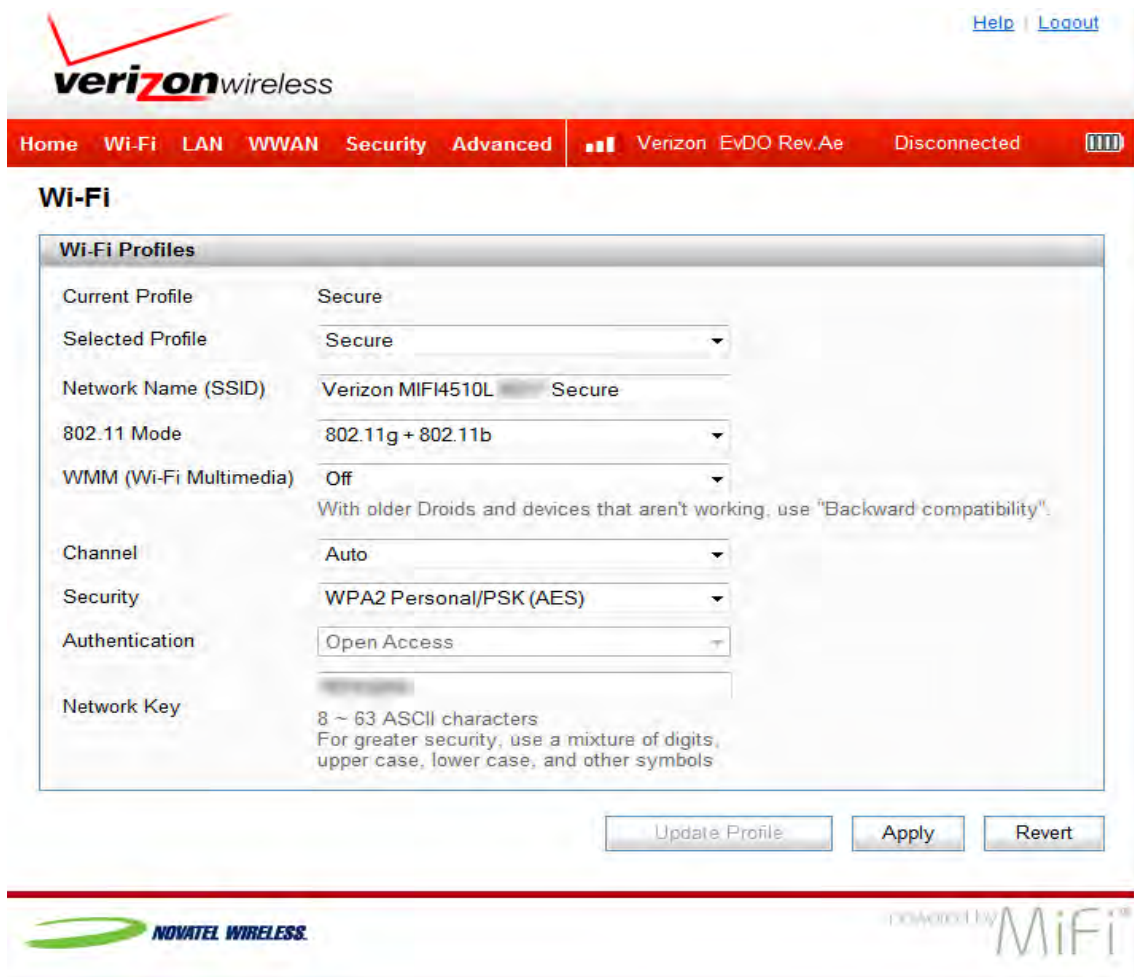
Wi-Fi

The Wi-Fi menu takes you to the Wi-Fi screen.



The Wi-Fi screen is the screen you use to customize the Wi-Fi profiles. The Wi-Fi screen has the following section:

- **Wi-Fi Profiles** (See [Wi-Fi Profiles](#) on page 31.)



Wi-Fi Profiles

The Wi-Fi Profiles section has the following options:

- **Current Profile** — The wireless (802.11) profile currently in use.
- **Selected Profile** — The profile settings shown on the page. (See [Changing to a Different Profile](#) on page 34.)
- **Network Name (SSID)** — The name of the MiFi 4510L device's wireless network.
- **802.11 Mode** — The wireless network technology used. **802.11g + 802.11b + 802.11n** is most compatible, allowing both 802.11b, 802.11g, and 802.11n devices to connect to the wireless network.
- **WMM** — Wi-Fi Multimedia. Enables your device to stream multimedia files.
- **Channel** — If available, select **Auto**. With this setting, MiFi 4510L selects the best available channel. If the **Auto** setting is not available, you can experiment to see which channel provides the best results, or use the default setting.
- **Security** — The security type used to encrypt the wireless network.
 - WEP 64-bit (least secure, more compatible with older devices)
 - WEP 128-bit
 - WPA Personal/PSK (TKIP)
 - WPA2 Personal/PSK (AES)
 - WPA/WPA2 Personal Mixed Mode (most secure, less compatible with older devices)

IMPORTANT You should use the **Secure** profile with the WPA/WPA2 Personal Mixed Mode security setting whenever possible.

- **Authentication** — This is locked to Open Access for all profiles.
- **Network Key** — The passkey for the wireless network. The default passkey is printed on a sticker on the device. The following security types support the corresponding passkey lengths.
 - WEP 64-bit – 5 ASCII characters or 10 HEX characters.
 - WEP 128-bit – 13 ASCII characters or 26 HEX characters.
 - WPA Personal/PSK (TKIP) – ASCII string, 8 to 63 characters in length.
 - WPA2 Personal/PSK (AES) – ASCII string, 8 to 63 characters in length.

Choosing a Profile

Your device comes with the Secure profile already set. The following profiles come with your device:

- **Secure** — This is the profile you should use most of the time. You can set up this profile with the security measures you need to use your device safely.
- **Temporary Hotspot** — This profile allows you set up a temporary hotspot to allow others nearby (maximum of five) to go online at the same time.
- **Open** — This profile is not secure and should be avoided.

Setting Up a Temporary Hotspot

You can use the device to set up a temporary hotspot to allow a maximum of five (5) connections to your MiFi 4510L at one time.

The Temporary Hotspot profile is pre-set on your device. It generates a temporary network name (SSID) and network key so you can allow others to connect to your device without having to change your secure profile's security settings.

The screenshot shows the Verizon Wireless web interface for configuring Wi-Fi. At the top, there is a navigation bar with links for Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The current page is the Wi-Fi configuration page, which is titled "Wi-Fi Profiles". The "Current Profile" is set to "Secure". The "Selected Profile" dropdown menu is open, showing three options: "Open", "Secure", and "Temporary Hotspot". The "Temporary Hotspot" option is highlighted in blue. Below the dropdown menu, there are several configuration options: "Network Name (SSID)" is set to "Temporary Hotspot", "802.11 Mode" is set to "802.11g + 802.11b", "WMM (Wi-Fi Multimedia)" is set to "Off", "Channel" is set to "Auto", "Security" is set to "WPA2 Personal/PSK (AES)", and "Authentication" is set to "Open Access". The "Network Key" field is empty, and there is a note below it: "8 ~ 63 ASCII characters. For greater security, use a mixture of digits, upper case, lower case, and other symbols". At the bottom of the configuration panel, there are three buttons: "Generate", "Apply", and "Revert". The Verizon Wireless logo is visible in the top left corner, and the "powered by MiFi" logo is in the bottom right corner.

Set up a Temporary Hotspot

To set up a Temporary Hotspot, follow these steps:

- 1 Connect to MiFi Settings and log in. (See [Configuring MiFi Settings](#) on page 22.)
- 2 Go to the Wi-Fi screen. (See [Wi-Fi](#) on page 30.)
- 3 On the Wi-Fi screen, select **Temporary Hotspot** from the **Selected Profile** drop-down menu.

A message from the webpage appears stating that the Network Name (SSID) and security settings are auto-generated for the selected Profile.

- 4 Click **OK**.
- 5 Click **Generate** to create a new network name and network key. You should write down the new network name and network key.
- 6 Click **Apply**. Others can now use the temporary network name (SSID) and network key to connect to your device. See [Wi-Fi](#) on page 30 for more information about changing profiles.
- 7 Click **Revert** to cancel any changes and return settings to current values.

The screenshot shows the Verizon Wireless MiFi settings page. At the top, there is a navigation bar with links for Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The current page is titled "Wi-Fi". Below the title, there is a "Wi-Fi Profiles" section. The "Current Profile" is set to "Secure", and the "Selected Profile" is set to "Temporary Hotspot". A modal dialog box is displayed in the center of the screen, titled "Message from webpage". The dialog contains a warning icon and the following text: "Network Name (SSID) and Security settings are auto-generated for the selected Profile." Below this text are three bullet points: "* Apply - use the selected Profile with the values shown.", "* Generate - generate new values.", and "* Revert - reload current values." An "OK" button is located at the bottom right of the dialog. The background settings include "Network Name (SSID)", "802.11 Mode", "WMM (Wi-Fi Multimedia)", "Channel", "Security", "Authentication", and "Network Key" (with a note: "8 ~ 63 ASCII characters. For greater security, use a mixture of digits, upper case, lower case, and other symbols"). At the bottom of the page, there are three buttons: "Generate", "Apply", and "Revert". The Verizon Wireless logo is in the top left, and "powered by MiFi" is in the bottom right.

Changing to a Different Profile

To use a different profile, follow these steps:

- 1 Select the desired profile from the **Selected Profile** drop-down menu.
- 2 Wait a moment for the web page to update with the Wi-Fi settings for the selected profile.
- 3 Click **Apply** to change to the new profile settings.

The screenshot shows the Verizon Wireless web interface for Wi-Fi settings. At the top, there's a navigation bar with links for Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The current profile is 'Secure'. The 'Selected Profile' dropdown menu is open, showing options: Secure, Open, Secure (highlighted), and Temporary Hotspot. Other settings include Network Name (SSID), 802.11 Mode (802.11g + 802.11b), WMM (Wi-Fi Multimedia) (Off), Channel (Auto), Security (WPA2 Personal/PSK (AES)), Authentication (Open Access), and Network Key (8 ~ 63 ASCII characters). Buttons for 'Update Profile', 'Apply', and 'Revert' are visible at the bottom.

IMPORTANT Changing the profile ends all Wi-Fi connections to MiFi 4510L, including the current connection to MiFi Settings. You **must** re-connect your computer to MiFi 4510L using the new profile's Wi-Fi settings.

Be sure to write down the new network key (Wi-Fi passkey) before you finish changing the profile.

Updating

To update the current profile, follow these steps:

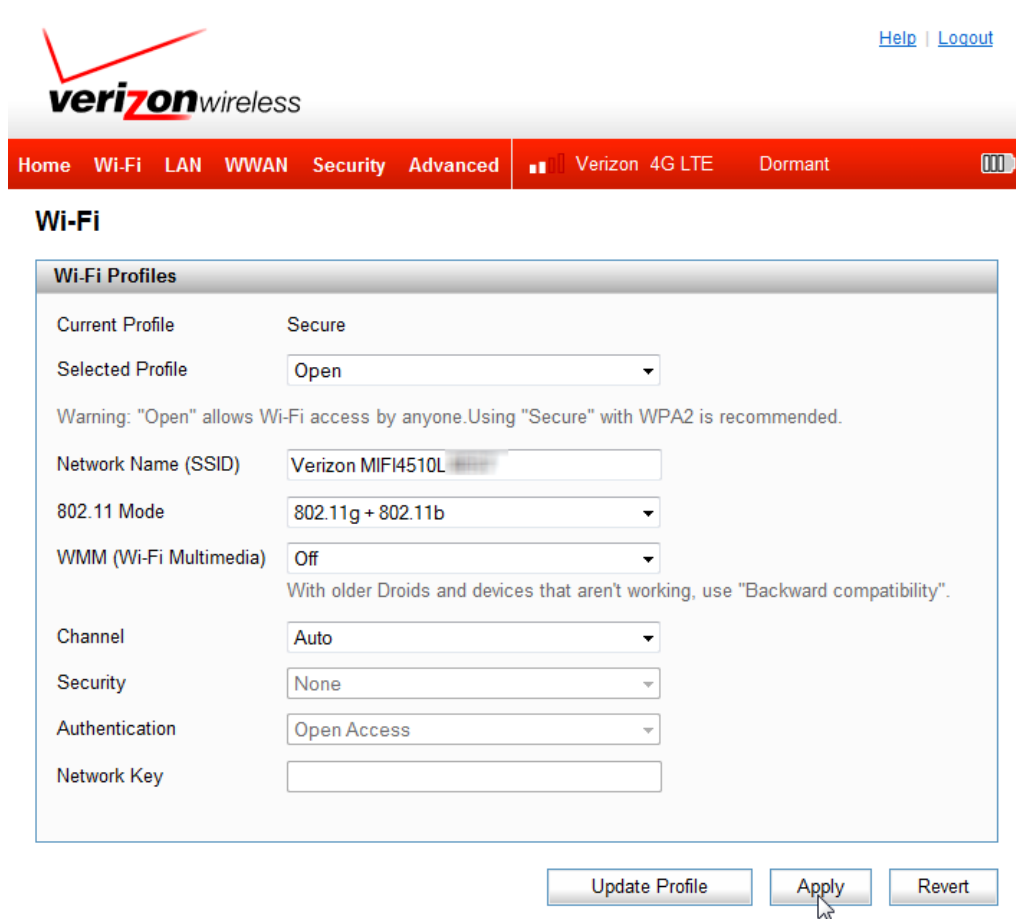
- 1 Keep the same profile in the **Selected Profile** drop-down menu.
- 2 Make changes to the profile settings.
- 3 Click **Apply**.
 - If you change the Network Name (SSID), security method, or network key you will need to re-connect with the Wi-Fi manager on your computer.
 - If you change other settings, your computer will re-connect automatically after MiFi 4510L restarts.

Tip!

Some Wi-Fi clients become confused if the security is changed and the network name is not. If you change security settings and do not get asked for the new network key when you try to reconnect, delete the existing old network name from your Preferred Networks list on your wireless device. Then you can reconnect.

IMPORTANT Changing the Network Name (SSID), security method, or network key (Wi-Fi passkey) ends all Wi-Fi connections to MiFi 4510L, including the current connection to MiFi Settings. You **must** re-connect your computer to MiFi 4510L using the new profile's Wi-Fi settings.

Be sure to write down the new network key (Wi-Fi passkey) before you finish changing the profile.



Help | Logout

verizon wireless

Home Wi-Fi LAN WWAN Security Advanced Verizon 4G LTE Dormant

Wi-Fi

Wi-Fi Profiles

Current Profile Secure

Selected Profile

Warning: "Open" allows Wi-Fi access by anyone. Using "Secure" with WPA2 is recommended.

Network Name (SSID)

802.11 Mode

WMM (Wi-Fi Multimedia)
With older Droids and devices that aren't working, use "Backward compatibility".

Channel

Security

Authentication

Network Key

Updating a Profile Not Currently in Use

To update a profile not currently in use, follow these steps:

- 1 Change the **Selected Profile** drop-down menu to a different profile.
- 2 Wait a moment for the web page to update with the Wi-Fi settings for the selected profile.
- 3 Change the settings.

NOTE The Temporary Hotspot profile cannot be changed directly. You must click **Generate** to generate a new network name (SSID) and network key.

- 4 Click **Update Profile** to save the changes.

OR

Click **Apply** to update the profile and also make it the current profile.

OR

- 5 Click **Revert** to cancel the changes and return to the previous settings.

Help | Logout

Home Wi-Fi LAN WWAN Security Advanced Verizon 4G LTE Connected

Wi-Fi

Wi-Fi Profiles	
Current Profile	Secure
Selected Profile	Open
Warning: "Open" allows Wi-Fi access by anyone. Using "Secure" with WPA2 is recommended.	
Network Name (SSID)	Verizon MIFI4510L
802.11 Mode	802.11g + 802.11b
WMM (Wi-Fi Multimedia)	Off
With older Droids and devices that aren't working, use "Backward compatibility".	
Channel	Auto
Security	None
Authentication	Open Access
Network Key	

Update Profile Apply Revert

NOVATEL WIRELESS powered by MiFi

Buttons

- **Update Profile** — Click this button to add changes to a profile not currently in use. This does not affect the existing Wi-Fi connection between your computer and the device.
- **Apply** — Click this button to apply changes to the current profile.
- **Revert** — Click this button to return changed profile settings to the previous settings.
- **Generate** — Click this button (available for the Temporary Hotspot profile only) to generate a network name (SSID) and network key for the **Temporary Hotspot** profile. The remaining Temporary Hotspot settings are copied from the **Secure** profile.

LAN

The LAN menu takes you to the LAN screen.



The LAN screen gives you settings and information about MiFi 4510L's network. The LAN screen is divided into the following sections:

- **TCP/IP** (See [TCP/IP](#) on page 39.)
- **Connected Devices** (See [Connected Devices](#) on page 39.)

A screenshot of the Verizon Wireless LAN settings screen. The top navigation bar is red and contains the following items: Home, Wi-Fi, LAN (highlighted), WWAN, Security, and Advanced. To the right of the navigation bar, there is a signal strength indicator, the text "Verizon 4G LTE", the word "Dormant", and a battery icon. The Verizon Wireless logo is in the top left corner, and "Help" and "Logout" links are in the top right corner. The main content area is titled "LAN" and is divided into two sections: "TCP/IP" and "Connected Devices". The "TCP/IP" section contains the following information:

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
MAC Address	00:00:00:00:00:00
DHCP Address Range	192.168.1.2 ~ 192.168.1.10

The "Connected Devices" section contains a table with the following data:

IP Address	IP Type	Hostname	MAC Address	Date/Time
192.168.1.3	DHCP	192.168.1.3	00:00:00:00:00:00	02/14/2012 10:21:02am
192.168.1.2	DHCP	192.168.1.2	00:00:00:00:00:00	02/14/2012 09:41:20am

At the bottom of the "Connected Devices" section is a "Refresh" button. At the bottom of the LAN screen are "Apply" and "Revert" buttons. The Novatel Wireless logo is in the bottom left corner, and the "powered by MiFi" logo is in the bottom right corner.

TCP/IP

- **IP Address** — The IP address for MiFi 4510L.
- **Subnet Mask** — The subnet mask network setting for MiFi 4510L. The default value 255.255.255.0 is standard for small (class "C") networks. If you change the LAN IP Address, ensure you use the correct Subnet Mask for the IP address range containing the LAN IP address.
- **MAC Address** — The Media Access Controller (MAC) or physical address for MiFi 4510L.
- **DHCP Address Range** — The range of IP addresses reserved for use by MiFi 4510L's DHCP server table. If a device with a static IP address wants to connect to MiFi 4510L's network, the static IP should be outside of the DHCP address range. Most devices do not have a static IP.

Connected Devices

- **IP Address** — The IP address for the connected device.
- **IP Type** — This can be **DHCP** if the IP address came from MiFi 4510L, or **ARP** if the ARP protocol was used.
- **Hostname** — The network name for the connected device (if available).
- **MAC Address** — The MAC address for the connected device.

NOTE The MAC address on the Windows operating system is called the **Physical Address**.

- **Date/Time** — The date/time the device was detected by the network.

Buttons

- **Refresh** — Click this button to re-load the LAN screen to show changes to the list of connected devices, such as a device that recently joined or left the network.
- **Apply** — Click this button to apply any changes you made to MiFi 4510L's IP address or subnet mask.
- **Revert** — Click this button to discard any unsaved changes and keep the most recent IP address and subnet mask.

IMPORTANT Changing MiFi 4510L's IP address causes the device to re-start. This stops all Wi-Fi and Internet connections. You **must** re-connect your computer to MiFi 4510L using the new IP address.

Be sure to write down the new IP address before you finish changing the profile.

WWAN

The WWAN menu takes you to the WWAN screen.



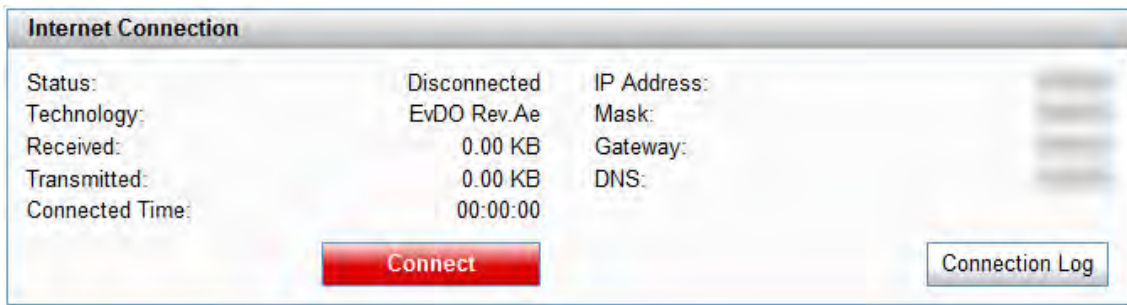
The WWAN screen gives you information about the MiFi 4510L device's Internet connection. The WWAN screen is divided into the following sections:

- **Internet Connection** (See [Internet Connection](#) on page 41.)
- **WWAN Settings** (See [WWAN Settings](#) on page 42.)

A screenshot of the Verizon Wireless WWAN settings screen. The screen features the Verizon Wireless logo at the top left and "Help | Logout" links at the top right. Below the logo is a red navigation bar with the same menu items as the previous screenshot: Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The WWAN item is highlighted. The main content area is titled "WWAN" and is divided into two sections: "Internet Connection" and "WWAN Settings".
Internet Connection
This section displays the following information:
Status: Connected
Technology: 4G LTE
Received: 54.18 KB
Transmitted: 47.24 KB
Connected Time: 00:48:34
IP Address: 192.168.1.100
Mask: 255.255.255.255
Gateway: 192.168.1.1
DNS: 192.168.1.1
At the bottom of this section are two buttons: "Disconnect" (red) and "Connection Log" (white with a red border).
WWAN Settings
This section contains the following settings:
Connection Preferred Mode: Auto-connect (dropdown menu)
 Disable Roaming
APN: vzwinternet
At the bottom of this section is a "More" link. At the bottom of the entire screen are two buttons: "Apply" and "Revert".
At the bottom of the screen, there is a red horizontal line. Below the line, on the left, is the Novatel Wireless logo. On the right, it says "Powered by MiFi".

Internet Connection

The Internet Connection section shows device settings and status.



- **Status** — The status of the Internet connection, usually **Connected**, **Disconnected** or **Dormant**.
- **Technology** — The type of technology used to connect to the Internet.
- **Received** — The amount of data received from the network.
- **Transmitted** — The amount of data sent to the network.
- **Connected Time** — How long the device has been connected to the network.
- **IP Address** — The Internet Protocol (IP) address that identifies this device on the network.
- **Mask** — The mask is a standard address that covers the MiFi device's network behind the larger Internet.
- **Gateway** — The address of the server used to access the Internet.
- **DNS** — The address of the Domain Name Server (DNS).

Buttons

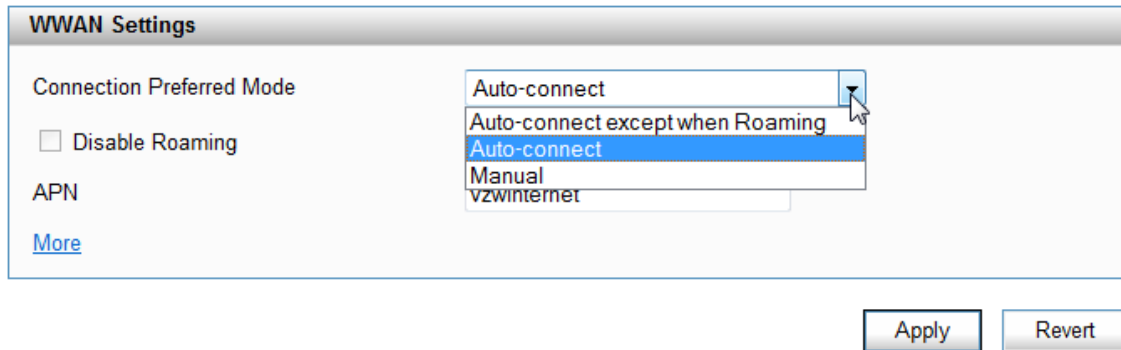
- **Connect** — Click this button to connect to the Internet.
- **Disconnect** — Click this button to disconnect from the Internet.
- **Connection Log** — Click this button to view the Internet connection log.

Date/Time	Client IP Address	Destination	Port	Type
02/14/12 10:36:42am	192.168.1.2	66.174.92.14	53	UDP
02/14/12 10:36:38am	192.168.1.3	66.174.92.14	53	UDP
02/14/12 10:36:38am	192.168.1.3	10.8.0.10	389	TCP
02/14/12 10:36:38am	192.168.1.3	10.1.0.170	389	TCP
02/14/12 10:36:38am	192.168.1.3	10.2.0.170	389	TCP
02/14/12 10:36:38am	192.168.1.3	10.6.0.171	389	TCP
02/14/12 10:36:38am	192.168.1.3	10.4.0.170	389	TCP
02/14/12 10:36:37am	192.168.1.3	10.6.0.170	389	TCP

WWAN Settings

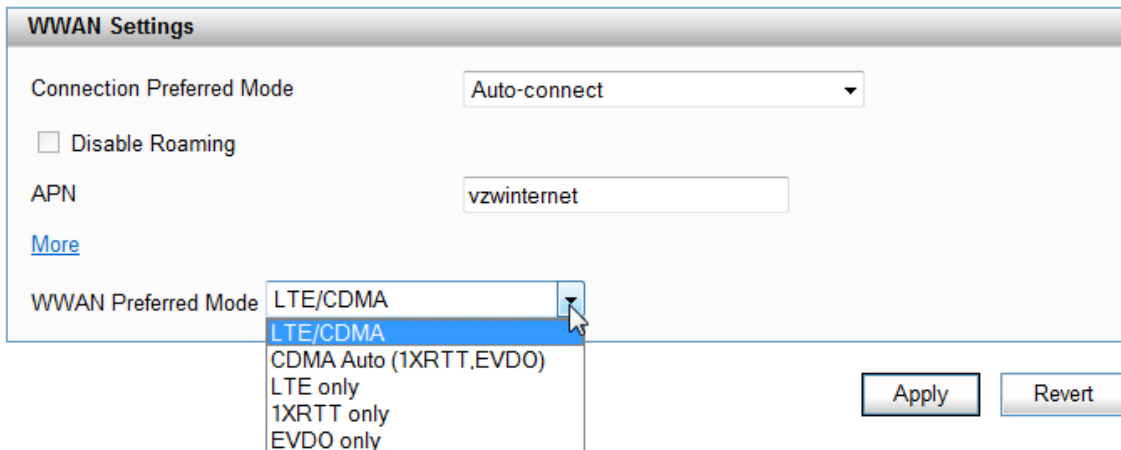
To configure the settings, follow these steps:

- 1 Select **Auto-connect** from the **Connection Preferred Mode** drop-down menu to automatically connect to the Internet when the device is turned on.



NOTE The APN is the Access Point Name the device uses to connect to the Internet. This is automatically provided by your wireless carrier.

- 2 Click **More** to set the **WWAN Preferred Mode** to the type of technology you want to use to connect to the Internet.



Buttons

- **Apply** — Click this button to save and apply your changes.
- **Revert** — Click this button to delete any unsaved changes.

Security

The Security Menu takes you to the following screens:

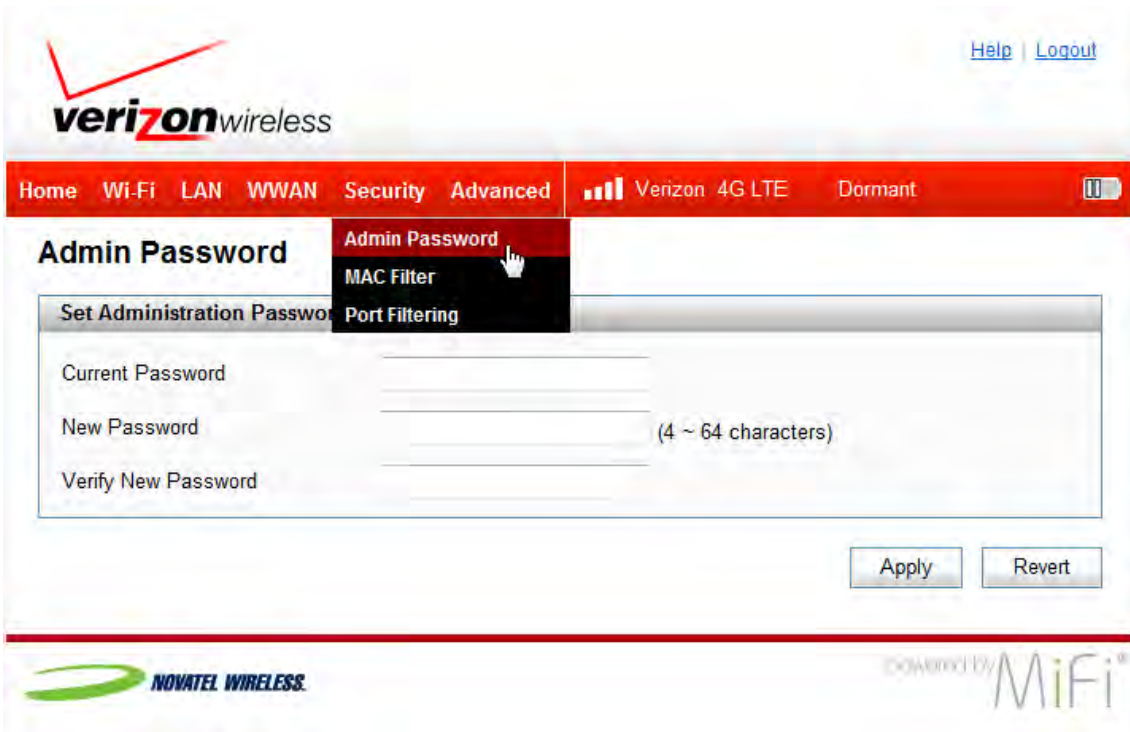
- **Admin Password** (See [Admin Password](#) on page 43.)
- **MAC Filter** (See [MAC Filter](#) on page 45.)
- **Port Filtering** (See on page 48.)



Admin Password

The Admin Password screen enables you to set the administration password. This is the password you use to log in to MiFi Settings. The default password appears on the back of the MiFi device as well as on the front of the Connect Card. The Admin Password screen contains the following section:

- **Set Administration Password** (See [Set Administration Password](#) on page 44.)



Set Administration Password

The default password is **admin**. To set or change the administration password, follow these steps:

- 1 Type your current password in the **Current Password** box.
- 2 Type the new password (it must have between 4 and 64 characters) in the **New Password** box.
- 3 Type it again in the **Verify New Password** box.
- 4 Click **Apply**.

The screenshot displays the Verizon Wireless administration interface. At the top, there is a red navigation bar with the Verizon logo and the text 'verizon wireless'. Below this, a secondary red bar contains navigation tabs: 'Home', 'Wi-Fi', 'LAN', 'WWAN', 'Security', and 'Advanced'. To the right of these tabs, it shows 'Verizon 4G LTE' and 'Connected' with a signal strength indicator. The main content area is titled 'Admin Password' and contains a 'Set Administration Password' form. This form has three input fields: 'Current Password', 'New Password', and 'Verify New Password'. The 'New Password' field includes a note '(4 ~ 64 characters)'. Below the form are two buttons: 'Apply' and 'Revert'. At the bottom of the page, there is a footer with the 'NOVATEL WIRELESS' logo on the left and 'Powered by MiFi' on the right.

Next time you log in to MiFi Settings, you need to use the new password.

Buttons

- **Apply** — Click this button to apply any changes made to the password settings.
- **Revert** — Click this button to return password settings to the previous settings.

IMPORTANT Record your administration password. If you forget it, you have to reset the device before you can use MiFi Settings. (See [How do I reset the MiFi 4510L device back to factory settings?](#) on page 61.)

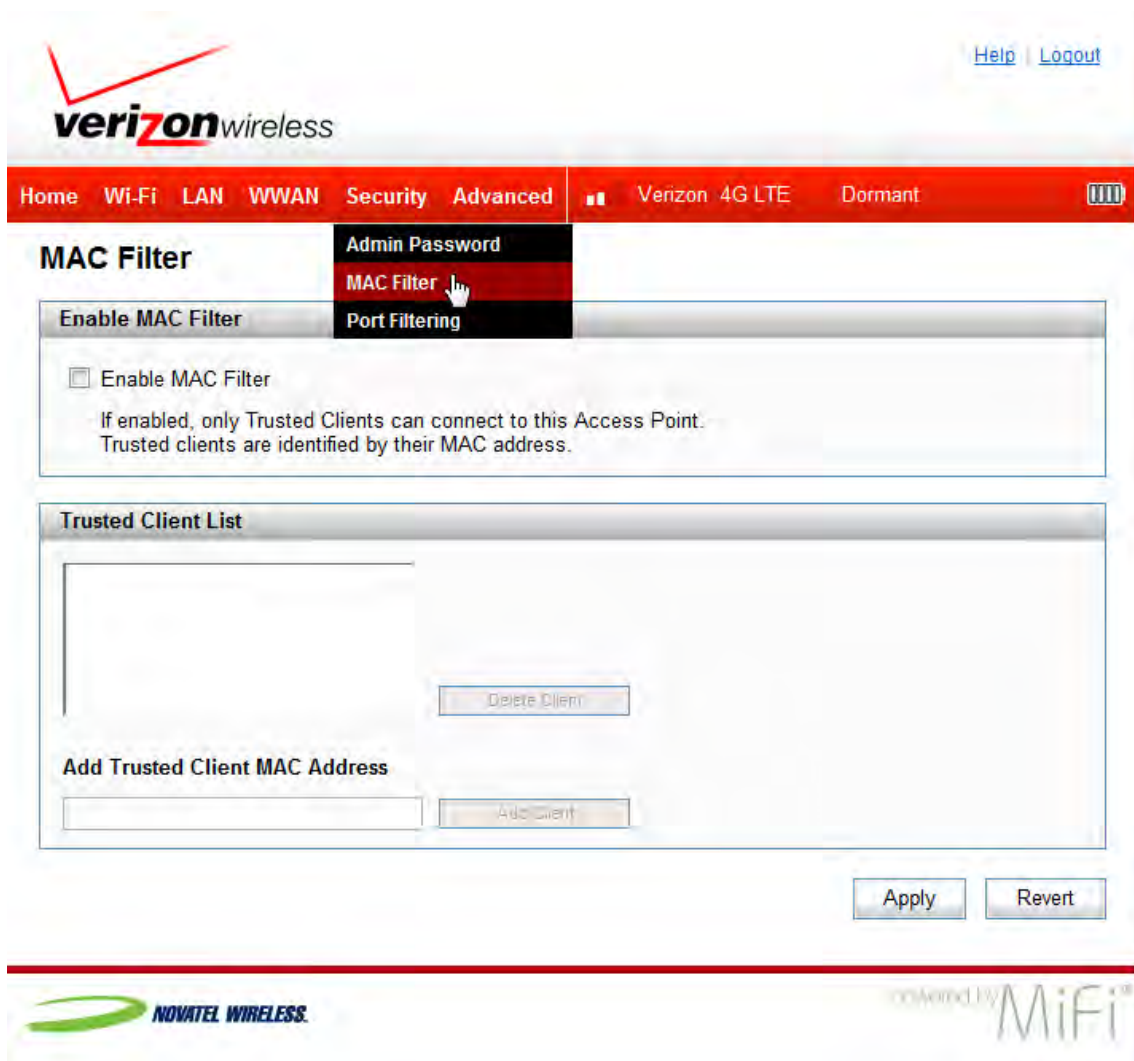
MAC Filter

The MAC Filter screen enables you to allow specific devices to connect to MiFi 4510L's wireless network. For example, if you put the MAC address for your Wi-Fi-enabled mobile phone and the MAC address for your computer in the MAC Filter Trusted Client List, then only those devices can connect to MiFi 4510L. The MAC Filter screen is divided into the following sections:

- **Enable MAC Filter** (See [Enable MAC Filter](#) on page 46.)
- **Trusted Client List** (See [Trusted Client List](#) on page 46.)
- **Add Trusted Client MAC Address** (See [Add Trusted Client MAC Address](#) on page 47.)

Trusted devices still need the correct network name (SSID) and network key (Wi-Fi passkey).

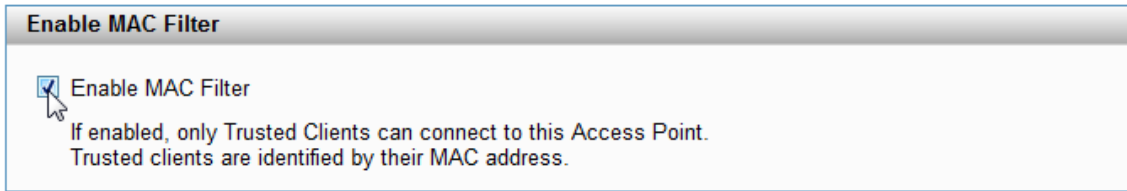
NOTE The MAC address on the Windows operating system is called the **Physical Address**.



IMPORTANT Do not enable MAC filtering unless you have added your own computer's MAC address to the trusted client list. Otherwise you will be unable to access the device.

Enable MAC Filter

The **Enable MAC Filter** checkbox enables or disables the MAC Filter feature.



- When the feature is **enabled** (checked), you must add the MAC address for the device to the Trusted Client List. If a device not in the list tries to connect to the MiFi 4510L wireless network, the connection is blocked even if the device has the correct network name (SSID) and network key (Wi-Fi passkey).
- When the feature is **disabled** (un-checked), any device with the correct network name (SSID) and network key (Wi-Fi passkey) can connect to the MiFi 4510L wireless network.

Find the MAC Address on a Computer

The Media Access Controller (MAC) Address is also known as a hardware or physical address for a device (usually a network adapter). It consists of six pairs of numbers and letters (for example, 00-21-9B-1C-64-34).

You can view the MAC address for any device connected to the MiFi wireless network from the LAN screen. (See [LAN](#) on page 38.)

Tip!

You can cut and paste your computer's MAC address from the Wi-Fi Clients section of the Wi-Fi screen.

If the computer is not connected to the MiFi wireless network, you can find the MAC address directly. To find the MAC address, follow one of these steps:

- On a Windows PC, the MAC address is the Physical Address. You can find the Physical Address by running **ipconfig/all** from the cmd window.
 - » To run **ipconfig/all**, select **Start > All Programs** (or **Programs**) > **Accessories > Command Prompt** to open the Command Prompt window. Then type **ipconfig/all** and press the **Return** or **Enter** key.
- On a Mac, the MAC address is the AirPort ID.
 - » To find the AirPort ID, open the **Apple Menu > System Preferences > Network**. In the list, click **AirPort**. Click **Advanced**. A sheet opens. Click the **AirPort** tab. The AirPort ID is at the bottom of the sheet.

IMPORTANT Windows only: Make sure you get the MAC address for the wireless network adapter and not the Ethernet controller (NIC), if the computer has both.

Trusted Client List

The Trusted Client List section displays the MAC address(es) of trusted devices. Only devices in the Trusted Client List are able to connect to the MiFi 4510L wireless network.

Add Trusted Client MAC Address

To add a device to the Trusted Client List, follow these steps:

- 1 Type the Wi-Fi-enabled device's MAC address in the **Add Trusted Client MAC Address** field. You can use either ":" or "-" as the separator (for example, 00:21:9B:1C:64:34 or 00-21-9B-1C-64-34).
- 2 Click **Add Client**.
- 3 Repeat steps 1 and 2 as needed.
- 4 When the list is complete, click **Apply**.

The screenshot shows the Verizon Wireless router configuration interface. At the top, there is a red navigation bar with the Verizon logo and the text "verizon wireless". Below this, a secondary red bar contains navigation links: Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The status bar shows "Verizon 4G LTE" and "Connected".

The main content area is titled "MAC Filter". It contains two sections:

- Enable MAC Filter:** A checkbox labeled "Enable MAC Filter" is checked. Below it, text reads: "If enabled, only Trusted Clients can connect to this Access Point. Trusted clients are identified by their MAC address."
- Trusted Client List:** A table with one column and one row. The row is empty. To the right of the table is a "Delete Client" button.

Below the table is a section titled "Add Trusted Client MAC Address" with a text input field and an "Add Client" button. A mouse cursor is pointing at the "Add Client" button.

At the bottom right of the configuration area are "Apply" and "Revert" buttons.

At the bottom of the page, there is a red horizontal line. Below it, on the left, is the "NOVATEL WIRELESS" logo. On the right, it says "powered by MiFi".

Remove a Device from the Trusted Client List

To remove a device from the Trusted Client List, follow these steps:

- 1 Click on the device in the Trusted Client List to select it.
- 2 Click **Delete Client**.

The screenshot shows the Verizon Wireless router configuration interface. At the top, there is a red navigation bar with links for Home, Wi-Fi, LAN, WWAN, Security, and Advanced. The status bar shows Verizon 4G LTE and Dormant. The main content area is titled "MAC Filter" and contains two sections: "Enable MAC Filter" and "Trusted Client List".

Enable MAC Filter

Enable MAC Filter

If enabled, only Trusted Clients can connect to this Access Point. Trusted clients are identified by their MAC address.

Trusted Client List

00:27:1D:10:2C:34

Delete Client

Add Trusted Client MAC Address

Add Client

Apply Revert

NOVATEL WIRELESS powered by MiFi

Buttons

- **Delete Client** — Click this button to remove a device from the Trusted Client List.
- **Add Client** — Click this button to add the MAC address typed in the Add Trusted Client MAC Address field to the Trusted Client List.
- **Apply** — Click this button to save changes made to the list.
- **Revert** — Click this button to discard changes made to the list.

Port Filtering

The Port Filtering screen allows you to block outgoing Internet connections. You can set a list of Allowed Applications to only allow certain programs to connect to the Internet. The Port Filtering screen is divided into the following sections:

- **Enable Port Filtering** (See [Enable Port Filtering](#) on page 50.)
- **Allowed Applications** (See [Allowed Applications](#) on page 51.)
- **Custom Applications** (See [Custom Applications](#) on page 52.)

The screenshot shows the Verizon Wireless web interface for Port Filtering. At the top, there is a navigation bar with the Verizon logo and the text "verizon wireless". To the right of the logo are links for "Help" and "Logout". Below the logo is a red navigation bar with the following menu items: "Home", "Wi-Fi", "LAN", "WWAN", "Security", and "Advanced". To the right of these items are status indicators: "Verizon 4G LTE" and "Connected".

The main content area is titled "Port Filtering" and contains a sub-menu with three options: "Admin Password", "MAC Filter", and "Port Filtering". The "Port Filtering" option is currently selected and highlighted in red. A mouse cursor is pointing at this option.

Below the sub-menu, there is a section for "Enable Port Filtering". It contains a checkbox labeled "Enable Port Filtering" which is currently unchecked. Below the checkbox is a note: "If enabled, only traffic from Allowed Applications can access the Internet."

Below this section is the "Allowed Applications" section. It contains a list of applications with checkboxes next to them, all of which are currently unchecked:

- DNS (Domain Name Server)
- HTTP
- HTTPS
- FTP
- E-mail (POP3)
- E-mail (IMAP)
- VPN
- Telnet
- RTP

At the bottom of the "Allowed Applications" section is a button labeled "Custom Applications".

At the bottom right of the page are two buttons: "Apply" and "Revert".

Enable Port Filtering

The **Enable Port Filtering** checkbox enables or disables the Port Filtering feature.

- When the feature is **enabled** (checked), you must select a port filtering application in the Allowed Applications list to allow that application to connect to the Internet. For example, if you select VPN in the Allowed Applications list but do not select HTTP, you can connect to a VPN server but you cannot connect to a web page using your Internet browser.
- When the feature is **disabled** (un-checked), any application can connect to the Internet.



The screenshot shows the Verizon Wireless mobile device settings interface. At the top, there is a red navigation bar with the Verizon logo and the text "verizon wireless". Below the navigation bar, there are links for "Home", "Wi-Fi", "LAN", "WWAN", "Security", and "Advanced". The current page is titled "Port Filtering".

The "Enable Port Filtering" section has a checked checkbox and the text: "If enabled, only traffic from Allowed Applications can access the Internet."

The "Allowed Applications" section lists several applications with checkboxes:

- DNS (Domain Name Server)
- HTTP
- HTTPS
- FTP
- E-mail (POP3)
- E-mail (IMAP)
- VPN
- Telnet
- RTP

Below the list is a button labeled "Custom Applications". At the bottom right, there are two buttons: "Apply" and "Revert".

Allowed Applications

Enable each port filtering application that needs to be able to access the Internet. When port filtering is enabled, all other applications are blocked.

Allowed Applications

- DNS (Domain Name Server)
- HTTP
- HTTPS
- FTP
- E-mail (POP3)
- E-mail (IMAP)
- VPN
- Telnet
- RTP

Custom Applications

Custom Applications

This page has no effect unless the Port Filtering feature is enabled.

Click **Custom Applications** to open the Custom Applications screen. The Custom Applications screen uses check boxes to enable port filtering. You must enable custom applications so they can connect to the Internet, and you need to know details of the traffic used and generated by the applications you wish to define. The Custom Applications screen has the following options:

- **Application Name** — Type a name for the application.
- **Ports** — Click the **Ports** link to show the Port Definition Panel. Click **Hide** when you finish defining the current application. Click **Apply** when you finish defining all applications.
- **Port Definition Panel** — This allows you to define the ports used by this application. The background shading and dialog title indicates the current application.

Custom Port Filtering [Help](#)

Custom Applications

Application	Ports
1. <input checked="" type="checkbox"/> []	Ports for Application 1 [] ~ [] TCP/UDP << Hide
2. <input type="checkbox"/> []	[] ~ [] TCP/UDP
3. <input type="checkbox"/> []	[] ~ [] TCP/UDP
4. <input type="checkbox"/> []	[] ~ [] TCP/UDP
5. <input type="checkbox"/> []	[] ~ [] TCP/UDP
6. <input type="checkbox"/> []	[] ~ [] TCP/UDP

Apply **Revert**

Port Ranges

You can define up to five port ranges for each application. Each port range has the following options:

- **Start Port** — Type the beginning of the range of port numbers used by outgoing traffic for this application. Use as many rows as necessary to define the required number of port ranges. Unused rows can be left blank.
- **End Port** — Type the end of the range of port numbers. If the port is a single port instead of a range, type the same value for both the Start Port and the End Port.
- **Protocol** — For each port range (each row), select the protocol (TCP, UDP, or both) used by that port range.

You can define all of your applications before you click **Apply** to save your changes.

Use the **Ports** and **Hide** links as necessary to open and close the Port Definition Panel so you can define the ports for each application as needed.

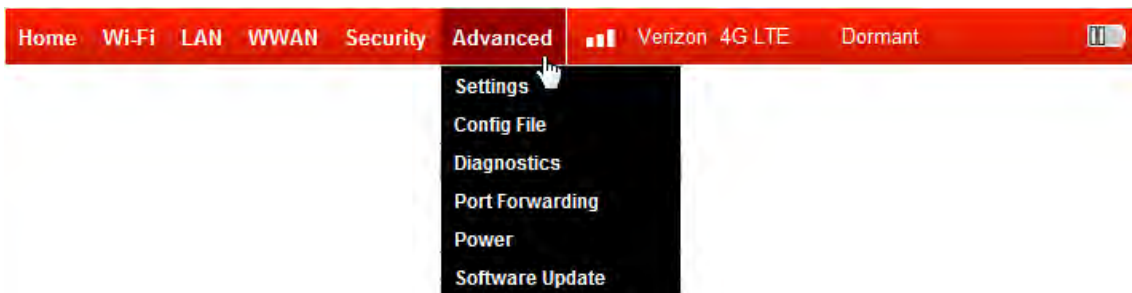
Buttons

- **Apply** — Click this button to save changes made to the applications and/or port ranges.
- **Revert** — Click this button to discard changes made to the applications and/or port ranges.

Advanced

The Advanced Menu takes you to the following screens:

- **Settings** (See [Settings](#) on page 55.)
- **Config File** (See [Config File](#) on page 58.)
- **Diagnostics** (See [Diagnostics](#) on page 61.)
- **Port Forwarding** (See [Port Forwarding](#) on page 64.)
- **Power** (See [Power](#) on page 66.)
- **Software Update** (See [Software Update](#) on page 67.)



Settings

The Advanced Settings screen is divided into the following sections:

- **Wi-Fi** (See [Wi-Fi](#) on page 30.)
- **Router** (See [Router](#) on page 56.)
- **System** (See [System](#) on page 57.)

Help | Logout

Home Wi-Fi LAN WWAN Security Advanced Verizon 4G LTE Connected

Advanced Settings

Wi-Fi

Network Name (SSID) broadcast enable

Router

DHCP Server enable

VPN Passthrough enable

System

Enable Logs

Language English

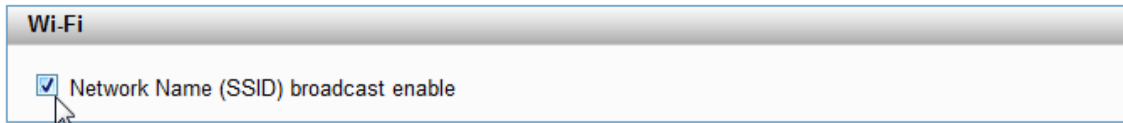
Date/Time Format USA (mm/dd/yyyy) 12 hr

Apply Revert

NOVATEL WIRELESS. powered by Mifi

Wi-Fi

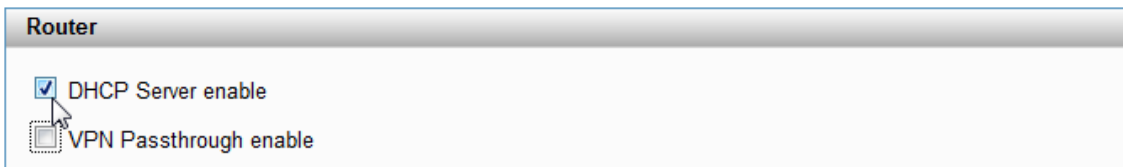
The **Network Name (SSID) broadcast enable** check box enables or disables the SSID broadcast feature.



- If this is **enabled** (checked), MiFi 4510L's wireless network appears in the **Available Wireless Networks** list on your computer or portable device.
- If this is **disabled** (un-checked), the MiFi 4510L is not listed and its network name (SSID) must be typed manually to connect a device.

Router

The **DHCP Server enable** check box enables or disables the DHCP server feature.



- If this is **enabled** (checked), the DHCP Server automatically allocates an IP address to each of your wireless clients. Normally, this should be enabled.
- If this is **disabled** (un-checked), each Wireless client should have a fixed IP address, set on the client.

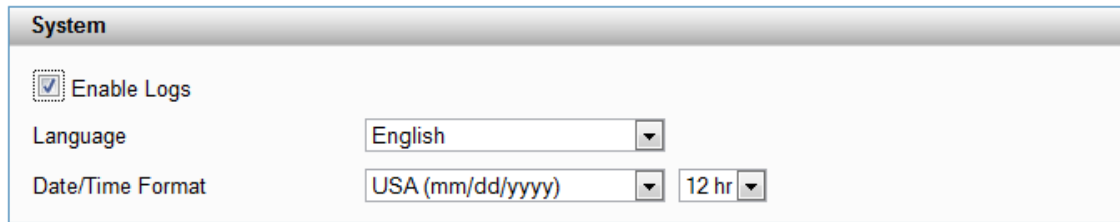
The **VPN Passthrough enable** check box enables or disables the VPN Passthrough feature.



- If this is **enabled** (checked), this feature allows VPN clients to connect through MiFi 4510L to remote VPN Servers. Normally, this option should be enabled.
- If this is **disabled** (un-checked), VPN clients are not allowed to connect.

System

The **Enable Logs** check box enables or disables the System log feature.



The screenshot shows a settings window titled "System". It contains three main settings:

- Enable Logs:** A checked checkbox.
- Language:** A dropdown menu currently showing "English".
- Date/Time Format:** A dropdown menu currently showing "USA (mm/dd/yyyy)" and a time format dropdown menu currently showing "12 hr".

- If this is **enabled** (checked), you can view the system log on the Diagnostics screen. (See on page 60.)
- If this is **disabled** (un-checked), you cannot view the system log on the Diagnostics screen.

The **Language** menu changes the MiFi Settings Web UI language.

The **Date/Time Format** menu changes the format of the date to reflect that used in the US or Europe. It changes the format of the time to a 12- or 24-hour clock.

Buttons

- **Apply** — Click this button to save changes.
- **Revert** — Click this button to return to the previous settings.

Config File

The Config File screen provides the ability to download (back up) a copy of the configuration settings from MiFi 4510L to a file on your computer, or restore (upload) a previously-saved configuration file from your computer to MiFi 4510L.

This configuration file contains all settings for the Access Point and Router functions of the MiFi 4510L. You need the administration password to change this. The Config File screen is divided into the following sections:

- **Config File Download** (See [Config File Download](#) on page 59.)
- **Config File Upload** (See [Config File Upload](#) on page 60.)

Help Logout

verizon wireless

Home Wi-Fi LAN WWAN Security Advanced Verizon 4G LTE Dormant

Config File

Config File Download

Download (Backup) the configuration file to your PC.

MiFi® 4510L Administration Password

Download File

Config File Upload

Upload (Restore) a configuration file from your PC.

File: Browse...

MiFi® 4510L Administration Password

Upload File

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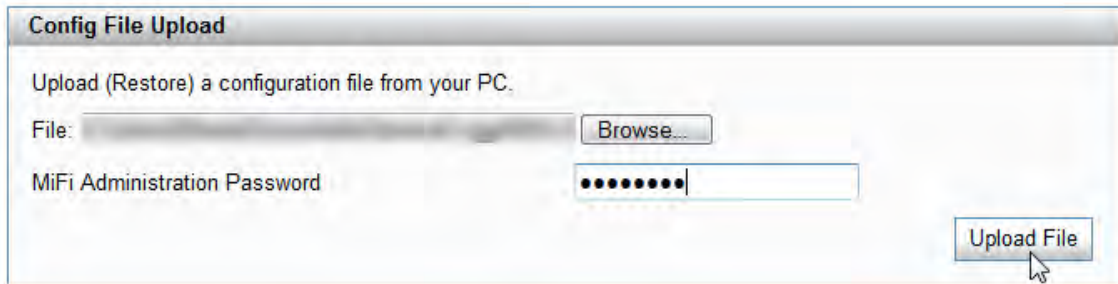
Config File Download

Click **Download File** to download a copy of the current configuration, and store the file on your computer. You are prompted to save the file; you can choose to rename it.

The screenshot shows the Verizon Wireless configuration interface. At the top, there is a red navigation bar with the Verizon logo and the text "verizon wireless". Below this, a red status bar displays "Home Wi-Fi LAN WWAN Security Advanced" and "Verizon 4G LTE Connected". The main content area is titled "Config File" and contains a "Config File Download" section. This section includes the instruction "Download (Backup) the configuration file to your PC." and a field for the "MiFi® 4510L Administration Password" which is masked with dots. A "Download File" button is visible. A "File Download" dialog box is open in the foreground, asking "Do you want to open or save this file?". The dialog box displays the file name "config.xml.sav", the type "HTML Document, 4.41KB", and the source "From: 192.168.1.1". It has "Open", "Save", and "Cancel" buttons. Below the dialog box, there is a security warning: "While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. [What's the risk?](#)". The footer of the page includes the "NOVATEL WIRELESS" logo and the text "powered by MiFi®".

Config File Upload

Use this feature to restore a previously-saved configuration file to MiFi 4510L. This overwrites all existing settings with the information stored in the config file. To upload a configuration file, follow these steps:



- 1 Click **Browse** (Windows) or **Choose File** (Mac) to browse to the config file you previously downloaded to your computer.
- 2 Click **Upload File** to begin uploading the chosen file. After upload finishes, the config file is immediately applied, and MiFi 4510L restarts.

WARNING! Uploading a configuration file changes ALL of the existing settings to match the configuration file. If the Wi-Fi settings change, you will lose this connection, and will need to reconnect using the new settings.

Buttons

- **Download File** — Click this button to download a particular file.
- **Upload File** — Click this button to upload a particular file.

Diagnostics

The Diagnostics screen shows information about the MiFi 4510L firmware and other system-level information. You can also view the system log. This screen is used mostly for troubleshooting and is not required for normal operation. The Diagnostics screen is divided into the following sections:

- **System Information** (See [System Information](#) on page 62.)
- **System Status** (See [System Status](#) on page 63.)

System Information

MiFi® Device		Modem	
Manufacturer	Novatel Wireless	MEID:	
Model	MiFi 4510L	Phone No.(MDN)	
IMEI		MIN(MSID)	
Serial No.		Home SID	4
Router FW Version	02.01	Modem FW Version	2.28
AP FW Version	2.10-3.0.0.5	ERI Version	4
ICCID		PRL Version	15097
SIM Status	SIM Ready		

System Status

Modem Status

System Log

Restart Reset to Factory Defaults

NOVATEL WIRELESS powered by MiFi

System Information

This section contains detailed information about the MiFi 4510L.

MiFi

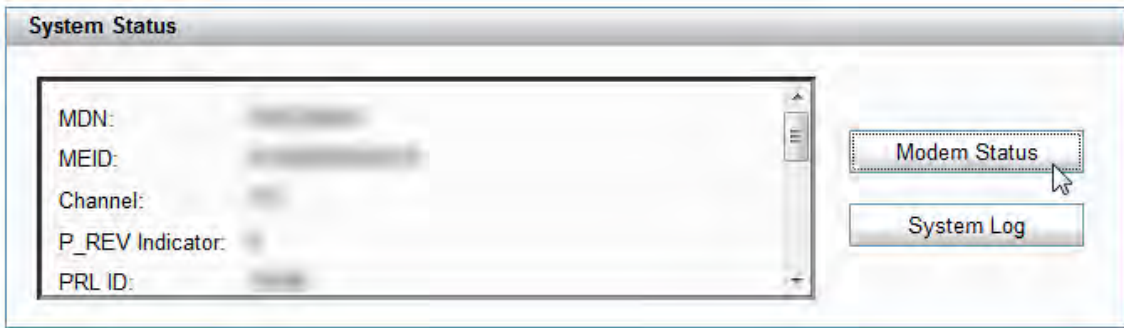
- **Manufacturer** — The manufacturer of the MiFi 4510L.
- **Model** — The model number or name of the MiFi 4510L.
- **IMEI** — The International Mobile Equipment Identity (IMEI) number for the MiFi 4510L.
- **Serial No.** — Each MiFi 4510L has a unique serial number.
- **Router FW Version** — The router firmware version.
- **AP FW Version** — For the Access Point component, the version of the firmware currently installed.
- **ICCID** — The integrated circuit card identification.
- **SIM Status** — The status of the SIM Card.

Modem

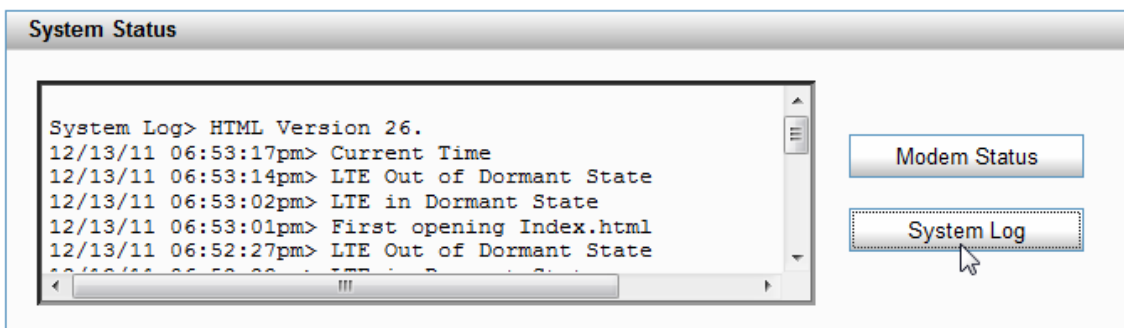
- **MEID** — The Mobile Equipment Identifier (MEID) is used by the mobile data network to identify this particular modem.
- **Phone No. (MDN)** — The Phone Number or Mobile Directory Number (MDN) is used by the mobile data network to identify this particular data service.
- **MIN (MSID)** — The Mobile Identification Number (MIN) or Mobile Station ID (MSID) is the number associated with the home service provider and the wireless phone number.
- **Home SID** — System identifier for the home network.
- **Modem FW Version** — The modem firmware version.
- **ERI Version** — The version of the Enhanced Roaming Indicator (ERI), which allows the text portion of the roaming indication to be displayed.
- **PRL Version** — The version of the Preferred Roaming List (PRL), which tells the modem which non-home carrier towers should provide roaming coverage.

System Status

- **Modem Status** — Click this button to view more information about the modem status. This information is mostly used for troubleshooting.



- **System Log** — Click this button to view the System Log. The System Log records various operations, and is mostly used for troubleshooting.



Buttons

- **Restart** — Click this button to restart the MiFi 4510L. All Internet connections, and all Wi-Fi connections, are lost during the restart.
- **Reset to Factory Defaults** — Click this button to reset all Access Point and Router settings to their factory default values. All existing settings are lost.

WARNING! The "Reset to Factory Defaults" operation overwrites ALL existing settings. If the Wi-Fi settings change, you will lose this connection, and need to reconnect using the new settings. (See [How do I reset the Access Point and Router settings back to factory settings?](#) on page 62.)

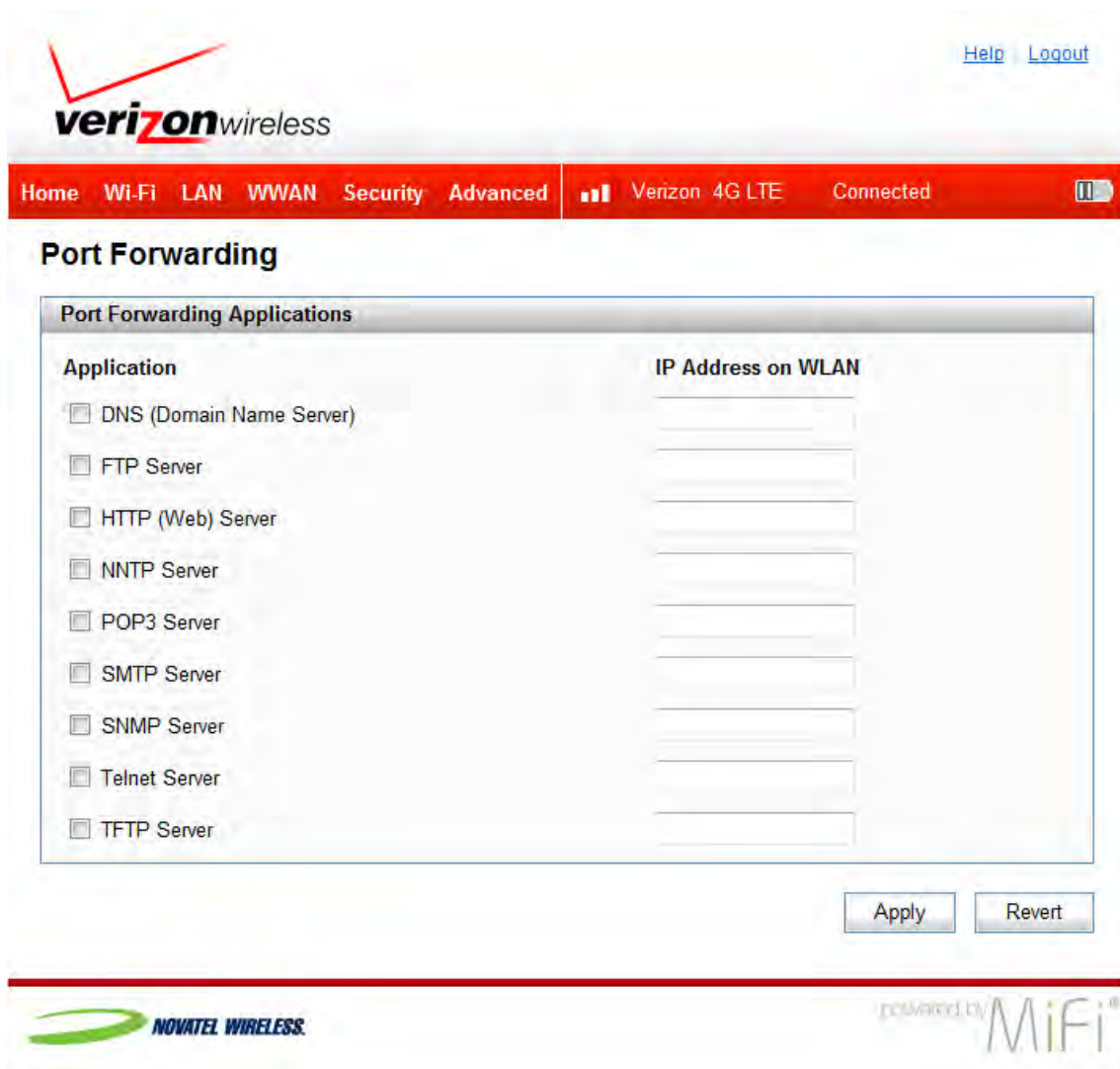
Port Forwarding

The Port Forwarding feature allows incoming traffic (from the Internet) to be forwarded to a particular computer or device on MiFi 4510L's wireless network. Normally, incoming traffic from the Internet is blocked.

You need to use Port Forwarding to allow Internet users to access any server you are running on your computer, such as a Web server, FTP server, or E-mail server. Also, for some online games, Port Forwarding must be used for the game to function correctly. The Port Forwarding screen has the following section:

- **Port Forwarding Applications** (See [Port Forwarding Applications](#) on page 65.)

IMPORTANT Port forwarding creates a security risk. This feature should be disabled when it is not required.



Port Forwarding Applications

To use any of the common server applications listed, follow these steps:

Application	IP Address on WLAN
<input checked="" type="checkbox"/> DNS (Domain Name Server)	XXX.XXX.XX.XX
<input type="checkbox"/> FTP Server	
<input checked="" type="checkbox"/> HTTP (Web) Server	XXX.XXX.XX.XX
<input type="checkbox"/> NNTP Server	
<input checked="" type="checkbox"/> POP3 Server	XXX.XXX.XX.XX
<input type="checkbox"/> SMTP Server	
<input type="checkbox"/> SNMP Server	
<input type="checkbox"/> Telnet Server	
<input type="checkbox"/> TFTP Server	

- 1 Install the application on a computer that is connected to MiFi 4510L's wireless network (WLAN).
- 2 Ensure the computer is connected to MiFi 4510L, and record the computer's IP address for the MiFi Settings Web UI.
- 3 On the Port Forwarding screen, type the computer's IP Address in the **IP Address on WLAN** field beside the application name.
- 4 Enable the corresponding application on this screen by selecting its check box.
- 5 Save your changes by clicking **Apply**.
- 6 Click **Home** to go to the Home screen, and make a note of MiFi 4510L's IP address.

Tell the person or company that needs port forwarding to connect to MiFi 4510L's IP address of the MiFi 4510L (by default, this is <http://admin.mifi> or <http://192.168.1.1>). Connection requests are forwarded to the IP address specified in step 3.

Buttons

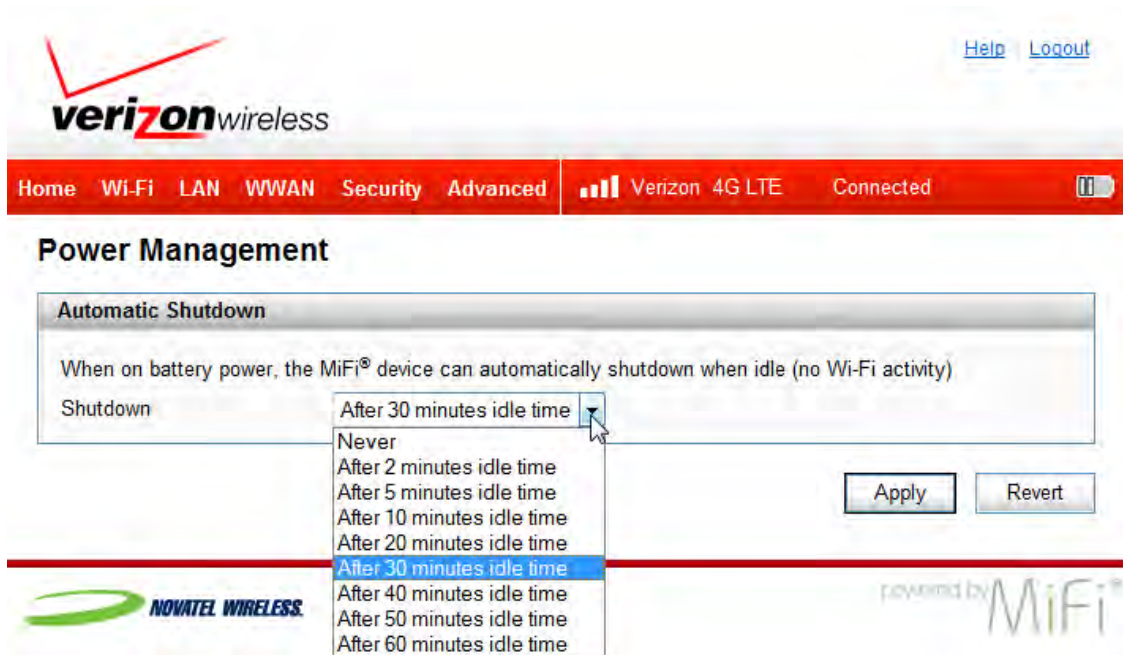
- **Apply** — Click this button to save changes made to port forwarding.
- **Revert** — Click this button to return to the previous settings.

IMPORTANT When no longer needed, the application should be disabled on this screen by de-selecting its check box, and saving change(s) by clicking **Apply**. Leaving applications enabled unnecessarily creates a security risk.

Power

The MiFi 4510L can turn itself off when not in use. When using battery power, automatic shutdown greatly extends the battery life. To start up again, press the power button. The Power Management screen contains the following section:

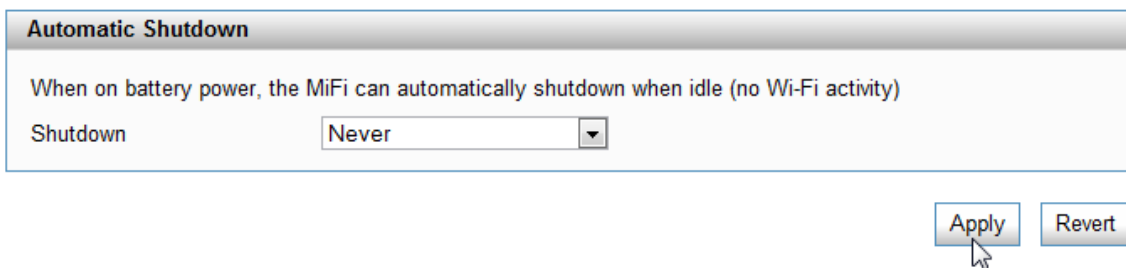
- **Automatic Shutdown** (See [Automatic Shutdown](#) on page 66.)



Automatic Shutdown

Select the desired shutdown time from the **Shutdown** drop-down menu and then click **Apply**. To prevent automatic shutdown, select **Never**.

The timer options range from 2-60 minutes idle time, or never. When powered by the battery, the MiFi 4510L automatically shuts down after being idle for the selected time period, provided that no Wi-Fi devices are connected to the MiFi device. Timer settings have no effect when the MiFi 4510L is connected to the wall charger.



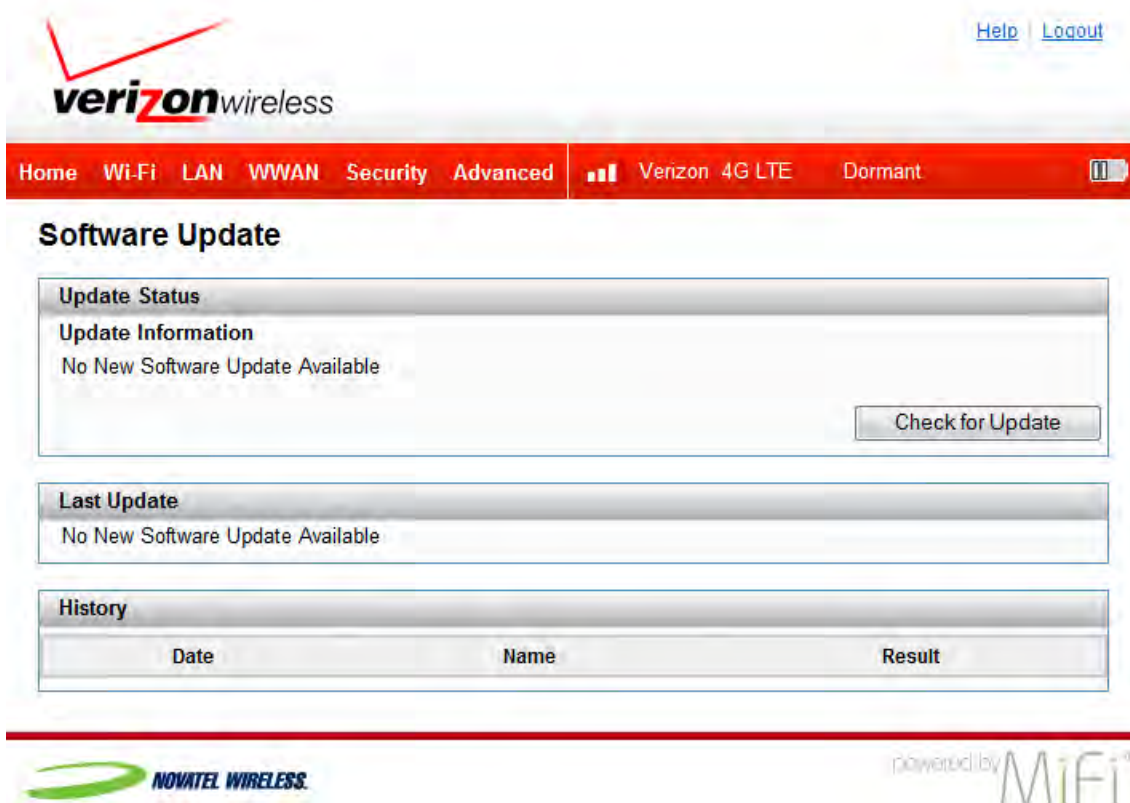
Buttons

- Click **Apply** to save changes.
- Click **Revert** to return to previous settings.

Software Update

The Update Software screen contains the following sections:

- **Update Status** (See [Update Status](#) on page 67.)
- **Last Update** (See [Last Update](#) on page 67.)
- **History** (See [History](#) on page 67.)



Update Status

The Update Status section provides current software update information. To check for current software updates, click **Check for Update**.

Last Update

The Last Update section provides release information on the latest software update.

History

The History section provides the date, name and result of any software updates. If there have been no software updates, this section will be blank.

4

Troubleshooting

Overview
Common Problems and Solutions
Technical Support

Overview

When properly installed, the MiFi 4510L is a highly reliable product. Most problems are caused by one of these issues:

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

The following tips can help solve many common problems encountered while using the device.

First Steps

- Make sure you are using the device in the correct geographic region.
- Ensure that your wireless coverage extends to your current location.
- Ensure you have an active subscription plan.
- Restarting your computer and your modem can resolve many issues.

IMPORTANT Before contacting support, be sure to restart both your computer and your device.

Common Problems and Solutions

The following are some common troubleshooting solutions.

My MiFi 4510L just powered off without my pressing the power button. Why?

This may occur under any of the following circumstances:

- Pressing the Master Reset button
- Restarting the device
- Switching profiles
- Restoring the configuration settings
- Battery depletion

To restore battery power, follow these steps:

- ① Manually press the power button to turn it back on.
- ② If the battery is depleted, charge the device using the wall charger.

How do I reset the MiFi 4510L device back to factory settings?

The master reset button is in a small hole located on the bottom of the device, underneath the battery cover. This button returns the device to factory settings, including re-setting the network name (SSID) and network key (Wi-Fi passkey) to those printed on the sticker affixed to the back of the device. (The original SSID and password also appear on the front of the Connect Card.) To reset the device, follow these steps:

- ① Place one end of an unfolded paper clip into the master reset button hole.
- ② Press the paper clip on the button until the LED blinks green one full blink plus a very brief blink (about five seconds).



How do I reset the Access Point and Router settings back to factory settings?

To reset the access point and router settings, follow these steps:

- 1 Connect to MiFi Settings by connecting your computer to the MiFi wireless network and going to <http://admin.mifi> or <http://192.168.1.1> in your browser.
- 2 Connect to the Diagnostics screen. (See [Diagnostics](#) on page 61.) The Diagnostics screen has a **Reset to Factory Defaults** button. This button resets all Access Point and Router settings to their factory default values. All existing settings are lost.

The password on or inside the device does not work. What should I do?

Your SSID and Wi-Fi Admin password appear on the back of your device. If you do not have a password label on the back of your MiFi 4510L, follow these steps:

- 1 Open the device and use the password printed on the password label underneath the battery.
- 2 If the password on or inside the device does not work, call Customer Service at **1-800-786-8419**.

Customer Service

For Customer Service while in the U.S. or Canada, contact Verizon Wireless at 1-800-786-8419.

Data Technical Support

For additional information and technical support for Verizon Wireless devices, you can visit the Verizon Wireless Data Technical Support page at http://support.verizonwireless.com/contact_us.

Product Specifications and Regulatory Information

Product Specifications
Regulatory Statements
Wireless Communications
Limited Warranty and Liability
Safety Hazards
Proper Battery Use and Disposal

Product Specifications

General

Name:	Verizon Jetpack™ Mobile Hotspot - MiFi® 4510L
Model:	MiFi 4510L
Approvals:	FCC (North America); IC (Canada)
Weight:	85 g / 3 oz
Dimensions:	90 mm x 60 mm x 13 mm, 3.54 in x 2.36 in x 0.51 in
Wireless Network – Dual Mode:	LTE, CDMA 1X/EV-DO Rev A
Wireless Network – Wi-Fi Mode	802.11 b/g/n
Default SSID	Verizon MIFI4510L XXXX Secure (see the sticker on the back of your device or on the front of your Connect Card for your SSID and Wi-Fi/Admin password)
Battery	
• Size	1500 mAh
• Time required for full charge	2.5-3 hours (when not in use)
Chip Set:	QUALCOMM® MDM9600
Interface Type:	Type B USB Port for micro USB, used by the wall charger

Technology/Bands

Technology:	LTE, CDMA Rev A, Rev 0, 1XRTT
Band Designation:	LTE 700 MHz CDMA 1x/EV-DO RA; 800/1900 MHz
Transmit Band:	824.7-848.31 MHz/1851.25-1908.75 MHz
Receive Band:	869.7-893.31 MHz/1931.25-1988.75 MHz

Environmental

Operating Temperature:	-10° C to +45° C (14°F to 113° F)
Storage Temperature:	-20° C to 60° C (-4° F to 140° F)
Drop:	1 meter (3.28 feet) drop, no damage – fully operational
Vibration Stability:	5 Hz to 500 Hz, 0.1 octave/second

Regulatory Statements

Federal Communications Commission (FCC) and Industry Canada (IC) Notice

Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within the acceptable limits for a Class B digital device, pursuant to part 15 of the FCC Rules and Industry Canada ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.

This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures.

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

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules and with Industry Canada ICES-003. Operation is subject to the following two conditions.

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THE MiFi 4510L MODEM IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT NOVATEL WIRELESS TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

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

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by Novatel Wireless, Inc. may void your authority to operate the equipment.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter, unless specifically authorized by Novatel Wireless Technologies.

RF Exposure Content

FCC Equipment Authorization ID: PKRNVWMIFI4510

Industry Canada Certification Number: 3229B-MIFI4510

Model: MIFI4510L

This device is authorized for use in mobile and portable applications. At least 12 mm (0.5 inches) of separation between the antenna and the user's body must be maintained at all times.

This product has been evaluated for SAR and meets the FCC and IC Guidelines for exposure to radio waves.

Wireless Communications

IMPORTANT Due to the transmission and reception properties of wireless communications, data occasionally can be lost or delayed.

This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path. Although data loss is rare, the environment where you operate the modem might adversely affect communications.

Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

Novatel Wireless or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the MiFi 4510L device, or failure of the MiFi 4510L device to transmit or receive such data.

Limited Warranty and Liability

Novatel Wireless, Inc. warrants for the 12-month period immediately following receipt of the Product by Purchaser that the Product will be free from defects in material and workmanship under normal use. THESE WARRANTIES ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The exclusive remedy for a claim under this warranty shall be limited to the repair or replacement, at Novatel Wireless' option, of defective or non-conforming materials, parts or components. The foregoing warranties do not extend to (I) non conformities, defects or errors in the Products due to accident, abuse, misuse or negligent use of the Products or use in other than a normal and customary manner, environmental conditions not conforming to Novatel Wireless' specification, of failure to follow prescribed installation, operating and maintenance procedures, (II) defects, errors or nonconformities in the Product due to modifications, alterations, additions or changes not made in accordance with Novatel Wireless' specifications or authorized by Novatel Wireless, (III) normal wear and tear, (IV) damage caused by force of nature or act of any third person, (V) shipping damage, (VI) service or repair of Product by the purchaser without prior written consent from Novatel Wireless, (VII) products designated by Novatel Wireless as beta site test samples, experimental, developmental, reproduction, sample, incomplete or out of specification Products, or (VIII) returned products if the original identification marks have been removed or altered.

Safety Hazards

Do not operate the MiFi 4510L device in an environment that might be susceptible to radio interference resulting in danger, specifically:

Areas where prohibited by the law

Follow any special rules and regulations and obey all signs and notices. Always turn off the host device when instructed to do so, or when you suspect that it might cause interference or danger.

Where explosive atmospheres might be present

Do not operate your device in any area where a potentially explosive atmosphere might exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.

Users are advised not to operate the device while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.

Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Near medical and life support equipment

Do not operate your device in any area where there is medical equipment, life support equipment, or near any equipment that might be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The device can transmit signals that could interfere with this equipment.

On an aircraft, either on the ground or airborne

In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the modem is turned off prior to boarding aircraft in order to comply with these regulations. The modem can transmit signals that could interfere with various onboard systems and controls.

While operating a vehicle

The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offense.

Electrostatic discharge (ESD)

Electrical and electronic devices are sensitive to electrostatic discharge (ESD). Macintosh native connection software might attempt to reinitialize the device should a substantial electrostatic discharge reset the device. If the software is not operational after an ESD occurrence, then restart your computer.

Proper Battery Use and Disposal

IMPORTANT In event of a battery leak:

- Do not allow the liquid to come in contact with the skin or the eyes. If contact has been made, wash the affected area with large amounts of water and seek medical advice.
 - Seek medical advice immediately if a battery has been swallowed.
 - Communicate the appropriate steps to be taken if a hazard occurs. Due to the transmission and reception properties of wireless communications, data occasionally can be lost or delayed.
-

Please review the following guidelines for safe and responsible battery use.

- Do not disassemble or open, crush, bend or deform, puncture, or shred.
- Do not modify or remanufacture, attempt to insert a foreign object into the battery, immerse or expose to water or other liquids, or expose to fire, explosion, or other hazard.
- Only use the battery for the system for which it was specified.
- Only use the battery with a charging system that has been qualified with the system per this standard. Use of an unqualified battery or charger may present a risk of fire, explosion, leakage, or other hazard.
- Do not short circuit a battery or allow a metallic or conductive object to contact the battery terminals.
- Replace the battery only with another battery that has been qualified with the system per this standard. Use of an unqualified battery may present a risk of fire, explosion, leakage, or other hazard.
- Promptly dispose of used batteries in accordance with local regulations.
- Battery usage by children should be supervised.
- Avoid dropping the device or battery. If the device or the battery is dropped, especially on a hard surface, and the user suspects damage, take it to a service center for inspection.
- Improper battery use may result in a fire, explosion, or other hazard.

Glossary

Glossary

- **3G** — Third Generation. 3G refers to the third generation of mobile telephony technology.
- **4G LTE** — Fourth Generation. 4G LTE refers to the fourth generation of mobile telephony technology.
- **802.11 (b, g, n)** — A set of WLAN communication standards in the 2.4, 3.6 and 5 GHz frequency bands.
- **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 channels can carry video, voice, and data simultaneously.
- **CDMA** — Code Division Multiple Access. It is the underlying channel access method used by some mobile phone standards.
- **DHCP** — Dynamic Host Configuration Protocol. Software found in servers and routers that automatically assigns temporary IP addresses to clients logging into an IP network.
- **DHCP Server** — A server or service with a server that assigns IP addresses.
- **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.
- **Hotspot** — A WiFi (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.
- **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.

- **LTE** — Long Term Evolution. A wireless broadband technology designed to support roaming Internet access via cell phones and handheld devices. Because LTE offers significant improvements over older cellular communication standards, some refer to it as a 4G (fourth generation) technology along with WiMax.
- **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.
- **MSID** — Mobile Station IDentifier. A number for a mobile phone that identifies that phone to the network. These numbers are carrier specific.
- **Network Operator** — The vendor who provides your wireless access. Known by different names in different regions, some examples are: wireless provider, network provider, and service provider.
- **Network Technology** — The technology on which a particular network provider's system is built; such as CDMA or EVDO.
- **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.
- **Rev A** — CDMA EV-DO Rev. A is a leading-edge wireless technology with higher data rates and higher system capacity. It is a fully backward compatible standard and remains interoperable with deployed EV-DO networks and devices around the world. The increased data rates on Rev. A's physical layer enable richer applications and services. For more information, visit www.cdg.org.
- **Router** — A device that directs traffic from one network to another.
- **SIM** — Subscriber Identification Module. Found in 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.
- **SSID** — Service Set IDentifier. The name assigned to a WiFi network.
- **TCP/IP** — Transmission Control Protocol/Internet Protocol. The set of communications protocols used for the Internet and other similar networks.
- **USB** — Universal Serial Bus. A connection type for computing device peripherals such as a printer, mobile modem, etc. USB connectors may be used for data transfer or charging.

- **USB Port Types** — The USB ports on computers and hubs have a rectangular Type A socket, and peripheral devices have a cable with a Type A plug. Peripherals that do not have an attached cable have a square Type B socket on the device and a separate cable with a Type A and Type B plug. Ports and connectors are available in different sizes (for example, standard, mini, and micro).
- **VPN** — Virtual Private Network. A secure private network that runs over the public Internet. Commonly used to connect to an office network from elsewhere.
- **WWAN** — Wireless Wide Area Network. A public network that extends beyond architectural, geographical, or political boundaries (unlike a LAN, which is usually a private network located within a room, building, or other limited area).
- **WEP** — Wired Equivalent Privacy. An IEEE standard security protocol for 802.11 networks. Superseded by WPA and WPA2.
- **WiFi** — Wireless Fidelity. Any system that uses the 802.11 standard developed and released in 1997 by the IEEE.
- **WiFi Client** — A wireless device that connects to the Internet via WiFi.
- **WPA/WPA2** — WiFi Protected Access. A security protocol for wireless 802.11 networks from the WiFi Alliance.