MiFi® 2200

Intelligent Mobile Hotspot

NOVATEL WIRELESS

product user guide

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1

Product Overview

MiFi 2200 Device Overview
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Power Management
Using the microUSB Cable

MiFi 2200 Device Overview

Thank you for choosing the Novatel Wireless MiFi 2200 Intelligent Mobile Hotspot device for Mobile Broadband and Wi-Fi!

This device operates over high-speed Mobile Broadband networks in the 800/1900 bands enabling you to connect at high speeds to the Internet, your corporate Intranet, Wi-Fi enabled devices and access your email virtually anywhere!

The MiFi 2200 device is an Intelligent Mobile Hotspot, empowering you with high-speed data access on your wireless data network and Wi-Fi connectivity.

Features

With the MiFi 2200 device, you can:

- **Connect to High-Speed Wireless Data**
- **Benefit from Wi-Fi Connectivity**
  - With the MiFi 2200 Intelligent Mobile Hotspot device, connect via Wi-Fi and access high-speed mobile broadband service to browse the Internet, access email, run business applications and more from a computer or most Wi-Fi-compatible devices.
  - The MiFi 2200 device enables multiple Wi-Fi-enabled devices to connect at one time, such as notebooks, desktops, tablet computers, personal digital assistants, and most Wi-Fi enabled consumer devices.
  - Typical battery usage time is up to 4 hours active and up to 40 hours standby in Wi-Fi mode (with one Wi-Fi connective device).
- **Manage Wireless Network Activity – MiFi Device Settings**

  MiFi Device Settings: Allows you to manage, monitor, and customize your Wi-Fi Mobile Broadband connection through an easy-to-use interface when the device is in Wi-Fi mode (that is, without the use of the USB cable).

Additional features include:

- Advanced embedded antenna design for Mobile Broadband and Wi-Fi
- VPN capability
- Auto installation and connectivity options
- GPS technology to search for stores, restaurants, and other locations in your area
- NDIS configuration

Package Contents

The Novatel Wireless MiFi 2200 device package includes:

- MiFi 2200 Intelligent Mobile Hotspot device
- AC Wall Charger
- Lithium Ion Battery
- Storage Pouch
- microUSB Cable
- Quick Start Guide

Product User Guide (on device)

System Requirements

- Internet browser (for example, Internet Explorer, Safari, Firefox, Opera, Chrome)
- Wireless interface (802.11b/g)

USB Modem Mode only:

- Windows 7, Vista, or XP (Service Pack 2 or higher)
- Mac OS X v10.4.11 or higher
- Type A USB port
- 40 MB hard drive
- 256 MB RAM

Your MiFi 2200 Intelligent Mobile Hotspot Device

Your MiFi 2200 device has the following parts:

❶ **Power Button / LED**: Powers on and off the device. The LED indicates power, battery status, and roaming activity.

❷ **microUSB Connector**: The AC charger connects here.

❸ **Service Status LED**: Provides information about your mobile broadband connection.

❹ **Network Name and Password Label**: The preconfigured name of your network (SSID) and your network password (also called a network key) are printed on the back of your device.

❺ **Master Reset Button**: Resets device to factory default settings. [See Use the Master Reset Button (page 58.)]

❻ **Battery Compartment**: Battery is placed here.

LED States

The MiFi device LEDs provide valuable information about the state of the device and connection

Service Status LED

LED Color	Status	Description
No Light	—	Device is powered off.
Green	Solid	The MiFi device is powered on and connected to a mobile broadband network, but is not transmitting or receiving data.
	Slow Blinking	The MiFi device is powered on but there is no service.
	Intermittent Blinking	The MiFi device is transmitting / receiving mobile broadband data. The blinking rate is proportional to the data speed.

Power Button LED

Led Color	Status	Description
No Light	—	Device is powered off.
Green	Solid	The MiFi device is powered on and fully charged.
	Glowing	The MiFi device is in standby mode (power saving). Press the power button to wake up the device.
Red	Blinking	Battery is critically low.
Amber	Solid	Battery is charging.
	Blinking	Error. [See Troubleshooting (page 51).]
Blue	Solid	The MiFi device is powered on and roaming.

Caring for Your Device

As with any electronic device, the MiFi 2200 device must be handled with care to ensure reliable operation. Novatel Wireless recommends the following handling guidelines:

- Do not apply adhesive labels to the MiFi 2200 device; they may cause the device to potentially overheat and they may alter the performance of the antenna system.
- The USB connector should plug easily into your computer's Type A USB port. Forcing the device into a port may damage the connector.
- Protect the MiFi 2200 device from liquids, dust, and excessive heat.
- Store the MiFi 2200 device in a safe place, when not in use.

Power Management

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

- Battery — The battery will last for up to four hours. Charge the battery by plugging in the AC adapter. While the battery is charging the Power Button LED will be solid amber. When the battery is fully charged, it will be solid green.
- Wall power — Use the device by plugging it into a wall socket. The MiFi device battery will charge while it is plugged in.
- USB power from a computer — Use the device as a USB modem while plugged into the USB port of a computer using the supplied USB cable. The battery will charge while it is plugged in. Charging the battery through the USB port is slower than charging it with AC power.

NOTE You cannot use the MiFi device in Wi-Fi mode while it is plugged into a USB port.

Battery Tips

WARNING! To avoid risk of explosion, never dispose of batteries in a fire.

- Battery life depends on the network, signal strength, temperature, features, and accessories used.
- Always use Novatel Wireless original batteries and chargers. The warranty does not cover damage caused by non-Novatel Wireless batteries and/or chargers.
- 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 -10°C (14°F) or above 45°C (113°F). Never leave the device in an unattended vehicle since temperatures may be outside the temperature range for this device.
- 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.
- Some batteries perform best after several full charge/discharge cycles.

Before using the MiFi 2200 device, read the battery safety information in the "Safety Hazards" section of this guide. [See Proper Battery Use and Disposal (page 63).]

Using the microUSB Cable

Properly Connect the MiFi 2200 device with the microUSB Cable

1. Grip the MiFi 2200 device by its sides and gently insert the USB Cable into the microUSB port.
2. Insert the other end of the cable in a Type A USB port. The cable should fit easily into the USB port.

The following occurs:

1. The status icon appears in the system tray/notification area (Windows) or in the menu bar (Mac).
2. The MiFi 2200 device is powered on automatically and begins charging.

IMPORTANT The recommended minimum distance between you and the device is 8 inches. Extend the microUSB cable so the MiFi device is at least 8 inches from your body.

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Using Your MiFi 2200 Device

Using Your MiFi Device for the First Time
Connecting in Wi-Fi Mode

Using Your MiFi Device for the First Time

IMPORTANT The MiFi 2200 device requires an activated account with a network operator in order to function.

Inserting and Charging the Battery

NOTE The battery should be fully charged before using the MiFi 2200 device for the first time.

❶ Open the battery compartment, located on the bottom of the device.

❷ Insert the battery by lining up the gold contact points on the battery with the gold contact points in the battery compartment.

❸ Once the battery is secure, place the battery cover back on the device until it locks into place.

❹ Connect the microUSB end of the AC wall charger to the microUSB port of the device as shown.

❺ Plug the other end of the AC wall charger into the appropriate electrical outlet. Charge for at least two and a half hours.

CAUTION! Use only an approved charging accessory to charge your device. Use of an incompatible charger may cause damage to your device and void the warranty.

Tip! The default SSID for your MiFi device is MiFi2200 xxxx Secure. Your SSID and Network Key (11-digit number) will be printed on the back of your device. (The 'xxxx' are the last four characters of your MiFi device's MAC address.)

Powering the MiFi 2200 device On and Off

To power the device on:

➤ Press the Power button until the Power LED lights up solid green.

To power the device off:

➤ Press and hold the Power button until the Power LED shuts off.

Connecting in Wi-Fi Mode

Tip! The default SSID for your MiFi device is MiFi2200 xxxx Secure. Your SSID and 11-digit Network Key are printed on the back of your device. (The 'xxxx' are the last four characters of your MiFi device's MAC address.)

❶ Use the Wi-Fi manager on your computer to select your **MiFi device's MiFi2200 xxxx Secure** network name (SSID).

❷ Click **Connect**.

❸ Enter your 11-digit password when prompted for a security key.

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 (often in the Windows notification area or System Preferences > Network on a Mac) where you can select "View Available Wireless Networks." If you are unfamiliar with wireless networking on your computer, consult the computer help system.

If this is your first time connecting to the MiFi 2200 device, continue with these steps.

❹ From your computer's Web browser, enter **http://mifi.admin** into the address window and press the **Enter** or **Return** key.

Tip! You can use any one of these addresses:
http://mifi.admin
http://admin.mifi
http://192.168.1.1

❺ Enter the default login password "admin" when requested.

❻ Follow the directions on the screen.

IMPORTANT Be sure to record the new administrative password and any network changes that you make.

---

❼ After you click **Finish**, your MiFi device will restart. If your network does not reconnect automatically, reconnect using your Wi-Fi manager.

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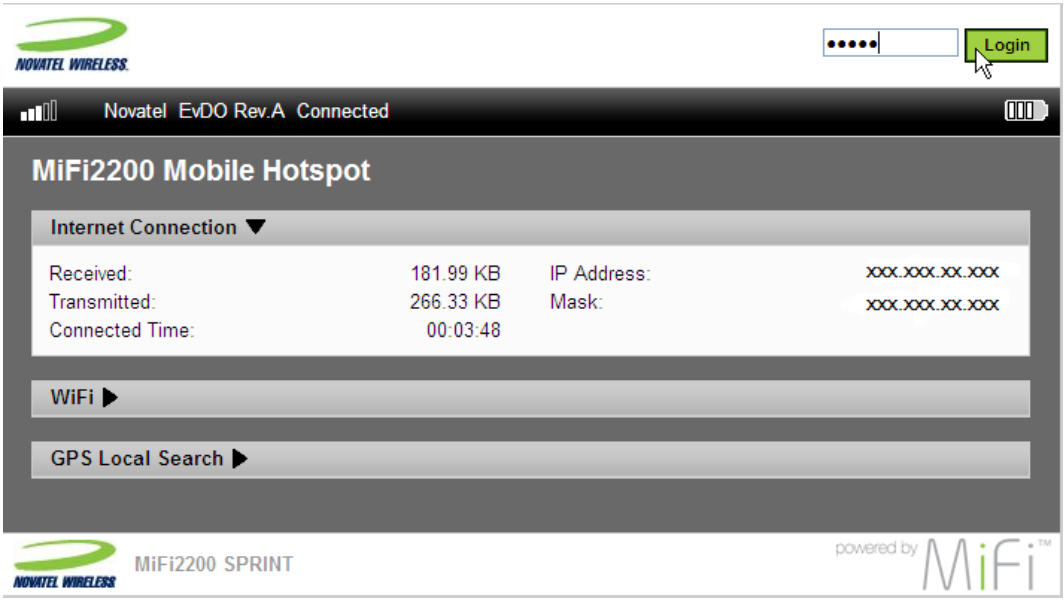
MiFi Device Settings

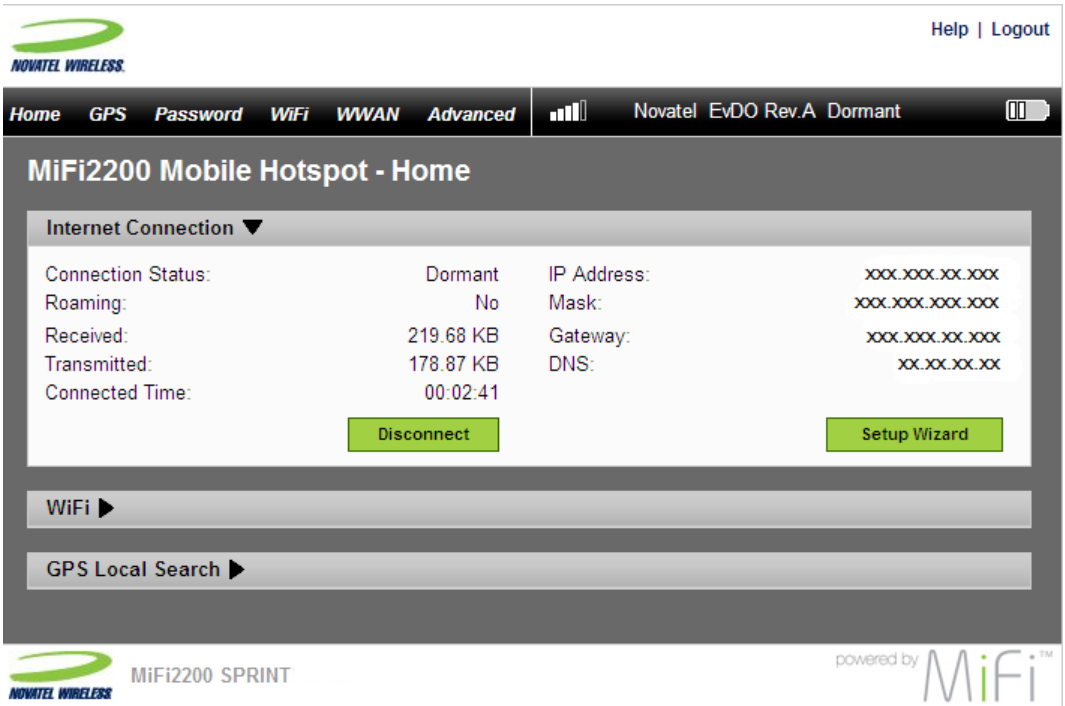
MiFi Device Settings Basics
Home Page
GPS
Password Settings
Wi-Fi Menu
WWAN Menu
Security
Advanced

Open the MiFi Device Settings

1. Open your Web browser and enter **http://mifi.admin** into the address window.
2. Type the administrative password into the Login box in the upper right corner and click **Login.**



The Home page will open.



The Home Page

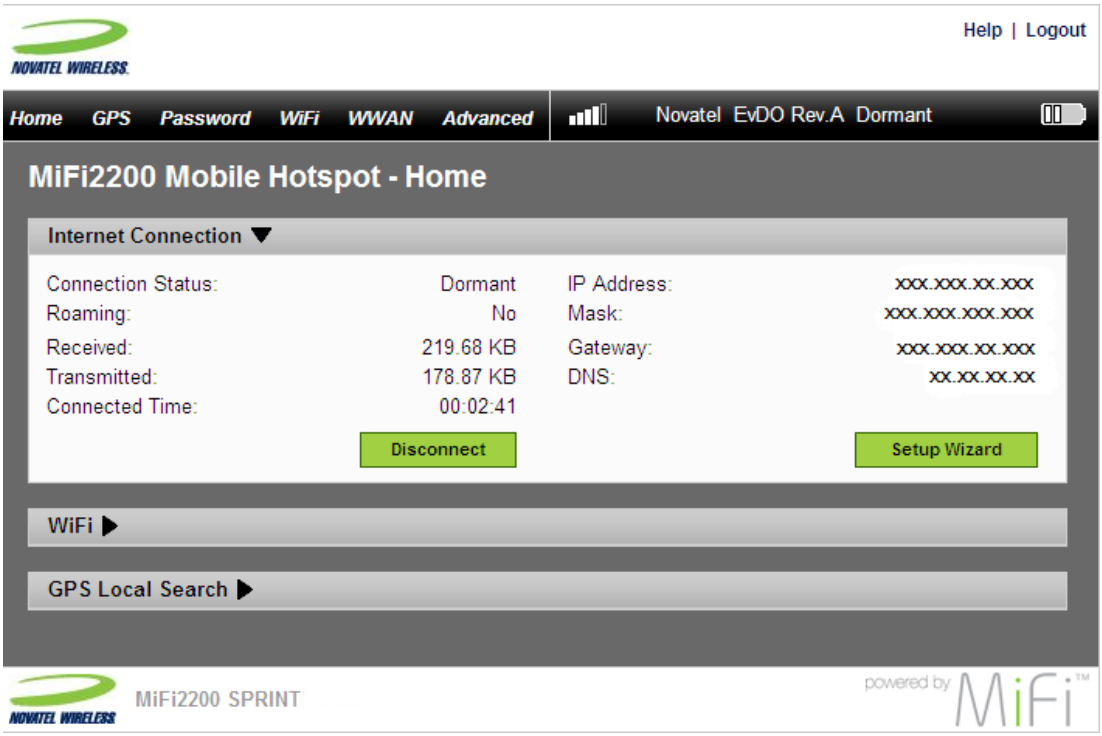
The Home page is the first screen you see after logging in to the browser interface. It is the main point of entry for all your work in the browser interface.

The Menu Bar

The menu bar runs horizontally along the top of the MiFi device Settings interface. Besides allowing you to select menu items, the menu bar also displays information about your MiFi device's connection strength and battery level.

Home Page Sections

The Home page is divided into three sections that you can expand or collapse. Click the solid black pointer next to the section title to expand or collapse that section.



Internet Connection

The Internet Connection section tells you:

- Your connection status.
- Whether or not you are roaming.
- The number of bytes received and transmitted.
- The duration of the current connection.
- The IP address of and subnet mask for your MiFi device.

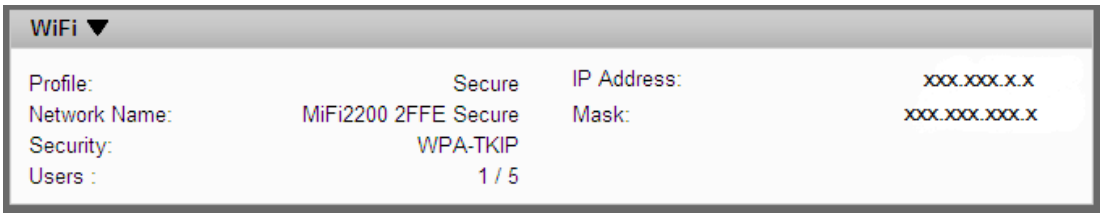
Connect / Disconnect Button

Click **Connect** or **Disconnect** to connect or disconnect from the network.

Setup Wizard Button

Click **Setup Wizard** to change the administrative password or your Wi-Fi security settings without needing to navigate through the menus.

Wi-Fi



The Wi-Fi section tells you:

- The profile currently in use.
- The network name (also known as the SSID).
- The security method in use.
- The number of users currently connected to your MiFi device.
- The IP address of and subnet mask for the wireless browser interface.

To change Wi-Fi settings, use the Wi-Fi menu. [See Wi-Fi Menu (page 25).]

GPS Local Search

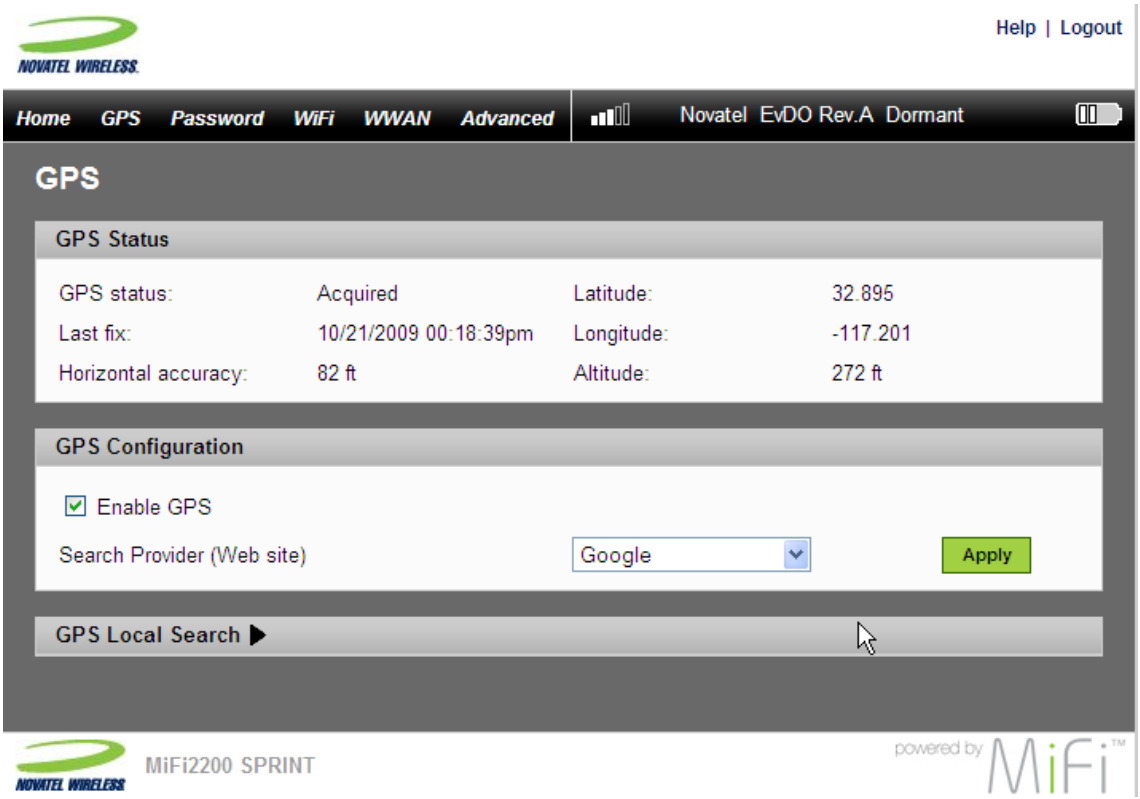
[See GPS Local Search (page 23.)]

GPS

GPS settings allow you to enable and configure GPS searching for your MiFi device.

GPS Page Sections

The GPS page is divided into three sections. You can expand or collapse the third section. Click the solid black pointer next to GPS Local Search to expand that section.

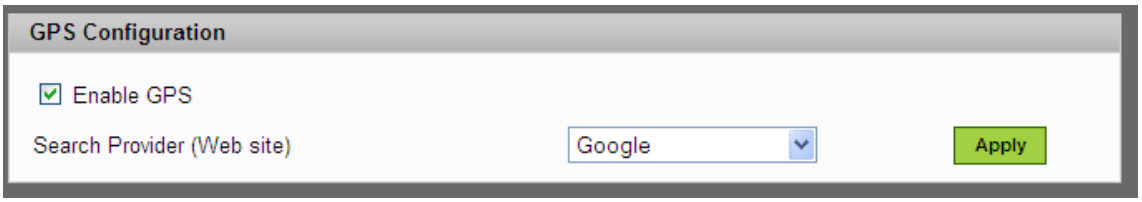


GPS Status

Once a location fix has been made, the GPS Status section of the GPS page gives you the following information:

- Last fix — date and time of last fix
- Horizontal accuracy — a measure of how close an estimate of a GPS position is to the true location
- Latitude
- Longitude
- Altitude

GPS Configuration



Use this section to configure the GPS settings.

1. Select the **Enable GPS** check box to turn on GPS.
2. In the Search provider list, select a search provider.
3. Click **Yes** to accept the GPS privacy agreement.
4. Click **Apply** to confirm the settings.

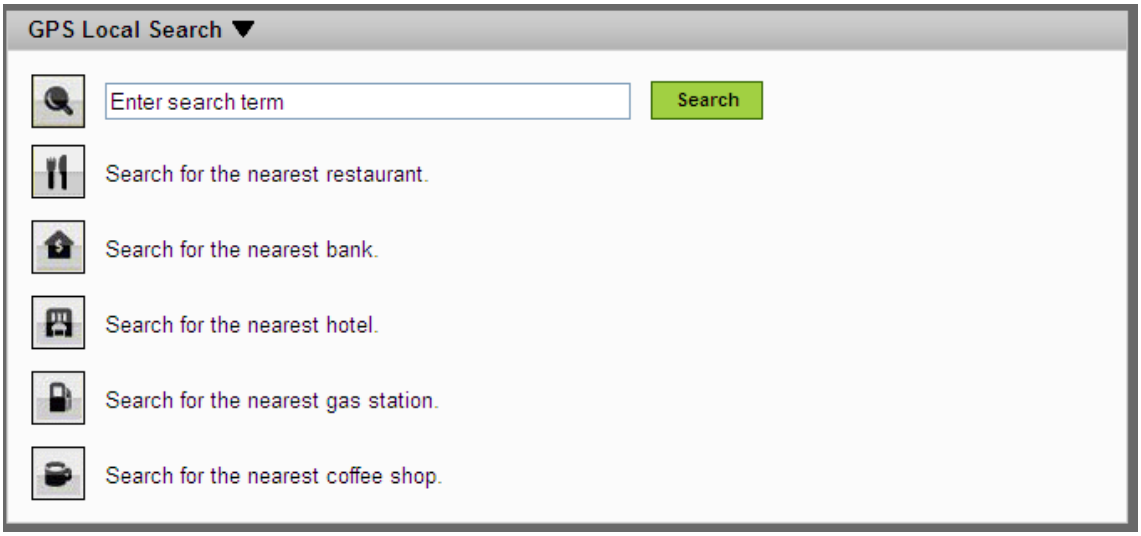
GPS Local Search

Once the GPS status changes from "Searching" to "Acquired," you can search for restaurants, banks, hotels, gas stations, coffee shops or a specific address.

➤ Click the button next to the type of business you want to search for.

– or –

➤ Enter a business name or an address in the search box and click **Search.**



Tip! If the GPS status does not change to Acquired, try moving the device close to a window or outdoors.

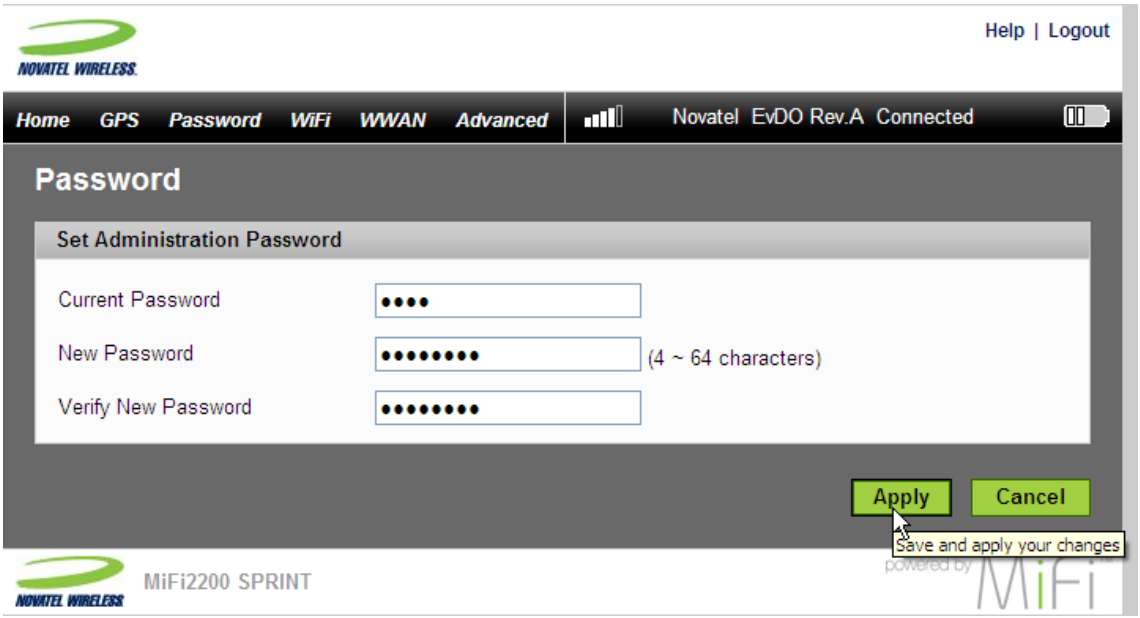
Password Settings

Password settings allow you to change the administrative password that gives access to the browser interface.

IMPORTANT Record your administrative password. If you forget it, you will have to reset your MiFi device before you can use the MiFi device Settings interface again.

Create a New Administrative Password

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

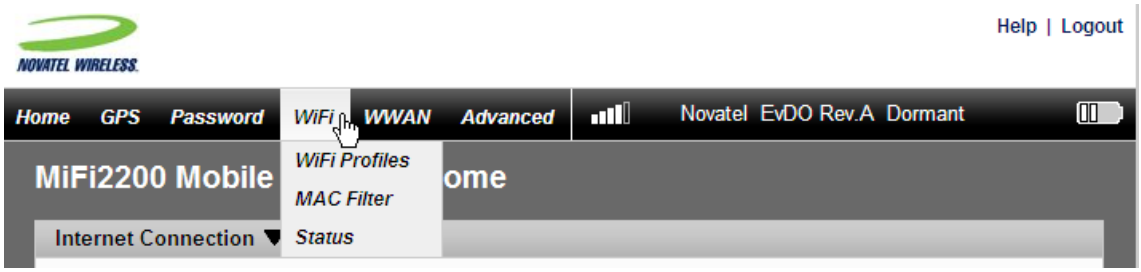


Wi-Fi Menu

The Wi-Fi menu allows you to work with profiles, set up a temporary hotspot, set MAC filters, and view status information for the Wi-Fi network.

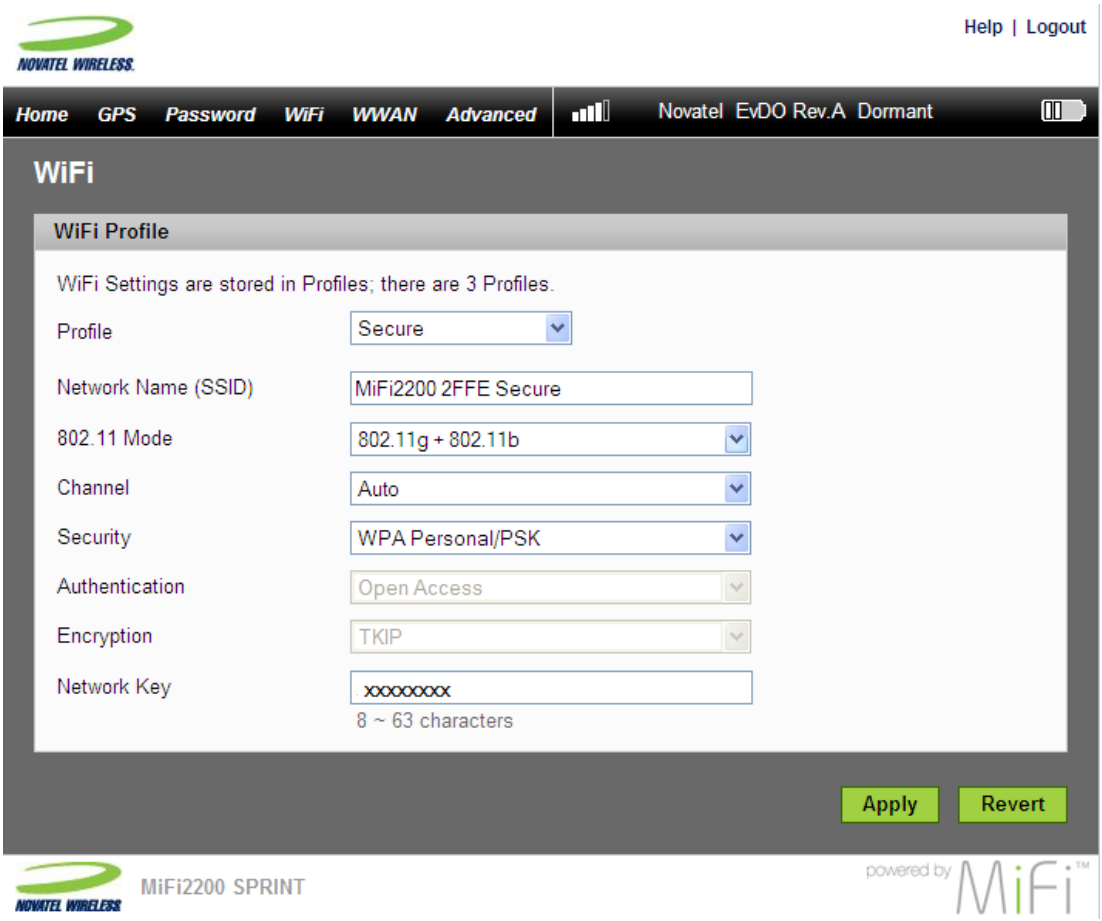
The Wi-Fi menu has three components:

- **Wi-Fi Profiles** — to view or change settings for your secure profile or to set up a temporary hotspot.
- **MAC Filter** — to allow only certain devices to connect to your MiFi device.
- **Status** — to view profile information, see who is connected to your MiFi device, and view the Wi-Fi log. You can also retrieve your network key from this page.



Wi-Fi Profiles

Click **Wi-Fi Profiles** on the Wi-Fi menu to configure your secure profile or set up a temporary hotspot.



The Wi-Fi Profile page displays the following information:

- Profile — The profile currently being used. [See Choosing a Profile (page 27.)]
- Network Name (SSID) — Name of the network you are connected to. You can change the name to something more descriptive if you want, or if other devices are in use within range of yours. Some examples of network names would be:
  - Secure — MiFi2200 754B Secure
  - Open — MiFi2200 754B
  - Temporary Hotspot — MiFi2200 754B Temp
- 802.11 Mode — The type of wireless networking you are currently using. The available modes are:
  - 802.11g+802.11b
  - 802.11g
  - 802.11b

- Channel — The radio channel that the device is using. This should be usually set to Auto (default) and left unchanged. Available channels are 1 through 11.
- Security — The type of security the profile is using. This applies to the secure and the temporary hotspot profiles. [See Setting Security (page 27).]
- Authentication — Locked to Open Access for all profiles.
- Encryption — Displays the type of encryption for the security type in use.
- Network Key — Passcode or password used to access the network. The required format varies by type of security.

Choosing a Profile

➤ Select a profile from the Profile list:

- 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 MiFi device safely.
- Temporary Hotspot — This profile allows you to set up a secure temporary hotspot to allow others in your work area (maximum of five) to go online at the same time.
- Open — This profile does not require a password to connect to your MiFi device. Any user who can see your network name (SSID) can connect to your MiFi device.

Setting Security

You can use WEP (64- or 128-bit), WPA Personal/PSK, WPA2 Personal PSK, or WPA/WPA2 Mixed Mode security.

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. Then you can reconnect using the new network name.

IMPORTANT Record your network key.

1. From the Wi-Fi Profile page, select **Secure** as the Profile.
2. Select a security protocol from the Security list. (The Encryption box displays the corresponding encryption level.)
3. Enter a new network key in the Network Key box. (Permissible characters are listed in gray just under the box.)
4. Click **Apply.** Your device will restart, and you must reconnect to your wireless network using the new network key.

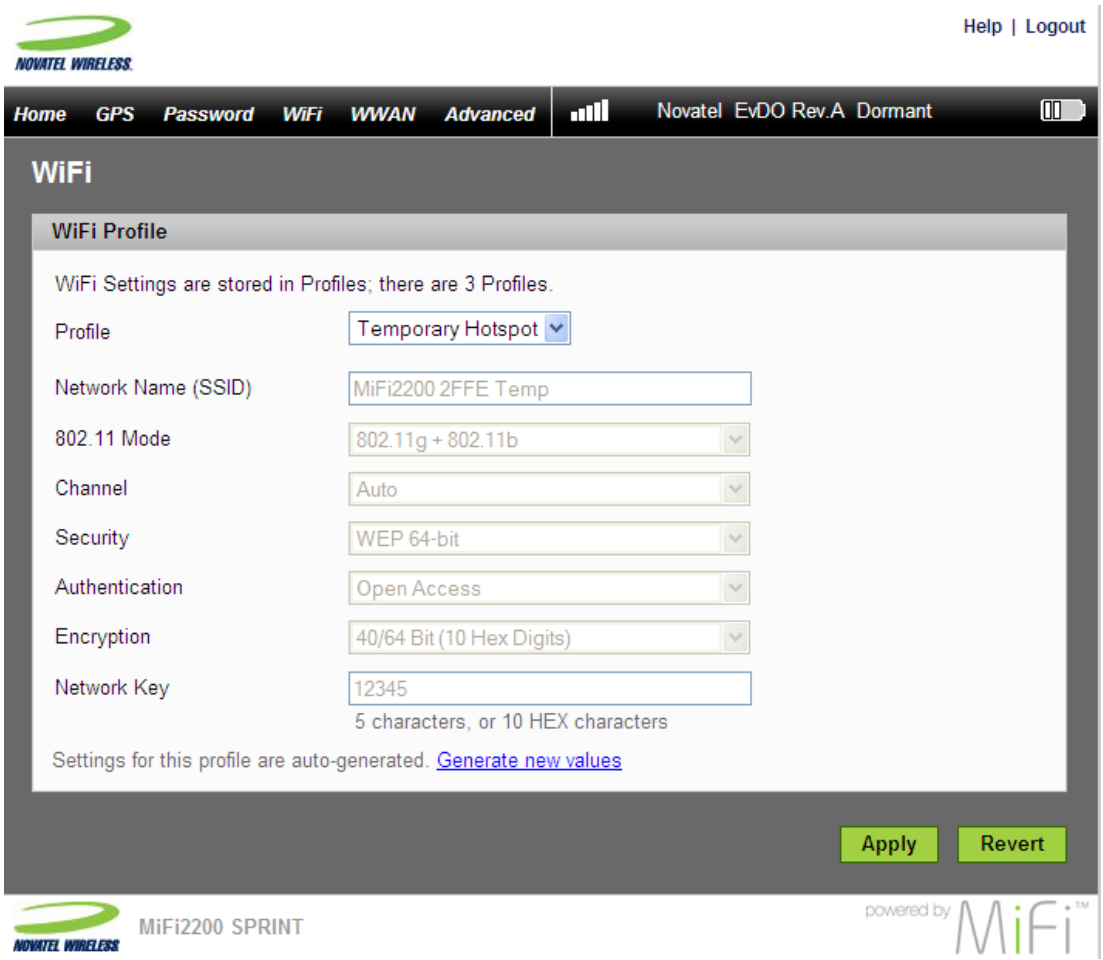
Setting Up a Temporary Hotspot

You can use this profile to create a secure temporary hotspot to allow a maximum of five connections to your MiFi device at one time.

This profile generates a temporary network name and network key that you can use to allow others to connect to your MiFi device without your having to change the security settings on your secure profile.

To set up the temporary hotspot.

❶ From the Wi-Fi Profile page, select **Temporary Hotspot** as the profile.



You will see a new (temporary) network name (SSID) and network key. In the example shown above, the temporary network name is "MiFi2200 2FFE Temp" and the temporary network key is "12345."

❷ Click **Apply.** Your device will restart, and you must reconnect to your wireless network with the temporary network name and network key.

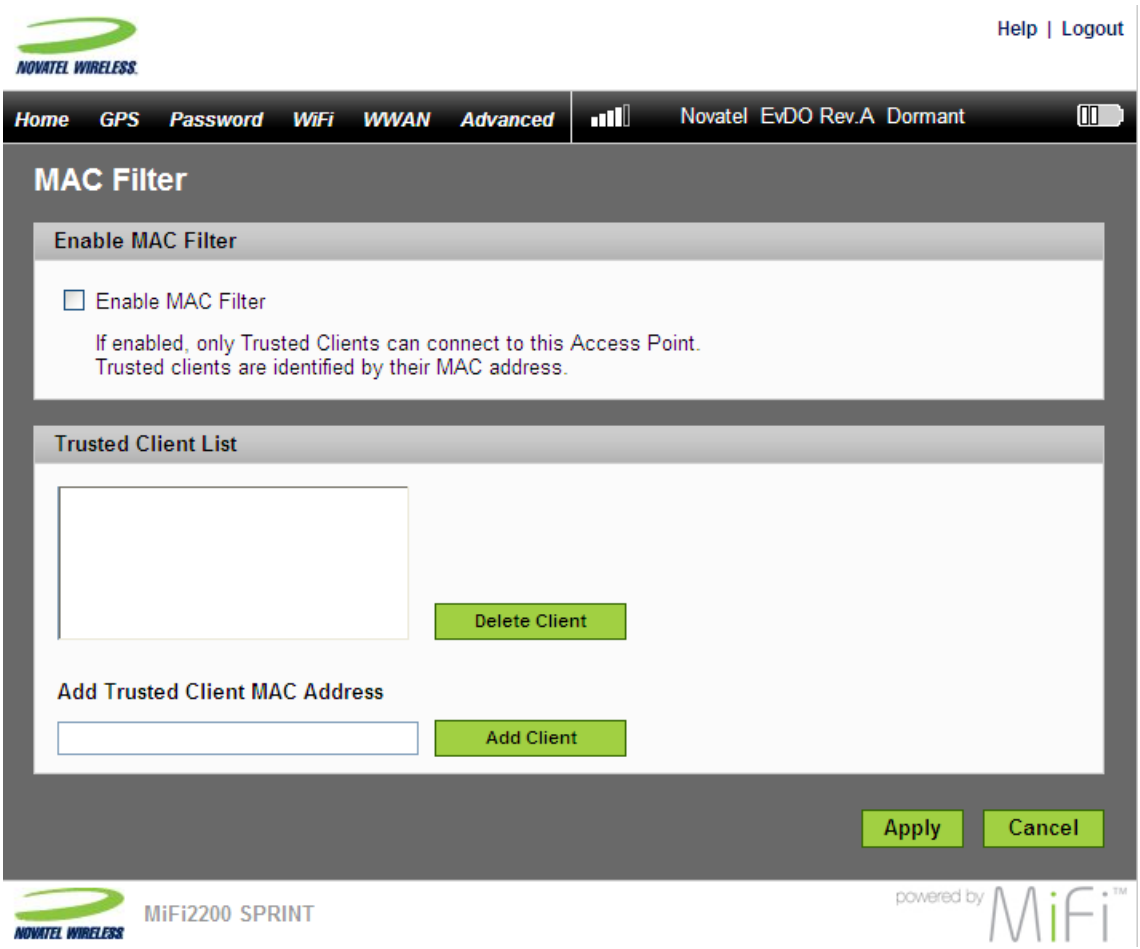
Members of your workgroup can now use the temporary network name and network key to connect to your device.

Tip! Click "Generate new values" to create a new network name and network key.

MAC Filter

MAC filtering allows you to limit access to your MiFi device to only those devices with a specified MAC address (a unique code assigned to hardware such as network adapters).

The MAC Filter page allows you to enable or disable MAC filtering and to add or delete MAC addresses from the trusted client list.



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

Finding the MAC Address

The 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 your MiFi device in the Wi-Fi Clients section of the Wi-Fi Status page. [See Wi-Fi Clients (page 32).]

- On a Windows machine, you can find the MAC address by running "ipconfig /all" from the Command Prompt window. The MAC address is referred to as the Physical Address. (Select **Start > All Programs** (or **Programs**) **> Accessories > Command Prompt** to open the Command Prompt window.)
- On a Mac, open **System Preferences > Network.** In the Show list, click **Airport.** The MAC address is the Airport ID.

IMPORTANT Make sure you get the MAC address for the wireless network adapter and not the Ethernet controller (NIC) if the machine has both.

Using MAC Filtering

1. From the MAC Filter page, type the MAC address for your computer into the Add Trusted Client MAC Address box and click Add Client. You can use either ":" or "-" as the separator (for example, **00:21:9B:1C:64:34** or **00-21-9B-1C-64-34**).

   Tip! You can cut-and-paste your computer's address from the Wi-Fi Clients section of the Wi-Fi Status page. [See "Wi-Fi Clients" (page 33).]

2. If desired, type the MAC address for other computers into the Add Trusted Client MAC Address box and click **Add Client.**
3. Select the Enable MAC Filter check box and click **Apply.**

Status

Wi-Fi Status provides you with information about your wireless network.

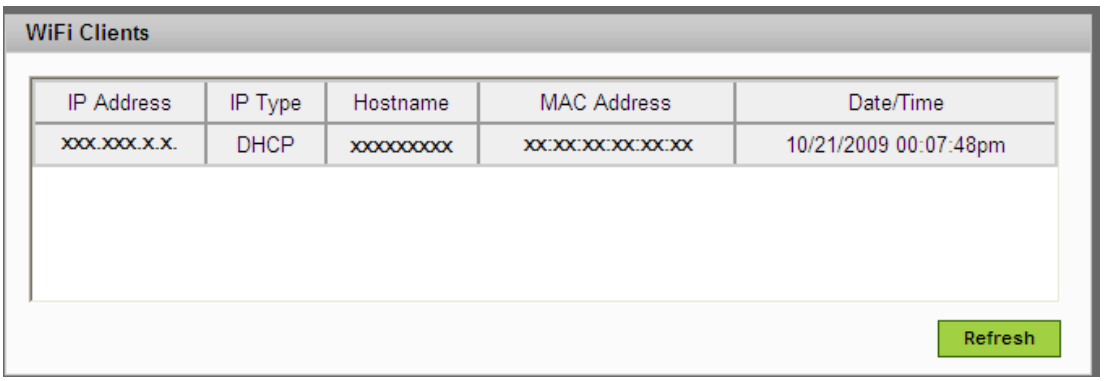
The Wi-Fi Status page is divided into three sections.

Wi-Fi Network

The Wi-Fi Network section of the Wi-Fi Status page displays the following information:

- Profile currently in use.
- Network Name (SSID) for your MiFi device.
- Number of clients currently connected.
- Maximum number of clients allowed to connect to your MiFi device. You can select the maximum number of connections in the Clients Allowed box.
- Channel being used.
- Current wireless mode.
- Security type and encryption for the current profile.
- Network Key link. (Click to retrieve the network key.)

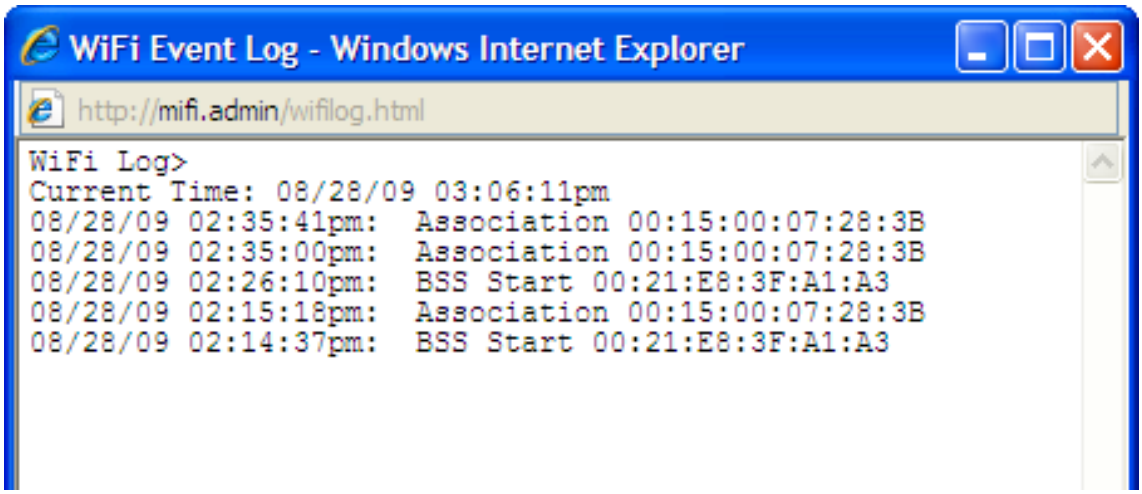
Wi-Fi Clients



The Wi-Fi Clients section of the Wi-Fi Status page shows the clients that are currently connected to your MiFi device. This is another way you can find the MAC address for a particular device.

Wi-Fi Log

► Click the **Wi-Fi Log** button to view a listing of Wi-Fi events (most recent first).



WWAN Menu

The WWAN menu allows you to update your Preferred Roaming List (PRL), displays information about your network connection, and provides tools for technical support.

The WWAN Menu has three components:

- **Configuration** — use to reactivate your MiFi device, update your PRL, or update the firmware of your MiFi device.
- **Diagnostics** — use to view the status of your connection to the network, view information about your MiFi device, or view an event log about your connections to the network.
- **Status** — use to view information about your internet connection, to view traffic counters, or to view an Internet connection log.

Configuration

Click **Configuration** in the WWAN menu to reactivate your MiFi device, update your PRL, or update the firmware of your MiFi device.

Select from the following options on the WWAN Configuration page:

➤ Click **Activate Device** to reactivate your MiFi device for use on the network.

➤ Click **Update PRL** to update your provider's Preferred Roaming List.

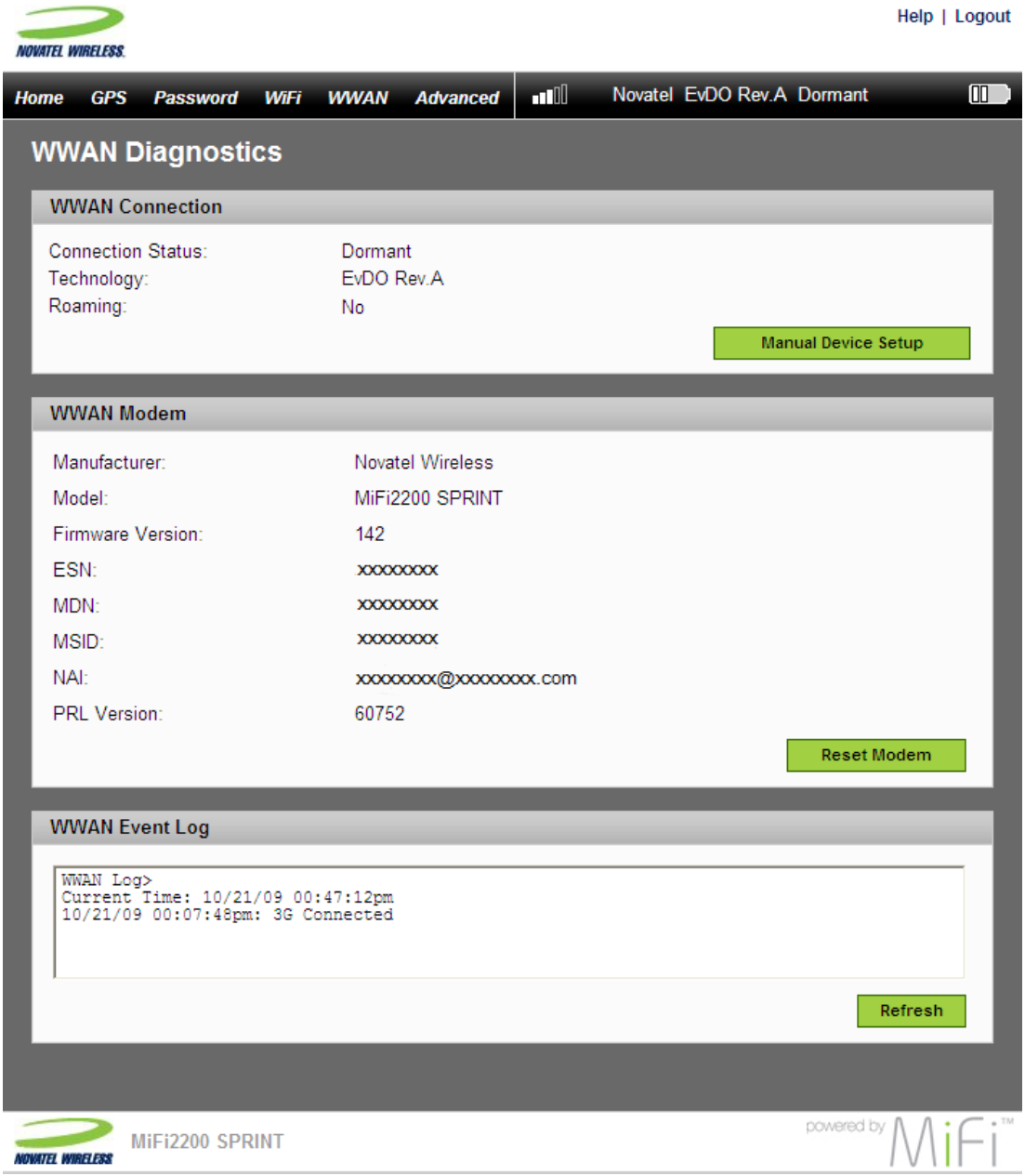
Tip! You should update your PRL about every three months to make sure you have the latest enhancements from your provider.

➤ Click **Update Firmware** to update your MiFi device's internal software (firmware).

WARNING If technical support instructs you to upgrade the firmware, be very careful not to turn off the device while the upgrade is in progress. It may take several minutes to contact the server and complete the update after the device power cycles. Do not turn the unit off for at least five minutes after the power cycles.

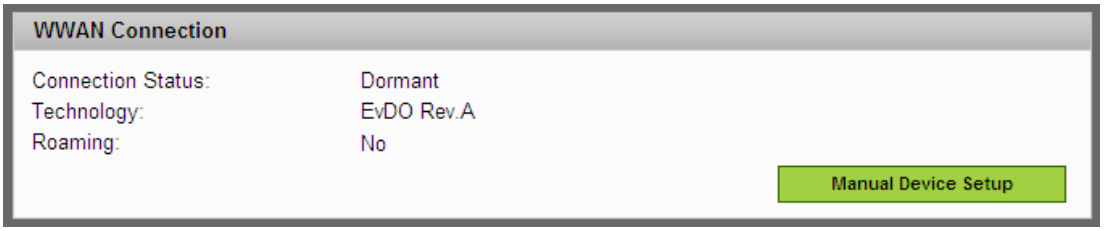
Diagnostics

Click Diagnostics in the WWAN menu to access status information about your Internet connection and MiFi device.



The WWAN Diagnostic page is divided into three sections.

WWAN Connection



The WWAN Connection section displays the following information:

- Connection status:
  - Active — connected and transmitting data
  - Dormant — connected but not transmitting data
  - Disconnected — not connected to the network
- Type of network (technology) you are connected to.
- Roaming status.

IMPORTANT Do not click **Manual Device Setup** unless you have received an MSL number from technical support.

WWAN Modem

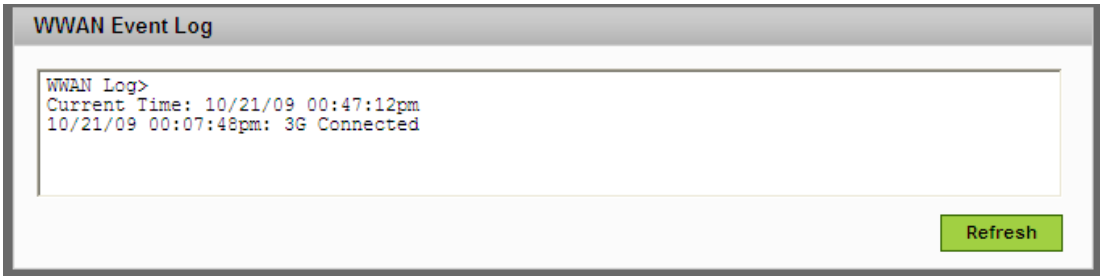
The WWAN Modem section displays the following information:

- Manufacturer — manufacturer of your MiFi device.
- Model — model name or number of your MiFi device.
- Firmware version — current internal software (firmware) version.
- ESN — unique number the network uses to identify your MiFi device.

- MDN — public ID for your specific wireless service.
- MSID — internal ID your network uses to identify your account.
- NAI — address of your MiFi device on the network.
- PRL Version — use to verify that your PRL (preferred roaming list) is the most current.

IMPORTANT Do not click **Reset Modem** unless you have received an MSL number from technical support. **Reset Modem** clears your network account information and will require reactivation of your MiFi device.

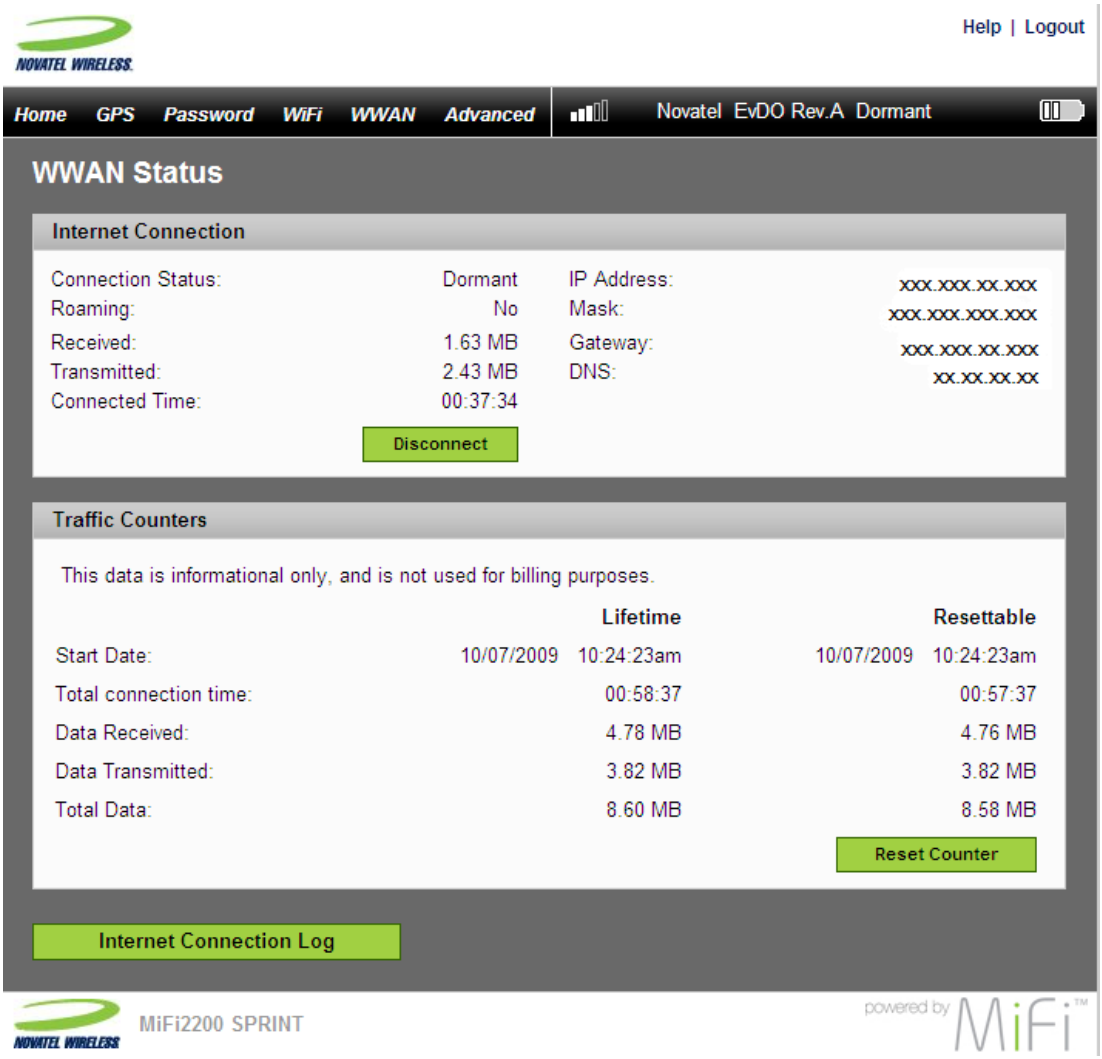
WWAN Event Log



The WWAN Even Log section lists network connection events and times when they occurred. Technical support uses the log as a troubleshooting tool.

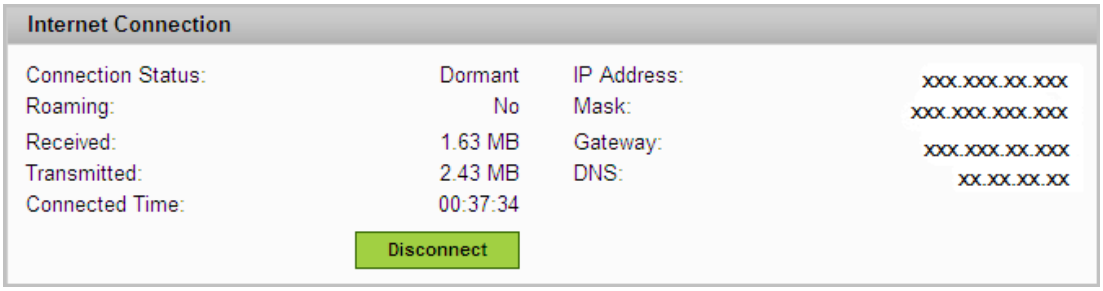
WWAN Status

The WWAN Status page displays information about your internet connection.



The WWAN Status page is divided into three sections.

Internet Connection

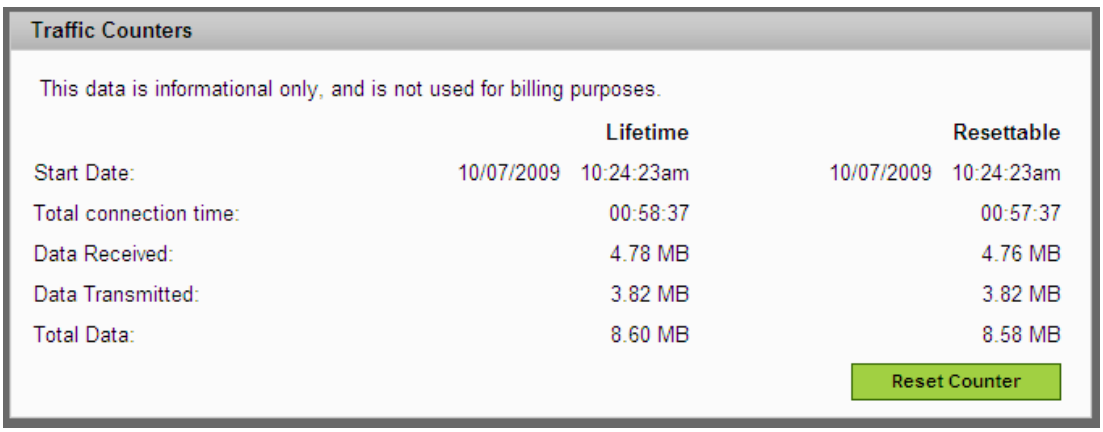


The Internet Connection section displays the following information:

- Status of the connection
- Whether or not your MiFi device is roaming
- Number of bytes received and transmitted
- Duration of the current connection
- Your MiFi device's IP address and subnet mask
- Gateway IP address
- DNS server IP address

➤ Click **Disconnect** to leave the network or **Connect** to rejoin the network.

Traffic Counters



The Traffic Counters section displays the following:

- Date and time connection was made
- Total duration of connection
- Total data bytes received and transmitted, plus the total for both directions

This section displays both a cumulative (lifetime) count and a count for the current session (which can be reset).

► Click **Reset Counter** to set all counts back to zero.

Internet Connection Log

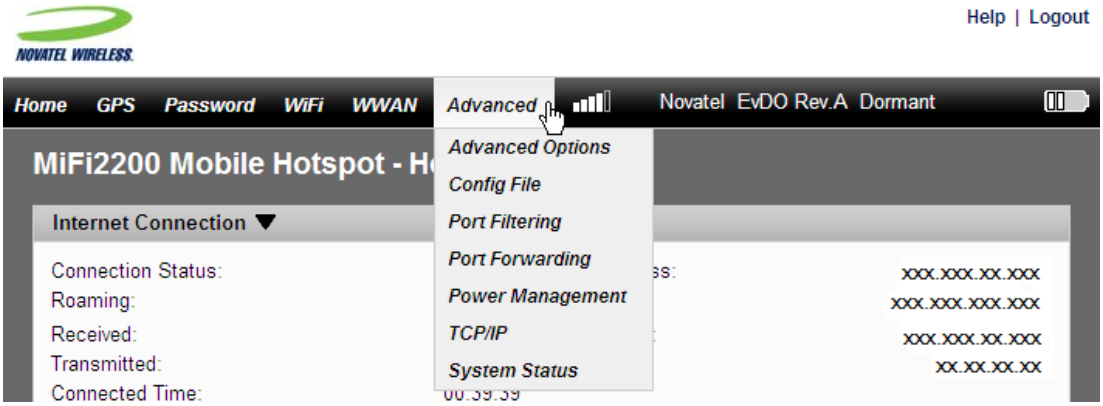
Click **Internet Connection Log** to display a log of outgoing traffic showing these details:

- Date/Time
- Client IP Address (IP address of sender)
- Destination (IP address of recipient)
- Port (computer port through which data was sent)
- Type (connection protocol used)

Date/Time	Client IP Address	Destination	Port	Type
04/16/09 03:35:13pm	192.168.1.2	193.138.220.187	80	TCP
04/16/09 03:35:12pm	192.168.1.2	68.28.58.92	53	UDP
04/16/09 03:35:12pm	192.168.1.2	193.138.220.187	80	TCP
04/16/09 03:35:12pm	192.168.1.2	91.103.67.144	7022	UDP
04/16/09 03:34:41pm	192.168.1.2	193.138.220.187	80	TCP
04/16/09 03:34:39pm	192.168.1.2	68.28.58.92	53	UDP
04/16/09 03:34:12pm	192.168.1.2	193.138.220.187	80	TCP
04/16/09 03:34:12pm	192.168.1.2	68.28.58.92	53	UDP
04/16/09 03:34:11pm	192.168.1.2	193.138.220.187	80	TCP
04/16/09 03:34:10pm	192.168.1.2	68.28.58.92	53	UDP

Advanced Menu

The Advanced menu allows you to back up and restore your configuration, specify router settings such as DHCP, port filtering, and port forwarding, and to customize power management settings.

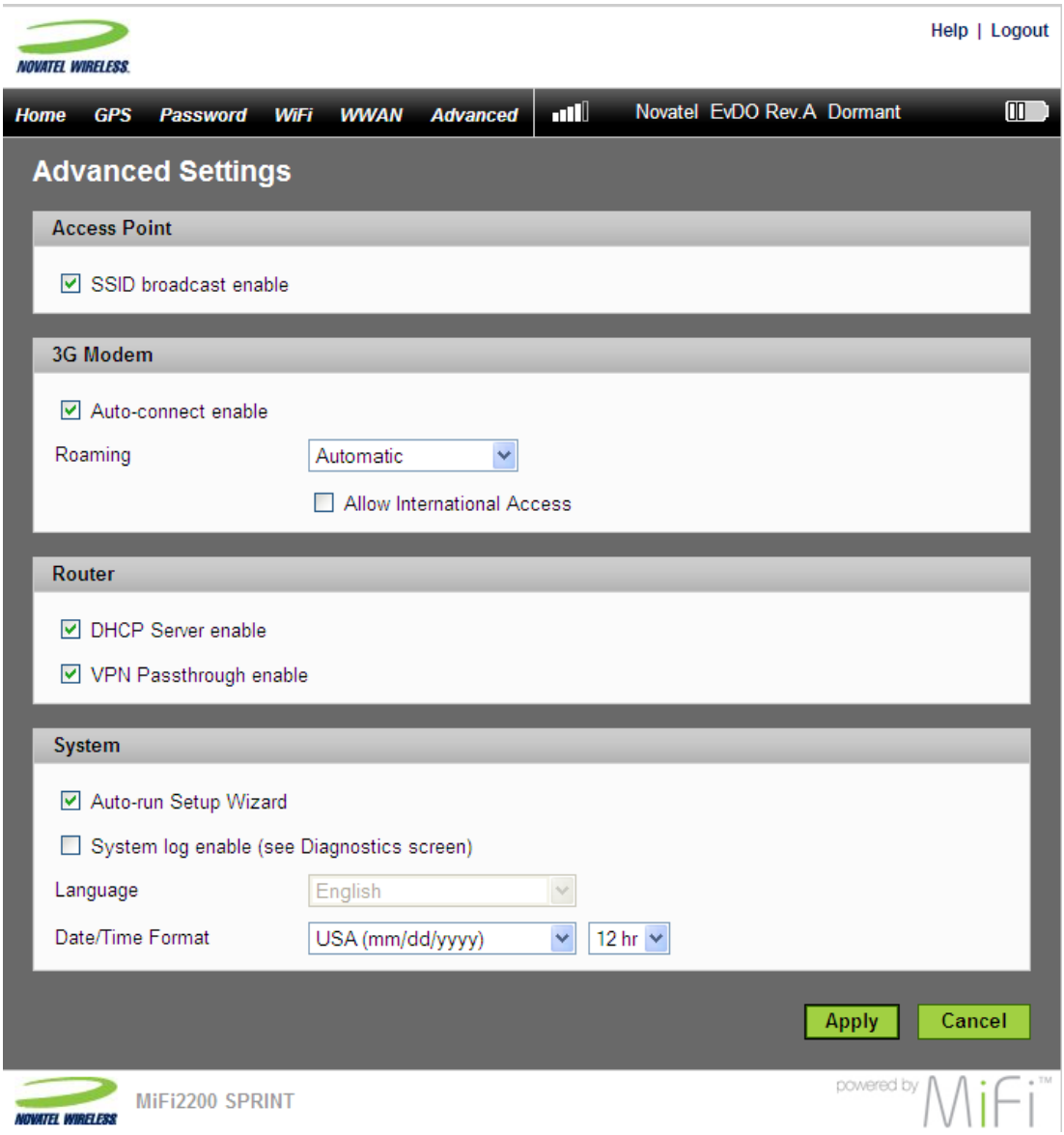


The Advanced menu has seven components:

- **Advanced Options** — use to enable SSID broadcast, auto-connect to the network, DHCP, VPN passthrough, or the system log.
- **Config File** — use to back up or restore a file containing your MiFi device settings.
- **Port Filtering** — use to specify which applications can access the Internet and through which port(s).
- **Port Forwarding** — use to specify which applications can access your computer through the Internet and through which port(s). You might use this if you have an FTP server on your system or play certain online games.
- **Power Management** — use to customize your MiFi device's power-saving settings.
- **TCP/IP** — use to view or change the IP address and subnet mask for your MiFi device, and to view the MAC address and DHCP address range for your MiFi device.
- **System Status** — use to view information about your MiFi device and to view the system log. You can also restart your MiFi device or restore it to its factory default settings.

Advanced Settings

Click **Advanced Options** in the Advanced menu to configure your MiFi device or to enable the system log.



The advanced Settings page is divided into four sections.

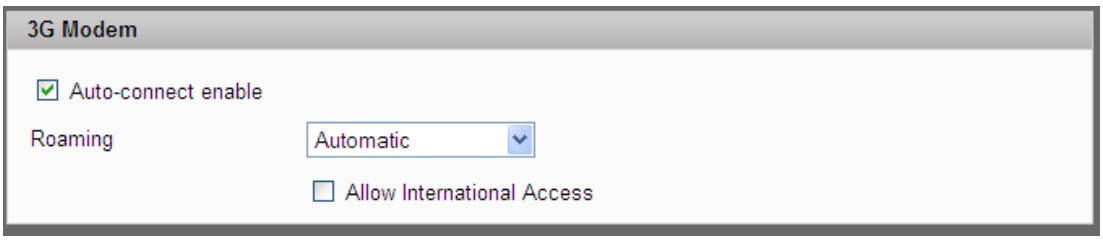
Access Point

Enabling SSID broadcasting allows other nearby computers to see your MiFi device's network name (SSID). This is what you see when you select "View Available Wireless Networks."

Disabling SSID broadcasting provides additional security but you will have to re-enable it if you lose your automatic connection.

► Select the SSID broadcast enable check box to enable SSID broadcasting, or clear the check box to disable SSID broadcasting, and then click **Apply.**

3G Modem



Enabling auto-connect allows your MiFi device to connect to your network automatically when it is turned on.

► Select the Auto-connect enable check box to enable auto-connection, or clear the check box to disable auto-connection, and then click **Apply.**

Enabling roaming allows your MiFi device to continue working even when off your service provider's network. Roaming charges may apply. Three options are available:

- Automatic — allows roaming on other providers' networks.
- Home network only — prevents roaming.

With either of these options set, you can select the Allow International Access check box to allow roaming on networks outside the United States.

► Select an option, then click **Apply**.

Router

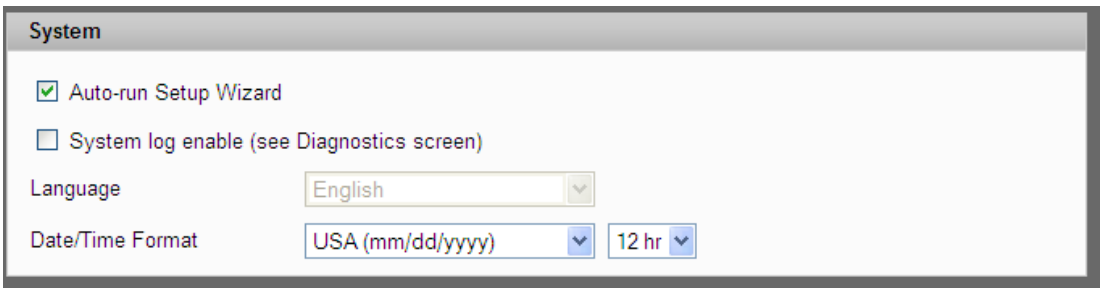
Enabling the DHCP server allows your MiFi device to automatically assign a local IP address to a new device joining your network (such as a wireless printer or an additional laptop). When the DHCP server is disabled, you will have to assign static IP addresses to all devices on your network.

➤ Select the DHCP Server enable check box to enable the DHCP server, or clear the check box to disable the DHCP server, and then click **Apply**.

VPN passthrough is required if you are going to connect to a VPN (such as a corporate system).

➤ Select the VPN Passthrough enable check box to enable VPN passthrough, or clear the check box to disable VPN passthrough, and then click **Apply**.

System



The System section allows you to select your preferred language, date format, and time format, and to turn on the system log.

NOTE You can view the system log from the System Status page (see page 51).

❶ In the Language list, click the language you wish to use. (Currently English is the only option, and this list is disabled (grayed-out).

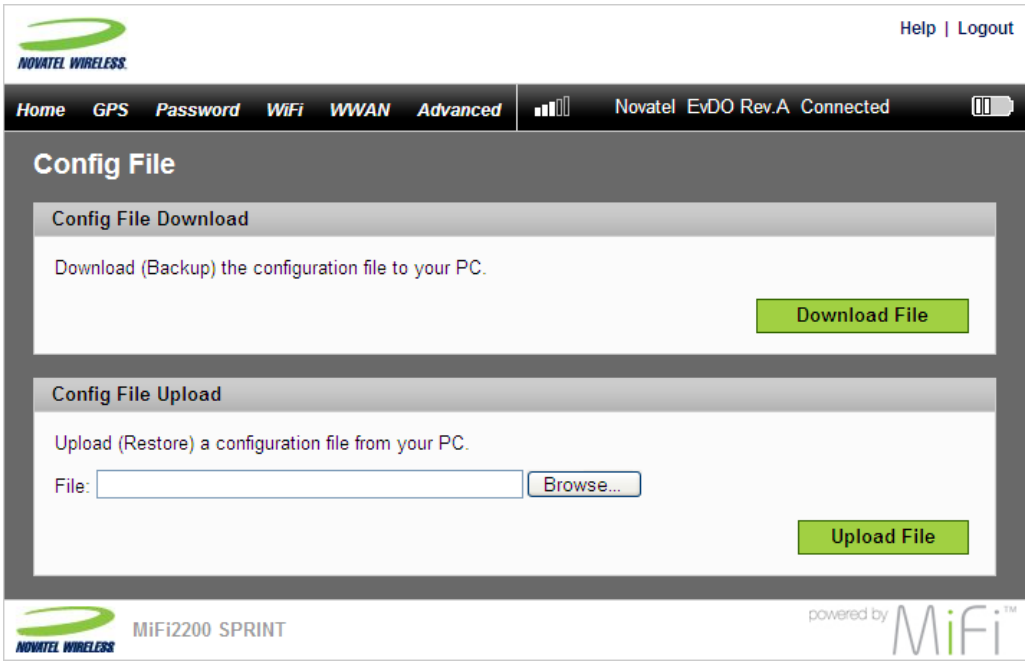
❷ In the Date/Time list, click the date format (U.S. or European) and the time system (12-hr or 24-hr) that you want to use.

❸ Optionally, you can select the System log enable check box if you want to create a system log.

❹ Confirm your selections and click **Apply**.

Config File

Click Config File in the Advanced menu to back up your configuration file (MiFi device settings) to your computer, or to restore a saved configuration file from your computer.



The Config File page is divided into two sections and allows you to back up and restore your MiFi device configuration settings.

Config File Download

Back up your MiFi device settings file to your computer

1. Click **Download File**.
2. Click **Save** to place the file "config.xml.savefile" on your computer. You may rename the file. (If the file opens in your browser instead of downloading, use your browser's File menu to save the file to your computer.)

Config File Upload

Restore your MiFi device settings file to the MiFi device

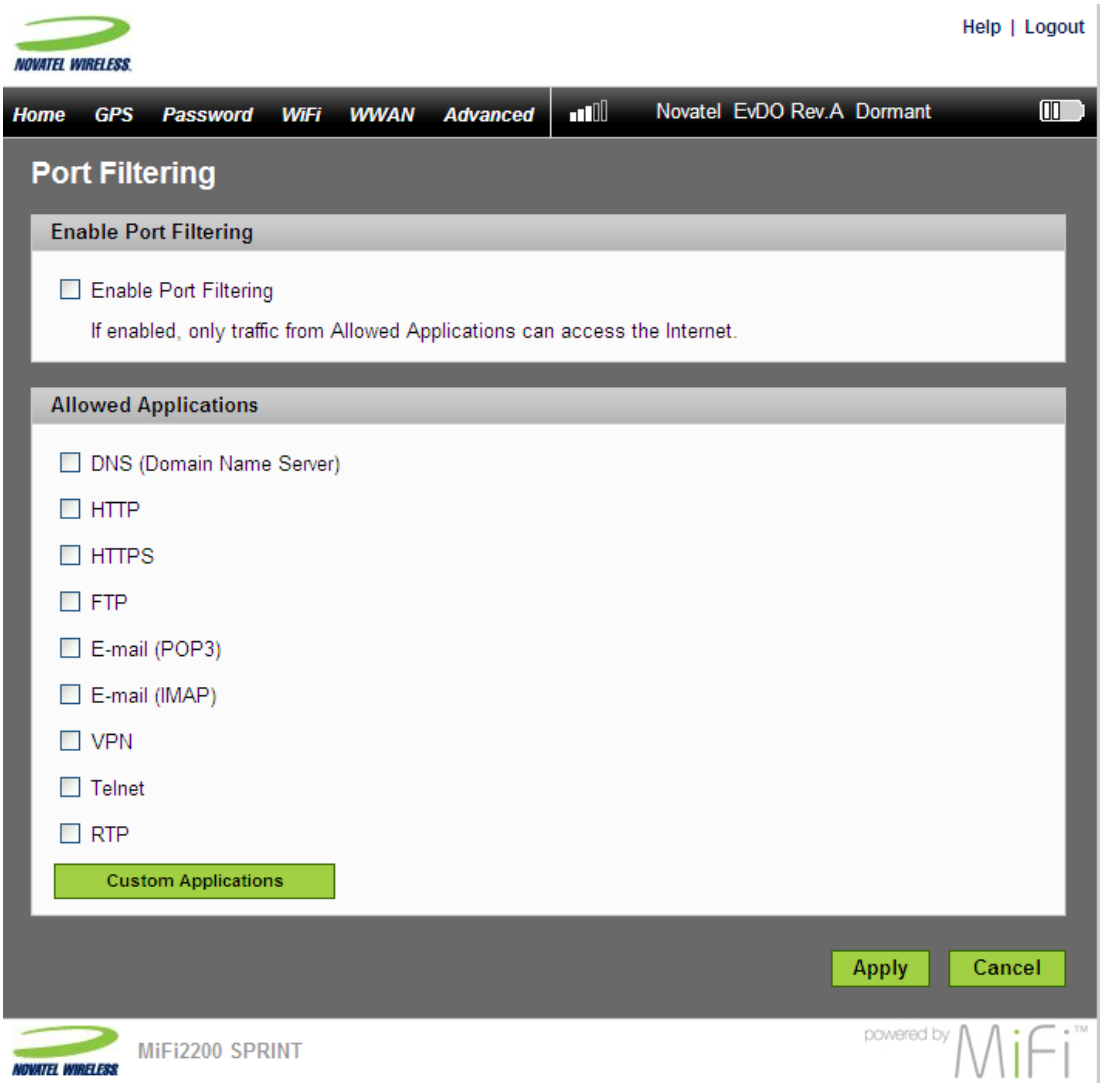
1. Click **Browse** and navigate to the backup file on your computer.
2. Click the file to highlight it and then click **Open**.
3. Click **Upload File**.
4. Click **OK** when the "Upload completed" message appears.

IMPORTANT If your Wi-Fi settings have changed since you created the backup file, you may lose your connection after restoring from the backup file. You will need to reconnect using your new (changed) settings.

Port Filtering

Click Port Filtering in the Advanced menu to enhance the security of your system by controlling which applications are allowed to access the Internet.

Port filtering allows you to conserve bandwidth by preventing non-business applications from accessing the Internet. It can also be used to specifically allow certain applications such as games and video conferencing software to use certain ports to access their online components.



The Port Filtering page allows you to enable port filtering, allow selected applications to access the Internet, and set up custom applications for access to the Internet.

Port Filtering for Standard Applications

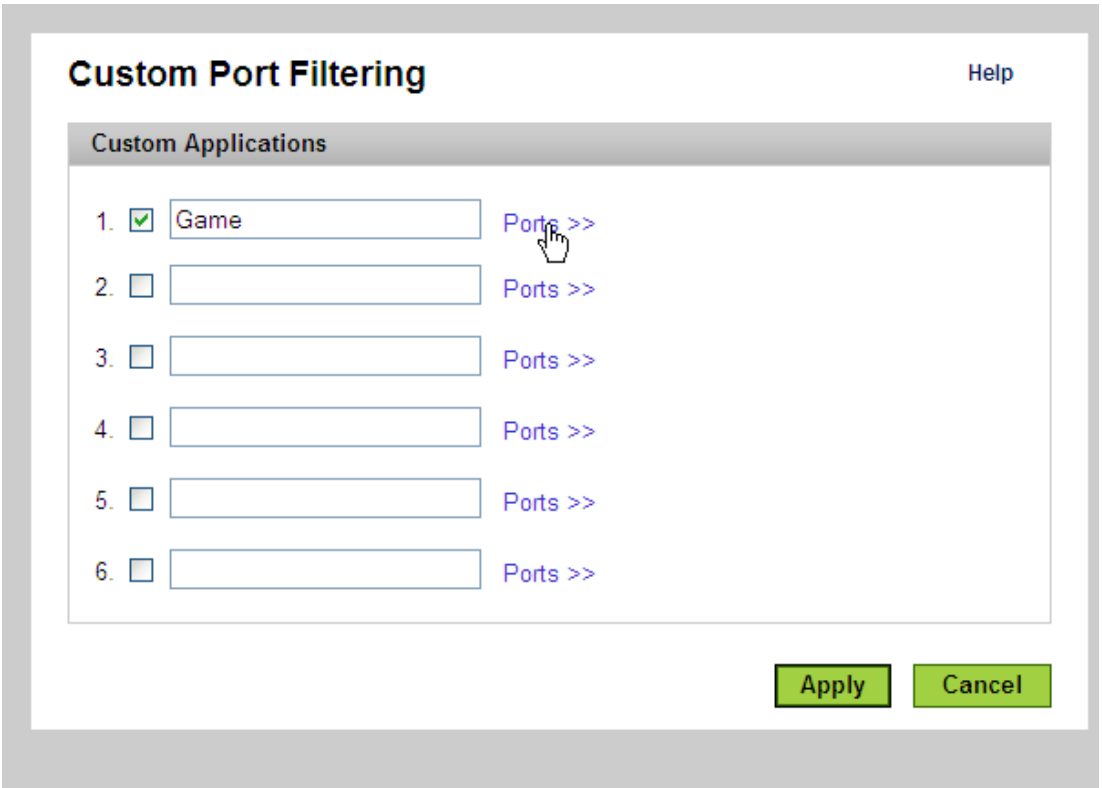
1. From the Port Filtering page, select the Enable Port Filtering check box.
2. Select the check boxes for the applications for which you want to allow access to the Internet.
3. Click **Apply**.

NOTE The MiFi device uses standard ports for these applications. If you have applications that do not use the standard ports or that are not listed under Allowed Applications, use Custom Applications.

Port Filtering for Custom Applications

To set up port filtering for a custom application, you will need to know the port numbers (up to five ports or port ranges) and the protocol (TCP, UDP, or both) the application uses for its outgoing traffic.

1. From the Port Filtering page, select the **Enable Port Filtering** check box.
2. Click **Custom Applications**.
3. Enter a name for the application and click the **Ports** link.



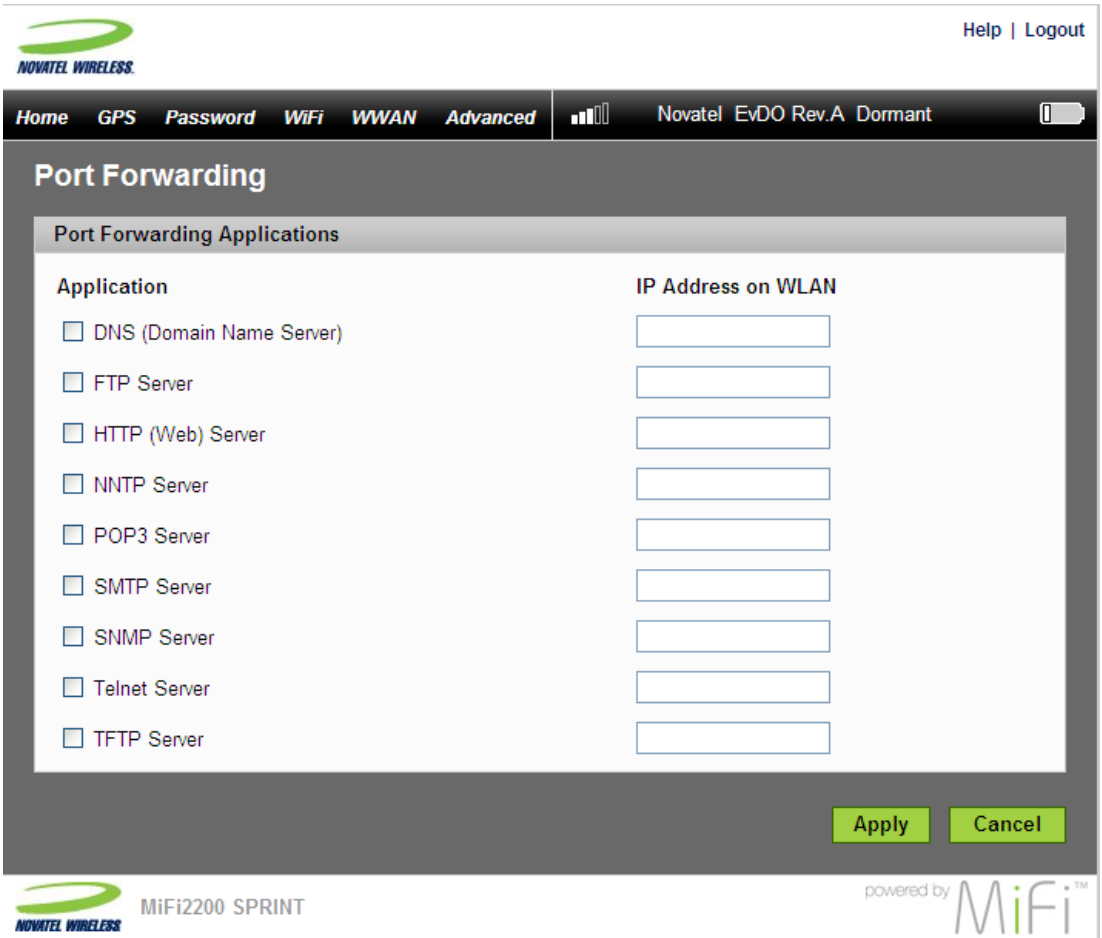
4. Enter the port or port range. You can enter up to five ports or port ranges.
   - Single port — enter the port number in both fields.
   - Port range — enter the beginning port number in the left field and the ending port number in the right field.
5. For each port number or range, select the protocol (TCP, UDP, or both) used by that port or port range.
6. Click **Hide**.
7. Click **Apply**.

Port Forwarding

Port forwarding allows designated users or applications to reach specified servers, such as FTP and DNS servers, on your computer. Also, some online games require incoming access to work properly.

> **IMPORTANT** You will need to set up static IP addresses on your WLAN for each device that has an application to which you want to forward.

The Port Forwarding page allows you to enter the local static IP address for each application that you want to receive traffic from the Internet.



❶ From the Port Forwarding page, select the check box for the application you want to enable.

❷ Type the local static IP address of the device hosting the application into the IP Address on WLAN box.

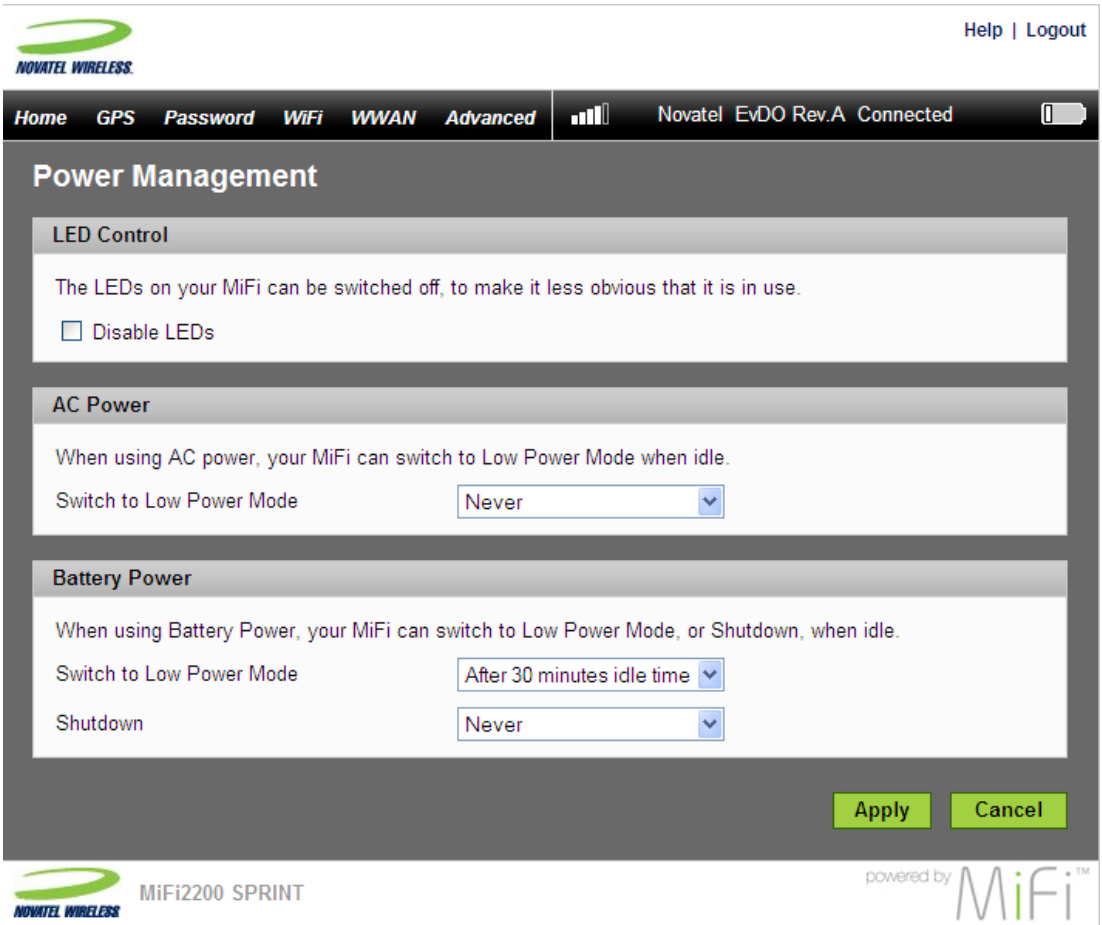
❸ Click **Apply** when you have finished adding applications.

IMPORTANT Port forwarding creates a security risk and should be disabled when not needed.

Power Management

Your MiFi device can switch to a low-power mode when it is idle. The Power Management page allows you to set the maximum time before your MiFi device switches to low-power mode. You can set separate times for AC power and battery power. When your MiFi device is on battery power, you can set the length of time before it shuts down. You can also turn off your MiFi device's LEDs to save additional power.

Use the Power Management page to set how long your MiFi device is idle before it switches to low-power mode.



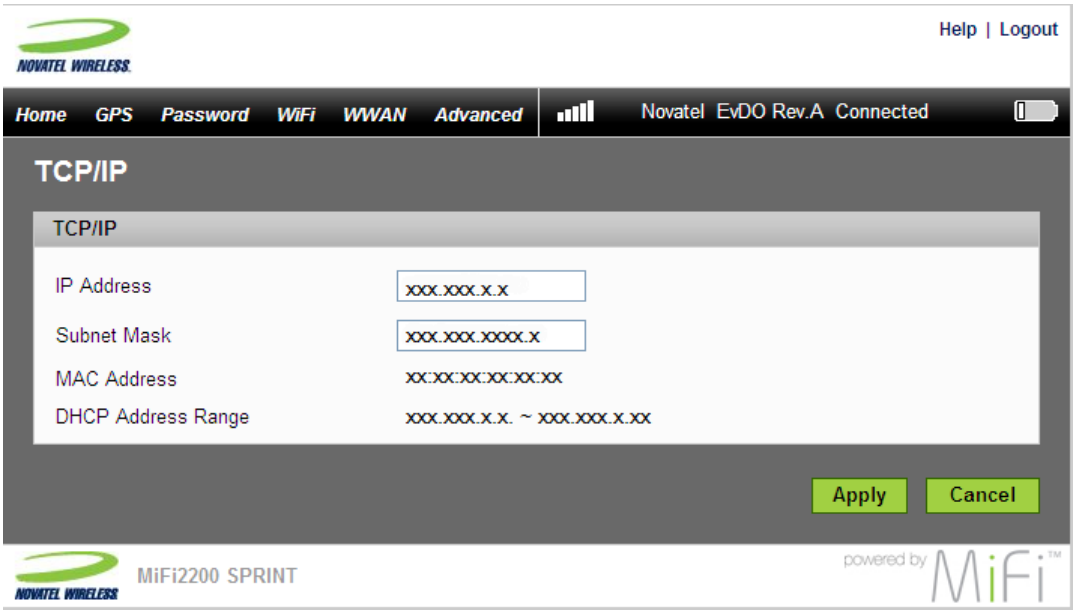
1. From the Power Management page, select the Disable LEDs check box to disable or clear the check box to enable your MiFi device's LEDs.

   NOTE The Disable LEDs option turns off all LEDs except for critical errors and low battery.

2. In the AC Power section, click the time that elapses before your MiFi device switches to low-power mode when not in use (2 to 60 minutes) or click **Never** to disable this feature when on AC power.
3. In the Battery Power section, click the time that elapses before your MiFi device switches to low-power mode when not in use (2 to 60 minutes), and the time before your MiFi device will shut down (2 to 60 minutes); or click **Never** to disable either or both of these features when your MiFi device is on battery power.
4. Click **Apply**.

TCP/IP

The TCP/IP page allows you to view the local (WLAN) IP address and the MAC address for your MiFi device.



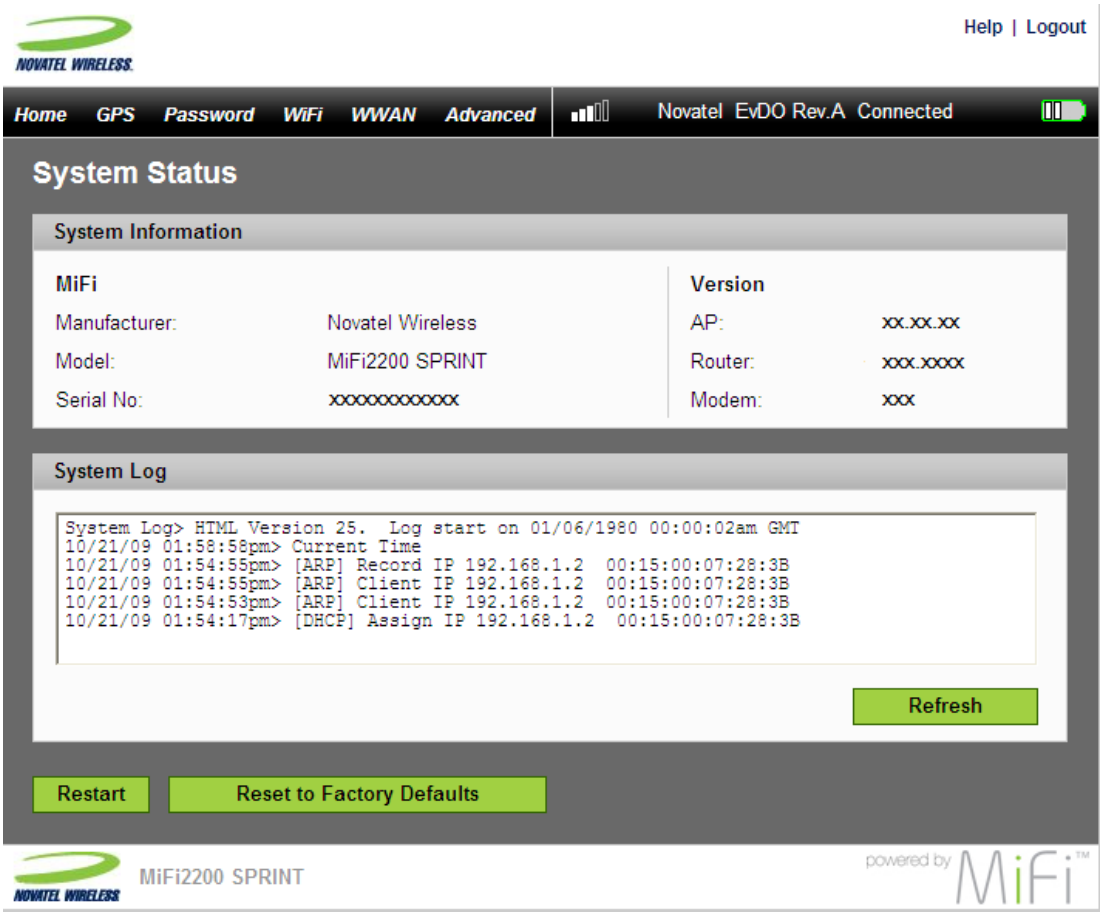
From the Advanced menu, click **TCP/IP** to display the following information about your MiFi device:

- Local IP address
- Subnet mask
- MAC address of your MiFi device
- DHCP address range used by your MiFi device's DHCP server

The IP address and subnet mask can be changed by entering new numbers and clicking **Apply**. If you have devices on your network with local static IP addresses, those addresses should not be within the DHCP range.

System Status

The System Status page allows you to view real-time system information and the system log, and to restart your MiFi device or restore it to factory defaults.



From the Advanced menu, click **System Status** to display the following information about your MiFi device:

- Manufacturer
- Model
- Serial number
- AP (access point) version
- Router version
- Modem version
- System log (if enabled)

Restarting or Resetting Your MiFi Device

In addition to viewing status information, you can restart your MiFi device or reset it to factory defaults from the System Status page.

- Click **Restart** to re-initialize your MiFi device (same as turning it off and on again).

  – or –

- Click **Reset to Factory Defaults** to reset your MiFi device Wi-Fi settings to the original state they were in at the time of purchase.

IMPORTANT After executing either step you may lose your connection and have to reconnect, and after clicking **Reset to Factory Defaults** you will need to rerun the startup wizard and reset your security.

4

Troubleshooting

Overview
Common Problems and Solutions
Use the Master Reset Button
Technical Support

Overview

The following tips will help solve problems that might be encountered while using the MiFi 2200 device:

- Make sure you are using the MiFi 2200 device in the correct geographic region.
- Ensure that the wireless network's coverage extends to your current locations.
- If you are using the MiFi device in USB Modem Mode, simply unplugging and replugging in the USB cable can resolve many issues.
- If you are using the MiFi device in Wi-Fi Mode, power it off and then on again.

When properly installed, the MiFi 2200 device is a highly reliable product. Most problems are caused by one of these issues:

- System resources required by the MiFi 2200 device are being used by other devices. (Rebooting your computer will often clear this up.)
- Network coverage is not available (either because you are outside the coverage area of your network operator or because of an account or network problem).

Common Problems and Solutions

The following are some common problems and solutions.

No service is available.
- OR -
I get a "Limited or No Connectivity" message.

- ➤ You are outside of the coverage area.
- ➤ Check with your network operator — there may be a problem with your account.
- ➤ Reorient the MiFi device.
- ➤ If you are inside a building or near a structure that may be blocking the signal, change the position or location of the device. For example, try moving the MiFi device close to a window.

The device has no power.

The LED indicator is off and does not come on when the Power button is pressed.

- ➤ Ensure the battery is properly seated in the device.
- ➤ Ensure the battery is fully charged. Plug in the wall charger for at least 2.5 hours.

My MiFi device powered off once I plugged it into the wall charger.

This can occur if power settings are activated after it is plugged in.

- ➤ Press the power button to turn it back on.

My MiFi device just powered off without my pressing the power button.

This can occur in the following situations.

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

- ➤ Press the power button to turn it back on.

I forgot my password.

- ➤ You can reset the device to factory defaults using the Master Reset button. [See Use the Master Reset Button (page 58).]

I cannot connect to the MiFi device in Wi-Fi mode.

❶ Make sure the LEDs are on.

If the LEDs are not on, check your battery.

❷ Make sure your wireless radio / AirPort is turned on. (Check your computer help if you need assistance.)

❸ Open your wireless network connection list.

- Windows: Right-click icon and select **View Available Networks.**
- Mac: Pull down list from AirPort icon.

❹ Select the MiFi 2200 device network name (in Windows, click **Connect**).

When the MiFi device is connected to the network, the status LED begins to blink.

My network does not appear in the wireless network list.

➤ Verify that the MiFi device LEDs are on and are not showing an error condition. [See LED States (page 9).]

➤ Refresh your network list.

- Windows: Click **Refresh Network List** on the left side of the Wireless Network Connection screen. If that does not work you can try the following:
  1. Open **Network Connections.**
  2. Right-click **Wireless Network Connection** and select **Properties.**
  3. Click the **Wireless Networks** tab.
  4. Delete any unused wireless connections from the Preferred Networks list and click OK.
  5. Restart your computer.
- Mac: Try rebooting your computer.

I get a message that MobiLink 3 cannot be installed when I try to use the MiFi device in USB Modem mode.

➤ You might not have administrative privileges. Contact your system administrator or log on to your computer as an administrator and try plugging it in again.

How do I disconnect from the network?

➤ Wi-Fi Mode:

- Use your computer network manager.
  -OR-
- Login to the MiFi device Settings and click **Disconnect.**
  1. Open your web browser and enter **http://192.168.1.1** into the address window.
  2. Then retype your administrative password into the login window and click **Login.**
  3. Click the **Disconnect** button.

➤ USB Modem Mode (Windows):

- Right-click the status icon in the notification area and select **Disconnect.**

➤ USB Modem Mode (Mac):

- Click the status icon in the menu bar and select **Disconnect.**

How can I find out how many users are connected to the MiFi 2200 device?

Open the MiFi device Settings (http://192.168.1.1). The number of devices (users) currently connected to the MiFi device is in the WLAN section at the botton of the screen.

Can I use the MiFi device as a tethered modem with my computer?

Yes. Simply plug it in with the microUSB cable and use the MobiLink software.

How can I check the battery level of the MiFi device?

Open the MiFi device Settings (http://192.168.1.1). The battery status icon is displayed in the menu bar.

Can I backup my configuration settings?

Yes. Login to the MiFi device Settings and choose **Advanced>Config File.** Click **Download File.**
[See Config File (page 45).]

How do I turn off my MiFi device?

Press and hold the Power button for 5 seconds until the LEDs turn off.

What is the default administrative/login password?

"admin"

I am having trouble connecting to my office VPN.

Login to the MiFi device Settings and choose **Advanced>Settings.** Select the VPN Passthrough enable checkbox and click **Apply.** [See Advanced Settings (page 42).]

Use the Master Reset Button

The MiFi 2200 device comes with a Master Reset button that allows you to return it to its factory default state.

The Master Reset button is recessed in a hold on the back of the device. You will need a paperclip or similar object to push the button.

1. Make sure the MiFi device is powered on.
2. Locate the Master Reset button on the back of the device.
3. Insert a paperclip into the hole and hold the button down for 15 seconds until the Power LED goes off.

   Your list of wireless networks will now show the original default network when you first configured your device.
4. Connect to MiFi device again.

Technical Support

For additional information and technical support for MobiLink and the MiFi 2200 device, visit the Novatel Wireless website at:

http://www.novatelwireless.com

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Technical Information

Product Specifications
Regulatory Notices
Safety Hazards
Limited Warranty and Liability

Product Specifications

General

Name	Novatel Wireless MiFi 2200 device
Model	MiFi 2200
Approvals	COFETEL, NOM, CDG
Weight	58 g / 2.05 oz
Dimensions (W x D x H)	59 mm x 9 mm x 89 mm
Wireless Network — Dual Mode	CDMA 1X/EV-DO
Wireless Network — Wi-Fi Mode	802.11 b/g
Default SSID	Novatel MiFi2200 (plus the last 4 digits of the MAC address)
Battery	
Size	1150 mAh
Time to full charge: AC Charger	2.5 hrs (when not in use)
Time to full charge: computer USB cable	7-8 hrs (when not in use)
LED	Two: Power and 3G indicators
Chip Set	QUALCOMM™ MDM6085
Interface Type	Type A USB Port for computer microUSB for device (cable included)

CDMA Technology/Bands

Technology	CDMA Rev A, Rev 0, 1XRTT
Band Designation	800/1900 MHz
Transmit Band	824.7 – 848.31 MHz / 1851.25 – 1908.75 MHz
Receive Band	1851.25 – 1908.75 MHz / 1931.25 – 1988.75 MHz

Environmental

Operating Temperature	-10° C to 45° C (14° F to 113° F)
Storage Temperature	-20° C to 65° C (-4° F to 149° F)
Drop	3.28 feet drop, no damage—fully operational
Vibrational Stability	5 Hz to 500 Hz, 0.1 octave/second

Regulatory Notices

CE Marking

This device has been tested to and conforms to the essential regulatory requirements of the European Union R&TTE directive 1999/5/EC and has attained CE Marking.

CE 0682

Federal Communications Commission Notice (FCC – United States)

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. 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 2200 IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT NOVATEL WIRELESS TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

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

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 may void your authority to operate the equipment.

RF Exposure

FCC Equipment Authorization ID: PKRNVWMIFI2200

This device is only authorized for use in Mobile applications. At least 8 inches (20 cm) of separation between the antenna and the user's body must be maintained at all times.

Safety Hazards

Do not use your MiFi 2200 device in an environment that may 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 MiFi device (or the host device and remove the modem from the USB port) when instructed to do so, or when you suspect that it may cause interference or danger.

Where explosive atmospheres may be present

- Do not operate your modem in any area where a potentially explosive atmosphere may 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 modem 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 or life support equipment

Do not operate your MiFi 2200 device in any area where medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The MiFi 2200 device may 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 MiFi device is powered off (if in USB mode, your MiFi device is removed from the USB port) prior to boarding aircraft in order to comply with these regulations. The MiFi 2200 device 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.

SAR Levels

The FCC has granted an Equipment Authorization for this wireless modem with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines.

Proper Battery Use and Disposal

IMPORTANT!

In the event of a battery leak:

- Do not allow the liquid to come in contact with the skin or the eyes. If contact is 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.

Contact your local recycling center for proper battery disposal

Guidelines for Safe and Responsible Battery Use

- Never dispose of batteries in a fire because they might explode.
- Do not disassemble or open, crush, bend or deform, puncture, or shred.
- Do not modify or remanufacture, attempt to insert 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 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.

Limited Warranty and Liability

Novatel Wireless 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 nonconformity's 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.

6

Glossary

Glossary

Glossary

- **3G** — Third Generation. 3G refers to the third generation of mobile telephony technology. The evolution of 3G technology is as follows:

  GSM technologies
  - » GPRS offered speeds up to 48.8 Kbps (began in 2000).
  - » EDGE reached up to 384 Kbps (2003).
  - » WCDMA offered downlink speeds up to 1.02 Mbps.
  - » UMTS supports a theoretical data transfer rate of 21 Mbps.
  - » HSUPA offered uplink speeds up to 5.76 Mbps and downlink speeds up to 7.2 Mbps.
  - » HSDPA boosted downlink to 14 Mbps (in 75 countries 2007)
  - » HSPA+ increased uplink speeds to 11 Mbps and downlink speeds to 42 Mbps.
  - » LTE Evolved UMTS Terrestrial Radio Access is aiming for 100 Mbps (specifications completed 2008).

  CDMA technologies
  - » 1xRTT offered speeds up to 144 Kbps (2002).
  - » EV-DO increased downlink speeds up to 2.4 Mbps (2004).
  - » EV-DO Rev A boosted downlink speeds to 3.1 Mbps (2006).
  - » EV-DO Rev B can use 2 to 15 channels with each downlink peaking at 4.9 Mbps.
  - » Ultra Mobile Broadband was slated to reach 288 Mbps but operators might switch to LTE instead.

- **802.11 (b, g, n)** — A set of WLAN communication standards in the 2.4, 3.6 and 5 GHz frequency bands.
- **Access Point** — A device that allows wireless communication devices to connect to a wireless network using a standard such as Wi-Fi.
- **APN** — Access Point Name. The APN is an alphanumeric string that identifies the particular network service that is being accessed. These are used by GPRS and UMTS networks.
- **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.
- **Computing Device —** Any of a variety of computer-like devices (for example, desktop computer, laptop, tablet PC, smart phone, and PDA).
- **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.
- **EDGE** — Enhanced Data for GSM Environment or Enhanced Data rates for Global Evolution. A faster version of GSM wireless service, it allows data to be delivered at rates of 384 Kbps and enables the delivery of multimedia and other broadband applications. EDGE became available in 2001.
- **ESN** — Electronic Serial Number. A unique 32-bit number embedded in a wireless device that identifies the device.
- **ExpressCard** — PCMCIA's hardware standard for high-performance expansion of notebook computers. Intended to replace the PC Card (formerly PCMCIA card) standard.
- **Firewall** — A hardware or software boundary that protects a network or single computer from unwanted outside traffic.
- **Firmware** — A computer program embedded in an electronic device. Firmware usually contains operating code for the device.
- **FTP** — File Transfer Protocol. A network protocol for exchanging files over a TCP network.
- **Gateway** — A network point that acts as an entrance to another network that uses a different protocol.
- **GPRS** — General Packet Radio Services. A system used by GSM mobile phones for transmitting IP packets. It also provides support for WCDMA based 3G networks.
- **GSM** — Global System for Mobile communication. A digital mobile telephony system widely used in Europe and other parts of the world. GSM was first launched in 1991 and is the most widely used of the three digital wireless telephony technologies (TDMA, GSM, and CDMA). GSM uses a variation of TDMA.
- **GPS** — Global Positioning System. A radio-based navigation system that allows users to determine their location. The device uses satellite data to calculate its position. Commonly used in mapping and navigation systems.
- **Host Name** — The unique name by which a network-attached device is known on a network.
- **Hotspot** — A Wi-Fi (802.11) access point or the area covered by an access point. Used for connecting to the Internet.
- **Hot-Swappable** — The ability to safely remove and replace a component (for example, a memory card or USB device) from a device or computer while it is powered on.
- **HSDPA** — High Speed Downlink Packet Access. HSDPA is an enhanced version of WCDMA that supports broadband connections with download speeds up to 7.2 Mbps. This enhanced 3G technology enables the download of high-bandwidth multimedia files, high resolution graphics, and other complex files, and allows viewing email attachments at broadband-like speeds.
- **HSPA** — High Speed Packet Access. A family of 3G services that is available to GSM carriers. It is a major enhancement from WCDMA.
- **HSPA+** — HSPA Evolution or HSPA Evolved. A 3G mobile telephony protocol with up-link speeds up to 11 Mbps and downlink speeds up to 42 Mbps.
- **HSUPA** — High Speed Uplink Packet Access. A 3G mobile telephony protocol with up-link speeds up to 5.76 Mbps and downlink speeds up to 7.2 Mbps.

- **HTTP** — Hypertext Transfer Protocol. An application-level protocol for accessing the World Wide Web over the Internet.
- **IEEE —** Institute of Electrical and Electronics Engineers. An international technical/professional society that promotes standardization in technical disciplines.
- **IMAP** — Internet Message Access Protocol. An Internet standard protocol for email retrieval.
- **IMSI** — International Mobile Subscriber Identity. Used in GSM networks to identify the subscriber Usually embedded in the SIM.
- **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 set of enhancements to UMTS (moving toward 4G) that will provide high throughput, low latency, plug and play and seamless connection to existing networks such as GSM, cdmaOne, etc.
- **MAC Address** — Media Access Control. A number that uniquely identifies each network hardware device. MAC addresses are 12-digit hexadecimal numbers.
- **MEID** — Mobile Equipment IDentifier. A globally unique number for a physical piece of mobile station equipment.
- **Mbps** — Megabits per second.
- **microSD / microSDHC** — A small, removable flash memory card available in various storage sizes. Some products have a slot that allows them to utilize this external memory.
- **MSID** — Mobile Station IDentifier. A number for a mobile phone that identifies that phone to the network. These numbers are carrier specific.
- **MSL** — Master Subsidy Lock. A numeric code for accessing certain phone settings.
- **NAI** — Network Access Identifier. A standard way of identifying users who request access to a network.
- **NDIS** — Network Driver Interface Specification. NDIS is a Windows specification for how communication protocol programs (such as TCP/IP) and network device drivers should communicate with each other.
- **Network Mask** — A number that allows IP networks to be subdivided for security and performance.
- **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 GSM, HSPA, CDMA, EDGE, and EVDO.
- **NNTP** — Network News Transfer Protocol. An Internet application protocol for reading and posting Usenet (newsgroup) articles.
- **PC Card** — PCMCIA's hardware standard for peripheral devices for laptop computers. Superseded by the ExpressCard.
- **PCMCIA** — Personal Computer Memory Card International Association. An international standards organization of industry-leading companies for the definition of personal computer peripheral device standards.
- **PDA** — Personal Digital Assistant. A handheld device used for organization, notes, address books, etc.
- **POP** — Post Office Protocol. An Internet protocol for retrieving email from a remote server over a TCP/IP connection.
- **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.
- **Protocol** — A standard that enables connection, communication, and data transfer between computing endpoints.
- **PPP** — Point-to-Point Protocol. A method of connecting a computer to the Internet.
- **PPTP** — Point-to-Point Tunneling Protocol. A method for implementing virtual private networks that does not provide confidentiality or encryption but relies on the tunneling process for security.
- **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.
- **PUK code** (Pin Unlock Key) — A PUK is required when you enter an incorrect PIN 3 times. After entering the wrong PIN 3 times, the SIM card is disabled.
- **RAS** — Remote Access Service. A Windows NT/2000 Server feature that allows remote users access to the network from their Windows laptops or desktops via modem.
- **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.
- **RFB** — Remote Frame Buffer. A protocol for remote access to graphical user interfaces.
- **Router** — A device that directs traffic from one network to another.

- **RTP** — Real-time Transport Protocol. A packet format for streaming multimedia over the Internet.
- **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.
- **SMS** — Short Message Service. A service for sending short messages of up to 160 (224 in 5-bit mode) characters to mobile devices. SMS is also known as text messaging.
- **SMTP** — Simple Mail Transfer Protocol. An Internet standard for email transmission across IP networks.
- **SSID** — Service Set IDentifier. The name assigned to a Wi-Fi network.
- **TCP** — Transmission Control Protocol. A core protocol for transmitting and receiving information over the Internet.
- **TCP/IP** — Transmission Control Protocol/Internet Protocol. The set of communications protocols used for the Internet and other similar networks.
- **Telnet** — Telecommunication Network. A network protocol used on the Internet or on local area networks.
- **TFTP** — Trivial File Transfer Protocol. A file transfer protocol with a subset of FTP functionality.
- **UA** — User Agent. Any device or software used to access a web page. A user agent might be a web browser, a smart phone, or a screen reader.
- **UDP** — User Datagram Protocol. A simple transport protocol used to transfer information on the Internet.
- **UI** — User Interface. The part of a software application or hardware device that a user sees and interacts with.
- **UMTS** — Universal Mobile Telecommunications Service. A third-generation broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 Mbps. UMTS offers a consistent set of services to mobile users all over the world. UMTS is based on the GSM standard. Until UMTS is fully implemented, users can use multi-mode devices that switch to currently available technology.
- **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).
- **USSD** — Unstructured Supplementary Service Data. A service found in HSPA/GSM networks that allows the user to retrieve information or implement certain types of call services.
- **VNC** — Virtual Network Computing. A graphical desktop sharing system that uses the RFB protocol to remotely control another computer.
- **VPN** — Virtual Private Network. A secure private network that runs over the public Internet. Commonly used to connect to an office network from elsewhere.
- **VPN Passthrough** — A feature that allows a client to connect to a VPN server.

- **WAN** — 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).
- **WCDMA** — Wideband Code-Division Multiple Access. A 3G mobile wireless technology that promises much higher data speeds to mobile and portable wireless devices. Another name for UMTS.
- **WEP** — Wired Equivalent Privacy. An IEEE standard security protocol for 802.11 networks. Superseded by WPA and WPA2.
- **Wi-Fi** — Wireless Fidelity. Any system that uses the 802.11 standard developed and released in 1997 by the IEEE.
- **Wi-Fi Client** — A wireless device that connects to the Internet via Wi-Fi.
- **WLAN** — Wireless Local Area Network. A typically low-power network that transmits a wireless signal over a span of a few hundred feet and usually only to stationary devices.
- **WPA/WPA2** — Wi-Fi Protected Access. A security protocol for wireless 802.11 networks from the Wi-Fi Alliance.
- **WWAN** — Wireless Wide Area Network. Wireless network technologies deployed over a large geographical area to a large number of users (see WLAN). This service is usually provided through cellular providers. WWAN connectivity allows a user with a laptop and a WWAN device to surf the Internet, check email, or connect to a virtual private network (VPN) from anywhere within the coverage area of the network operator.